

Puget Sound Gateway Project

SR 509, I-5 and SR 167 Funding and Phasing Study: Strategic Corridor Design Review



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1. Executive Summary

In 2012, following two decades of project development, the Washington State Department of Transportation began an effort to develop an integrated, sustainable approach to completing the State Route 167 and State Route 509 corridor connections to Interstate 5 while relieving congestion and improving mobility between Tacoma and Seattle. Specifically, the Puget Sound Gateway Project study:

- Developed a program approach that efficiently integrates the SR 167 and SR 509 completion projects, along with I-5 express toll lanes.
- Built stakeholder support by identifying a phased approach that met regional priorities and needs.
- Included national and local experts who developed phasing concepts, cost estimates, project delivery and financing strategies.
- Created an implementation plan to guide the Gateway project forward.

Benefits of completing the Puget Sound Gateway Project

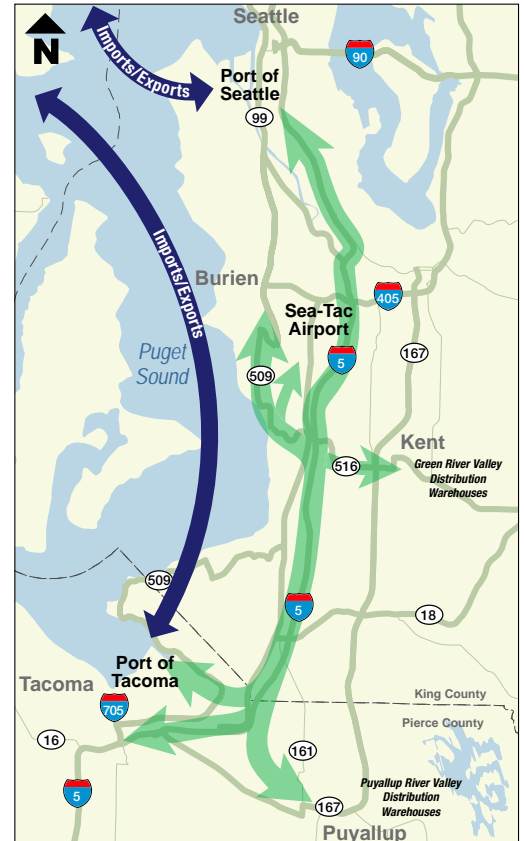
The Gateway project completes SR 167 and SR 509 which are critical freight routes and provides new regional connections to I-5. The Gateway project:

- Improves regional mobility and relieves traffic congestion on local roads and highways by providing new and more efficient travel options, improving overall system performance for freight, commuters and transit.
- Completes critical freight links between the ports of Seattle and Tacoma and key distribution centers, warehouses, and industrial areas in King and Pierce counties. Supports regional and statewide job growth by allowing freight to move more reliably and economically.
- Provides direct access to Seattle-Tacoma International Airport from the south, better connecting the state's hub airport to I-5 and facilitating movement of air cargo.
- Leverages the opportunity to build an integrated system by constructing SR 509, SR 167 and I-5 together, using design-build to accelerate construction and capitalize on economies of scale.

As seen in the map on this page, completing SR 167 and SR 509 as part of the Gateway project, completes the I-5 "commerce corridor" known for its freight movement and port connectivity. Express toll lanes on I-5, between Tacoma and Seattle, would improve mobility and could contribute revenue toward completing SR 167 and SR 509 while also creating a revenue stream to help fund I-5 maintenance and preservation or other transportation improvements.

Building critical freight connections

The value of Washington state imports and exports was \$111.5 billion in 2011, placing Washington in the top five most trade-dependent states in the nation. Our state's efficient movement of freight and goods relies on an integrated transportation system, with the Gateway project key to enhancing the state's economic competitiveness as global trade expands.



Completing the Gateway project provides more direct links from the state's largest ports to distribution centers in the South Sound and to Eastern Washington.

Completing the Gateway Vision: A phased approach to corridor completion

In alignment with regional planning, SR 167 and SR 509 will be fully tolled corridors. Traffic analyses show that tolling the new SR 167 and SR 509 corridors will help relieve congestion by encouraging drivers to use the freeway during non-peak hours, take other routes, or make other travel choices. WSDOT proposes to build 1-2 additional lanes in each direction of SR 167 and SR 509 in Phase 1 to accommodate traffic volumes and freight movement. Additional lanes can be added over time to accommodate regional growth.

SR 509 Phase 1 (Cost: \$708 million to \$784 million)

- One lane in each direction between S. 188th St. and I-5
- Second lane in each direction between S. 200th St. and I-5
- Truck climbing lanes as needed where steep grades exist
- New or improved interchanges at S. 188th St., 28th/24th Avenues S., I-5, S. 231st St., SR 516

I-5 Express Toll Lanes (Cost: \$131 million to \$145 million)

- Existing HOV lane to express toll lane from SR 16 to I-90

SR 167 Phase 1 (Cost: \$770 million to \$852 million)

- One lane in each direction between SR 161 and SR 509
- Second lane in each direction between Valley Avenue and 54th Avenue East
- New or improved interchanges at I-5, 54th Ave E., Valley Ave, Freeman Rd., SR 161

If funding is received in 2014, WSDOT can utilize an integrated development and delivery approach to accelerate design and begin construction by 2017 and open to traffic by 2021. WSDOT intends to use the design-build delivery method to complete the project within the accelerated schedule.

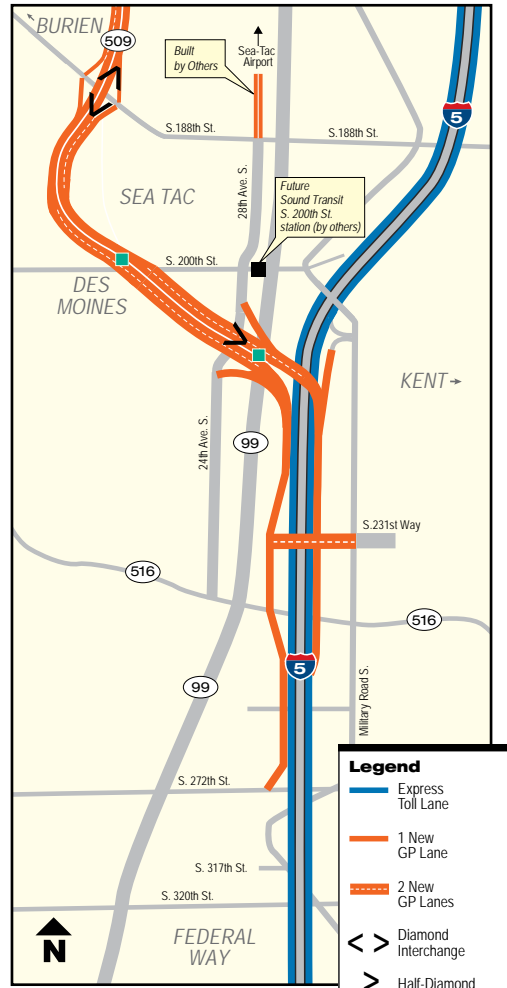
Future phases of the Gateway would build upon the initial investments in Phase 1, ultimately expanding SR 167 and SR 509 to two lanes in each direction while completing all planned connections. Timing of future phases is based on the needs of corridor users and the capacity needed to support regional growth.

Gateway Funding	Phase 1
Potential toll funding	\$330 million
Total Cost of Phase 1	\$1.6 billion - \$1.8 billion*

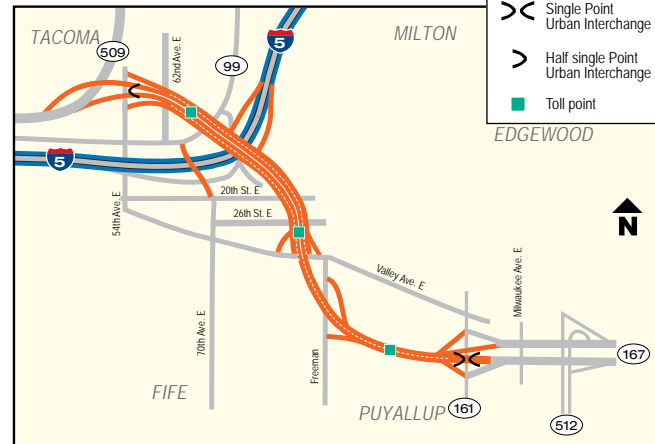
*Cost estimates, presented in year of expenditure dollars, include risk.

Future expansion of the Gateway project is estimated to be an additional \$1.2 billion to \$1.3 billion, bringing the total cost to complete all phases of the Gateway vision to \$2.8 billion to \$3.1 billion.

SR 509 Phase 1



SR 167 Phase 1



Key Gateway principles:

- Prioritize initial connections to address highest volume movements
- Add capacity strategically
- Meet the needs of freight and commuters
- Provide full freight connectivity

Supporting Stakeholders for the Gateway Project**SR 167 Executive Committee:**

Bill Anderson, Citizens for a Healthy Bay

Denny Heck, Congressman, 10th District

Glen Hull, Mayor Pro-tem, City of Fife

Pete Lewis, Mayor, City of Auburn

Dick Marzano, Commissioner, Port of Tacoma

Scott Mason, International Longshore and Warehouse Union Local 23

Pat McCarthy, Executive, Pierce County

Toby Murray, Murray Pacific Corporation

John Parrot, Totem Ocean Trailer Express

Tom Pierson, Tacoma-Pierce County Chamber

Bill Sterud, Puyallup Tribe of Indians

Marilyn Strickland, Mayor, City of Tacoma

SR 509 Executive Committee:

Elizabeth Albertson, Councilmember, City of Kent

Tony Anderson, Mayor, City of SeaTac

Bill Bryant, Commissioner, Port of Seattle

Suzette Cooke, Mayor, City of Kent

John Creighton, Commissioner, Port of Seattle

Rick Forschler, Councilmember, City of SeaTac

Dave Kaplan, Mayor, City of Des Moines

Julia Patterson, Councilmember, King County

Dana Ralph, Councilmember, City of Kent

South County Area Transportation Board

Regional Access Mobility Partnership
Valley Cities Association

Support building among stakeholders

In October 2012, WSDOT briefed legislators, transportation committee members, local elected officials from south King and Pierce counties and the ports of Seattle and Tacoma to gather input in developing the approach to the Gateway study.

In spring 2013, WSDOT assembled a stakeholder committee consisting of representatives from local jurisdictions along the SR 167 and SR 509 corridors to share technical information and solicit their input on corridor priorities related to phasing. The stakeholder committee endorsed the key study principles: add capacity strategically, meet the needs of both freight and commuters, provide full freight connectivity and prioritize initial connections to address the highest demand movements.

Using these principles, the stakeholders agreed upon a phased approach to completing the SR 167 and SR 509 corridors that offers commuter and freight mobility benefits through added capacity and improved connectivity.

A united coalition behind the Gateway project

As a result of stakeholder meetings and coordination, the SR 167 and SR 509 coalitions became unified in their support of funding the Gateway project. Leaders from the state Legislature and Congress, King and Pierce counties, cities, and ports of Seattle and Tacoma have also rallied behind the proposed project.

The SR 167 and SR 509 executive committees and other corridor stakeholders have documented their public support for the Gateway project in various ways, including formal resolutions, advocacy letters and editorials.

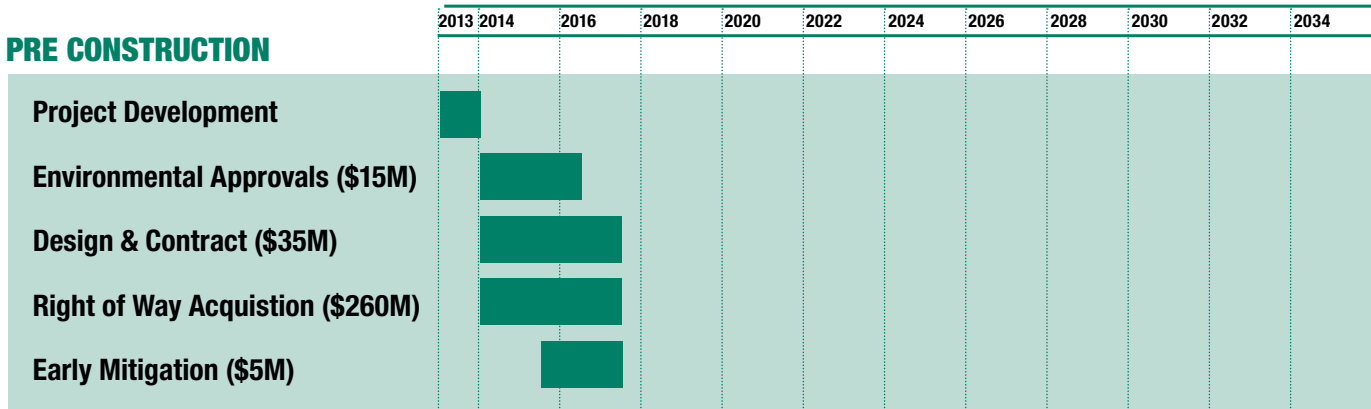


In April 2013, Governor Inslee and representatives from the ports of Tacoma and Seattle, area legislators and SR 509 and SR 167 stakeholders convened at the Port of Tacoma in support of the Gateway project. Pictured here: WSDOT Secretary Lynn Peterson, Governor Jay Inslee, King County Executive Dow Constantine, Port of Tacoma Commissioner Don Meyer and Port of Seattle's Commissioner Courtney Gregoire.

What are the next steps to move the Gateway project forward?

Several steps are necessary to continue the momentum and stakeholder support while advancing the development of the Gateway project toward construction. These include:

- **Review and develop environmental documents** – Complete environmental updates and approvals for all three corridors, adopting current environmental policies, tolling and a phased construction approach.
- **Finalize project development** – Continue preliminary design refinements and complete an updated cost estimate validation process for all corridors. Develop design-build procurement documents based on the preliminary design.
- **Complete right of way acquisition** – While a great deal of right of way has been acquired, we still need 30 percent right of way on SR 167 and about 50 percent right of way on SR 509. An updated right of way acquisition strategy will be developed that defines the needs and sequence of parcel acquisition. The strategy will reflect the right of way funding required to construct Phase 1 as well as property needed for future phases.
- **Complete the next phase of traffic and revenue tolling studies** – Conduct more detailed traffic, revenue and tolling studies for the three Gateway corridors.
- **Early mitigation** – Identify opportunities for early mitigation projects that would streamline and further expedite the construction schedule.

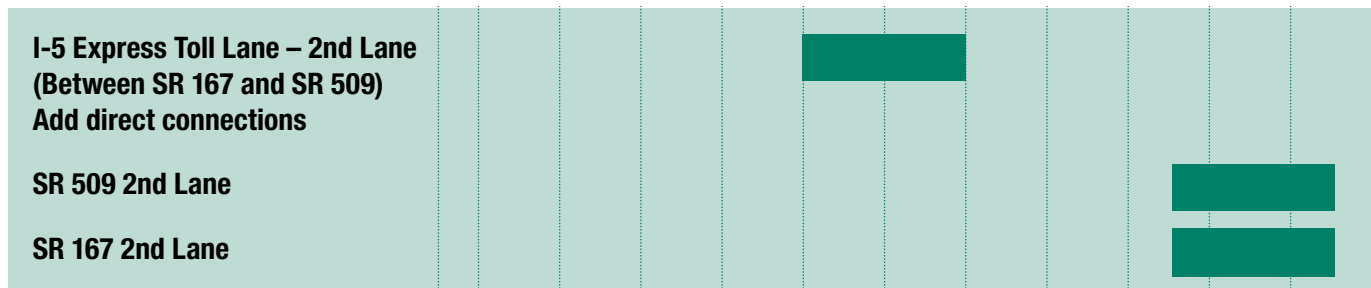


PHASE 1 CONSTRUCTION

★ Open to traffic in 2021 with funding in 2014



FUTURE CONSTRUCTION PHASES



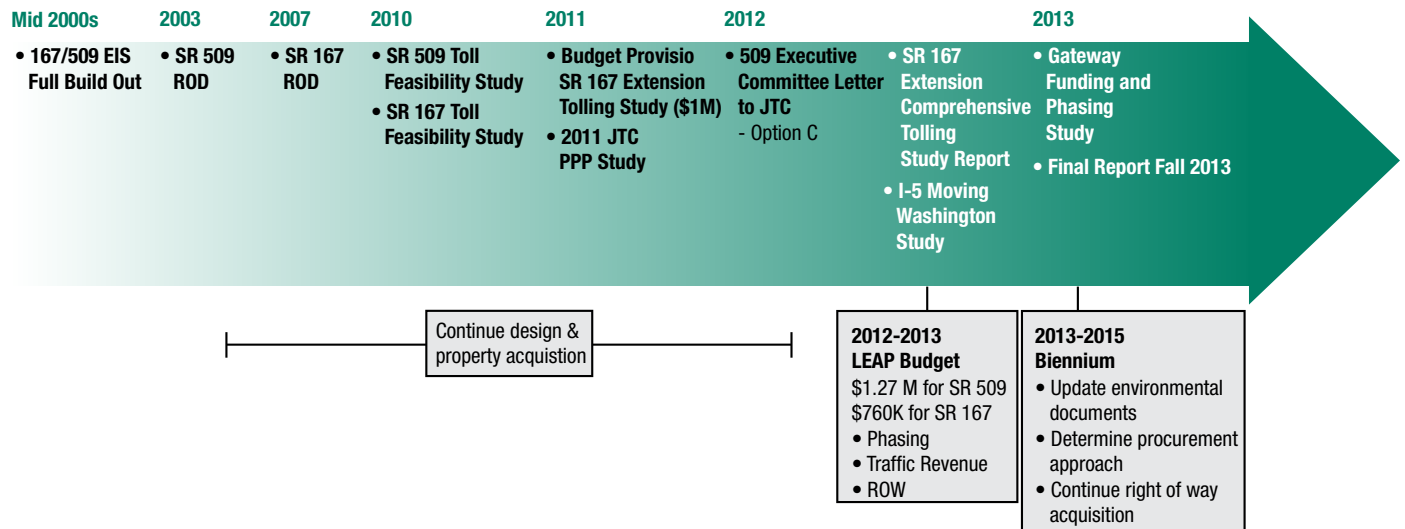
2. The Puget Sound Gateway Project

2.1 Completing the SR 509 and SR 167 corridors: History and Progress

The Puget Sound Gateway Project brings together much needed congestion relief projects between SR 167, SR 509, and I-5. Specifically, the SR 167 and SR 509 extensions will complete missing system links to I-5 that offer commuter and freight mobility benefits through added capacity and improved connectivity.

For the past two decades, there have been ongoing efforts to complete the SR 167 and SR 509 connections to I-5. Over the years, WSDOT has continued moving the corridor completion projects forward through initial environmental approvals, acquiring large amounts of right of way and working on preliminary design and tolling and phasing strategies.

In 2010, WSDOT completed toll feasibility studies for SR 167 and SR 509 which showed tolling could help raise revenue to fund the projects while also managing traffic volumes and creating an opportunity to phase construction. Further traffic analysis, including this study, has reinforced that tolling is a key component to completing these critical corridors.



Improving I-5 mobility for the future

Extending from Canada to Oregon, the I-5 corridor is critical to Washington state's economic lifeline and vitality and to quality of life in Puget Sound. King and Pierce counties are home to 41 percent of the state's population and 51 percent of its jobs. Completing the SR 167 and SR 509 connections to I-5 will provide vital access to city and employment centers while better connecting the state's largest international ports.

Over the next 30 years, the Puget Sound region is expected to grow by roughly 1.5 million people and support more than 1.2 million new jobs - many along I-5. Demand for travel is forecasted to grow



by about 40 percent according to Puget Sound Regional Council. Current high occupancy vehicle (HOV) lanes on I-5 are congested during peak times, no longer meeting their established performance standard of 45 mph. As a result, transit is slower and less reliable. Freight movement is also unreliable and expensive if I-5 isn't moving. Investing in I-5 through the Gateway project supports long-term economic vitality and keeps people moving.

2.2 Study background

In October of 2012, WSDOT began a strategic corridor design review for the Puget Sound Gateway Project. The Gateway project integrates three corridor projects that had previously been studied independently: the SR 167 Completion Project and the I-5/SR 509 Corridor Completion and Freight Improvement Projects and I-5 express toll lanes. The study identifies an integrated and sustainable approach to completing the critical SR 167 and SR 509 connections to I-5 while relieving congestion and improving I-5 mobility between Tacoma and Seattle.

Specifically, the study:

- Developed a program approach that integrates the SR 167 and SR 509 completion projects, and I-5 express toll lanes.
- Built stakeholder support by identifying a phased approach that met regional priorities and needs.
- Included national and local experts who developed phasing concepts, cost estimates, project delivery and financing strategies.
- Created an implementation plan to guide the Gateway project forward.

For the review, WSDOT assembled a team that leveraged internal expertise and project history with strategic consultant resources to provide consistency in approach across all three corridors: SR 167, I-5 and SR 509. As part of the process, local and national subject matter experts were invited to participate in two design and delivery workshops. The team was composed of local and national experts in design, finance, delivery, construction and constructability, and included former highway construction contractors with experience delivering comparable projects. WSDOT worked with the team to review alternate scopes, develop phasing and packaging concepts, provide recommendations on design refinements, assess contracting methods, evaluate constructability, propose financing options, and validate cost estimates.

As part of the study, WSDOT and their consultant prepared updated traffic and revenue forecasts of the Gateway project corridors for tolled operation. This toll analysis was built upon the most recent tolling studies completed in 2010 and 2011 in each of the three corridors.

More detailed summaries of the workshops, analysis and documentation for key elements are included in the appendices of this study.

Key Gateway principles:

- Prioritize initial connections to address highest volume movements
- Add capacity strategically
- Meet the needs of freight and commuters
- Provide full freight connectivity

2.3 Spotlight on the Puget Sound Gateway Project

The Puget Sound Gateway Project includes the SR 167 Completion Project, I-5 express toll lanes from Tacoma to Seattle, and the I-5/SR 509 Corridor Completion and Freight Improvement Project. The Gateway project would ultimately build all of the critical components identified within the Final Environmental Impact Statement (EIS) Preferred Alternatives for SR 167 and SR 509, adopting a phased and prioritized construction approach. Ultimately, the Gateway project will:

SR 167 Corridor

- Extend SR 167 by 6 miles to connect to I-5.
- Build two lanes each direction on SR 167 from 54th Ave S. and SR 512.
- Complete five new SR 167 interchanges at SR 509, 54th Ave S., Valley Ave, N. Meridian Ave/SR 161, and I-5.

I-5 Express Toll Lanes

- Build a single express toll lane system that extends south to SR 16 in Tacoma and north to I-90 in Seattle.
- Create a two-lane express toll lane system on I-5 between SR 167 and SR 509 including direct connections to the I-5 express toll lanes.

SR 509 Corridor

- Extend SR 509 by 2.5 miles to connect to I-5.
- Build two lanes each direction on SR 509 from S. 188th St to I-5, with a collector distributor system and median direct connectors to I-5 south.
- Complete five new SR 509 interchanges at S. 188th St, S. 200th St, 28th/24th Ave S, S. 231st Way, and SR 516.

In alignment with regional planning, SR 167 and SR 509 will be fully tolled corridors. Traffic analyses show that tolling the new SR 167 and SR 509 corridors help relieve congestion by encouraging drivers to use the freeway during non-peak hours, take other routes, or make other travel choices. WSDOT proposes to build 1 to 2 additional lanes in each direction of SR 167 and SR 509 in Phase 1, to accommodate traffic volumes and freight movement. Additional lanes can be added over time to accommodate regional growth.

In the initial phase of the Gateway project, WSDOT would convert the existing high occupancy vehicle (HOV) lane on I-5 to an express toll lane between I-90 in Seattle and SR 16 in Tacoma. Currently, the southern limit of the existing I-5 HOV lanes in Pierce County is at the 54th Avenue S. interchange in Tacoma. Extending the HOV lane south to SR 16 is part of the I-5/SR 16 Tacoma/Pierce County HOV Program, and is scheduled to be complete in 2022. Therefore, full implementation of the I-5 express toll lanes is dependent on completing the extension of the I-5 HOV lane to SR 16 ahead of or concurrent with construction of the Gateway project.



2.4 Benefits of combining SR 167, SR 509 and I-5

The SR 167 Completion Project and the I-5/SR 509 Corridor Completion and Freight Improvement Projects were combined with I-5 express toll lanes into the Gateway project to enhance the state's economic competitiveness, safety and transportation efficiencies. The integrated project:

- **Improves regional mobility and relieves congestion** on local roads and highways by providing new, more efficient travel options for freight, commuters and transit.
- **Improves freight connections** between the ports of Seattle and Tacoma and I-5, allowing freight to move more efficiently and economically.
- **Adds capacity through an I-5 express toll lane system** that provides commuters and transit a more reliable trip.
- **Supports regional job growth and economic growth** at the state's two largest ports.
- **Provides direct southern access** to Sea-Tac International Airport.
- **Allows transit access** to the Sound Transit Light Rail Station at South 200th and express bus service to Sea-Tac Airport, and downtown Tacoma.
- **Supports master plans and economic development plans** developed by cities in the Gateway corridor regions.
- **Restores fish passages** in partnership with local cities, enhances surface water quality and improves stream habitat connecting to Puget Sound. Also, less congested roadways equal less idling and exhaust, and better air quality.



Relieves traffic congestion and completes a critical freight link between the ports of Tacoma and Seattle.



Provides direct access to Sea-Tac Airport from the south, connecting the airport and major distribution centers.

Not just SR 167 and SR 509 improvements, but also I-5

Express toll lanes on I-5, between Tacoma and Seattle, are designed to improve mobility while also creating an annual revenue source of about \$4.5 million to help fund I-5 maintenance and preservation or other transportation improvements. Current high occupancy vehicle (HOV) lanes on I-5 are congested during peak times and no longer meet their established performance standard of 45 mph. As a result, trips for carpoolers, transit and freight are slower and less reliable. I-5 express toll lanes would add 10 to 20 percent more capacity, increasing mobility by better utilizing existing lanes, improving speed and reliability for transit, freight and drivers in all lanes.

Combining projects creates efficiencies and system integration

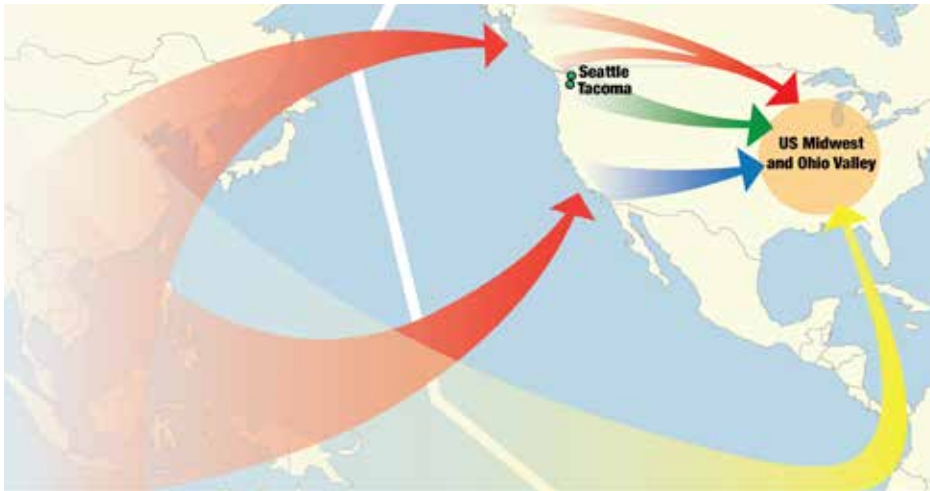
SR 509 and SR 167 are long-planned new corridor connections to I-5, that each require additional project development, environmental updates, and right of way acquisition to be completed. Combining the projects into a single package using the design-build approach allows WSDOT to implement efficiencies and system integration between these similar projects, while also leveraging resources and accelerating project delivery. In addition to delivery efficiencies, adding express toll lanes along I-5 is projected to increase mobility and add up to 20 percent more capacity to I-5.

2.5 Connecting ports to interstate and global markets

Our state's efficient movement of freight and goods relies on an integrated transportation system, and the Puget Sound Gateway Project is key to enhancing the state's economic competitiveness, both nationally and globally. The value of Washington state imports and exports was \$111.5 billion in 2011, placing Washington in the top five most trade-dependent states in the nation.

Global and national trade

Expansion of our infrastructure is critical to maintaining and growing business for the ports of Seattle and Tacoma as global trade expands and competition within and outside the U.S. grow.



Ports connect statewide, national and international markets to people, jobs and the economy.



In 2010, freight-dependent industries shipped \$128.8 billion in domestic product and supported nearly 1.5 million freight-dependent jobs in Washington state.

Statewide and regional markets

Completing the Gateway project provides a direct link from the state's largest ports to Eastern Washington, and South Sound distribution centers, including the Green River Valley, the second largest distribution center on the West Coast. The Gateway project, would provide direct access between the ports and businesses with over 100 million square feet of manufacturing and distribution space.

Critical freight corridor

Completing SR 167 and SR 509, which are critical freight corridors, and linking them with I-5 will support vital freight movement. Forecasts show in 2020, nearly 25 percent of all vehicles traveling on the new SR 167 corridor midday on weekdays would be freight trucks; while during peak periods, trucks would comprise nearly 20 percent. In the new SR 509 corridor, trucks are expected to comprise 21 percent of all vehicles traveling midday on weekdays with slightly lower volumes during the peak periods.



Completing the Gateway project provides more direct links from the state's largest ports to distribution centers in the South Sound and to Eastern Washington.

3. Project Costs and Phasing

The Gateway project's objectives are to complete the regional highway system, providing new linkages and better system integration to meet current and future traffic demands, improve freight connectivity and highway access to the regional ports, and improve overall regional mobility. With these objectives in mind, the review team developed phasing and design concepts to optimize the Phase 1 construction package while meeting anticipated traffic demands. As described in more detail in Section 5, WSDOT presented these concepts to corridor stakeholders and received their support and concurrence that the concepts met the priority project needs.

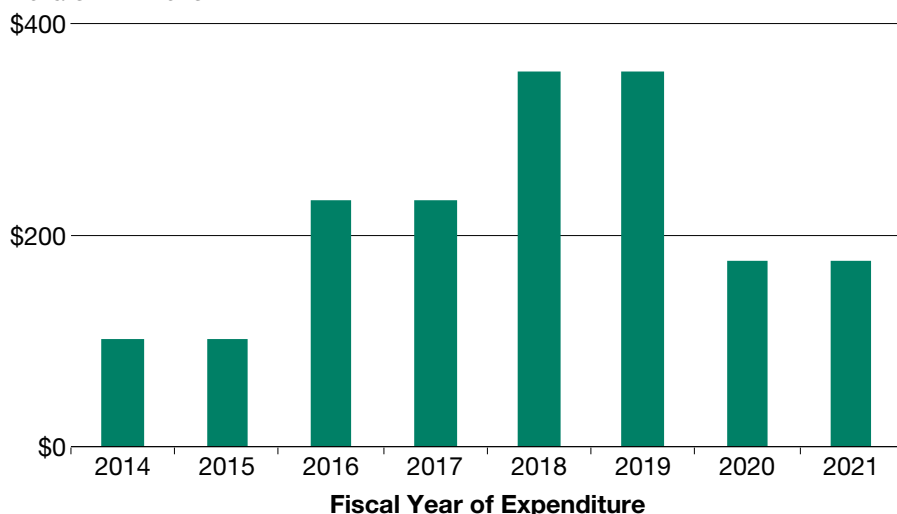
Traffic modeling indicates that tolling the new segments of SR 167 and SR 509 helps relieve congestion by encouraging drivers to use the freeway during non-peak hours, take other routes, or make other travel choices. In Phase 1 of the Gateway project, WSDOT proposes to build 1 to 2 additional lanes in each direction of SR 167 and SR 509. Capacity could be added over time to accommodate regional growth, similar to the approach in many corridors across the state. On I-5, Phase 1 would convert the existing HOV lane into an express toll lane between SR 16 in Tacoma and I-90 in Seattle.

As project development continues, WSDOT should study the Phase 1 concept further to determine if there are additional project efficiencies that can be achieved. Additionally, the I-5 express toll lane limits will need to be evaluated based on more detailed operational and traffic and revenue analysis.

Phase 1 funding requirements increase rapidly to cover the design property acquisition, and construction. Exhibit 1 shows the potential funding needs over a four-biennium period, assuming project funding is received in 2014.

Exhibit 1: Project Expenditure by Year, Fiscal Years 2014 to 2021

Dollars in millions



For the purposes of this study, year of expenditure costs are based on the middle year of construction. Phase 1 construction is anticipated to be open to traffic by 2021. Therefore, construction costs are presented in 2018 year of expenditure dollars. For future phases, construction is anticipated to start between 2030 and 2034, setting year of expenditure as 2032. The timeline for all phases of the project will be revised as additional project cost estimates are completed and funding becomes available.

3.1 Phase 1 of the Puget Sound Gateway Project

The initial phase of construction for the Puget Sound Gateway Project uses a prioritized approach that addresses freight mobility and the most critical connections first.

Figure 1 shows the features of the proposed Phase 1 construction of the SR 167 portion of the Gateway project. This phase extends SR 167 from SR 161 to I-5.

SR 167 Phase 1

- One lane in each direction between SR 509 and SR 161 (N Meridian Ave)
- Second lane in each direction between Valley Ave E and 54th Ave E
- New Porter Way overpass on I-5
- New interchange at I-5 and SR 167
- New interchange to/from east at 54th Ave E
- New interchange to/from west at Valley Ave E
- New interchange to/from east at Freeman Road E
- SR 161 (N Meridian Ave completed)
- New 70th Ave E from 20th Street E to SR 99
- Environmental mitigation in the Hylebos and Wapato Creek Basins

Cost: \$770 million to \$852 million (year of expenditure 2018)

I-5 Express Toll Lanes Phase 1

The first phase would convert the existing I-5 HOV lane to a single express toll lane from SR 16 in Tacoma to I-90 in Seattle.

Cost: \$131 million to \$145 million (year of expenditure 2018)

Figure 2 shows the features of the proposed Phase 1 construction of the SR 509 portion of the Gateway project. This phase extends SR 509 from S 188th Street in the City of SeaTac to I-5, and adds capacity to I-5 between the SR 509 interchange and S 272nd Street in Federal Way to accommodate forecasted traffic volumes.

SR 509 Phase 1

- One lane in each direction between S 188th Street and I-5
- Second lane in each direction between S 200th Street and I-5
- Truck climbing lanes to provide freight bypass as needed where steep grades exist
- Interchange at S 188th Street completed
- New interchange to/from east at 28th/24th Ave S
- New interchange at I-5 and SR 509
- New connection on I-5 to S 231st Way and the Kent Valley
- I-5 and SR 516 interchange improved to accommodate new I-5 collector-distributor lanes
- New southbound I-5 general-purpose lane between SR 516 and S 272nd Street

Cost: \$708 million to \$784 million (year of expenditure 2018)

Total cost for Phase 1: \$1.6 billion to \$1.8 billion

During the 2013 legislative session, the House of Representatives passed HB 1954, which proposed to allocate \$1.73 billion to construct the Gateway Project Phase 1.

Figure 1: SR 167 Phase 1

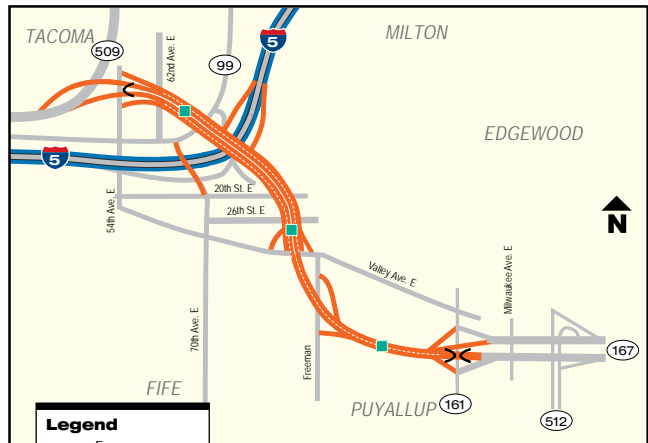
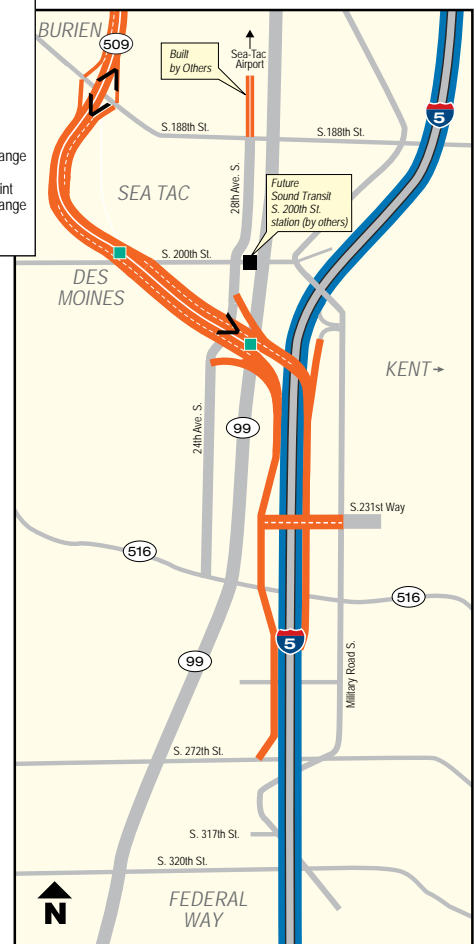


Figure 2: SR 509 Phase 1



3.2 Future phases of the Puget Sound Gateway Project

In future phases, the Gateway project would complete two lanes in both directions of SR 509 and SR 167 and all planned interchanges and associated connections. Tolling allows capacity to be strategically added over time to meet the needs of corridor users and support regional growth.

On I-5, building a second express toll lane between SR 167 and SR 509 would add capacity to I-5 and could help provide additional revenue for the final phases of construction.

SR 167 Future Phase

Figure 3 shows the features of the proposed future phase of construction of the SR 167 portion of the Puget Sound Gateway Project.

- Widen to two lanes in each direction between SR 161 (Meridian Street) and Valley Ave E
- Build the freeway-to-freeway direct-connection ramps
- Add ramps to/from I-5 express toll lanes
- Complete the Valley Ave E interchange

Remaining Cost: \$560 million to \$620 million (year of expenditure 2032)

I-5 Express Toll Lanes Future Phase

The future phase would add a second express toll lane in both directions from SR 167 to SR 509, and build direct connections from the I-5 express toll lanes to both SR 167 and SR 509.

Remaining Cost: \$344 million to \$381 million (year of expenditure 2022)

SR 509 Future Phase

Figure 4 shows the features of the proposed future construction phase of the SR 509 portion of the Puget Sound Gateway Project.

- Widen to two lanes in each direction between S 188th Street and 28th/24th Ave S
- Add ramps to/from I-5 express toll lanes
- Provide a direct access connection to Sea-Tac International Airport South
- Build new interchange to/from north at S 200th Street and SR 509
- Add capacity on I-5 as needed between SR 509 and S 272nd St

Remaining Cost: \$269 million to \$298 million (year of expenditure 2032)

Total cost of future phases is \$1.2 billion to \$1.3 billion, bringing the cost to complete all phases of the Gateway Vision to \$2.8 billion to \$3.1 billion.

Figure 3: SR 167 Future Phase

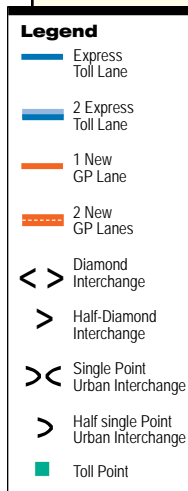
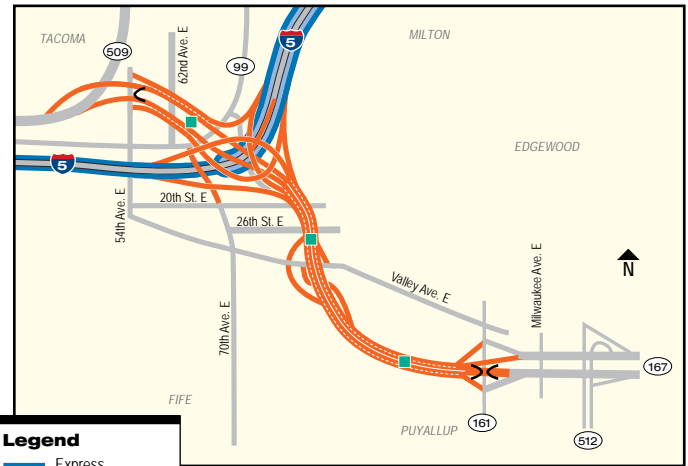
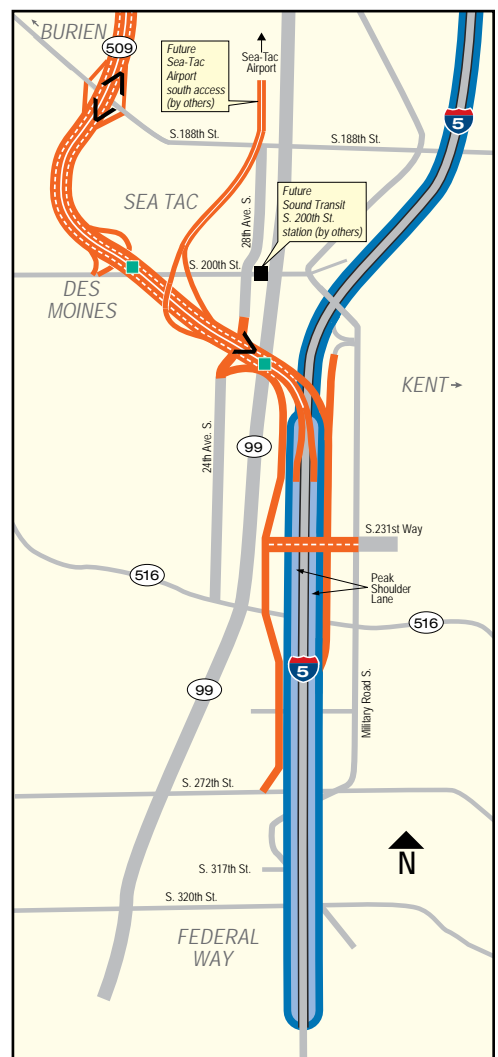


Figure 4: SR 509 Future Phase



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4. Current Funding Picture

4.1 Tolling is a regional tool to help manage demand and generate revenue

The Gateway Project is part of a future Puget Sound tolling network

Washington state is integrating tolling as a strategic tool to help manage congestion, enhance mobility and generate revenue for future improvements. The Puget Sound Gateway Project fits into WSDOT's phased approach to regional tolling, which is informed by regional and statewide transportation plans and project needs. When studying tolling, WSDOT evaluates the funding and congestion management needs for a corridor along with impacts and benefits to the transportation system and surrounding communities.

Since 2007, WSDOT has implemented a range of tolled projects that are helping to fund new facilities and manage traffic throughout the state. Ultimately, the Washington state Legislature determines which facilities are authorized to be tolled. The Washington State Transportation Commission determines the toll rates.

Current toll facilities:

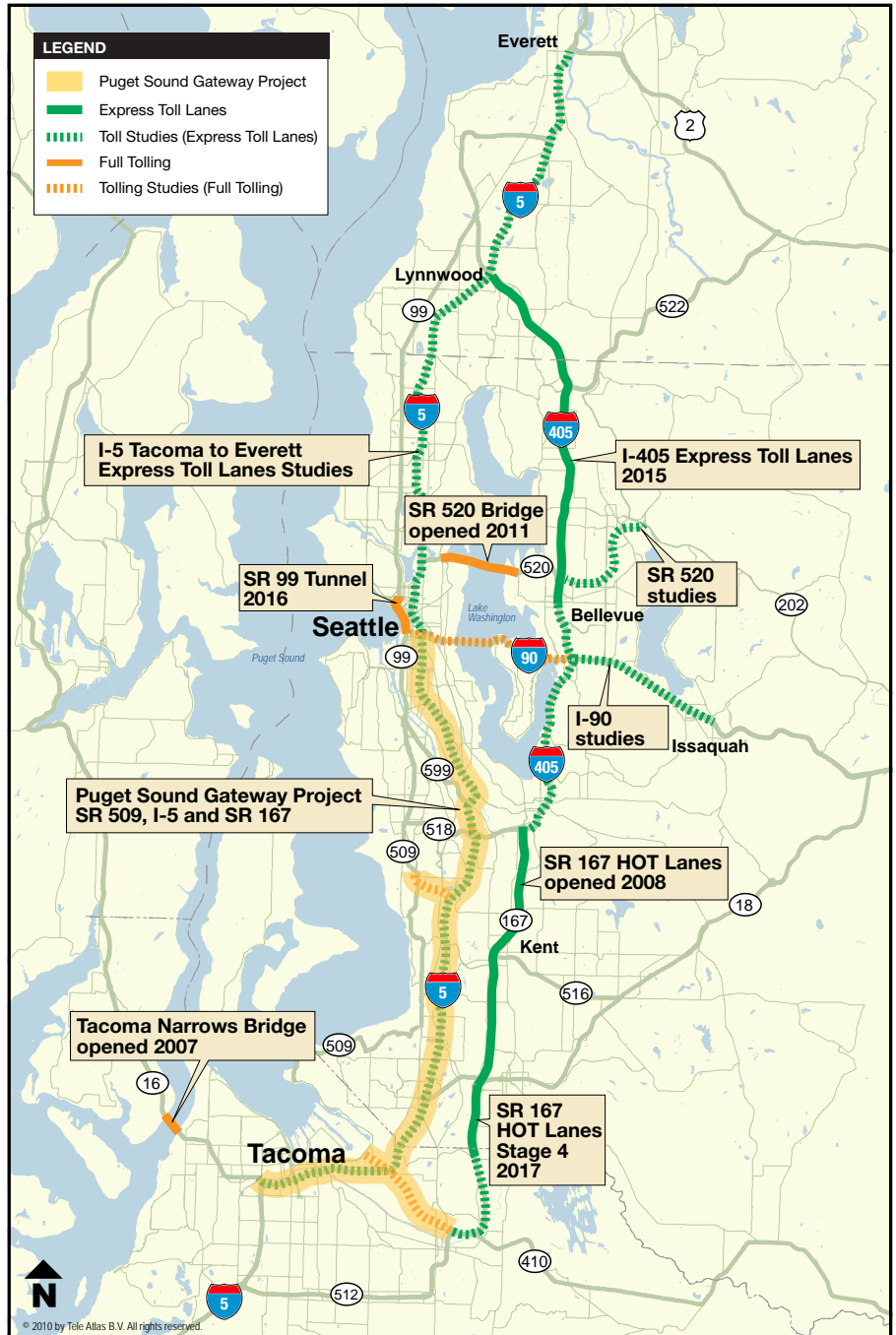
- Tacoma Narrows Bridge
- SR 167 HOT Lanes
- SR 520 Bridge

Authorized toll facilities:

- I-405 Express Toll Lanes
- SR 99 Alaskan Way Tunnel

Under study:

- Puget Sound Gateway Project
- I-5 Express Toll Lanes from Tacoma to Everett
- I-90 Floating Bridge



In 2010 at the direction of the Legislature, WSDOT completed toll feasibility studies for SR 167 and SR 509 which showed tolling could help raise revenue and contribute funding toward project construction while also managing traffic volumes and creating an opportunity to phase construction. Further traffic and revenue analysis, including this study, have reinforced that tolling is a key component to completing these critical corridors.

For the Gateway project, tolling on SR 167 and SR 509 and an express toll lane system on I-5 could provide partial funding toward the initial phase of construction. In alignment with regional plans, both SR 167 and SR 509 highway extensions will be fully tolled, while I-5 express toll lanes will give drivers the choice for a more reliable trip. The first phase of I-5 express toll lanes would convert the existing HOV lanes to express toll lanes between SR 16 in Tacoma and I-90 in Seattle, the ultimate vision being two express toll lanes in each direction between SR 167 and SR 509 with direct interchange connections.

Traffic and revenue analysis for this study assumed tolls on SR 167 and SR 509 would vary by time of day based on a fixed schedule, with tolls higher during peak commute periods and lower in off-peak periods. Express toll lanes on I-5 would use dynamic pricing where tolls adjust based on real-time traffic conditions. Single occupant and two person carpools would pay the toll, with carpools of three or more occupants exempt from the toll. The final approach to toll pricing has not been determined for SR 167 and SR 509. In these corridors, the toll pricing may be based on a single charge or segmented charge. For a single charge, users would pay a single rate for using the facility no matter where a vehicle enters and exits. A segmented toll is priced by segment of the corridor traveled, and would be based on how far a vehicle travels on the tolled facility, across defined segments. For the purpose of the current study, SR 167 was priced as three segments and SR 509 as two segments to provide a potential toll price and revenue analysis.

Toll Rates

WSDOT determined the approximate toll rates for each facility using an iterative process to select rates that would balance the objective of generating revenue with the traffic performance and utilization of each segment. In WSDOT's initial studies, the new SR 167 and SR 509 corridors are fully tolled with multiple toll points within the corridor, but there would be no tolls on existing roadways - only on new capacity. In the initial studies, on the new 6-mile SR 167 corridor there would be three toll points, and on the new 2.5-mile SR 509 corridor there would be two tolled points.



Exhibit 2 outlines minimum and maximum tolls, expressed in 2020 dollars, for SR 167 and SR 509 based on preliminary traffic and revenue modeling. Tolls for these two facilities were not assumed to escalate over time.

The I-5 express toll lanes were modeled as five separate priced segments between Tacoma and Seattle, each with their own set of toll rates by travel direction. Toll rates for the express toll lane segments will not follow a set schedule; rather, they will vary dynamically throughout the day depending on congestion levels in each segment. Due to the wide variety of trip patterns and because many travelers will stay in the free general purpose lanes until the level of congestion warrants “buying in” to the express toll lanes, the modeling predicts that the average priced trip length will be about two out of the five toll segments. The price for two segments of travel in the peak travel direction during congested weekday peak periods is predicted to range from \$3.20 to \$5.65 in 2020 dollars, depending on the segments and time of day. On a toll cost per mile basis, peak direction, peak period travel could range from \$0.30 to \$0.42 per mile, depending on the location along I-5.

The modeling work shows that tolls during off-peak times and/or travel directions, including midday hours, evenings, and nights, would be significantly lower than the peak rates noted due to lower congestion levels in the general purpose lanes. In practice, a minimum segment toll would likely be established to ensure that for the I-5 express toll lanes, toll is at least sufficient to cover the cost of toll collection. Unlike SR 167 and SR 509, the average I-5 toll levels were assumed to increase over time. Growth in travel demand, congestion, and inflation in travelers’ values of time are expected to gradually increase the price required to maintain the express toll lane traffic performance objectives.

Exhibit 2: Gateway Project Toll Rate Summary

Passenger vehicles

Facility and Time Period	FY 2021 Toll Rate Ranges (in 2020 dollars) ¹		Truck Toll Multipliers		Number of Tolloed Segments
	Minimum Toll (1 Segment)	Maximum Toll (All Segments)	Medium Trucks	Large Trucks	
SR 167 ²					
Peak periods	\$0.50–\$1.45	\$2.05–\$2.75	1.5x	2.5x	3
Off-peak periods	\$0.45–\$0.85	\$1.40–\$2.05			
SR 509 ²					
Peak periods	\$0.35–\$1.60	\$0.75–\$2.05	1.5x	2.5x	2
Off-peak periods	\$0.35–\$0.75	\$0.75–\$1.15			

¹ Rates shown are for *Good To Go!* account holders, expressed in year-of-opening dollars; Pay By Mail rates are assumed to be \$1.70 higher, and all toll values would be less expressed in today’s dollars.

² Rates were assumed to remain fixed over time and not escalate with inflation.

Additional analysis is necessary to provide a more precise range of potential toll rates. Ultimately, the Washington State Transportation Commission is responsible for setting toll rates.

4.2 Revenue and financing projections

WSDOT used Puget Sound Regional Council’s travel demand model to develop toll traffic forecasts and revenue analysis for Phase 1 in the SR 167 and SR 509 corridors. For express toll lanes on I-5, the model assumed there would be two express toll lanes each direction between the new SR 167 and SR 509 interchanges, and one lane in each direction between SR 16 and SR 167 and between SR 509 and I-90. Upon further refinement of the project phasing plan, the modeled results were updated to reflect only a single express toll lane each direction on I-5 in Phase 1. The gross and net revenue charts presented in sections 4.1.1 and 4.1.2 include two express toll lanes on I-5 between SR 167 and SR 509, however, the financial capacity results in section 4.1.3 reflect the estimated reduction in revenue due to the single express toll lane in Phase 1.

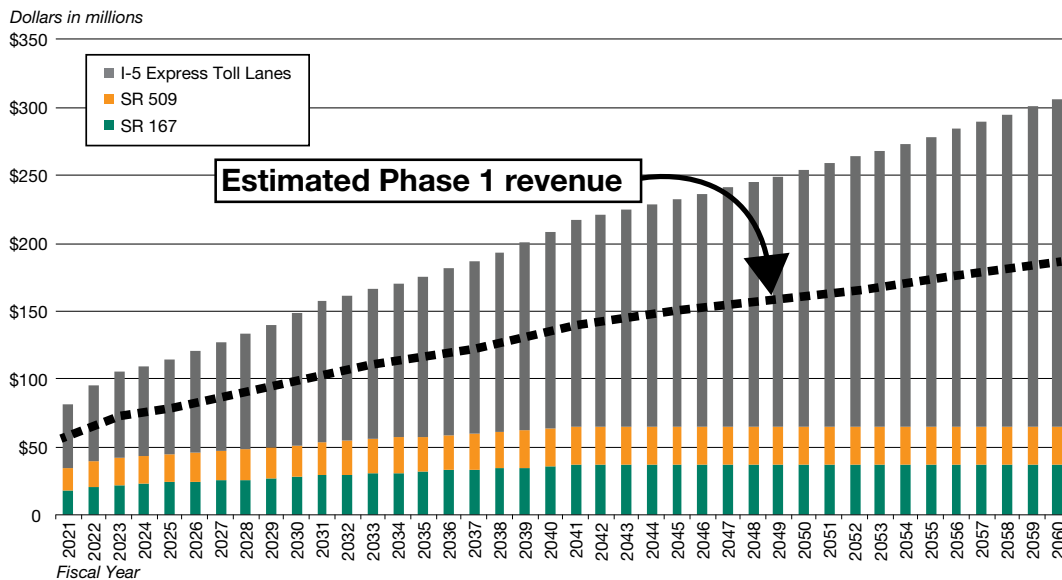
4.2.1 Annual gross revenue projections

Gross toll revenues represent the amount of revenue that the project is anticipated to generate based on the modeled traffic and revenue. Gross toll revenues are projected to increase over time. Factors contributing to rising gross revenues on SR 167 and SR 509 include population and employment growth, additional congestion on competing toll-free routes or highway lanes resulting in more users willing to pay tolls. Gross toll revenue for the I-5 express toll lanes will also increase over time as demand on I-5 grows and driver’s value of time increases.

Exhibit 2 illustrates the gross revenue projections by fiscal year (FY) and corridor. Projections show the already congested I-5 express toll lanes would generate the most revenue, with revenue increasing over time as the average toll paid increases. In this study, the I-5 express toll lanes were modeled as a partial dual lane system which is part of the future phase of the Gateway project: with two express toll lanes each direction between the SR 167 and SR 509 interchanges, and a single lane between SR 16 and SR 167 and between SR 509 and I-90. In Phase 1 of the Gateway project there will be one I-5 express toll lane between SR 16 and I-90 which has not yet been modeled, but is anticipated to generate gross toll revenues of at least half of those shown in gray in Exhibit 3. SR 167 and SR 509 are expected to generate less gross toll revenue; however, with time of day toll schedules that do not vary dynamically and lack of an immediate parallel toll-free alternative, their gross revenues are expected to be more predictably consistent day-to-day.

Exhibit 3: Annual Gross Toll Revenue Projections by Fiscal Year and Corridor

Note: The gross revenue projections shown in this exhibit reflect dual express toll lanes on I-5 between the SR 167 and SR 509 interchanges which is part of the future phase of the Gateway project.



For this study, traffic growth on the three facilities was continued through FY 2041, after which the traffic levels were held constant. For SR 167 and SR 509, this also means there is no revenue growth after FY 2041, since tolls were not assumed to escalate. For the I-5 express toll lanes, revenue after FY 2041 will continue to grow based on travelers’ value of time growing, causing the dynamic toll to rise. As discussed in section 4.2.2, the operations and maintenance costs on these facilities will continue to increase with inflation after 2041, so absent traffic growth, net revenue for SR 167 and SR 509 would begin to decline, and I-5 net revenue would remain relatively constant.

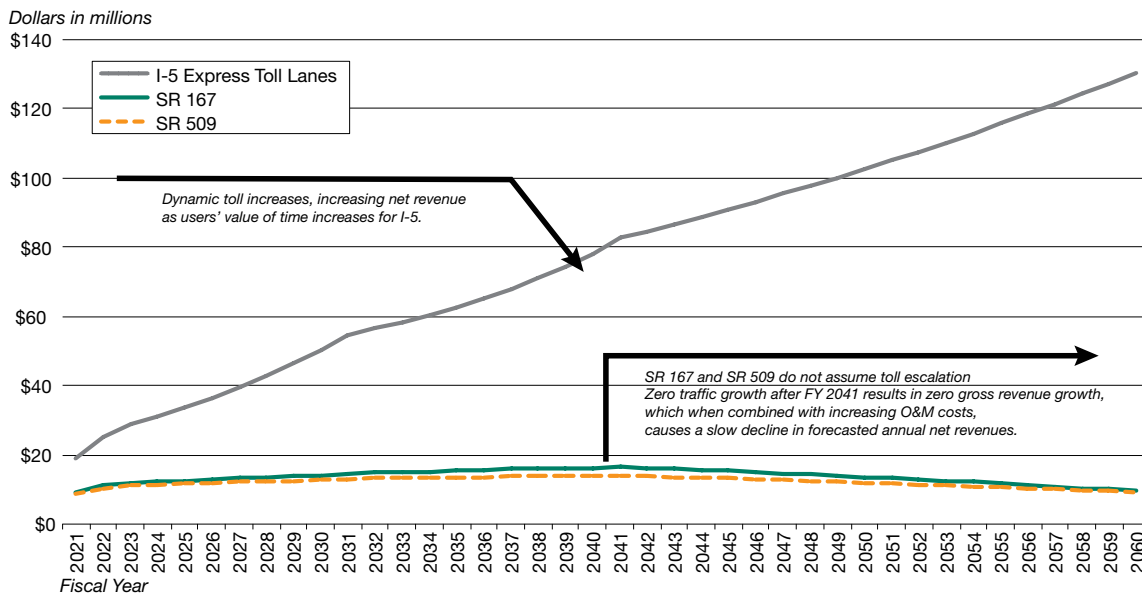
4.2.2 Summary of costs and net revenue available for financing

Gross toll revenue estimates for each corridor within the Gateway project were used as a basis to calculate net revenues. The total net revenue for each facility was separately calculated by deducting the annual facility operations and maintenance (O&M) costs, the toll collection O&M costs, credit card fees, and an allowance for uncollectible revenue. The methodology used in the analysis is consistent with previous WSDOT toll studies, with some updates to reflect WSDOT’s recent experiences on the SR 520 and Tacoma Narrows bridges. Further detail is included in Appendices L and M.

Over the 40-year period from FY 2021 to FY 2060, I-5 express toll lanes are expected to generate the most net revenue and have the largest O&M costs among the three Gateway corridors. With a single express toll lane in Phase 1 of the Gateway project, I-5 is anticipated to generate approximately half of the net toll revenue shown in Exhibit 4, but would still exceed the net toll revenue and O&M costs of SR 167 and SR 509.

Since the 32-mile express toll lane system on I-5 requires more toll collection points than the SR 167 and SR 509 extension projects, the O&M costs for the roadway toll collection system are the largest cost for that corridor. When looking at the three facilities combined, expenses related to the Gateway’s share of the statewide customer service center cost represent the single largest cost component, with O&M costs for the roadway toll collection system the second largest cost.

Exhibit 4: Comparison of Net Revenue Projections by Corridor (FY 2021 to 2060)



Note: The net revenue projections shown in this exhibit reflect dual express toll lanes on I-5 between the SR 167 and SR 509 interchanges which is part of the future phase of the Gateway project.

As the project moves forward, a refined concept of operations that outlines the toll system components should be developed that includes both the one and two-lane express toll lane systems in each direction on I-5. Additionally, as the design is refined and the express toll lane system limits are set, traffic and revenue analysis should be updated to provide more refined revenue projections.

4.2.3 Potential financial capacity

The potential financial capacity of a project measures the extent to which borrowing against future net revenues can provide up-front construction funding. In this study, a high-level assessment of the Gateway project's financing capacity was performed using a preliminary Net Present Value (NPV) analysis of the net revenues after deducting all of the routine annual costs noted previously. This type of analysis is not as in-depth as a debt structuring model, but provides a reasonable equivalent that is suitable at the current level of planning on the Gateway project.

The preliminary NPV analysis included two separate sets of financing assumptions: a "lower" case involving non-recourse, stand-alone toll revenue bonds, and a "higher case" involving state-backed bonds. The two financing cases will have very different interest rate assumptions, debt service coverage levels, and bond credit ratings, and the NPV analysis utilized different assumptions for these two financing cases.

The lower case with non-recourse bonds represents a true "project financing" where the only pledge for debt repayment comes from the project's toll revenues, such that the bond investors essentially assume the traffic and revenue risk. Alternatively, with state-backed bonds the state could pledge additional sources of revenue back up toll revenues to achieve higher credit ratings, lower coverage requirements, and a lower cost of borrowing. While the financing would be structured so projected toll revenues would be sufficient to pay all debt service, the state would be responsible for making up the difference if actual revenues were insufficient to meet the annual repayment obligations.

The NPV analysis attempts to determine the project's financing capacity by applying an average debt interest rate and debt service coverage ratio to discount future net cash flows to the current year (similar to how a debt financing works). The result of the NPV analysis for the two financing cases yields a range of the potential toll funding contribution expected to be available to help fund construction. The range of toll funding produced from financing will be addressed in the toll funding assessment for the Gateway project.

The NPV analysis utilizes market-grounded assumptions based on the financing type (state-backed bonds or non-recourse bonds) and project type (full highway tolling versus express toll lanes). The NPV analysis utilizes market-grounded assumptions based on the financing type (state-backed bonds or non-recourse bonds) and project type (full highway tolling versus express toll lanes). Compared with the non-recourse toll revenue bonds, the state-backed bonds feature a lower interest rate (4.50 percent versus 6.25 percent) and a lower coverage ratio (1.50x versus 2.00x for SR 167 and SR 509 and 2.25x for I-5 express toll lanes), since they benefit from the state backing of the toll revenues pledged to debt repayment, and thus, higher credit ratings. Because of limited market experience and more uncertain investor risks associated with express toll lanes, stand-alone, non-recourse toll revenue bond financing would likely be difficult to carry out in today's market.

Financing express toll lanes

Express toll lanes facilities, like the proposed I-5 project, are subject to a higher degree of uncertainty than facilities with full tolling, such as the SR 520 floating bridge or the new SR 509 and SR 167 corridors, for several reasons:

- The express toll lanes would operate adjacent to an existing toll-free alternative;
- Demand for the express toll lanes is dependent upon the level of congestion in the adjacent toll-free general purpose lanes; and
- The above factors, combined with dynamic pricing (based on congestion levels in the general purpose lanes) leads to revenues variability day-to-day, creating additional uncertainty.

This higher uncertainty means that the credit rating agencies and investors would require a more conservative financing structure for the I-5 express toll lanes than toll facilities, such as SR 509 and SR 167 where all vehicles pay the toll. While the revenues generated by the express toll lanes can benefit from having established traffic volumes on the existing facility, there is a relative lack of comparable financings nationally, which creates uncertainty and requires a more conservative approach to evaluating the potential financing structure and terms. At a minimum, this would include higher, more conservative debt service coverage ratios and reserve funds or pledging additional non-toll revenues to back the tolls. The acceptance and performance of other express toll lanes facilities across the United States in the next few years will influence the ability of this express toll lane project to obtain the financing structure and proceeds presented in this report. For these reasons, stand-alone toll revenue bonds may not produce the financing proceeds identified in this report and an additional revenue pledge or general obligation bonds with the full faith and credit of the state may be required to develop a financing package for express toll lanes.

Additionally, a single I-5 express toll lane in Phase 1 is estimated to generate about half of the toll revenue of the second phase which builds a second lane between SR 167 and SR 509. Without the dual lane section between SR 167 and SR 509, there would be less available lane capacity to sell given a fixed demand for 3+ toll-free carpools; however, the average revenue per vehicle (average toll paid) would likely be higher.



Potential toll funding

The following table illustrates the upfront financing potential of the Gateway project, based on an NPV analysis of net toll revenues and the two different bonding scenarios described earlier. The range within each financing case was developed by reducing the base case net revenue forecast by 20 percent to account for uncertainty in preliminary forecasts. The last column of the table provides adjusted toll funding contributions for a single I-5 express toll lane in each direction. As the project is further developed with refined cost estimates and traffic and revenue data, a more detailed financial capacity analysis should be completed. This analysis is intended only to approximate financing potential for the Gateway project and is not a detailed analysis of future capital market conditions.

Exhibit 5: Potential Range of Toll Funding Contribution using NPV Analysis

	Potential Toll Funding - FY 2018		
	State-Backed Bonds <i>Two express toll lanes on I-5 between SR 167 and SR 509 and one lane each direction elsewhere</i>	Non-Recourse Toll Bonds <i>Two express toll lanes on I-5 between SR 167 and SR 509 and one lane each direction elsewhere</i>	Non-Recourse Toll Bonds <i>One express toll lane on I-5 between SR 16 and I-90</i>
I-5	\$465M - \$580M	\$260M - \$325M	\$150M*
SR 509	\$110M - \$140M	\$70M - \$85M	\$85M
SR 167	\$125M - \$155M	\$75M - \$95M	\$95M
Total Potential Upfront Financing Capacity	\$700M - \$875M	\$405M - \$505M	\$330M*

*The potential toll funding estimate for the I-5 express toll lanes assumes a two lane system in each direction from SR 167 to SR 509, with single lanes between SR 16 and SR 167 and between SR 509 and I-90. Reduced financial capacity has been estimated for an all single lane system at approximately \$150 million using interpolation techniques as detailed modeling of all single lane operations has not yet been conducted.

4.3 Funding

The estimated cost for Phase 1 of the Puget Sound Gateway Project is \$1.6 to \$1.8 billion including the preliminary engineering, right of way and construction costs. The construction costs are in year of expenditure dollars based on construction starting in 2017 and opening to traffic in 2021, and include a risk and opportunity (CEVP) adjustment.

Current funding sources are expected to come from tolling, and funding commitments from partner stakeholders, with some type of public subsidy funding the remaining gap.

Exhibit 6: Gateway Phase 1 Funding Sources

Estimated Funding Sources	
Potential Toll Funding Contribution	\$330M
Stakeholders Partnership	\$130M
Funding Gap	\$1.1B - \$1.3B
Total Phase 1 Cost	\$1.6B - \$1.8B

These preliminary estimates must be evaluated further to validate the impact of traffic, operation and maintenance costs, the value of time and other key variables that can have a significant impact on the toll revenue estimates.

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5. Stakeholder Input

5.1 Stakeholder meetings

In October 2012, WSDOT briefed legislators and transportation committees, local elected officials from south King and Pierce counties and the ports of Seattle and Tacoma to solicit input towards developing the Puget Sound Gateway Project study approach.

In March 2013, after consultation with legislative and corridor executive committee leadership, WSDOT met with stakeholder delegates from the SR 167 and SR 509 corridors to gather input on the project's goals and objectives. Delegates included public works and planning directors from Port of Tacoma, Pierce County, City of Fife, City of SeaTac, City of Kent and Port of Seattle.

Delegates identified their primary objective to complete the SR 167 and SR 509 corridors. However, they also recognized the overarching benefits of combining the three corridors into the Gateway project and creating a unified coalition. WSDOT led a collaborative discussion with the delegates, identifying a phased approach to the Gateway project by applying four key study principles:

- **Prioritize** initial connections to address the highest volume movements.
- **Add capacity strategically** by phasing construction over time to meet traffic demands. An initial phase will start with one lane each direction on both the SR 167 and SR 509 corridors, but will provide two lanes each direction where warranted to accommodate heavier traffic volumes.
- **Meet the needs of freight and commuters** by constructing the key connections that facilitate freight and commuter mobility on both corridors.
- **Provide full freight connectivity** by building one lane each direction for the full length of the corridor and completing connections to I-5 in the first phase of construction.

Through this collaborative process, the delegates endorsed the key principles and agreed upon a phased approach to construction, which balances the needs of both corridors through a consistent and equitable approach. As a result, the stakeholder representatives were unified in their support of the Gateway project and for a phased implementation.

Following the discussion with the delegates, WSDOT presented the phased implementation to state and local elected officials from districts and jurisdictions in the corridors. This group, including leadership from the SR 167 Completion Coalition, the SR 167 and SR 509 corridor executive committees, and regional forums including Regional Access Mobility Partnership, South County Area Transportation Board, and the Highline Forum provided positive feedback on the project planning and engineering. WSDOT executives also briefed legislators, transportation committee members and legislative staff on the phased approach.

5.2 Support building

Stakeholders from the SR 167 and SR 509 corridors, including the state Legislature, King and Pierce counties, cities, ports of Seattle and Tacoma, have actively advocated for the Gateway project. Both the SR 167 and SR 509 stakeholders have formed coalitions producing formal resolutions, advocacy letters of support, and editorials.

In April 2013, Governor Inslee and representatives from the ports of Tacoma and Seattle, area legislators and SR 509 and SR 167 stakeholders convened at the Port of Tacoma near the proposed Gateway project to highlight the importance of finishing the major Washington state mobility projects, such as SR 167 and SR 509, and investing in the future. The Governor emphasized that investing in the state's transportation system provides near-term jobs as well as long-term economic benefits through improved infrastructure.



In April 2013, Governor Inslee and representatives from the ports of Tacoma and Seattle, area legislators and SR 509 and SR 167 stakeholders convened at the Port of Tacoma in support of the Gateway project.

Supporting Stakeholders for the Gateway Project

SR 167 Executive Committee:

Bill Anderson, Citizens for a Healthy Bay

Denny Heck, Congressman, 10th District

Glen Hull, Mayor Pro-tem, City of Fife

Pete Lewis, Mayor, City of Auburn

Dick Marzano, Commissioner, Port of Tacoma

Scott Mason, International Longshore and Warehouse Union Local 23

Pat McCarthy, Executive, Pierce County

Toby Murray, Murray Pacific Corporation

John Parrot, Totem Ocean Trailer Express

Tom Pierson, Tacoma-Pierce County Chamber

Bill Sterud, Puyallup Tribe of Indians

Marilyn Strickland, Mayor, City of Tacoma

SR 509 Executive Committee:

Elizabeth Albertson, Councilmember, City of Kent

Tony Anderson, Mayor, City of SeaTac

Bill Bryant, Commissioner, Port of Seattle

Suzette Cooke, Mayor, City of Kent

John Creighton, Commissioner, Port of Seattle

Rick Forschler, Councilmember, City of SeaTac

Dave Kaplan, Mayor, City of Des Moines

Julia Patterson, Councilmember, King County

Dana Ralph, Councilmember, City of Kent

South County Area Transportation Board

Regional Access Mobility Partnership
Valley Cities Association

6. Implementation Strategy

Phase 1 of the Gateway project is a \$1.6 billion to \$1.8 billion dollar program composed of two corridor completion projects and the I-5 express toll lanes that stretch from Tacoma to south Seattle. If the project receives funding in 2014, Phase 1 construction could start in 2017 in all three corridors and be open to traffic by 2021. Express toll lanes on I-5 could potentially open to traffic in 2019, and SR 167 and SR 509 construction would likely finish by 2021. Any further delay in the funding or advancement of the preliminary engineering or right of way acquisition would push the completion date out, not only affecting the schedule, but increasing the overall project cost due to inflation.

Since the Gateway project is broken into an initial phase followed by future phases, this implementation strategy focuses on the necessary steps to build Phase 1. These steps include environmental approvals, finalizing preliminary engineering, acquiring right of way, and developing construction contract procurement documents.

6.1 Preliminary engineering

Preliminary engineering covers the project's design and development, through environmental documentation and contract development. The first step in finalizing the preliminary engineering is refining the design and setting the project configuration and footprint necessary to support updating the environmental documents and approvals. The design refinement should continue concurrently with the environmental process, right of way acquisition, and the traffic and revenue analysis to expedite the project development schedule.

Part of the design refinement includes a cost estimate validation process (CEVP). This process will look at Phase 1 as a whole, and identify risks and opportunities specific to each corridor within the combined program according to current market conditions.

Additionally, participation from the Federal Highway Administration is critical to acquiring design approvals and developing design variance documentation. Early involvement of FHWA helps identify key elements that need additional analysis, and helps clarify the process for updating environmental documents and approvals.

Next steps to move Gateway project forward:

- Project development
- Environmental approvals
- Design and contracting
- Right of way acquisition
- Early mitigation

6.1.1 Review and develop environmental documents

In parallel with the design refinements, WSDOT will develop a strategy to obtain environmental clearance for all three project areas. The SR 167 and SR 509 corridors both have completed Final Environmental Impact Statements (FEIS) and Records of Decision. Completing the SR 167 and SR 509 FEIS updates is a critical first step to moving the projects forward. The updates will take into account two important changes from the current environmental documents: tolling and traffic analysis of a phased approach and footprint reductions due to construction phasing. As the design refinements are completed, WSDOT will update the environmental documents in close coordination with the resource and permitting agencies.

Similar to combining corridors for construction, grouping the environmental process within a single program will create consistency in assessing regional impacts and creates resource and process efficiencies. Since there has not been an environmental review of the I-5 express toll lane project, WSDOT will complete an environmental study in combination with the other corridors or in a separate study. When deciding whether to move the projects forward under separate or combined documents, WSDOT will evaluate any impacts to the existing SR 167 and SR 509 environmental documents and gather input from the governing agencies with respect to the documentation requirements.



These visualizations capture the full build out identified in the FEIS for the SR 167 and SR 509 corridor completion projects. For the Gateway project, WSDOT will need to update the environmental documents to take into consideration a phased approach to construction.



6.1.2 Complete a comprehensive tolling study

As a major component of project development, WSDOT will complete an updated traffic analysis to clarify the impacts of the lower traffic volumes on project configuration and to identify if there are additional opportunities to reduce the scope and project cost of Phase 1. A more detailed analysis will provide a clearer understanding of the extent of the improvements needed on I-5 at both the SR 509 and SR 167 interchanges with the tolled approach.

Following the traffic study, WSDOT will complete a comprehensive tolling study for the Gateway project for Phase 1. If financing is needed from toll revenue, an investment grade traffic and revenue study will be required, testing traffic conditions and economic factors. The study completed for the design review was preliminary, and a more detailed traffic and revenue study will provide better input to the final configuration of the roadway and tolling system and increase confidence in the toll revenue projections needed for financing.

6.1.3 Contract packaging

While finalizing the preliminary engineering, WSDOT will determine construction packaging, early mitigation, and delivery method. The Gateway project is unique because it combines three projects together under a single program: the SR 167 Completion Project, the I-5/SR 509 Corridor Completion and Freight Improvement Projects, and I-5 express toll lanes. The SR 167 and SR 509 projects are building new highway segments separated by 13 miles, connected by I-5 with an express toll lane system that spans 32 miles.

During project development, WSDOT will make the decision on whether Phase 1 will be issued as a single civil construction package. While one large package provides economies of scale and consistency by using one contractor, the distance between the SR 167 and SR 509 construction areas and the length of the I-5 corridor, will spread the construction project out over a large area. By comparison, breaking up Phase 1 into multiple contacts has the opposite impact, lack of consistency and economies of scale, but more focused construction management.

Available funding and cash flow will also inform decisions on how the projects are packaged. If WSDOT receives funding from the Legislature for the Gateway project, expenditures will be further defined based on the project timeline and the anticipated funding per biennium that would be available. The decision on contract packaging will determine if there are packaging approaches that would balance the funding, cash flow, project schedule, construction and administrative consistency, and scale of the project.

6.1.4 Early mitigation

On SR 167 there are opportunities for settlement and environmental mitigation which could be completed as separate contracts in advance of the main construction. In the SR 509 corridor, the anticipated wetland mitigation has already been completed. This same approach should be considered in the SR 167 corridor for the Hylebos and Wapato Creek mitigation plans. Also in the SR 167 corridor, constructing portions of the final embankment could complete geotechnical settlement mitigation early, similar to what has already been completed along the corridor.

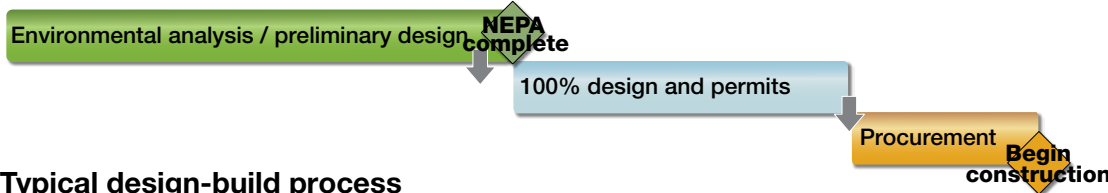
If completed early, WSDOT could take advantage of early credit for the mitigation during the final permitting process. However, completing work early will also carry a risk that some elements could be in conflict with future construction and might require additional work. The decision to complete work in advance of the main contract will have to include an evaluation of the benefits vs. risk or that could be shifted to the contractor for subsequent contracts.

6.1.5 Alternate delivery methods

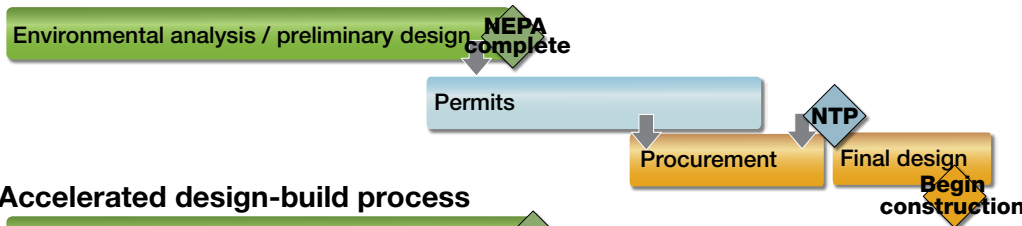
During the study, WSDOT and its team of national and local subject matter experts identified design-build as the ideal project delivery method for completing Phase 1 of the Gateway project. WSDOT has a national reputation in the design-build industry for successful approaches with design-builders. WSDOT is currently using the design-build approach for some of the department's largest and most complex projects on I-405 Corridor Program, SR 99 Alaskan Way Viaduct Replacement and SR 520 Bridge Replacement and HOV Program.

Figure 5: Delivering the Gateway Project

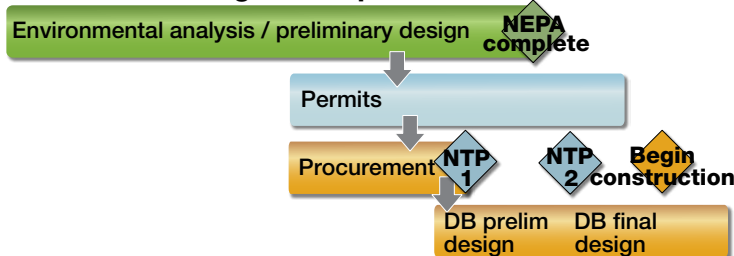
Typical design-bid-build process



Typical design-build process



Accelerated design-build process



Prior to beginning construction, WSDOT needs to update environmental documents, finalize project development, complete right of way acquisition, and complete additional traffic and revenue tolling studies and early mitigation strategies. If funding is received in 2014, WSDOT will utilize an integrated development and delivery approach to accelerate design and begin construction by 2017 and open to traffic by 2021. WSDOT intends to use the design-build delivery method to complete the project within an accelerated schedule and leverage industry innovation.

For the Gateway project, a design-build approach will bring several benefits:

- **Accelerated schedule:** Combining design and construction into one contract, enables the design-builder to move forward with different portions of the project simultaneously rather than waiting for the entire project design to be completed before starting construction (as now occurs with WSDOT's traditional design-bid-build delivery method). Design-build on a large project like Gateway results in an overall reduced schedule compared to the sequential full design then build approach as illustrated in Figure 5.
- **Enhanced innovation:** During the procurement process for design-build, and throughout the contract implementation, a design-build team can collaborate to create and refine design ideas. This collaboration between designer and contractor does not typically occur in design-bid-build contracts. The designer and contractor collaborate to develop innovative solutions by identifying efficient, cost effective and constructible solutions that meet contract requirements that typically result in cost and time savings when compared to the design-bid-build approach.

- **Efficient delivery:** A design-build team allows the designer to develop approaches that are tailored to its contractor partner’s means, methods and technique strategies. This optimization occurs because a designer and construction contractor form a unique design-build team to pursue and deliver a specific project.
- **Fixed price:** The bidding process for design-build projects in Washington state, as with most other states, requires teams to submit a bid with a fixed price for delivering the project. Having a fixed price from the beginning provides WSDOT with a pre-defined project cost, and using design-build reduces the likelihood of claims and change orders because the design-builder is responsible for completing design and construction within the initial bid price.
- **New versus constrained corridors:** Other than the current end of the corridors and new interchange connections, the SR 167 and SR 509 corridors have little or no existing roadway facility that might constrain the design or construction of the new project, with most of the work occurring outside of active traffic conditions. However, the I-5 corridor is an existing facility that must be adjusted or widened to accommodate the new improvements. For all three corridors in the Gateway project, contractors could use the flexibility that comes from design-build to develop innovative approaches to meet contract requirements and stakeholder commitments.
- **Balanced risk allocation:** In WSDOT’s traditional design-bid-build approach, design plans for a project are completed by the agency and contractors submit bids to build from those plans. In such projects, WSDOT retains all risk for the design and any errors or discrepancies that may cause a contractor to be delayed or incur additional cost. In design-build, the design-builder owns most of the design risk, developing the plans and managing the work and is therefore better able to address and mitigate certain project risks that would otherwise be handled by WSDOT.

The following sections describe three alternates from traditional design-bid-build and design-build that are now being used in other states and may warrant additional consideration related to Gateway project delivery. As an element of WSDOT’s upcoming CEVP for the Gateway project described earlier in Section 6.1, these alternate project procurement types (best value or fixed price) and delivery types (Design-Build, Design-Build Finance, Design-Build Fixed Price/Best Design and Public Private Partnerships) will be carefully evaluated so that the most effective methods can be implemented to deliver Phase 1 of the Gateway project. Funding availability, cash flow and constraints, and state law limitations, will all be factors in any further discussion of the following delivery methods.

6.1.5.1 Design-Build Finance

In a Design-Build Finance transaction, the public owner transfers the design, construction and financing responsibilities to the private sector. The public owner retains the responsibility to manage the operations and maintenance of the facility along with all toll revenue and demand risk. The financing component of these transactions can be structured in a variety of ways depending on the goals and needs of the project. The size, term and payback schedule of the financing are the defining elements of this transaction. The repayment scheme can begin at project completion, be tied to milestones during construction or continue well beyond construction is complete. The financing component can be required to cover all development costs or provide a “gap” financing after other funding sources are contributed (a more likely scenario for the Gateway project). Transactions typically range from three to 20 years and all toll rate setting ability remains with the public owner. Procurement can be based on the best-value approach and the bidder’s bid is expected to include all financing costs.

6.1.5.2 Design-Build Fixed Price/Best Design

The Design-Build Fixed Price/Best Design method is a project procurement and delivery option to consider when the desired project scope exceeds the initially available budget. With fixed price procurement, each proposal bid price is set among all proposers, and the procurement process and best value selection are based primarily on technical content of submitted proposals and the extent to which proposers include additional elements beyond a basic set of design elements in their proposal. For the fixed price/best design approach, the agency defines a basic configuration that contains all elements that must be included within each proposer's scope and priced within the defined budget. The notion of best design comes from the extent to which any additional elements or improvements each proposer may choose to add to their scope while staying within the defined budget. The procurement process for fixed price/best design does not consider price because the budget is fixed and clearly defined ahead of time.

6.1.5.3 Public Private Partnerships

Public Private Partnerships are contracted agreements between governmental agencies and private groups, in which the private partner is assigned the responsibility, and risk, any of the planning, design, financing, construction, and/or operation and maintenance of one or more elements of a facility. Properly structured partnerships assign risks and responsibilities to those parties that are best suited to manage them. Partnerships among contractors, lenders and designers are formed to accelerate project development, locate additional funding sources, identify life cycle best value and improve the cost-effectiveness and efficiency of project and service delivery. Current state law allows these partnerships for toll projects; however, certain changes in the existing statutes would be needed to implement the procurement and contracting process which could be prohibitive in an accelerated delivery environment.

6.2 Complete right of way acquisition

As a first step, an updated right of way acquisition strategy should be developed that defines the sequence of parcel acquisition to make the best use of available right of way funding specific to the proposed phasing. The right of way cost estimates for SR 167 and SR 509 are over two years old and need to be updated to reflect recent market conditions. Any new impacts to the right of way identified along I-5 will also have to be included.

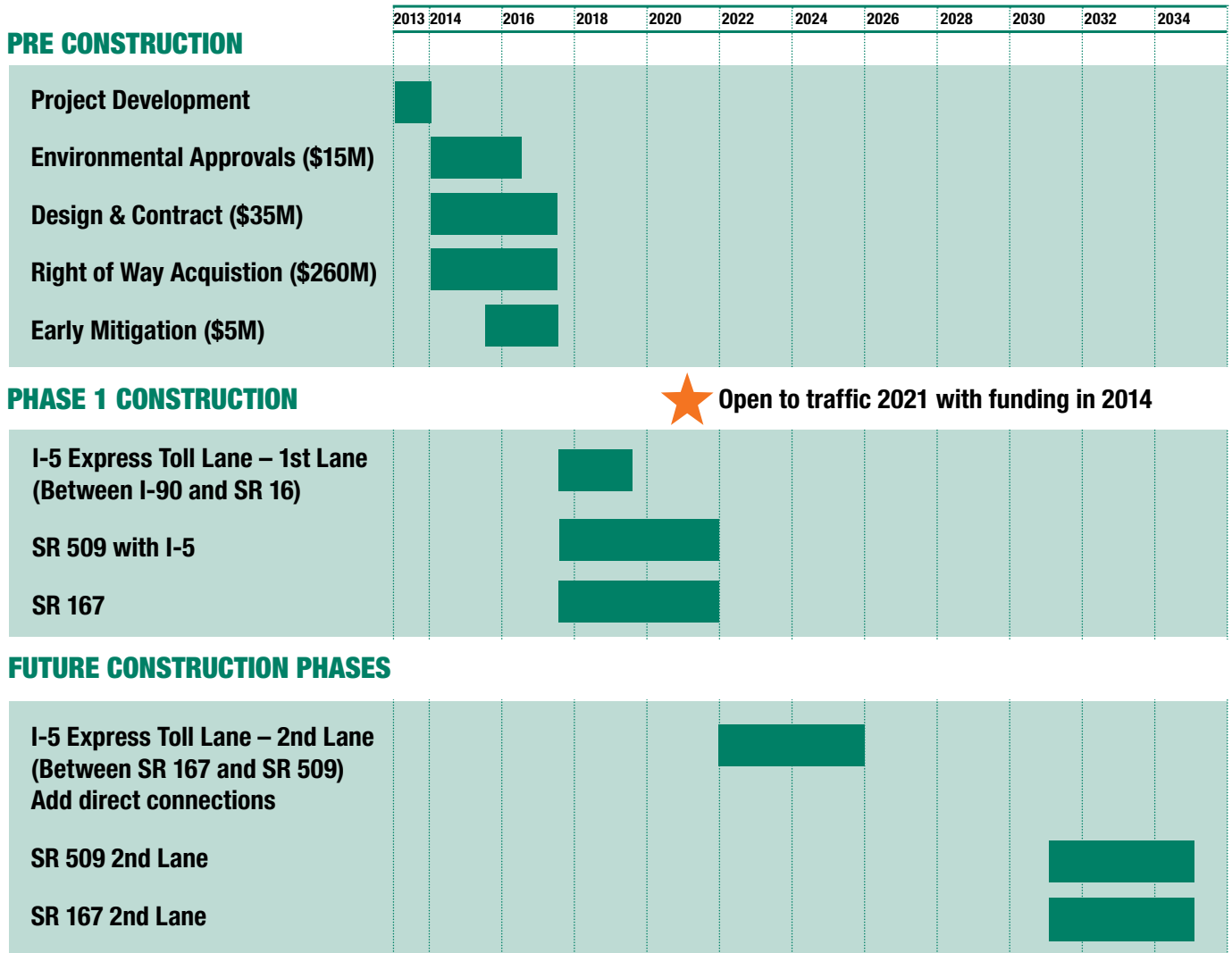
Approximately 30 percent of the right of way on SR 167, and approximately 50 percent of the right of way on SR 509 remains to be acquired. Many of the remaining parcels on these corridors are more challenging than those already acquired, due to relocation requirements or the anticipation of more complex purchase negotiations. The right of way strategy will need to identify parcels with the longest lead time, and include specific steps that address schedule and key decision points for the acquisitions as related to the anticipated construction schedule.

As the I-5 express toll lane design for both the one-lane and two-lane system is refined, any right of way impacts will be identified and strategies will be developed to both minimize the impacts and acquire any necessary property. It is expected that converting the existing HOV lane to an express toll lane as part of Phase 1 will not require property acquisition, but will involve agreements with local and transit agencies to facilitate construction and operations.

6.3 Schedule for implementation

Once funding is received, preliminary schedules indicate that Phase 1 of the Gateway project could open to traffic in seven years (2021). The first three years will be dedicated to acquiring environmental approvals and permits, completing the preliminary engineering and construction contract development, and acquiring right of way, followed by four years of construction.

Key elements such as the design refinements, risk and opportunity assessment, traffic analysis, investment level tolling studies, permitting and contract development are not expected to affect the start of construction. Critical to meeting the seven-year timeline are updating the environmental documents and approvals, along with the right of way acquisition. If either of these processes takes longer than anticipated, the start of construction would be delayed. Managing these risks can be achieved in part by maintaining the momentum developed with the stakeholders during this study and working with them to address any public concerns.



6.4 What are the next steps to move Gateway forward?

Over the last two decades, roughly \$250 million has been invested in planning, completing environmental impact statements and approvals, preliminary design, tolling and phasing studies, and property acquisition for the SR 167 and SR 509 corridors. The projects have:

- Acquired 70 percent of the right of way needed in the SR 167 corridor and 50 percent in the SR 509 corridor. Converting the existing I-5 HOV lane to a single express toll lane in Phase 1 is not expected to require additional right of way.
- Completed project-level Final Environmental Impact Statements and Records of Decision for both the SR 167 and SR 509 corridors.
- Achieved approval on Access Point Decision Reports (or Interchange Justification Reports) for both SR 167 and SR 509.
- Vetted right of way and environmental issues through 20 years of planning and design development.

While some of these documents will require updates due to the amount of time that has elapsed, the two decades of investment provide the groundwork for advancing Phase 1.

Several steps should be taken to maintain the momentum of the project development and stakeholder support necessary to deliver the Puget Sound Gateway Project. These include:

- **Develop environmental documents** - Complete or update environmental documentation and approvals for all three corridors, taking into account tolling and the phasing of construction.
- **Finalize preliminary engineering** - Complete a cost estimate validation process (CEVP), continue design refinements, and ultimately develop the preliminary design required for a design-build contracts.
- **Complete right of way acquisition** - Approximately 30 percent of the right of way on SR 167, and approximately 50 percent of the right of way on SR 509 remains to be acquired. A strategy should be developed that defines the sequence of parcel acquisition and right of way needs and costs for Phase 1 versus future phases.
- **Complete a comprehensive tolling study** - Complete a comprehensive traffic, revenue and tolling study in parallel with the design refinement. This information will feed into a Gateway project financial plan.
- **Develop design-build procurement contracts** - Prepare the design-build contracts that reflects the funding and phasing of the Gateway project.

Taking these steps will build on the momentum developed by WSDOT and the corridor stakeholders to drive this project forward to completion after a two-decade planning journey on SR 167 and SR 509. Completing the design refinements, a CEVP, an environmental document update plan, the right of way acquisition plan, and a comprehensive tolling study for the Gateway project are critical next steps to moving the project forward.

With full funding for the project, an integrated and centralized team could complete the preliminary engineering, right of way acquisition, and construction for Phase 1 of the Gateway project on an accelerated timeline. An integrated team would deliver the project using a consistent development approach across all three corridors. Combining the corridor projects within a central program creates an opportunity to align connectivity, safety, mobility and stakeholder support into one package, which will promote an efficient, integrated delivery of the Puget Sound Gateway Project.

Appendix

The appendices are included on a CD which can be found on the inside of the back cover. The contents include:

- Appendix A: Exhibits**
- Appendix B: Study Approach**
- Appendix C: Initial Design Workshop**
- Appendix D: Second Design Workshop**
- Appendix E: Roadway Summary**
- Appendix F: Stormwater Summary**
- Appendix G: Structures Summary**
- Appendix H: Cost Estimate Narrative**
- Appendix I: Environmental Process Meetings**
- Appendix J: Travel Demand Methodology**
- Appendix K: Tolling Concept of Operations**
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- Appendix P: Gateway Project Support**

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Washington State
Department of Transportation

**Puget Sound Gateway Project:
SR 509, I-5 and SR 167
Funding and Phasing Study:
Strategic Corridor Design Review**

September 2013

Appendices

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For more information

**Puget Sound Gateway Project
SR 509, I-5 and SR 167**
www.wsdot.wa.gov/Projects/Gateway

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