# SR 520 Bridge Traffic and Revenue Study 2025 Report

**January 31, 2025**

Prepared for:

WSDOT Toll Division

Prepared by:

Stantec Consulting Services Inc.

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# EXECUTIVE SUMMARY

Stantec Consulting Services Inc. (“Stantec”) has been retained by the Washington State Department of Transportation (“WSDOT”) to conduct a Traffic and Revenue (“T&R”) study for the existing SR 520 bridge across Lake Washington near Seattle in the Central Puget Sound Region. The study includes forecasts of traffic and gross toll revenue potential for fiscal years (“FY”) 2025 through 2063.

WSDOT is making major enhancements to the SR 520 Bridge Replacement and HOV Program between I-5 and I-405. The bridge configuration assumptions are based on preliminary roadway configurations identified by WSDOT and are as follows:

- Between Montlake Boulevard and the west end of the main bridge span, the assumed configuration as of the May 2024 Forecast includes a new West Approach Bridge North connector and new West Approach Bridge South connector resulting in three lanes in each direction (two general-purpose and one inside transit/HOV3+ lane).
- Additionally, as of FY 2024, a one lane transit/HOV3+ reversible direct connector between SR 520 and the I-5 reversible express lanes running in the direction of the I-5 reversible lanes is completed but will not be operational until FY 2032 due to continued construction phasing in the area.
- Between I-5 and Montlake Boulevard, the assumed configuration as of FY 2032 will include a new Portage Bay Bridge resulting in three lanes in each direction (two general-purpose and one inside transit/HOV 3+ lane in each direction).

Table ES-1 shows the actual annual fiscal year toll transactions on SR 520 from FY 2013 through FY 2024. Annual toll transactions have increased from 20.2 million transactions in FY 2013, the first full year of toll operations, to a high of 26.5 million transactions in FY 2019 before the onset of the pandemic, a total increase of 6.3 million or about 31.2 percent. There were 20.1 million transactions in FY 2024, a 24 percent decrease from pre-pandemic high in FY 2019. It is notable, however, that several toll increases have taken place since 2019.

**Table ES-1: Historical Annual Toll Transactions and Gross Toll Revenues, FY 2013 to 2024**

| Fiscal Year | Total Transactions (millions) | Gross Toll Revenue (millions) |
|---|---|---|
| 2013 | 20.2 | $61.3 |
| 2014 | 21.0 | $64.6 |
| 2015 | 22.0 | $69.4 |
| 2016 | 23.2 | $74.8 |
| 2017 | 24.0 | $81.9 |
| 2018* | 25.8 | $90.3 |
| 2019 | 26.5 | $92.2 |
| 2020 | 20.9 | $72.1 |
| 2021 | 14.6 | $52.1 |
| 2022 | 19.3 | $64.0 |
| 2023 | 20.5 | $68.9 |
| 2024 | 20.1 | $79.4 |

*Prior to FY 2018, untolled trips between 11PM and 5AM were not included in the transaction total.
Source: Annual Toll Traffic & Revenue (T&R) Reports (https://www.wsdot.wa.gov/Tolling/520/Finance.htm)

The traffic and revenue forecasts for the SR 520 bridge have been prepared using the actual data collected and analyzed, the socioeconomic and land use data, and the modeling processes. Using all these data and the model, average weekday forecasts were prepared for 2025, 2030 and 2045. A spreadsheet-based post-processing model was then used to convert average weekday forecasts into annual traffic and revenue streams through the forecast horizon.

As part of the SR 520 Bridge Replacement and HOV Program, road closures due to construction are expected. WSDOT provided a schedule of these closures, as shown in Table ES-2. Traffic and revenue forecasts were adjusted to account for both the planned weekday and weekend day closures.

**Table ES-2: SR 520 Closure Assumptions, Weekday Night and Weekend Days, Amounts per Fiscal Year, Actual and Forecasted**

| FY | SR 520 Main Span | | Portage Bay Bridge | | Total | |
|---|---|---|---|---|---|---|
| | Weekday Night | Weekend | Weekday Night | Weekend | Weekday Night | Weekend |
| 2019 | 1.4 | 0.1 | 0.0 | 0.0 | 1.4 | 0.1 |
| 2020 | 2.0 | 1.0 | 0.0 | 0.0 | 2.0 | 1.0 |
| 2021 | 9.5 | 4.1 | 0.0 | 0.0 | 9.5 | 4.1 |
| 2022 | 6.0 | 2.0 | 0.0 | 0.0 | 6.0 | 2.0 |
| 2023 | 6.0 | 12.0 | 0.0 | 0.0 | 6.0 | 12.0 |
| 2024 | 13.6 | 22.0 | 0.0 | 0.0 | 13.6 | 22.0 |
| 2025 | 2.0 | 12.0 | 0.0 | 0.0 | 2.0 | 12.0 |
| 2026 | 0.0 | 0.0 | 45.0 | 4.0 | 45.0 | 4.0 |
| 2027 | 0.0 | 0.0 | 2.5 | 4.0 | 2.5 | 4.0 |
| 2028 | 0.0 | 0.0 | 2.5 | 5.0 | 2.5 | 5.0 |
| 2029 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 |
| 2030 | 0.0 | 0.0 | 30.0 | 2.0 | 30.0 | 2.0 |
| 2031 | 0.0 | 0.0 | 25.0 | 6.0 | 25.0 | 6.0 |
| **Total** | **40.5** | **53.3** | **105.0** | **23.0** | **145.5** | **76.3** |

The annual actual and forecasted toll transactions and gross toll revenue potential is shown in Table ES-3, along with the average revenue per toll transaction and The *Good to Go!* transaction share. Toll transactions are expected to increase from 21.2 million transactions in FY 2025 to 39.7 million transactions in FY 2063, an average annual increase of 1.8 percent per year. Gross toll revenue potential is expected to increase from $90.0 million in FY 2025 to $163.2 million in FY 2063, an average annual increase of 1.9 percent per year. The average toll rate is expected to decrease slightly over time, from $4.24 in FY25 after the August 15, 2024 toll increase to $4.11 as the *Good to Go!* share increases from 84.4 percent in FY 2025 to 86.8 percent by FY 2063.

**Table ES-3: Annual Actual and Forecasted Traffic and Gross Toll Revenue Potential, FY 2012 to 2063**

| Fiscal Year | Annual Toll Transactions | Annual Gross Potential Revenue | Avg. Revenue per Transation | *Good To Go!* Percentage Share |
|---|---|---|---|---|
| 2012*(1) | 9,600,000 | $28,100,000 | $2.93 | |
| 2013* | 20,220,602 | $61,301,711 | $3.03 | 83.6% |
| 2014* | 20,959,573 | $64,589,148 | $3.08 | 84.2% |
| 2015* | 22,019,771 | $69,383,209 | $3.15 | 83.7% |
| 2016* | 23,220,000 | $74,801,676 | $3.22 | 84.0% |
| 2017* | 23,974,779 | $81,913,285 | $3.42 | 84.5% |
| 2018*(2) | 25,785,356 | $90,349,101 | $3.50 | 87.6% |
| 2019* | 26,523,075 | $92,187,653 | $3.48 | 87.6% |
| 2020* | 20,886,032 | $72,122,698 | $3.45 | 87.4% |
| 2021* | 14,636,937 | $52,052,085 | $3.56 | 85.5% |
| 2022* | 19,284,221 | $63,958,480 | $3.32 | 85.5% |
| 2023* | 20,480,940 | $68,955,356 | $3.37 | 84.9% |
| 2024* | 20,102,033 | $79,366,145 | $3.95 | 84.2% |
| 2025(3) | 21,245,951 | $90,029,871 | $4.24 | 84.4% |
| 2026 | 22,830,000 | $94,901,000 | $4.16 | 84.9% |
| 2027 | 23,640,000 | $97,930,000 | $4.14 | 85.3% |
| 2028 | 24,280,000 | $100,550,000 | $4.14 | 85.7% |
| 2029 | 25,450,000 | $104,840,000 | $4.12 | 86.0% |
| 2030 | 26,170,000 | $107,880,000 | $4.12 | 86.0% |
| 2031 | 26,420,000 | $109,440,000 | $4.14 | 86.0% |
| 2032 | 30,200,000 | $123,790,000 | $4.10 | 86.4% |
| 2033 | 30,680,000 | $125,770,000 | $4.10 | 86.4% |
| 2034 | 31,160,000 | $127,740,000 | $4.10 | 86.5% |
| 2035 | 31,650,000 | $129,720,000 | $4.10 | 86.5% |
| 2036 | 32,120,000 | $131,690,000 | $4.10 | 86.6% |
| 2037 | 32,620,000 | $133,680,000 | $4.10 | 86.6% |
| 2038 | 33,100,000 | $135,650,000 | $4.10 | 86.6% |
| 2039 | 33,580,000 | $137,630,000 | $4.10 | 86.7% |
| 2040 | 34,070,000 | $139,610,000 | $4.10 | 86.7% |
| 2041 | 34,550,000 | $141,600,000 | $4.10 | 86.7% |
| 2042 | 35,030,000 | $143,580,000 | $4.10 | 86.8% |
| 2043 | 35,520,000 | $145,570,000 | $4.10 | 86.8% |
| 2044 | 36,010,000 | $147,560,000 | $4.10 | 86.8% |
| 2045 | 36,490,000 | $149,540,000 | $4.10 | 86.8% |
| 2046 | 36,860,000 | $151,040,000 | $4.10 | 86.8% |
| 2047 | 37,120,000 | $152,180,000 | $4.10 | 86.9% |
| 2048 | 37,330,000 | $153,040,000 | $4.10 | 86.8% |
| 2049 | 37,490,000 | $153,710,000 | $4.10 | 86.8% |
| 2050 | 37,630,000 | $154,360,000 | $4.10 | 86.8% |
| 2051 | 37,790,000 | $155,030,000 | $4.10 | 86.8% |
| 2052 | 37,950,000 | $155,700,000 | $4.10 | 86.9% |
| 2053 | 38,110,000 | $156,380,000 | $4.10 | 86.9% |
| 2054 | 38,260,000 | $157,040,000 | $4.10 | 86.9% |
| 2055 | 38,430,000 | $157,720,000 | $4.10 | 86.8% |
| 2056 | 38,590,000 | $158,400,000 | $4.10 | 86.8% |
| 2057 | 38,750,000 | $159,080,000 | $4.11 | 86.8% |
| 2058 | 38,920,000 | $159,760,000 | $4.10 | 86.8% |
| 2059 | 39,080,000 | $160,450,000 | $4.11 | 86.8% |
| 2060 | 39,240,000 | $161,140,000 | $4.11 | 86.9% |
| 2061 | 39,400,000 | $161,830,000 | $4.11 | 86.9% |
| 2062 | 39,570,000 | $162,530,000 | $4.11 | 86.8% |
| 2063 | 39,730,000 | $163,230,000 | $4.11 | 86.8% |

* Annual toll transactions and estimated actual potential gross toll revenue
(1) Tolling started on December 29, 2011, half-way through FY 2012
(2) Overnight tolling between the hours of 12am – 5am began in July FY 2018
(3) FY 2025 includes actual monthly data through September 2024

# 1 INTRODUCTION

Stantec Consulting Services Inc. ("Stantec") has been retained by the Washington State Department of Transportation ("WSDOT") to conduct a Traffic and Revenue ('T&R") study for the existing SR 520 bridge across Lake Washington near Seattle in the Central Puget Sound Region. The study includes forecasts of traffic and gross toll revenue potential for fiscal years 2025 through 2063.

## 1.1 STUDY PURPOSE

The purpose of this 2025 study is to update the future toll traffic and gross toll revenue potential forecasts based on the most recent data available to support ongoing SR 520 traffic and revenue needs after the final SR 520 bond sale. This effort has been conducted on an annual basis since 2012, first by CDM Smith while they served as Traffic Consultant to WSDOT for this facility, and by Stantec beginning in fall of 2017.

## 1.2 RELEVANT STUDY HISTORY

Stantec has been monitoring transaction and revenue data on the SR 520 Bridge regularly since 2017. As part of the budget monitoring process overseen by WSDOT, Stantec reviews transaction and potential revenue data versus forecasted transactions and potential revenue on a recurring monthly basis.

Over the past several years, several factors have contributed to significant changes in SR520 transactions and revenue. These include:

- construction activity along the corridor, and
- the COVID-19 Pandemic ("the pandemic") and related post-pandemic behavior changes.

The pandemic began while Stantec and WSDOT were in the process of finalizing the "SR 520 Bridge Traffic and Revenue Study 2019 Report" dated April 13, 2020 ("2019 Report" and "2019 Forecast"). Due to the unprecedented changes in traffic patterns related to the pandemic, Stantec's next annual forecast built off of the 2019 Forecast by layering on estimated Work-from-Home impacts to travel on SR 520 and assumptions regarding how long it would take for things to reach a "new normal". Given that the forecast was building upon the 2019 Forecast, Stantec prepared a supplemental Bringdown Letter explaining these new layers that was attached to the original 2019 Forecast, in lieu of preparing a standalone report while still in the midst of the pandemic.

Over the following four years, Stantec continued to monitor changes and recovery trends in SR 520 transactions and revenue, preparing additional bringdown letters to supplement the 2019 Report for the 2021 Forecast, 2022 Forecast, and 2023 Forecast.

A list of the Bringdown Letters and Forecasts prepared since 2019 follows:

- Bringdown Letter dated August 13, 2021 ("2021 Report" and "2021 Forecast")
- Bringdown Letter dated May 26, 2022 ("2022 Report" and "2022 Forecast")

- Bringdown Letter dated April 3, 2023 (“2023 Report” and “2023 Forecast”)

Stantec believes that changes in travel trends related to the pandemic, mainly increased Work-from-Home, have stabilized. This was reflected in the “SR 520 Bridge Traffic and Revenue Study 2024 Report” (“2024 Report”), which included the “2024 Forecast,” and was a standalone document.

This report, the “SR 520 Bridge Traffic and Revenue Study 2025 Report” (“2025 Report”), which includes the corresponding forecast (“2025 Forecast”), incorporates further updated traffic trends on SR 520.

Updates in the 2022 report included the changes that occurred that impact the SR 520 traffic and revenue forecasts such as:

- the impact of the pandemic on near-term and longer-term travel and land use,
- revisions to the toll schedule,
- revisions to the lane closure schedule, and
- changes to WSDOT’s back-office reporting of traffic by payment type.

Updates in the 2023 report included the changes that occurred that impact the SR 520 traffic and revenue forecasts such as:

- the impact of the pandemic on near-term travel, and
- revisions to the lane closure schedule.

Updates in the 2024 report included the changes that occurred that impact the SR 520 traffic and revenue forecasts such as:

- revisions to the construction phasing schedule and anticipated lane closure schedule,
- revisions to assumptions around construction impacts to traffic, based on trends in transaction data, and
- additional revisions to the toll schedule.

Updates in this report (the 2025 Report) include the changes that have occurred that impact the SR 520 traffic and revenue forecasts such as:

- a 10 percent tailored toll increase implemented August 15, 2024,
- updated construction closure schedule, and
- additional revisions to assumptions around construction impacts to traffic, based on trends in transaction data.

## 1.3 SUMMARY OF STUDY METHODOLOGY

The 2025 Forecast was developed using a base of historical transaction and revenue data through fiscal year (FY) 2024. These data were used in collaboration with a three-tiered modelling framework to work through future demand, toll diversion and travel behavior changes, and process these data points into a full traffic and revenue stream for the forecast horizon.

As the first step of this tiered process, Stantec utilized the Puget Sound Regional Council (“PSRC”) regional model, encompassing Seattle and much of the surrounding area. To produce updated estimates of average weekday traffic

demand for the SR 520 Bridge, the analysis was run with socioeconomic forecasts of land use for each model analysis zone.

As the second step in the process, Stantec used a customized Toll Diversion Model ("TDM") to analyze usage of the SR 520 bridge by time period, reflecting the variation in toll cost and traffic demand throughout the day. The TDM model was calibrated with 2018 data for the 2019 Forecast. This calibration was used as the basis for the TDM runs completed for this study, with additional changes to various aspects of the model such as the phasing of SR 520 improvements, assumed payment type splits, estimated commercial vehicle share, as well as the inclusion of reductions in demand to adjust for increased Work-from-Home-behavior and construction-related capacity impacts.

The third step in the development of the traffic and revenue forecasts was to feed the results of the TDM through a spreadsheet-based post-processing model that added in various assumptions to further refine the model outputs to match actual conditions on SR 520 observed in FY 2024. The post-processing included adjustments to convert average weekday estimates into annual traffic and revenue estimates for each model year and to interpolate between model years to create a full traffic and revenue stream through the forecast horizon.

## 1.4 ORGANIZATION OF THE REPORT

The remainder of this report is organized in the following chapters:

- Chapter 2.0 – Project Description and Historical Performance: This chapter describes the study corridor, its current configuration, and its role in the highway network. It also discusses the project history in terms of its configuration changes, and toll policy.
- Chapter 3.0 – SR 520 Traffic Characteristics: This chapter gives an overview historical traffic and revenue trends both crossing Lake Washington and specifically on SR 520.
- Chapter 4.0 – Socioeconomic Context and Travel Behavior Trends: This chapter describes the socioeconomic projections used to develop the traffic forecasts, and an assessment of the region's economy and future development in the study area.
- Chapter 5.0 – Model Approach: This chapter explains the modeling methodology used to produce the traffic and gross toll revenue potential forecasts. It includes a discussion of the regional travel demand model, the toll diversion model, and the spreadsheet-based post-processing model.
- Chapter 6.0 – Traffic and Gross Toll Revenue Potential Forecast: This chapter presents the long-range traffic and gross toll revenue potential forecasts for the SR 520 bridge, as well as the assumptions and methodology used to prepare the forecasts.

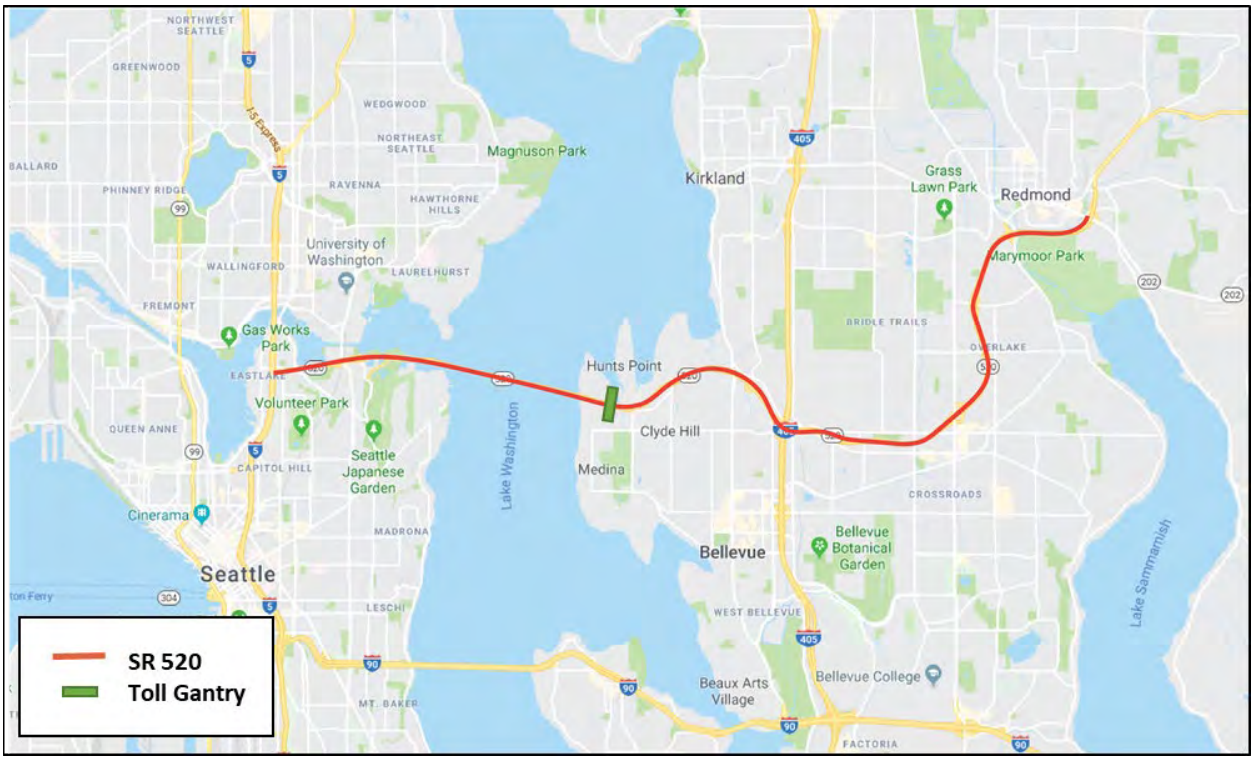
# 2 PROJECT DESCRIPTION AND HISTORICAL PERFORMANCE

This chapter provides an overview of the SR 520 project, as well as the description of the WSDOT's SR 520 Bridge Replacement and HOV Program, and details of the existing and future configuration of the facility, including construction related changes. The historical toll rates and traffic and gross toll revenue potential are also discussed.

## 2.1 PROJECT CORRIDOR

SR 520 extends about 13 miles between I-5 in the west, over Lake Washington, and SR 202 in the east. It has a major interchange with I-405 on the east side of the Lake. The facility provides a vital highway link between Seattle on the west side of Lake Washington and the eastside communities including Bellevue, Kirkland, and Redmond. Figure 2-1 shows the location of SR 520 in the Seattle area. Tolls in both directions for crossing the floating bridge portion of the facility crossing Lake Washington are collected on the east side of the bridge via electronic tolling.

**Figure 2-1: SR 520 Location Map**



## 2.2 SR 520 BRIDGE REPLACEMENT AND HOV PROGRAM

WSDOT is making major enhancements to the SR 520 Bridge Replacement and HOV Program between I-5 and I-405. The program is improving traffic safety by replacing SR 520's aging and vulnerable bridges, while making other key highway improvements to enhance public mobility and transportation options throughout the corridor. The portion of SR 520 that is part of the SR 520 Bridge Replacement and HOV Program is highlighted in Figure 2-2.

**Figure 2-2: SR 520 Bridge Replacement and HOV Program**

The bridge configuration assumptions assumed in this study are based on preliminary roadway configurations identified by WSDOT and are as follows:

- Between Montlake Boulevard and the west end of the main bridge span, the assumed configuration as of the November 2024 Forecast includes a new West Approach Bridge North connector and new West Approach Bridge South connector resulting in three lanes in each direction (two general-purpose and one inside transit/HOV3+ lane).
- Additionally, as of FY 2024, a one lane transit/HOV3+ reversible direct connector between SR 520 and the I-5 reversible express lanes running in the direction of the I-5 reversible lanes has been completed but is not operational until FY 2032 due to continued construction phasing in the area.
- Between I-5 and Montlake Boulevard, the assumed configuration as of FY 2032 will include a new Portage Bay Bridge resulting in three lanes in each direction (two general-purpose and one inside transit/HOV 3+ lane in each direction).

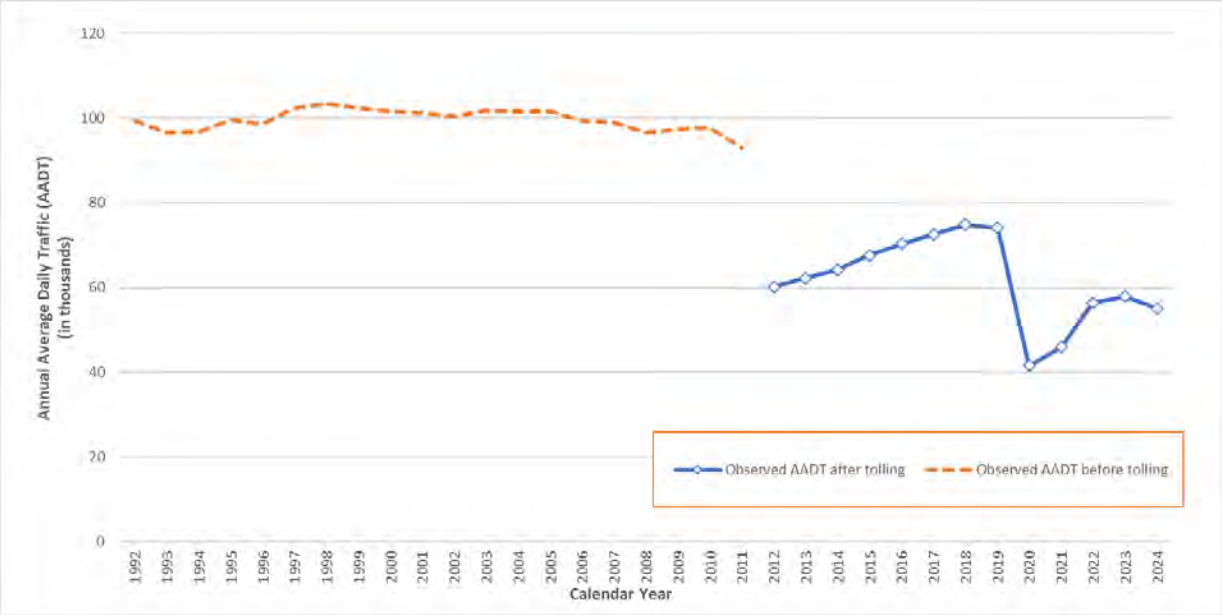
## 2.3 SR 520 BRIDGE TOLLING HISTORY

Tolling on the SR 520 Bridge began on December 29, 2011, half-way through FY 2012. There were toll increases every year between 2013 and 2018 until overnight tolling between the hours of 12am and 5am began in July FY 2018. In August 2021, the Commission adopted a 15 percent toll rate increase by time period on the SR 520 Bridge, which took effect on July 1, 2023. Additionally, a 10 percent tailored toll increase was implemented on August 15, 2024. The following sections present an overview of historical traffic, revenue and toll rates on the SR 520 Bridge.

### 2.3.1 Overview of Historical Traffic and Revenue

Figure 2-3 shows the historical two-way Average Annual Daily Traffic (“AADT”), by calendar year, on the SR 520 bridge. Official AADT data is available through 2023 and estimated for 2024. AADT is the Average Annual Daily Traffic and is equivalent to the total annual traffic (tolled and non-tolled) divided by the number of days in a given year. As shown, before tolling commenced, traffic was generally flat on SR 520; capacity constraints prevented traffic growth even though the region was growing in population and employment. Traffic did show a slight decrease in the late 2000’s during the recession and the subsequent prolonged economic recovery. As shown, traffic decreased by about 36 percent when tolling commenced in December 2011; this number represents an estimate of the percent traffic diversion due to the implementation of tolling. Traffic dropped roughly 45 percent in 2020 compared to the previous year due to the pandemic. As of 2023, traffic was still not fully recovered and remained around 20 percent below pre-pandemic traffic levels in 2019, while 2024 is estimated to be about 25% below pre-pandemic traffic levels.

**Figure 2-3: SR 520 Bridge Two-way AADT, CY 1992 to 2024**




Source: WSDOT Permanent Traffic Recorder Data
Note: 2024 data was estimated based on WSDOT Annual Toll Traffic & Revenue (T&R) Reports

Table 2-1 and Figure 2-4 show the annual fiscal year toll transactions on SR 520 from FY 2013 through FY 2023. Annual toll transactions have increased from 20.2 million transactions in FY 2013, the first full year of toll operations, to a high of 26.5 million transactions in FY 2019 before the onset of the pandemic, a total increase of 6.3 million or about 31.2 percent. Between FY 2017 and FY 2018, annual transactions increased by 7.6 percent, partially due to the start of overnight tolling at the start of FY 2018. Prior to overnight tolling, trips between the hours of 12AM and 5AM were not included in the toll transaction count. There were 20.1 million transactions in FY 2024, a 24 percent decrease from pre-pandemic high in FY 2019. FY 2024 transactions were roughly 2 percent lower than FY 2023 transactions due to a combination of factors including the July 2023 toll increase as well as some construction related operational issues that have since been partially mitigated. Revenue was 15 percent higher in 2024 versus 2023, due to a toll increase at the beginning of FY 2024.

**Table 2-1: Historical Annual Toll Transactions and Gross Toll Revenues, FY 2013 to 2024**

| Fiscal Year | Total Transactions (millions) | Gross Toll Revenue (millions) |
|---|---|---|
| 2013 | 20.2 | $61.3 |
| 2014 | 21.0 | $64.6 |
| 2015 | 22.0 | $69.4 |
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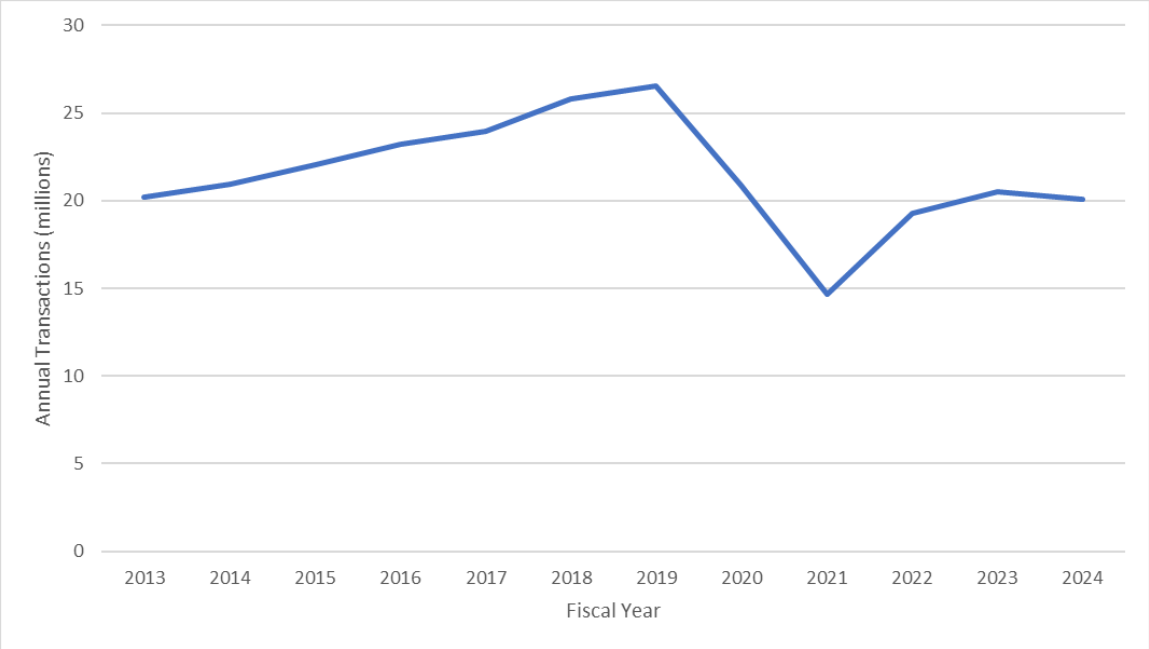
*Prior to FY 2018, untolled trips between 11PM and 5AM were not included in the transaction total.
Source: Annual Toll Traffic & Revenue ("T&R") Reports (https://www.wsdot.wa.gov/Tolling/520/Finance.htm)

**Figure 2-4: Historical SR 520 Bridge Two-way Toll Transactions, FY 2013 to 2024**

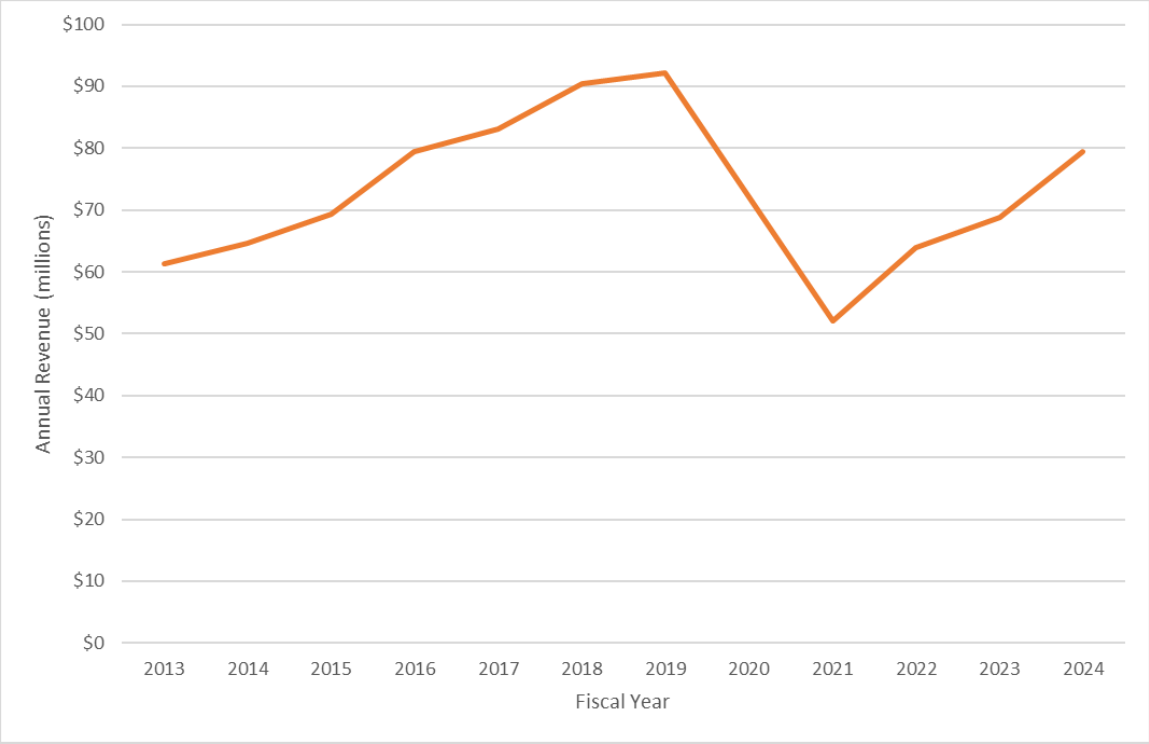



Prior to FY 2018, untolled trips between 11PM and 5AM were not included in the transaction total
Source: Annual T&R reports (https://www.wsdot.wa.gov/Tolling/520/Finance.htm)

Table 2-1, above, and Figure 2-5 show the annual gross toll revenues on SR 520, beginning FY 2013, the first full year of tolling. Annual toll revenues have increased from $61.3 million in FY 2013, to a high of $92.2 million in FY

2019 before the onset of the pandemic, a total increase of $30.9 million or about 50.4 percent. Between FY 2019 and FY 2024, annual gross toll revenue decreased by 14 percent. This large decrease was caused by the pandemic itself and long-term changes in driver behavior following the pandemic. While SR 520 gross toll revenue is still below FY 2019 revenue, there are signs of recovery as revenue increased 15 percent from FY 2023 to FY 2024. The revenue increase is also partially attributable to a toll increase in FY 2024.

**Figure 2-5: Historical SR 520 Bridge Two-way Reported Gross Toll Revenues, FY 2013 to 2024**




Prior to FY 2018, untolled trips between 11PM and 5AM were not included in the transaction total
Source: Annual T&R reports (https://www.wsdot.wa.gov/Tolling/520/Finance.htm)

## 2.3.2 Toll Rate History

Tolling on the original SR 520 bridge began in both directions on December 29, 2011, to supplement funding for the construction of the new floating bridge that opened in April 2016. Tolls vary by time of day and by weekday and weekend, but not by direction. Two primary toll payment methods are available: a *Good To Go!* prepaid account that detects the customer via a pass or license plate recognition; and Pay By Mail, in which the vehicle's registered owner's name and address are identified from the license plate and then mailed a toll bill. There is no cash toll collection. The Washington State Transportation Commission ("WSTC") has approved and implemented eight separate toll increases since tolling began in December 2011 (FY 2012). These increases commenced on July 1 (which is the start of each FY) of every year between 2013 and 2018, with another toll increase in FY 2024, and most recently on August 15, 2024 (FY 2025). Table 2-2 and Table 2-3 show the directional weekday *Good to Go!* and Pay By Mail passenger car toll schedules in effect from FY 2012 onward. Table 2-4 and Table 2-5 show the directional

weekend *Good to Go!* and Pay By Mail passenger car toll schedules in effect from FY 2012 onward. The weekday *Good to Go!* passenger car rates are also shown in Figure 2-6. Vehicles with more than two axles pay a higher pro-rated toll rate. As part of the FY 2025 toll increase, the amount of toll rate changes during the day decreased. Figure 2-7 and Figure 2-8 depict the Good to Go! rate changes between FY 2024 and FY 2025 for weekday and weekend, respectively.

**Table 2-2: SR 520 Weekday 2-Axle Toll Schedule – *Good to Go!* Rates, Each Direction, FY 2012 to Present**

| Time Period | 12:00 AM | 1:00 AM | 2:00 AM | 3:00 AM | 4:00 AM | 5:00 AM | 6:00 AM | 7:00 AM | 8:00 AM | 9:00 AM | 10:00 AM | 11:00 AM | 12:00 PM | 1:00 PM | 2:00 PM | 3:00 PM | 4:00 PM | 5:00 PM | 6:00 PM | 7:00 PM | 8:00 PM | 9:00 PM | 10:00 PM | 11:00 PM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FY 2012 | $0.00 | | | | | $1.60 | $2.80 | $3.50 | | $2.80 | $2.25 | | | | $2.80 | $3.50 | | | $2.80 | $2.25 | | $1.60 | | $0.00 |
| FY 2013 | $0.00 | | | | | $1.64 | $2.87 | $3.59 | | $2.87 | $2.31 | | | | $2.87 | $3.59 | | | $2.87 | $2.31 | | $1.64 | | $0.00 |
| FY 2014 | $0.00 | | | | | $1.70 | $2.95 | $3.70 | | $2.95 | $2.35 | | | | $2.95 | $3.70 | | | $2.95 | $2.35 | | $1.70 | | $0.00 |
| FY 2015 | $0.00 | | | | | $1.75 | $3.00 | $3.80 | | $3.00 | $2.40 | | | | $3.00 | $3.80 | | | $3.00 | $2.40 | | $1.75 | | $0.00 |
| FY 2016 | $0.00 | | | | | $1.80 | $3.10 | $3.90 | | $3.10 | $2.45 | | | | $3.10 | $3.90 | | | $3.10 | $2.45 | | $1.80 | | $0.00 |
| FY 2017 | $0.00 | | | | | $1.90 | $3.25 | $4.10 | | $3.25 | $2.55 | | | | $3.25 | $4.10 | | | $3.25 | $2.55 | | $1.90 | | $0.00 |
| FY 2018 | $1.25 | | | | | $2.00 | $3.40 | $4.30 | | $3.40 | $2.70 | | | | $3.40 | $4.30 | | | $3.40 | $2.70 | | $2.00 | | $1.25 |
| FY 2024 | $1.25 | | | | | $2.50 | $3.80 | $4.50 | | | $3.80 | $3.25 | | | $3.80 | $4.50 | | | | $3.80 | $3.25 | $2.50 | | $1.25 |
| FY 2025 | $1.35 | | | | | $2.75 | $3.95 | $4.90 | | | $3.95 | | | | | $4.90 | | | | $3.95 | | $2.75 | | $1.35 |

Note: Fiscal Year (FY) is defined as the 12-month period ending June 30 of that year. For example, FY 2013 refers to the 12-month period beginning July 1, 2012 and ending June 30, 2013.

**Table 2-3: SR 520 Weekday 2-Axle Toll Schedule – Pay By Mail Rates, Each Direction, FY 2012 to Present**

| Time Period | 12:00 AM | 1:00 AM | 2:00 AM | 3:00 AM | 4:00 AM | 5:00 AM | 6:00 AM | 7:00 AM | 8:00 AM | 9:00 AM | 10:00 AM | 11:00 AM | 12:00 PM | 1:00 PM | 2:00 PM | 3:00 PM | 4:00 PM | 5:00 PM | 6:00 PM | 7:00 PM | 8:00 PM | 9:00 PM | 10:00 PM | 11:00 PM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FY 2012 | $0.00 | | | | | $3.10 | $4.30 | $5.00 | | $4.30 | $3.75 | | | | $4.30 | $5.00 | | | $4.30 | $3.75 | | $3.10 | | $0.00 |
| FY 2013 | $0.00 | | | | | $3.18 | $4.41 | $5.13 | | $4.41 | $3.84 | | | | $4.41 | $5.13 | | | $4.41 | $3.84 | | $3.18 | | $0.00 |
| FY 2014 | $0.00 | | | | | $3.25 | $4.50 | $5.25 | | $4.50 | $3.95 | | | | $4.50 | $5.25 | | | $4.50 | $3.95 | | $3.25 | | $0.00 |
| FY 2015 | $0.00 | | | | | $3.35 | $4.60 | $5.40 | | $4.60 | $4.05 | | | | $4.60 | $5.40 | | | $4.60 | $4.05 | | $3.35 | | $0.00 |
| FY 2016 | $0.00 | | | | | $3.45 | $4.70 | $5.55 | | $4.70 | $4.15 | | | | $4.70 | $5.55 | | | $4.70 | $4.15 | | $3.45 | | $0.00 |
| FY 2017 | $0.00 | | | | | $3.90 | $5.25 | $6.10 | | $5.25 | $4.55 | | | | $5.25 | $6.10 | | | $5.25 | $4.55 | | $3.90 | | $0.00 |
| FY 2018 | $3.25 | | | | | $4.00 | $5.40 | $6.30 | | $5.40 | $4.70 | | | | $5.40 | $6.30 | | | $5.40 | $4.70 | | $4.00 | | $3.25 |
| FY 2024 | $3.25 | | | | | $4.50 | $5.80 | $6.50 | | | $5.80 | $6.70 | | | $5.80 | $8.30 | | | | $5.80 | $5.25 | $6.00 | | $3.25 |
| FY 2025 | $3.35 | | | | | $4.75 | $5.95 | $6.90 | | | $5.95 | | | | | $6.90 | | | | $5.95 | | $4.75 | | $3.35 |

Note: Fiscal Year (FY) is defined as the 12-month period ending June 30 of that year. For example, FY 2013 refers to the 12-month period beginning July 1, 2012 and ending June 30, 2013.

**Table 2-4: SR 520 Weekend 2-Axle Toll Schedule – *Good to Go!* Rates, Each Direction, FY 2012 to Present**

| Time Period | 12:00 AM | 1:00 AM | 2:00 AM | 3:00 AM | 4:00 AM | 5:00 AM | 6:00 AM | 7:00 AM | 8:00 AM | 9:00 AM | 10:00 AM | 11:00 AM | 12:00 PM | 1:00 PM | 2:00 PM | 3:00 PM | 4:00 PM | 5:00 PM | 6:00 PM | 7:00 PM | 8:00 PM | 9:00 PM | 10:00 PM | 11:00 PM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FY 2012 | $0.00 | | | | | $1.10 | | | $1.65 | | | $2.20 | | | | | | | $1.65 | | | $1.10 | | $0.00 |
| FY 2013 | $0.00 | | | | | $1.13 | | | $1.69 | | | $2.26 | | | | | | | $1.69 | | | $1.13 | | $0.00 |
| FY 2014 | $0.00 | | | | | $1.15 | | | $1.75 | | | $2.30 | | | | | | | $1.75 | | | $1.15 | | $0.00 |
| FY 2015 | $0.00 | | | | | $1.20 | | | $1.80 | | | $2.35 | | | | | | | $1.80 | | | $1.20 | | $0.00 |
| FY 2016 | $0.00 | | | | | $1.25 | | | $1.85 | | | $2.40 | | | | | | | $1.85 | | | $1.25 | | $0.00 |
| FY 2017 | $0.00 | | | | | $1.30 | | | $1.95 | | | $2.50 | | | | | | | $1.95 | | | $1.30 | | $0.00 |
| FY 2018 | $1.25 | | | | | $1.40 | | | $2.05 | | | $2.65 | | | | | | | $2.05 | | | $1.40 | | $1.25 |
| FY 2024 | $1.25 | | | | | $1.60 | | | $2.35 | | | $3.05 | | | | | | | $2.35 | | | $1.60 | | $1.25 |
| FY 2025 | $1.35 | | | | | $1.70 | | | $2.95 | | | | | | | | | | | | | $1.70 | | $1.35 |

### Table 2-5: SR 520 Weekend 2-Axle Toll Schedule – Pay By Mail Rates, Each Direction, FY 2012 to Present

| Time Period | 12:00 AM | 1:00 AM | 2:00 AM | 3:00 AM | 4:00 AM | 5:00 AM | 6:00 AM | 7:00 AM | 8:00 AM | 9:00 AM | 10:00 AM | 11:00 AM | 12:00 PM | 1:00 PM | 2:00 PM | 3:00 PM | 4:00 PM | 5:00 PM | 6:00 PM | 7:00 PM | 8:00 PM | 9:00 PM | 10:00 PM | 11:00 PM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FY 2012 | $0.00 | | | | | $2.60 | | | $3.15 | | | $3.70 | | | | | | | $3.15 | | | $2.60 | | $0.00 |
| FY 2013 | $0.00 | | | | | $2.67 | | | $3.23 | | | $3.79 | | | | | | | $3.23 | | | $2.67 | | $0.00 |
| FY 2014 | $0.00 | | | | | $2.75 | | | $3.30 | | | $3.90 | | | | | | | $3.30 | | | $2.75 | | $0.00 |
| FY 2015 | $0.00 | | | | | $2.80 | | | $3.40 | | | $4.00 | | | | | | | $3.40 | | | $2.80 | | $0.00 |
| FY 2016 | $0.00 | | | | | $2.85 | | | $3.50 | | | $4.10 | | | | | | | $3.50 | | | $2.85 | | $0.00 |
| FY 2017 | $0.00 | | | | | $3.30 | | | $3.95 | | | $4.50 | | | | | | | $3.95 | | | $3.30 | | $0.00 |
| FY 2018 | $3.25 | | | | | $3.40 | | | $4.05 | | | $4.65 | | | | | | | $4.05 | | | $3.40 | | $3.25 |
| FY 2024 | $3.25 | | | | | $3.60 | | | $4.35 | | | $5.05 | | | | | | | $4.35 | | | $3.60 | | $3.25 |
| FY 2025 | $3.35 | | | | | $3.70 | | | $4.95 | | | | | | | | | | | | | $3.70 | | $3.35 |

### Figure 2-6: SR 520 2-Axle Good to Go! Weekday Maximum Toll Rate History, Each Direction

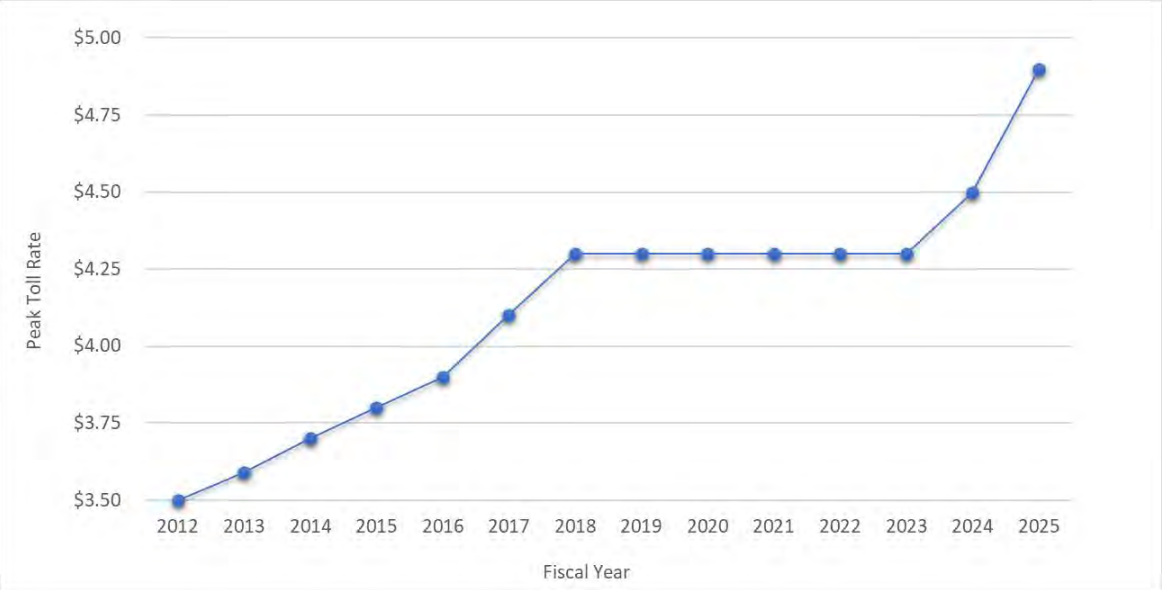


**Figure 2-7: FY 2024 vs FY 2025 Weekday Toll Rate Changes, 2-Axle Good To Go!**

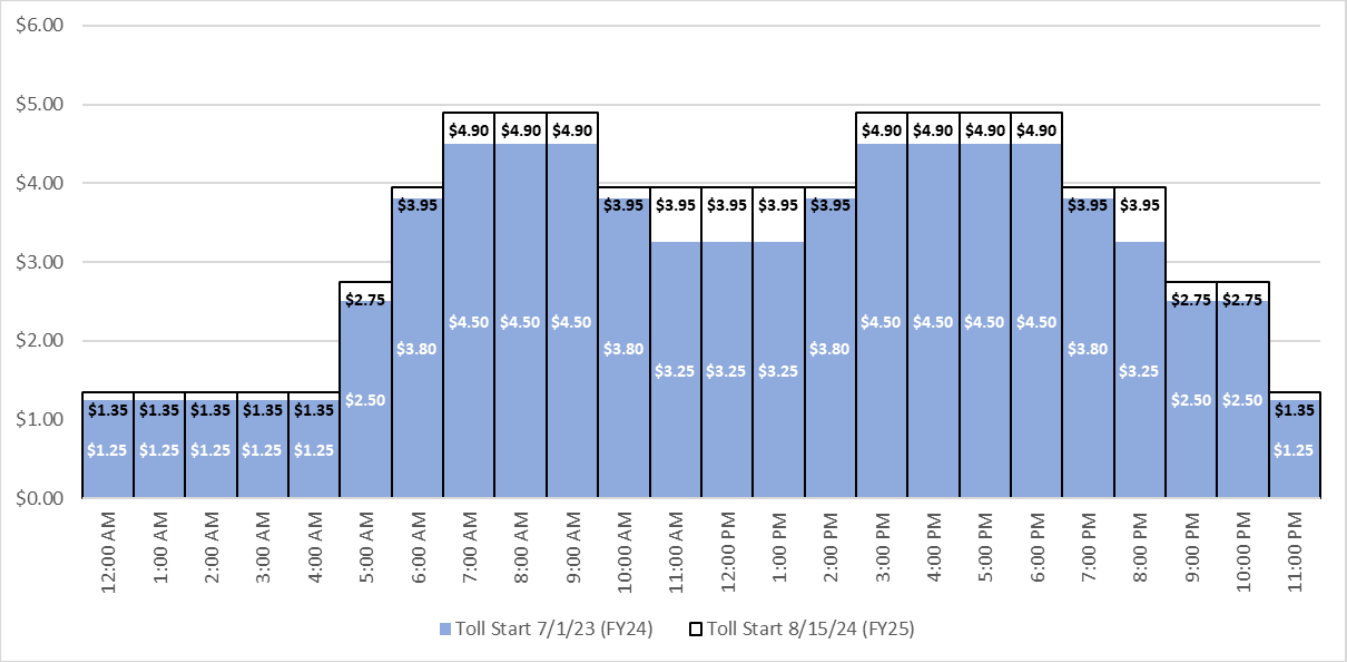
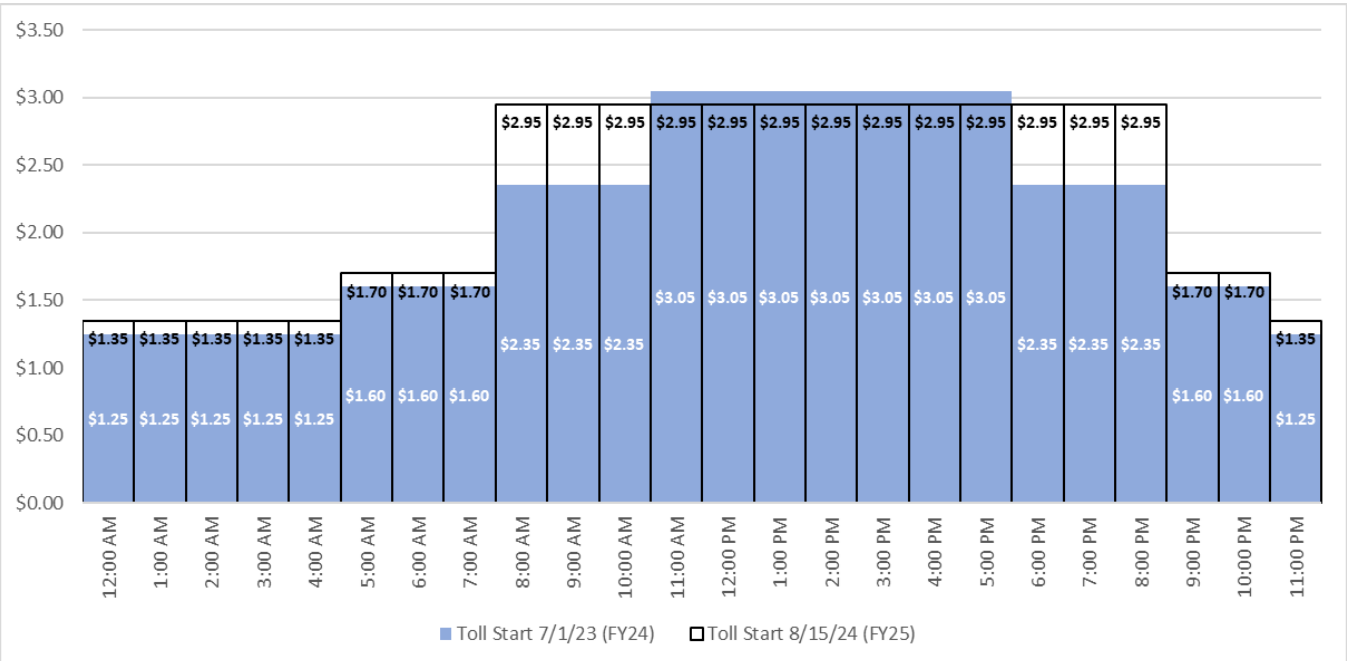



**Figure 2-8: FY 2024 vs FY 2025 Weekend Toll Rate Changes, 2-Axle *Good To Go!***



From FY 2013 through FY 2016, toll rates were increased by 2.5 percent per year; however, because rounding to the nearest $0.05 (nickel rounding) was instituted in FY 2014, the FY 2014 through FY 2016 growth in toll rates vary slightly; some toll rates show increases slightly lower than 2.5 percent while others show increases slightly higher than 2.5 percent. In FY 2017 and 2018, *Good to Go!* rates were increased by 5 percent. Again, the actual increases were slightly different than the 5 percent because tolls were rounded to the nearest nickel. Also beginning in FY 2017, the Pay By Mail rate is equal to the *Good to Go!* rate plus a $2.00 increment. The multi-axle vehicle toll rate is equal to the per-axle rate for 2-axle vehicles multiplied by the number of axles and then rounded to the nearest $0.05. The toll rate for a vehicle with more than six axles is the 6-axle vehicle rate. As shown, overnight tolling - between 11 PM and 5 AM - began in FY 2018 on both weekdays and weekends. FY 2024 had tailored toll increases in the daytime and evening roughly averaging 15 percent. In FY 2025, beginning August 15, 2024, a 10 percent tailored toll increases were implemented, which increased tolls 10 percent on average but did not apply uniformly to all hours.

The maximum *Good to Go!* 2-axle toll in the current toll schedule is $4.90, which is in effect on weekdays from 7 to 10 AM and from 3 to 7 PM, the peak commuting hours. During this toll increase, the AM and PM shoulder peak toll periods were expanded. The maximum weekend 2-axle *Good to Go!* toll is $2.95. This is a reduction from the former FY 2024 weekend 2-axle peak of $3.05. Overnight tolls on both weekdays and weekends are the lowest available toll rate by payment type: the *Good to Go!* 2-axle rate is $1.35.

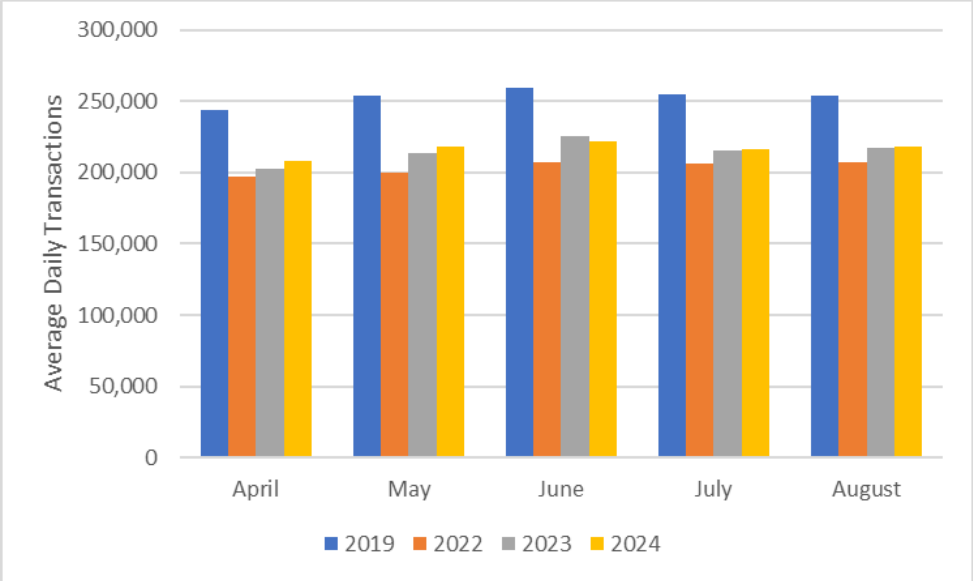
# 3 SR 520 TRAFFIC CHARACTERISTICS

In this chapter, observations of recent historical traffic across Lake Washington and on SR 520 are presented, detailed to hour, day of week, month, and year. Data were summarized from CDR loop data, Monthly Transaction Reports ("MTR"), and transaction summary data for FY 2019 (pre-pandemic), FY 2022, FY 2023, and FY 2024 (the most recent full fiscal year). These data were used in both the calibration and the evaluation of recent trends on the facility.

## 3.1 LAKE WASHINGTON VOLUMES

The SR 520 Bridge has a parallel competitor, I-90, that also provides travel across Lake Washington. Many of the trips that utilize SR520 could also choose to use I-90, and vice versa. Figure 3-1 presents a comparison of average weekday (Monday through Friday) trips by month on both SR 520 and I-90 combined, over the past several years, sourced from CDR loop data. This provides better context of potential "demand" for SR520 than transaction volumes on SR520 alone. The graph shows that combined crossings on these two bridges have shifted from FY 2019 (pre-pandemic) to FY 2022, FY 2023, and FY 2024. From 2019 through 2024, significant changes were seen in average daily traffic volumes throughout the world, as people adjusted to the presence of COVID-19. From 2023 to 2024 some small improvement in traffic volumes were observed, but total Lake Washington crossings have still not returned to pre-pandemic levels.

**Figure 3-1: Average Weekday Screen Line Volumes Compared By Month**




As the pandemic reduced overall lake crossings, the split between the two roadways also shifted. This is depicted in Figure 3-2. In FY 2019, prior to the pandemic, roughly 34 percent of Lake Washington crossings utilized SR 520. However, more recently, closer to 30 percent chose SR 520. This shift in screen line split away from SR 520 likely has several causes, the first of which is the fact that SR 520 is tolled while I-90 is a free road. Additionally,

construction activity on SR 520 over the past few years has likely made it a less appealing option than it would be under non-construction conditions.

**Figure 3-2: Screen Line Split SR 520 vs I-90**

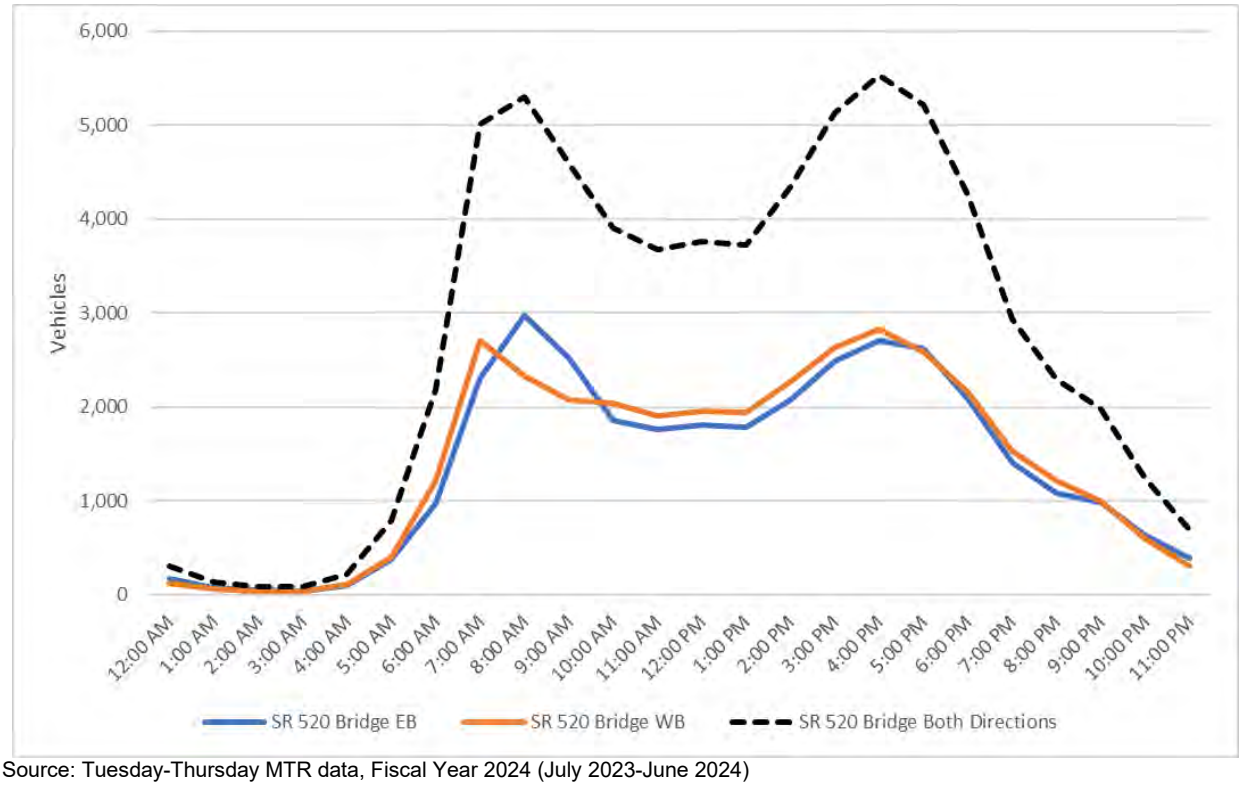

## 3.2 SR 520 BRIDGE TRAFFIC VOLUMES

SR 520 traffic and revenue data are reviewed on an ongoing basis. Hourly, daily, monthly, and annual data are analyzed to understand how traffic trends are evolving on SR 520.

### 3.2.1 Hourly Traffic Volumes on a Typical Weekday

MTR from the toll collection system was utilized to analyze hourly data. The typical hourly traffic over the SR 520 bridge was calculated by averaging the hourly traffic for Tuesday through Thursday for the full 2024 fiscal year. Figure 3-3 shows the traffic that traveled over the SR 520 bridge on an average weekday (Tuesday through Thursday) during FY 2024. As the graphs show, the morning traffic peaks around 8:00 AM in the eastbound direction with about 3,000 vehicles per hour. In the westbound direction, morning traffic also peaks around 7:00 AM, with roughly 2,700 vehicles per hour. In the afternoon, eastbound traffic peaks around 4:00 PM with about 2,700 vehicles. Westbound traffic also peaks around 4:00 PM, with roughly 2,800 vehicles per hour. AM and PM peak period volumes do not differ drastically by direction. In the westbound direction, the PM peak is slightly higher than the AM peak hour volume, while in the eastbound direction, the AM peak is somewhat higher than the PM peak hour volume. The bridge carries an average of 67,000 vehicles per average weekday, with approximately 33,000 vehicles travelling eastbound and 34,000 vehicles traveling westbound.

**Figure 3-3: Typical Tuesday to Thursday (Weekday) SR 520 Bridge Traffic, by Direction, FY 2024**

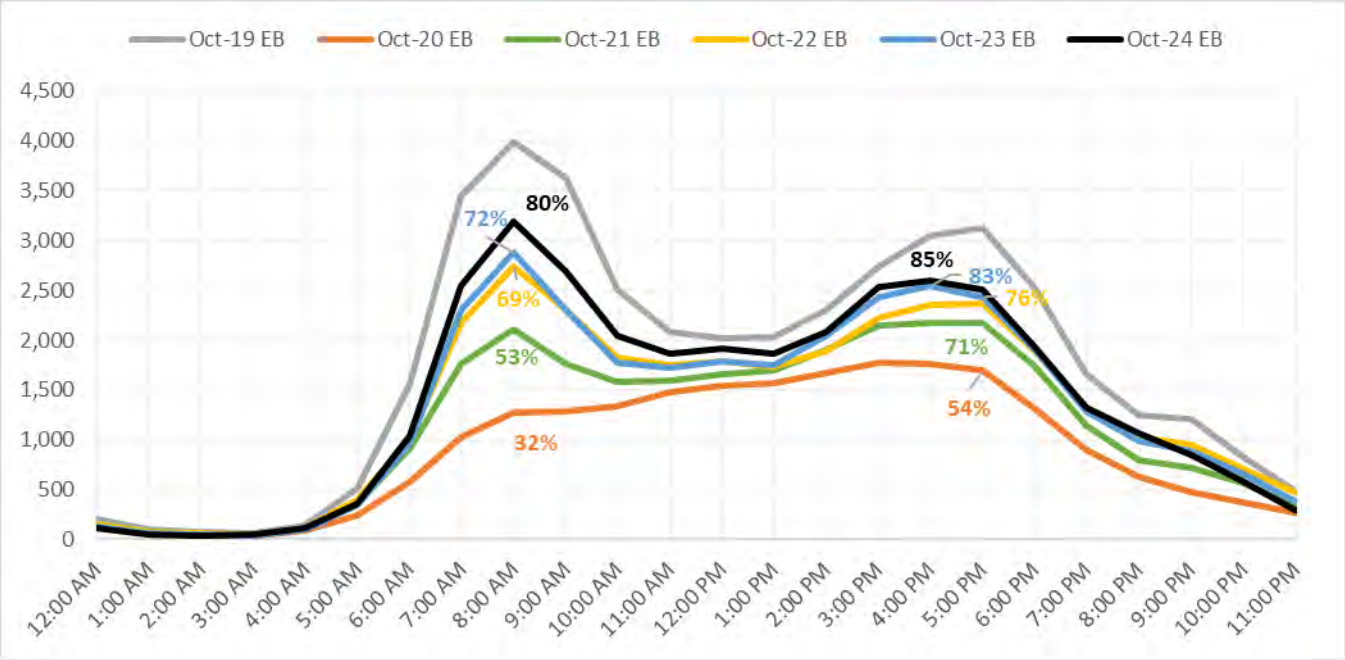



Source: Tuesday-Thursday MTR data, Fiscal Year 2024 (July 2023-June 2024)

With many daily commuters still working from home through FY 2024 and likely beyond, volumes during peak travel periods have flattened and are yet to recover to pre-COVID levels. Stantec believes that travel behavior changes related to the pandemic, mainly increased Work-from-Home activity, have stabilized.

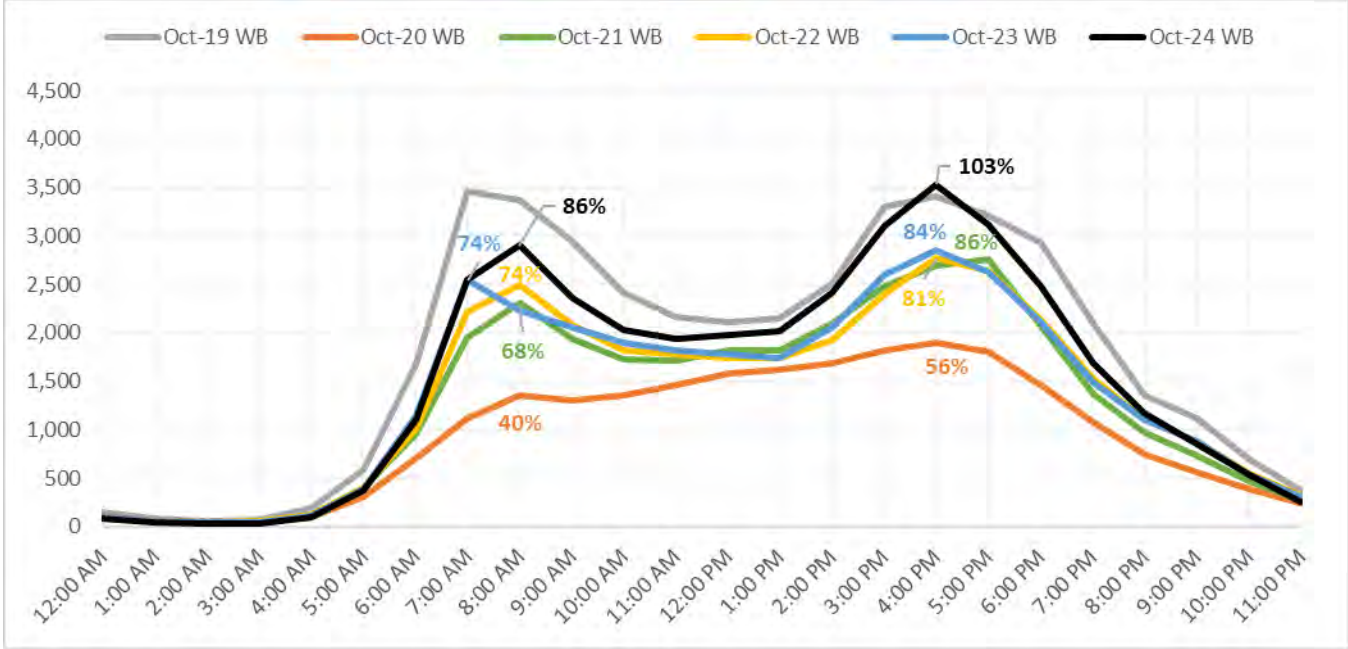
Figure 3-4 and Figure 3-5 show the average daily volumes for a typical weekday in the month of October for six years from 2019 to 2024. The percentages show the change in peak hour volume from pre-COVID levels in October 2019. In these figures, average weekday traffic is compared for October 2019, October 2020, October 2021, October 2022, October 2023, and October 2024 to show the changes in time-of-day travel and the recovery trend.

**Figure 3-4 SR 520 EB Average Weekday Hourly Traffic, October 2019 through 2024**




Note: Percentages represent hourly volume as a share of 2019 Baseline

**Figure 3-5 SR 520 WB Average Weekday Hourly Traffic, October 2019 through 2024**




Note: Percentages represent hourly volume as a share of 2019 Baseline

### 3.2.2 Toll Transaction Volumes by Day of the Week

Table 3-1 shows the total toll transaction data by day of the week for the month of May in FY 2019, FY 2022, FY 2023, and FY 2024. This summary represents unadjusted data with no adjustments for construction or weather-related impacts. Additionally, this comparison shows how traffic was distributed throughout the month of May by day of the week. Although the number of specific weekdays varies by year, 2019 and 2024 had a similar distribution, with one extra Wednesday and Thursday versus the other days of the week. Although Wednesday and Thursday made up a slightly larger share of monthly transactions in 2024 versus 2019, the absolute number of transactions in 2024 was much lower than the corresponding number of transactions in 2019.

**Table 3-1: SR 520 Bridge Total Toll Transactions by Day of the Week in May, FY 2019 to FY 2024**

| Day of Week | May 2019 - Transactions | | May 2022 - Transactions | | May 2023 - Transactions | | May 2024 - Transactions | |
|---|---|---|---|---|---|---|---|---|
| | Day Total | Percent of Month | Day Total | Percent of Month | Day Total | Percent of Month | Day Total | Percent of Month |
| **Mon** | 290,609 | 11.86% | 264,601 | 14.72% | 276,632 | 14.42% | 220,463 | 12.14% |
| **Tue** | 351,117 | 14.33% | 321,487 | 17.89% | 341,010 | 17.78% | 277,680 | 15.30% |
| **Wed** | 451,505 | 18.43% | 264,713 | 14.73% | 350,027 | 18.25% | 352,596 | 19.42% |
| **Thu** | 456,074 | 18.61% | 264,557 | 14.72% | 277,291 | 14.46% | 356,310 | 19.63% |
| **Fri** | 442,097 | 18.04% | 256,781 | 14.29% | 254,856 | 13.29% | 325,925 | 17.95% |
| **Sat** | 250,050 | 10.20% | 205,784 | 11.45% | 223,940 | 11.67% | 153,031 | 8.43% |
| **Sun** | 209,049 | 8.53% | 219,304 | 12.20% | 194,410 | 10.14% | 129,489 | 7.13% |
| **Total** | **2,450,501** | **100%** | **1,797,227** | **100%** | **1,918,166** | **100%** | **1,815,494** | **100%** |

Source: Unadjusted Customer Service Center (CSC) Vendor (ETAN) TCS AVI Lane Count Reconciliation Report.

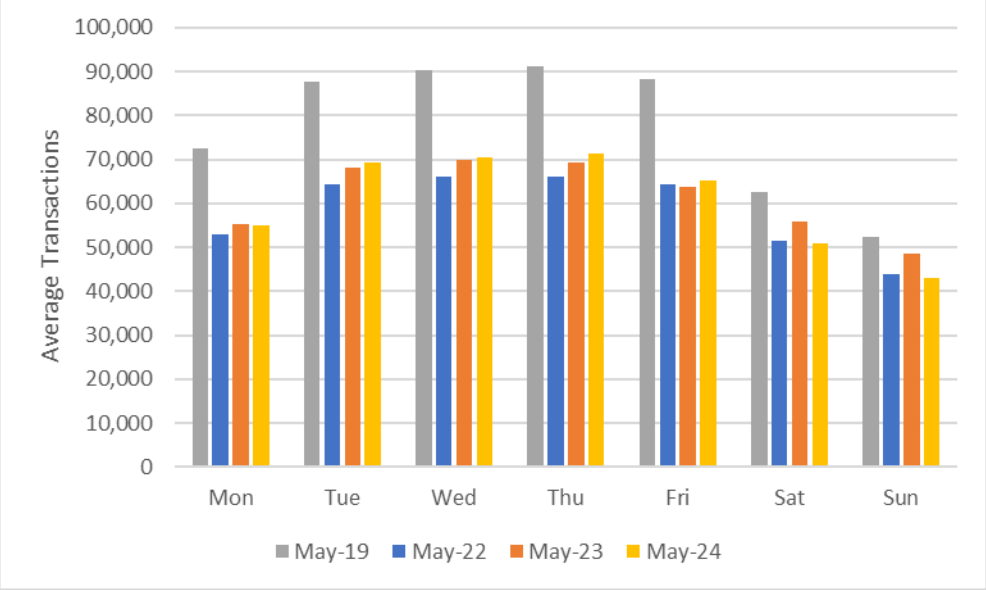
Table 3-2 and Figure 3-6 show the average daily toll transactions by day of the week for the month of May in FY 2019, FY 2022, FY 2023, and FY 2024 (adjusted for closures in FY 2024 only). May 2024 included two weekend closure days on Saturday, May 11th and Sunday, May 12th. This data was removed from the daily average to allow for a better comparison to the previous fiscal years. As shown, traffic crossing the bridge in FY 2019, pre-pandemic, was much lower over the weekend than on a weekday. Sunday was the least traveled day, while Wednesday and Thursday were the most traveled days of the week. After changes in travel resulting from the pandemic, there is not nearly as much of a difference between weekday and weekend traffic in FY 2022, FY 2023, or FY 2024, although weekday traffic is still a bit higher than weekend traffic.

**Table 3-2: SR 520 Bridge Average Daily Toll Transactions, May 2019 to 2024**

| Day of Week | May-19 | May-22 | May-23 | May-24 |
|---|---|---|---|---|
| **Mon** | 72,652 | 52,920 | 55,326 | 55,116 |
| **Tue** | 87,779 | 64,297 | 68,202 | 69,420 |
| **Wed** | 90,301 | 66,178 | 70,005 | 70,519 |
| **Thu** | 91,215 | 66,139 | 69,323 | 71,262 |
| **Fri** | 88,419 | 64,195 | 63,714 | 65,185 |
| **Sat*** | 62,513 | 51,446 | 55,985 | 50,799 |
| **Sun*** | 52,262 | 43,861 | 48,603 | 43,122 |
| **Total** | **79,048** | **57,975** | **61,876** | **62,577** |

Source: CSC Vendor (ETAN) TCS AVI Lane Count Reconciliation Report
* Adjusted for closures on Saturday, 5/11/24 and Sunday, 5/12/24.

**Figure 3-6 SR 520 Bridge Average Daily Toll Transactions by Day of the Week, May 2019, 2022, 2023, and 2024**




*Adjusted for closures on Saturday, 5/11/24 and Sunday, 5/12/24.

### 3.2.3 Toll Transactions by Month

Table 3-3 shows the historical toll transactions by month since FY 2013 as reported for the monthly reviews and as used for the basis of the forecast. The amount of toll transactions each month is affected by factors including construction closures, weather events, traffic events, and the number of weekdays and weekend days each month. Toll transactions prior to FY 2018 do not include overnight transactions, as overnight toll collection was not in effect prior to FY 2018. In FY 2020, the effects of the pandemic on traffic are clear starting in March 2020. Recovery can be seen later in FY 2021 and onward. However, when comparing monthly FY 2024 to FY 2019, each FY 2024 month is still below the pre-pandemic transactions seen in the corresponding month of FY 2019.

These summaries are not adjusted for the times when the bridge was impacted by construction, and it is assumed that these data also serve to approximate the distribution of traffic volumes crossing the SR 520 bridge by month. As shown by the percentages, traffic crossing the bridge tends to be generally lower in the winter months than the summer months.

SR 520 Traffic Characteristics

## Table 3-3: SR 520 Bridge Total Toll Transactions in Both Directions by Month, FY 2013 to FY 2024

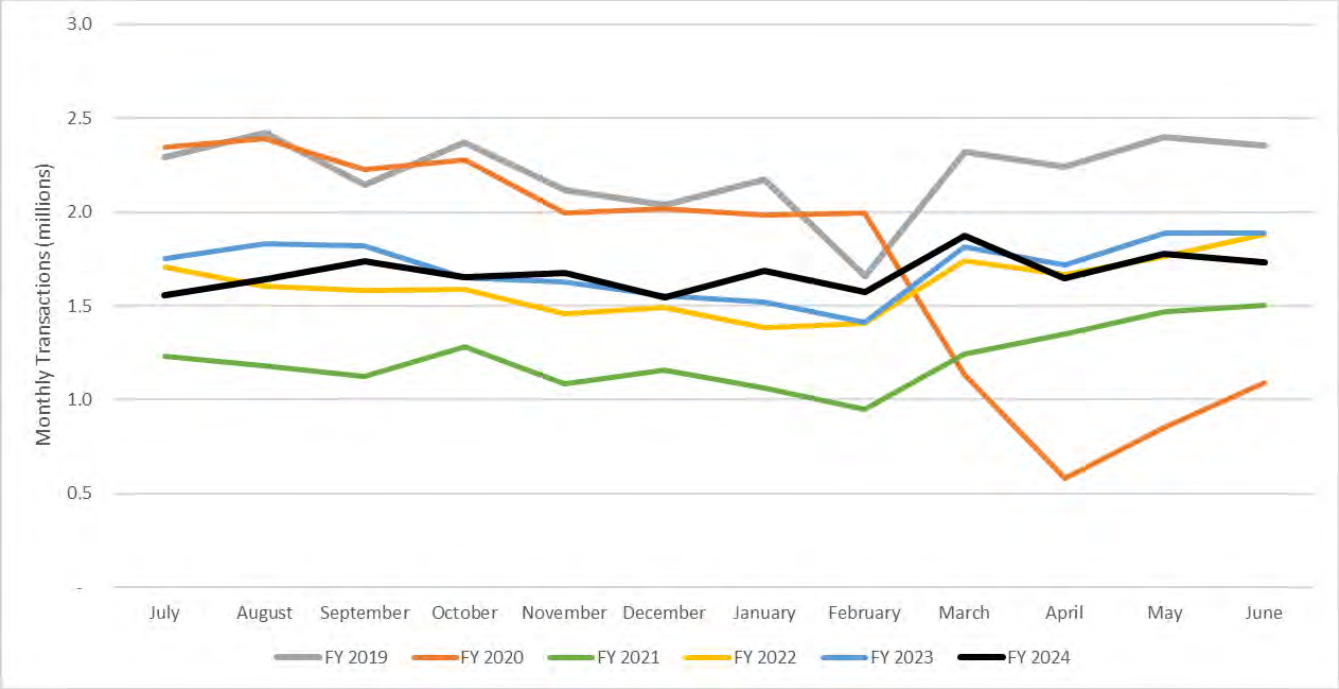
| Month | FY 2013 | FY 2014 | | FY 2015 | | FY 2016 | | FY 2017 | | FY 2018 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Monthly Transactions | Monthly Transactions | Year-Over-Year Growth | Monthly Transactions | Year-Over-Year Growth | Monthly Transactions | Year-Over-Year Growth | Monthly Transactions | Year-Over-Year Growth | Monthly Transactions | Year-Over-Year Growth |
| July | 1,634,862 | 1,714,340 | 4.9% | 1,845,510 | 7.7% | 2,047,488 | 10.9% | 2,058,224 | 0.5% | 2,092,864 | 1.7% |
| August | 1,748,279 | 1,843,593 | 5.5% | 1,785,013 | -3.2% | 1,931,941 | 8.2% | 2,129,472 | 10.2% | 2,106,767 | -1.1% |
| September | 1,605,673 | 1,672,627 | 4.2% | 1,796,980 | 7.4% | 1,901,386 | 5.8% | 2,013,952 | 5.9% | 2,181,021 | 8.3% |
| October | 1,780,703 | 1,891,073 | 6.2% | 1,853,706 | -2.0% | 2,053,773 | 10.8% | 1,920,209 | -6.5% | 2,193,259 | 14.2% |
| November | 1,595,208 | 1,698,416 | 6.5% | 1,632,066 | -3.9% | 1,749,637 | 7.2% | 1,937,514 | 10.7% | 2,063,777 | 6.5% |
| December | 1,627,330 | 1,692,471 | 4.0% | 1,804,291 | 6.6% | 1,853,500 | 2.7% | 1,758,571 | -5.1% | 2,009,346 | 14.3% |
| January | 1,697,451 | 1,782,226 | 5.0% | 1,804,665 | 1.3% | 1,904,672 | 5.5% | 1,860,068 | -2.3% | 2,116,081 | 13.8% |
| February | 1,537,817 | 1,555,759 | 1.2% | 1,714,605 | 10.2% | 1,849,759 | 7.9% | 1,780,747 | -3.7% | 1,929,376 | 8.3% |
| March | 1,794,438 | 1,871,405 | 4.3% | 1,949,255 | 4.2% | 2,046,140 | 5.0% | 2,172,872 | 6.2% | 2,275,483 | 4.7% |
| April | 1,651,778 | 1,848,497 | 11.9% | 1,940,953 | 5.0% | 1,667,332 | -14.1% | 1,941,236 | 16.4% | 2,122,191 | 9.3% |
| May | 1,843,724 | 1,816,370 | -1.5% | 2,021,484 | 11.3% | 2,075,349 | 2.7% | 2,216,001 | 6.8% | 2,355,439 | 6.3% |
| June | 1,703,339 | 1,572,796 | -7.7% | 1,871,243 | 19.0% | 2,139,023 | 14.3% | 2,185,913 | 2.2% | 2,339,752 | 7.0% |
| Annual | 20,220,602 | 20,959,573 | 3.7% | 22,019,771 | 5.1% | 23,220,000 | 5.5% | 23,974,779 | 3.3% | 25,785,356 | 7.6% |

| Month | FY 2019 | | FY 2020 | | FY 2021 | | FY 2022 | | FY 2023 | | FY 2024 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Monthly Transactions | Year-Over-Year Growth | Monthly Transactions | Year-Over-Year Growth | Monthly Transactions | Year-Over-Year Growth | Monthly Transactions | Year-Over-Year Growth | Monthly Transactions | Year-Over-Year Growth | Monthly Transactions | Year-Over-Year Growth |
| July | 2,291,708 | 9.5% | 2,344,382 | 2.3% | 1,229,975 | -47.5% | 1,706,214 | 38.7% | 1,752,755 | 2.7% | 1,554,156 | -11.3% |
| August | 2,421,851 | 15.0% | 2,392,048 | -1.2% | 1,182,734 | -50.6% | 1,607,144 | 35.9% | 1,833,817 | 14.1% | 1,643,913 | -10.4% |
| September | 2,143,861 | -1.7% | 2,227,082 | 3.9% | 1,122,263 | -49.6% | 1,580,549 | 40.8% | 1,821,136 | 15.2% | 1,739,838 | -4.5% |
| October | 2,370,068 | 8.1% | 2,275,941 | -4.0% | 1,280,823 | -43.7% | 1,588,689 | 24.0% | 1,649,530 | 3.8% | 1,655,267 | 0.3% |
| November | 2,115,105 | 2.5% | 1,996,027 | -5.6% | 1,086,322 | -45.6% | 1,456,047 | 34.0% | 1,629,906 | 11.9% | 1,673,585 | 2.7% |
| December | 2,035,203 | 1.3% | 2,016,502 | -0.9% | 1,158,181 | -42.6% | 1,493,635 | 29.0% | 1,555,716 | 4.2% | 1,545,684 | -0.6% |
| January | 2,172,041 | 2.6% | 1,982,455 | -8.7% | 1,060,792 | -46.5% | 1,382,063 | 30.3% | 1,521,888 | 10.1% | 1,689,402 | 11.0% |
| February | 1,656,213 | -14.2% | 1,994,596 | 20.4% | 949,116 | -52.4% | 1,409,543 | 48.5% | 1,409,741 | 0.0% | 1,576,132 | 11.8% |
| March | 2,320,693 | 2.0% | 1,135,136 | -51.1% | 1,241,142 | 9.3% | 1,741,735 | 40.3% | 1,812,540 | 4.1% | 1,872,292 | 3.3% |
| April | 2,241,599 | 5.6% | 581,425 | -74.1% | 1,351,980 | 132.5% | 1,669,673 | 23.5% | 1,716,911 | 2.8% | 1,644,741 | -4.2% |
| May | 2,400,633 | 1.9% | 851,025 | -64.5% | 1,469,096 | 72.6% | 1,764,801 | 20.1% | 1,885,604 | 6.8% | 1,776,489 | -5.8% |
| June | 2,354,100 | 0.6% | 1,089,413 | -53.7% | 1,504,513 | 38.1% | 1,884,128 | 25.2% | 1,888,924 | 0.3% | 1,730,534 | -8.4% |
| Annual | 26,523,075 | 2.9% | 20,886,032 | -21.3% | 14,636,937 | -29.9% | 19,284,221 | 31.8% | 20,478,468 | 6.2% | 20,102,033 | -1.8% |

Note: As reported for the monthly reviews and as used for the basis of the forecast.
Overnight tolling began FY 2018.
In July and August 2018 (FY 2019) there were higher than normal volumes due to I-90 closures related to the Seafair Air Show.
In February 2019 there were lower than normal traffic volumes due to record-breaking snow in Seattle

Figure 3-7 shows graphically the monthly trends in toll transactions from FY 2019 through FY 2024. As shown, while the monthly transactions are still below pre-pandemic values, there has been growth each year since the pandemic. Additionally, seasonality trends have shifted with pandemic recovery. What was previously greater variation throughout the months has smoothed out a bit, particularly in the summer months, when compared to FY 2019.

**Figure 3-7: SR 520 Bridge Total Toll Transactions in Both Directions by Month, FY 2019 to FY 2024**




## 3.3 TOLL TRANSACTIONS BY PAYMENT TYPE

Table 3-4 shows the toll transactions by payment type from FY 2016 through FY 2024. The majority of transactions are paid using a *Good to Go!* account. While the use of *Good to Go!* accounts was slowly increasing over time, with over 87 percent of transactions tied to *Good to Go!* accounts in FY 2019, payment shares of non-account-based transactions have trended upward since the pandemic. This trend is likely related to a drop-off in frequent commuter travelers, who tend to have accounts. It should be noted that the number of account-based transactions has been affected by changes in reporting related to the transition to a new back-office system in 2021 as well as the addition of post-paid accounts and the correlating increase in delinquent accounts. In FY 2024, the number of Pay By Mail (non-account) transactions was roughly 16 percent, much greater than was reported in FY 2019. It can also be observed that the share of trips using a *Good to Go!* pass versus Pay By Plate account has been trending downward slowly over time. Some 75 percent of *Good to Go!* transactions were made using a *Good to Go!* pass in FY 2016; by FY 2023 this share had decreased to 66 percent. Note that the non-revenue transactions, not included in the table below, represent about two percent of the total transactions that are processed by the CSC each year.

**Table 3-4: Annual Toll Transactions by Payment Type, FY 2016 to 2024**

| Year | *Good To Go!* | | *Pay By Mail* | Total |
|---|---|---|---|---|
| | Pass | Pay By Plate | | |
| **Reported Transactions** | | | | |
| FY 2016 | 14,601,694 | 4,901,591 | 3,716,714 | 23,220,000 |
| FY 2017 | 15,087,042 | 5,174,058 | 3,713,678 | 23,974,779 |
| FY 2018 | 16,244,807 | 6,347,106 | 3,193,442 | 25,785,356 |
| FY 2019 | 16,577,025 | 6,656,833 | 3,289,217 | 26,523,075 |
| FY 2020 | 13,127,560 | 5,122,216 | 2,636,256 | 20,886,032 |
| FY 2021 | 8,846,089 | 3,669,345 | 2,121,503 | 14,636,937 |
| FY 2022 | 11,673,200 | 5,084,701 | 2,526,320 | 19,284,221 |
| FY 2023 | 11,918,790 | 5,281,235 | 3,278,443 | 20,478,468 |
| FY 2024 | 11,246,708 | 5,692,501 | 3,162,824 | 20,102,033 |
| **Payment Share of Tolled Transactions** | | | | |
| FY 2016 | 62.9% | 21.1% | 16.0% | |
| FY 2017 | 62.9% | 21.6% | 15.5% | |
| FY 2018 | 63.0% | 24.6% | 12.4% | |
| FY 2019 | 62.5% | 25.1% | 12.4% | |
| FY 2020 | 62.9% | 24.5% | 12.6% | |
| FY 2021 | 60.4% | 25.1% | 14.5% | |
| FY 2022 | 60.5% | 26.4% | 13.1% | |
| FY 2023 | 58.2% | 25.8% | 16.0% | |
| FY 2024 | 55.9% | 28.3% | 15.7% | |

Source: WSDOT data reports

Figure 3-8 and Figure 3-9 show the average Tuesday through Thursday toll transactions by time of day for May, a representative month from recent FY 2024. As shown, toll transactions are the highest during the peak periods and are about 30 percent lower than the peaks in the midday period. The number of transactions increase rapidly before the AM Peak and decrease relatively quickly after the PM Peak. This figure also shows the distribution of the FY 2024 transactions by payment type identified in the lane at the time of transaction. As expected, *Good to Go!* Pass payments (AVI) are most common in the AM and PM Peak periods, when the most frequent customers, commuters, are on the facility. Image-based transactions (including *Good to Go!* Pay by Plate and non-account Pay by Mail) are not as prevalent in the AM peak but more so in the midday and early PM peak; these are typically the times of the day when customers have more flexibility and are less frequent users of the facility, and therefore less likely to have a *Good to Go!* Pass installed in their vehicle. Figure 3-10 and Figure 3-11 show similar detail for an average weekend day.

**Figure 3-8: May FY 2024 Weekday Toll Transaction Payment Type by Hour - Eastbound**

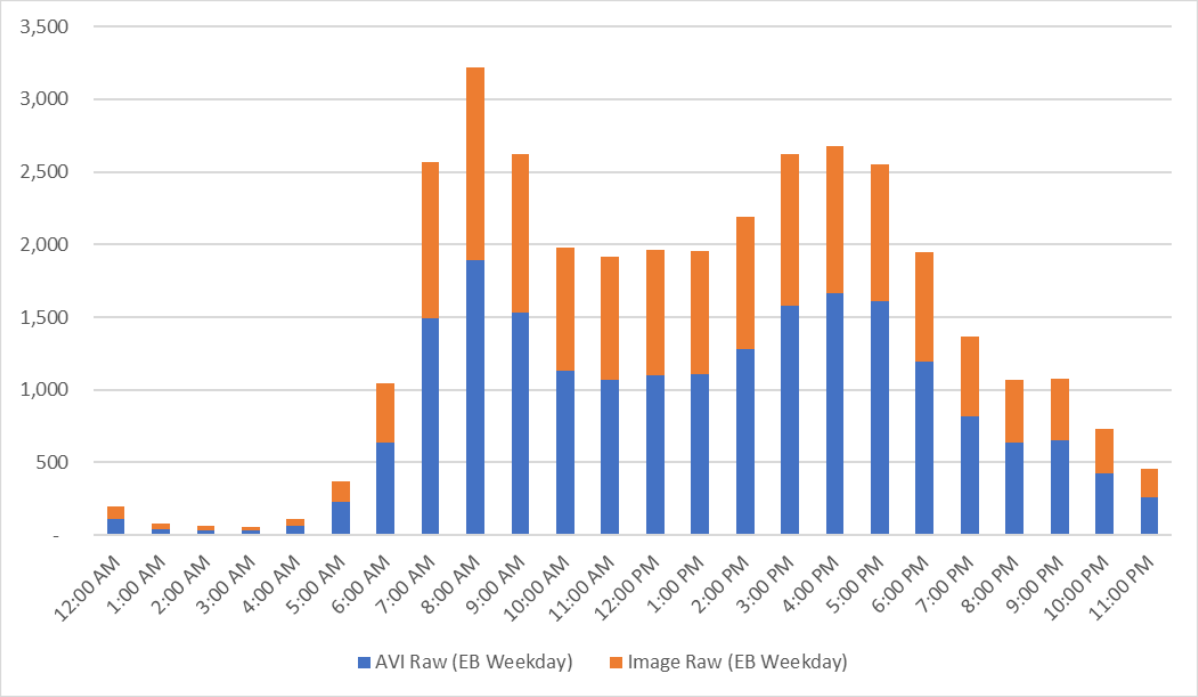



**Figure 3-9: May FY 2024 Weekday Toll Transaction Payment Type by Hour - Westbound**

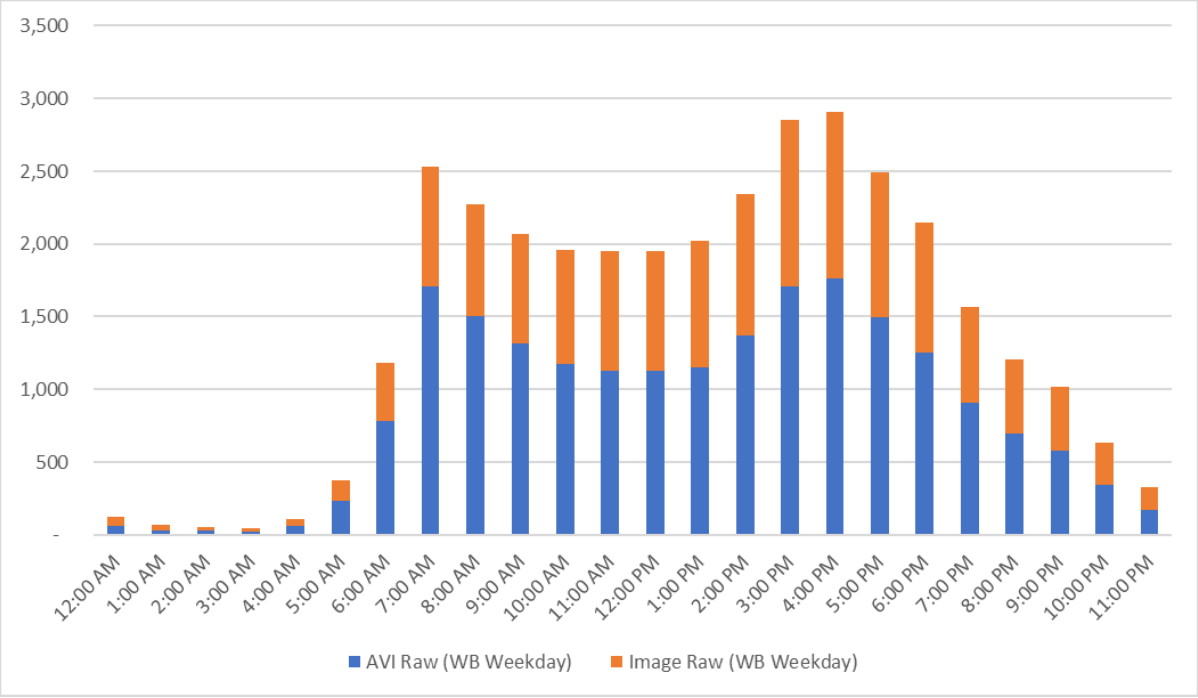


**Figure 3-10: May FY 2024 Weekend Toll Transaction Payment Type by Hour - Eastbound**

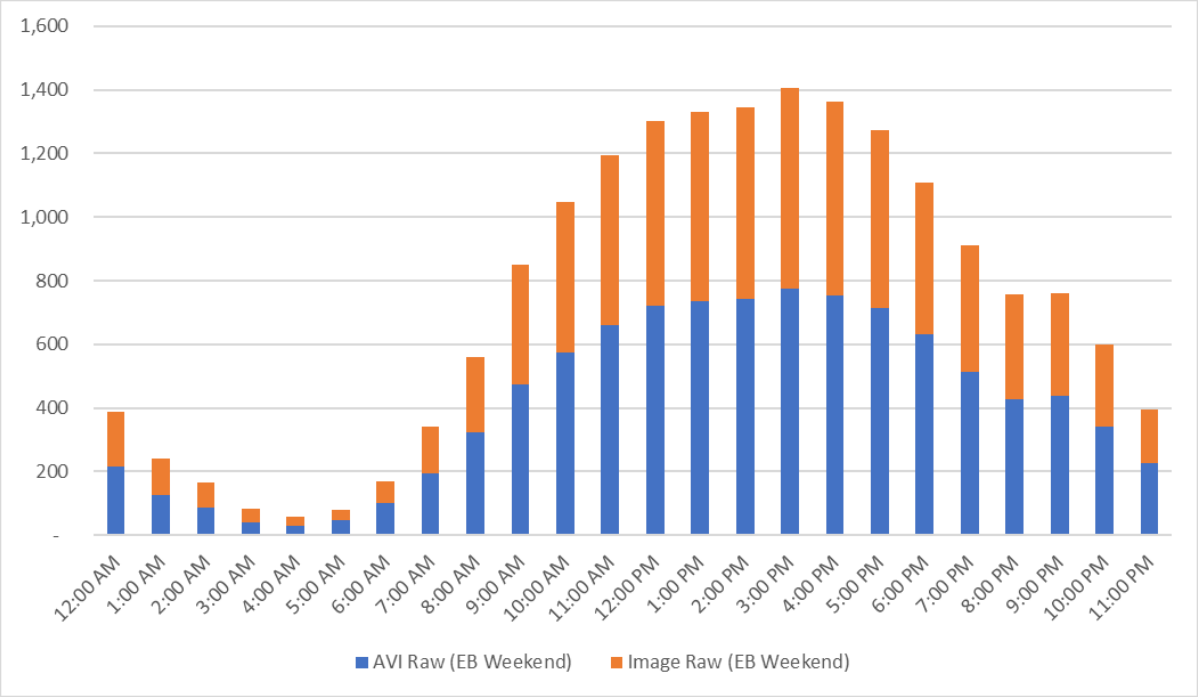



**Figure 3-11: May FY 2024 Weekend Toll Transaction Payment Type by Hour - Westbound**

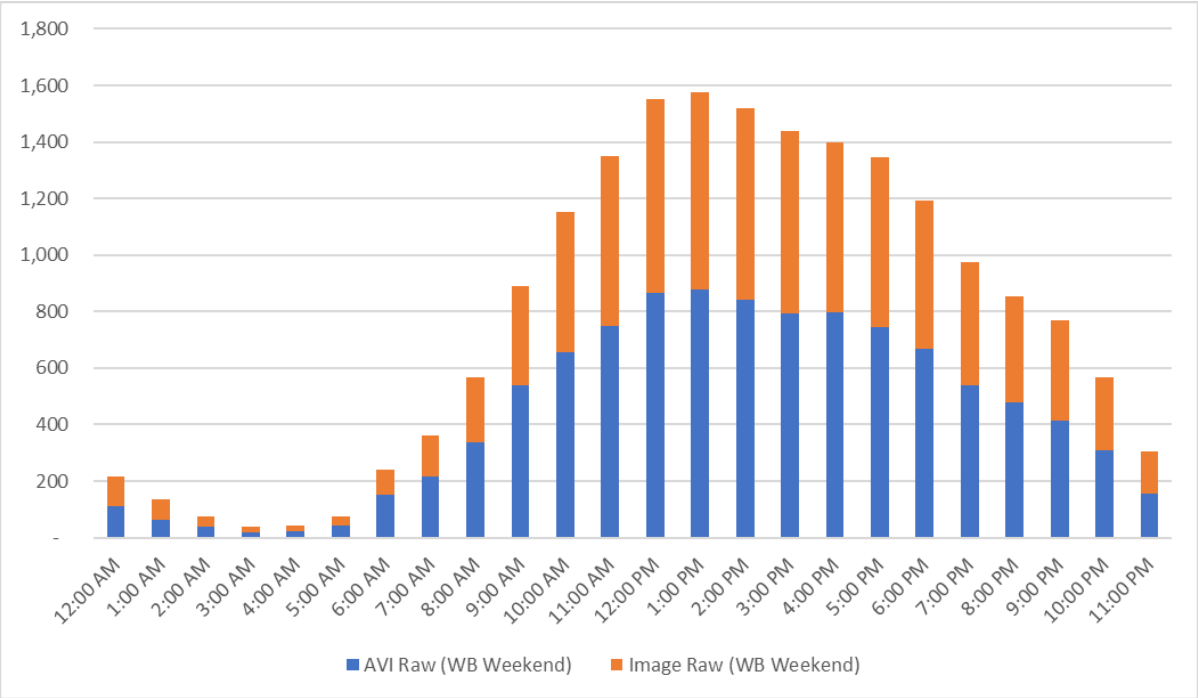


Table 3-5 shows the revenue distribution by payment type by class for FY 2024, the most recent data set available with this level of detail. As shown, most of the traffic is 2-axle vehicles with roughly one percent of annual transactions generated by vehicles larger than 2-axles. It is worth noting that the 3-axle vehicle category includes transit buses.

**Table 3-5: FY 2024* Annual Toll Transactions by Payment Type and Vehicle Class**

| Vehicle Class | *Good To Go!* | | *Pay By Mail* | Unbillable | Unresolved | Non-Rev | Total Transactions | Share of Rev Transactions |
|---|---|---|---|---|---|---|---|---|
| | Pass | Pay By Plate | Paid | | | | | |
| **2** | 11,151,435 | 5,633,141 | 1,677,610 | 341 | 1,466,179 | 335,822 | 20,264,528 | 99.1% |
| **3** | 47,317 | 22,860 | 11,428 | 19 | 14,641 | 79,745 | 176,010 | 0.5% |
| **4** | 13,530 | 11,185 | 4,463 | 2 | 6,903 | 91 | 36,174 | 0.2% |
| **5** | 4,353 | 7,705 | 2,846 | 1 | 5,325 | 92 | 20,322 | 0.1% |
| **6** | 8,363 | 7,090 | 2,336 | 0 | 2,920 | 113 | 20,822 | 0.1% |

*Most recent data available.

### 3.3.1 Changes to Back-Office Reporting

As of July 1, 2021, WSDOT transitioned to a new back-office vendor ETAN from ETCC, allowing for increased data granularity. The updated reporting structure allows image-based transactions to be identified as belonging to accounts more efficiently than the older data reporting process, resulting in fewer vehicles being incorrectly assigned by default the higher Pay By Mail ("PBM") toll rate. This results in estimates of potential revenue that more closely reflect reality and require less data modifications over time. Additionally, there is better clarity of payment methods (e.g., Good To Go! Transponder, Good To Go! Pay-by-Plate, Pay By Mail).

# 4 SOCIOECONOMIC CONTEXT AND TRAVEL BEHAVIOR TRENDS

A key factor in the development of the traffic and revenue forecast is the forecast of households, population, and employment. Stantec retained BERK Consulting (BERK) to provide an independent review of available regional and subarea land use forecasts for the Central Puget Sound region. The purpose of this independent review was to inform the preparation of a new land use forecast to be used in the development of SR 520 traffic and revenue forecasts. BERK then prepared an adjusted land use forecast, reviewing the latest available regional macroeconomic forecast and selected regional targets for population, household and employment, and then determined the likely distribution of regional growth by county by reviewing historic county growth trends. To determine the allocation of growth to cities and transportation analysis zones (TAZ), BERK analyzed permitted and pipeline development, historic growth patterns, major investments such as light rail station openings, capacity for growth, and planning for growth at the jurisdictional scale. This chapter describes the key findings of their review, and the methodology used to develop their 2019 baseline estimates and the socioeconomic forecasts for the years 2025, 2030 and 2045. BERK most recently completed this effort to support our SR 520 travel demand modeling in Fall of 2023. The Fall 2023 land use review and forecast is still the most current land use forecast tailored to this facility and was used to support 2025 forecast discussed in this report.

At the regional and county scales, BERK's forecast analysis was informed by the review of available macroeconomic forecast products from the Washington State Office of Financial Management (OFM), Washington State Employment Security Department (ESD) and Puget Sound Regional Council (PSRC). The distribution of forecasted growth within counties is informed by analysis of data about the following:

- Indicators of local market activity such as historic growth trends and building permits,
- Expected infrastructure changes that may impact real estate demand, such as light rail station openings,
- Capacity for new residential and non-residential development, and
- Policy-based forecasts of future land use based on regional and local plans.

## 4.1 SOCIOECONOMIC FORECASTS

To evaluate the reasonableness of the existing socioeconomic forecasts, BERK reviewed several sources of demographic, land use, and planned development data including:

- PSRC Land Use Vision – Implementation Targets (LUV-it) (released in 2023),
- Esri Business Analyst Household Income Data (2019),
- American Community Survey Public Use Microdata Sample (PUMS) Data,
- Office of Financial Management (OFM) Growth Management Act County Projections (2022),

- Washington State Employment Security Department (ESD) Employment Projections (2023),
- Washington State OFM Small Area Estimates,
- County-Level Assessor Property Improvement Data (2022),
- Local Jurisdiction Permitted Development (2022),
- CoStar Commercial Real Estate Data, and
- County Buildable Lands Data (2021).

### 4.1.1 2019 Baseline

The base year for this land use forecast is 2019. While the base year did not change compared to BERK's previous land use forecast, BERK's 2023 land use forecast does include revised 2019 estimates for both households and employment. These changes incorporate newly available data that improve the accuracy of the estimates.

### 4.1.2 Population Forecast

BERK assumed that future regionwide total population will be consistent with OFM's medium population projections for the four-county area in each of the three forecast years (2025, 2030, and 2045). Allocations of projected regional population growth to the county level were based on a combination of PSRC's LUV-it forecast and recent population growth trends as documented by the OFM 2020-2023 population estimates. The LUV-it forecast reflects the long-term planning goals of the region, but it is based on PSRC's 2018 Macroeconomic Forecast and does not reflect the short-term effects of the recent pandemic. To account for this, BERK allocated county-level population growth for each forecast period in terms of predicted share of regional growth. BERK assigned each county a share of growth based on the LUV-it forecast, recent trends, or a combination of the two:

- 2019-2025: Allocations for 2025 assumed a continuation of recent growth trends as reflected in the OFM population estimates.
- 2025-2030: Allocations for 2030 blended each county's share of growth as projected by LUV-it with its share of 2020-2023 growth.
- 2030-2045: Allocations for 2045 assumed consistency with each county's share of 2030-2045 as projected by LUV-it.

Table 4-1 shows the projected population by county for each of the forecast years of 2025, 2050, 2045. Table 4-2 shows the calculated annual growth rate (CAGR) for the periods between each of the forecast years.

**Table 4-1: Population Forecast, 2019 - 2045**

| County | 2019 | 2025 | 2030 | 2045 |
|---|---|---|---|---|
| **King** | 2,229,511 | 2,391,600 | 2,506,417 | 2,803,087 |
| **Pierce** | 895,610 | 949,360 | 993,767 | 1,126,790 |
| **Snohomish** | 817,447 | 883,513 | 935,227 | 1,084,009 |
| **Kitsap** | 272,400 | 288,145 | 300,341 | 334,547 |
| **Region** | **4,214,968** | **4,512,618** | **4,735,752** | **5,348,433** |

Source: OFM (2022), LUV-it (2023), BERK 2023

**Table 4-2: Population Forecast CAGR, 2019 - 2045**

| County | 2019-2025 | 2025-2030 | 2030-2045 |
|---|---|---|---|
| **King** | 1.2% | 0.9% | 0.7% |
| **Pierce** | 1.0% | 0.9% | 0.8% |
| **Snohomish** | 1.3% | 1.1% | 1.0% |
| **Kitsap** | 0.9% | 0.8% | 0.7% |
| **Region** | **1.1%** | **1.0%** | **0.8%** |

Source: OFM (2022), LUV-it (2023), BERK 2023

### 4.1.3 Employment Forecast

For the years 2025 and 2030, BERK relied on employment estimates and projections from ESD to determine the projected rate of growth or loss by county and industry sector. At the regional scale, these employment totals are somewhat lower than PSRC's LUV-it forecast. This is due to significant job losses in 2020-2021 associated with the pandemic which were not anticipated in PSRC's 2018 Macroeconomic Forecast, which is the basis for LUV-it. BERK's forecast assumes that total regional employment in 2045 is equivalent to the PSRC's Macroeconomic Forecast as well as PSRC's newer LUV-it forecast. However, BERK's 2045 forecast varies somewhat in terms of the distribution of employment by county and sector compared to PSRC. This is because the pandemic impacted some sectors more than others and resulted in lasting impacts on the regional economy.

Table 4-3 shows the projected employment by county for each of the forecast years of 2025, 2030, 2045. Table 4-4 shows the calculated annual growth rate (CAGR) for the periods between each of the forecast years.

**Table 4-3: Employment Forecast, 2019 - 2045**

| County | 2019 | 2025 | 2030 | 2045 |
|---|---|---|---|---|
| **King** | 1,517,426 | 1,612,241 | 1,727,831 | 2,104,779 |
| **Pierce** | 106,626 | 128,990 | 155,118 | 252,490 |
| **Snohomish** | 372,938 | 378,670 | 399,116 | 502,905 |
| **Kitsap** | 320,830 | 324,206 | 330,045 | 358,735 |
| **Region** | **2,317,820** | **2,444,107** | **2,612,110** | **3,218,909** |

Source: ESD (2023), LUV-it (2023), BERK (2023)

**Table 4-4: Employment Forecast CAGR, 2019 - 2045**

| County | 2019-2025 | 2025-2030 | 2030-2045 |
|---|---|---|---|
| **King** | 1.0% | 1.4% | 1.3% |
| **Pierce** | 3.2% | 3.8% | 3.3% |
| **Snohomish** | 0.3% | 1.1% | 1.6% |
| **Kitsap** | 0.2% | 0.4% | 0.6% |
| **Region** | **0.9%** | **1.3%** | **1.4%** |

Source: OFM (2022), LUV-it (2023), BERK 2023

# 5 MODEL APPROACH

This chapter provides an overview of the modeling methodology, model development, and calibration of the model used to produce the SR 520 bridge traffic and gross potential toll revenue forecasts. This 2025 Forecast, as with the 2024 Forecast, builds upon the regional travel demand model calibration efforts conducted as part of the 2018 Study. Given that the future highway network improvements, construction phases of the SR 520 project, and other major improvements in the region have not changed since the 2024 Forecast, there is no reason to anticipate changes to future TDM results. Although there were no changes to the TDM model results, the spreadsheet-based post-processing model has been refined to incorporate additional bridge use data from FY 2024.

## 5.1 METHODOLOGY OVERVIEW

The 2025 Forecast was developed using a base of historical transaction and revenue data through fiscal year (FY) 2024. These data were used in collaboration with a three-tiered modelling framework to assess future demand, toll diversion and travel behavior changes, and process these data points into a full traffic and revenue stream for the forecast horizon. Three future year models – 2025, 2030 and 2045 - were implemented to forecast traffic on SR 520 Bridge under the various construction phasing and full-build conditions.

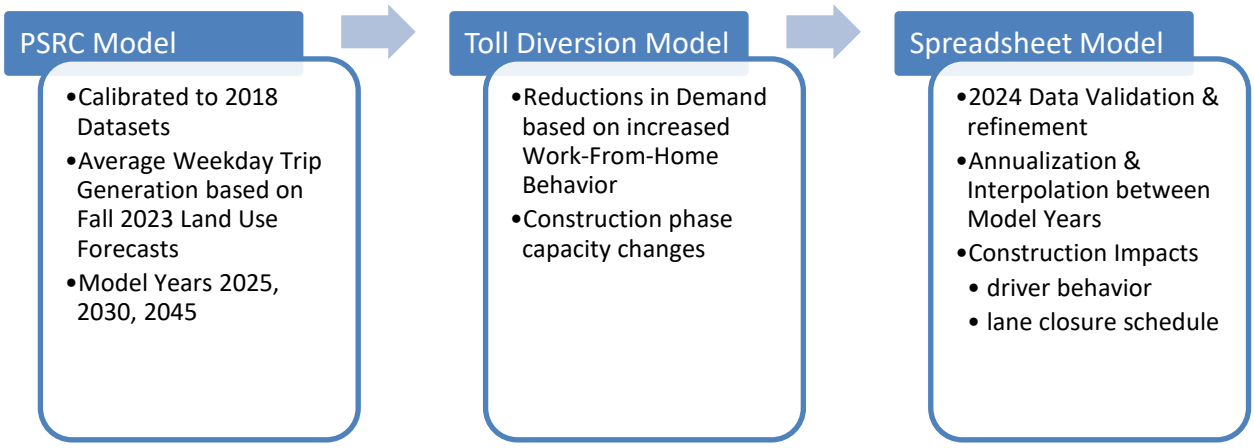
As the first step of this tiered framework, Stantec utilized the Puget Sound Regional Council (“PSRC”) regional model, encompassing Seattle and much of the surrounding area. To produce updated estimates of average weekday traffic demand for the SR 520 Bridge, the analysis was run with socioeconomic forecasts of land use for each model analysis zone, prepared specifically for this toll study update.

As the second step, Stantec used a customized Toll Diversion Model (“TDM”) to analyze usage of the SR 520 bridge by time period, reflecting the variation in toll cost and traffic demand throughout the day. The TDM model was calibrated with 2018 data for the 2019 Forecast. This calibration was used as the basis for the TDM runs completed for this study, with additional changes to various aspects of the model such as the phasing of SR 520 improvements, assumed payment type splits, estimated commercial vehicle share, as well as the inclusion of reductions in demand to adjust for increased Work-from-Home (“WFH”) behavior and construction-related capacity impacts. For the TDM, network and vehicle demand coverage were retained at the regional model level; however, the trip demand for the five time periods in the PSRC model were further stratified into twelve time periods to better represent the traffic response to the variation in toll cost on the SR 520 Bridge throughout the day.

The third step in the development of the traffic and revenue forecasts was to feed the results of the TDM through a spreadsheet-based post-processing model that added in various assumptions to further refine the model outputs to match actual conditions on SR 520 observed in FY 2023 and further validated against FY 2024 data. The post-processing included adjustments to convert average weekday estimates into annual traffic and revenue estimates for each model year and to interpolate between model years to create a full traffic and revenue stream through the forecast horizon.

Figure 5-1 illustrates the modeling methodology. The following sections describe each step of the modeling framework as well as key results from the analysis.

**Figure 5-1: Overview of Modeling Approach**




## 5.2 REGIONAL TRAVEL DEMAND MODEL

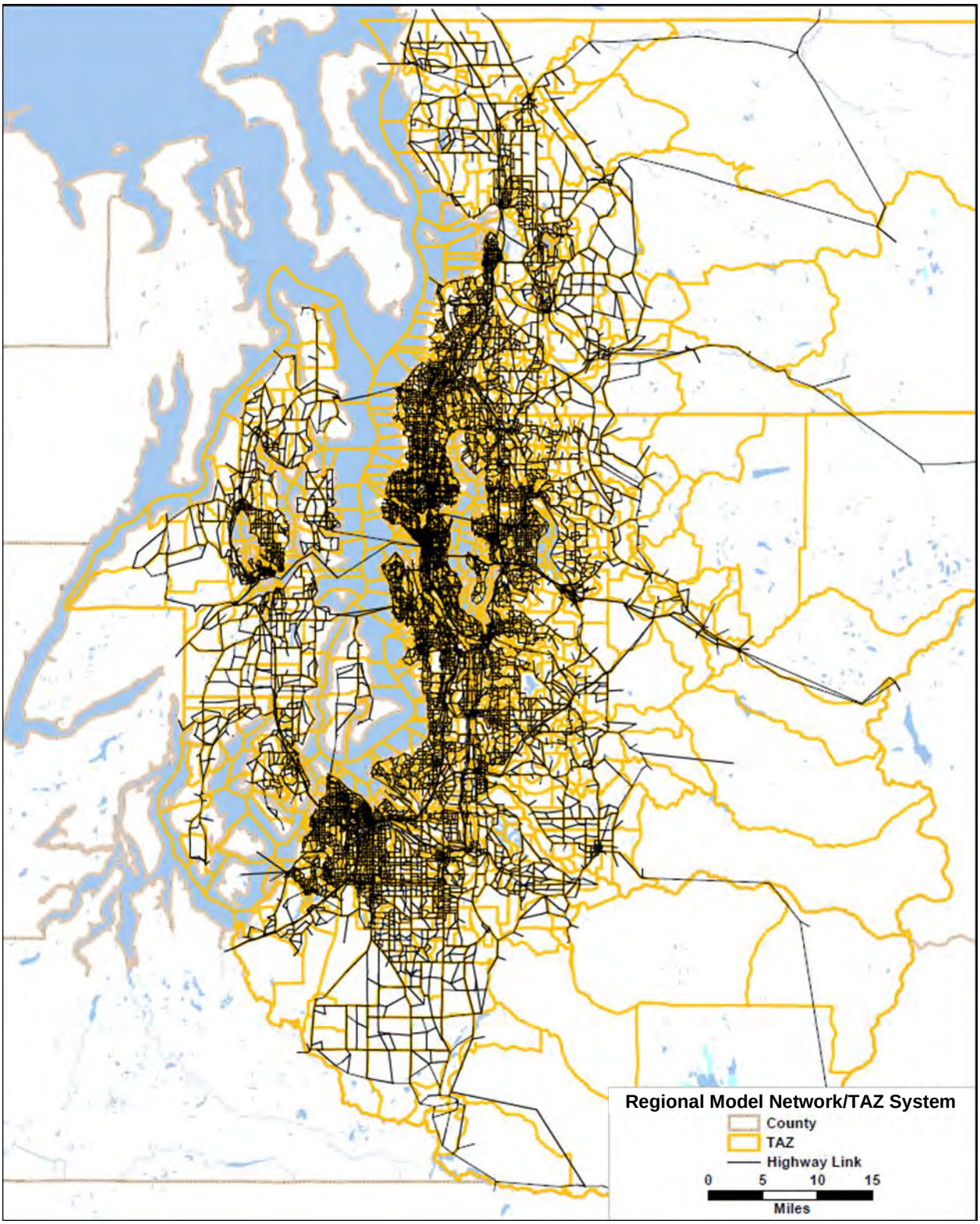
Stantec employed the Trip-Based Travel Model 4K Version 4.03 (2015) developed by PSRC as the regional modeling platform. Stantec's primary objective was to estimate the vehicular travel demand for the trans-Lake Washington corridor, to facilitate downstream toll diversion modeling for the base year (model calibration), and the 2025, 2030 and 2045 horizon years.

The PSRC 4K model is a full-featured, 4-step travel demand model that encompasses the Central Puget Sound region, including the counties of King, Pierce, Snohomish, and Kitsap. The model consists of 3,700 internal TAZs, 18 external stations, and an additional 150 zones representing Park-and-Ride facility locations within the region. Figure 5-2 shows the PSRC regional highway network coverage.

### 5.2.1 Traffic Analysis Zones (TAZs) System

The model coverage consists of the four-county Puget Sound region, including King, Snohomish, Kitsap, and Pierce counties, centering on the City of Seattle. The model has a total of 3,700 internal and 18 external TAZs, in addition to 150 Park-and-Ride (PNR) zones, with corresponding highway and transit network details to support the zonal system.

**Figure 5-2: PSRC Regional Highway Network Coverage**



### 5.2.2 Roadway Network Assumptions

The base model calibration year transportation network is reflective of average weekday 2018 traffic conditions, featuring the SR 520 bridge under the existing configuration at the time with the HOV lane implemented. For the 2025, 2030 and 2045 forecast years, input highway networks were updated to include major highway capacity/connectivity improvement projects with relevance to this T&R effort, specifically along competing and feeder roadways, including I-5, I-90 and I-405, as well as major state highways such as SR 167, SR 522, and SR 509. Networks were also created to reflect the interim-build and final build conditions along the SR 520 Bridge. In addition, significant transit improvements as identified in the Sound Transit 3 Plan were also incorporated.

### 5.2.3 Calibration Datasets

The 2025 Forecast builds upon the regional travel demand model calibration efforts conducted as part of the 2018 Study. Datasets included historical toll transaction and revenue data, vehicle classification, volume and speed data for key locations along the corridor and parallel I-90 both eastbound and westbound, as well as volume and speed data along connecting freeways such as I-405 and I-5. Additional information regarding adjustments to model outputs to reflect actual conditions in FY 2023 and 2024 is provided in sections 5.4 and 5.5 of this report.

### 5.2.4 Corridor Calibration Summary at Regional Level

The goal of the regional calibration process is to ensure that the model can be relied upon to predict future traffic volumes. As such, the process was focused on replicating observed vehicular traffic flows consistent with 2018 base year travel conditions across the Trans-Lake Washington corridor. In Table 5-1, the combined GP and Express/HOV lane traffic estimated by the regional model was compared to observed data at various roadway segments along a screenline crossing Lake Washington. At an aggregate level, the estimated traffic flows resulting from the model closely approximate the observed 2018 daily traffic, showing that the model overpredicts traffic by between two and four percent. Note that this regional-level calibration is an initial step in the broader calibration process and the differences for individual links in modeled versus observed traffic are further refined in the toll diversion model calibration.

**Table 5-1: 2018 Estimated Average Daily Traffic, Observed v. Modeled, Screenline 1, by Direction**

| Facility | Daily Volume | | | | | |
|---|---|---|---|---|---|---|
| | Eastbound | | | Westbound | | |
| | Obs | Est | % Diff (Est-Obs) | Obs | Est | % Diff (Est-Obs) |
| SR 522 at 68th Ave NE | 17,442 | 18,631 | 7% | 22,879 | 25,652 | 12% |
| SR 520/Evergreen Point Floating Bridge | 40,711 | 39,497 | -3% | 42,045 | 38,785 | -8% |
| I-90/Murrow Memorial Bridge | 81,154 | 86,317 | 6% | 83,773 | 86,365 | 3% |
| SR 900 East of I-5 | 15,000 | 15,734 | 5% | 15,000 | 14,178 | -5% |
| I-405 East of SR 181 | 88,609 | 90,184 | 2% | 88,919 | 92,087 | 4% |
| Total | 242,916 | 250,363 | 3% | 252,617 | 257,067 | 2% |

### 5.2.5 Regional Level Forecasting

In the PSRC trip-based demand modeling process, daily person trips are estimated from the SED variables (including the number of households and jobs by employment type) pertinent to the internal TAZs within the Puget Sound

region, based on a set of pre-defined trip production and attraction relationships, in additional to the trips specified for the 18 external stations in the model. A total of 7 trip purposes are maintained in the modeling process, from trip generation to mode choice with further stratification by four Income levels, where applicable:

- Home-Based Work (“HBW”)
- Home-Based College (“COL”)
- Home-Based School (“SCH”)
- Home-Based Shopping (“HBS”)
- Home-Based Other (“HBO’)
- Non-Home-Based Work (“WBO”)
- Non-Home-Based Other (“OBO’”)

In addition to household resident trips, commercial vehicles (or trucks), are also considered in the PSRC model, respectively for light, medium, and heavy truck classes. Truck trips are generated for individual TAZ and specified for each external station from SED attributes (primarily zonal employment).

The mode choice modeling process apportions each person trip matrix by purpose to the available travel modes at a daily level after the trip distribution step. The available mode choice options are specified as below:

- Drive alone (SOV)—Single-occupancy auto trips
- Shared ride 2 (HOV2)—Auto trips with two occupants
- Shared ride 3+ (HOV3+)—Auto trips with three or more occupants
- Transit – Walk access
- Transit - Drive access
- Walk
- Bicycle

A time-of-day choice modeling process then respectively stratifies the household resident and commercial vehicle trips using pre-defined survey-based factors or, where applicable, probabilistic functions which consider the time period-specific congested highway travel time to stratify daily trips into different time periods. A total of five time periods are maintained in the PSRC trip-based model, including AM (6am to 9am), MD (9am to 3pm), PM (3pm to 6pm), EV (6pm to 10pm), and NI (10pm to 6am). A subsequent modeling step will then prepare the corresponding input trip matrices for traffic assignment purposes. For auto/highway vehicle assignment, person trips are converted to vehicles with appropriate occupancy factors for HOV2 and HOV3+ trips. The highway assignment considers a total of 11 vehicle classes as listed below:

- SOV (HBW Income 1)
- SOV (HBW Income 2)
- SOV (HBW Income 3)
- SOV (HBW Income 4)
- SOV (all other purposes)
- HOV2 (all purposes)
- HOV3+ (all purposes)
- Vanpool Vehicles
- Light Truck

- Medium Truck
- Heavy Truck

Travel demand in the Central Puget Sound region is forecasted to grow between 2025 and 2045, resulting in more travel delay, and decreasing network-wide travel speeds. While daily person-trips increase over the forecast period, it is important to note that the mode by which trips are made is likely to shift. The share of people walking, biking and using transit is estimated to increase slightly, and conversely, the share of SOV trips is estimated to decrease slightly. While the overall share of transit trips remains relatively constant, the growth in daily transit trips outpaces the growth in daily vehicle trips. Vehicular travel demand in the region is estimated to grow over the forecast horizon.

## 5.3 TOLL DIVERSION MODEL ("TDM")

The second element of the modeling process involved a TDM incorporated into an EMME software environment. The input trip tables were adopted from the regional level model and the highway network was adopted from the regional level highway network with enhanced coding to enable toll diversion modeling. The TDM is a logit-based route choice model embedded within an equilibrium assignment routine. The calibration of the base year 2018 model focused on both matching the observed corridor volumes as well as calibrating the model to adequately predict the SR 520 floating bridge usage.

In the TDM, the five time periods from the regional model are further broken down into sub-periods, reflective of the 12 toll periods implemented by WSDOT on the SR 520 bridge under the existing and future year schemes. The regional model and the TDM time periods are listed in Table 5-2.

**Table 5-2: TDM Weekday Time Periods Analyzed**

| Regional Model Period | Toll Diversion Model Period | Toll Periods |
|---|---|---|
| NI (10:00 PM - 6:00 AM) | NI2 | 12:00-5:00 |
| | AM1 | 5:00-6:00 |
| AM (6:00 AM - 9:00 AM) | AM2 | 6:00-7:00 |
| | AM3 | 7:00-9:00 |
| MD (9:00 AM - 3:00 PM) | MD1 | 9:00-10:00 |
| | MD2 | 10:00-2:00 |
| | MD1 | 2:00-3:00 |
| PM (3:00 PM - 6:00 PM) | PM1 | 3:00-6:00 |
| EV (6:00 PM - 10:00 PM) | EV1 | 6:00-7:00 |
| | EV2 | 7:00-9:00 |
| | NI1 | 9:00-11:00 |
| NI (10:00 PM - 6:00 AM) | NI2 | 11:00-12:00 |

### 5.3.1 Toll Diversion Modeling Parameters

The toll diversion model adopted for this project is based on a process that Stantec initially developed in 2001. This model has successfully predicted traffic and revenue for several toll facilities and as noted within this report, was recently calibrated to replicate current conditions for the SR 520 bridge. The diversion model is a logit-based route choice model embedded within a highway assignment routine to allocate traffic into appropriate toll-usage type. The structure of the toll diversion model is defined as follows:

$$\text{Toll Share} = (1 / (1+ e^{U}))$$

Where:

Toll Share = Probability of selecting a toll road
e = Natural Logarithm
U = "Utility" of Toll Route: a * (TimeTR-TimeFR) + b * Cost + CTR + CETC
TimeTR = Toll road travel time in minutes
TimeFR = Nontoll road travel time in minutes
Cost = Toll in dollars
CTR = Constant for toll road bias
CETC = Constant for ETC bias
a,b = Coefficients

The value of time used in the modelling effort varies by trip purpose and vehicle occupancy as shown in Table 5-3. Of the three trip purposes listed (HBW, HBO, and Non-Home Based ("NHB")), HBW trips have the highest value of time. The value of time for vehicles with two and more occupants is higher than the value of time for single occupant vehicles because there is more than one individual in the vehicle who experiences time savings. For this study, the values of time were derived from 2015 Household Income supplied by The American Community Survey.

**Table 5-3: TDM Value of Time by Trip Purpose and Vehicle Occupancy (2015$)**

| Trip Purpose | | Occupany/ Vehicle Type | Value of Time |
|---|---|---|---|
| HBW | Income 1 | SOV | $9.40 |
| | Income 2 | SOV | $17.41 |
| | Income 3 | SOV | $24.12 |
| | Income 4 | SOV | $34.42 |
| | All-Income | SOV | $20.33 |
| | | HOV2 | $23.36 |
| | | HOV3+ | $29.20 |
| HBO | | SOV | $16.37 |
| | | HOV2 | $18.83 |
| | | HOV3+ | $23.52 |
| NHB | | SOV | $16.90 |
| | | HOV2 | $19.44 |
| | | HOV3+ | $24.29 |
| Trucks | | Light | $16.90 |
| | | Medium | $26.54 |
| | | Heavy | $59.18 |

Source: Stantec derived from American Community Survey Data

## 5.4 TRIP TABLE ADJUSTMENTS AS A RESULT OF THE PANDEMIC

With several years of data (through October 2024) since the onset of the pandemic, Stantec has refined our estimates of both near-term and longer-term travel impacts resulting from the pandemic. Monthly data monitoring has revealed the nature of near-term impacts on travel, while trends in the month-to-month and year-over-year data have informed us of changes in travel behavior that are likely to linger beyond any near-term pandemic recovery period. The following sections provide more detail on how Stantec has adjusted forecasts in both the near-term and longer-term to consider impacts of the pandemic.

Throughout the pandemic, Stantec monitored transaction data monthly and updated the 10-year forecasts for the Transportation Forecast Revenue Council ("TRFC") quarterly. The T&R forecasts for TRFC before the onset of the pandemic were updated only on an annual basis.

### 5.4.1 Estimated Longer-Term Behavioral Changes Related to Increased Work from Home Activity

People undertaking remote work, or WFH, were historically a minority in the work force. The pandemic greatly changed working habits for many people, with more people working remotely than pre-pandemic levels. For several months from the onset of the pandemic, state and local restrictions required many businesses and offices to close. While offices phased in re-openings in the year following the initial closures, it has become apparent that the frequency of people working from home will remain higher than before the pandemic.

To accommodate this increased WFH behavior, the travel demand model was employed with adjustments in trip tables by specific trip purpose. Table 5-4 shows the percent reduction in trips from the model.

**Table 5-4: TDM Trip Table Reductions**

| Trip Purpose | Percent Reduction |
|---|---|
| Home Based Work | -20% |
| Home Based Other | 2% |
| Non-Home Based | -12% |
| Total Auto | -6% |
| Total Truck | 2% |
| Grand Total | -6% |

It is estimated that with increased WFH levels, there will be fewer work-related trips, and marginally increased trips related to home-based-other trip purposes (non-work trip purposes). Truck traffic is also estimated to be slightly higher, due to increased deliveries.

As more data has become available, such as the continued shift in hourly profiles by year, it has become apparent that PM traffic levels are closer to pre-pandemic levels than AM traffic levels. As such, we further refined the WFH impacts by time of day, considering both trip origins and destinations. Based on observed traffic trends in the region and the

nature of work-related trips, we assume that the loss of home-based work trips will be concentrated during the AM peak but will be more spread out between the midday and PM peaks.

With this estimated reduction in the regional trip table by year, the travel demand model was run to estimate the impact on SR 520 specifically. When compared to the 2019 Forecast, it is estimated that the impact of the WFH trip table reductions would lower traffic forecasts on SR 520 by approximately 12 percent in 2025 and 9 percent in the longer-term.

## 5.5 SPREADSHEET-BASED MODEL

The third step in the development of the traffic and revenue forecasts was to feed the results of the screenline lake crossings demand from the TDM model through a spreadsheet-based post-processing model that added in various assumptions to further refine the model outputs to match actual conditions on SR 520 observed in FY 2023 and was validated as still applicable in FY 2024. The post-processing included adjustments to convert average weekday estimates into annual traffic and revenue estimates for each model year and to interpolate between model years to create a full traffic and revenue stream through the forecast horizon.

Calibrated travel demand models are tools to allow us to understand and forecast average Tuesday through Thursday weekday travel pattern demands by time of day. However, traffic and revenue studies ultimately require annual projections for traffic and toll revenue. To do this, one must post-process those average weekday TDM results to reflect variations throughout the overall week such as, for example, the potentially lighter traffic demand during a Monday AM Peak, the potentially higher traffic demand during a Friday afternoon, and potentially different traffic demand and travel patterns for weekend traffic.

Additionally, manual adjustments in a post-processing spreadsheet model made for tolled traffic and revenue forecasting can account for nuances beyond the scope of the TDM, such as but not limited to vehicle classes, toll payment types, variable toll rate schedules, time/week of day adjustments, annualization factors, construction, and roadway maintenance schedules, etc.

### 5.5.1 Post-Processing Adjustment Factors

Results from the TDM by travel direction, vehicle class, and time period were compared with FY 2023 transaction data from the ETAN back-office. Adjustment factors were developed from this relationship to post-process the TDM traffic estimates into a more finely tuned representation of FY 2023 toll transaction patterns for the purpose of revenue validation. These post-processing factors were applied universally to all model year results generated by the TDM, by travel direction, vehicle class and time period, and were validated against FY 2024 data.

#### 5.5.1.1 Lake Washington Screenline Demand Adjustments

The work-from-home adjustments layered into the TDM model were based on general regional changes to traffic based on changes to average estimated work-from-home adjustments for specific trip types across the region. While many other facilities have seen significant recovery in traffic volumes over the past several years, demand across Lake Washington has not returned to pre-pandemic levels. There are several factors beyond typically observed telecommuting behavior changes that could be affecting the I-90 and SR 520 corridors, specific to travel into and out of Seattle. The City of Seattle may be attracting fewer daily visitors for both work and pleasure due to a significant

rise in the population of unhoused peoples over the past few years, as well as heightened safety concerns for those less comfortable with urban atmosphere and changing socioeconomic conditions. As fewer people have a desire to work in the city and office and retail space remains less desirable as well, this trend may continue for some time. It is likely that over time, as real estate prices adjust and become more attractive to businesses, that the city will cycle back to a more stable position and again become attractive for daily visitors.

To account for this temporary drop in demand specific to the travel into and out of urban Seattle, a post-processing adjustment was applied to total demand crossing Lake Washington to bring down model-estimated demand to a level close to what has been observed in FY 2024, which required a reduction of roughly 15 percent on an average weekday. Over time, this adjustment factor was linearly reduced, so that in 2045 the spreadsheet-based analysis assumes the same demand for crossing Lake Washington as is indicated by the TDM.

#### 5.5.1.2 Construction Activity and Toll-Road Market Share of Lake Washington Crossings

Ongoing construction activity, which includes signage indicating closures, has likely caused some people to avoid using SR 520 and chose alternate routes. As a result, the split of traffic between SR 520 and I-90 for each model year was adjusted based on three factors:

- Active construction vs completed construction
- Total hourly traffic demand crossing Lake Washington, by direction
- Time-of day (Daytime vs overnight)

Based on recent FY 2024 observed data during construction, the share of daytime hourly demand crossing Lake Washington under construction conditions using SR 520 bridge was assumed to range from 25 percent at hours with low demand for crossing Lake Washington, up to 33 percent during hours with high demand. For model years after the construction is completed, the daytime SR 520 share of the Lake Washington screen line demand ranges from 32 percent for hours with low volume to 40 percent for hours with higher volumes. Overnight, SR 520 is estimated to capture roughly 23 percent of screen line demand during construction and from 23 percent to 27 percent after construction is completed.

### 5.5.1.3 Changes in Hourly Split to Accommodate Additional Toll Rate Tiers

The time periods analyzed in the TDM created in 2018 were structured to correspond to the toll rate tiers in operation in 2018. The increase in toll rates effective July1, 2023 (FY 2024) maintained the toll rate tiers from that of 2018. However, as the August 15, 2024, toll increase included a shift in the time period splits, the current (FY 2025) toll rate time periods do not match the time periods used in the TDM. The two sets of time periods are compared below in Table 5-5. In order to forecast revenue appropriately, the toll rate time periods need to correspond correctly to the traffic results from the TDM. As a result, the TDM weekday average volumes by time period were converted into hourly volumes. The May 2024 average weekday volumes were assumed to be a typical example of an average weekday hourly splits, and these proportions were used to convert the TDM time period volumes into hourly volumes.

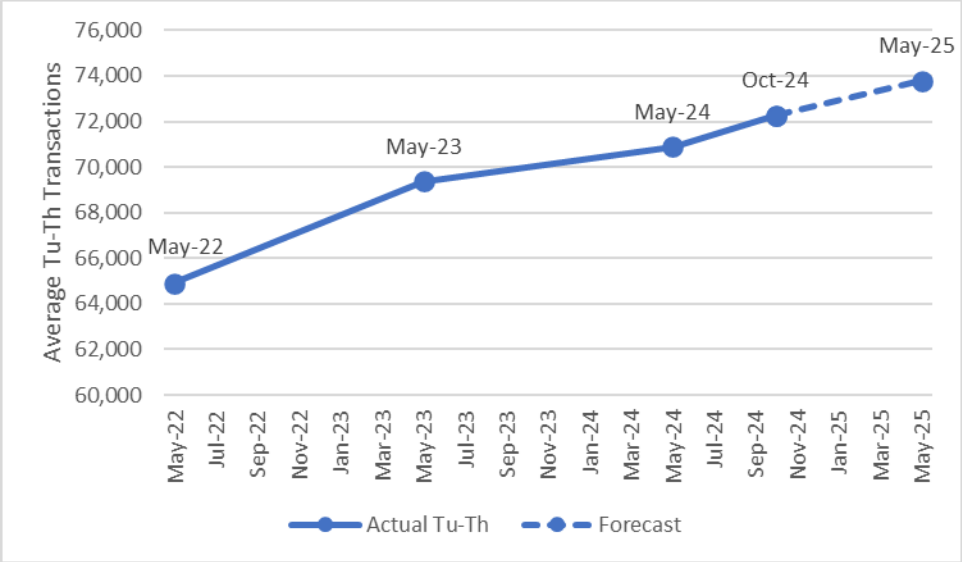
**Table 5-5: Toll Increase Hourly Time Period Changes**

| Hour | TDM Toll Period Split | FY Toll Increase Toll Period Split |
|---|---|---|
| 12:00 AM | NI2 | NI2 |
| 1:00 AM | | |
| 2:00 AM | | |
| 3:00 AM | | |
| 4:00 AM | | |
| 5:00 AM | AM1 | AM1 |
| 6:00 AM | AM2 | AM2 |
| 7:00 AM | AM3 | AM3 |
| 8:00 AM | | |
| 9:00 AM | MD1 | |
| 10:00 AM | MD2 | MD |
| 11:00 AM | | |
| 12:00 PM | | |
| 1:00 PM | | |
| 2:00 PM | MD1 | |
| 3:00 PM | PM1 | PM |
| 4:00 PM | | |
| 5:00 PM | | |
| 6:00 PM | EV1 | |
| 7:00 PM | EV2 | EV |
| 8:00 PM | | |
| 9:00 PM | NI1 | NI1 |
| 10:00 PM | | |
| 11:00 PM | NI2 | NI2 |

### 5.5.1.4 Final Post-Processing Model Results

The spreadsheet-based post-processing model was modified as part of the 2024 Study with detailed data from FY 2023. This 2025 study updated trends in toll-road market share of Lake Washington crossings based on FY 2024 and preliminary FY 2025 data, but retained most of the post-processing assumptions from the 2024 study after validating against recent data. Figure 5-3 compares the average weekday traffic volumes for May 2022, May 2023, and May 2024 to the latest forecast for May 2025. Although the model represents an average day in May, traffic in May 2024 was particularly impacted by construction-related impacts on traffic operations, so October 2024 has also been added to this graphic for updated context (October is widely considered another month representative of typical traffic). Looking at the volumes of two-way traffic on SR 520 from May 2022 through to October 2024 (shown by the solid blue line), the projected FY 2025 volumes (shown by the dashed blue line) fit with the observed trend and appear reasonable. In summary, the May 2025 estimated average weekday value includes the additional 15 percent screen line cut in 2025 and the adjusted market share of traffic crossing Lake Washington. It is estimated that an average weekday in FY 2025, prior to the inclusion of scheduled construction related closures, would see two-way volumes of about 73,800 vehicles.

**Figure 5-3: Average Weekday (Tuesday – Thursday) Traffic Trends**



# 6 TRAFFIC AND GROSS TOLL REVENUE POTENTIAL FORECAST

The traffic and revenue forecasts for the SR 520 bridge have been prepared using the actual data collected and analyzed (Chapter 3), the socioeconomic and land use data (Chapter 4), and the modeling processes (Chapter 5). Using all these data and the model, average weekday forecasts were prepared for 2025, 2030 and 2045. This chapter documents the future year modeling assumptions and the procedures that were used to convert the daily weekday traffic and revenue model results to an annual forecast for fiscal years 2025 through 2063.

## 6.1 GENERAL ASSUMPTIONS FOR FUTURE YEARS

The following is a summary of the assumptions underlying the development of the traffic and gross toll revenue potential forecast.

### 6.1.1 Study Area Improvements

As described in Chapter 2, the SR 520 bridge is part of the SR 520 Bridge Replacement and HOV Program.

The forecasts assume that the highway network improvements in the regional model would be implemented as assumed by the Puget Sound Regional Council in their latest regional transportation plan. The forecasts also assume that no new competing highway facilities or transportation projects or additional improvements to competing projects will be made during the forecast period.

### 6.1.2 Socioeconomic Assumptions

The future year socioeconomic assumptions are documented in Chapter 4 of this report.

### 6.1.3 Commercial Vehicle Assumptions

The forecast assumes that the heavy truck percentages using SR 520 remain very low (less than two percent of annual transactions) and generally consistent with recent observations, as discussed in section 3.3 of this report.

### 6.1.4 Payment Type Assumptions

Recent trends show that although the *Good to Go!* market share continues to slightly increase year over year, the percent of *Good to Go!* customers choosing to Pay-By-Plate has been increasing within the percentage share of total *Good to Go!* transactions. It was assumed that these trends would continue into the future. In addition, as a function of the new back office refining their trips categorization, there was a re-allocation of some trips that used to be categorized as Pay by Mail in the old system to Pay-By-Plate in the new system. The modeling took these new allocations into account for the forecast period.

### 6.1.5 Other Assumptions

Other assumptions integral to the forecast include:

- The SR 520 Project will continue to be maintained and efficiently operated.

- The tolls on other toll projects in the Central Puget Sound region shall be comparable to the rates currently envisioned during the forecast period through FY 2063.
- The average cost of owning and operating a personal vehicle will not increase at a rate greater than the general rate of inflation. Motor fuel will continue to be in plentiful supply at prices in line with the general rate of inflation.
- Economic conditions in the country and the Central Puget Sound region will be relatively stable and no major economic recession will occur during the forecast period through FY 2063.
- No material natural disaster or local, state, or national emergency will occur that would alter travel patterns and divert traffic from SR 520.

As for the long-term projections themselves, while they are stated year by year, they are intended to show the long-term trends that may be reasonably anticipated during the forecast period.

## 6.2 ANNUALIZATION

To convert the average weekday traffic and revenue results into an annual forecast, factors were developed from FY 2023 transaction data received from the back-office, considering May 2023 as a standard average month for traffic and revenue. We validated that these factors are still relevant for this 2025 Forecast. The factor developed to convert weekday traffic to annual traffic is 316 and the factor developed to convert weekday revenue to annual revenue is 274. The annual revenue factor is lower than the annual traffic factor because the toll rates vary by weekday and weekend; weekend rates are lower than weekday rates. Also, toll rates vary by time of day, which also reduces the revenue factor, since overnight tolls are much lower than peak hour tolls.

### 6.2.1 Construction Closures

As part of the SR 520 Bridge Replacement and HOV Program, road closures due to construction are expected. WSDOT provided a schedule of these closures, as shown in Table 6-1. Traffic and revenue forecasts were adjusted to account for both the planned weekday and weekend closures.

Closure assumptions are separated for weekend days and weekday nights. The closure assumptions are also distinguished between closures of the SR 520 main toll span, and closures related to construction of the Portage Bay Bridge and I-5 transit/HOV3+ connector improvements. In the case of the Portage Bay Bridge closures, traffic is assumed to be allowed to use the tolled floating bridge between the Montlake interchange and I-405; only the section of SR 520 west of the Montlake interchange is assumed to be closed. As construction continues in the SR 520 corridor, the schedule of construction-related road closures continues to evolve.

**Table 6-1 : SR 520 Closure Assumptions, Weekday Night and Weekend Days, Amounts per Fiscal Year**

| FY | SR 520 Main Span | | Portage Bay Bridge | | Total | |
|---|---|---|---|---|---|---|
| | Weekday Night | Weekend | Weekday Night | Weekend | Weekday Night | Weekend |
| 2019 | 1.4 | 0.1 | 0.0 | 0.0 | 1.4 | 0.1 |
| 2020 | 2.0 | 1.0 | 0.0 | 0.0 | 2.0 | 1.0 |
| 2021 | 9.5 | 4.1 | 0.0 | 0.0 | 9.5 | 4.1 |
| 2022 | 6.0 | 2.0 | 0.0 | 0.0 | 6.0 | 2.0 |
| 2023 | 6.0 | 12.0 | 0.0 | 0.0 | 6.0 | 12.0 |
| 2024 | 13.6 | 22.0 | 0.0 | 0.0 | 13.6 | 22.0 |
| 2025 | 2.0 | 12.0 | 0.0 | 0.0 | 2.0 | 12.0 |
| 2026 | 0.0 | 0.0 | 45.0 | 4.0 | 45.0 | 4.0 |
| 2027 | 0.0 | 0.0 | 2.5 | 4.0 | 2.5 | 4.0 |
| 2028 | 0.0 | 0.0 | 2.5 | 5.0 | 2.5 | 5.0 |
| 2029 | 0.0 | 0.0 | 0.0 | 2.0 | 0.0 | 2.0 |
| 2030 | 0.0 | 0.0 | 30.0 | 2.0 | 30.0 | 2.0 |
| 2031 | 0.0 | 0.0 | 25.0 | 6.0 | 25.0 | 6.0 |
| **Total** | **40.5** | **53.3** | **105.0** | **23.0** | **145.5** | **76.3** |

Source: WSDOT, August 2024

Table 6-2 shows the differences in the assumed closure schedule from the 2024 Forecast. Overall, the number of weekday night closures are greater by 21.0 units and weekend closures are fewer by 3.6 units.

**Table 6-2 : Differences in Lane Closure Assumptions since 2024 Forecast**

| FY | SR 520 Main Span | | Portage Bay Bridge | | Total | |
|---|---|---|---|---|---|---|
| | Weekday Night | Weekend | Weekday Night | Weekend | Weekday Night | Weekend |
| 2019 | 1.4 | -1.2 | 0.0 | 0.0 | 1.4 | -1.2 |
| 2020 | 2.0 | -1.0 | 0.0 | 0.0 | 2.0 | -1.0 |
| 2021 | 9.5 | -3.9 | 0.0 | 0.0 | 9.5 | -3.9 |
| 2022 | -0.5 | -2.0 | 0.0 | 0.0 | -0.5 | -2.0 |
| 2023 | 4.0 | -2.0 | 0.0 | 0.0 | 4.0 | -2.0 |
| 2024 | 6.6 | -0.5 | 0.0 | 0.0 | 6.6 | -0.5 |
| 2025 | -2.0 | 7.0 | 0.0 | 0.0 | -2.0 | 7.0 |
| 2026 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2027 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2028 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2029 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2030 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2031 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Total** | **21.0** | **-3.6** | **0.0** | **0.0** | **21.0** | **-3.6** |

### 6.2.2 Roadway Configuration / Construction Staging

To account for the geometric changes on SR 520 due to the construction staging, 2025 was modeled using two different configurations: the FY 2024-2028 configuration and the FY 2029-2056 configuration. The results indicated that the changes in configuration would have impacts in the annual traffic and revenue, and the traffic and revenue streams were adjusted to reflect construction phasing. Post-processing assumptions for construction-related driver behavior changes were discussed in section 5.5.1.

## 6.3 CURRENT TOLL POLICY ASSUMPTIONS

The future forecasts presented herein assume the current toll schedule on the SR 520 bridge (FY 2025, or as of August 15, 2024) will remain in effect over the entire forecast period. No future changes in toll rates were assumed, nor were any future changes assumed to the available payment options or fees. Because the future toll rates do not increase over time, the real toll cost to the customer decreases over time in comparison to inflationary increases in wages and the prices of other goods and services, thus making the toll route more attractive. Table 6-3 shows the toll rates assumed in our forecasts for all future years.

**Table 6-3: Assumed Directional 2-axle Vehicle Toll Rates by Time Period and by Payment Type, FY 2025 Onwards**

| Time Period | FY 2025 and After | | | |
|---|---|---|---|---|
| | Good to Go![1] | | Pay By Mail[2] | |
| | Weekday | Weekend | Weekday | Weekend |
| 12:00 AM | $1.35 | $1.35 | $3.35 | $3.35 |
| 1:00 AM | | | | |
| 2:00 AM | | | | |
| 3:00 AM | | | | |
| 4:00 AM | | | | |
| 5:00 AM | $2.75 | $1.70 | $4.75 | $3.70 |
| 6:00 AM | $3.95 | | $5.95 | |
| 7:00 AM | $4.90 | | $6.90 | |
| 8:00 AM | | $2.95 | | $4.95 |
| 9:00 AM | | | | |
| 10:00 AM | $3.95 | | $5.95 | |
| 11:00 AM | | | | |
| 12:00 PM | | | | |
| 1:00 PM | | | | |
| 2:00 PM | | | | |
| 3:00 PM | $4.90 | | $6.90 | |
| 4:00 PM | | | | |
| 5:00 PM | | | | |
| 6:00 PM | | | | |
| 7:00 PM | $3.95 | | $5.95 | |
| 8:00 PM | | | | |
| 9:00 PM | $2.75 | $1.70 | $4.75 | $3.70 |
| 10:00 PM | | | | |
| 11:00 PM | $1.35 | $1.35 | $3.35 | $3.35 |

[1] *Good to Go!* rates are shown for payment via tag. *Good to Go!* Pay By Plate rates are equal to the *Good to Go!* pass rate plus a 25-cent increment per transaction.
[2] Pay By Mail rates are equal to the *Good to Go!* toll rate plus a $2.00 increment.

### 6.3.1 Annual Traffic and Gross Toll Revenue Potential Forecasts with Current Toll Policy

The annual actual and forecasted toll transactions and gross toll revenue potential is shown in Table 6-4, along with the average revenue per toll transaction and The *Good to Go!* transaction share. Toll transactions are expected to increase from 21.2 million transactions in FY 2025 to 39.7 million transactions in FY 2063, an average annual increase of 1.8 percent per year. Gross toll revenue potential is expected to increase from $90.0 million in FY 2025 to $163.2 million in FY 2063, an average annual increase of 1.9 percent per year. The average toll rate is expected to decrease slightly over time, from $4.24 in FY25 after the August 15, 2025 toll increase to $4.11 as the *Good to Go!* share increases from 84.4 percent in FY 2025 to 86.8 percent by FY 2063. The annual toll transaction and gross toll revenue potential forecast is shown in Table 6-4.

### Table 6-4: Annual Actual and Forecasted Traffic and Gross Toll Revenue Potential, FY 2012 to 2063

| Fiscal Year | Annual Toll Transactions | Annual Gross Potential Revenue | Avg. Revenue per Transations | *Good To Go!* Percentage Share |
|---|---|---|---|---|
| 2012*(1) | 9,600,000 | $28,100,000 | $2.93 | |
| 2013* | 20,220,602 | $61,301,711 | $3.03 | 83.6% |
| 2014* | 20,959,573 | $64,589,148 | $3.08 | 84.2% |
| 2015* | 22,019,771 | $69,383,209 | $3.15 | 83.7% |
| 2016* | 23,220,000 | $74,801,676 | $3.22 | 84.0% |
| 2017* | 23,974,779 | $81,913,285 | $3.42 | 84.5% |
| 2018*(2) | 25,785,356 | $90,349,101 | $3.50 | 87.6% |
| 2019* | 26,523,075 | $92,187,653 | $3.48 | 87.6% |
| 2020* | 20,886,032 | $72,122,698 | $3.45 | 87.4% |
| 2021* | 14,636,937 | $52,052,085 | $3.56 | 85.5% |
| 2022* | 19,284,221 | $63,958,480 | $3.32 | 85.5% |
| 2023* | 20,480,940 | $68,955,356 | $3.37 | 84.9% |
| 2024* | 20,102,033 | $79,366,145 | $3.95 | 84.2% |
| 2025(3) | 21,245,951 | $90,029,871 | $4.24 | 84.4% |
| 2026 | 22,830,000 | $94,901,000 | $4.16 | 84.9% |
| 2027 | 23,640,000 | $97,930,000 | $4.14 | 85.3% |
| 2028 | 24,280,000 | $100,550,000 | $4.14 | 85.7% |
| 2029 | 25,450,000 | $104,840,000 | $4.12 | 86.0% |
| 2030 | 26,170,000 | $107,880,000 | $4.12 | 86.0% |
| 2031 | 26,420,000 | $109,440,000 | $4.14 | 86.0% |
| 2032 | 30,200,000 | $123,790,000 | $4.10 | 86.4% |
| 2033 | 30,680,000 | $125,770,000 | $4.10 | 86.4% |
| 2034 | 31,160,000 | $127,740,000 | $4.10 | 86.5% |
| 2035 | 31,650,000 | $129,720,000 | $4.10 | 86.5% |
| 2036 | 32,120,000 | $131,690,000 | $4.10 | 86.6% |
| 2037 | 32,620,000 | $133,680,000 | $4.10 | 86.6% |
| 2038 | 33,100,000 | $135,650,000 | $4.10 | 86.6% |
| 2039 | 33,580,000 | $137,630,000 | $4.10 | 86.7% |
| 2040 | 34,070,000 | $139,610,000 | $4.10 | 86.7% |
| 2041 | 34,550,000 | $141,600,000 | $4.10 | 86.7% |
| 2042 | 35,030,000 | $143,580,000 | $4.10 | 86.8% |
| 2043 | 35,520,000 | $145,570,000 | $4.10 | 86.8% |
| 2044 | 36,010,000 | $147,560,000 | $4.10 | 86.8% |
| 2045 | 36,490,000 | $149,540,000 | $4.10 | 86.8% |
| 2046 | 36,860,000 | $151,040,000 | $4.10 | 86.8% |
| 2047 | 37,120,000 | $152,180,000 | $4.10 | 86.9% |
| 2048 | 37,330,000 | $153,040,000 | $4.10 | 86.8% |
| 2049 | 37,490,000 | $153,710,000 | $4.10 | 86.8% |
| 2050 | 37,630,000 | $154,360,000 | $4.10 | 86.8% |
| 2051 | 37,790,000 | $155,030,000 | $4.10 | 86.8% |
| 2052 | 37,950,000 | $155,700,000 | $4.10 | 86.9% |
| 2053 | 38,110,000 | $156,380,000 | $4.10 | 86.9% |
| 2054 | 38,260,000 | $157,040,000 | $4.10 | 86.9% |
| 2055 | 38,430,000 | $157,720,000 | $4.10 | 86.8% |
| 2056 | 38,590,000 | $158,400,000 | $4.10 | 86.8% |
| 2057 | 38,750,000 | $159,080,000 | $4.11 | 86.8% |
| 2058 | 38,920,000 | $159,760,000 | $4.10 | 86.8% |
| 2059 | 39,080,000 | $160,450,000 | $4.11 | 86.8% |
| 2060 | 39,240,000 | $161,140,000 | $4.11 | 86.9% |
| 2061 | 39,400,000 | $161,830,000 | $4.11 | 86.9% |
| 2062 | 39,570,000 | $162,530,000 | $4.11 | 86.8% |
| 2063 | 39,730,000 | $163,230,000 | $4.11 | 86.8% |

* Annual toll transactions and estimated actual potential gross toll revenue
(1) Tolling started on December 29, 2011, half-way through FY 2012
(2) Overnight tolling between the hours of 12am – 5am began in July FY 2018
(3) FY 2025 includes actual monthly data through September 2024

# 7 DISCLAIMER

It is Stantec's opinion that the traffic and toll revenue estimates provided herein represent reasonable and achievable levels of traffic and toll revenues that can be expected to accrue on SR 520 over the forecast period and that they have been prepared in accordance with accepted industry-wide practice. Stantec considers it is necessary to state that the traffic and revenue projections take into consideration the following caveats:

- This synopsis presents the highlighted results of Stantec's consideration of the information available at the time of the study and the application of our experience and professional judgment to that information. It is not a guarantee of any future events or trends.
- The traffic and toll revenue estimates will be subject to future economic and social conditions, demographic developments that cannot be predicted with certainty.
- The traffic and toll revenue estimates will be subject to future construction activities affecting this corridor that cannot be predicted with certainty.
- The estimates contained in this document, while presented with numeric specificity, are based on a number of estimates and assumptions which, though considered reasonable to us, are inherently subject to economic and competitive uncertainties and contingencies, most of which are beyond the control of WSDOT and cannot be predicted with certainty. In many instances, a broad range of alternative assumptions could be considered reasonable with the availability of alternative toll schedules, and any changes in the assumptions used could result in material differences in estimated outcomes.
- The standards of operation and maintenance on SR 520 will be maintained as planned within the business rules and practices.
- The general configuration and location of SR 520 and its interchanges will remain as discussed herein.
- Access to and from SR 520 will remain as discussed herein.
- No other new competing highway projects are assumed to be constructed or significantly improved in the project corridor during the project period, except those identified herein.
- Major highway improvements that are currently underway or fully funded will be completed as planned.
- SR 520 will be well maintained, efficiently operated, and effectively signed to encourage usage.
- No reduced growth initiatives or related controls that would significantly inhibit normal development patterns will be introduced during the forecast period.
- There will be no future serious protracted recession during the forecast period.
- There will be no protracted fuel shortage during the forecast period.
- No local, regional, or national emergency will arise that will abnormally restrict the use of motor vehicles.
- If, for any reason, any of these stated conditions should change due to changes in the economy or competitive environment, the pandemic conditions and associated actions, or other factors, Stantec's opinions or estimates may require amendment or further adjustments.

- Stantec's toll revenue projections only represent its best judgment and Stantec does not warrant or represent that actual toll revenues will not vary from its projections, estimates, and forecasts.

Many statements contained in this document that are not historical facts are forward-looking statements, which are based on Stantec's opinions, as well as assumptions made by, and information currently available to, the management and staff of Stantec. Because the statements are based on expectations about future events and economic performance and are not statements of fact, actual results may differ materially from those projected. The words "anticipate", "assume", "estimate", "expect", "objective", "projection", "plan", "forecast", "goal", "budget", or similar words are intended to identify forward-looking statements. The words or phrases "to date", "now", "currently", and the like are intended to mean as of the date of this document.

Stantec is not, and has not been, a municipal advisor as defined in Federal law (the Dodd Frank Bill) to WSDOT and does not owe a fiduciary duty pursuant to Section 15B of the Exchange Act to WSDOT with respect to the information and material contained in this document. Stantec is not recommending and has not recommended any action to WSDOT. WSDOT should discuss the information and material contained in this document with any and all internal and external advisors that it deems appropriate before acting on this information.

In Stantec's opinion, 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.