

SR 167

Puyallup to SR 509

Cities of Puyallup, Fife, Edgewood, Milton, and Tacoma

Pierce County, State of Washington

Tier II Final Environmental Impact Statement

Submitted Pursuant to NEPA Section 42 U.S.C. 4332(2)(c) and SEPA RCW 43.21 C

by the

Federal Highway Administration

and the Washington State Department of Transportation

Cooperating Agencies: U.S. Army Corps of Engineers and the City of Fife

Division Administrator
Federal Highway Administration

Director Environmental Services
Washington State Department of Transportation

Date of Approval

Date of Approval

The following persons may be contacted for additional information concerning this document:

Megan P. Hall
Area Engineer, Washington Division
Federal Highway Administration
711 South Capitol Way, Suite 501
Olympia, WA 98501
(360) 753-8079

Jeff Sawyer
Manager, Environmental and Hydraulic Services
Washington State Department of Transportation
Olympic Region
P.O. Box 47417
Tumwater, WA 98501
(360) 570-6700

This report documents studies for a proposal to construct an extension of the SR 167 freeway from SR 161 (North Meridian) in the city of Puyallup to the SR 509 freeway in the city of Tacoma. The Tier II EIS evaluates the mainline alignment as proposed in Tier I and multiple design options at the SR 509, 54th Avenue East, Interstate 5, Valley Avenue, and SR 161 interchanges.

ADA Title VI



Persons with disabilities may request this information be prepared and supplied in alternate forms by calling the WSDOT ADA Accommodation Hotline collect 206-389-2839.

Persons with vision or hearing impairments may access the WA State Telecommunications Relay Service at TT 1-800-833-6388, Tele-Braille 1-800-833-6385, or Voice 1-800-833-6384, and ask to be connected to 360-705-7097.

The Washington State Department of Transportation (WSDOT) hereby gives public notice that it is the policy of the department to assure full compliance with Title VI of the Civil Rights Act of 1964, the Civil Rights Restoration Act of 1987, Executive Order 12898, and related statutes and regulations in all programs and activities. Title VI requires that no person in the United States of America shall, on the grounds of race, color, national origin, sex, or low income be excluded from the participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which WSDOT receives federal financial assistance.

Any person who believes he or she has been aggrieved by an unlawful discriminatory practice protected under Title VI has the right to file a formal complaint with the WSDOT. Any such complaints must be in writing and filed with WSDOT Title VI Coordinator within one hundred eighty (180) days following the date of the alleged discriminatory incident. Title VI discrimination complaint forms may be obtained from OEO at no cost to the complainant by calling (360) 705-7098.

Summary

Tier II Final EIS

SR 167

Puyallup to SR 509



SR 167 Puyallup to SR 509



Summary

Background

Washington State Department of Transportation (WSDOT) and the Federal Highway Administration (FHWA) are proposing the SR 167 Extension Project. They are the lead agencies for compliance with NEPA and SEPA. The SR 167 Extension Project is in Pierce County, Washington, within the cities of Fife, Puyallup, Edgewood, Milton, and Tacoma. It is also within the external boundary of the Puyallup Tribal Reservation.

The planning and environmental analysis for the SR 167 Extension is being conducted in two stages or tiers. This tiered approach is part of an agreement among agencies with key roles in environmental review and approval of major transportation projects like this one.

The Tier I Environmental Impact Statement (EIS) analyzed the location and environmental aspects of different corridor options. It also considered ways other than building a new freeway to address the purpose and need for transportation improvements in the project area. The Tier I EIS evaluated in detail three new corridors and a no build alternative. In June 1999, the Tier I Final EIS concluded that the Alternative 2 corridor and interchange locations were environmentally preferred.

The Tier II Draft EIS, distributed in February 2003, provided details on optional configurations of the interchanges. Tier II uses many design and environmental criteria to develop a reasonable range of interchange options for environmental

NEPA, SEPA, and EIS

The National Environmental Policy Act (NEPA) requires that environmental impacts be considered in federal decisions, including the use of federal funds.

NEPA requires an EIS be prepared for major projects that have the potential for adverse impacts.

A NEPA EIS also provides the documentation required by the Washington State Environmental Policy Act (SEPA).

Key Project Terms

Corridor is a strip of land between two endpoints within which a roadway is placed and conditions are evaluated.

Roadway is the portion of a highway including shoulders, for vehicle use.

Footprint is the outline of the physical limits of the area impacted by construction of the roadway and related facilities.

analysis. These details are important for better defining environmental effects and for discussing measures to avoid, minimize, and mitigate these effects with stakeholders. This Tier II Final EIS responds to public comments on the Draft EIS and provides supplemental information.

What Is the SR 167 Extension Project?

The proposed project completes the State Route (SR) 167 freeway by building four miles of new six-lane divided facility from its current terminus in Puyallup at SR 161 through the Puyallup River valley connecting to Interstate 5 near the 70th Avenue undercrossing. The project will also include a two-mile four-lane divided highway section from SR 509 near the Port of Tacoma to I-5 and SR 167 at the interchange near 70th Avenue.

The roadway runs east and northeast from Port of Tacoma Road to 54th Avenue East. It then proceeds southeast over SR 99 and I-5 before turning south and crossing Valley Avenue just west of Freeman Road. The rest of the roadway runs mostly southeast before connecting with the existing SR 167 freeway near North Meridian in Puyallup.



Current traffic congestion on 54th Avenue East

Who Is Leading the Project?

The Washington State Division of FHWA is the lead federal agency for the project, and they provide guidance and oversight to WSDOT. The Olympic Region of WSDOT continues to lead this planning and environmental analysis phase, as they have since Tier I began.

Why Is the Project Needed?

The existing non-freeway segment of SR 167 has high levels of congestion at surface street intersections and includes many connecting driveways. Trucks transporting freight from the Port of Tacoma add to the congestion. These conditions contribute to relatively high accident rates, and increased air pollution because stop-and-go traffic uses more fuel than freeway traffic.

In 1999 the Port of Tacoma projected that truck traffic will double to 600,000 trucks annually by the year 2014. Traffic projections for the year 2030 also indicate problems will continue to worsen.

Some of the benefits identified for the proposed project are that it:

- Increases mobility and accessibility;
- Improves safety for traffic, pedestrians, and bicyclists;
- Improves regional mobility of the transportation system;
- Serves multi-modal freight and passenger movement;
- Improves continuity between SR 167 and I-5;
- Reduces flooded area along local creeks;
- Maintains or improves air quality in the corridor;
- Improves fish habitat in nearby streams.

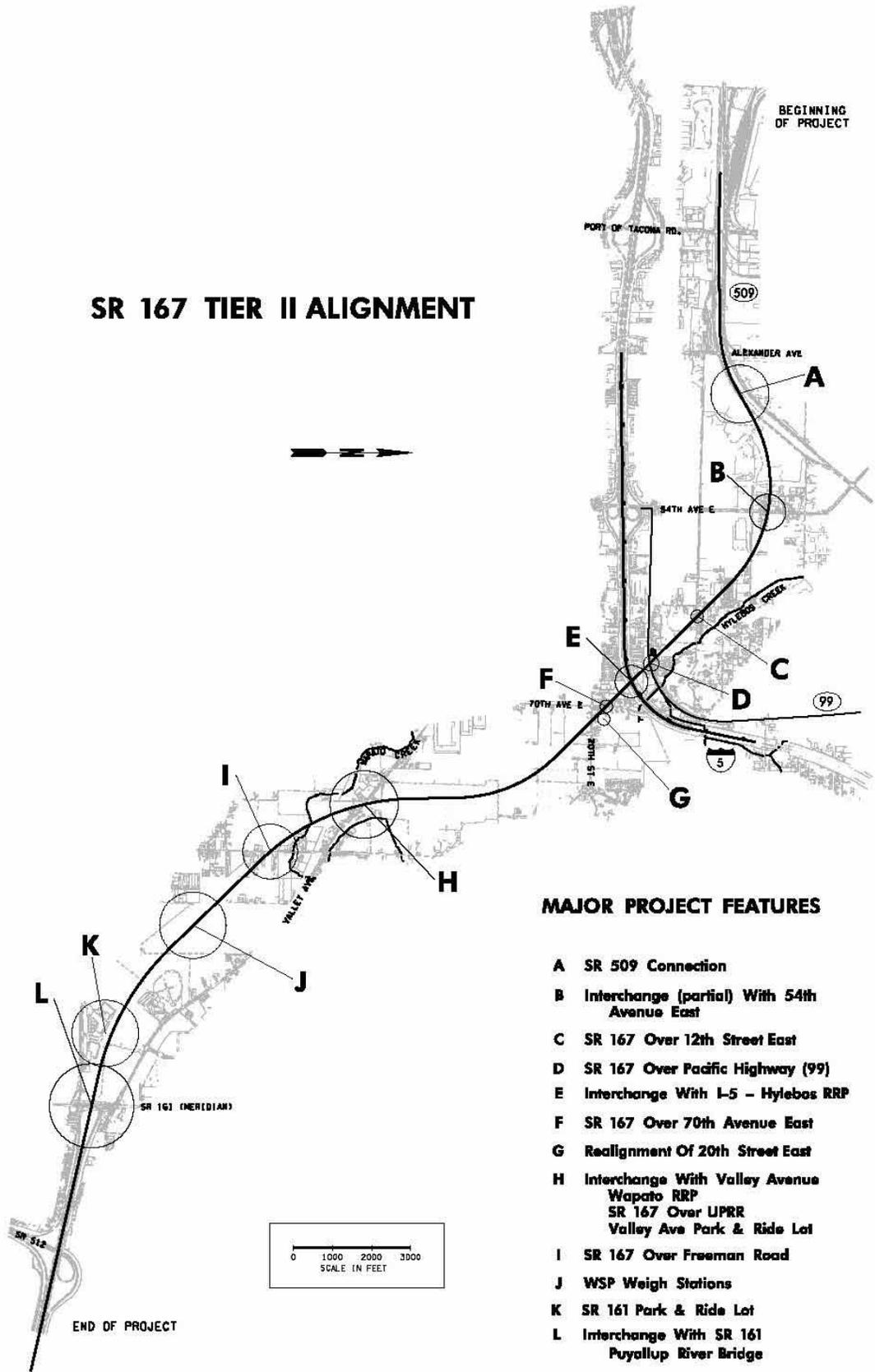


Stop-and-go traffic emits more air pollution than highway traffic



Flooding in February 1996 at Hylebos Creek and I-5

SR 167 TIER II ALIGNMENT



MAJOR PROJECT FEATURES

- A SR 509 Connection
- B Interchange (partial) With 54th Avenue East
- C SR 167 Over 12th Street East
- D SR 167 Over Pacific Highway (99)
- E Interchange With I-5 - Hylebos RRP
- F SR 167 Over 70th Avenue East
- G Realignment Of 20th Street East
- H Interchange With Valley Avenue Wapato RRP
SR 167 Over UPRR
Valley Ave Park & Ride Lot
- I SR 167 Over Freeman Road
- J WSP Weigh Stations
- K SR 161 Park & Ride Lot
- L Interchange With SR 161 Puyallup River Bridge

What Are the Major Features of the SR 167 Project?

The new freeway section will be approximately six miles long. It has one direct highway connection, four interchanges, two weigh stations, and two park and ride lots. The project also includes an innovative stormwater management approach known as the Riparian Restoration Proposal (RRP) that reduces potential flooded areas while improving local streams. In addition to important traffic benefits like increased mobility, improved safety, and accessibility, the SR 167 Extension Project will include mitigation measures that avoid and minimize impacts, enhance wetlands, improve floodplain values, and has other measures to protect the environment.

Limited Access Divided Highway

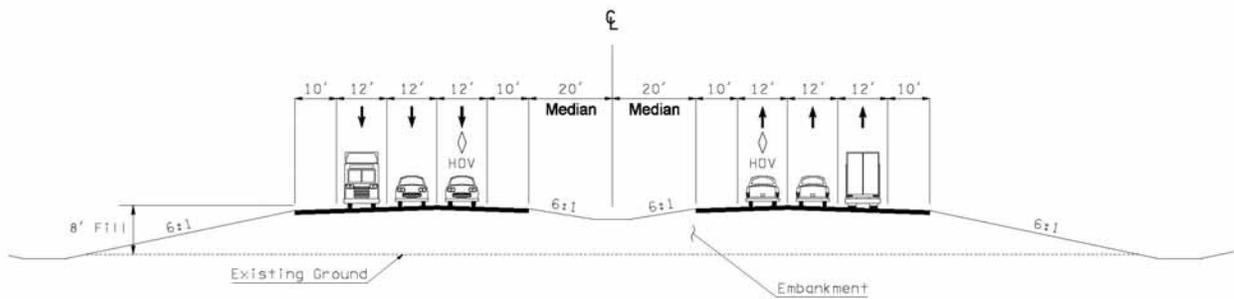
The SR 167 Extension begins as a four-lane limited access highway where it connects to SR 509. The four-lane freeway continues easterly on embankment until 12th Street. The mainline is elevated on structures over 12th Street, SR 99, I-5, 20th Street, and 70th Avenue. Between 70th Avenue and Valley Avenue, the freeway consists of three general purpose lanes and one future HOV lane in each direction. South of Valley Avenue, the freeway includes two general purpose lanes and one HOV lane in each direction (six total) to the SR 161 Interchange.

Key Project Terms

Limited access highways restrict the locations where traffic may enter the roadway. Driveways and sidestreets do not connect directly to the highway.

Divided highways separate traffic traveling in different directions with medians, physical barriers, or differing elevations.

Embankment is a structure of earth or gravel that is raised to form the foundation for a road.



Typical Cross Section
SR 167 Valley Avenue Interchange to SR 161 Interchange

Freeway-to-Freeway Connections

The SR 167 Extension connects with the SR 509 freeway in Tacoma. A new interchange in Fife connects I-5 and the new SR 167 freeway. In Puyallup the SR 167 Extension connects to the existing SR 167 freeway that proceeds east and north to I-405 in Renton.



Current view along SR 509



Visualization of the new SR 509 and SR 167 connection

The new I-5 interchange is very complex with limited solutions for connecting the freeways. The I-5 interchange design in the Final EIS incorporates six recommendations of a special value engineering study that examined 67 optional ramp connections and alignments. After thorough analysis of all the options, it was determined that only one design option is reasonable, with the least adverse environmental impacts, to meet the needs at this location.



Current view of I-5 at the Fife Curve



Visualization of the interchange connecting SR 167 and I-5 at Fife Curve

Local Access Interchanges

A new interchange provides local access at 54th Avenue East. The Loop Option is the environmentally preferred design because it has the least effects on wetlands and their buffers, floodplains, and wildlife habitat. The City of Fife, Port of Tacoma, FHWA, and WSDOT also prefer this interchange option because truck traffic leaving the Port can access northbound SR 167 with a right turn from 54th Avenue East.



Current view of 54th Avenue East



Visualization of the preferred Loop Ramp interchange option at 54th Avenue East

The Valley Avenue Option is the preferred interchange design for local access at Valley Avenue. This option has least effects on wetland buffers, fewest residential and business displacements, least new impervious area, and most opportunity for connecting wildlife habitats.



Current view of Valley Avenue East



Visualization of the preferred Valley Avenue interchange at Valley Avenue East

The Urban Interchange Option is preferred at the SR 167 / SR 161 interchange in Puyallup. This option improves traffic operation and has the least environmental impact.



Current view of North Meridian (SR 161)



Visualization of the proposed SR 161 / SR 167 interchange

Other Transportation Facilities

One park and ride lot is located at the Valley Avenue interchange. The other is near the SR 161 / SR 167 interchange in Puyallup. Land acquisition of these sites is included in the SR 167 Project, but construction of the lots is not.

Washington State Patrol truck weigh stations, one for each direction of travel, are located along the new freeway east of the Valley Avenue Interchange.

Bicycles are allowed on the SR 167 mainline shoulders except for the I-5 interchange and the section from 54th Avenue East to 20th Street East. The SR 167 project includes a separate multi-use path for bikes and pedestrians between SR 99 and 54th Avenue East. Beyond 54th Avenue East, bikes and pedestrians would remain on local streets and sidewalks. The Riparian Restoration Proposal (RRP) is an integral component of the project to control highway runoff.

Riparian Restoration Proposal

The flat topography, high water table, and history of floods in the project area make the sole use of conventional stormwater ponds an ineffective way to store all of the highway runoff from the new freeway. Riparian Restoration Proposal (RRP) is an innovative approach to stormwater management for this project.



Conventional stormwater ponds sometimes encroach into riparian buffers of the streams they are intended to protect.

The RRP relocates sections of Hylebos Creek and Surprise Lake Drain away from existing roads, and provides new meandering channels with riparian buffers. It also includes riparian plantings, removal of some existing fill and impervious areas from the floodplains, and replaces most undersized crossing structures in the project area at Hylebos Creek, Surprise Lake Drain, and Wapato Creek.

At Hylebos Creek the RRP includes 4,010 feet of new stream channel and 87 acres of riparian improvements.

Approximately 5,340 feet of new channel is included for Surprise Lake Drain, with 29 acres of adjacent riparian protected.

Key Project Terms

Riparian is the term used to describe streambanks and adjacent areas along rivers and streams.

Impervious surfaces are hard surfaces that prevent or retard water from soaking into soil, thereby increasing the rate or volume of stormwater runoff.

Innovative Stormwater Approaches

The *Stormwater Management Manual for Western Washington* allows alternative stormwater controls if they are supported by a watershed analysis approved by Washington Department of Ecology. WSDOT conducted extensive studies including sophisticated computer modeling to demonstrate that the SR 167 RRP not only decreases the potential for stream erosion, but it also reduces the potential for future flooded areas.

RRP Benefits

- Reduces area flooding
 - Prevents streambank erosion
 - Improves fish habitat
 - Promotes natural stream processes
 - Treats highway runoff
 - Reduces new impervious surfaces
 - Supports salmon recovery
 - Connects wildlife habitats
 - Protects water quality
-

The Wapato Creek RRP converts 73 acres of developed land along 9,000 feet of the existing stream to riparian buffer. Restoration includes removal of buildings, roads, and most culverts in the area being protected, as well as planting native vegetation.

The primary purpose of RRP is to control and manage stormwater flow, which is the quantity of runoff from the roadway. The RRP will do this by removing existing fill and structures from the floodplain, which would improve flow of surface water and return portions of the project area to a near natural condition. It also offers many environmental benefits in terms of wetland enhancement and habitat improvements for fish and wildlife. Some conventional stormwater management facilities are needed, even with RRP.

Who Participated In Developing the Final EIS?

As lead agencies for the project, FHWA and WSDOT encourage the active participation of numerous resource and regulatory agencies, local jurisdictions, local landowners, the Puyallup Tribe of Indians, organizations, interest groups, and citizens. Collectively these are known as project stakeholders. Newsletters, project presentations, open houses, technical meetings, and WSDOT's SR 167 website are some tools recently used to engage others in the project. The project benefits from the diverse insights, perspectives, comments, and suggestions of agencies and the public.

Partners Committee – FHWA, WSDOT, Pierce County, Port of Tacoma, Puyallup Tribe of Indians, Puget Sound Regional Council, Pierce Transit, and the cities of Puyallup, Tacoma, Edgewood, Fife, and Milton hold quarterly meetings to provide suggestions and recommendations related to the project.

Citizen's Advisory Committee – Property owners, business owners, local jurisdictions, and farmers advise project staff on local issues and concerns within the project area and assist with improving outreach and communication efforts. This committee meets at key milestones in the project.

Goals of Stormwater Flow Control

- Prevent increases in streambank erosion
 - Prevent increases in flooding
 - Prevent decreases in biological integrity of streams
-

Project Stakeholders

Stakeholders include anyone that lives in, uses, or has jurisdiction in the project area. For this project they include:

- Citizens and landowners
 - Businesses and corporations
 - Local cities and Pierce County
 - State and federal regulatory and resource agencies
 - Puyallup Tribe of Indians
 - Organizations and interest groups like Friends of the Hylebos Wetlands, Tahoma Audubon Society, and Tacoma Wheelman's Bicycle Club
-

RRP Technical Advisory Group – The US Fish and Wildlife Service, NOAA National Marine Fisheries Service (NOAA Fisheries), US Army Corps of Engineers, Washington State Department of Fish and Wildlife, Washington Department of Ecology, the Puyallup Tribe of Indians, and Friends of the Hylebos Wetlands – a local environmental group – assist FHWA and WSDOT in developing the innovative Riparian Restoration Proposal.

Signatory Agency Committee – The state and federal agencies meet quarterly to discuss projects like the SR 167 Extension as part of the Signatory Agency Committee. Aquatic resources are the primary focus of this committee.

Concurrence is obtained from the signatory agencies at three key points in the NEPA process:

1. Project purpose and need
2. Range of alternatives in the Draft EIS
3. Preferred alternative / least environmentally damaging practicable alternative in the Final EIS, and any detailed mitigation plans

The SR 167 project has received concurrence on all three points. Suggestions by the agencies on Concurrence Point 3 identified measures to further minimize effects at the Valley Avenue Interchange Option.

Puyallup Tribe of Indians – Most of the SR 167 Extension route is within the external boundaries of the Puyallup Tribal Reservation. Therefore, FHWA and WSDOT consult with the Tribe frequently on topics such as tribal trust lands affected by the project, cultural and archaeological studies, sharing of fishery data, studies of Hylebos and Wapato creeks, and developing the project design. FHWA and WSDOT are committed to maintaining an open line of communication with the Puyallup Tribe during all remaining phases of the SR 167 Extension project.

Signatory Agency Committee

- Federal Highway Administration
 - WSDOT
 - U.S. Army Corps of Engineers
 - Environmental Protection Agency
 - U.S. Fish and Wildlife Service
 - NOAA Fisheries
 - Washington Dept of Ecology
 - Washington Dept of Fish and Wildlife
 - City of Fife (project specific)
-

Puyallup Tribe of Indians

The Puyallup Tribe is part of the Puget Sound Salish Indian culture. Tribal relations with the U.S. Government began in 1854. Soon thereafter the Treaty of Medicine Creek established the Puyallup Reservation. A council of elected tribal members now governs the Puyallup Tribe under the constitution and bylaws established in 1934.

Organizations and Interest Groups – As noted above, Friends of Hylebos Wetlands participates on the RRP Technical Advisory Committee. The project team frequently makes presentations to Chambers of Commerce, business associations, and civic organizations like the Kiwanis.

How Was the Preferred Alternative Developed?

Several steps during Tier II that were key to developing the Preferred Build Alternative are described in subsequent paragraphs. Some steps occurred before the Draft EIS was distributed. Others have occurred since then. Additional refinements and improvements will occur during final design if the Preferred Build Alternative is approved.

Engineering Design Criteria

These criteria were used to develop design options at the interchanges within the Alternative 2 corridor selected in the Tier I Record of Decision. They also were used to refine the Tier II roadway to minimize adverse environmental effects.

Value Engineering Study for I-5 Interchange

The complexity of the I-5 interchange and limited solutions for the freeway connections led to the development of one design option at this location. A value engineering study was conducted by representatives of FHWA, WSDOT, and the City of Fife that have the mix of expertise needed to develop the best design. The study examined 67 options that included multiple I-5 and SR 167 ramp connections and roadways to produce the interchange design included in the Preferred Alternative.

Design Options at Local Access Interchanges

The engineering design and environmental screening criteria were used to develop different interchange design options. Two options were developed for the 54th Avenue interchange, three options for the Valley Avenue interchange, and three options for the SR 161 interchange in Puyallup.

Value Engineering

Value Engineering is the systematic application of recognized techniques by a multi-disciplined team to:

- Identify the function of a product or service.
 - Establish a worth for that function.
 - Generate alternatives through creative thinking.
 - Provide the function(s) needed to accomplish the original purpose.
 - Assure lowest overall cost without sacrificing safety, necessary quality, or environmental attributes.
-

Environmental Screening Criteria and Ranking

The previous steps as listed above were completed before distribution of the Tier II Draft EIS, which presented the environmental effects of the mainline and interchanges options. That analysis is continued and expanded in this Final EIS by using the 22 environmental screening criteria to rank and score the options at each interchange. These scores, plus non-environmental considerations, are the basis of the Preferred Build Alternative that was presented to the Signatory Agency Committee for their concurrence.

Agency Feedback and Concurrence

The Signatory Agency Committee and the City of Fife provided feedback on the mainline and preferred interchange options identified by FHWA and WSDOT. Their recommendation to bridge wetlands in the Valley Avenue Option further minimized effects on wetlands and aquatic resources and was incorporated into the project. They concurred that the Preferred Build Alternative is the environmentally preferred option.

What Has Changed In the Final EIS?

A copy of the complete Final EIS is provided in electronic format on the CD provided on the inside cover of this document. Many changes respond to comments on the Draft EIS that was distributed in February 2003. Additional information from supplemental studies since the Draft EIS is also provided. Some changes make the document easier to read and handle.

Environmental Screening Criteria

1. Meets Purpose and Need
 2. Category 1 & 2 Wetlands
 3. All Wetlands
 4. All Wetland Buffers
 5. ESA-listed Species
 6. Aquatic Priority Habitats
 7. Wildlife Habitat
 8. Prime & Unique Farmlands
 9. All Farmlands
 10. Floodplain
 11. Noise
 12. Air Quality
 13. NRHP-eligible Cultural Sites
 14. All Cultural Resource Properties
 15. Environmental Justice Populations
 16. Displacements
 17. Tribal Trust Lands
 18. Visual Quality
 19. Stormwater Treatment Capability
 20. High Cost Hazardous Waste Sites
 21. All Hazardous Waste Sites
 22. Pedestrian and Bicycle Access
-

Changes in the Final EIS include:

- This Summary is completely revised to make it more reader friendly. It also provides graphics to show existing and future conditions.
- Tier II environmental commitments are provided in a separate table in Appendix F.
- The Preferred Alternative is identified in Chapter 2.
- The environmental effects matrix table at the beginning of Chapter 3 is simplified to compare the No Build and Preferred Build Alternatives.
- Many Chapter 3 sections are reorganized and expanded. This is especially true of the sections on water resources, wetlands, and fish and wildlife, which now more consistently present discussions organized by the Hylebos, Wapato, and Lower Puyallup basins. Also discussions on indirect and cumulative effects are now presented within the respective resource sections. Cumulative impacts are summarized in section 3.17 near the end of Chapter 3.
- Figures are reduced in size and placed within the discussions instead of at end of chapters and sections.
- Net Environmental Benefits Analysis is added to section 3.17. This analysis uses multiple characteristics of stream, wetland, and riparian habitats to assess cumulative effects over time. For the SR 167 Extension Project, the analysis compares cumulative benefits of the RRP to those of existing conditions and conventional stormwater treatment. The results are presented later in the Summary.
- Chapters 4 and 5 are added. Chapter 4 presents the analysis demonstrating measures to avoid and minimize effects on aquatic resources and wetlands, and that the Preferred Build Alternative is the least environmentally damaging and practical alternative. Chapter 5 is the Section 4(f) Evaluation conducted for park and recreation properties, waterfowl and wildlife refuges, and historic properties.

Reader Friendly Documents

WSDOT is working hard to make all of its documents easier for the public to read and understand. The four key principles of reader friendly documents are:

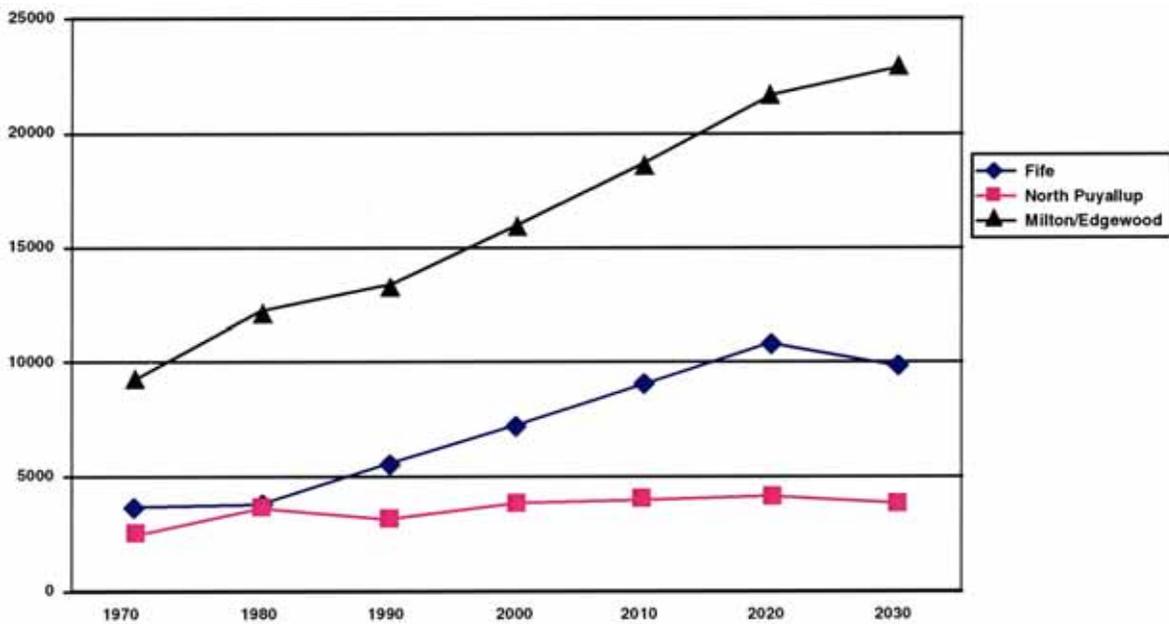
- Tell a story
 - Engage the reader
 - Make it visual
 - Make it brief
-

- Appendices are added. Appendix A now contains figures of the Preferred Alternative. Tier II commitments are presented in Appendix F. Appendix G provides responses to all comments received on the Tier II Draft EIS. Section 4(f) coordination and correspondence documents are contained in Appendix H.

What If the SR 167 Extension Is Not Built?

Congestion will worsen on the surface streets that currently comprise the non-freeway portion of SR 167 as traffic continues to increase due to development of the project area and growth of the Port of Tacoma. Accidents will increase, and stop-and-go traffic will continue to emit air pollution.

The undesirable effects of constructing a new freeway will be avoided, but none of the potential environmental benefits of the RRP will occur. Residential, commercial, and industrial development will continue in response to the population growth shown in the chart below, resulting in more traffic congestion. Agricultural uses will continue to decline because the area is zoned for other uses.



Population Growth in the SR 167 Corridor

What Environmental Effects Are Expected?

Building a new freeway is a major construction project with substantial ground disturbance. It requires land acquisition in an area that is rapidly developing to commercial and industrial uses. The new freeway increases impervious surface that contributes highway runoff to surrounding areas. Substantial passenger and freight traffic is expected on the new freeway. Effects of changes associated with the Preferred Build Alternative follow, with tables comparing the No Build Alternative.

Water Resources and Wetlands

Summary Table 1 highlights effects related to water resources and wetlands. No decline in water quality is expected as a result of the project. A nearly 50 percent reduction in flooded acres along Hylebos Creek is predicted in the future with the RRP.

Most wetlands affected by the project are currently farmed or have impaired values and functions. There are many opportunities to enhance degraded wetlands in the project area.

Enhancement of wetlands that are currently degraded or poorly functioning is expected to mitigate unavoidable effects to other wetlands.

Summary Table 1.
Effects on Water Resources and Wetlands

	No Build Alternative	Preferred Build Alternative
Water Resources		
Ground disturbance (roadway)	None	710 - 719 acres
Impervious area	43.43%	43.79%
Hylebos flooding (predicted)	246 acres	187 acres
Wetlands		
Wetlands affected	None	32.9 acres, mostly Category 3
Buffers affected	None	56.5 acres
New riparian habitat	None	28.9 acres
Improved functions	None	74.2 acres

Wetland Categories

Ecology rates wetlands in four categories based on their sensitivity to disturbance, rarity, functions they provide, and whether or not they can be replaced.

Category 1. Highest quality wetlands with functions and values too difficult to be replaced.

Category 2. Wetlands that provide high levels of some functions, and which are difficult but not impossible to replace.

Category 3. Wetlands with a moderate level of functions and that generally have been disturbed in some ways.

Category 4. Wetlands with the lowest levels of functions and which are often heavily disturbed. These are good candidates for replacement or improvement.

Fish and Wildlife

The new freeway may fragment the diminishing wildlife habitat in the project area, but the RRP offers opportunities to create habitat and connect it to existing habitat areas (see Summary Table 2). The primary purpose of the RRP is stormwater management, but it provides many other benefits to the fish and wildlife ecosystem.

**Summary Table 2.
Effects on Fish and Wildlife**

	No Build Alternative	Preferred Build Alternative
Fisheries		
New / restored channel	None	1.8 miles
Riparian buffers	None	189 acres
New stream crossings	None	13
Crossings improved / removed	None	19
Wildlife Habitat		
Agricultural and Developed	Development increases	327 acres
Grass / Shrub and Forest	Decreases	86 acres
Connected habitats	Decreases	>1,000 acres

Land Use and Property Owners

The major effects of the Preferred Build Alternative in these categories, as summarized in Summary Table 3, are right-of-way acquisition and the associated displacement of residences and businesses. Agricultural land uses are expected to convert to commercial and industrial uses allowed by local zoning, whether or not the SR 167 Extension is built. No substantial effects occur to community cohesion and no disproportionate effects occur to minority, low income or disadvantaged populations.

**Summary Table 3.
Effects on Land Use and Property Owners**

	No Build Alternative	Preferred Build Alternative
Right-of-Way Acquisition		
Roadway	None	303 acres
Riparian Restoration Proposal	None	214 acres
Residential Displacements		
Roadway	None	78 (includes 12 apartment units & 9 manufactured homes)
Riparian Restoration Proposal	None	34 (includes 8 manufactured homes)
Business Displacements		
Roadway	None	17
Riparian Restoration Proposal	None	3
Farmland	Increasingly scarce	6 farmers affected

Transportation and Public Services

The long-term improvements in traffic after the Preferred Build Alternative is constructed outweigh the temporary effects of detours and traffic delays while it is being built (see Summary Table 4). Accidents resulting from the currently overcrowded streets are avoided. A separate multi-use path between 54th Avenue East and SR 99 improves safety for bicyclists and pedestrians. Emergency response is quicker almost everywhere in the project area.

**Summary Table 4.
Effects on Transportation and Public Services**

	No Build Alternative	Preferred Build Alternative
Transportation and Traffic		
Construction effects	Minor (other projects)	Detours and delays
Operational effects	Congestion worsens	Major improvements in traffic flow and circulation
Pedestrian and Bike Facilities		
Construction effects	Minor (other projects)	Detours, delays, rough pavement
Operational effects	Safety decreases	Separate bike / pedestrian path from 54th Ave to SR 99
Public Services		
Response time	Delays increase	Quicker response for most routes

Other Effects

Summary Table 5 summarizes other effects of the SR 167 Extension project. After temporary effects of dust and equipment emissions during construction, air quality is maintained or improves because stop-and-go traffic is reduced. Traffic noise increases in the immediate area of the new freeway, but should decrease along the current surface streets that SR 167 follows. Effects related to energy, hazardous materials, and visual are similar to those experienced on other freeway projects in the region. One archaeological site and three historic structures considered eligible for the National Register of Historic Places are affected by the project.

Summary Table 5.
Other Direct Effects

	No Build Alternative	Preferred Build Alternative
Air Quality	Declines with congestion	Improves or no change
Noise	32 sites at or above criteria	46 sites at or above criteria Noise wall provided
Hazardous Material Concerns	None known	Removal of lead based paint on Puyallup River Bridge
Visual Quality	Declining open space	Conspicuous I-5 interchange Nighttime light and glare increase
Cultural Resource Effects	None	1 archaeological site 3 historic structures

Are There Cumulative Effects of the SR 167 Extension?

Land use (including farmland), water resources, wetlands, fish and wildlife, and cultural resources are considered most susceptible to the cumulative effects of past, present, and future actions for this project. This is primarily because they have been so impacted by past and ongoing actions.

Cumulative effects of land use and farmland are mostly driven by zoning and growth management decisions at the local level. Changes from agricultural land use are expected to occur eventually whether or not the SR 167 Extension is built, because local zoning accommodates more residential, commercial, and industrial development.

The project is expected to provide long-term, local environmental improvements in water resources, wetlands, and fish and wildlife habitat. *Net Environmental Benefits Analysis* found a cumulative 70 percent increase in ecological services in the area of the Riparian Restoration Proposal, when compared to the No Build Alternative.

Unfortunately, no single project can offset decades of cumulative degradation. The improvements provided by the Preferred Build Alternative may only represent temporary relief from ongoing cumulative effects unless other measures are taken in the watershed.

Cumulative Effects

Cumulative effects result from the incremental effect of the proposed action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes the other actions.

Net Environmental Benefits Analysis

This method compares the benefits and costs associated with alternative actions that affect the environment. For the SR 167 Project, ecological services were estimated for stream channel, riparian wetland, and riparian upland habitats within the area of the Riparian Restoration Proposal.

What Are the Environmental Benefits of the Project?

The *Net Environmental Benefits Analysis* identifies many benefits of the Riparian Restoration Proposal in the Preferred Build Alternative.

Reduces flooded areas – The RRP addresses flooding issues with a variety of measures, primarily by removing buildings, roads, and infrastructure from the floodplain and restoring natural floodplain connectivity to stream channels. The reduction in flooded areas extends beyond the RRP boundaries.

Improves stream conditions that are limiting to fish – Engineered large woody debris is part of the channel designs. As the streambank vegetation matures, the channels would develop more complexity, providing in-stream protected areas, more variety of aquatic habitats, and much-needed off-channel rearing habitat for juvenile salmon.

Enhances connectivity of wildlife habitat – The RRP links multiple fragmented habitats together resulting in over 1,000 acres of contiguous habitat.

Supports salmon recovery efforts – The RRP complements other restoration efforts by the Puyallup Tribe of Indians, Pierce County, Pierce County Conservation District, and Friends of the Hylebos Wetlands that improve spawning habitat in the upper watersheds, as well as estuarine habitat improvements in Hylebos Creek.

Enhances existing wetlands within the RRP area – Several existing wetlands within the proposed RRP boundary have been disturbed by development, conversion to agricultural lands, or are overrun with invasive plant species. The RRP enhances the condition of these existing wetlands by planting native species.

Improves water quality – Hylebos Creek, Surprise Lake Drain, and Wapato Creek each have water quality impairments that the RRP would help improve, including:

- High in-stream temperatures

- Nutrients, phosphorus, and fecal coliform bacteria
- Low dissolved oxygen
- Total suspended solids (TSS)
- Chemical contamination

Protects habitat – Preserving priority habitats is necessary before the remainder of the Puyallup River Valley becomes developed. In addition to improving the overall habitat condition, the RRP also protects the stream, wetland, and riparian habitats.

Encourages public partnerships – The RRP is compatible with local recreational improvements such as:

- Pacific National Soccer Complex
- Interurban Trail
- Wapato Creek Trail (potentially)
- Lower Hylebos Nature Park

Offers an alternative to conventional flow control

measures – The RRP is proposed instead of conventional stormwater flow control in reaches of Hylebos Creek, Surprise Lake Drain, and Wapato Creek. The flat topography and high water table in the project area greatly reduces the effectiveness of traditional stormwater detention ponds. The RRP offers an alternative to constructing very large stormwater ponds while still meeting the goals of:

- Preventing an increase in streambank erosion
- Preventing an increase in flood impacts
- Enhancing the biological integrity of local streams

What Mitigation Is Proposed?

Many measures to protect the environment are included in the design of the new freeway and related facilities, or are implemented as Best Management Practices during construction, maintenance, and operation. Examples of specific mitigation are summarized in the text below.

Wetlands – The new SR 167 affects nearly 33 acres of wetlands, many of which are currently being farmed or have impaired functions and values. A preliminary conceptual mitigation plan developed for the project identifies many opportunities to enhance wetlands as mitigation for unavoidable effects. The final mitigation plan is developed with resource and regulatory agencies during final design and permitting of the SR 167 Extension.

Water resources – Effects of adding structures and fill in floodplains are mitigated by removing existing structures, building detention ponds, and otherwise improving capacity to convey floodwaters. The relocations of Hylebos Creek and Surprise Lake Drain are other examples of mitigation related to water resources.

Cultural and historic resources – A Memorandum of Agreement negotiated with the State Historic Preservation Officer mitigates adverse effects on those resources listed or eligible for listing on the National Register of Historic Places. These are also considered Section 4(f) resources, as described in the next paragraph.

Section 4(f) resources – The Section 4(f) Evaluation included as Chapter 5 in the Final EIS describes measures to avoid and minimize harm to recreational and historic resources. The recreational resources that are potentially affected by the project are the planned Lower Hylebos Nature Park, the planned Pacific National Soccer Park, and regional Interurban Trail. The historic resources include one archaeological site and three historic structures.

What Happens Next?

Record of Decision

FHWA and WSDOT carefully consider all comments received on this Tier II Final EIS. They then decide which alternative to select. A Record of Decision documents this decision, as well as mitigation and environmental commitments once a build

Mitigation Sequencing

Mitigation is a stepwise process for eliminating or reducing adverse effects, and compensating for those that cannot be avoided.

The required order for mitigating potential wetland effects is

1. Avoid impacts.
 2. Minimize impacts.
 3. Enhance existing degraded wetlands.
 4. Create new wetlands.
 5. Preserve nearby high quality or unique wetlands.
-

Section 106

The Section 106 process of the National Historic Preservation Act is designed to identify and resolve potential conflicts between historic preservation concerns and federal actions. Implementing regulations focus on preservation options, including avoidance, rehabilitation, modified use, marking, and relocation. Data recovery is often performed for unavoidable effects.

Section 4(f)

Section 4(f) originated in the U.S. Department of Transportation Act of 1996, which declared that special effort should be made to preserve the natural beauty of the countryside and public parks and recreation lands, wildlife and waterfowl resources, and historic sites.

alternative is selected. Issuance of this document by FHWA and WSDOT completes the NEPA and SEPA process.

Engineering Design

Once the Build Alternative is selected for implementation, final design of the SR 167 Extension proceeds. This design phase includes the roadway, interchange options, and related facilities like the RRP. It also includes the final wetland mitigation plan that is needed to obtain related permits. Results of final design are plans, specifications, and estimates used to advertise for bids and negotiate the construction contract(s).

Property Acquisition

Early in the design phase WSDOT real estate specialists contact most landowners whose property is needed for the SR 167 Extension. More detailed design of the project footprint is needed to identify other properties that need to be acquired as right-of-way. WSDOT real estate specialists explain acquisition procedures and all applicable laws and landowner rights. Then property values are determined, and acquisition offers and negotiations begin.

Phased Construction

Transportation projects as large as the SR 167 Extension are usually constructed in phases. This often occurs because the required funds for the entire project are not available in a single appropriation. Phased construction also helps to confine construction effects to a smaller area for a shorter period of time.

Post-Construction Monitoring and Maintenance

Monitoring is usually required to evaluate the effectiveness of the wetlands that are created or enhanced as compensatory mitigation for unavoidable wetland effects. Post-construction monitoring of the RRP is expected because it is an innovative approach. Maintenance of the freeway and related facilities is necessary to keep them operating efficiently and to protect the public investment in the infrastructure.

How Can I Learn More?

The CD provided with this document contains PDF files of the entire Tier II Final EIS. You can view these files on a computer with the Adobe Acrobat Reader program that is also contained on the CD.

The Table of Contents from the Final EIS can help the reader decide which chapters or sections are of greatest interest.

WSDOT's SR 167 Extension website on the Internet is updated monthly. It is an excellent source of current information on the project, and is located online at:

<http://www.wsdot.wa.gov/Projects/SR167/TacomaToEdgewood/>

If you have further questions about the project, you can contact the project engineer at WSDOT Olympic Region:

Steve Fuchs, Project Engineer

724 Quince Street SE, Olympia, WA 98504

Mailing Address: P.O. Box 47375, Olympia, WA 98504-7375

Phone: (360) 709-8100

Fax#: 360-709-8101

E-mail: fuchss@wsdot.wa.gov



TABLE OF CONTENTS

SUMMARY

Background	s-1
What Is the SR 167 Extension Project?	s-2
Who Is Leading the Project?	s-2
Why Is the Project Needed?	s-2
What Are the Major Features of the SR 167 Project?	s-4
What Are the Major Features of the SR 167 Project?	s-5
<i>Limited Access Divided Highway</i>	<i>s-5</i>
<i>Freeway-to-Freeway Connections</i>	<i>s-6</i>
<i>Local Access Interchanges</i>	<i>s-7</i>
<i>Other Transportation Facilities</i>	<i>s-8</i>
<i>Riparian Restoration Proposal</i>	<i>s-9</i>
Who Participated In Developing the Final EIS?	s-11
How Was the Preferred Alternative Developed?	s-13
<i>Engineering Design Criteria</i>	<i>s-13</i>
<i>Value Engineering Study for I-5 Interchange</i>	<i>s-13</i>
<i>Design Options at Local Access Interchanges</i>	<i>s-13</i>
<i>Environmental Screening Criteria and Ranking</i>	<i>s-14</i>
<i>Agency Feedback and Concurrence</i>	<i>s-14</i>
What Has Changed In the Final EIS?	s-14
What If the SR 167 Extension Is Not Built?	s-16
What Environmental Effects Are Expected?	s-17
<i>Water Resources and Wetlands</i>	<i>s-17</i>
<i>Fish and Wildlife</i>	<i>s-18</i>
<i>Land Use and Property Owners</i>	<i>s-18</i>
<i>Transportation and Public Services</i>	<i>s-19</i>
<i>Other Effects</i>	<i>s-19</i>
Are There Cumulative Effects of the SR 167 Extension?	s-20
What Are the Environmental Benefits of the Project?	s-21
What Mitigation Is Proposed?	s-22
What Happens Next?	s-23
<i>Record of Decision</i>	<i>s-23</i>
<i>Engineering Design</i>	<i>s-24</i>
<i>Property Acquisition</i>	<i>s-24</i>
<i>Phased Construction</i>	<i>s-24</i>
<i>Post-Construction Monitoring and Maintenance</i>	<i>s-24</i>
How Can I Learn More?	s-25

FINAL EIS

Chapter 1 Introduction	1-1
1.1 <i>Purpose and Need</i>	1-1
1.1.1 Purpose	1-1
1.1.2 Need	1-1
1.1.3 Clarification of the Purpose and Need for Tier II.....	1-2
1.2 <i>Vicinity Description</i>	1-6
1.3 <i>History of the Project</i>	1-8
1.3.1 Previous Planning.....	1-8
1.3.2 Tier I EIS Process.....	1-11
1.3.3 Tier II Environmental Issues	1-18
1.4 <i>FHWA, WSDOT, Interagency, and Community Coordination</i>	1-21
1.4.1 FHWA and WSDOT Interdisciplinary Coordination	1-21
1.4.2 Interagency Coordination and NEPA/SEPA/404 Merger Agreement.....	1-32
1.4.3 Tribal Coordination.....	1-37
Chapter 2 Alternatives/Options Including the Preferred Alternative	2-1
2.1 <i>Introduction</i>	2-1
2.2 <i>Process to Form the Alternatives and Options</i>	2-2
2.2.1 Mainline	2-2
2.2.2 Interchange Options	2-4
2.3 <i>Design Evaluation and Selection Criteria</i>	2-4
2.3.1 Technical Design Requirement	2-5
2.3.2 Environmental Protection Requirement	2-9
2.4 <i>Description of Interchange Options Considered But Rejected</i>	2-11
2.4.1 SR 509/SR 167 Interchange Options.....	2-11
2.4.2 54th Avenue East Full Interchange Option	2-11
2.4.3 I-5 Interchange Options.....	2-11
2.4.4 No Valley Avenue Interchange Option	2-12
2.4.5 Overcrossing at Puyallup Recreation Center.....	2-13
2.5 <i>Detailed Description of Alternatives</i>	2-13
2.5.1 No Build Alternative	2-13
2.5.2 Build Alternative	2-14
2.5.3 Interchange Design Options in the Build Alternative.....	2-24
2.6 <i>Preferred Alternative and Options</i>	2-30
2.6.1 Build Alternative (Preferred).....	2-30
2.6.2 Selection Process for Preferred Options.....	2-31
2.6.3 Preferred 54th Avenue East Interchange Option	2-32
2.6.4 Preferred Valley Avenue Interchange Option	2-33
2.6.5 Preferred SR 161/SR 167 Interchange Option	2-38
2.6.6 Conclusion.....	2-40
Chapter 3 Affected Environment and Environmental Consequences	3-1
3.0 <i>Introduction to Chapter 3</i>	3-1
3.1 <i>Study Area</i>	3-7
3.1.1 Direct Impact Area	3-7
3.1.2 Indirect and Cumulative Impacts.....	3-7
3.1.3 Project Setting	3-12
3.2 <i>Water Resources (Waterways, Hydrology, Water Quality, Hydrogeology, and Floodplains)</i>	3-17
3.2.1 Studies Performed and Coordination Conducted	3-17

3.2.2	Affected Environment.....	3-21
3.2.3	Stormwater Treatment and Riparian Restoration Proposal.....	3-44
3.2.4	Impacts of Construction.....	3-50
3.2.5	Impacts of Operation.....	3-61
3.2.6	Indirect Impacts.....	3-77
3.2.7	Cumulative Impacts.....	3-79
3.2.8	Hydrology and Water Quality Permits Requirements.....	3-84
3.2.9	Mitigating Measures.....	3-86
3.3	<i>Wetlands</i>	3-89
3.3.1	Studies Performed and Coordination Conducted.....	3-92
3.3.2	Affected Environment.....	3-93
3.3.3	Impacts of Construction.....	3-103
3.3.4	Impacts of Operation.....	3-106
3.3.5	Indirect Wetland Impacts.....	3-107
3.3.6	Cumulative Wetland Impacts.....	3-110
3.3.7	Mitigation Measures.....	3-112
3.3.8	Benefits of the Riparian Restoration Proposal.....	3-119
3.4	<i>Wildlife, Fish, and Threatened and Endangered Species</i>	3-123
3.4.1	Studies Performed and Coordination Conducted.....	3-123
3.4.2	Affected Environment.....	3-125
3.4.3	Impacts of Construction.....	3-143
3.4.4	Impacts of Operation.....	3-168
3.4.5	Screening Criteria Analysis.....	3-174
3.4.6	Regulations and Permit Requirements.....	3-175
3.4.7	Indirect Impacts.....	3-176
3.4.8	Cumulative Impacts.....	3-179
3.4.9	Determination of Effects on Threatened and Endangered Species.....	3-186
3.4.10	Mitigating Measures.....	3-190
3.5	<i>Air Quality</i>	3-193
3.5.1	Studies Performed and Coordination Conducted.....	3-193
3.5.2	Affected Environment.....	3-194
3.5.3	Impacts of Construction.....	3-196
3.5.4	Impacts of Operation.....	3-197
3.5.5	Cumulative Impacts.....	3-199
3.5.6	Mobile Source Air Toxic (MSAT) Emissions.....	3-199
3.5.7	Mitigation Measures.....	3-205
3.6	<i>Noise</i>	3-209
3.6.1	Studies Performed and Coordination Conducted.....	3-209
3.6.2	Affected Environment.....	3-211
3.6.3	Impacts of Construction.....	3-212
3.6.4	Impacts of Operation.....	3-214
3.6.5	Cumulative Impacts.....	3-217
3.6.6	Mitigating Measures.....	3-217
3.7	<i>Energy</i>	3-223
3.7.1	Studies Performed and Coordination Conducted.....	3-223
3.7.2	Affected Environment.....	3-224
3.7.3	Impacts of Construction.....	3-225
3.7.4	Impacts of Operation.....	3-226
3.7.5	Cumulative Impacts.....	3-228
3.7.6	Mitigation Measures.....	3-228
3.8	<i>Hazardous Materials</i>	3-229
3.8.1	Studies Performed and Coordination Conducted.....	3-229
3.8.2	Affected Environment.....	3-230

3.8.3	Impacts of Construction	3-233
3.8.4	Impacts of Operation	3-238
3.8.5	Cumulative Impacts.....	3-239
3.8.6	Mitigating Measures.....	3-239
3.9	<i>Visual Quality</i>	3-243
3.9.1	Studies Performed and Coordination Conducted	3-243
3.9.2	Affected Environment	3-245
3.9.3	Impacts of Operation	3-247
3.9.4	Mitigating Measures.....	3-257
3.10	<i>Public Services and Utilities</i>	3-259
3.10.1	Studies Performed and Coordination Conducted	3-259
3.10.2	Affected Environment	3-259
3.10.3	Impacts of Construction	3-273
3.10.4	Impacts of Operation	3-279
3.10.5	Cumulative Impacts.....	3-280
3.10.6	Mitigating Measures.....	3-280
3.11	<i>Land Use, Socioeconomics, and Environmental Justice</i>	3-281
3.11.1	Land Use	3-282
3.11.2	Socioeconomics.....	3-295
3.11.3	Environmental Justice	3-307
3.11.4	Indirect Effects	3-322
3.11.5	Cumulative Impacts.....	3-322
3.11.6	Mitigating Measures.....	3-323
3.12	<i>Farmland</i>	3-325
3.12.1	Studies Performed and Coordination Conducted	3-325
3.12.2	Affected Environment	3-326
3.12.3	Direct Impacts	3-329
3.12.4	Indirect Impacts.....	3-332
3.12.5	Cumulative Impacts.....	3-333
3.12.6	Mitigating Measures.....	3-334
3.13	<i>Displacement, Disruption, and Relocation</i>	3-337
3.13.1	Studies Performed and Coordination Conducted	3-337
3.13.2	Affected Environment	3-338
3.13.3	Impacts of Construction and Operation.....	3-338
3.13.4	Mitigating Measures.....	3-346
3.14	<i>Transportation</i>	3-349
3.14.1	Studies Performed and Coordination.....	3-349
3.14.2	Affected Environment	3-351
3.14.3	Impacts of Operation	3-365
3.14.4	Mitigating Measures.....	3-378
3.15	<i>Pedestrian and Bike Facilities</i>	3-385
3.15.1	Studies Performed and Coordination Conducted	3-385
3.15.2	Affected Environment	3-386
3.15.3	Impacts of Construction	3-391
3.15.4	Impacts of Operation	3-392
3.15.5	Cumulative Impacts.....	3-396
3.15.6	Mitigating Measures.....	3-397
3.16	<i>Cultural Resources</i>	3-399
3.16.1	Studies Performed and Coordination Conducted	3-399
3.16.2	Affected Environment	3-400
3.16.3	Impacts of Construction	3-402
3.16.4	Impacts of Operation.....	3-404

3.16.5	Indirect Impacts	3-404
3.16.6	Cumulative Impacts	3-405
3.16.7	Mitigating Measures	3-405
3.17	<i>Cumulative Impacts</i>	3-407
3.17.1	Critical Resources	3-407
3.17.2	Net Environmental Benefits Analysis.....	3-411
3.18	<i>Relationship Between Short-term Uses of the Environment and Long-term Productivity</i>	3-415
3.19	<i>Irreversible and Irrecoverable Commitment of Resources</i>	3-417
Chapter 4 Section 404(b)(1) Alternatives Analysis.....		4-1
4.1	<i>Aquatic Resource Impacts and Mitigation</i>	4-1
4.1.1	Stream Impacts.....	4-1
4.1.2	Wetland Impacts	4-2
4.1.3	Tier I Wetland Analysis	4-2
4.2	<i>Least Environmentally Damaging Practicable Alternative (LEDPA)</i>	4-6
4.2.1	Preliminary Design Avoidance and Minimization.....	4-6
4.2.2	Mainline Avoidance and Minimization.....	4-7
4.2.3	Interchange Options Avoidance and Minimization.....	4-8
4.2.4	Future Avoidance and Minimization Opportunities.....	4-10
4.2.5	Beneficial Aspects of the Project	4-10
4.3	<i>Conclusion</i>	4-12
Chapter 5 Section 4(f) Evaluation.....		5-1
5.1	<i>Introduction</i>	5-1
5.1.1	Section 4(f) Resources	5-1
5.1.2	Section 6(f) Resources	5-5
5.2	<i>Description of the Proposed Action</i>	5-5
5.2.1	Project Background.....	5-5
5.2.2	Tier I FEIS and Record of Decision.....	5-7
5.2.3	Tier II DEIS	5-7
5.2.4	Purpose and Need.....	5-8
5.3	<i>Alternatives and Options</i>	5-8
5.3.1	No Build Alternative.....	5-9
5.3.2	Build Alternative.....	5-9
5.4	<i>Description of Section 4(f) Resources</i>	5-12
5.4.1	Historic Resources	5-12
5.4.2	Recreational Resources	5-18
5.5	<i>Other Park, Recreational Facilities, Wildlife Refuges, and Historic Properties Evaluated Relative to the Requirements of Section 4(f)</i>	5-24
5.6	<i>Description of Use</i>	5-25
5.6.1	Historic Resources	5-25
5.6.2	Recreational Resources	5-26
5.7	<i>Avoidance Alternatives</i>	5-28
5.7.1	No Build Alternative.....	5-28
5.7.2	Tier I	5-29
5.7.3	Tier II	5-35
5.8	<i>Measures to Minimize Harm</i>	5-41
5.8.1	Historic Resources	5-41
5.8.2	Recreational Resources	5-41
5.9	<i>Coordination</i>	5-43
5.10	<i>Conclusion</i>	5-44

Appendices

Appendix A	Figures of the Preferred Alternative
Appendix B	List of Discipline Studies and Preparers
Appendix C	References
Appendix D	Glossary
Appendix E	Circulation List
Appendix F	Tier II Commitments List
Appendix G	Draft EIS Comments and Responses
Appendix H	Section 4(f) Coordination and Correspondence