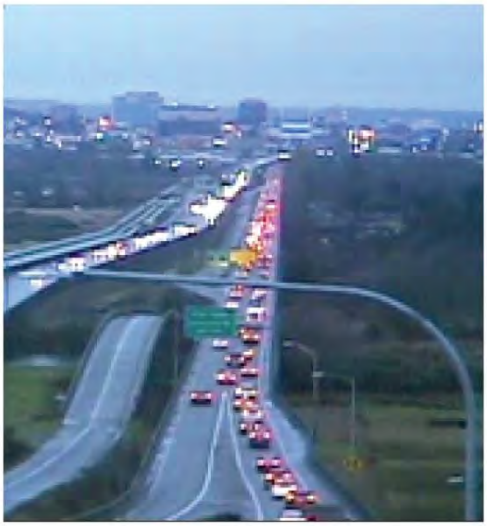
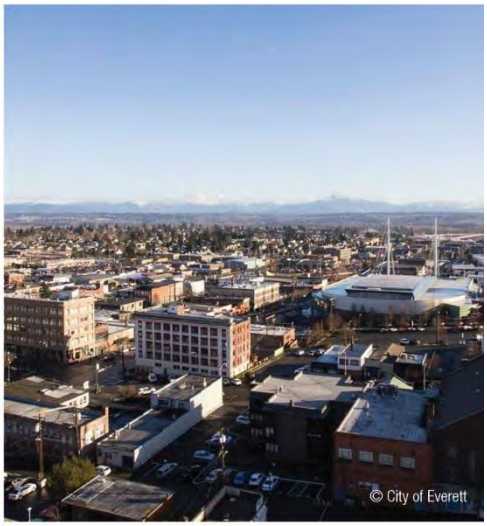
# US 2 Westbound Trestle Funding and Finance Study








Washington State Department of Transportation

January 2018

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# Disclaimer

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Information and statements contained in this report are based on information provided to WSP by, and obtained from, WSDOT, the US 2/SR 204/20th Street SE Interchange Justification Report (IJR) consultant team, and other sources. In the preparation of this report and the opinions contained herein, WSP, in collaboration with WSDOT and the IJR team, makes certain assumptions with respect to conditions that may exist or events that may occur in the future that are subject to change. Unless a source is otherwise noted, these assumptions are attributable to WSDOT, the IJR team, or WSP.

While WSP believes that the projections or other forward-looking statements contained within the report are based on reasonable assumptions, and correctly represent the inputs and estimates provided by WSDOT and the IJR team as of the date of the report, such forward-looking statements involve risks and uncertainties that may cause actual results to differ materially from the results predicted.

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# 1. Executive Summary

## 1.1 Background

### 1.1.1 History of the Facility

Construction of the US 2 westbound trestle was completed in 1968. After completion, all westbound traffic moved to this structure. The original timber trestle bridge continued to carry eastbound traffic until the early 1990s, when work to replace it with a concrete structure was completed.

In 2011, the Washington State Department of Transportation (WSDOT) completed a phased rehabilitation project of the westbound trestle applying carbon fiber wrap to the girders. At the time of construction, this project was expected to extend the service life of the westbound trestle until approximately 2045.


### 1.1.2 Previous Planning Studies

In 2009, the Washington State Legislature (Legislature) funded the US 2 Everett Port/Naval Station to SR 9 Corridor Planning Study (*US 2 Corridor Planning Study*) that addressed the future operational needs of the US 2 westbound trestle. The study, primarily completed in 2010-2011, analyzed the existing and future congestion levels in the corridor and highlighted, among other findings, the existing and forecasted heavy congestion levels on the westbound US 2 trestle in the AM peak period, especially at the eastern end of the facility where US 2, SR 204, and 20th Street SE merge.

The study considered near-term/lower-cost treatments and longer-term unfunded improvements for the corridor, including the replacement of the existing westbound trestle with a new three-lane facility. While the study acknowledged the operational deficiencies at the SR 204/20th Street SE and US 2 interchange, the estimated timeline for replacement of the westbound trestle was based on its remaining structural life, with construction shown commencing in the 2035-2037 biennium and completion of the facility occurring in the 2041-2043 biennium.

### 1.1.3 WSDOT Funding Context and Connecting Washington Projects

The state motor vehicle fuel tax (gas tax) is one of the traditional sources for funding highway transportation improvements. The 2015 Connecting Washington funding package is the latest change to the gas tax enacted by the Legislature, providing approximately $16 billion in funding for a variety of transportation needs throughout the state via a new 11.9¢ per gallon tax. The overall state funding structure for transportation projects makes use of the gas tax for the bulk of the funding, but it is also supplemented by other sources, such as tolling, federal grants, and local sources. Exhibit 1 presents Connecting Washington in the context of historical gas tax increases. Additional detail on the specific projects included in the Connecting Washington package is provided at the following location: http://www.wsdot.wa.gov/Projects/Funding/CWA/. The US 2 Westbound trestle was not included as part of the group of projects to be funded by the Connecting Washington program.

**Exhibit 1: Washington State Gas Tax History**

| Year of Gas Tax Increase | Amount of Increase |
|---|---|
| **2003 Base** | |
| 1991 gas tax | 23.0 cents/gallon |
| 2003 "Nickel Package" gas tax increase | 5.0 cents/gallon |
| **Subtotal - 2003 Gas Tax** | **28.0 cents/gallon** |
| **2005 Transportation Partnership Act (TPA) (implemented over four years)** | |
| 2005 gas tax increase | 3.0 cents/gallon |
| 2006 gas tax increase | 3.0 cents/gallon |
| 2007 gas tax increase | 2.0 cents/gallon |
| 2008 gas tax increase | 1.5 cents/gallon |
| **Subtotal Transportation Partnership Act** | **9.5 cents/gallon** |
| **2015 Connecting Washington Transportation Package (implemented over two years)** | |
| 2015 gas tax increase | 7.0 cents/gallon |
| 2016 gas tax increase | 4.9 cents/gallon |
| **Subtotal Connecting Washington** | **11.9 cents/gallon** |
| **Current State Gas Tax** | **49.4 cents/gallon** |
| Less (distributions to cities, counties. and grants for local governments) | (11.96 cents/gallon) |
| Less debt service on state highway and ferry projects funded by the pre-2003 base portion of the gas tax | (3.82 cents/gallon) |
| Less construction and debt service on 2003 Nickel and 2005 TPA projects statewide | (13.50 cents/gallon) |
| Less construction and debt service on Connecting Washington projects statewide | (11.90 cents/gallon) |
| **Remaining Gas Tax for Maintenance/Operations, Preservation, Safety Improvements, and Congestion Relief** | **8.22 cents/gallon** |

## 1.2 Legislative Directive

In 2016 and 2017 the Legislature authorized two interrelated studies related to replacement of the US 2 westbound trestle:

- Development of a US 2/SR 204/20th Street SE Interchange Justification Report (US 2 IJR) that focuses on traffic operations and satisfies federal requirements for analysis of potential changes to roadways connecting to interstate highways (due to the Legislature July 2018)
- Preparation of this US 2 Westbound Trestle Funding and Finance Study (due to the Legislature January 2018)

For this Funding and Finance Study, the Legislature directed WSDOT to address the following topics:

- Prepare a cost estimate for replacing the westbound trestle, including the east side interchange improvements proposed within the IJR
- Examine and recommend financing options, including public-private partnerships (P3), public-public partnerships, transportation benefit districts, loans, grants, and other alternative financing measures at the state and local level

- Coordinate with the project stakeholders, including the Port of Everett; the Economic Alliance of Snohomish County; the Cities of Everett, Lake Stevens, Marysville, Snohomish, and Monroe; and affected transit agencies.

## 1.3 Study Approach

Using the legislative directive as a starting point, WSDOT assembled a project team with the necessary expertise to conduct this study. Key features of the effort included the assembly of a consultant team with expertise in cost estimating, engineering, funding, finance, toll revenue estimation, and alternative project delivery methods, including public-private partnerships. This team collaborated closely with WSDOT staff and the US 2 IJR team, especially with respect to key project elements such as travel demand forecasting as it related to toll revenue estimates and cost estimating for the trestle replacement. The project team prepared an updated high-level cost estimate, forecasts for a variety of funding sources, high-level gross and net toll revenue estimates, a financial analysis, and a review of existing and proposed changes to the state's P3 laws and an analysis of P3 applicability and opportunities for this project.

The legislative direction for this study also included requirements to work in close collaboration with local project proponents and stakeholders. To meet this requirement WSDOT formed two partnership groups: a Technical Working Group (TWG) and an Executive Advisory Group (EAG). These groups included senior staff and elected or appointed officials representing the interests of the City of Everett, Snohomish County, Port of Everett, City of Lake Stevens, Community Transit, City of Marysville, City of Snohomish, City of Monroe, Snohomish County Committee for Improved Transportation (SCCIT), the Economic Alliance of Snohomish County, and legislators from the 38$^{th}$, 39$^{th}$ and 44$^{th}$ districts. Over the course of the study, the project team made three separate presentations to the TWG and two presentations to the EAG. Topics covered included traffic operations and travel demand forecasting being conducted by the IJR study team, cost estimating methods and assumptions, toll revenue forecasting methods and assumptions, project financing, P3 best practices, project funding sources and finance, issues related to existing and potential future changes to P3 legislation, a conceptual program timeline, and next steps for the project.

## 1.4 Options Considered

In keeping with the previous studies and aligning with the concurrent US 2 IJR study (scheduled for completion and submittal to the Legislature in late June 2018), this Funding and Finance Study considered a replacement facility with enough width to accommodate three or four westbound lanes in the future. Given the early nature of this study, the proposed designation of each lane (e.g., high-occupancy vehicle [HOV], general purpose, or peak use shoulder) is not defined in this report as it is part of the US 2 IJR scope and the future preferred alternative decision-making process. The assumed facility attributes that formed the basis of the cost estimate were chosen to accommodate a variety of lane designations so as to not preclude any of the US 2 IJR configurations under study. Assessing and analyzing improvements to mainline I-5 and the westbound US 2/I-5 interchange were also beyond the scope of this assessment. In addition to the replacement of the trestle and east-side approach ramps, other key base cost estimate assumptions included maintaining the existing Snohomish River Bridge into downtown Everett, adding a one-lane bridge to accommodate the westbound-to-northbound I-5 traffic, at-grade provisions for bicycle and pedestrian movements, and minor widening of the US 2 to southbound I-5 on-ramp for queue storage.

## 1.5 Estimated Project Costs

Project costs were estimated for both three-lane and four-lane options using a scoping-level methodology that is based on less than one percent engineering. Estimating costs at this early stage of project development includes the use of aggregated square-foot estimates based on historical experience with similar projects, numerous industry assumptions, and professional judgement. At this stage of the project, cost estimates are presented in ranges—in this case minus 30 percent to plus 50 percent was chosen, structured around a base cost. As is typical with large infrastructure projects, the cost estimate range narrows and base estimates are refined as additional engineering is completed, greater knowledge of the soil and other environmental conditions is acquired, and critical input from stakeholders and the public is received. Potential cost-reduction opportunities exist via project development and scope refinement, proactive risk identification and management, and innovative delivery techniques.

The cost estimate presented in this study is based on previous work done for the 2011 *US 2 Corridor Study,* but updated with unit costs based on recent market conditions, a new eastside interchange configuration based on the draft IJR findings, and a review of constructability. The cost estimate includes risk allocations to account for construction market inflation over and above general inflation; difficult construction conditions, including poor and variable soil conditions; environmental constraints and required mitigation; scope uncertainty; and the potential for flooding in the construction zone. The estimated scoping-level costs for the project are shown in Exhibit 2, expressed in both current dollars and future year of expenditure dollars based upon a preliminary delivery schedule.

**Exhibit 2: Estimated Range of Construction Costs**

| Case | 2017 $ millions | Year of Expenditure $ millions |
|---|---|---|
| Cost estimate for Three-lane Alternative | | |
| Low Cost (-30%) | 620 | 850 |
| **Base Cost** | **880** | **1,220** |
| High Cost | 1,320 | 1,830 |
| Cost estimate for Four-lane Alternative | | |
| Low Cost (-30%) | 700 | 970 |
| **Base Cost** | **1,000** | **1,380** |
| High Cost | 1,500 | 2,080 |

Notes:
Base costs at this scoping level include allocations for smaller cost elements (“known unknowns”) and project uncertainties and risks.
Costs in 2017 dollars escalated to year-of-expenditure dollars for the midpoint of construction using a cost index forecast that ranges from 4% to 5% per year.

## 1.6 Sample Project Funding and Financing Options

WSDOT projects similar in scale to the US 2 westbound trestle replacement have recently been delivered using a variety of funding sources and financing mechanisms. These project funding plans usually take time to develop, with the funding sources and financing approach being refined as the project scope, design features, and cost estimates are also being developed. The intent of this study is to present a few funding and financing options consistent with the early stage in the project’s development (i.e., prior to preparation of environmental studies or preliminary engineering) in order to clarify the ability of a variety of different mechanisms to meet the financial needs of the project. Although funding and financing plans can become quite complex, this study presents the following three sample options to help inform policy makers as they consider plans to move the project forward:

- Public financing assuming a portion of a statewide gas tax increase; federal and state grants; and local tax and fee funding.
- Public financing using a combination of state-backed bonds leveraging future tolls for repayment; federal, state and local funds; and a statewide gas tax increase.
- Private financing—as part of a P3 delivery method—using a combination of bank and U.S. Department of Transportation (USDOT) Transportation Infrastructure Finance and Innovation Act (TIFIA) loans leveraging future tolls for repayment; federal, state, and local funds; and a portion of a statewide gas tax.

P3s comprise a spectrum of project delivery methods codified in the form of contractual agreements between a public agency (the owner) and a private entity (the private partner) that allow for greater private sector participation in the delivery and operation of projects. Depending the P3 structure selected for the project, a P3 contract could leverage private sector involvement in design, financing, construction, operations and maintenance of the facility. This study chose the Design-Build-Finance-Operate-Maintain (DBFOM) model as a sample to illustrate the full potential of the P3 delivery method. It is assumed that other P3 methods would be evaluated if the project continues to consider this delivery method, including those that may use public financing.

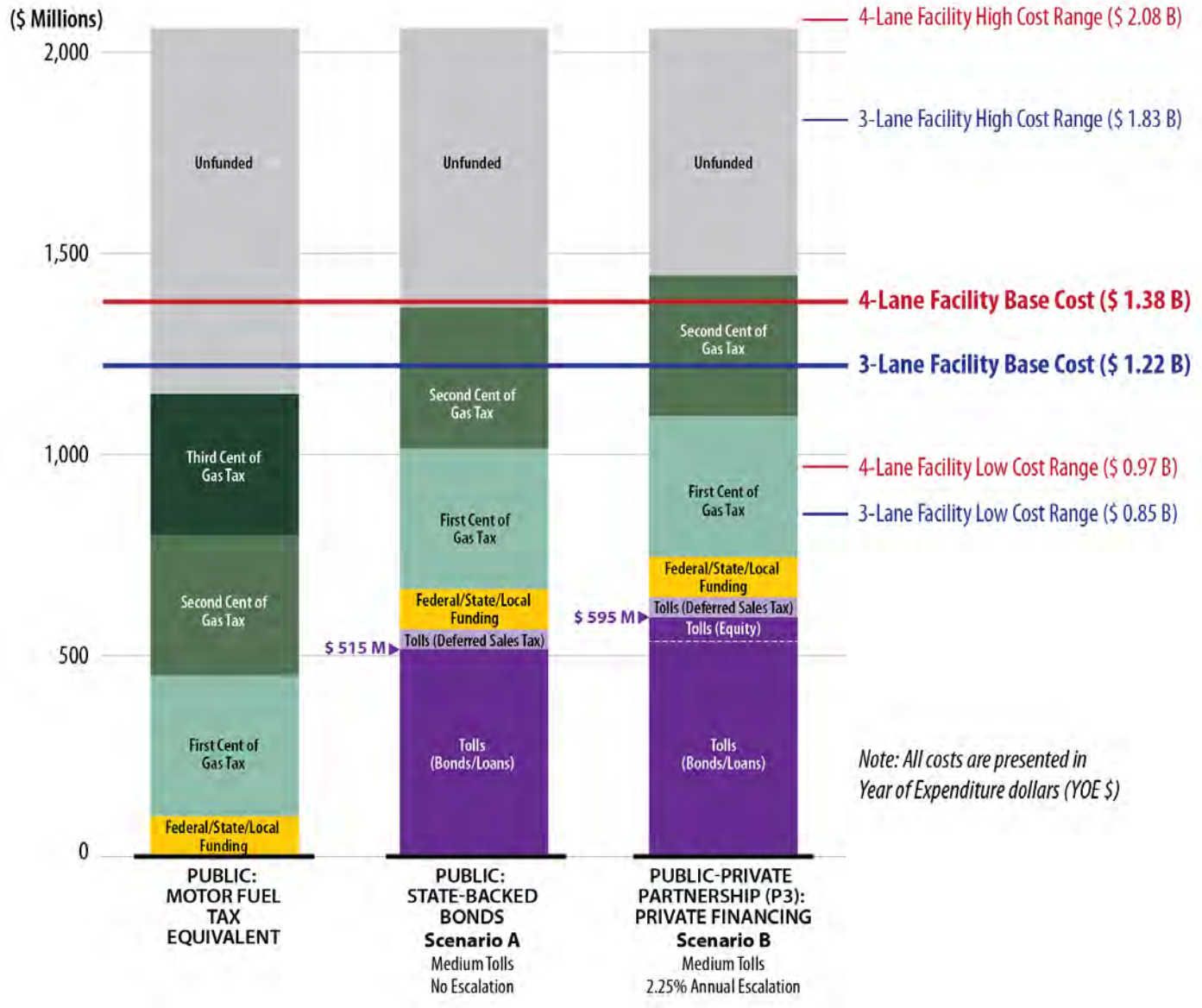
The following text describes the common and unique elements of the three sample funding options. Exhibit 3 on the following page compares the funding potential for the three sample options with the three- and four-lane project cost ranges.

### 1.6.1 Common Assumptions of the Sample Funding and Financing Options

For large transportation projects such as the US 2 Westbound Trestle replacement, a variety of revenue sources and financing mechanisms can be used to generate funding to pay for project delivery. This study reviewed the spectrum and considers the most promising of options, including tolling, federal grants, state grants, local option fee and tax revenue sources, and various types of financing mechanisms to leverage revenues that occur over time to provide up-front construction funding. Assumptions for federal, state, and local grant and fee-based funding plus a state-wide gas tax are described below as common to each of the three sample options.

**Federal, State, and Local Funding**
Looking at recent local and national precedents, the currently available federal and state grant programs, and the potential for a county-wide or multi-jurisdictional county subset Transportation Benefit District (TBD), funding of $100 million was identified as a reasonable target for the US 2 Westbound Trestle. The major applicable federal grant programs—Transportation Investment Generation Economic Recovery (TIGER) and the Infrastructure for Rebuilding America (INFRA)—have the potential to provide the largest share of this $100-million target but are also highly competitive, with only 6.8 percent of 2016 TIGER and 8.5 percent of 2016 FASTLANE (now INFRA) grant applicants receiving funding. State grant programs such as the Washington State Freight Mobility Strategic Investment Board (FMSIB) tend to be smaller (i.e., less than $10 million).

**Exhibit 3: Summary of Sample Funding Options and Project Cost Estimate Ranges**




Local option tax and fee mechanisms could also help contribute to the $100 million US 2 target, and in the most optimistic scenarios, help to exceed the $100 million target, but would likely require a broader package of improvements to obtain necessary support, diluting the amount of funding available for US 2 improvements. The TBD appears to be the most promising among other local tax and fee options; however, any such local option would also require financing to leverage future tax or fee revenues in order to provide up-front construction funding. For example, a county-wide TBD based upon a $20 vehicle license fee could provide between $6 and $14 million annually. The lower end of this estimate assumes no increases in any of the several incorporated cities that already have a TBD vehicle license fee, whereas the high end assumes that all incorporated cities and unincorporated areas participate where headroom exists up to the $50 ceiling not requiring voter approval. With financing, this annual range of revenues could potentially leverage from $70 to

$170 million in funding for a package of improvements, of which only an agreed upon portion would be available for the US 2 Westbound Trestle.

Note that a county-wide TBD would require interlocal agreements approved by 60 percent of the incorporated cities or 75% of the incorporated cities population base. Alternatively, a TBD comprised of a subset of the county, which may be necessary to avoid overlap with the portion of the county subject to Sound Transit 3 fees, would require interlocal agreement approval among all participating jurisdictions—potentially more difficult to achieve. Moreover, opportunities to maximize local tax and fee contributions with a TBD or similar district approach would typically trigger statutory requirements for a public vote. Consideration of a multijurisdictional subset of the county or going for the maximum vehicle license fee increases the TBD implementation risk by requiring broad political and public support to be successful.

**Statewide Gas Tax Funding**
Revenues from a state-wide gas tax can be used to fund projects via some combination of pay-as-you-go funding and motor fuel tax bonds that borrow against future revenues over time. For the latter, bond proceeds would provide up-front funding in the near-term to pay for project construction, with the gas tax revenues then encumbered over 25 years to repay the debt to bondholders with interest.

In round numbers, a 1-cent gas tax can generate about $35 million/year.[1] Over a six-year period starting a year before construction, a 1-cent gas tax increase would generate about $210 million in pay-as-you-go revenues. If one-half of the 1-cent gas tax were bonded and the other half provided as pay-as-you-go funding, then the total construction funding would increase to $350 million. Recent gas tax packages in Washington State have used a similar approach combining pay-as-you-go and bond funding.

### 1.6.2 Gas Tax Option – Funding Based Primarily on Statewide Gas Tax

The Gas Tax Option provides a good starting point for understanding the size and context of the US 2 Westbound Trestle project and the consideration of other funding source options, as it is the simplest to explain. Assuming a mix of pay-as-you-go and bonding, it would require the equivalent of a 3-cent statewide gas tax increase to generate about $1 billion. Adding the assumed $100 million targeted from federal, state, and local grants and fees, puts the total at $1.15 billion, or slightly less than the base cost for the three-lane alternative in year-of-expenditure dollars.

While this is useful context, in practice, past statewide gas tax packages have been used to fund a package of improvements around the state, not just a single project. As such, this hypothetical gas tax funding option would likely involve a larger state-wide tax package from which funding equivalent to a 3-cent gas tax would be earmarked for the US 2 Westbound Trestle.

### 1.6.3 Public Option – Funding Based Primarily on Tolls and Statewide Gas Tax

Tolling represents a source of user-based revenue that could be implemented to fund a significant portion of the project. This study prepared preliminary toll revenue and funding estimates based on several different toll scenarios, using toll traffic forecasts by another consultant combined with revenue models and methods that have been successfully employed on other WSDOT toll projects, including the

[1] Based on the WSDOT November 2017 Motor Vehicle Fuel Tax Forecast net for distribution for Fiscal Year (FY) 2021

SR 520 Bridge, the SR 99 Tunnel, and the Puget Sound Gateway Program corridors.

For this sample public financing option, the net toll revenues (after adjustments and operations and maintenance costs) for a "medium tolls" case without toll escalation (Scenario A) was paired with state-backed toll bonds and tolling starting in mid-2023 (FY 2024) at the beginning of construction. Scenario A assumes variable by time of day tolling in both directions of US 2, with tolls ranging from $1.50 to $4.50 in FY 2024 year-of-collection dollars ($1.30 to $3.95 in today's dollars). Under these assumptions, the potential toll funding contribution was estimated to range from $440 to $590 million, with a midpoint value of $515 million. An additional $50 million could be realized from tolls if the Legislature were to authorize deferring payment of the construction-related sales tax until five years after project completion, upon which it would be paid from excess net toll revenues in 10 annual installments, similar to the process in place for the SR 520 Bridge financing.

The combination of $515 million in toll bond proceeds, $50 million in deferred sales tax, and the assumed $100 million targeted from federal, state, and local grants and fees totals $615 million, as shown in Exhibit 3. Although substantial, this amount remains over $200 million short of the three-lane alternative cost range low end and would require the equivalent of between a 1- and 2-cent statewide gas tax to reach the three- or four-lane alternatives' base cost estimates.

A "medium high tolls" case without toll escalation (Scenario C – not shown in Exhibit 3) was also tested with toll rates ranging from $1.75 to $5.25 at the start of tolling in FY 2024 ($1.55 to $4.60 in today's dollars). This increases the toll funding contribution range to between $500 and $660 million. Even taking the top of the funding range rather than the midpoint value for this higher toll scenario—and combining it with $50 million in deferred sales tax funding and $100 million in federal, state, and local funds—the total falls about $40 million short of the three-lane alternative's low cost estimate.

Waiting until the project is completed to begin tolling significantly lowers the potential toll funding contribution, and would not likely be able to advance funding all the way to the beginning of construction without the Legislature authorizing short-term financing to bridge the five years between the start and end of construction.

Tolls can provide a significant share of the funding needed for the US 2 Westbound Trestle replacement; however, even when paired with $100 million of other federal, state, and local funds, there is still a funding gap.

### 1.6.4 Public-Private Partnership (P3) Option – Funding Based Primarily on Tolls and Statewide Gas Tax

The legislative directive for this Funding and Finance Study included the evaluation of P3 contracting as another option that could be used to facilitate project delivery. Potential advantages of P3 project delivery include the use of private capital financing the project (ultimately repaid through toll revenue or another source) and the negotiated transfer of all or some portion of risk from the public entity to private partner(s). Washington State allows the formation of a P3, but elements of the existing legislation, such as the approval processes and restrictions regarding private financing, limit the viability of attracting robust P3 participation from multiple private firms. In recent years, there have been ongoing discussions related to modifying the existing law to eliminate its current deficiencies.

Key P3 best practices, identified through a review of P3 programs around the country, call for the following:

- Clearly defined P3 authority and a clear and efficient approval process
- Public and stakeholder support for the project using the P3 delivery approach
- Completion of environmental documentation and clear definition of project scope
- Strong program and staff capabilities to undertake the procurement and implement the P3
- Competition among well qualified bidders (three or more short-listed) to drive innovation and savings
- Clearly articulated scope reflecting owner goals and selection criteria

This sample private financing and delivery option assumes that appropriate modifications are made to the existing statutes that would allow for consideration of private financing and the implementation of P3 best practices. As described further within Section 4 of this report, that there are many variants on P3 contracts representing varying degrees of risk and responsibility sharing between the public and private entities. This report assessed the viability and applicability of P3 contracting in a general sense, in order to highlight key near- and long-term differences between WSDOT's baseline Design-Build delivery assumption and P3 approaches that further leverage private industry and financing.

The P3 sample option in Exhibit 3 is also based upon a "medium tolls" case, but unlike the public option, tolls are assumed to escalate each year to keep pace with general inflation (Scenario B) after the new bridge opens in FY 2029.[2] The net revenues from Scenario B were paired with private financing comprised of a mix of bank loans and a low interest USDOT TIFIA loan.

With tolling starting in mid-2023 (FY 2024) at the beginning of construction, the range for the toll funding contribution under Scenario B toll assumptions is from $510 to $680 million, with a midpoint value of $595 million. Of this amount, 10 percent represents an equity contribution from the private sector concessionaire and the remaining 90 percent represents the proceeds from the two types of loans.

An additional $50 million could be realized from tolls via the construction sales tax deferral described in the previous section. Combined with the assumed $100 million targeted from federal, state, and local grants and fees, the P3 sample option is estimated to provide $745 million, as shown in Exhibit 3.

This total, while somewhat more than the public case—primarily due to toll escalation and a longer debt term that more than offsets its higher average cost of capital—still falls about $100 million short of the three-lane alternative cost range low end and would require the equivalent of between a 1- and 2-cent statewide gas tax to reach the three- or four-lane alternatives' base cost estimates.

Two additional toll scenarios were also analyzed for the P3 financing option. The same "medium tolls" without toll escalation (Scenario A) was shown to provide slightly less funding than in the public financing option, with a range from $410 to $540 million. A "medium-high tolls" case with a modest 1 percent annual toll escalation (Scenario D) was estimated to provide between $520 to 690 million, only about $10 million more than Scenario B used in the sample option.

Delaying the start of tolling until the new trestle is operationally complete in FY 2029 would lower the up-front toll funding contribution by more than 20 percent.

[2] Toll escalation for Scenario B is tied to an annual general inflation forecast that is assumed to average 2.25 percent per year.

**Public-Public Partnership Variant of a P3**
A "Public-Public" Partnership was proposed for consideration within this study and was defined as the Port of Everett assuming responsibility of the US 2 Trestle under Port statutory authority (under RCW 53.34.010) in order to oversee the replacement of the trestle using a P3 delivery approach. (Additional information on RCWs related to a Port-led project delivery and tolling scenario is provided in Appendix E.) There is currently no evidence to suggest that this would be a more efficient delivery approach than WSDOT delivering the project as a P3 under its existing authority. Since there is not a direct precedent in this state, key issues that would require further consideration include the following:

- Developing a clear understanding and expectations between the various state and federal statutory authorities for US 2 and I-5 (the Washington Legislature; the Governor's Office; WSDOT; the Port of Everett; the Federal Highway Administration (FHWA); and other state, federal, and local agencies)
- Determination of responsibility and ownership of risks that affect operations and costs, including capital delivery costs; long-term operational, maintenance, and preservations costs; and operational performance

## 1.7 Key Findings

### 1.7.1 Cost and Funding

- Base cost estimates range from $880 million to $1 billion (in 2017 $s) for the three- and four-lane replacement facilities, respectively. These costs include levels of risk and uncertainty appropriate for this preliminary planning stage of development. These amounts are estimated to range from $1.22 to 1.38 billion in future, year of expenditure dollars.
- The project could be delivered in stages, with the initial stage likely being replacement of the US 2/SR 204/20$^{th}$ Street SE interchange, estimated at between $365 million and $415 million (in 2017 $s) within this study.
- Funding the entire project from the statewide motor vehicle fuel tax would likely require in excess of a 3-cent increase in the current gas tax.
- A combination of federal, state, and local grant and fee sources are assumed to be able to provide up to $100 million in funding.
- If tolling were to start at the beginning of construction in FY 2024, tolling could be leveraged to provide between $410 and $690 million in project funding, depending upon the toll scenario, financing assumptions, and project delivery method.
- Legislative authorization to defer the payment of construction sales tax until after completion (at such time when there would be sufficient excess toll revenues to make installment payments) functions like a zero-interest loan, providing approximately $50 million in "funding."

### 1.7.2 P3 and Public/Public Partnerships

- With the proper statutory authority, a P3 delivery and private financing approach could be a viable alternative to state-backed toll financing and conventional design-build delivery. However, P3 delivery does not require private financing, and could be supported by state financing, including through structured availability payments.
- Once additional scope and cost certainty is achieved, additional analysis would be required to validate the delivery method and finance strategies in order to assess if a P3 approach would provide the best overall value to the state, and if

so, define the optimal P3 contractual approach based on clearly understood project goals.

- An efficient and predictable approval process will help WSDOT attract the best private investors to pursue the project as a P3. Legislative action is needed to establish authority that is in line with states such as Virginia, Colorado, and Texas where P3 delivery is more common (consistent with recommendations captured in the 2011 Joint Transportation Committee Public-Private Partnerships (P3s) in Transportation study).
- Environmental studies, major permits and approvals, and rights-of-way control need to be handled by WSDOT in advance of beginning a P3 procurement. These items represent risks that typical investors avoid. These studies will also inform the design and associated risk analysis that will in turn inform decision making around the appropriate P3 approach for US 2.
- Financial feasibility needs to be confirmed. This study indicates that multiple funding sources using a variety of revenue and financing mechanisms would be needed to pay for the project. These revenue sources need to be authorized or secured to show the investment community that the project is financially viable.
- Competition is a critical element of value creation in a P3 procurement. Competition causes P3 teams to innovate and find ways to drive down costs. The three previous items, once complete, should provide a competitive procurement environment that will drive value for WSDOT.
- Allowing for the comparison of public and private financing options by considering a P3 transaction is preferable to simply delivering as a design-build with public financing. A private partner will use whatever approach provides the most value, and WSDOT will never know what could be achievable for US 2 through P3 delivery with private or public financing if the option is not available at the time of the contract procurement.

## 1.8 Next Steps and Recommendations

Given the depth of study conducted at this point, the next logical step after completion of this study and the US 2/SR 204/20th Street SE IJR (June 2018) would be to commence work efforts leading to an environmental study and approval process. This would include all relevant supporting analysis and preliminary engineering work, culminating in the designation of a preferred alternative with a clear scope and common understanding among stakeholders and the public. Key components of an environmental study would include the following:

- A public project scoping process
- Alternatives development and screening
- Additional traffic analysis, site investigation, and preliminary engineering
- Identification of and mitigation of impacts
- Stakeholder and community engagement and input

If tolling were to be considered as an alternative within the environmental study, it adds increased complexity and analysis, as well as an additional effort related to stakeholder and community engagement. If an Environmental Impact Statement (EIS) was ultimately required, that effort could cost between $8 million and $10 million when all supporting efforts are considered.

There are smaller, less expensive interim studies that could be pursued ahead of the final environmental study effort that could help to better inform the delivery schedule, cost, and key risks (as documented in Section 9 of this report). Any further interim work completed outside of the full and final environmental process should include a

robust community engagement and multiagency coordination effort, so that it will support the subsequent decision-making process tied to selecting a preferred alternative.

With a completed environmental process, documented project scope decisions, and the supporting preliminary engineering, the project delivery method and associated funding and finance strategies could be finalized based on additional analysis and study informed by the project scope, expected cost, and risks. If tolling is to remain in consideration as a potential funding source and project alternative, additional traffic and revenue forecasting analysis (Tier 2 Traffic and Revenue Study) and a net revenue analysis would need to be performed to further refine the revenue forecasts under a variety of tolling scenarios.

For WSDOT to have the ability to further consider a P3 delivery approach as the project scope and details are refined, modification of the existing P3 legislation would be required, followed by the development of clear policies and WSDOT organizational alignment to support P3 development.

If local revenue is to be pursued as a funding contributor, additional efforts would be required to define and detail the mechanism for local contribution (such as a Transportation Benefit District). Partnering among local government funding participants would be required in order to estimate potential revenue and work through any required understandings and agreements between participating cities and Snohomish County.

# 2. Introduction

This Funding and Finance Study and its companion study, the US 2/SR 204/20th Street SE IJR, were both identified by the Washington State Legislature as required near-term work efforts related to the potential replacement of the US 2 westbound trestle. The geographic area covered by both studies is bounded by I-5 to the west and the interchange between US 2, SR 204, and 20th Street SE to the east. The IJR study focuses on traffic operations analysis associated with proposed geometric changes that address the existing and forecasted future congestion on the trestle and at the two interchanges in the project area. The Funding and Finance Study addresses the estimated costs for the facility upgrade and methods for funding and financing the replacement. The two studies have been closely coordinated throughout, although the schedules for completion are offset by several months, with the Funding and Finance Study scheduled for completion in January 2018, and the IJR scheduled for completion in June 2018.

## 2.1 Legislative Direction

As required by the legislative directive contained in the 2017 Transportation Budget proviso, specific topics addressed within this Funding and Finance Study include the following:

- Preparation of a cost estimate for replacing the westbound trestle, including the proposed eastside interchange improvements
- Examination and recommendation of financing options, including P3, public-public partnerships, transportation benefit districts, loans, grants, and other alternative financing measures at the state and local level
- Coordination with the project stakeholders, including the Port of Everett; the Economic Alliance of Snohomish County; the cities of Everett, Lake Stevens, Marysville, Snohomish, and Monroe; and affected transit agencies
- Submittal of a final report and recommendations to the transportation committees of the Legislature by January 2018

The full text of the budget proviso is provided in Appendix A.

## 2.2 Key Relationships Between the IJR and Funding and Finance Studies

Understanding the assumptions and approach to traffic forecasting is key to properly interpreting the findings of both the IJR and Funding and Finance studies. The IJR study, which was authorized by the Legislature within the 2016 Supplemental Transportation Budget, is being prepared to address basic traffic operational issues and corresponding conceptual design solutions, especially at the eastside interchange between US 2, 20th Street SE, and SR 204. It is not the charge of the IJR study to address funding sources and, thus, traffic forecasts were prepared assuming an untolled condition. Conversely, the Funding and Finance Study includes tolling as one of the optional funding sources, which required the development of separate traffic forecasts (using the same travel demand model) assuming time of day tolling in order to generate funding forecasts. Initial results from the traffic forecasting indicate that overall traffic volumes drop by more than 25 percent on a daily basis when tolls are applied at the levels described in the funding section of this document. Depending on whether tolls are selected for further study as a funding source for the project, future traffic studies and project refinement conducted as part of the design and environmental process may need to reflect traffic operations under tolled conditions.

## 2.3 Report Context and Structure

This report is organized into three general sections that address the key topics of investigation called for in the 2017 transportation budget proviso:

- Cost estimating
- Analysis of public-private and public-public partnerships
- Analysis of funding and finance alternatives
- Summary of findings and recommendations

As this project is still in the very early phases of analysis, the level of detail contained in each section is presented in a manner appropriate for the level of knowledge available about project conditions at this time. Costs estimates were prepared at a scoping level of detail (<1 percent engineering). Similarly, the P3 and funding and financial analyses were prepared using high-level scenarios. Should the project development effort continue, further engineering, environmental, and financial analysis would be required.

## 2.4 Study Approach

Using the legislative directive as a starting point, WSDOT assembled a team to conduct a financing and funding study for the replacement of the US 2 westbound trestle. Key features of the effort included the assembly of a consultant team with expertise in cost estimating, engineering, funding, finance, toll revenue estimation, and alternative project delivery methods, including public-private partnerships. This team collaborated closely with WSDOT staff and the US 2 IJR team, especially with respect to key project elements such as travel demand forecasting as it related to toll revenue estimates and cost estimating for the trestle replacement.

The collaboration between the IJR team and the finance and funding study focused primarily on integrating the approach to developing travel demand forecasts under both tolled and untolled cases. Both teams used the same travel demand model, base input assumptions, and modeling processes. The only variable between the forecasts was the assumed toll rate.

The project team also prepared an updated high-level cost estimate based on information provided by WSDOT from previous work on the facility. The project team worked with WSDOT to review and modify design, cost, and construction method assumptions from earlier work to reflect the latest market conditions, design standards, and construction approaches.

A review of existing and in-progress changes to the state's P3 laws and an analysis of P3 opportunities for this project was conducted based on experience with similar P3 projects throughout the US. Best practices were identified and compared to WSDOT's current laws, processes, and organizational structure.

The legislative direction for this study also included requirements to work in close collaboration with local project stakeholders. To meet this requirement, WSDOT formed two groups: a Technical Working Group (TWG) and an Executive Advisory Group (EAG). These groups included senior staff and elected or appointed officials representing the interests of the City of Everett, Snohomish County, Port of Everett, the City of Lake Stevens, Community Transit, the City of Marysville, the City of Snohomish, the City of Monroe, the Snohomish County Committee for Improved Transportation (SCCIT), the Economic Alliance of Snohomish County, and legislators from the 38th, 39th and 44th districts. Participating legislators included: Sen. Steve Hobbs (44th District); Rep. John Lovick (44th District); Rep. Mark

Harmsworth (44th District); Sen. John McCoy (44th District); Rep. Mike Sells (38th District); Rep. June Robinson (38th District); and Rep. Carolyn Eslick (39th District).

Over the course of the study, the project team made three separate presentations to the TWG and two presentations to the EAG. Presentation topics included traffic operations and travel demand forecasting being conducted by the IJR study team, cost estimating methods and assumptions, toll revenue forecasting methods and assumptions, project financing, P3 best practices, project funding sources and finance, issues related to existing and potential future changes to P3 legislation, a conceptual project delivery timeline, and next steps for the project. The presentation materials from the TWG and EAG meetings are contained in Appendix B.

# 3. Cost Estimate

Assessing the funding requirements for a westbound trestle replacement requires the development of a cost estimate using the latest available information regarding engineering and environmental standards and requirements, risks, and updated construction market cost conditions. This last element is especially important considering the history of construction cost increases over the past 5 to 10 years in the Puget Sound region, which have been well above the levels of general inflation since the last cost estimate was prepared for replacing the westbound trestle as part of the US 2 Corridor Study. The following section discusses the assumptions, methods, and data used to develop the cost estimate.

## 3.1 Methods and Assumptions

The cost estimate presented in this Funding and Finance Study updates the 2011 cost estimate prepared for the US 2 Corridor Study, which was used as a starting point. The previous cost estimate included assumptions regarding column spacing, bridge type, foundation type, and depth. In addition, some soils information was available from geotechnical work conducted during the original 1968 design and during the 1990 replacement of the eastbound trestle. Many of these assumptions were held constant in creating the updated cost estimate; however, modifications were made to unit costs, right-of-way costs, the size of some structures to better fit with the IJR study findings, some project allowances for items such as traffic control during construction, and project risks.

The estimate was prepared at the scoping level, which is based on limited information (typically 1 percent or less engineering) using aggregated unit costs for major elements and percentage allocations for other project elements, such as engineering, environmental, permitting, right-of-way, risk, scope uncertainty, etc. The WSDOT *Cost Estimating Manual* provides direction for the ranges to be applied to cost estimates at different phases during the project lifecycle. The range of costs are reduced as improved scope and cost certainty is achieved through the environmental and engineering phases. The cost estimate range used for this study, based on the current scoping level of information on the US 2 westbound trestle, is - 30 percent to +50 percent around the most likely base cost.

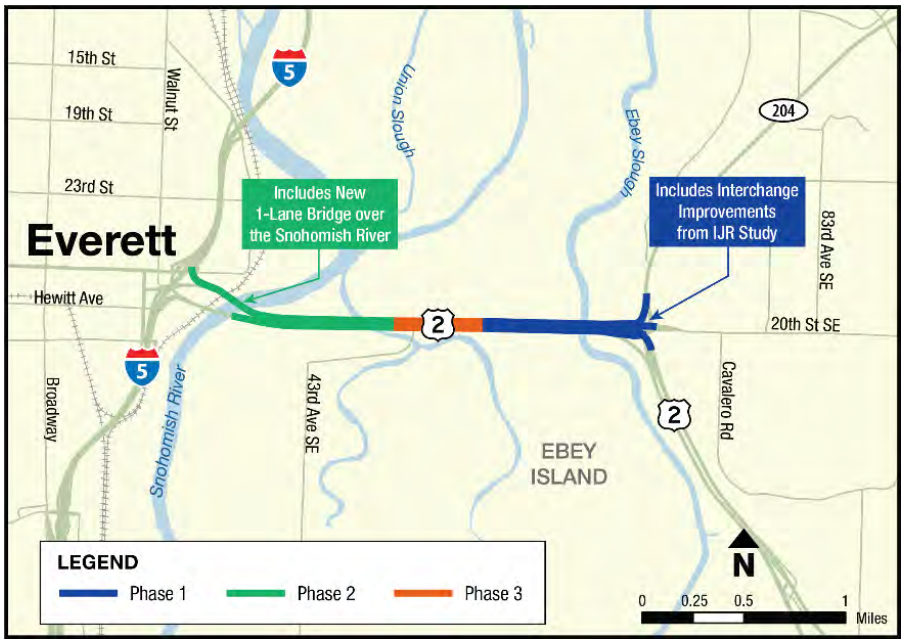
The updated cost estimate includes the following base assumptions:

- Construction of the US 2 westbound trestle replacement to the north of the existing structure
- Removal of the existing structure upon completion of the new facility
- A representative alignment that provides quantities and costs commensurate with the IJR study's preliminary preferred configuration
- Elimination of the westbound off-ramp to Ebey Island, with access to/from the east provided instead via the 20$^{th}$ Street low-level bridge
- Allowance for the widening of the US 2 on-ramp to southbound I-5 for queue storage but without major reconfiguration of the I-5/US 2 interchange
- Allowance for improved bicycle and pedestrian connections
- Adjustment to unit prices and escalation to capture current market conditions
- Implementation using one design/build contract that maintains trestle capacity by utilizing temporary connections during construction

- A new one-lane bridge crossing the Snohomish River connecting westbound US 2 to northbound I-5
- Use of the existing westbound Snohomish River bridge providing access into downtown Everett

Construction cost estimates were prepared for three general construction phases to provide insight into potential logical phasing scenarios should the project need to be built in multiple contracts. These construction phasing scenarios, which account for likely construction techniques and maintenance of traffic requirements during construction, are illustrative for this scoping level estimate. Refinement of the physical limits and duration of each phase would occur during the engineering phase of the project, if necessary. Exhibit 4 shows the conceptual phasing scenarios.

**Exhibit 4: Conceptual Project Phases**




## 3.2 Accounting for Project Risk

Accounting for risk in project cost estimates is essential, especially early in the project lifecycle. Some of the key risks considered when developing the cost estimate included the following:

- Construction market inflation above the general inflation levels assumed for financial modeling
- Construction conditions and environmental requirements, such as poor soils, multiple rivers and streams that are prone to flooding, and the need to acknowledge fish windows in construction schedules
- Scope uncertainties such as the following:
  - The potential need to replace the existing Snohomish River Bridge
  - The extent of improvements required at the termination of the ramp to downtown Everett in order to accommodate additional traffic flow associated with improving the east end of the trestle and adding capacity to the westbound trestle
  - Multiple options for providing bicycle and pedestrian connectivity
  - Permitting and environmental requirements

As the project moves forward into the environmental and design phases, these and other risks will be specifically identified, managed, and mitigated throughout the environmental and design processes. The anticipated result would be that the risk allocation would decrease as the final project scope is detailed and approved.

## 3.3 Bridge Configuration Options

Two general trestle configurations were considered for the cost estimate: a three-lane 52-foot-wide configuration and a four-lane 64-foot-wide configuration (Exhibit 5 and Exhibit 6, respectively). These options were developed with the intent to provide insight into costs associated with differing bridge sizes while providing enough flexibility to accommodate the recommendations from the IJR study. No lane designations (HOV or general purpose) were assumed in this study as those details would be addressed through the IJR and later stages of the project. However, it is worth noting that even the three-lane configuration option, which assumes three 12-foot lanes with a 6-foot inside shoulder and a 10-foot outside shoulder, could accommodate several operational scenarios, including the following:

- Three general purpose lanes
- Two general purpose lanes and one HOV lane
- Three slightly narrower general purpose lanes and one hard-shoulder running HOV lane

A more detailed description of the project scope, cost estimating assumptions, and unit costs are contained in Appendix C.

## 3.4 Construction Cost Estimates

Exhibit 7 shows the cost estimate for the three-lane and four-lane options in 2017 dollars and in anticipated year-of-expenditure dollars, which is required for the finance and funding analysis. Exhibit 8 shows construction cost estimates for each conceptual construction phase.

**Exhibit 5: Typical Section Concept – Three-lane Option**

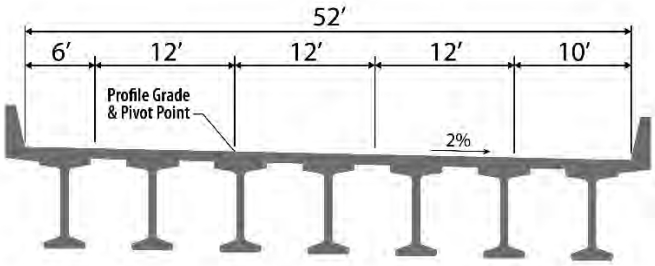



**Exhibit 6: Typical Section Concept – Four-lane Option**

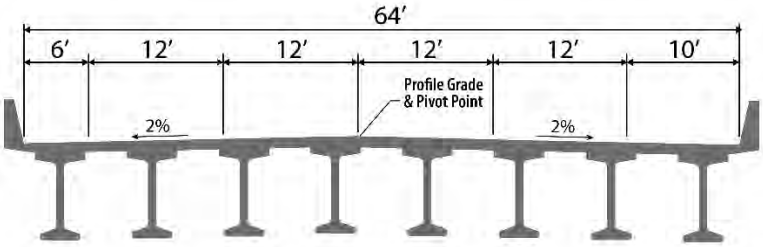



**Exhibit 7: Construction Cost Estimated Range**

| Case | 2017 $ millions | Year of Expenditure $ millions |
|---|---|---|
| Cost estimate for Three-lane Alternative | | |
| Low Cost (-30%) | 620 | 850 |
| Base Cost | 880 | 1,220 |
| High Cost | 1,320 | 1,830 |
| Cost estimate for Four-lane Alternative | | |
| Low Cost (-30%) | 700 | 970 |
| Base Cost | 1,000 | 1,380 |
| High Cost | 1,500 | 2,080 |

Notes:
Base costs at this scoping level include allocations for smaller cost elements ("known unknowns") and project uncertainties and risks.
Costs in 2017 dollars escalated to year-of-expenditure dollars for the midpoint of construction using a cost index forecast that ranges from 4% to 5% per year.

**Exhibit 8: Construction Base Costs by Project Phase**

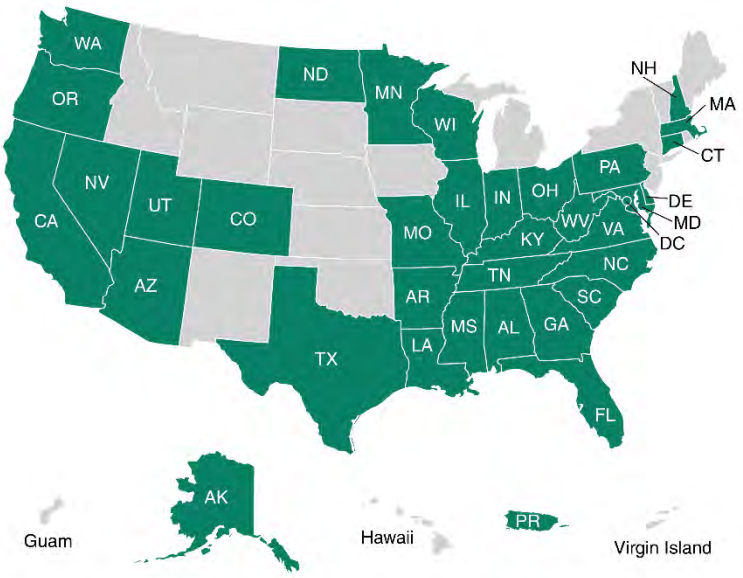
| Construction Phase | Three-lane Alternative 2017 $ millions | Four-lane Alternative 2017 $ millions |
|---|---|---|
| Phase 1 – East End | 365 | 415 |
| Phase 2 – West End | 350 | 390 |
| Phase 3 – Center | 165 | 195 |

Notes:
Costs rounded to nearest $5 million
Assumes use of existing trestle during Phases 1 and 2
The -30% to +50% cost ranges would apply to each phase. Only base costs are shown for presentation purposes.

# 4. P3 Legislation and Financing

A trend in transportation project delivery is the use of alternative delivery mechanisms to harness value generated from private participation, often referred to as public-private partnerships, or "P3s." Thirty-five U.S. states, the District of Columbia and one U.S. territory have enacted statutes that enable the use of P3 approaches for the delivery of transportation infrastructure (see Exhibit 9). The structure of a P3 contract fosters risk transfer from the owner to the private partner, provides a venue for innovation that can reduce costs, and may allow for private financing techniques that may create more value than traditional public financing approaches. Not every project is appropriate for P3 delivery, and with the right analysis, this determination can be made clear. Exhibit 10 shows recent major bridge P3 projects in the US by type of P3 structure.

**Exhibit 9: States with P3 Statutes**




At a high level, "traditional delivery" refers to design-bid-build (DBB) where design is completed by the project owner and contractors bid on the construction contract to build the project. The separation of the design and construction contracts is cause for the owner to take on the risk that issues develop during construction related to the design and unforeseen site conditions, among others.

**Exhibit 10: Recent P3 Bridge Projects in the US**

| Project Name | State | Construction Cost ($ Billions) | P3 Type | Facility Type |
|---|---|---|---|---|
| Ohio River Bridges East End | Indiana/ Kentucky | 1.32 | DBFOM | Toll Bridge Replacement |
| Rapid Bridge Replacement | Pennsylvania | 1.10 | DBFM | Bridge Program |
| US 181 Harbor Bridge | Texas | 0.90 | DBM | Bridge Replacement |
| South Norfolk Jordan Bridge | Virginia | 0.14 | DBFOM | Toll Bridge Replacement |
| Cline Avenue Bridge | Illinois | 0.15 | DBFOM | Toll Bridge Replacement |
| Geothals Bridge | New York / New Jersey | $1.43 | DBFM | Toll Bridge Replacement |

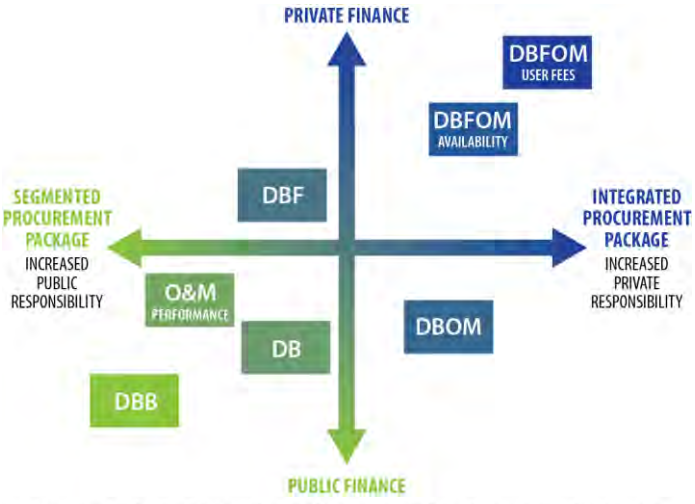
## 4.1 P3 Overview

Public-private partnerships are a form of project delivery permitted by Washington under Chapter 47.29 RCW (Transportation Innovative Partnerships) for use in transportation projects. Fundamentally, P3s are contractual agreements between a public agency (the owner) and a private entity (the private partner) that allow for greater private-sector participation in the delivery and operation of projects.

P3s are not a source of funding; rather, P3s are contracts between the public and private-sector parties, structured to expedite delivery, stimulate innovation, or drive cost-efficiency through the transfer of risk. There are multiple forms of P3s, and terminology ranges from state to state. Design-build (DB) is a form of P3 that

combines the design and construction into one contract. This allows for the transfer of some risks to the private sector, and is commonly used by WSDOT to deliver projects of all sizes. Additional risk transfer, innovation, and savings may be attained by including financing (F), operations (O), and maintenance (M) into a more comprehensive P3 contract, referred to as DBFOM, and herein assumed to be the "P3 approach," although a P3 is a broad term that can refer to any risk-sharing arrangement between a public owner and private investor, as defined above. All the variations of P3s assume that the public partner retains ownership and oversight of the asset and the private partner simply provides a service. DB is considered the default "public" delivery method for the US 2 westbound trestle, and as noted, the DBFOM model was studied as the P3 alternative. Other P3 models are also possible, such as DBOM or DBM, each having different costs and risk transfer goals. Exhibit 11 shows the typical P3 structures and their relationship to the distribution of risk between public and private entities and the degree to which the structure uses public or private financing mechanisms. Additional information regarding P3 procurement models is provided in Appendix D.

**Exhibit 11: Typical P3 Agreement Structures**




*Adapted from John B. Miller, "Principles of Public and Private Infrastructure Delivery," Kluwer Academic Publishers, 2000*

**DBB**: Design-bid-build (traditional delivery)
**DB**: Design-build
**DBF**: Design-build-finance
**DBFOM**: Design-build-operate-maintain
**DBFOM**: Design-build-finance-operate-maintain
"**AVAILABILITY**" refers to repayment by availability payment
"**USER FEES**" refers to repayment by tolls or other user charges
**O&M (PERFORMANCE)** refers to a performance based stand alone O&M contract

## 4.2 P3 Legislation in Washington State

P3-enabling legislation varies widely among states, and while many states have legislation, the use of P3s has been sporadic thus far. However, important factors such as available government resources, political support, a strong capital market, and the legal structure necessary to enforce P3s will continue to generate growing use of the delivery model. P3s for state transportation projects in Washington are governed by the Transportation Innovative Partnerships Act of 2005 (the P3 Act). The P3 Act generally allows transportation-related projects and programs of all modes to be eligible for development as a P3 under the Transportation Innovative Partnership Program (TIPP). To date, the TIPP Program has not been used to develop a highway construction project.

Under current statutes, legislative authorization is required for projects that are to be funded by tolls before WSDOT may issue a Request for Proposals (RFP). The Washington State Office of the Attorney General (AGO) reviews any tentative P3 agreement for legal sufficiency before the Washington State Transportation Commission (WSTC), in consultation with the governor, votes to approve, reject, or order further negotiations on the agreement. The number of approvals during the procurement is more burdensome than most states, and the required approvals by the WSTC and governor after the procurement is complete pose risks that most P3 investors are not willing to take given the amount of investment required to submit a competitive proposal.

Current statutory authority provides that a project may be funded and/or financed fully or partially with different sources, including bond proceeds; grants; loans; loan guarantees; lines of credit; revolving lines of credit; infrastructure loans; federal, state, and local tax revenues; user fees; toll; and fares. The state treasurer, at the request of the WSTC, may issue revenue bonds. Debt issued to pay for a P3 project that is owned, leased, used, or operated by the State of Washington as a public

facility must be issued by the state treasurer. The requirement for legislative approval to use private financing is another hurdle that could reduce the attractiveness of a P3 opportunity.

Efforts to change the P3 Act are underway. Senate Bill 5330 was proposed in 2017 but not advanced out of committee. Although it never made it to the floor of the Legislature, it highlighted the need for change to the P3 Act if Washington seeks to use P3 delivery methods on transportation projects in the future.

The Capital Projects Advisory Review Board (CPARB) has been working for approximately two years to develop and propose a comprehensive replacement for the P3 Act that addresses the shortcomings noted above while providing safeguards for the public interest. At its November 16, 2017 board meeting, the CPARB approved a bill request for HB 3117, which reflected the spirit of the P3 Committee's draft legislation (39.10.500) that the CPARB P3 Committee developed. If the bill request remains as written, this bill authority could extend to include WSDOT projects, superseding the current P3 Act. CPARB currently evaluates public capital projects construction processes, including the impact of contracting methods on project outcomes, and advises the Legislature on policies related to public works delivery methods. These current authorities do not include transportation projects. The proposed legislation as written could manifest unintended consequences on WSDOT's existing design-build program. WSDOT's goal would be to work closely with the Legislature to ensure that any refinements to P3 legislation would include clear statutory authority and expectations related to WSDOT's delivery of its capital program.

### 4.2.1 Benefits and Costs of Public-Private Partnerships

Project owners' goals for projects and project delivery differ significantly; therefore WSDOT should carefully consider what it wishes to achieve by using an alternative delivery approach and weigh the costs and benefits. Some common potential costs and benefits are outlined below.

**Potential Benefits**
Because of the consolidated nature of the P3 contract and the use of project finance, P3s can provide the owner greater budget and schedule certainty. The private party's lenders drive rigorous fiscal management and incentivize the contractor to adhere to contractual terms to meet repayment schedules. The private partner is also incentivized to meet the owner's schedule and is often rewarded for expediting project delivery—both elements are tied to payments made by the owner to the private party, which in turn expedites repayment to lenders and equity holders.

Cost savings can be achieved when all phases of the project are integrated into one contract, which reduces friction costs between phases of project development. Usually, the private partner must estimate the life-cycle costs and build those costs into their financial model. The private party is incentivized in a variety of other ways to seek cost savings in all phases of the project development, using innovation to accelerate investor returns, which also benefits the owner.

Risk is allocated to the party best able to manage that risk. In a P3, the private partner may assume risks that are typically borne by the owner, such as demand, operations and maintenance, and project site risks (such as geotechnical or in limited cases, environmental risks). The private partner takes on these risks because they believe they can mitigate them in a more efficient or cost-effective way than the owner. The owner, under appropriate terms, is willing to accept a cost in exchange for taking these risks, knowing its costs are more certain.

Improved performance and innovation are other potential benefits of the P3 delivery method. The public entity can specify performance conditions that the private

partner must meet to receive payment. A private partner may develop innovative ways to approach the project—by improving service delivery, using different materials, or designing the project differently—to reduce costs and/or help meet performance requirements more effectively.

**Potential Costs**
As described above, P3 transactions can be complex and require more management than traditional contracting. There is a need to align the owner's goals with the private partner's appetite for the project (through one-on-one meetings), along with a need to anticipate possible financial, legal, and technical issues and develop mitigation strategies. As a result, P3 projects tend to have higher transactional costs than traditionally delivered projects. In some cases, these higher costs are offset by lower design costs, given the majority of design is passed on to the private partner. However, owners should expect to bear the cost of staff and specialized advisors to develop the procurement strategy, conduct the procurement and manage the project, as well as staff time to guide the project through a complex process of analytics and approvals.

Although P3s can offer access to capital, they do not provide new funding. In the event that a project does not generate a discrete stream of revenue large enough to pay for the project, the owner will need to seek state or federal funding or other forms of funding to repay the private party. Considering that private capital is more expensive than capital derived from public sources such as tax-exempt bonds, P3 may also not be cost-effective or appropriate if there is not sufficient risk transfer to justify higher costs of capital. In this regard, every project is different, but the initial analysis of the US 2 project suggests that a P3 financing package would render a similar amount of funding as the public approach.

Public entities generally weigh the benefits and costs of P3 delivery by analyzing the "value for money," or the difference in cost of delivery between a private capital approach and a public approach. This form of study includes quantifying the costs and benefits of a variety of procurement models; however, this can only be done effectively once the project is sufficiently developed so that project risks can be valued and compared.

### 4.2.2 Organizational Readiness and Procurement Delivery Options

While WSDOT has successfully delivered many DB projects, it should develop additional expertise and capacity before embarking on a large, comprehensive highway DBFOM procurement. P3 procurement requires greater oversight by the owner and additional expertise (both staff and consultants) to manage the process. For a small-scale P3 office within WSDOT, two to three staff with financial, legal, and relevant technical backgrounds would be needed in addition to specialized consultant help to appropriately procure and implement a P3 project. If the WSDOT strategy for the use of P3 delivery expanded to include a large pipeline of potential projects, the resources of the current P3 Office staff would need to be expanded in lock step.

In addition to the dedicated P3 Office staff, a variety of other technical, planning, and communications staff from other WSDOT departments would need to be educated on the P3 process and goals. This is necessary for support in validating technical analyses that would contribute to the feasibility, contract development, proposal evaluation, construction oversight, and ongoing monitoring of the facility, particularly as it relates to ongoing operations and maintenance being conducted under a performance specification.

**US 2 Westbound Trestle Project Readiness**

Part of a P3 Office's responsibility is developing a qualitative screening framework that helps determine if a project is appropriate for P3 delivery and ready to commence into a P3 procurement. Many of the elements that would be examined in this framework must be covered whether a DB or DBFOM delivery is used. The specific project elements related to DBFOM that must be sorted, beyond authority, include the following:

- **Public Support**: Public support is a crucial factor to consider when evaluating a P3 approach that includes a long-term operating and maintenance component. These contract elements can be perceived as a step too close to ownership transfer, particularly if tolls are collected on the facility. Informed and motivated stakeholders can often provide the political will needed to delay or cancel the project on a basis of perceived privatization of public assets.
- **Project Scope and Complexity:** Understanding the scope and structuring the ongoing operations, maintenance, and handback provisions so they result in increased value for WSDOT will be a complex endeavor. Pairing operations and maintenance with the DB portion of the contract presents opportunities for innovation, which is one way that P3 teams can deliver efficiency, and potentially cost savings.
- **Market Sounding**: In addition to completing the qualitative screening tool, it is important for WSDOT to assess the private market appetite for a potential P3 project, particularly one that could include toll revenue risk and financing. Market sounding—in the form of a Request for Information and industry forum events—will allow WSDOT to assess the level of interest from potential private proposers, which is a good indication of the potential competitive field the project may attract during a P3 procurement.

In the early stages of P3 market sounding, market participants will be very interested in potentially uncontrollable risks they could face. For US 2, this includes the current legislative approval process and financial feasibility. There are many potential P3 opportunities in the U.S. today, and investors have their own screening processes in place because P3 pursuits are expensive and risk tolerances vary greatly across the spectrum of different market participants. WSDOT should go through the qualitative screening process prior to conducting any market sounding to make sure it has a firm grasp of its goals and ability to conduct a P3 procurement. Private participants are also interested in the public partner's qualifications and ability to execute a P3; therefore, WSDOT needs to convey that it has a sound plan and ability to move forward under reasonable terms when conducting any market sounding.

## 4.3 P3 Procurement Overview

Undertaking a comprehensive P3 procurement, compared to a DB procurement, is a relatively lengthy process that requires careful development of contract documents and an evaluation of proposing teams based on a variety of elements, aside from just price to construct. Much of the time is spent on refining the contract and supporting technical provisions so that the product that is eventually delivered (both capital and operating) meets the owner's goals for risk transfer and affordability.

A typical "two-step" procurement includes a Request for Qualifications (RFQ) and an RFP. The RFQ step follows any general market sounding that is performed and is structured to short-list three to five teams that are highly qualified to undertake the project. These teams will show they have experienced personnel, a track record with similar projects, an understanding of the project issues at hand, corporate support, and the appropriate balance sheet for the project. It is important to have at least three shortlisted teams to maintain a competitive element, particularly to maintain

competition should one of the proposers drop out during the procurement. If at least three very good proposers do not submit qualifications, revisiting the procurement strategy may be warranted.

Once the shortlist is established, a potentially long period (6 to 12 months) of RFP development will begin. The length of this period is highly dependent on the complexity of the project, but it behooves the owner to take its time to work through a series of one-on-one meetings and other proposer interactions to maximize the value it receives from the P3 transaction.

Soon after the shortlist is established, the owner will present the proposer teams with a draft RFP that contains a draft of the full contract, all detailed technical specifications, payment terms, and other elements to react to, ask questions of, and provide feedback on during a structured set of one-on-one meetings. The one-on-one meetings are conducted between the owner and each of the proposers individually. The information that transpires from the owner to the proposer during these meetings should be consistent, and the information provided by the proposers to the owner should be kept confidential. The goal is for the owner to provide the same information to each proposer but to answer questions that each proposer might have related to fit and desirability of potential alternative technical concepts they are considering proposing to improve the asset's performance or to lower cost. The proposers also will use the one-on-one meetings to highlight contract terms they feel are unfair or will cause excessive costs.

It is not uncommon for the owner to re-release the draft RFP two or more times between rounds of one-on-one meetings and for three or more rounds of meetings to be conducted. Once the owner is confident that the contract terms are reasonable and that all proposer questions have been answered to the extent possible without giving teams an advantage, the Final RFP can be released and teams are provided two to six months (or more for a particularly complex project) to prepare their proposals. Proposals can be evaluated on several elements, including price, schedule, and other less quantitative criteria.

A period of negotiation after selection is common, depending on schedule and the owner's willingness to accommodate variations on certain contract terms. Typically, there is a commercial close, when the contract is signed, contingent on financial close, which occurs up to a few months later after final transactional work is completed and the transaction closes freeing up funding for the project to begin.

## 4.4 Private Financing

As noted above, legislative action is required in Washington for private financing to be used in a P3 transaction. If tolling is ultimately used to contribute to the funding and/or financing of the US 2 westbound trestle replacement, this revenue stream could be an appropriate way for the private partner to repay its financing obligations, including equity contributions. Otherwise milestone payments during construction and/or annual availability payments from the state could be used to pay the P3 contractor.

Every private investment group will have different tolerances for toll revenue and availability payments, and their lenders will have different debt terms. It is difficult to predict the value that a revenue stream will bring in a P3 transaction several years from now (or a public transaction for that matter). However, it is helpful to explain how private financing could work to dispel the notion that tax-exempt public financing is always preferable to private financing because the interest rates are usually lower.

In P3 transactions where the private partner provides the financing for a project, there is usually a combination of debt and equity. The equity portion is cash

provided from one or more of the members of the consortium of companies making up the "private partner."

It is important to clarify that the private partner is usually a group of companies that form a legal partnership (LLC or similar), referred to as a special purpose vehicle (SPV), to carry out the project. There is usually a lead construction contractor who manages the design-build portion of the work (including all design and specialty subcontractors) and potentially the operations and maintenance portions. There may be separate equity contributors (although the lead contractor is commonly a major equity provider) and lenders to the SPV. In these arrangements, the equity usually gets repaid last, after lenders, hence an expected return on equity is much higher, often in the 12 to 15 percent range. The cash that repays equity is often leftover reserves or savings generated by efficiencies in delivery.

The lenders are generally banks that have an arrangement with the contractor and other equity partners to provide capital for the project. Bank debt is not tax exempt, and therefore carries a higher interest rate than comparable debt issued by a public entity. Private partners can qualify for tax-exempt TIFIA or private activity bonds in conjunction with a public entity, according to the terms of those programs, and it is common for private partners to target these lending programs because of the lower cost of capital. However, some component of the private financing package is usually taxable bank debt.

A publicly issued tax-exempt debt offering will often bundle a range of rates and maturities extending 30 years into the future. Private bank debt average maturities may be much shorter (less than 10 years), requiring refinancing several times during the term of the P3. The private partner to a P3 may also use short-term construction loans to fund construction and then refinance after completion. In short, a private financing package may be more complex but because of the equity component and diverse set of financial mechanisms, it can generate the same (or more) up-front funding as traditional state-issued tax exempt debt.

## 4.5 P3 Conclusions

Prior to commencement of this study, unsolicited P3 interest had been put forth to project stakeholders by a private entity proposing to replace the westbound US 2 trestle and recoup the private investment through tolls. The specific details of this proposal are not known, but there are several fundamental elements of any P3 delivery that should be addressed by WSDOT prior to undertaking a P3 of any kind. These are outlined in this chapter and are summarized as follows:

- An efficient and predictable approval process will help WSDOT attract the best private investors to pursue the project as a P3. Legislative action is needed to establish authority that is in line with states such as Virginia, Colorado, and Texas where P3 delivery is more common.
- Environmental studies, major permits and approvals, and rights-of-way control need to be handled by WSDOT in advance of beginning a P3 procurement. These items represent risks that typical investors avoid. These studies will also inform the design and associated risk analysis that will inform decision making around the appropriate P3 approach for US 2.
- Financial feasibility needs to be confirmed. This study indicates that multiple sources of revenue, financing, and funding will be needed to pay for the project. These sources need to be secured to show the investment community that the project is financially viable.
- Competition is a critical element of value creation in a P3 procurement. Competition causes P3 teams to innovate and find ways to drive down costs.

The three previous items, once complete, should provide a competitive procurement environment that will drive value for WSDOT.

- Allowing private financing as an option for a P3 transaction (in addition to the public financing option) is preferable. A private partner will use whatever approach provides the most value, but WSDOT will never know what is achievable for US 2 through private means if the option is not available during the procurement.

# 5. Toll Funding Analysis

Given the early stage of project development and current lack of secured funding, tolling has arisen as a potential and promising funding source to help deliver a new US 2 westbound trestle. Understanding and assessing the potential toll funding contribution and impacts from tolling, even at this preliminary stage, requires much more technical analysis effort than most other conceivable funding options. As a result, this Funding and Finance Study focuses a relatively large share of resources and space within this document to cover the toll funding options.

## 5.1 Toll Traffic and Revenue Forecasts

### 5.1.1 Travel Demand Modeling

The travel demand modeling for this Funding and Finance Study was conducted by Fehr and Peers as part of the IJR study team. These demand forecasts become the basis for toll traffic and revenue projections. The industry commonly segregates toll traffic and revenue (T&R) forecasts into three tiers or levels of increasing detail and rigor. The T&R forecasts prepared for this Funding and Finance Study are best described as a fairly detailed Level I analysis. Level I is typically used to describe preliminary, feasibility-type analyses. Level II T&R studies include more comprehensive, corridor-specific modeling, traffic data collection, and potentially even user survey work, often conducted to consider several tolling alternatives. A Level III or “investment-grade” T&R study is the most comprehensive of the analysis levels, involving more detailed models with independently prepared or verified model inputs, detailed data collection, and customer surveys, and is relied upon to establish a credit rating and secure debt financing from future toll revenues.

Working in coordination with WSP, the IJR study team tested a range of potential toll rates for future forecast years 2025 and 2040 using the Puget Sound Regional Council (PSRC) regional travel demand model. Tolls on the US 2 Trestle were allowed to vary across five daily time periods in both directions.

Based on analysis of these diagnostic tests, a series of toll schedules were requested for travel demand modeling that would yield weekday toll traffic results for four toll scenarios to be carried forward for detailed analysis within this Funding and Finance Study. Two of these four scenarios included annual toll escalation upon operational completion of the new US 2 Trestle, and two assumed that the initial toll rates would not change over time. The initial tolls for these scenarios are characterized as “medium” to “medium-high,” meaning that they are well below the “highest” revenue maximizing levels for two-axle cars and trucks, striking a balance between significant revenue generation, toll diversion, and consistency with other regional toll facilities, namely the SR 520 Evergreen Point Floating Bridge and the SR 16 Tacoma Narrows Bridge.

Exhibit 12 provides the toll rates for each of the four toll scenarios, expressed in year of collection dollars at the time tolling is implemented. The toll rates shown are those that would be in effect for customers with a *Good To Go!* account for electronic toll collection. Customers without an account would be billed under the Pay By Mail option at toll rates that are $2.00 higher. Tolls are assumed to be collected in both directions. This allows for the toll schedule to vary by time of day to help manage demand. Higher tolls in the morning (AM) and afternoon (PM) peak periods and lower tolls during other, off-peak times provide an incentive for those drivers that do not need to travel at peak times to shift their travel to a lower cost period, thereby reducing peak-period congestion relative to an all-day flat toll.

**Exhibit 12: Study Toll Scenario Weekday Rate Schedules in Year-of-Collection Dollars**

| Weekday Time Period | Direction | Toll Rates in Year-of-Collection Dollars at the Start of Tolling | | | |
|---|---|---|---|---|---|
| | | Scenario A: Medium Tolls/ No Escalation | Scenario B: Medium Tolls + 2.25% Annual Escalation after FY 2029 | Scenario C: Medium-High Tolls/ No Toll Escalation | Scenario D: Medium-High Tolls + 1% Annual Escalation after FY 2029 |
| AM Peak (6 AM-9 AM) | Eastbound | $2.50 | | $3.00 | |
| | Westbound | $4.25 | | $5.00 | |
| Midday (9 AM-3 PM) | Eastbound | $2.00 | | $2.50 | |
| | Westbound | $2.00 | | $2.50 | |
| PM Peak (3 PM-6PM) | Eastbound | $4.50 | | $5.25 | |
| | Westbound | $3.00 | | $3.50 | |
| Evening (6 PM-10PM) | Eastbound | $2.50 | | $3.00 | |
| | Westbound | $2.00 | | $2.50 | |
| Night (10 PM-6AM) | Eastbound | $1.50 | | $1.75 | |
| | Westbound | $1.50 | | $1.75 | |

Notes:
Medium trucks assumed to pay 1.5x and large trucks 2.0x the above two-axle toll rates
Toll rates shown are for customers with a *Good To Go!* account; Pay By Mail toll rates are assumed to be $2.00 higher
Weekend toll rates assumed to be equal to the weekday night toll rates, in effect all weekend

For the case of tolling during construction, tolling would begin in mid-2023, referred to as the start of state fiscal year (FY) 2024. If tolling were to be delayed until after the new trestle is operationally complete, tolling would then commence in mid-2028 (FY 2029). Scenarios A and C assume toll rates that do not change over time, effectively causing these tolls to *decrease in real terms* over time. Scenario B adds 2.25 percent annual toll escalation to the Scenario A toll rates, starting in the year following operational completion (FY 2030). This rate of toll escalation approximates projected general price inflation, causing these tolls to *remain constant in real terms* over time. Scenario D includes a more modest 1 percent annual escalation assumption starting in FY 2030.

On other Washington State toll bridges, trucks and vehicles with more than two axles pay a higher toll based on the number of axles (e.g., a four-axle truck would pay twice the base two-axle auto toll). However, because the PSRC regional travel demand model forecasts trucks by size categories rather than axle count, the traffic and revenue forecasts capture “medium trucks” at 1.5 times the base two-axle auto

toll (an average of three axles) and "large trucks" at 2.0 times the base toll (an average of four axles).

### 5.1.2 Weekday Traffic and Revenue Forecasts

The PSRC regional travel demand model produces weekday traffic forecasts for future years 2025 (FY 2026) and 2040 (FY 2041) by travel direction for each of the five time periods. The implementation of tolls within the model changes simulated driver behavior compared to a toll-free basis of comparison. The reduction in trips using the US 2 Trestle as a result of the implementation of tolls is generally referred to as toll diversion, which can take on several forms, as follows:

- Trip diversion to an alternate route avoiding the toll
- Change in trip destination to avoid the toll
- Change in travel mode to a carpool or transit bus to share the toll or avoid it entirely
- Change in time of travel to a period with a lower toll
- Trip not made or combined with another trip

For the Scenario A/B "medium" toll schedule, weekday daily toll diversion is expected to result in approximately 27 percent lower toll traffic than it would be under a new toll-free US 2 Trestle in 2025 (FY 2026). By 2040 (FY 2041), 19 percent toll diversion is expected in the absence of toll escalation (Scenario A) or 26 percent diversion for the case with 2.25 percent toll escalation (Scenario B).

Toll diversion is slightly more pronounced under the "medium-high" tolls of Scenario C/D, with an approximately 33 percent traffic reduction expected in 2025 (FY 2026) compared to a toll-free new trestle. By 2040 (FY 2041), 23 percent toll diversion is expected without toll escalation (Scenario C) and 26 percent diversion is expected with toll escalation (Scenario D).

Rates of diversion tend to be higher in the "reverse commute" direction—eastbound in the morning and westbound in the afternoon—which is why all the toll scenarios analyzed employ lower reverse direction tolls to help retain more of this traffic. Toll diversion also tends to be higher during off-peak travel times, including midday, evening, and overnight, so the variable toll schedules analyzed provide lower tolls at these times to retain more of that traffic as well as to attract peak-period trips that have the flexibility to shift to lower toll times of day.

Weekday revenue forecasts are produced by multiplying the weekday traffic forecasts for each direction and time period by the corresponding toll rates under which the traffic was modeled, and then summed to yield daily revenue estimates for model years 2025 and 2040.

### 5.1.3 Annual Traffic and Revenue Forecasts

The PSRC regional travel demand model provides typical weekday forecasts; there is no model for forecasting weekend travel patterns. As such, the relationship between historical weekday and weekend traffic counts are used to expand the weekday traffic and revenue forecasts into annual traffic and revenue projections for the two model years, 2025 and 2040. This process assumes weekend traffic would be subject to the nighttime toll rate and exhibits toll diversion similar to weekday off-peak travel. Exhibit 13 provides the expansion factors used to generate annual forecasts by vehicle class. For

**Exhibit 13: Weekday to Annual Traffic Expansion Factors by Vehicle Class**

| Traffic Expansion Factors | Autos/ Light Trucks | Medium Trucks | Large Trucks |
|---|---|---|---|
| Eastbound | 344 | 304 | 292 |
| Westbound | 349 | 316 | 291 |

example, assuming that a full year has 255 weekdays and 110 weekend days plus major weekday holidays, an annual traffic expansion factor of 344 would weight each weekend day and holiday at 81 percent of the traffic of a typical weekday.

Annual expansion factors are lower for medium and large trucks, as their weekend volumes are not only lower than weekdays, but also smaller percentage shares of weekend US 2 Trestle traffic. In the weekday toll forecasts, medium and large trucks each represent approximately 3 percent of the daily US 2 Trestle forecasted toll traffic, or 6 percent overall.

Revenue expansion factors are set lower than traffic expansion factors to capture not only lower weekend daily revenue from lower traffic, but also due to lower average weekend toll rates, as shown in Exhibit 14. Under Scenario A, the weekend two-axle toll rate would be $1.75 all day, compared to an average two-axle toll of $2.30 on weekdays. Here, an annual traffic expansion factor of 300 would conservatively weight each weekend day and holiday at about 40 percent of the revenue of a typical weekday, compared with 81 percent of weekday traffic.

**Exhibit 14: Weekday to Annual Revenue Expansion Factors by Vehicle Class**

| Revenue Expansion Factors | Autos/ Light Trucks | Medium Trucks | Large Trucks |
|---|---|---|---|
| Eastbound | 300 | 279 | 274 |
| Westbound | 302 | 286 | 273 |

Interpolation using the compound annual growth rates (CAGR) between the expanded annual traffic and revenue forecasts for 2025 (FY 2026) and 2040 (FY 2041) are used to provide the traffic and revenue values for the years in between, and the same CAGRs are used to extrapolate back to mid-2023 (FY 2024), the earliest likely start date for tolling during construction.

To be more conservative in the longer term forecasts, traffic and revenue growth rates beyond FY 2041 are limited to one-half the forecasted growth rates up through FY 2041 over the subsequent 10 years (FY 2042-51). Beyond FY 2051 through the end of the forecast horizon in FY 2060, no traffic growth is assumed, and revenue growth is also zero for Scenarios A and C, and limited to the toll escalation assumptions of 2.25 percent and 1 percent for Scenarios B and D, respectively.

The annual traffic and revenue forecasts are also segregated by the assumed payment method over the forecast horizon, according to the percentage shares by forecast year. The *Good To Go!* account share of total toll trips was assumed to be 75 percent in 2025 (FY 2026), gradually increasing to a ceiling of 85 percent by 2040 (FY 2041) as electronic toll collection becomes more convenient and prevalent elsewhere in the region. The remaining toll trips represent toll customers using the Pay By Mail option. Exhibit 15 shows the expected payment method distribution in earliest likely year for tolling during construction (FY 2024) and the year the new trestle is expected to be operationally complete (FY 2029) in addition to FY 2041 when the *Good To Go!* share reaches is maximum value.

**Exhibit 15: Distribution of Forecasted Toll Traffic by Payment Method**

| Payment Method Distribution | 2023 (FY 2024) | 2028 (FY 2029) | 2040 (FY 2041) |
|---|---|---|---|
| *Good To Go!* Account* | 74% | 77% | 85% |
| Pay By Mail | 26% | 23% | 15% |

*73% of accountholders assumed to use a *Good To Go!* pass, with the remaining 27% using Pay By Mail

Pay By Mail customers are expected to be infrequent users of the US 2 Trestle. Typically, infrequent users are more price insensitive than every-day users because tolls for them are a very small monthly expense. However, Pay By Mail users are assumed to pay a toll that is $2.00 higher to account for the additional costs of collection to identify the user from their license plate and bill them for the toll by mail, as well as for likely revenue leakage. Because Pay By Mail users were not simulated separately in the IJR study team's travel demand modeling with $2.00 higher tolls, an adjustment is necessary to capture the demand impact of the higher tolls in the annual forecasts. The Pay By Mail traffic and revenue were both reduced by 20 percent to account for both the demand effects of the $2.00 higher toll and the partially offsetting effects of the relatively higher price insensitivity of infrequent Pay By Mail users.

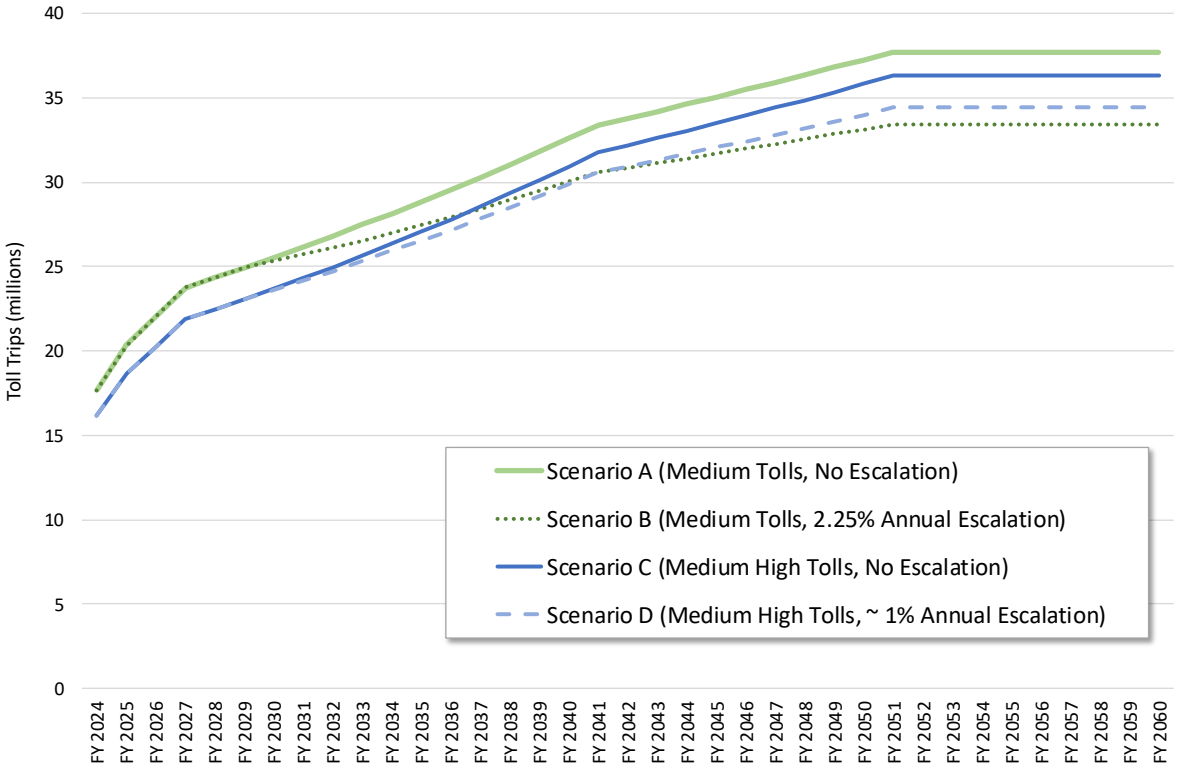
Finally, it is necessary and customary to reduce the initial years' forecasts of traffic and revenue to account for ramp-up effects, as shown in Exhibit 16. Ramp-up refers to the time it takes for the traveling public to become accustomed to the changes with tolling, including travelers determining their best options by testing alternative routes, trying carpooling or transit, and establishing *Good To Go!* accounts for paying tolls.

**Exhibit 16: Traffic and Revenue Ramp-Up Assumption in the Initial Forecast Years**

| Ramp-Up | Year 1 | Year 2 | Year 3 |
|---|---|---|---|
| Ramp-Up Factors | 80% | 90% | 95% |
| Percent Reduction in Traffic | 20% | 10% | 5% |

Exhibit 17 plots the potential toll traffic forecasts over the forecast horizon, under the assumption that tolling starts during construction in FY 2024. The ramp-up adjustments are visible in the steeper slope of these lines over the first three forecast years. Scenarios A and B show matching traffic through FY 2029, with Scenario B showing slower growth thereafter as a result of its 2.25 percent annual toll escalation, compared to no escalation yielding declining real fares under Scenario A.

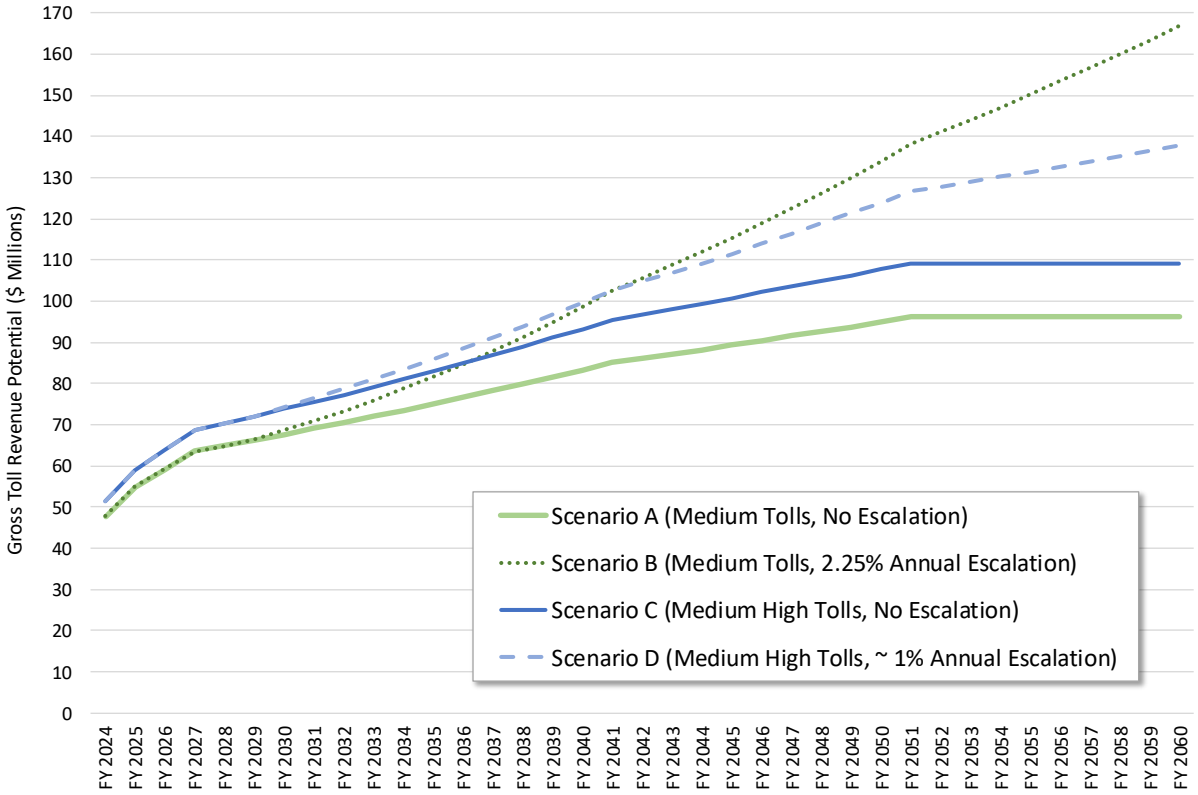
**Exhibit 17: US 2 Trestle Toll Traffic Forecasts by Toll Scenario**




The higher initial tolls of Scenarios C and D result in slightly lower initial levels of traffic compared to Scenarios A and B. Scenario D also exhibits lower traffic growth over the forecast horizon than Scenario C when its approximately 1 percent annual toll escalation kicks in after FY 2029. Although Scenario D has higher initial tolls than Scenario B, the higher toll escalation in Scenario B causes its toll rates to exceed those of Scenario D after FY 2041, thus resulting in lower toll traffic forecasts in the latter half of the forecast horizon.

Exhibit 18 presents the potential gross toll revenue forecasts by scenario. Here, the higher initial toll rates of Scenarios C and D yield additional potential gross toll revenues, while the toll escalation of Scenarios B and D show the highest overall forecast period revenue growth. The term “potential” in the gross toll revenue forecasts at this stage is used to clarify that these would be the revenues generated if the correct toll was instantaneously collected from every forecasted vehicle crossing the trestle. As will be discussed in a later section, not all revenue is collected at the time of travel and different payment methods have differing levels of potential revenue leakage.

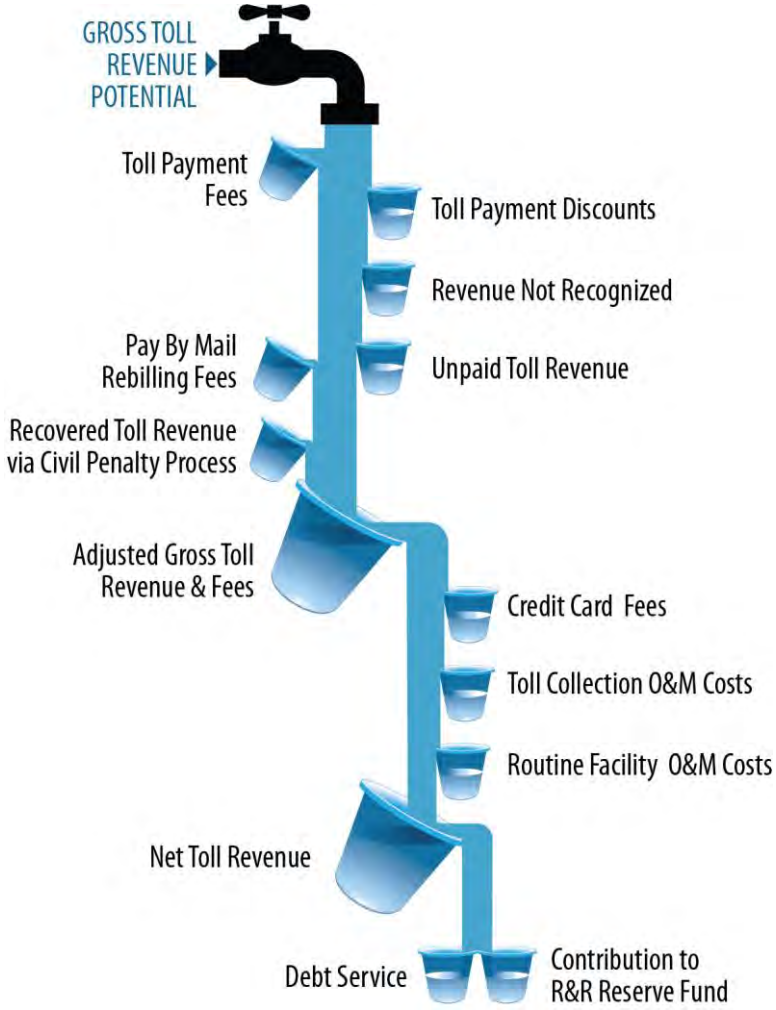
**Exhibit 18: US 2 Trestle Potential Gross Toll Revenue Forecasts by Toll Scenario**



## 5.2 Net Toll Revenue Projections

The net toll revenue forecast represents the cash flow available to support the US 2 Trestle construction and related capital improvements. Assuming borrowing against future toll revenues would be used to help fund the project, lenders and investors want to be assured that the revenue generating asset—the US 2 Trestle—is properly maintained and operated in a way that will not jeopardize toll collection. In addition, tolls provide a sustainable source of revenues for paying various operating and maintenance costs. Hence, lenders and investors will be focused on the net revenues available after accounting for any adjustments for fees, discounts, and leakage, and after covering all routine operating and maintenance (O&M) costs. Exhibit 19 shows the waterfall flow of toll revenues, starting with the forecasts in Exhibit 18 down to the net toll revenues and their potential capital investment uses.

**Exhibit 19: Net Revenue Waterfall**




The process of going from gross to net toll revenues described at a summary level below follows detailed procedures developed and employed in the net revenue forecasting for the existing and other proposed Washington State toll facilities.

### 5.2.1 Adjustments to Potential Gross Toll Revenues

Adjusted gross toll revenue and fees represent the actual tolls collected. These collections account for the $0.25 fee added to *Good To Go!* customers traveling in a car without a transponder pass, short-term account customers receiving a $0.50 discount for paying their toll in advance of receiving a toll bill in the mail, and the $5.00 rebilling fee applied to the second notice of toll bill due from a Pay By Mail customer.

In addition, adjusted gross toll revenue and fees also account for revenue leakage deductions. Revenue not recognized is the leakage that occurs when the transponder of a *Good To Go!* customer is not installed or read properly, when the photographed license plate image from a Pay By Mail customer (or a *Good To Go!* customer without a transponder) is unreadable, or when a readable license plate cannot be used to track down the vehicle's registered owner and mailing address.

Unpaid toll revenue is the leakage that occurs when a readable license plate generates a toll bill that is sent to the vehicle's registered owner that then goes unpaid after 80 days and a second notice. After 80 days, these delinquent toll bills are sent a Notice of Civil Penalty for the unpaid toll, the $5 rebilling fee, and a $40 civil penalty. A portion of unpaid toll revenue may eventually be recovered through the civil penalty adjudication process, as shown in the Exhibit 19 waterfall.

### 5.2.2 Credit Card Fees

The first expense item shown in the waterfall is credit card fees. The vast majority of tolls paid in Washington State are tied to a credit or debit card, for which bank transaction fees apply. These banking fees represent a cost of doing business and are necessary where tolls are collected electronically from customer accounts linked to a bank card as well as accepting online or mail payments.

The forecast of credit card fees is calculated as percentage share of the adjusted gross toll revenue and fees collected, factored by the assumption that 95 percent of these revenues will be tied to a bank card, with the remaining 5 percent representing cash, check, or ACH withdrawal not subject to fees.

### 5.2.3 Toll Collection O&M Costs

The routine, annual O&M costs of toll collection include the following items:

- Roadway toll systems (RTS)
- State (WSDOT) elements
- Customer service center (CSC) operations and systems software vendor contracts

The RTS routing annual costs include maintenance and operations of the toll gantries, cameras and pass readers, and supporting computer and communications hardware specific to the US 2 Trestle.

State cost elements include system-wide activities performed primarily by the WSDOT Toll Division and its consultants, including management and oversight of CSC vendors, budgeting and business administration, traffic and revenue forecasting, accounting and financial reporting, marketing including the sales of transponder passes, and postage/mailing of toll bills. As system-wide activities, these costs are distributed proportionately among the existing and legislatively authorized toll facilities, plus the US 2 Trestle, based on each facility's forecasted annual toll transactions.

Separate CSC vendors are assumed in the toll collection cost forecasts, one to provide the CSC front and back office customer service representatives and related operations billing staff, and the other to provide the software and computer systems that interface with the RTS equipment to debit tolls from and manage customer accounts.

For purposes of allocating a share of the system-wide state and CSC costs to the US 2 Trestle, the following existing and legislatively authorized toll facilities were included: SR 520 Bridge, I-405 Express Toll Lanes, SR 167 HOT Lanes, SR 16 Tacoma Narrows Bridge (through FY 2032), and the forthcoming SR 99 Tunnel (due to open in FY 2019).

Toll collection O&M cost projections are expressed in year of expenditure dollars, and most elements are subject to an assumed annual inflation rate of 2.5 percent per year.

### 5.2.4 Facility O&M Costs

Facility O&M activities apply to the physical structures and roadways, and include pavement maintenance and repair, striping, signage and lighting maintenance, painting, litter and debris pickup, and structural inspections, among other activities. For this Level I analysis, detailed O&M cost estimates for the combined existing eastbound and new westbound US 2 Trestle were not available. Instead, conceptual estimates were prepared based upon the detailed facility O&M cost projections

prepared for the SR 520 “West Approach Bridge North (WABN)” project, converted to a total cost per lane-mile, and factored up for the US 2 Trestle lane miles. The SR 520 WABN project is an aerial viaduct bridge structure of a similar nature as the existing and proposed US 2 Trestles and located in a similar wetland environment.

Facility O&M cost projections are expressed in year of expenditure dollars with an assumed annual inflation rate of 2.5 percent per year.

### 5.2.5 Net Toll Revenue Projections

Referring back to the Exhibit 19 waterfall, the net revenue projections represent the cash flow available to support capital investments after accounting for revenue adjustments and paying for all routing operating and maintenance costs.

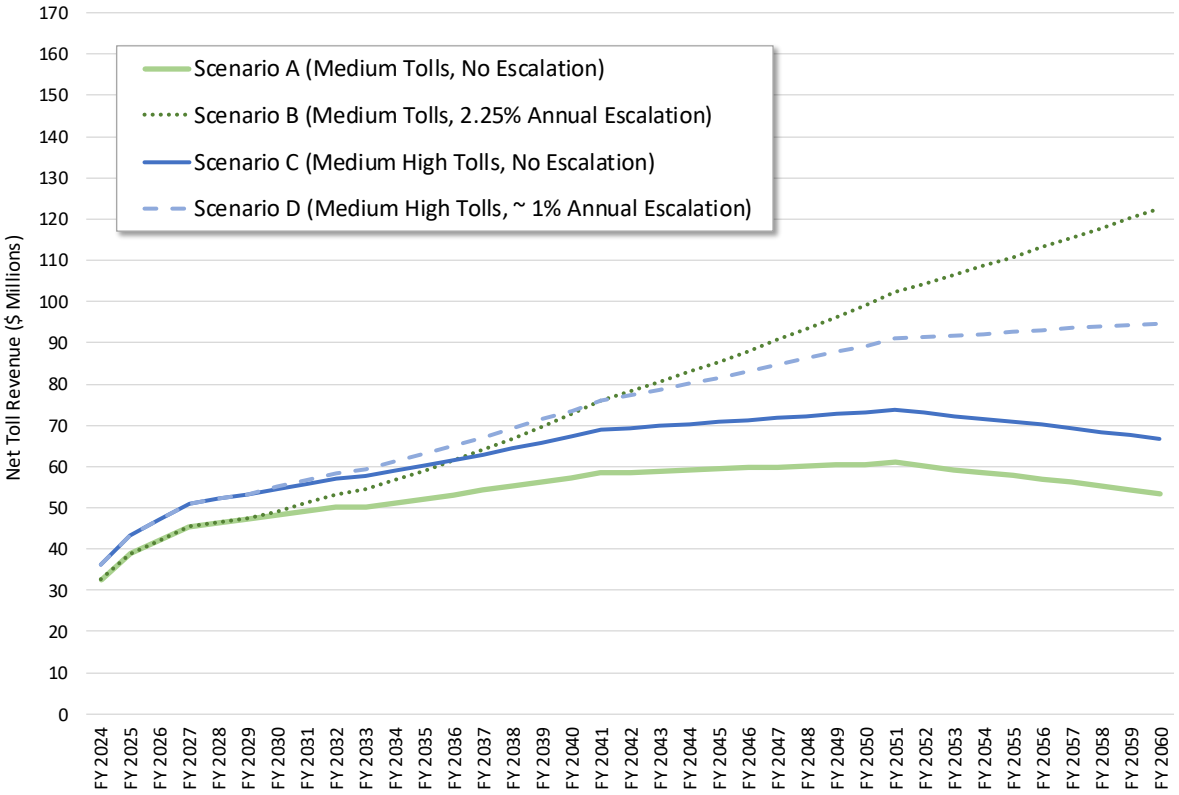
Net revenues may be used to pay for construction or other improvements on a pay-as-you-go basis, pay debt service (principal and interest) on funds borrowed against future net toll revenues, or some combination of the two.

In addition, net revenues are also often used to pay for directly or contribute annually to one or more reserve accounts designed to accumulate funds to pay for periodic repair and replacement costs (R&R), including major maintenance, capital replacement, and preservation activities. Periodic R&R costs would apply to both the facility, for items such as repaving or bridge re-decking, and to toll collection equipment, CSC systems software, and related vendor procurement activities. Preparation of estimates and forecasts for these periodic R&R costs is beyond the scope of the Level 1 T&R analysis of this Funding and Finance Study; however, the coverage assumptions made in the following section for estimating the toll funding ranges are consistent with providing an allowance of excess net toll revenues for contributing to reserves to pay for periodic R&R expenditures.

Exhibit 20 depicts the net toll revenue projections by toll scenario. The relative patterns of the net revenue forecast trend lines are similar to those for potential gross toll revenues in Exhibit 18. As the growth in forecasted toll traffic slows after FY 2041 and halts completely after FY 2051 (Exhibit 17), the net revenue projections for Scenarios A and C—which exclude toll escalation—level off and then start to decline. Without offsetting revenue growth driven by either traffic growth or toll escalation, O&M cost inflation begins to consume a larger share of gross toll revenues.

The net revenue share of gross revenue varies proportionately with toll rates. At lower toll rates, the costs of collection may represent a sizable share of the toll collected, resulting in a smaller net revenue share. As toll rates increase up to the maximum revenue point, the collection costs become a lower share of now higher gross revenues, and the net revenue share of gross revenue increases.

**Exhibit 20: US 2 Trestle Net Toll Revenue Forecasts by Toll Scenario**




## 5.3 Toll Funding Contribution Ranges

Ranges for the toll funding contribution—the amount that could be borrowed against future toll revenues—can be determined from the net toll revenue projections. At this early stage of project development, there is not sufficiently detailed information on project costs, schedule, financial structure, and other funding sources of funding to warrant the use of a detailed financial model. Rather, assumptions for key financial variables are proposed and applied in a net present value (NPV) analysis of the net toll revenues to provide a reasonable proxy for what might result from a detailed financial model.

In developing the assumptions for the NPV analysis, three types of financing were identified for evaluation:

- Public: state-backed bonds
- Public: stand-alone toll revenue bonds
- P3: private financing

Each financing type is described below in more detail. Exhibit 21 summarizes the NPV analysis financing assumptions for the public and private financing options.

In developing these assumptions, it should be acknowledged that future facility and toll collection R&R costs, to the extent that they would be paid from tolls, would be a use of net toll revenues in addition to debt service, with contributions toward reserves for R&R coming from the excess revenues generated by debt service coverage.

### 5.3.1 Public Financing with State-Backed Bonds

The first type, public with state-backed bonds, could apply to multiple scenarios. The SR 520 Bridge financing used "triple pledge bonds" where tolls were pledged first to the repayment of bond principal and interest, with motor vehicle fuel taxes, and ultimately, the full faith and credit of the State of Washington standing behind tolls for repayment. Alternatively, the Tacoma Narrows Bridge used state motor vehicle fuel tax bonds in which net toll revenues reimburse the Motor Vehicle Account from which debt service is paid. In either case, it is ultimately the State pledging to repay these bonds, so they would likely carry the State's high credit rating (currently AA+/Aa1), be a low risk for investors, and thus carry an attractively low interest rate for the borrower.

For this study, considering the potential for future interest rates to be higher than today's rates, the cost of credit for state-backed bonds was assumed to be 4.5 percent. The maximum bond maturity was assumed to be 25 years, consistent with other recent state issues. Minimum debt service coverage was assumed to be 1.30x, meaning that net revenues must be at least 130 percent of each year's debt service. Cost of issuance and underwriter's discount was assumed to be a combined 0.5 percent.

As shown in Exhibit 22, the funding ranges for state-backed bonds are only shown for the toll scenarios without toll escalation (Scenarios A and C), and only for the case with tolling during construction (starting in FY 2024).

The SR 520 financial plan, as well as planning work for other corridors prepared by the Office of the State Treasurer, has focused on structuring financing for level debt service in the same way that most homeowner mortgages have principal and interest payments that do not change over the life of the mortgage. This preferred approach by the state treasurer significantly reduces, if not eliminates, a reliance on regular toll escalation to meet debt service expenses.

In addition to excluding results for the escalating toll scenarios, the state-backed bonds option excludes results for tolling starting at operational completion (FY 2029). Given the five-year duration of construction, and absent other funding sources identified, the need to provide toll funding at the start of construction requires borrowing six years in advance of having toll revenues to begin paying interest and principal. Even if borrowed funds were used to pay interest during construction (capitalized interest), this gap between needing borrowed funds and having revenues for repayment is beyond normal thresholds and would likely require legislative action to provide bridge funding during construction in order to use state-backed bonds. As such, the funding amounts for this case are shown as "to be determined." In general terms, the reduction in toll funding by delaying the start of tolling until FY 2029 is at least 20 percent, and could be higher depending on the ratio of leveraged versus pay-as-you-go uses of toll revenues during construction.

### 5.3.2 Public Financing with Stand-Alone Toll Revenue Bonds

Under stand-alone toll revenue bonds, the State of Washington would still be the issuer; however, only tolls would be pledged to the repayment of these bonds. Absent other revenue sources to "backstop" these bonds, they would carry a lower credit rating, higher interest rates, and require higher coverage set-asides, commensurate with their real or perceived higher risk levels. Combined, these factors could limit the toll funding contribution to only 50 to 60 percent of what could be generated using state-backed bonds.

Pairing of stand-alone toll revenue bonds with a subordinate USDOT TIFIA loan, which comes with favorable borrowing terms upon selection from an application process, would increase the overall toll funding contribution. However, this option would also be available under the state-backed bonds financing, with similar benefits, and is assumed to be part of the P3 private financing option. Given their lower funding potential, acknowledging that stand-alone toll revenue bonds have not been used on any of the currently operating toll facilities within Washington State, and in the interest of simplifying the findings, the stand-alone toll revenue bond funding amounts were omitted from the results presented in Exhibit 22.

### 5.3.3 Public-Private Partnership with Private Financing

In most P3 toll road concessions, the concessionaire will negotiate terms under which the toll can regularly escalate over time, such as to keep up with general inflation. This helps make the private financing, which typically has higher interest costs, more competitive with public, tax-exempt financing, and helps to make sure that revenues will continue to be able to pay for rising O&M costs over time and still service debt and provide a return on investor equity. As such, the P3 financing option was analyzed for the toll Scenarios B and D with toll escalation. Some project owners have found it easier to build in toll escalation rules in the contract with the P3 concessionaire than to attempt regular toll increases under the public delivery model, especially when the political or implementation process for toll escalation is challenging. Scenario A without toll escalation was also analyzed for making comparisons with the public financing case.

The P3 option with private financing could potentially take on many different variations of debt, including conventional (taxable) bonds, private activity bonds, and bank debt, among others.

For this study, a representative case assumes a mix of 70 percent taxable bank debt, carrying an interest rate of 7 percent, and 30 percent from a subordinate TIFIA loan at 4 percent. This results in a weighted cost of capital of 6.1 percent. Aside from the TIFIA loan, the actual interest rate(s) for private financing will be determined by adding risk premiums to a standard low-risk government rate such as the 10-year U.S. Treasury Bond rate. The risk premium could range between 1.0 and 5.0 percent or more, depending on the perceived risk profile of the revenue stream, in this case toll revenues from the US 2 facility, and how far they are leveraged. The maturity of the private financing is assumed to be 35 years for analysis purposes, but depending on the lenders, could be much shorter with assumed refinancing points during the concession term.

The overall toll funding contribution from the P3 financing option includes an equity contribution in addition to debt. For this analysis, the equity contribution is assumed to be 10 percent, with debt comprising the remaining 90 percent of up-front capital provided from tolls.

The higher the debt service coverage ratio, the smaller the share of net toll revenues used to secure debt, and thus, the greater the potential equity contribution toward project funding. Here, the debt service coverage ratio was assumed at 1.4x, which is slightly higher than the 1.3x used for the public financing with state-backed bonds case. This is intended to preserve a bit more in excess net toll revenues for providing a 10 percent return on equity to the private sector equity investment, which is typical for a P3 transaction with a project cost in the range of the US 2 Westbound Trestle. After paying a return on equity, 1.4x coverage is otherwise intended to infer the same level of traffic and revenue risk upon the borrower as 1.3x with public financing using state-backed bonds. As with the interest rate, coverage would be determined based upon a number of factors affecting the perceived risk of the

revenue stream, with the debt service coverage ratio and average interest rate being inversely linked.

This is because the cash set aside for debt service coverage is used not only to cover periodic R&R costs, but also to provide a return on equity to the private equity contributors. In this preliminary analysis, a 10 percent return on equity contribution has been factored in.

### 5.3.4 Public and Private Financing Assumptions

Exhibit 21 summarizes the key NPV analysis financing assumptions used for this study.

**Exhibit 21: NPV Analysis Financing Assumptions**

| Category | Public: State-Backed Bonds | Public Private Partnership (P3): Private Financing | Comments |
|---|---|---|---|
| First Year Toll Funding Required | FY 2024 | FY 2024 | NPV analysis places funding at the end of FY 2023 for availability at the beginning of FY 2024; assumption serves as a proxy for delivering funds over construction period |
| Year New Trestle is Operationally Complete | FY 2029 | FY 2029 | Assumes five-year design-build construction contract upon completion of environmental and preliminary engineering activities |
| Final Year of Traffic Growth | FY 2051 | FY 2051 | Model forecasted traffic growth rate is halved after FY 2041 and fully suspended after FY 2051 |
| Forecast Horizon Year | FY 2060 | FY 2060 | Last year of traffic and revenue forecast period |
| Debt Term (years) | 25 | 35 | Recent state motor fuel tax and SR 520 issues have been 25 years, P3 case includes a 35-year TIFIA loan |
| Overall Average Cost of Capital | 4.50% | 6.10% | NPV discount rate with a cushion added for higher future interest rates; P3 case reflects a 70%/30% debt mix of bank loan and TIFIA rates |
| Minimum Debt Service Coverage | 1.30x | 1.40x | Assumption for overall coverage in the case of multiple liens; P3 case assumes higher overall coverage to allow for returns on equity investment to be paid from coverage revenues |
| Level Debt Service? | Yes | No | Recent state issues and planning assume level debt service to minimize reliance on toll escalation |

### 5.3.5 Net Present Value Analysis Funding Ranges

Exhibit 22 presents the funding contribution ranges by toll scenario and financing type. For the P3 private financing case, funding ranges are provided for both the tolling during construction and tolling at operational completion cases. For the public state-backed bonds case, the funding ranges are limited to the case where tolling starts during construction in FY 2024. In both cases, the funding is assumed to be provided and available at the beginning of FY 2024 (July 2, 2023).

The high end of each range uses the net toll revenue forecasts provided in Exhibit 20. To account for the preliminary nature of the Level I T&R forecasts and net revenue estimates, as well as for potential variability in the financial analysis, the low end of each range was determined by reducing the net toll revenue projections for each toll scenario by 25 percent.

**Exhibit 22: Range of Potential Toll Funding by Type of Financing and Relevant Toll Scenarios**

| Type of Financing | Toll Scenario and Description | Range of Funding — Available 7/1/2024 (FY 2024) | | Comments |
|---|---|---|---|---|
| | | Tolling Starts FY 2024 (during construction) | Tolling Starts FY 2029 | |
| Public: State-Backed Bonds | **A** Medium Tolls \| No Escalation | $440 M To $590 M | To Be Determined | No need for toll escalation with level debt service |
| | **C** Medium-High Tolls \| No Escalation | $500 M To $660 M | To Be Determined | Tolling starting in FY 2029 may require a construction loan from other sources |
| Public-Private Partnership (P3): Private Financing | **A** Medium Tolls \| No Escalation | $410 M To $540 M | $320 M to $420 M | 10% of the funding amount is private equity<br>Longer debt term and TIFIA loan in P3 case help to offset its higher bank loan interest costs |
| | **B** Medium Tolls \| 2.25% Annual Escalation | $510 M To $680 M | $410 M to $550 M | |
| | **D** Medium-High Tolls \| 1% Annual Escalation | $520 M To $690 M | $410 M to $540 M | |

Note: Although not shown here, tolls may be able to leverage additional funding through deferring construction sales tax and paying it later over time out of excess net toll revenues, similar to a zero-interest loan. This would require legislative approval and is expected to be more likely for the public financing option.

Not shown in Exhibit 20 is the option of deferring some or all of the construction sales tax until a later point in time when it could be paid back in installments from excess toll revenues. This approach, which was effectively used on the SR 520 Bridge, acts as a zero-interest loan to further increase the funding contribution from leveraging tolls. This would require legislative approval and is expected to be more likely available for the public financing option. For purposes of this study, it was assumed that $50 million of construction costs could be "funded" or covered by deferring construction sales tax for later payment via tolls.

Several findings are worth noting from the NPV financial analysis and resulting toll funding ranges:

- Under the same toll scenario, public financing with state-backed bonds tends to leverage about 8 percent more toll funding than private financing as a result of lower interest costs and lower debt service coverage.
- Adding toll escalation allows the P3 private financing option to achieve about 16 percent greater toll funding levels compared to the public state-backed case.
- While leveraging toll escalation and/or a longer debt term can increase the up-front toll funding contribution, they also further encumber the tolls to pay for increased debt service over time.
- Within the P3 private financing structure, inflation-based toll escalation (Scenario B) expands the toll funding contribution by about 25 percent.
- Both public state-backed bonds and P3 private financing would generate more toll funding than the public stand-alone toll revenue bond option (not shown in Exhibit 22).

### 5.3.6 Impact of Tolling during Construction

One of the key findings of the toll funding analysis is how important tolling during construction can be when tolls are expected to be a primary contributor to project funding and there is an existing facility to toll. For the US 2 Westbound Trestle project, tolling during construction (starting in FY 2024) provides current revenue to

pay for capital expenditures and/or debt service on borrowed funds, thereby maximizing the efficiency and feasibility of the financing. Risk is reduced when lenders can see the revenues being generated for repayment rather than waiting years for tolls to begin. This approach was used very successfully on the SR 520 Bridge replacement to maximize the toll funding contribution.

Exhibit 22 shows that under the P3 private financing option, tolling during construction (starting in FY 2024) generates at least 25 percent more project funding than waiting to start tolling at operational completion in FY 2029. This differential would be similar in the public financing case, assuming that bridge funding or another approach could be implemented to provide up-front funding while allowing the bonds to be issued closer to the start of tolling.

Alternatively, delaying tolling until the new trestle is operationally complete, when combined with a lengthy construction period, limits the toll financing options and, without current toll revenue, would require that a significant portion of the borrowed funds be used to pay for interest during the construction period, thereby reducing the amount available for capital expenditures

Note that toll Scenarios B and D which include toll escalation, the toll increases were not assumed to begin until after the new trestle is operationally complete in mid-2028 (FY 2029), making FY 2030 (July 1, 2029) the first escalation date.

### 5.3.7 Toll Funding Policy Considerations

This Funding and Finance Study places a considerable focus on toll funding, both to assess the true and reasonable potential from tolls as well as to acknowledge that no other major source of funding has yet been identified. Ultimately, several factors should be considered when pursuing tolling to support project funding and delivery.

- It will be important to find the right balance of variable toll rates by time of day and direction travel with the diversion impacts resulting from tolling.
- Cost of collection factors will limit the net revenue available to leverage capital funding with lower tolls. An additional $0.25 on a $1.00 toll may have the effect of doubling the net revenue collected from that transaction.
- Tolling during construction is key to maximizing the toll funding contribution or minimizing the toll required for a given level of toll funding.
- Modest or periodic toll escalation keeps net revenue from eventually declining as a result of O&M inflation.
- Regular toll escalation can increase the toll funding contribution, although not all financing options will consider relying on net revenue growth.
- All toll policies, including toll rate setting and escalation measures, would require action by the state's toll authority—the WSTC—and would include a public process.
- Deferring payment of construction sales taxes until several years after completion and then paying such taxes from excess toll revenues over multiple installments could be used with legislative approval to further increase the toll funding contribution.

# 6. Other Funding Opportunities

## 6.1 Funding versus Financing

It is important to distinguish between “funding,” “financing,” and “revenue” when considering options to pay for a capital project. Funding represents money available at the time it is needed for project expenditures such as construction. Financing is the borrowing mechanism, be it bonds or a loan, by which a stream of future revenues, such as tolls, fees, or taxes, are accelerated or leveraged to provide up-front funding. Revenues over time are used to make future debt service payments to pay back borrowed funding, although they can also provide pay-as-you-go funding in smaller annual amounts. As such, bond proceeds represent funding, while revenues repay the debt service from financing that makes that funding available.

The following sections outline the various funding and financing options that may be available for US 2. The revenue streams have not been fully vetted for appropriateness, and extensive public outreach would need to be conducted before any new tax would be put in place for use on US 2. Some options require a voter referendum; others could be enacted with a city council vote (or similar action); and federal and local grant programs are often highly competitive and have lower probabilities of winning.

## 6.2 Federal and State Grant Funding

The USDOT offers numerous opportunities for state and local governments to apply for discretionary grant funding (Exhibit 23). These programs play a critical role in funding major capital projects by filling gaps in financial plans and enabling P3 and traditionally funded projects to come to fruition.

Congress authorizes the federal government to spend its funds over a set amount of time based on the current federal highway bill. Authorizing legislation sets the maximum amount of funding that can be appropriated to programs each fiscal year. The current authorization, Public Law 114-94, the Fixing America’s Surface Transportation (FAST) Act, is five-year legislation intended to improve the nation’s surface transportation infrastructure. It expires in 2020.

Beyond fiscal year 2020, the size of the federal program is unknown. That said, federal discretionary grant programs continue to be an important funding source for state and local governments, and some programs, particularly TIGER and INFRA (outlined below) at the national level and the Freight Mobility Strategic investment Board (FMSIB) at the local level, are potential fits for the US 2 Bridge replacement if they are continued.

**Exhibit 23: Federal and State Grant Opportunities**

| Option | Source | Detail | Typical Funding Range |
|---|---|---|---|
| Infrastructure for Rebuilding America (INFRA, formerly FASTLANE) | Federal | Annual discretionary grant program, priority freight | 2016: $5 M - $165 M<br>18 projects out of 212 applications |
| Transportation Investment Generation Economic Recovery (TIGER) | Federal | Annual discretionary grant program, priority "national objectives" | 2016: $5 M - $20 M<br>40 projects out of 585 applications |
| Advanced Transportation and Congestion Management Technologies (ATCMTD) | Federal | Annual discretionary grant program, priority technology/ innovation | 5-10 awards, up to<br>$12 M per project |
| Surface Transportation System Funding Alternatives (STSFA) | Federal | Annual discretionary grant program, priority alt. revenue generation (RUC) | 2017: $15 M spread among 6 states, Washington received $4.6 M |
| Congestion Mitigation and Air Quality (CMAQ) | Federal/ PSRC | Demand management and traffic control benefits | 2016: 40 projects<br>$0.05 M - $13 M |
| Surface Transportation Program (STP) | Federal/ PSRC | Flexible grant program to be used for a variety of projects | 2016: 95 projects<br>$0.08 M - $10 M |
| Transportation Alternatives Program (TAP) | Federal/ PSRC | Non-motorized transportation and environmental mitigation | 2017: $2.5 M max.<br>12 projects out of 66 applications |
| Washington Freight Mobility Strategic Investment Board (FMSIB) | State | Improvements on strategic freight corridors | 2016: $2 M - $8 M<br>6 projects out of 20 applications |
| Transportation Improvement Board (TIB) Urban Arterial Program (UAP) | State | Primarily focused on arterials, preservation and sidewalks | 2016: $0.9 M - $8 M<br>26 out of 95 applications |

- **Infrastructure for Rebuilding America (INFRA)**: The USDOT's Nationally Significant Freight and Highway Projects grant program, termed the INFRA competitive grant program, could be pursued as a potential source of federal funds for the US 2 Bridge. The program is authorized at $4.5 billion from FY 2016 through FY 2020. USDOT awarded $759 million to 18 projects in the initial FY 2016 round.

  Up to $1.5 billion in FY 2017 and FY 2018 INFRA funds were made available for projects and programs in FY 2017 that leverage federal funds matched with local contributions, improve safety, and hold the greatest promise to eliminate freight bottlenecks and improve critical freight movements. INFRA grants ranged from $5 million to $165 million in the FY 2016 round. Given two years of funding were made available in 2017, additional opportunities for INFRA grant funding will not be available until 2019, giving WSDOT sufficient time to develop a grant application strategy for US 2, which should include a financial plan with a gap no larger than can be filled with a reasonably sized grant award.

- **Transportation Investment Generating Economic Recovery (TIGER)**: Congress has appropriated $500 million in FY 2017 discretionary grant funding for transportation projects across the country in the ninth round of the highly competitive TIGER grant program. Over eight rounds since 2009, the TIGER grant program has provided a combined $5.1 billion to 421 projects in all 50 states, the District of Columbia, Puerto Rico, Guam, the Virgin Islands, and tribal communities. These federal funds leverage money from private-sector partners, states, local governments, metropolitan planning organizations, and transit agencies.

The purpose of the TIGER grant program is to support innovative projects, including multi-modal and multi-jurisdictional projects, which are difficult to fund through traditional federal programs. Awards focused on capital projects that generate economic development and improve access to reliable, safe, and affordable transportation for communities and businesses, both urban and rural. TIGER grant funds have historically been awarded for construction activities, but some rounds have included funds for planning and preliminary engineering.

Demand for the TIGER grant program has historically far exceeded available funds. In addition, because the TIGER program was not authorized under the FAST Act, further rounds cannot be administered without specific congressional appropriations, which occurred in 2017. TIGER grant awards are typically small (between $5 and $20 million), so at best would likely be a small contribution to the overall US 2 funding program.

- **Advanced Transportation and Congestion Management Technology (ATCMTD)**: Also established under the FAST Act, the ACTMTD grant program is designed for the development of model deployment sites for large-scale installation and operation of advanced transportation technologies to improve safety, efficiency, system performance, and infrastructure return on investment. The program is relatively small with $60 million authorized per year through 2020 with a maximum allocation to a single project of $12 million. ATCMTD would only be applicable if the US 2 Bridge project includes a substantial technology component to manage traffic and data, which is not currently the primary objective of the project but may be incorporated during further evaluation of the capital investment program.

- **Surface Transportation System Funding Alternatives (STSFA)**: Also established under the FAST Act, the STSFA program provides grants to states or groups of states to demonstrate user-based alternative revenue mechanisms that utilize a user fee structure to maintain the long-term solvency of the Highway Trust Fund. STSFA is authorized at $20 million per year through 2020 and is primarily allocated in small grants ($2 to $6 million) for state departments of transportation to research and test funding systems, particularly mileage-based user fees and larger-scale congestion management strategies.

- **Federal Transit Administration (FTA) Transit Capital Investment Grants (CIG)**: While the bridge replacement is not a transit-focused project, another way to accommodate traffic demand on US 2 could be to enhance bus service over the bridge that is currently provided by local transit authorities, mainly Community Transit. If qualified bus rapid transit were developed in the US 2 corridor, some of the improvements may qualify for Small Starts or New Starts funding that could defray the bridge replacement cost while potentially driving the overall cost of the facility down, assuming a significant mode shift occurs. The viability of this funding approach is untested, but could be evaluated during the environmental process to determine if demand warrants bus rapid transit service in the corridor and qualified service could be accommodated on the bridge. Community Transit would need to be deeply involved as a partner with WSDOT as it provides the current bus service and would likely be the recipient of any FTA funding.

- **Congestion Mitigation and Air Quality (CMAQ)**: As part of the Clean Air Act Amendments of 1990, which was further enhanced by the Intermodal Surface Transportation Efficiency Act of 1991, the CMAQ program was implemented to support surface transportation projects and other related efforts that contribute to air quality improvements and provide congestion relief. The CMAQ program is administered by FHWA and through 2015 has provided more than $30 billion to

fund 30,000 transportation-related environmental projects for state departments of transportation and other agencies. The FAST Act provides up to $2.5 billion in CMAQ funding per year through 2020, with projects selected in the region by the PSRC. US 2 would likely have multiple potential opportunities for CMAQ funding primarily related to bicycle and pedestrian improvements, intersection improvements, signals and intelligent transportation system-related improvements, and HOV lanes if they are considered. However, funding from CMAQ is typically minimal and would most likely be in the range of $1 million and would not exceed $13 million.

- **Surface Transportation Program (STP)**: The STP, also referred to as the Surface Transportation Block Grant Program (STBG) under the FAST Act, is one of the more flexible programs in terms of applicable projects. The program is estimated to be around $12 billion per year through 2020, with local funds administered through the PSRC. In 2016, PSRC provided 95 projects with a range of grants from $80,000 to $10 million. US 2 would likely be eligible for funding at the high end of the range given the size of the capital program.

- **Transportation Alternatives Program (TAP)**: TAP is a FHWA-funded program that is a set-aside from funding under the STP/STBG program with a focus on community-based transportation improvements, primarily bicycle and pedestrian infrastructure improvements, historic preservation, and environmental mitigation. The set-aside authorization for TAP is $850 million per year through 2020 and is administered regionally by PSRC. TAP contributions to a single project cannot exceed $2.5 million, and the program is highly competitive with only 12 of 66 applicants receiving funding in 2017.

- **Freight Mobility Strategic Investment Board (FMSIB)**: FMSIB is a local WSDOT program that issues an annual call for projects during which applicants can apply for funding for projects on designated strategic freight corridors that will further FMSIB's goals of facilitating freight movement and lessening its impact on local communities. A total of $25 million in funding will be distributed from 2019 through 2023. Of the 20 applicants in 2016, 6 projects received funding, which ranged from $2 to $8 million per project.

- **Transportation Improvement Board (TIB) Urban Arterial Program (UAP)**: TIB provides funding for urban areas and small cities, with a focus on arterials, preservation, and sidewalks. The Urban Arterial Program funds projects in the areas of safety, growth and development, mobility, and physical condition. Washington's Transportation Improvement Board typically issues a call for projects each June, with applications due in mid-August, and project selections announced in November. In 2017, the anticipated program size for the UAP is $75 million. In 2016, of the 95 applicants, 26 projects received funding ranging from $900,000 to $8 million.

### 6.2.1 Local Tax and Fee Revenue Options

The State of Washington allows local government agencies to levy optional taxes or collect fees to pay for priority needs, particularly infrastructure. There is typically a cap to local option tax rates and state-instituted rules about how they can be put in place. However, this flexibility is very helpful in garnering funding for capital programs. Sales, fuel, and property taxes, as well as vehicle registration fees, are common. In Washington, these are raised at the local level through the programs outlined in Exhibit 24.

**Exhibit 24: Potential Local Funding Mechanisms**

| Option | Description | Typical Funding Sources |
|---|---|---|
| Transportation Benefit District (TBD) | County or jurisdictions establish taxing district to fund improvements | Typically sales tax or vehicle license fee (a few other options exist). $20-40-50 vehicle license fee without voter approval; up to $100 or 0.2% sales tax with voter approval |
| Local Improvement District (LID) | Improvements in specific areas, often utilities | Special tax assessment on local properties directly benefitting from the improvements; requires resolution or petition |
| Road Improvement District (RID) | Road improvements by counties in unincorporated areas | Special tax assessment on local properties directly benefitting from the improvements; requires ballot or petition |
| Master Road Improvement Program (MRIP) | New developments pay for infrastructure improvements | Revenue generated from “developer impact fees” on any new property improvements within a predefined project area |
| Community Facility District | Private party/property owner pays for improvements | Large company (e.g., Microsoft) pays for transportation improvements that it helps to define in exchange for special property assessment |
| Regional Transportation Investment District (RTID) | Taxing district for transportation plan subject to ballot | Up to 0.1% sales tax, up to $100 vehicle license fee, parking tax, motor vehicle excise tax, employer excise tax, fuel tax, etc. |

- **Transportation Benefit Districts (TBD)**: Taxing district established at the county and/or jurisdictional level, typically collecting sales taxes or vehicle registration fees for a package of projects. TBDs are created by the legislative bodies of the participating jurisdictions.

  In 2011, a TBD for Snohomish County was established, but the TBD remains unfunded with no power assumed to date. Currently, the only county-level TBD remains the Point Roberts TBD established in 1992 based on a $0.01 per gallon border area fuel tax.

  Multiple Snohomish County jurisdictions have established TBDs using the following funding mechanisms:

  1) **Vehicle License Fees:** TBDs may impose vehicle license fees up to $50 without a public vote or may impose fees up to $100 with voter approval. Vehicle fees may go up to $40, but only if a $20 fee has been in effect for at least 24 months, and up to $50, but only if a $40 fee has been in effect for at least 24 months. If two or more TBDs with the authority to impose a non-voted fee overlap, credits must be issued so that the combined non-voted fees do not exceed $50 total.

     The following jurisdictions have levied vehicle license fees of $20 unless otherwise noted: Granite Falls, Everett, Mountlake Terrace, Lynnwood ($40), and Edmonds.

  2) **Sales Tax**: A sales and use tax of up to 0.2 percent may be imposed but cannot be over 10 years at a time unless for the specific purpose of repaying debt. Sales and use taxes must be approved by a simple majority of the voters in the jurisdiction. Sales taxes may be administered in addition to a vehicle license fee as is the case with Lynnwood in Snohomish County.

     The following jurisdictions have levied sales and use taxes of 0.2 percent unless otherwise noted: Marysville, Arlington, Stanwood, Monroe, Lynnwood (0.10 percent), and Snohomish.

- **Local Improvement Districts (LID)**: Established in defined project benefit areas where special property tax assessments are levied to pay for specific (often utility-related) improvements. LIDs are formed by petition of property owners within the proposed district boundary and may be challenged by property owners.

  There are relatively few recent examples of LIDs being established, typically because of the difficulty in administering the program and community acceptance of the higher localized fees. Typically LIDs will focus on a very specific improvement, such as a new road linking to a neighborhood or a utility enhancement where owners receive a direct benefit. As the US 2 replacement will benefit users who will potentially reside outside the LID area, there may be reluctance by a local community to contribute a significant amount to the project costs.

- **Road Improvement Districts (RID)**: Often used in unincorporated areas of counties to pay for roadway improvements with special property tax assessments. RIDs may be initiated by county resolution or by petition of affected property owners.

  Similar to LIDs, there are few active examples of RIDs in Washington State with only a couple of examples in Snohomish County. In the case of US 2, it would be difficult to measure the direct benefits of the US 2 project on adjacent property owners in the defined district for the RID.

- **Master Road Improvement Programs (MRIP)**: Uses real estate development impact fees to pay for real estate project-related infrastructure.

  MRIPs have had limited use in Washington State and would likely require a group of developers who would be willing to pay for transportation improvements that they help to define in exchange for special property assessments. The most likely candidate for a MRIP would be developers in the catchment area to the East of US 2.

- **Community Facility Districts (CFD)**: Special real estate property tax assessment often associated with a single large property owner for an infrastructure project they desire.

  Similar to MRIPs, CFDs have had limited use in Washington State and would require a specific company or group of companies who would be willing to pay for transportation improvements that they help to define in exchange for special property assessments. The most likely candidate for a CFD would be Boeing, a major source of jobs in Everett, to the west of US 2 with employees in the catchment area.

- **Regional Transportation Investment Districts (RTID)**: County-wide taxing district that can raise funding through several ballot-enabling mechanisms, including sales taxes, parking fees, registration fees, and other revenue-collecting mechanisms. RTIDs must be approved by voters as a ballot referendum. RTIDs can be administered to include up to a 0.1 percent sales tax, up to $100 vehicle license fee, and may also include other sources, such as a parking tax, motor vehicle excise tax, employer excise tax, or a fuel tax.

  Similar to the Regional Transit Authority (RTA) District established by Sound Transit to fund its long-range capital and operating plans, RTID contributions for US 2 would likely be part of a countywide package that includes other priority projects for Snohomish County. However, as many voters in Snohomish County reside in the Sound Transit RTA District as well as within various TBDs, there may be elevated political concerns regarding an additional funding package associated with transportations improvements. Concerns may be mitigated

depending on the funding mechanism to be applied; for example, there may be more acceptance of a county-wide fuel tax increase to pay for various road improvements over an additional sales tax or vehicle license fee.

Some of the programs described above are already in use in communities surrounding the US 2 Trestle, with varying fee levels and purposes. Which of these revenue-generating programs are appropriate for the US 2 project improvements, if any, is a matter of local preferences and will require public outreach.

The following section describes potential types of new funding sources that could be considered for US 2 without suggesting the program that would be used to levy them or the area from which they would be collected. These sources could be implemented at the state level or, in some cases, by local jurisdictions and districts noted above.

**Taxes and Fees**

Local option taxes might not raise large sums of money, particularly in areas where the population centers are relatively small. However, stable revenue streams from local option taxes can be used to repay debt. Several local governments could sign an intergovernmental agreement to jointly exercise a local option to generate funding for improvements to US 2. This pooled funding approach could be a way to generate more funding by taxing a larger area with a lower rate.

These types of supplemental taxes could also be levied statewide, but raising new taxes or fees statewide to pay for individual infrastructure projects often creates equity challenges. The conventional approach is to link user benefits to the payment source. For instance, a toll road has a direct pay-for-use fee. In contrast, a countywide sales tax dedicated to US 2 would not have a direct link for everyone paying the tax, since many county residents may not use the roadway. Typically, sales tax ballot initiatives have a geographically diverse portfolio of projects for which the funds are dedicated, which is intended to spread benefits to a greater population of people in different areas. The option to include multiple priority projects is one of the primary reasons that local options are popular. For instance, an individual county might issue a sales tax to pay for urban amenities in one area, highway infrastructure in suburban communities, and social infrastructure in rural areas. The local option provides flexibility for the needs of small areas or specific projects.

On a statewide scale, increasing and dedicating taxes for transportation is a viable mechanism, but these tax collections would need to be allocated to uses across the state so that all residents and businesses could reap the benefits of those investments, not just those along US 2. Tax and fee funding sources are shown in Exhibit 25.

- **General Sales Tax**: This tax on all goods could be expanded for transportation uses, although equity challenges would need to be addressed if tax revenues are collected for a specific project rather than generally for use across the county for a variety of projects. Both RTIDs and TBDs may levy sales taxes for the specific purpose of financing highway construction and other transportation improvements, although voter approval is required in both cases.
- **Sales Tax on Specific Goods and Services**: Sales or special taxes or fees can be applied to hotel rooms, rental cars, and potentially certain recreational activities. These “transient” taxes and fees are often focused in tourist areas but can also be used more broadly. Sales Tax on Alcohol and Tobacco do not usually generate large amounts of revenue, but they can promote health.

**Exhibit 25: Tax and Fee Funding Sources by Mechanism**

| Source | Mechanism | Detail | Potential Revenue Range Per Year |
|---|---|---|---|
| Sales Tax | TBD/RTID (Financing) | TBD up to 0.2%; RTID up to 0.1%; requires ballot | County-wide 0.1% increase, $5 M - $15 M |
| Vehicle Registration Fee | TBD/RTID (Financing) | TBD up to $20-40-50 per vehicle without ballot; RTID and TBD up to $100 per vehicle with ballot | County-wide $20 increase, $6 M - $14 M |
| Property Tax | LID/RID/TBD (Financing) | Value to be defined by agreement structure | County-wide $0.15 per $1,000, $7 M - $12 M |
| Tolls | Legislation/TBD (Financing) | Set fee schedule for using road or bridge, requires legislative authorization | Included in subsequent slides |
| Fuel Tax | RTID (Financing) | May impose at rate up to 10% of state tax (up to $0.0494 per gallon), requires ballot for voter approval | County-wide $0.01 fuel tax per gallon, $2 M - $5 M; $0.0494 fuel tax per gallon, $9 M - $22 M |
| Impact Fee | Alternative | Fee assessed to developer to help pay for new/expanded public facilities | Varies, typically a one-time charge |

- **Motor Fuel Tax**: Motor fuel taxes make up a major portion of the department of transportation's annual funding. Raising the fuel tax rate at the state level would generate significant revenue, but it would have to be part of a larger initiative and funding package. At the local level, additional fuel taxes could be targeted through an RTID.

  A few states have linked their gas tax rate to the consumer price index or some other index to establish regular and predictable increases. Wing automatic future tax rate increases into law is difficult, but regular increases can be paused in poor economic times, while in other times they provide stable funding growth every year.

- **Automobile and Truck Registration Fees**: Revenues from motor vehicle registration fees are relatively stable and the number of vehicles being registered should not change dramatically if the fee is increased moderately. Some households or businesses might reduce the number of cars they have registered, but a $20-per-year increase should not drive decision-making on this matter.

- **Operators' License Fees**: In theory, operators' license fees should be more stable than registration fees, given that people are unlikely to forgo renewing their licenses as a result of a fee increase. RTIDs may impose vehicle license fees of up to $100 annually with voter approval, while TBDs may introduce license fees of $20 to $50 via the Legislature, or up to $100 with voter approval.

- **Real Estate Property Taxes**: Real estate property taxes are not commonly used for roadway funding since it is difficult to link specific property benefits to a specific facility. The ability to use real estate property taxes has been successful in smaller areas where it is easier to make the link between the tax and the benefits of the tax spending, such as for transit stations and greenfield highways that provide new access. Washington permits TBDs to levy a property tax for a one-year period if authorized by voters in a referendum.

- **Commercial Parking Tax**: A tax may be imposed on commercial parking businesses to support general transportation purposes, including highway construction. State law permits the taxing entity to set a rate of its choice, charged as a percentage of gross parking proceeds, as a percentage of each parking fee paid, as a fee per vehicle using the facility, or based on the number of vehicle stalls in the facility.

## 6.3 Financing Mechanisms

Financing has long been a mechanism for state and local governments to accelerate transportation infrastructure projects. It can help project sponsors realize efficiencies and lower costs from consolidated project delivery and achieve the user benefits earlier from projects being completed faster. Financing comes at a cost, including interest, the effort to set up financial systems to issue and repay debt, and the uncertainty that funds dedicated to repay debt may be needed for some critical and unforeseen needs in the future. Weighing the benefits and costs of financing can be done in many ways but should be project-specific. Considerations should include project cost adjusted for delivery risks, the cost of capital, the repayment period, and the benefits realized from early completion, which include avoiding cost escalation. Some important considerations are discussed below.

**Revenues Used to Secure Debt Repayment**
The State generates a broad range of revenues from various taxes and fees. These existing revenues, combined with federal funds that WSDOT receives and project-based sources such as tolls, could be used to secure debt issued by the state treasurer to finance initial capital improvements. The stability and predictability of pledged revenues is a key determinant in the type of credit protections investors will demand and the interest rate the State will pay to investors to compensate them for taking on the credit risks associated with the bonds. Bonds secured either with a well-established, broad-based tax source under the State's control or its full faith and credit would be viewed as the least risky. While there is a long history of federal funding support (FHWA formula funding), this revenue source is not under the State's control and can be subject to changes in federal funding levels and policy. As such, it may be considered riskier than the State's full faith and credit or pledge of broad-based, existing taxes. Revenues derived from a project's performance, such as tolls, are riskier, especially for new highway facilities or existing untolled facilities where a user fee would be introduced and traffic diversion would likely occur. Revenue risks for these facilities include the following:

- The strength of the travel market the facility serves, which for US 2 is relatively strong given the observed commute patterns (west in the AM/east in the PM)
- Competition from nearby existing or planned untolled facilities, which for US 2 there are currently few and none planned
- Dependency upon economic growth derived from land development or commercial activities to achieve projected demand, which comes into play for US 2 but is not the driver of future traffic demand
- The ability to design, construct, operate, and maintain the facility within the schedule and cost estimates developed for the project, which may be strengthened by using design-build delivery or a P3 operations approach

**Security Package Offered to Investors**
To mitigate potential revenue risks and secure the highest, most cost-effective credit rating, WSDOT or other borrowing party has several options to structure a security package offered to investors. These include the following:

- **Gross versus Net Revenue Pledge:** Bonds secured by a pledge of one or more tax sources will typically feature a gross pledge of revenues, which is where the State covenants to pay debt service on its bonds prior to all other obligations. This protects investors from exposure to the State's operations and maintenance obligations and management of its construction program. For bonds secured by user fees or toll revenues, investors will accept a net revenue pledge where debt service is paid after operating expenses and often reserve fund contributions. This ensures sufficient revenues are being generated to maintain the facility in a state of good repair to generate the necessary revenues to meet debt service obligations.
- **Debt Service Coverage Ratio:** Investors and rating agencies typically want to see higher coverage ratios for revenue sources subject to volatility and, consequently, will accept lower coverage ratios for more stable revenue sources. Debt service coverage is also a function of the State's funding and financing strategy for its capital plan, where higher coverage ratios indicate a targeted debt program with a strong pay-as-you-go funding component, while lower coverage ratios denote a more highly leveraged capital program focused on the accelerated delivery of projects.
- **Debt Service Reserve Funds and Internal Liquidity:** The need for reserve funds is also contingent upon the risk profile of pledged revenues. Most gross pledge debt structures featuring reliable and stable revenue sources do not require a debt service reserve fund that provides internal liquidity in the event of an interruption or severe dip in pledged revenues. User fee supported structures typically feature debt service reserve funds to account for potential volatility. Per requirements governing tax-exempt bonds, debt service reserve funds funded with bond proceeds are set at a level equal to the lesser of 10 percent of gross proceeds, 125 percent of average annual debt service, and maximum annual debt service. In addition to a debt service reserve fund, the State would make covenants with bond holders to maintain a rehabilitation and replacement reserve at a level set based on budgeted expenditures and/or the recommendations of a consulting engineer to provide for the state of good repair of the facility. Lastly, a general reserve fund that receives excess revenues after all debt service and other obligations have been met is available to meet legally permissible purposes, including pay-as-you-go capital projects or early retirement of debt.
- **Rate Covenant:** User fee structures will include a security feature, whereby fees or tolls are required to be set each year to generate revenues sufficient to meet annual obligations and achieve a minimum debt service coverage ratio.
- **Construction Packages:** To ensure the on-budget and on-time completion of projects, the State would (ideally) enter into a design-build contract that establishes specifications for the completion of a project, covers incentives and disincentives, and guidance on payment and performance bonds to ensure adherence to the terms of the construction contract. Using a comprehensive contract protects the State and bond investors in the event of a contractor default. These provisions are particularly important for user fee structures where revenue generation is dependent upon the timely completion of construction.
- **Covenants to Operate and Maintain the Project in State of Good Repair:** The State would offer covenants to bond holders that ensure the project being financed is maintained in a state of good repair and that the state will take necessary actions to perform periodic inspections and devote resources and undertake investments based upon the recommendations of its consulting engineer. For user fee facilities, this ensures the project is maintained at a level necessary to support the generation of revenues to meet debt service obligations. For tax-supported debt structures,

covenants to maintain a project in a state of good repair provides the state with incentive to continue to meet its debt service obligations.

**Types of Financing Mechanisms**

There is an array of financing approaches that state governments and project sponsors can pursue, some of which are outlined in Exhibit 26. From a credit standpoint, these range from non-recourse revenue-based debt instruments that pledge only project-generated revenues, to those backed by the full faith and credit of the State, known as general obligation (GO) bonds. Most government-issued debt is tax exempt, which means investors do not pay taxes on their returns. Therefore, interest rates are lower than corporate and bank debt of the same quality. The four types of revenue streams outlined in Exhibit 26, and associated bonds, capture the options available to structuring debt for US 2.

**Exhibit 26: Potential Financing Options**

| Option | Description | Typical Funding Sources and Range |
|---|---|---|
| Municipal Bonds | Issued by state or local government, interest paid to bondholders is exempt from federal tax | GO bonds backed by full faith and credit of the issuer – multiple sources, wide range in values |
| | | Revenue bonds backed by specific revenue source – tolls, local/regional taxes, wide range in values |
| Transportation Infrastructure Finance and Innovation Act (TIFIA) | Federal loan (or guarantee/ line of credit), may not exceed 33% of costs | Dedicated, toll revenue, fuel tax revenue, availability payment<br>TIFIA loan range on highway/bridge projects $60 M - $1,600 M |
| Grant Anticipation Revenue Vehicle (GARVEE) | Federal program that allows states to borrow against future federal funds (such as gas tax revenue), Washington has $786 M tied to SR 520 | |
| Private Activity Bond (PAB) | Federal source of tax-exempt loans for private investors | Currently a $15 B limit ($6.6 B issued) – tolls, availability payments $20 M - $721 M<br>Removal of tax-exempt status in current U.S. House Tax Bill 11/17/2017 |

- **General Obligation (GO) Bonds**: As their name suggests, GO bonds are repaid by the issuer using any resources they have at their disposal. Typically, the bond documents state that the issuer pledges its full credit and taxing power to the repayment of the debt, but some funding may be isolated from this broad dedication. For example, previously issued debt or more senior debt obligations may by law need to be paid before newer more junior debt obligations. This "waterfall" of payments can be complex, and if GO bonds are to be issued, the state treasurer would establish that the appropriate debt caps and limitations are in place to protect the State from unnecessary default risk. GO bonds for an individual project such as US 2 are unlikely but are important to define as they establish one book-end of the spectrum of state-issued debt.
- **Dedicated Tax Bonds**: These bonds are secured by one or more taxes to pay debt service. While these bonds do not benefit from the broad full credit of GO bonds, they are typically considered to have limited credit risk given the pledge of revenue is derived from one or more stable and reliable tax sources such as a motor fuel tax, vehicle registration fee, and/or license fee. Often, transportation tax sources are constitutionally dedicated to a transportation trust fund where revenues deposited into the fund are used for transportation and cannot be diverted for any other purpose.
- **Revenue Bonds**: Unlike GO bonds that pledge all the taxing power of the issuer, revenue bonds typically have a narrow (or single) set of repayment sources generated by the asset. This means that they probably carry a higher

interest rate because of a lack of revenue diversity and may have a more complex set of operating requirements or other covenants put in place to improve the credit profile of the revenue stream and reduce the risk to investors. As noted earlier, the more revenue risk, the higher the interest rate and the less capital funding that can be generated in the bond issuance.

The riskiest revenue bonds are often for greenfield toll projects, meaning they have no operating history. These projects' revenue-generating expectations are based on technical studies alone. Other revenue bonds with risky revenue profiles are those that are reliant on strong economic growth, particularly localized economic growth. For instance, development impact fee revenue is generated when a builder obtains a permit and pays a fee. If the real estate market changes from healthy to contracting, which was witnessed nationally in 2008, a development impact fee revenue stream can disappear until the real estate market has revived. As such, a local government seeking to issue debt repaid with development impact fees would likely have to provide a GO backstop or pair the impact fee revenues with another revenue stream that is more stable or complementary. This pairing of revenue streams is sometimes referred to as a "double barrel" bond and could be done with any of the state and local tax options discussed above or a GO pledge.

- **Federal Government Lending Programs**: A few federal programs extend very low interest rates and favorable repayment terms to public agencies for the development of infrastructure. These have become very popular with project revenue and public-private partnership transactions, but come with certain strings that "federalize" the project, making it subject to federal rules for environmental approvals, procurement, hiring, and other approvals. Given that US 2 is already subject to all federal rules, the additional constraints that come with federal lending programs do not detract from their appeal.

  The FAST Act established a new National Surface Transportation and Innovative Finance Bureau (the Build America Bureau) within the department to serve as a one-stop shop for state and local governments to receive federal funding, financing, or technical assistance. The Build America Bureau seeks to improve coordination with the USDOT and promote the use of innovative finance mechanisms. The Bureau is also tasked with the responsibility to drive efficiency in the permitting process and reduce the time it takes to break ground on new transportation projects.

  Administered by the Build America Bureau, the TIFIA credit program provides financing options (direct loans, loan guarantees, and standby lines of credit) for large projects and public-private partnerships. The key advantage of a TIFIA loan is it allows the borrower to take on subordinate debt at a rate equal to federal treasuries for a term up to 35 years from a project's substantial completion. The project must be supported in whole or in part from user charges or other non-federal dedicated funding sources and be included in the state's transportation plan. Qualified projects are evaluated by the US Transportation Secretary against eight statutory criteria, including among others, impact on the environment, significance to the national transportation system, and the extent to which they generate economic benefits, leverage private capital, and promote innovative technologies. The project's credit worthiness is also evaluated and credit terms are negotiated between the project sponsor and the Build America Bureau.

- **Grant Anticipation Revenue Vehicles (GARVEE):** GARVEEs are financing instruments repaid with future Federal-aid Highway funds. As of March 2016, 25 states and 3 territories have issued over $19.1 billion in GARVEEs.

  GARVEE financing is simple in structure and is solely used to accelerate projects that would otherwise be paid for incrementally with federal formula funding. With projects in place sooner, costs are lower as a result of savings associated with reduced exposure to future cost escalation, and the public realizes safety and economic benefits more quickly. Savings from reduced exposure to future cost escalation can be offset by interest costs, but these tradeoffs must be evaluated on a project-by-project basis. GARVEEs can also be paired or supplement general obligation or revenue bonds.

  GARVEEs are appropriate for large, long-lived, non-revenue-generating assets. A potential disadvantage of GARVEE financing is a reduction in programmatic flexibility for those years in which debt service consumes a portion of the annual transportation program. Other potential issues include capacity constraints with respect to availability of contractors, consultants, construction materials, and labor, and the possibility of induced inflation in smaller markets as large project delivery demands exceed the supply of qualified resources to deliver the project.

  GARVEEs are available to states and territories receiving Federal-aid Highway funds. When deployed prudently, they can be very helpful in delivering small projects efficiently without creating major constraints on a department of transportation's budget.

- **Private Financing**: In P3 transactions where the private partner provides the financing for a project, there is usually a combination of debt and equity. The equity portion is cash provided from one or more of the members of the consortium of companies making up the "private partner."

  It is important to clarify that the private partner is usually a group of companies that form a legal partnership (LLC or similar), referred to as a special purpose vehicle (SPV), to carry out the project. Usually a lead construction contractor manages the design-build portion of the work (including all design and specialty subcontractors) and potentially the operations and maintenance portions. There may be separate equity contributors (although the lead contractor is commonly a major equity provider) and lenders to the SPV. In these arrangements, the equity usually gets repaid last, after lenders, hence an expected return on equity is much higher, often in the 12 to 15 percent range.

  The lenders are generally banks that have an arrangement with the contractor and other equity partners to provide capital for the project. Bank debt is not tax exempt and therefore carries a higher interest rate than comparable debt issued by a public entity. Private partners can qualify for tax-exempt TIFIA or private activity bonds in conjunction with a public entity, according to the terms of those programs, and it is common for private partners to target these lending programs because of the lower cost of capital. However, at least some component of the private financing package usually is taxable bank debt.

  While publicly issued tax-exempt debt often has a 30-year maturity, private bank debt maturities may be much shorter (10 years), requiring refinancing several times during the term of the P3. The private partner to a P3 may also use short-term construction loans to fund construction and refinance after completion.

# 7. Sample Funding Options for the US 2 Westbound Trestle

Three sample funding options for the US 2 Westbound Trestle were developed to provide some context and scale regarding what it would take to fund the design and construction for a project with an expected base cost upward of $1 billion. These three options are as follows:

- A motor fuel tax equivalent funding option
- A public toll financing with state-backed bonds
- A P3 using private financing

Project cost ranges were not varied across these illustrative sample funding options, although conceivably, the P3 delivery approach may end up with costs in a different part of the ranges.

## 7.1 Non-Toll Funding Sources

Non-toll-related capital funding contributions would likely be derived from a variety of sources, with the focus primarily on larger federal programs and various regional and local districts. The US 2 Trestle has many of the characteristics captured in the criteria for a federal INFRA grant or TIGER grant, and could be a contender for one of these highly competitive programs. Smaller potential contributions from local and regional grant programs administered by PSRC and TIB could likely include STP, TAP, FMSIB, and UAP. As these programs are all highly competitive, it is assumed that $50 million of funding would be derived from federal and local grants. Programs listed in this document are subject to change in terms of both funding and eligibility and will need to be closely monitored as the US 2 capital program and schedule progresses.

In addition to grants, local funding contributions are also expected to play a part and are assumed to contribute an additional $50 million to US 2 capital requirements. Local funding could come from pay-as-you-go sources or be financed through one on the local revenue-generating mechanisms described. Gross revenues of $4 to $5 million annually would be required from a TBD or other local taxing mechanism to yield approximately $50 million in capital contributions. The required range in annual funding would likely require the inclusion of a large portion of Snohomish County, but this level of funding is not unreasonable and could take advantage of a tiered pricing structure.

Local funding could also come as a contribution from the Port of Everett, Boeing, or other regional partner that would benefit directly or indirectly from an improved US 2 Trestle.

For purposes of this study, a combined placeholder target amount of $100 million in federal and state grant funding plus local taxes, fees, and other contributions has been assumed. Further analysis and partnering may reveal more funding is possible; however, grant competition and other risks may also result in less funding. The $100 million assumption is reflected in the yellow bars within Exhibit 27.

In addition, the motor fuel tax equivalent funding option assumes that every 1 cent of the statewide gas tax could provide $350 million in funding as a combination of pay-as-you-go revenues over the five years of construction and the financing of a portion of each 1 cent in gas tax over 25 years. This 1-cent equivalent gas tax is also identified as a potential gap closure in the two toll financing options.

Exhibit 1 on page 2 shows the recent history of the motor fuel tax packages passed by the Legislature in 2003, 2005, and 2015. Each of these packages included a broad list of projects around the state, although each package also identified significant funding for a few major projects in the Puget Sound region, including the SR 520 Bridge, SR 99 Tunnel, and the Puget Sound Gateway Program (the SR 509 and SR 167 corridor completion projects). This suggests that the US 2 Trestle could be a key recipient of a future gas tax package, but it would be unlikely to assume that a statewide gas tax could be passed by the Legislature for the benefit of only one or a handful of projects.

## 7.2 Toll Funding Sources

The sample funding option for the public toll financing with state-backed bonds assumes the midpoint of the funding range identified for Scenario A in Exhibit 22, $515 million. In addition, it assumes that approximately $50 million in "funding" could be provided from deferring the construction sales tax until well after completion and then paying it in installments over time out of excess toll revenues, similar to a zero-interest loan.

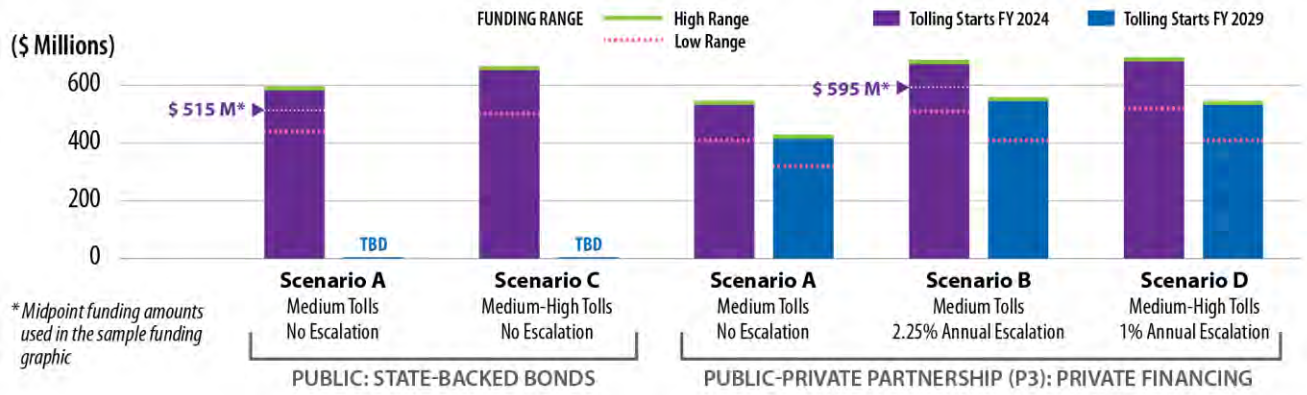
The sample funding option for a P3 using private financing assumes the midpoint of the funding range for Scenario B in Exhibit 22, or $595 million, split as 10 percent equity and 90 percent debt.

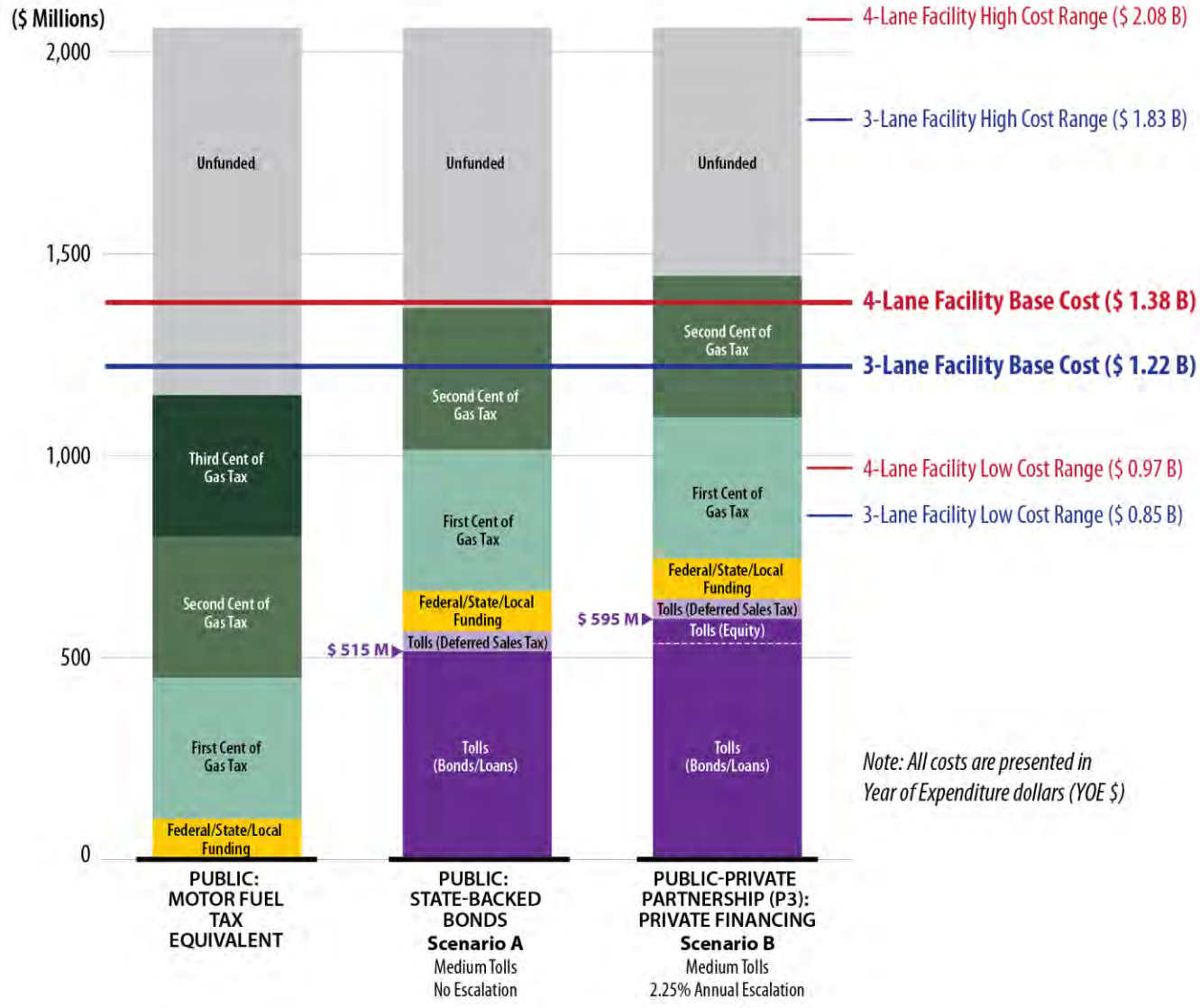
## 7.3 Sample Funding Option Results and Findings

Exhibit 27 summarizes the toll funding ranges shown in Exhibit 22 and graphically illustrates the three sample funding options. Note that each option maintains the same $100-million placeholder assumption from federal, state, and/or local sources. The following summarizes the findings from these sample options:

- The equivalent of a 3-cent gas tax, combined with the $100 million from federal, state, and/or local sources, is not quite sufficient to reach the three-lane facility base cost estimate, although it does exceed both the three- and four-lane low cost estimates.
- Both the public and private toll financing options, in combination with the $100 million from federal, state, and/or local sources, are not sufficient to reach even the three-lane facility base cost.
- It would take the most optimistic (highest) of the toll financing assumptions to provide sufficient project funding for the most optimistic (lowest) cost estimate for the three-lane facility.
- At least the equivalent of a 1-cent gas tax, and more likely most, if not all, of a second cent of gas tax would be required to bring either toll financing case within the base cost range for the three- or four-lane facility costs.
- Nonetheless, tolls should be considered as a significant and viable funding source for the US 2 Westbound Trestle project, in concert with other federal, state, and local funding sources.

## Exhibit 27: Sample Funding Options and Ranges



## 7.4 Other WSDOT Toll Program Funding Sources

As additional context for the sample funding options described above, Exhibit 28 summarizes the funding package assembled for other large toll projects already operational or under development.

While many factors led to the different mix of tolls and other funding sources, the two bridge projects—SR 520 and Tacoma Narrows—have significantly fewer alternative routes than the other two projects, allowing tolls to provide a larger share of project funding.

**Exhibit 28: Funding Sources for Other WSDOT Toll-Funded Programs**

| Funding Source | Program | | | |
|---|---|---|---|---|
| | SR 99 Alaskan Way Viaduct Replacement | SR 520 Bridge | Gateway Program SR 167 and 509 | SR 16 Tacoma Narrows Bridge |
| Motor Fuel Taxes* | $1,914 M | $2,178 M | $1,565 M | $ 50 M |
| Tolls | 200 | 1,204 | 180 | 742 |
| Federal | 787 | 1,125 | 111 | - |
| Local and Other | 314 | - | 130 | - |
| **Total Funding** | **$3,215 M** | **$4,507 M** | **$1,986 M** | **$792 M** |

# 8. Key Findings

## 8.1 Cost and Funding

- Base cost estimates range from $880 million to $1 billion (in 2017 $s) for the three- and four-lane replacement facilities, respectively. These costs include levels of risk and uncertainty appropriate for this preliminary planning stage of development.
- Funding the entire project from the statewide motor vehicle fuel tax would require in excess of a 3-cent increase in the current gas tax.
- A combination of federal, state, and local grant and fee sources are assumed to be able to provide up to $100 million in funding.
- With tolling starting at the beginning of construction in FY 2024, tolling could be leveraged to provide between $410 and $690[3] million in project funding, depending upon the toll scenario and financing/delivery method.
- Legislative authorization to defer the payment of construction sales tax until after completion (at such time when there would be sufficient excess toll revenues to make installment payments) functions like a zero-interest loan, providing approximately $50 million in "funding."

## 8.2 P3 and Public-Public Partnerships

- With the proper statutory authority, a P3 delivery and private financing approach could be a viable alternative to state-backed toll financing and conventional design-build delivery. However, P3 delivery does not require private financing.
- Once additional scope and cost certainty are achieved, additional analysis would be required to validate the delivery method and finance strategies in order to assess if a P3 approach would provide the best overall value to the state.
- An efficient and predictable approval process will help WSDOT attract the best private investors to pursue the project as a P3. Legislative action is needed to establish authority that is in line with states such as Virginia, Colorado, and Texas where P3 delivery is more common (consistent with recommendations captured in the 2011 Joint Transportation Committee Public-Private Partnerships (P3s) in Transportation study).
- Environmental studies, major permits and approvals, and rights-of-way control need to be handled by WSDOT in advance of beginning a P3 procurement. These items represent risks that typical investors avoid. These studies will also inform the design and associated risk analysis that will in turn inform decision making around the appropriate P3 approach for US 2.
- Financial feasibility needs to be confirmed. This study indicates that multiple funding sources using a variety of revenue and financing mechanisms would be needed to pay for the project. These revenue sources need to be authorized or secured to show the investment community that the project is financially viable.
- Competition is a critical element of value creation in a P3 procurement. Competition causes P3 teams to innovate and find ways to drive down costs. The three previous items, once complete, should provide a competitive procurement environment that will drive value for WSDOT.
- Allowing for the comparison of public and private financing options by considering a P3 transaction is preferable to delivery as a design-build with public financing. A private partner will use whatever approach provides the most value, and WSDOT will never know what could be achievable for US 2 through P3 delivery with private financing if the option is not available during the procurement.

[3] Exhibit 3 assumes a mid-range of toll funding of approximately $500 million

# 9. Next Steps and Recommendations

The Washington State Legislature has authorized multiple preliminary planning efforts that assess key considerations associated with replacing the US 2 Westbound Trestle. Studies commissioned to date include the US 2: Everett Port/Naval Station to SR 9 Corridor Planning Study, the US 2/SR 204/20th Street SE IJR (June 2018), and this funding and finance study. The cumulative findings from these studies outline a need for the State to work towards commencing an environmental study and approval process. The environmental study process would include alternatives assessment and refinement supported by technical analysis and preliminary engineering work, culminating in the designation of a preferred alternative. The study would also include a robust stakeholder and community engagement process consistent with the State's current practical solutions process that would result in a clear project description and common understanding among both stakeholders and the public. This study would culminate in either an Environmental Assessment (EA) or Environmental Impact Statement (EIS) per National Environmental Policy Act (NEPA)/State Environmental Policy Act (SEPA) requirements. The decision on what level of environmental documentation is required would be influenced by the results of the project scoping process and whether or not tolling is included as an alternative. Key components of the environmental study include:

- A public project scoping process
- Alternatives development and screening
- Additional traffic analysis, or traffic and revenue analysis if tolling were to be considered within the alternatives
- A site and field investigation program, in particular, mapping of sensitive areas and conducting a geotechnical program to identify the specific subsurface conditions and risks
- Preliminary engineering at the level required to support the environmental document and inform the delivery and finance approach decision-making (generally characterized as 5 percent to 10 percent engineering)
- Identification of key environmental permitting requirements and conditions
- Risk management planning, including risk identification and assessment accompanied by mitigation strategies
- Construction cost estimate update
- Stakeholder and community engagement and input

The full effort as described above, with all supporting analysis and preliminary engineering, could cost between $8M and $10M if an EIS were to be required, and would provide critical information needed to support a more comprehensive analysis to inform the Legislature on potential delivery and finance approaches.

With a completed environmental process and decision, and the supporting preliminary engineering, the project delivery method and associated funding and finance strategies could be finalized based on additional analysis and study informed by the project scope, expected cost, and risks. If tolling is to remain in consideration as a potential funding source, additional traffic and revenue forecasting analysis (a Tier 2 Study) and net revenue analysis would need to be performed to further refine the revenue forecasts under a variety of tolling scenarios.

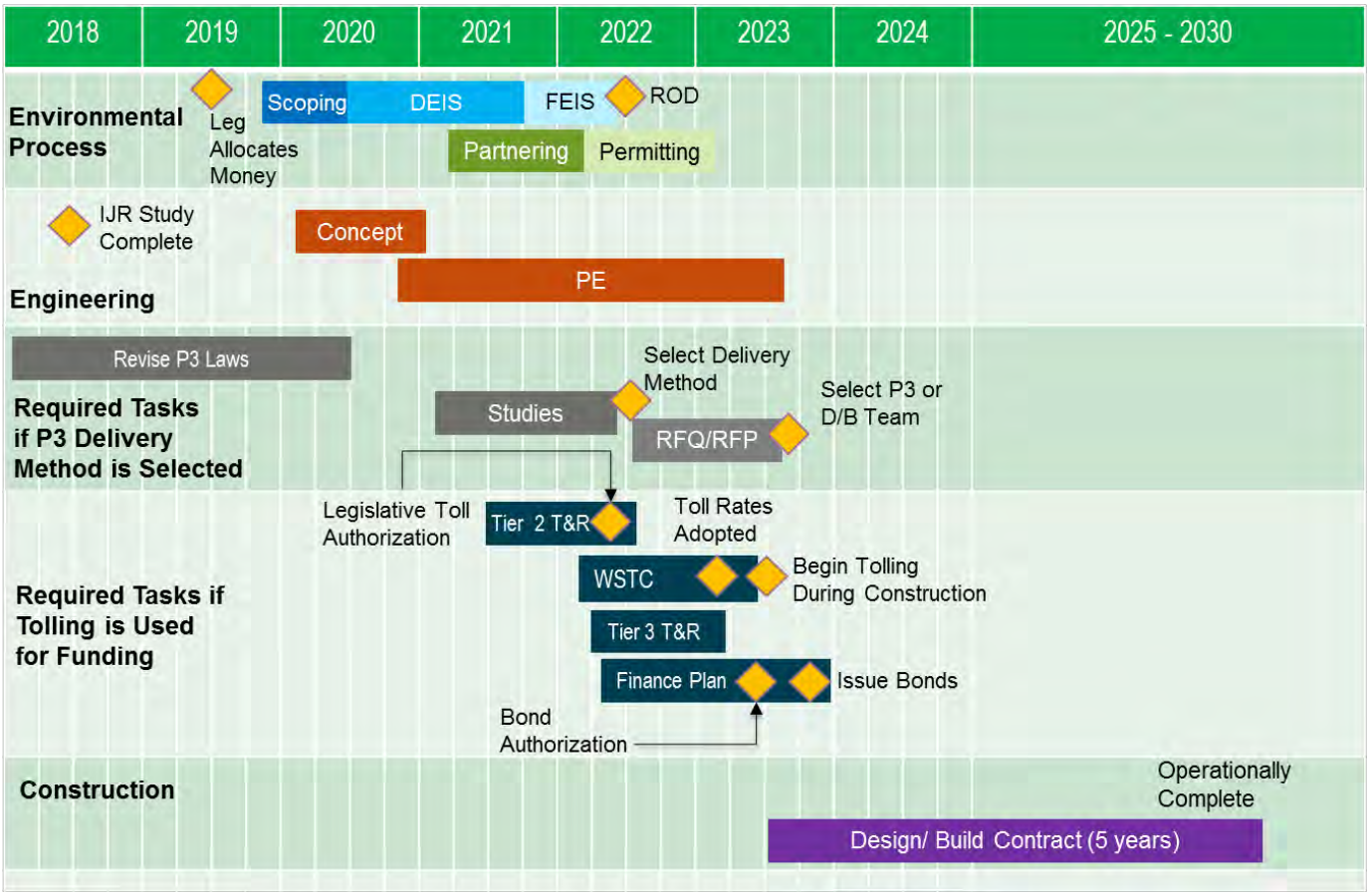
For WSDOT to have the ability to further consider a P3 delivery approach as the project scope and details are refined, modification of the existing P3 legislation would be required, followed by the development of clear policies and WSDOT

organizational alignment to support P3 development and delivery. WSDOT would be able to estimate different levels of policy change and organization development based on potential legislative actions regarding P3 delivery. This would help the State develop a more refined resource and delivery estimate for final project delivery.

To further pursue local revenue as a funding contributor, additional work would need to be conducted to define and detail the mechanism for local contribution (such as a Transportation Benefit District). Partnering among the local government funding participants would be required to estimate potential project-level revenue and develop a work plan to achieve required agreements between participating cities and Snohomish County.

A conceptual program schedule was developed for the replacement of the US 2 westbound trestle in order to illustrate the a 'best case scenario' delivery schedule. This schedule assumes that funding is available when needed, based on an efficient delivery and decision-making process. This idealized program schedule is shown in Exhibit 29 and depicts the relative durations and order of major tasks, key milestones and potential completion timeline under optimal conditions.

**Exhibit 29: US 2 Westbound Trestle Conceptual Program Schedule**




Additional smaller interim studies could be conducted in an effort to better define project costs, schedule, risks, and delivery approach ahead of a final NEPA environmental study and decision-making process. Any further interim work

completed outside of the full and final environmental process should include a robust community engagement and multiagency coordination effort, so that they will support the subsequent decision-making process tied to selecting a preferred alternative. Examples of additional interim studies could include the following:

- **Westbound Trestle and Interchanges Type, Size, and Location Study:** This work could further define the potential types and sizes of bridge foundations and superstructures based on previous designs and geotechnical investigations. This pre-design work would help in further developing the design concepts, refining the potential cost range of trestle replacement and interchange alternatives, and refining staging strategies.
- **I-5/US 2/Everett Interchange Study:** This would include a collaborative effort among WSDOT, the City of Everett, Community Transit, and Sound Transit to develop efficient connections between the westbound US 2 Trestle and downtown Everett. Public open houses could be utilized to gain community and business input toward proposed solutions.
- **US 2 West Trestle Improvement Pre-NEPA Process:** Aimed at corridor consensus building, this work would include a collaborative effort between WSDOT, Snohomish County, the cities of Everett and Lake Stevens, Community Transit, Sound Transit, and others. Specific activities could include initiating agency and public engagement; identifying and evaluating the environmental process options for project compliance with NEPA and the SEPA; defining alternative connections at I-5, 20th Street (lower roadway), and bike-pedestrian access strategies; and identification of a draft project Purpose and Need. This product would also develop a scope outline for the anticipated final environmental approach and process, the preliminary design process, and project delivery method(s).

# US 2 Westbound Trestle Funding and Finance Study

## Appendix A:
## 2017 Budget Proviso

Washington State Department of Transportation

January 2018

# Appendix A: 2017 Budget Proviso

(2) $100,000 of the motor vehicle account—state appropriation and $250,000 of the motor vehicle account—federal appropriation are provided solely for a study that details a cost estimate for replacing the westbound U.S. 2 trestle and recommends a series of financing options to address that cost and to satisfy debt service requirements.

In conducting the study, the department shall work in close collaboration with a stakeholder group that includes, but is not limited to, Snohomish county, the port of Everett, economic alliance Snohomish county, the cities of Everett, Lake Stevens, Marysville, Snohomish, and Monroe, and affected transit agencies.

The department shall quantify both the cost of replacing the westbound trestle structure and making mobility and capacity improvements to maximize the use of the structure in the years leading up to full replacement. Financing options that should be examined and quantified include public-private partnerships, public-public partnerships, a transportation benefit district tailored to the specific incorporated and unincorporated area, loans and grants, and other alternative financing measures available at the state or federal level.

The department shall also evaluate ways in which the costs of alternative financing can be debt financed.

The department shall complete the study and submit a final report and recommendations to the transportation committees of the legislature, including recommendations on statutory changes needed to implement available financing options, by January 8, 2018.