# Energy

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| COPY TO: | Project File |
| PREPARED BY: | Puget Sound Gateway Program Team |
| DATE: | November, 2017 |
| SUBJECT | Phase 1, SR 509 Completion Project NEPA Re-evaluation |

# 1. Introduction

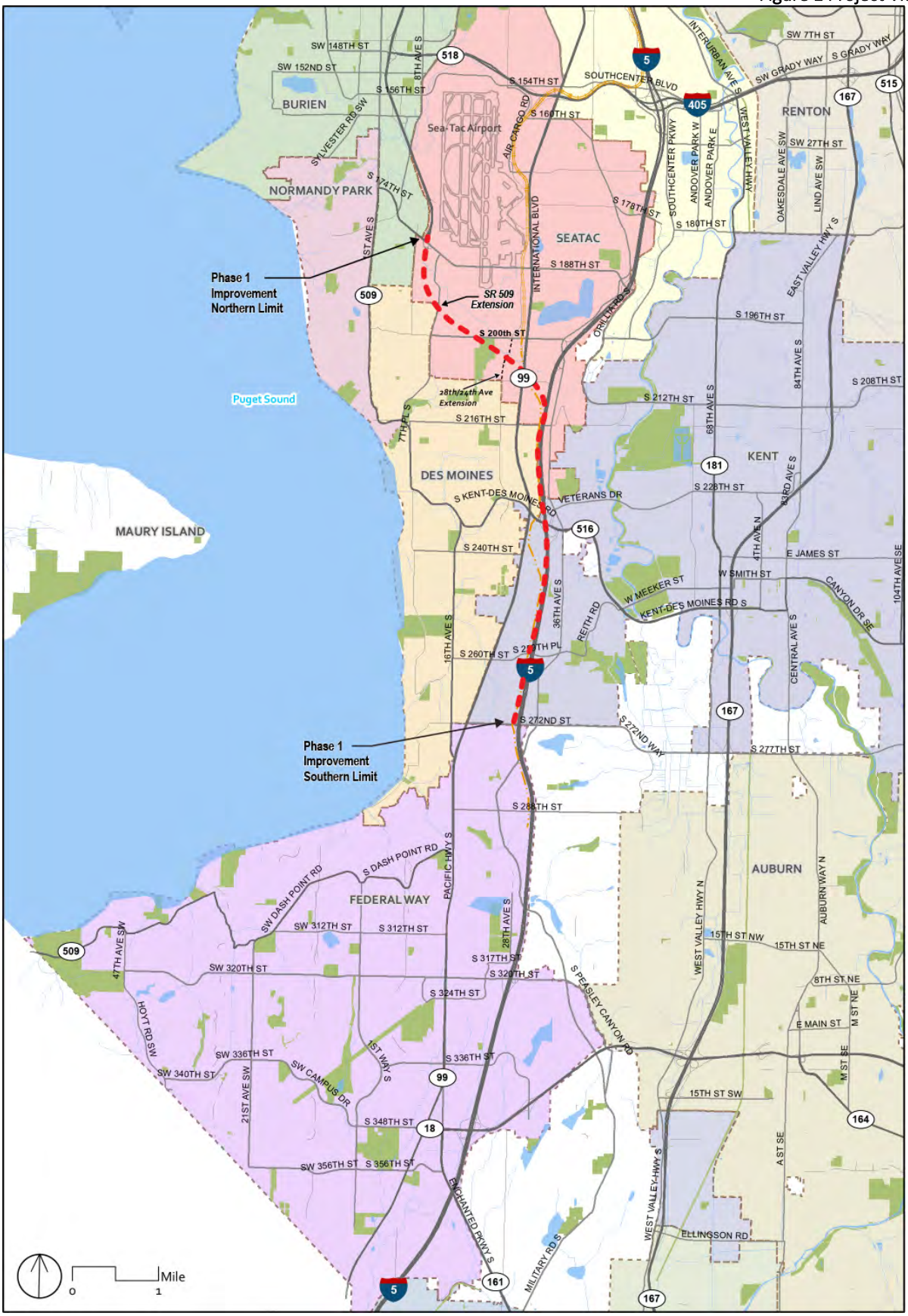
This memorandum was prepared in support of the Phase 1, SR 509 Completion Project National Environmental Policy Act (NEPA) re-evaluation. It compares the changes to the project and resultant impacts (beneficial and/or adverse) against the Record of Decision (ROD) issued by the Federal Highway Administration (FHWA) in 2003 to determine if Phase 1 of the SR 509 Completion Project would result in any new significant impacts not evaluated in the *SR 509: Corridor Completion/I-5/South Access Road Final Environmental Impact Statement* (2003 FEIS). This Re-evaluation Memo makes many references to the 2003 FEIS, including the maps and mitigation measures that are still relevant to the updated analyses. The SR 509: Corridor Completion/I-5/South Access Road FEIS can be found on WSDOT's website at http://www.wsdot.wa.gov/Projects/SR509/completion/Library.htm.

## 1.1. Project History

The State Route (SR) 509 Completion Project is based on more than two decades of project planning and development. In 1995, Washington State Department of Transportation (WSDOT) released the *Tier I Corridor Draft Environmental Impact Statement* (DEIS), which recommended extending SR 509 from S 188th Street southward to connect with Interstate 5 (I-5) and adding a spur roadway, the South Access Road, to connect with Seattle-Tacoma International Airport (Sea-Tac Airport). Within the SR 509 corridor, three routes and a No Build Alternative were evaluated in a project level (Tier II) Draft EIS published in 2002. The Final EIS (FEIS) and Record of Decision (ROD) issued in 2003 identified a six-lane Preferred Alternative (Alternative C2) that included two general purpose (GP) lanes and one high-occupancy vehicle (HOV) lane northbound and southbound on SR 509. It also included interchange connections at S 188th Street, S 200th Street, 24th/28th Avenue, and I-5 and a new South Access Road. Since the ROD was issued, project progress has included actions such as the purchase of needed right-of-way (ROW), construction of an advanced wetland mitigation site, construction of work elements in coordination with local agencies, and refinements in preliminary design. The project area is shown in Figure 1.

With the passing of the Connecting Washington Transportation Package in 2015 by the state legislature, funding has become available for the first phase of the SR 509 Completion Project (Phase 1 Improvements) to proceed through environmental review, design, and into construction. WSDOT undertook a Practical Solutions design approach for the project which allowed a fresh look at the previous project plans to ensure that the revised project is designed according to actual demand and needs. Part of the Practical Solutions approach included reengaging stakeholders to review design and potential changes. The purpose of this document is to reevaluate the Phase 1 Improvements to determine whether they have the potential to result in any new significant environmental impacts that were not previously evaluated in the 2003 FEIS and 2003 ROD. Table 1 provides a comparison of Alternative C2 with the Phase 1 Improvements.

Figure 1 Project Vicinity



| Table 1. Comparison of Design Components | | |
|---|---|---|
| **SR 509** | **Alternative C2 (2003 FEIS and ROD)** | **Phase 1 Improvements (Re-evaluation)** |
| SR 509: I-5 to S 188th Street | Six lanes (120 feet), 60 mph – 2 GP lanes in each direction and 1 HOV lane each direction | Four lanes (78 feet), 60 mph – 2 GP lanes in each direction |
| S 188th Street | Full single-point urban interchange (SPUI) | 1/2 diamond (ramps to/from north) – but doesn't preclude future construction of full diamond with additional funding. |
| S 200th Street | 1/2 diamond (to/from north)[a] | None– but doesn't preclude future construction with additional funding |
| South Access Roadway | Four-lane limited access facility to S 200th Street | None– but doesn't preclude future construction with additional funding |
| 24th Avenue S/28th Avenue S | 1/2 diamond (to/from south) | 1/2 diamond (ramps to/from south) |
| Tolling | None | 2 GP lanes in each direction |
| Toll Points | None | One south of 24th Avenue S/28th Avenue S |
| **Interstate 5** | **Alternative C2 (2003 FEIS and ROD)** | **Phase 1 Improvements (Re-evaluation)** |
| I-5/SR 509 GP connection | 60 mph | 50 mph |
| I-5 SB: SR 516 to SR 509 | Southern braid – three-lane C/D | Northern braid and two-lane C/D |
| I-5 NB: SR 516 to SR 509 | two-lane C/D | Auxiliary lane– but doesn't preclude future construction with additional funding |
| I-5/SR 509 HOV Direct Connection | I-5/SR 509 center-to-center HOV direct access roadway | None – but doesn't preclude future construction with additional funding |
| I-5/SR 516 Interchange[b] | Full diamond and at grade intersection with Veterans Drive connector | Full diamond and at-grade intersection with Veterans Drive connector |
| I-5 SB: SR 516 to S 272nd Street | Two auxiliary lanes | One auxiliary lane– but doesn't preclude future construction with additional funding |
| I-5 SB: 272nd to S 320th Street | One auxiliary lane | None– but doesn't preclude future construction with additional funding |
| I-5 NB: S 272nd Street to SR 516 | One auxiliary lane S 272nd Street to SR 516 | None– but doesn't preclude future construction with additional funding |

[a] 1/2 diamond interchange has an on and off ramp that serves traffic to and from one direction.

[b] The Phase 1 Improvements would also maintain pedestrian connections on both sides of the I-5/SR 516 interchange and construct a new pedestrian path from Veterans Drive to SR 516/Kent Des Moines Road, which would help facilitate pedestrian trips to and from the transit centers around this interchange.

C/D = collector/distributor lanes; GP = general purpose; HOV = high-occupancy vehicle; mph = miles per hour; NB = northbound; SB = southbound

# 2. What are the Phase 1 Improvements and how do they compare with the 2003 FEIS Alternative C2?

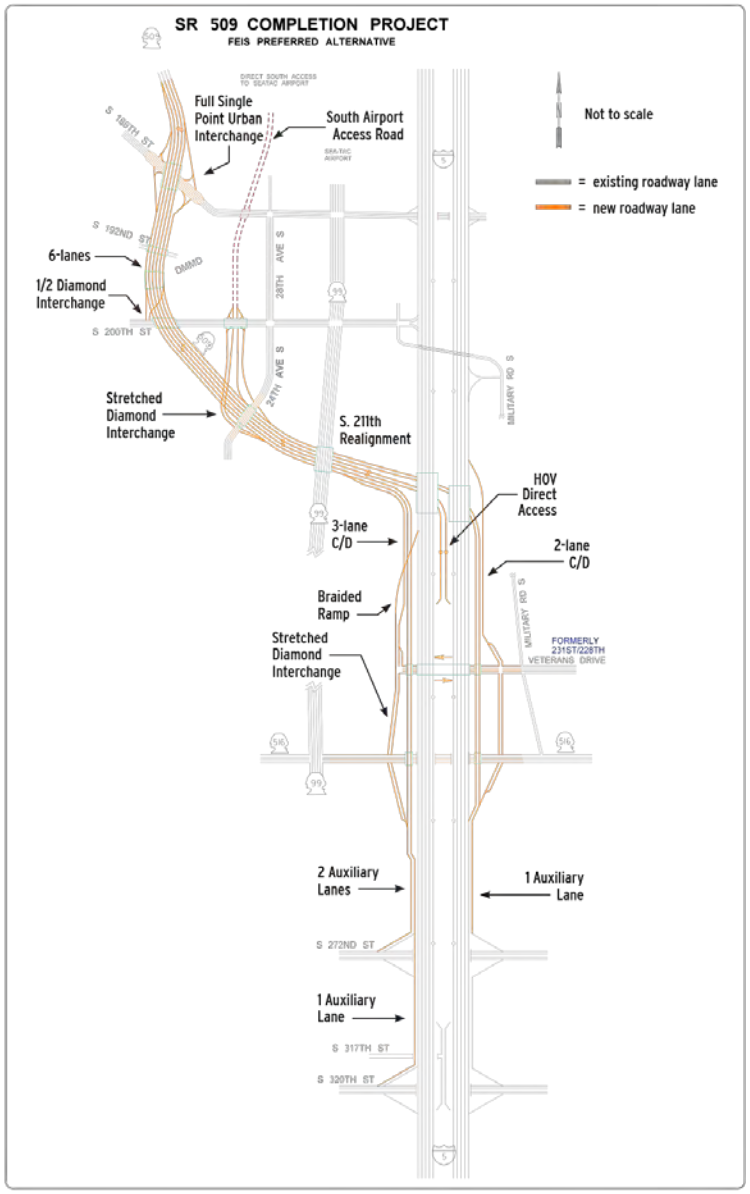
The purpose and need of the proposed action remains the same as described in the 2003 FEIS.

- The purpose of the proposed action is to improve regional highway connections with an extension of SR 509 to serve current and future transportation needs in southwest King County and to enhance southern access to Sea-Tac Airport. The project area is shown in Figure 1.
- The proposed action is needed to create system linkages, accommodate travel demand and capacity needs, and improve intermodal relationships. The SR 509 freeway currently terminates at S 188th Street and does not connect to the regional transportation highway system; this leaves a major gap in the system. As a result, local streets and major transportation routes like I-5 are at or over capacity given current travel demand. This situation is expected to worsen as travel demand for Sea-Tac Airport and major roadways increases.

FHWA issued a ROD in 2003 for the SR 509 Project FEIS that analyzed the extension of the SR 509 corridor. The 2003 SR 509 Project ROD selected Alternative C2. Alternative C2 included a six-lane extension of SR 509 from S 188th Street to I-5. New interchange improvements were proposed at four locations: S 188th Street, S 200th Street, 24th Avenue, 28th Avenue S, and I-5. A four-lane limited access roadway (South Access Road) was also proposed to connect SR 509 at 24th Avenue S/28th Avenue S with the Sea-Tac Airport Terminal Drive system, and an interchange on the South Access Road was proposed at S 200th Street. Improvements on I-5 included adding northbound and southbound collector-distributor (C/D) lanes between SR 509 and SR 516, and adding auxiliary lanes between SR 516 and S 320th Street. Interchange improvements which included a new undercrossing of I-5 to connect to Veteran's Drive were also proposed at SR 516.

The Phase 1 Improvements are essentially a subset of the improvements that were proposed in the 2003 FEIS (Table 1 and Figure 2). The Phase 1 Improvements would include a four-lane SR 509 extension (compared to six lanes as analyzed in the 2003 FEIS) from S 188th Street to I-5. Interchange improvements would occur at three locations (compared to four locations as analyzed in the 2003 FEIS): S 188th Street interchange, 24th Avenue S/28th Avenue S, and I-5. In addition, there would be no South Access Road or interchange at S 200th Street, and improvements on I-5 would be less extensive than those proposed in the 2003 FEIS (see Figure 3). The Phase 1 Improvements also assumes that the extension of SR 509 between S 188th Street and I-5 would be fully tolled. A toll point would be located on SR 509 south of the 24th Avenue S/28th Avenue S interchange. Figure 3 provides an overlay comparison of the Phase 1 Improvements and the 2003 FEIS.

Figure 2 – Design Components of FEIS Preferred Alternative (Alternative C2) and Phase 1 Improvements



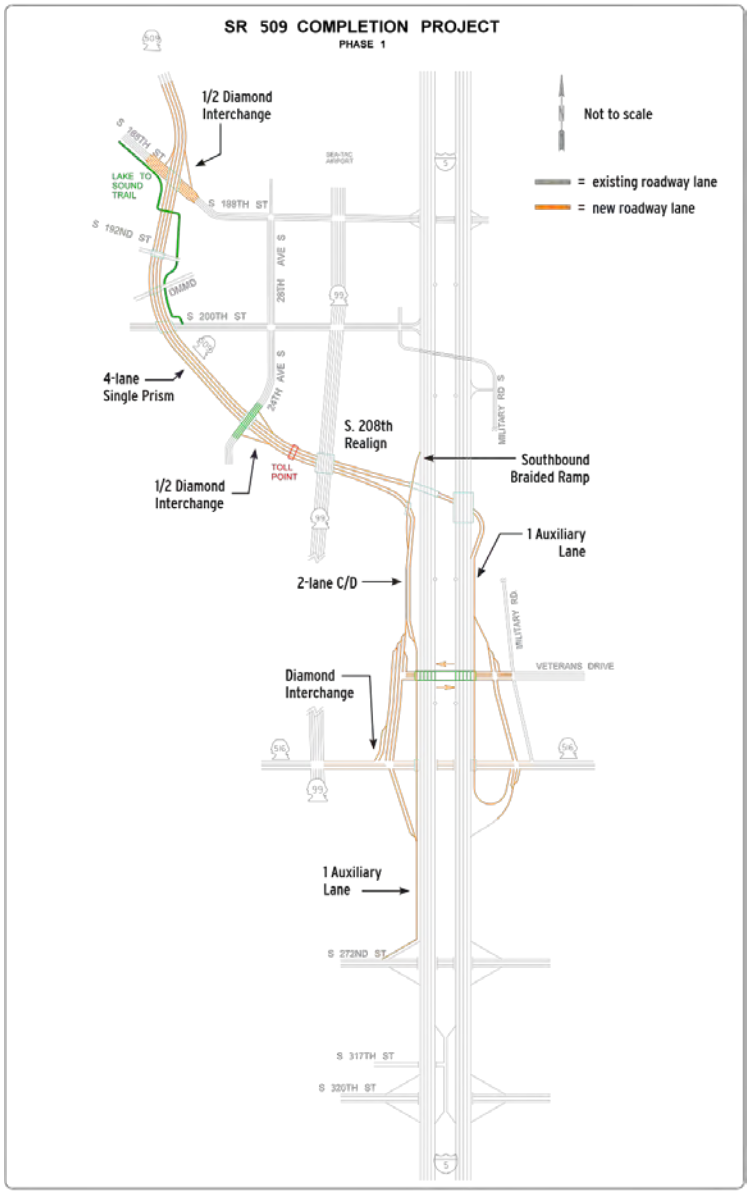
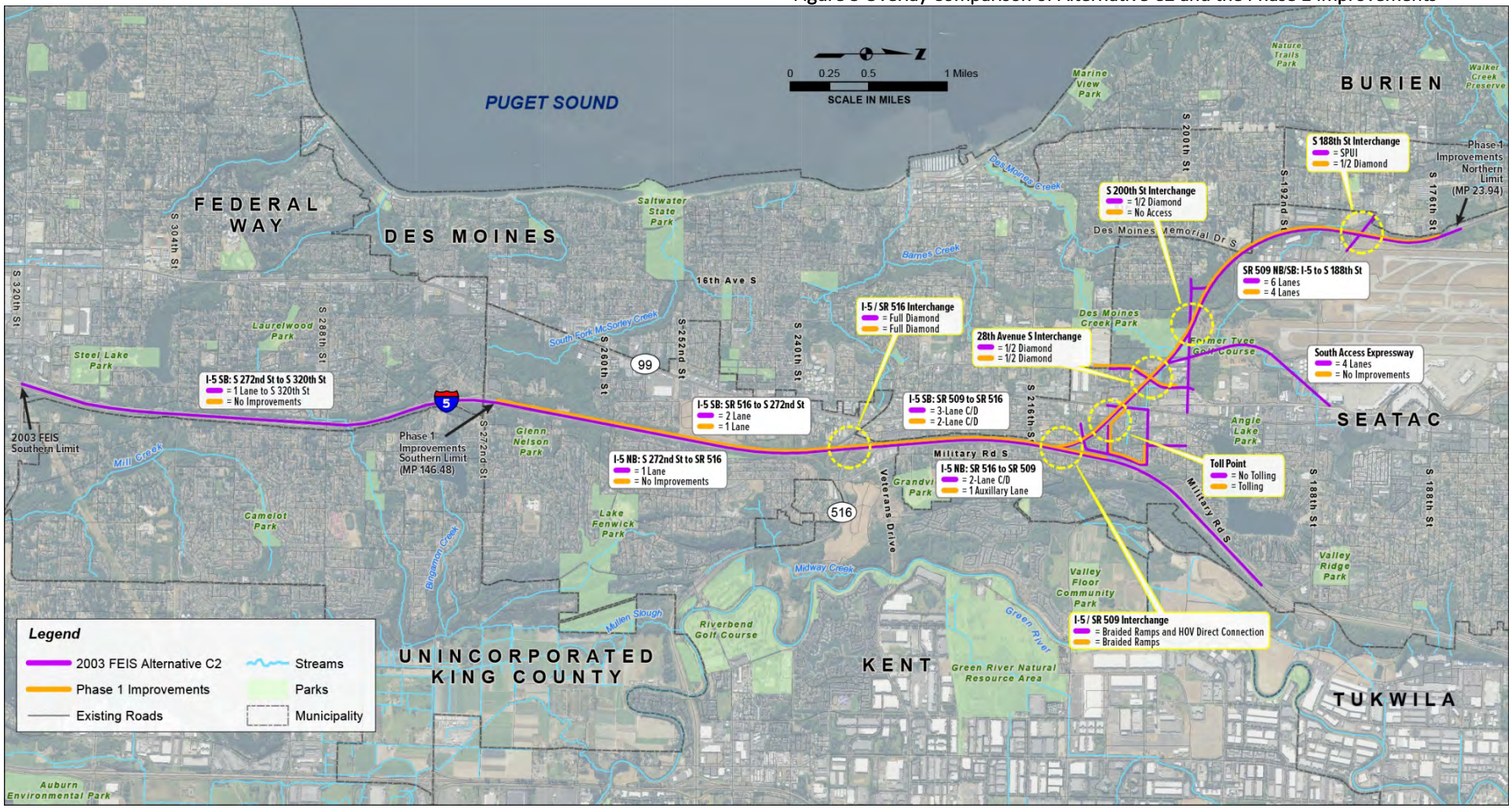



Figure 3 Overlay Comparison of Alternative C2 and the Phase 1 Improvements



# 3. What has changed in the affected environment since 2003?

The affected environment as described in Section 3.3.2 of the 2003 FEIS remains applicable to the Phase 1 Improvements. The area is served by a freeway (I-5) and principal arterials (SR 99, South 188th Street, South 192nd Street, and South 200th Street). Minor and collector arterials also provide east-west access across the project area. Sea-Tac Airport, and facilities associated with the airport, are the prominent features in the north part of the project area. The I-5 corridor, is the prominent feature in the southern part of the project area.

The existing SR 509 corridor consists of a four-lane freeway north of South 188th Street/12th Place South and a five-lane arterial street (South 188th Street). To the north, SR 509 has major connections to SR 99 and passes through the City of Burien; to the south, it passes through the Cities of Normandy Park and Des Moines, serving as a major connection to the regional system for residents. South of Des Moines, the SR 509 route currently is discontinuous between SR 516 and Dash Point Road in Federal Way. South of SR 516, the SR 509 corridor is coincident with SR 99 until it connects with Dash Point Road. Because of the circuitous routing to the south and poor connections to regional traffic generators (e.g., Sea-Tac Airport), the freeway portion of the corridor is underused, particularly between South 188th Street/12th Place South and SR 518.

Access to Sea-Tac Airport from the south is available from the arterial street system at South 182nd Street/SR 99. Local traffic can also access the North Access Expressway at South 170th Street. The primary regional access route from the south is I-5 (via SR 518 and the North Airport Expressway).

# 4. Would the Phase 1 Improvements result in any new or significant impacts?

Energy consumption from highway projects depend on several factors including, distance traveled (VMT) and fuel economy. Based on VMT alone, we would expect a negligible decrease in energy consumption. Table 2 presents the VMT for existing conditions and future projections for build and no build scenarios. Traffic modeling for the study area included the roadway network shown in Attachment A. Modeling results indicate that the Phase 1 Improvements would result in a lower VMT (5 percent) than the No Build Alternative by 2045 and would therefore result in lower energy use in the study area.

**Table 2. Comparison of VMT**

| Pollutant | 2015 Existing | 2025 No Build | 2025 Project | 2045 No Build | 2045 Project | % Change from 2015 to 2025 No Build | % Change from No Build to 2025 Project | % Change from 2015 to 2045 No Build | % Change from 2045 No Build to 2045 Project |
|---|---|---|---|---|---|---|---|---|---|
| Daily VMT | 8,388,569 | 9,770,869 | 9,725,661 | 10,939,599 | 10,756,165 | 16% | 0% | 30% | -2% |

Sources: PSRC Travel Demand Model and EPA MOVES2014a.

Although the Phase 1 Improvements would not increase roadway capacity to the same extent as Alternative C2, the improvements would still result in improved reliability of goods movement, decreased travel times for several routes along the Seattle to Tacoma corridor. The level of congestion

on north/south arterial corridors within the study area, including SR 99 (International Boulevard) and Des Moines Memorial Drive, would decrease as trips currently made on surface streets divert onto SR 509. Overall mobility along these arterials would improve, resulting in better travel speeds and more efficient fuel consumption.

Because the Phase 1 Improvements would not construct the South Access Road, commercial vehicles and individual passengers traveling to and from Sea-Tac Airport would not experience the same travel time savings as Alternative C2 and would likely consume more fuel.

# 5. How would mitigation measures during operation compare to the 2003 FEIS Alternative C2?

Similar to Alternative C2, there would be no energy impacts associated with operation of the Phase 1 improvements that would require mitigation.

# 6. How would temporary construction effects compare to the 2003 FEIS Alternative C2?

The temporary construction effects discussed in the 2003 FEIS remain applicable to the Phase 1 Improvements except that the improvements would result in less area of impact and be of shorter duration than Alternative C2. As discussed in Section 3.3.5 of the 2003 FEIS, construction activities would consume energy during the mining and production of construction materials and the transportation of materials and equipment to the site. Operating construction equipment and providing construction lighting would also consume energy resources. The amount of energy used during the construction of a project is roughly proportional to the size of the project, and the energy impacts of the Phase 1 Improvements would generally be consistent with the type of impacts discussed in the 2003 FEIS.

As noted in Section 3.3.5 of the 2003 FEIS, total construction cost is often used as a substitute value to compare energy consumption during the construction period. Phase 1 Improvements construction costs are estimated to be approximately $747 million, which would be lower than the inflation-adjusted cost of Alternative C2. Therefore, we assume that the Phase 1 Improvements would result in smaller energy impacts when compared to those presented in the 2003 FEIS because the total construction costs would be less than with Alternative C2.

# 7. How would mitigation measures during construction compare to the 2003 FEIS Alternative C2?

The mitigation measures as described in Section 3.3-11 of the 2003 FEIS remains applicable to the Phase 1 Improvements and could include the following:

- Encourage carpooling or vanpools among construction workers to minimize the number of vehicles used by workers to and from work and to reduce congestion at the start and end of construction shifts.
- Limit the idling of construction equipment to the extent practical.
- Plan for the delivery of equipment and supplies during non-peak traffic periods to minimize disruptions to both traffic and construction activities.

- Locate staging/laydown areas as close as possible to work sites to minimize travel distances.

# 8. Conclusion

No new significant impacts to energy from construction and operation would occur as a result of the Phase 1 Improvements that were not previously identified in the 2003 FEIS. No new or revised mitigation measures would be required.

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# Attachments

Attachment A