SR 509:
Corridor Completion/
I-5/South Access Road

FINAL ENVIRONMENTAL IMPACT STATEMENT AND SECTION 4(f) EVALUATION

Volume 1

U.S. Department of Transportation
Federal Highway Administration

Washington State Department of Transportation

Port of Seattle

KING COUNTY

City of SeaTac

City of Des Moines

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SR 509: Corridor Completion/I-5/South Access Road

King County, SeaTac, Des Moines, Kent, and Federal Way, Washington

NEPA/SEPA

Final Environmental Impact Statement and Final Section 4(f) Evaluation

Submitted Pursuant to 42 USC 4332(2)(c), 23 USC 138, and 49 USC 303, and RCW 43.21C, WAC 197-11 and WAC 468-12

by the

U.S. Department of Transportation, Federal Highway Administration (FHWA); the Washington State Department of Transportation (WSDOT); the Port of Seattle, King County, City of SeaTac, and City of Des Moines

This action complies with Executive Order 11990, Protection of Wetlands; and Executive Order 12898, Environmental Justice in Minority and Low-Income Populations.

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The Federal Highway Administration, Washington State Department of Transportation, Port of Seattle, King County, and the Cities of Des Moines and SeaTac propose to improve regional highway connections with an extension of SR 509 to serve future transportation needs in southwest King County and to enhance southern access to Seattle-Tacoma International Airport. Improvements to I-5 between approximately South 210th Street and South 310th Street are also proposed. The corridor width of the SR 509 extension would be a minimum of 200 feet to accommodate two general purpose travel lanes and a center high-occupancy vehicle lane in each direction. The South Access Road corridor width would be at least 120 feet and consist of two general purpose lanes in each direction. The width of the improvements to I-5 would vary depending on their location. Three build alternatives and a No Action Alternative are considered in the EIS for the SR 509 freeway extension, differing in their proximity to Des Moines Creek Park, the airport Runway Protection Zone, and their connection to I-5.

The cost of this document is $50, which does not exceed the cost of printing and mailing. Compact disk copies of the document are free upon request. Copies of this EIS and appendices are available at local libraries and on the WSDOT SR 509 project website.

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Acronyms and Abbreviations

AASHTO	American Association of State Highway and Transportation Officials
APE	Areas of Potential Effect
AGC	Associated General Contractor
AQMP	air quality maintenance plan
BA	Biological Assessment
bgs	below ground surface
BMP	best management practice
BOD	biological oxygen demand
CAA	Controlled Activity Area
CBD	Central Business District
C/D	collector/distributor
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
cfs	cubic foot per second
CO	carbon monoxide
COD	chemical oxygen demand
cy	cubic yard
dBA	decibel (A-weighted scale)
DEIS	Draft Environmental Impact Statement
DNL	day-night average noise level
DPS	Distinct Population Segment
Ecology	Washington State Department of Ecology
EDR	Environmental Data Resources, Inc.
EIS	environmental impact statement
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ERTS	Environmental Report Tracking System
ESA	Endangered Species Act
ESU	Evolutionary Significant Unit
FAA	Federal Aviation Administration
FEIS	Final Environmental Impact Statement
FHWA	Federal Highway Administration
GMA	Growth Management Act
GMPC	Growth Management Planning Council
gpm	gallon per minute
GWMA	Groundwater Management Area

HCT	high-capacity transit
HOV	high-occupancy vehicle
HPA	Hydraulic Project Approval
I-5	Interstate 5
I-405	Interstate 405
I&M	inspection and maintenance
IVM	Integrated Vegetation Management
IWS	Industrial Wastewater System
kg/year	kilogram per year
kV	kilovolt
L_{eq}	average noise level
$L_{eq}[h]$	predicted hourly traffic noise level
LOS	level of service
$\mu g/m^3$	microgram per cubic meter
mg/L	milligram per liter
mph	mile per hour
msl	mean sea level
MPO	metropolitan planning organization
MTP	Metropolitan Transportation Plan
NAAQS	National Ambient Air Quality Standards
NAC	noise abatement criteria
NEPA	National Environmental Policy Act
NHP	Natural Heritage Program
NMFS	National Marine Fisheries Service
NO_x	oxide of nitrogen
NPDES	National Pollutant Discharge Elimination System
NPL	National Priority List
NRHP	National Register of Historic Places
NURP	Nationwide Urban Runoff Program
O&M	operation and maintenance
OAHP	Office of Archaeology and Historic Preservation
OFA	Object-Free Area
OSHA	Occupational Safety and Health Administration
PAH	polynuclear aromatic hydrocarbon
PCB	polychlorinated biphenyl
PHS	Priority Habitat and Species
PM	particulate matter

PPE	personal protective equipment
ppm	parts per million
PRT	personal rapid transit
PSCAA	Puget Sound Clean Air Agency
PSE	Puget Sound Energy
PSRC	Puget Sound Regional Council
RCP	*Roadside Classification Plan*
RCW	Revised Code of Washington
RM	river mile
ROD	Record of Decision
RPZ	Runway Protection Zone
RSA	Runway Safety Area
RST	Tri-Star
RTA	Regional Transit Authority
SAC	Signatory Agency Committee
SASA	South Aviation Support Area
SCCP	Spill Control and Containment Plan
SCS	Soil Conservation Service; now Natural Resources Conservation Service
SDS	Storm Drain System
Sea-Tac Airport	Seattle-Tacoma International Airport
SEPA	State Environmental Policy Act
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SO_2	sulfur dioxide
SPCC	Spill Prevention Control and Countermeasures
SPP	Stormwater Pollution Plan
SR	State Route
SSP	Stormwater Site Plan
SWAT	special weapons and tactics
TCI	Telecommunications, Inc.
TCP	traditional cultural property
TDM	transportation demand management
TESC	Temporary Erosion and Sediment Control
TIP	Transportation Improvement Program
TKN	total Kjeldahl nitrogen
TNM	Transportation Noise Model
TP	total phosphorus
TPH	total petroleum hydrocarbons
TRB	Transportation Research Board
TSM	transportation system management
TSP	total suspended particulates
TSS	total suspended solids

UGB	Urban Growth Boundary
USACOE	U.S. Corps of Engineers
U.S.C.	U.S. Code
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tank
VE	Value Engineering
vht	vehicle hours of travel
vmt	vehicle miles of travel
VOC	volatile organic compound
vph	vehicles per hour
vphpl	volume per hour per lane
VRM	visual resource management
WAC	Washington Administrative Code
WDFW	Washington State Department of Fish and Wildlife
WDNR	Washington State Department of Natural Resources
WDW	Washington State Department of Wildlife
WIDM	*Washington State Wetland Identification and Delineation Manual*
WISHA	Washington Industrial Safety and Health Act
WRIA	Water Resource Inventory Area
WSDOT	Washington State Department of Transportation
WSRHP	Washington State Register of Historic Places
XOFA	Extended Object-Free Area

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Project Title

SR 509: Corridor Completion/I-5/South Access Road

Project Description

The Federal Highway Administration (FHWA), the Washington State Department of Transportation (WSDOT), the Port of Seattle, King County, and the Cities of Des Moines and SeaTac propose to improve regional highway connections with an extension of SR 509 to serve future transportation needs in southwest King County and to enhance southern access to and from Seattle-Tacoma International Airport (Sea-Tac Airport) by means of a new South Access Road. To accommodate an interchange at Interstate 5 (I-5) and SR 509, improvements to I-5 between the vicinity of South 210th Street and South 310th Street are also proposed.

The configuration of the SR 509 freeway extension would be six lanes: two general purpose travel lanes and an inside high-occupancy vehicle (HOV) lane in each direction. The South Access Road would consist of two general purpose lanes in each direction, for a total of four lanes. In general, right-of-way widths would be at least 200 feet for the SR 509 freeway extension and at least 120 feet for the South Access Road. The width of the improvements to I-5 would vary depending on their location. Three build alternatives (Alternatives B, C2, and C3) and a No Action Alternative (Alternative A) are considered in this Final Environmental Impact Statement (FEIS) for the SR 509 mainline. In addition, three design options are considered for the last 1,000 feet of the South Access Road, known as the South Airport Link. The improvements to I-5 would be the same for each build alternative.

Under Alternative A (No Action), the SR 509 freeway extension, the South Access Road to Sea-Tac Airport, and the improvements to I-5 would not be built. This alternative, as well as the other alternatives, is defined in Chapter 2.

Under Alternative B, the SR 509 mainline would extend southward from its existing terminus at South 188th Street/12th Place South and intersect with I-5 in the vicinity of South 210th Street. The freeway extension and the South Access Road would generally parallel each other in a north-south orientation on the west and east sides of Des Moines Creek Park, starting in the vicinity of South 208th Street and 24th Avenue South. The alignment would cross over Des Moines Creek and through Des Moines Creek Park at its narrowest

point. The length of the SR 509 freeway extension, including the South Access Road, under Alternative B would be approximately 3.8 miles.

Alternative C2, the preferred alternative, would begin at the existing SR 509 terminus at South 188th Street/12th Place South and intersect with I-5 in the vicinity of South 212th Street. Alternative C2 would cross to the east on the north side of Des Moines Creek Park. The alignment would be elevated as it crossed the northeast corner of Des Moines Creek Park. The South Access Road interchange with SR 509 would be in the vicinity of South 208th Street and 24th Avenue South. The length of the SR 509 freeway extension, including the South Access Road, under Alternative C2 would be approximately 3.2 miles.

Alternative C3 would begin at the existing SR 509 terminus at South 188th Street/12th Place South and intersect with I-5 in the vicinity of South 212th Street. Like Alternative C2, Alternative C3 would cross to the east on the north side of Des Moines Creek Park; however, it would encroach further into the park than Alternative C2. Alternative C3 would also be elevated as it crossed the northeast corner of Des Moines Creek Park. The South Access Road interchange would occur in the vicinity of South 204th Street and 24th Avenue South. Under Alternative C3, the length of the SR 509 freeway extension, including the South Access Road, would be approximately 3.5 miles.

The South Airport Link, the northern 1,000 feet of the South Access Road that would connect to the existing Airport Drive System , has three design options. At the south end, each design option crosses beneath South 188th Street and the southeast corner of Sea-Tac Airport via a tunnel. At the north end, the options would maintain both southbound and northbound connections from the upper and lower terminal drives. One of the options, the preferred alternative, would provide northbound local access from South 188th Street and 28th Avenue South.

The southbound improvements to I-5 would include two new collector-distributor (C/D) lanes between the SR 509 convergence and SR 516, two new auxiliary lanes from SR 516 to South 272nd Street, and a new auxiliary lane from South 272nd Street to approximately South 310th Street, where the proposed action would match with an auxiliary lane to be constructed for the Sound Transit I-5 @ South 317th Street Direct Access Ramp project. On northbound I-5, a new auxiliary lane would extend between South 272nd Street and the SR 516 interchanges, and two new C/D lanes would start at the SR 516 interchange to serve I-5 traffic exiting to SR 509 and SR 516 traffic entering I-5. In addition, a South 228th Street extension and underpass would be constructed, providing a direct connection to northbound I-5 from South 228th Street and from southbound I-5 to South 228th Street. These improvements would cover approximately 6.7 miles.

Project Proponent and Lead Agency

The Washington Department of Transportation is the project proponent and SEPA lead agency. The Federal Highway Administration is the NEPA lead agency. The Port of Seattle, King County, City of SeaTac, and City of Des Moines are cooperating agencies. This document is a combined National Environmental Policy Act/State Environmental Policy Act (NEPA/SEPA) environmental impact statement (EIS).

Proposed Implementation Date

Full buildout of the project would be completed and operational by approximately 2012, pending availability of construction funding.

Responsible Official and Contact Person

Martin Palmer
Environmental Program Manager
Washington State Department of Transportation
P.O. Box 330310
Seattle, WA 98133-9710
Telephone: (206) 440-4548

Permits, Licenses, and Other Required Actions or Approvals

- Federal Highway Administration
  - Interstate Access Approval
- U.S. Army Corps of Engineers
  - Section 404 of the Clean Water Act Permit
- Washington State Department of Ecology (Ecology)
  - Water Quality Certification, Section 401 of the Clean Water Act
  - National Pollutant Discharge Elimination System (NPDES) Stormwater Permit
  - NPDES Stormwater Site Plan—Individual
  - Coastal Zone Management Permit
- Washington State Department of Natural Resources
  - Forest Practices Permit
- Washington State Department of Fish and Wildlife (WDFW)
  - Hydraulic Project Approval

- Cities of SeaTac, Des Moines, Federal Way, and Kent, and King County
  - Noise Variance
  - Clearing Permit
  - SeaTac Essential Public Facilities Permit
  - Critical Area Determination
- King County
  - Landfill Disturbance Permit (to be obtained by others)
- Federal Aviation Administration
  - Airport Highway Clearance

Authors and Principal Contributors

This FEIS was prepared under the direction of the Federal Highway Administration and Washington State Department of Transportation. Research, analysis, and document preparation were provided by CH2M HILL and other members of the consultant team as noted in Appendix C.

Date of Issue of Revised Draft EIS

January 30, 2002

Date of Issue of Final EIS

January 22, 2003

Date of Final Action

A Record of Decision on the selected alternative is anticipated in spring 2003.

Location of Background Data

The technical discipline reports and other supporting documentation are maintained at the following locations:

James Christian, P.E.
Federal Highway Administration
711 South Capitol Way, Suite 501
Olympia, WA 98501-1284
(360) 753-9480

Benjamin Brown
Washington State Department of Transportation
Documentation Program Manager
15700 Dayton Avenue North
PO Box 330310
WSDOT MS NB82-138
Seattle, WA 98133-9710
(206) 440-4528

John White, P.E.
Washington State Department of Transportation
Project Engineer
6431 Corson Avenue South
WSDOT MS 61
Seattle, WA 98108
(206) 768-5680

Cost of Document and Availability

Additional copies of the FEIS can be obtained by contacting:

John White, P.E.,
Project Engineer
6431 Corson Avenue South
WSDOT MS 61
Seattle, WA 98108
(206) 768-5680

The cost of this document is $50, which does not exceed the cost of printing and mailing. Compact disk copies of the document are free upon request.

Copies of this EIS and appendices are located at King County Libraries (Boulevard Park, Burien, Des Moines, Federal Way–320th Street, Kent, Downtown Seattle, Tukwila, Valley View, and White Center Regional Branches), University of Washington Suzzallo Library, Highline Community College Library, Western Washington University Wilson Library, the WSDOT Library, and on-line at http://www.wsdot.wa.gov/regions/northwest/SouthKing/Projects/SR509/documents.

0 Fact Sheet.doc

Summary

Purpose of the Proposed Action

The Federal Highway Administration (FHWA), the Washington State Department of Transportation (WSDOT), the Port of Seattle, King County, and the Cities of Des Moines and SeaTac propose to improve regional highway connections with an extension of State Route (SR) 509 to serve future transportation needs in southwest King County and to enhance southern access to and from Seattle-Tacoma International Airport (Sea-Tac Airport). (Figure S-1 shows the location of the project area within the larger metropolitan area and Figure S-2 shows the detail of the project area.)

Description of the Proposed Action

The proposed action would extend the SR 509 freeway from its current terminus at South 188th Street /12th Place South southeasterly to a new interchange with Interstate 5 (I-5) in the vicinity of South 210th Street. To accommodate this interchange, improvements to I-5 between approximately South 210th Street and South 310th Street are also proposed. The SR 509: Corridor Completion/I-5/South Access Road Project would improve regional highway connections, enhance southern access to and from Sea-Tac Airport, and improve related local traffic circulation patterns.

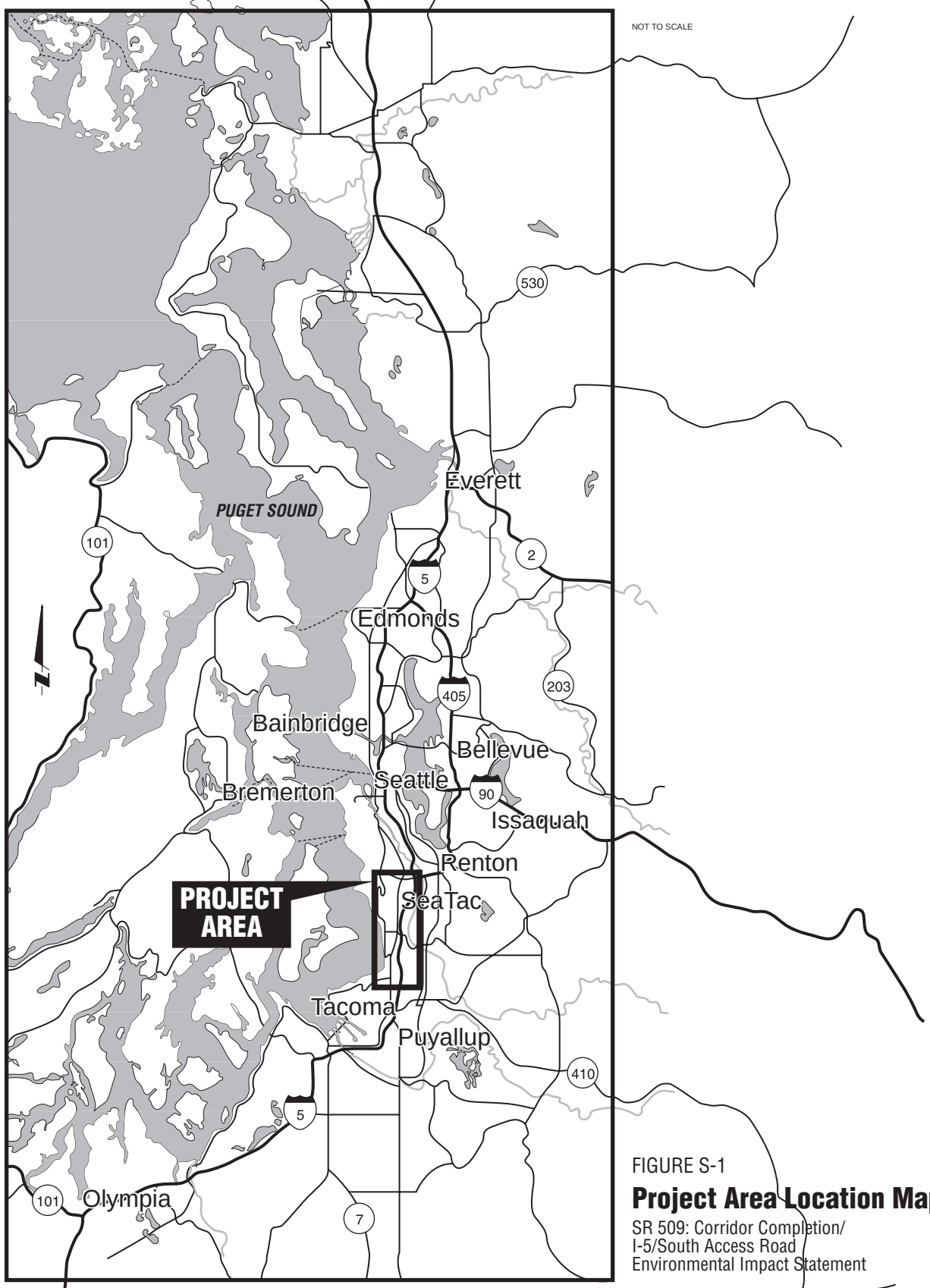
Three build alternatives (Alternatives B, C2, and C3) and a No Action Alternative (Alternative A) are considered in this Final Environmental Impact Statement (FEIS).

Alternative A (No Action)

The No Action Alternative (Figure S-3) represents the baseline transportation system conditions assumed to exist in the future if the proposed project is not constructed. Under the No Action Alternative, the SR 509 freeway extension, the South Access Road to Sea-Tac Airport, and the improvements to I-5 would not be built. This alternative, as well as the other alternatives, is defined in Chapter 2.

Features Common to All Build Alternatives

Each alternative for the SR 509 freeway extension would originate at approximately South 188th Street/12th Place South. The northern terminus of the South Access Road would be at the south end of the airport terminal drives. The southern terminus of the South Access Road would connect with

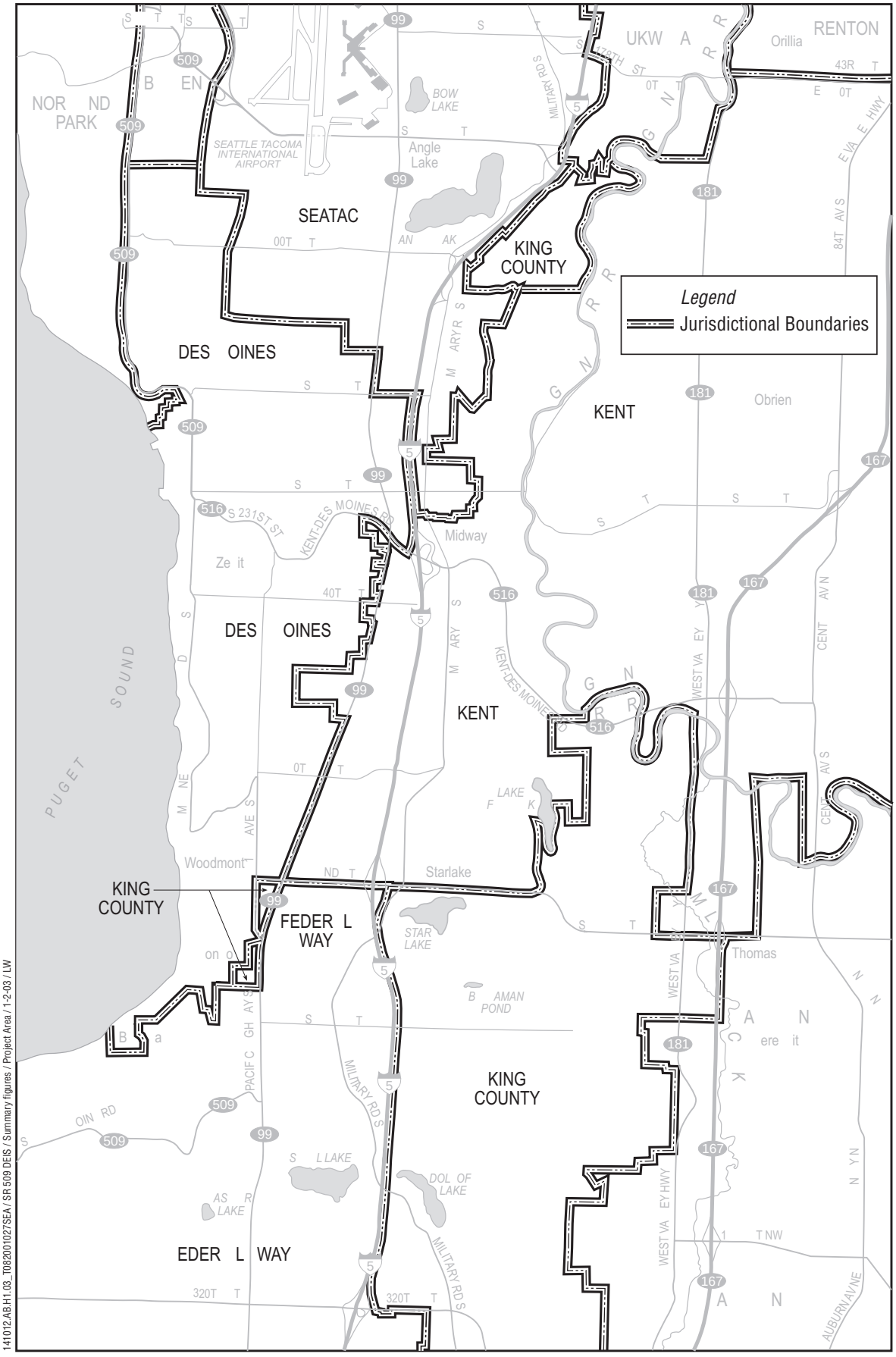


141012.AB.H1.03_T082001026SEA / SR 509 DEIS / Summary figures / ProjectAreaLocationMap / CJS / 1-2-03 / LW/gr

FIGURE S-1

Project Area Location Map

SR 509: Corridor Completion/
I-5/South Access Road
Environmental Impact Statement



141012.AB.H1.03_T082001027SEA / SR 509 DEIS / Summary figures / Project Area / 1-2-03 / LW

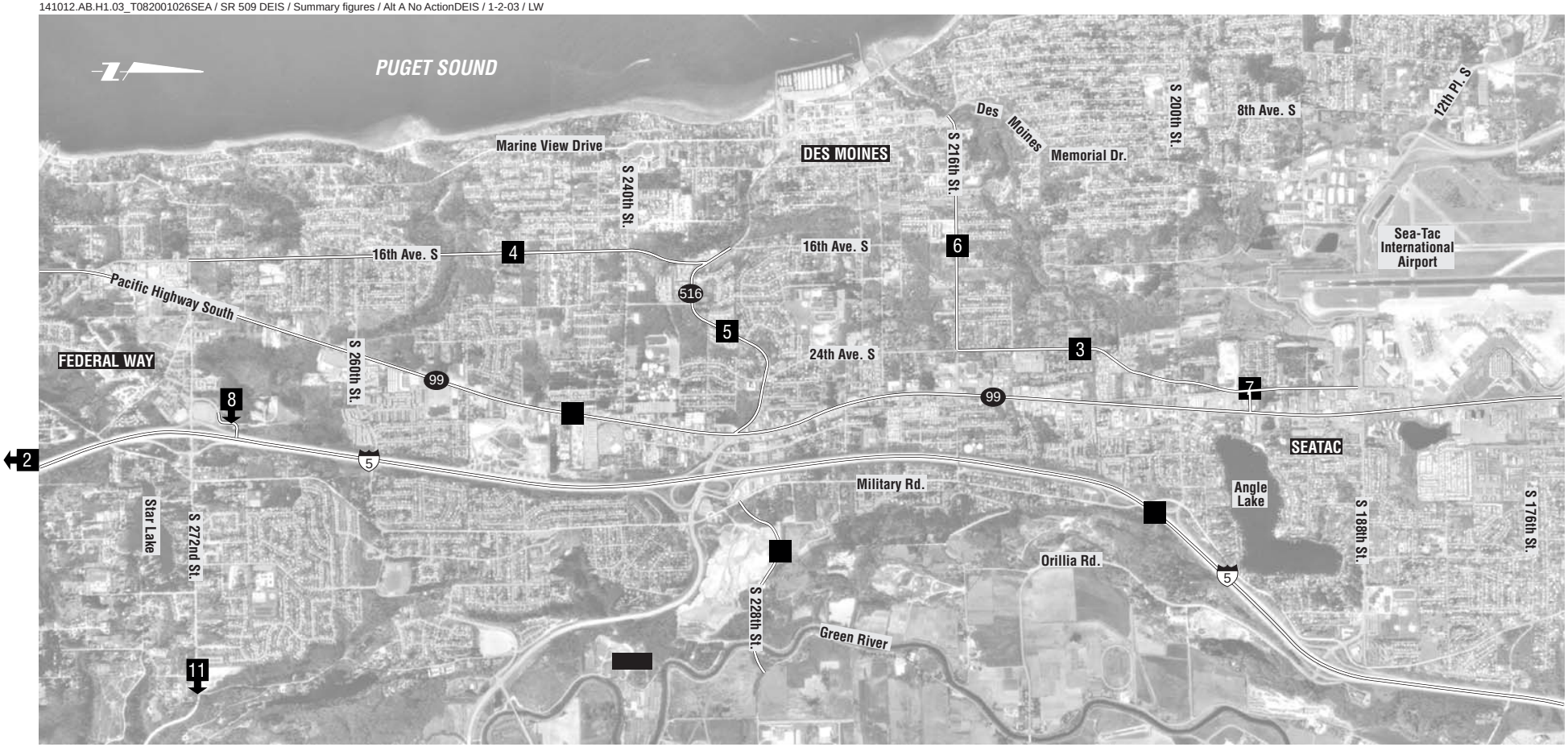
0 1900 3800
Scale in Feet

North

FIGURE S-2

Project Area

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement



Legend

Baseline Projects by others

0 1/4 1/2 3/4 1 MILES

Baseline Projects Assumed for No Action Alternative.

1. I-5 HOV Lanes
2. I-5 @ S. 317th Street Direct Access Ramp
3. 28th/24th Avenue S. Arterial (Phase 1 completed – S. 188th to S. 204th Streets)
4. 16th Avenue S.
5. Kent-Des Moines (SR 516) Road
6. S. 216th Street
7. S. 195th Street
8. I-5 @ S. 272nd Street In-Line Station
9. Pacific Highway S./International Boulevard (SR 99) (Phases 1 and 2 completed – S. 170th to S. 200th Streets)
10. S. 228th Street
11. S. 272nd/S. 277th Street Corridor

FIGURE S-3

Alternative A (No Action)

SR 509: Corridor Completion/I-5/South Access Road Environmental Impact Statement

the SR 509 freeway extension; the location and design of this connection would vary with each alternative. Improvements to I-5 would be the same for all build alternatives.

SR 509 Mainline/South Access Road

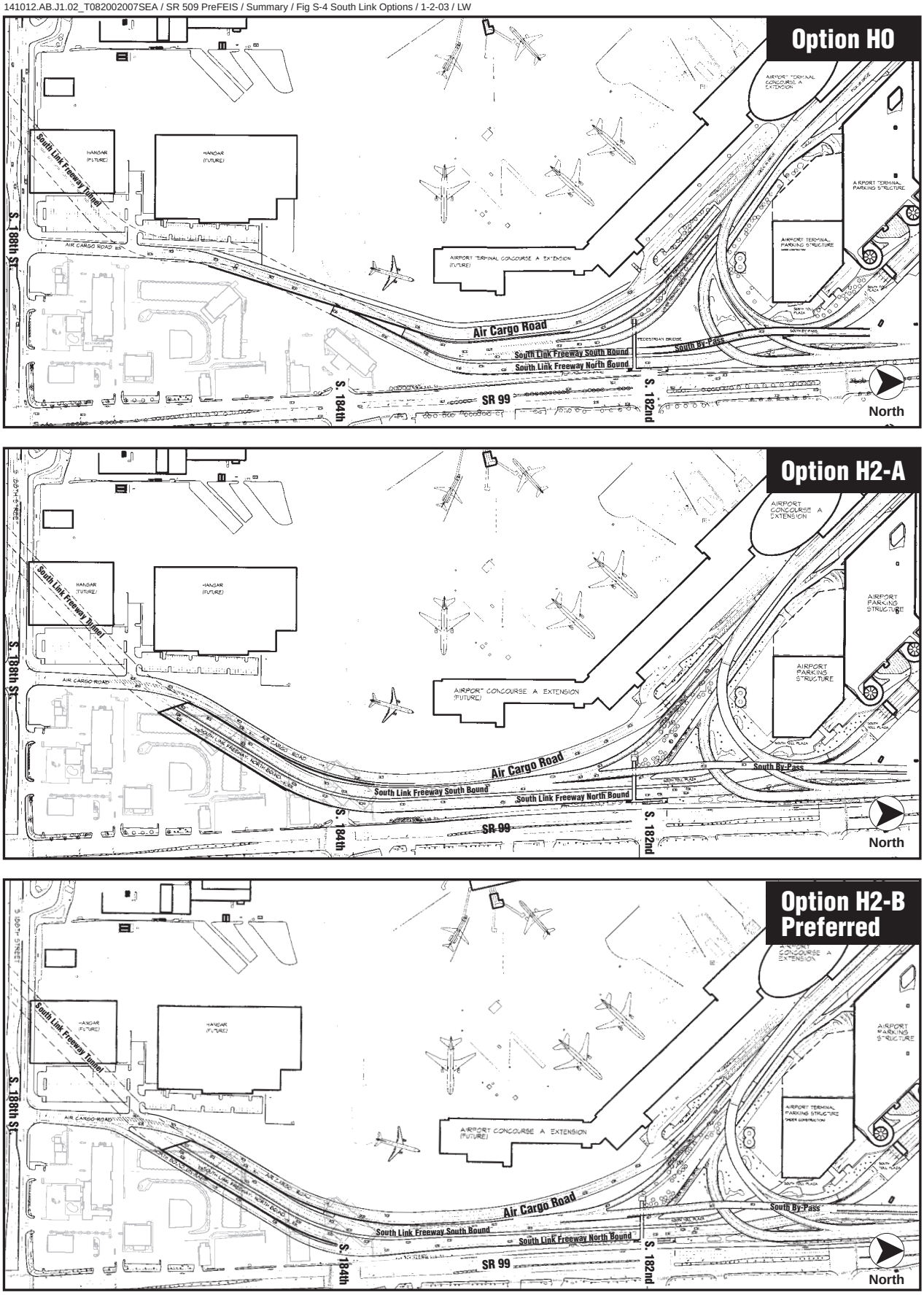
The configuration of the SR 509 freeway extension would be six lanes: two general purpose travel lanes and an inside high-occupancy vehicle (HOV) lane in each direction. The South Access Road would consist of two general purpose lanes in each direction, for a total of four lanes. In general, right-of-way widths would be at least 200 feet for the SR 509 freeway extension and at least 120 feet for the South Access Road. The SR 509 freeway extension would be designed to level of service (LOS) D and a speed of 70 miles per hour (mph). The South Access Road would be designed to LOS D and a speed of 35 to 45 mph.

South Airport Link

The South Airport Link, the northern 1,000 feet of the South Access Road that would connect to the existing Airport Terminal Drive system, has three design options. At the south end, each design option crosses beneath South 188th Street and the southeast corner of Sea-Tac Airport via a tunnel. At the north end, the design options would maintain both southbound and northbound connections from the upper and lower terminal drives. Under Design Option H0, Air Cargo Road and the South Access Road would be "stacked" via an extended “S”-curve tunnel structure (Figure S-4). Under Design Option H2-A, Air Cargo Road and the South Access Road would generally parallel each other and would be separated by medians (Figure S-4). Design Option H2-B would be essentially the same as Design Option H2-A, except that it would provide local access routes for only northbound traffic at the intersection of South 188th Street and 28th Avenue South (Figure S-4). Design Option H2-B is the option included in the preferred alternative.

Improvements to I-5

The southbound improvements to I-5 would include two new collector-distributor (C/D) lanes between the SR 509 convergence and SR 516, two new auxiliary lanes from SR 516 to South 272nd Street, and a new auxiliary lane from South 272nd Street to approximately South 310th Street, where the proposed project would match with an auxiliary lane to be constructed for the Sound Transit I-5 @ South 317th Street Direct Access Ramp project. On northbound I-5, a new auxiliary lane would extend between South 272nd Street and the SR 516 interchanges, and two new C/D lanes would start at the SR 516 interchange to serve I-5 traffic exiting to SR 509 and SR 516 traffic entering I-5. In addition, a South 228th Street extension and underpass would be constructed, providing a direct connection to northbound I-5 from South



0 100 200
Approx. Scale in Feet

FIGURE S-4

South Airport Link Design Options

SR 509: Corridor Completion/I-5/South Access Road Environmental Impact Statement

228th Street and from southbound I-5 to South 228th Street. Figure S-5 presents a schematic of the I-5 improvements. These improvements would cover approximately 6.7 miles.

Alternative B

Under Alternative B, the SR 509 mainline would extend southward from its existing terminus at South 188th Street/12th Place South and intersect with I-5 in the vicinity of South 211th Street (Figure S-6). The freeway extension and the South Access Road would generally parallel each other in a north-south orientation on the west and east sides of Des Moines Creek Park, starting in the vicinity of South 208th Street and 24th Avenue South. The alignment would cross over Des Moines Creek and pass through Des Moines Creek Park at its narrowest point. The length of the SR 509 freeway extension for Alternative B would be approximately 3.8 miles.

Alternative C2 (Preferred Alternative)

Alternative C2, the preferred alternative, would begin at the existing SR 509 terminus at South 188th Street/12th Place South and intersect with I-5 in the vicinity of South 212th Street (Figure S-7). Alternative C2 would cross to the east on the north side of Des Moines Creek Park. The alignment would be elevated as it crosses the northeast corner of Des Moines Creek Park. The South Access Road interchange with SR 509 would be in the vicinity of South 208th Street and 24th Avenue South. The length of the SR 509 freeway extension for Alternative C2 would be approximately 3.2 miles.

Alternative C3

Alternative C3 would begin at the existing SR 509 terminus at South 188th Street/12th Place South and intersect with I-5 in the vicinity of South 212th Street (Figure S-8). Like Alternative C2, Alternative C3 would cross to the east on the north side of Des Moines Creek Park; however, it would encroach further into the park than Alternative C2. Alternative C3 would also be elevated as it crosses the northeast corner of Des Moines Creek Park. The South Access Road interchange would occur in the vicinity of South 204th Street and 24th Avenue South. The length of the SR 509 extension for Alternative C3 would be approximately 3.5 miles.

Related Actions

Related actions proposed by other government agencies include the following:

- Development of the South Aviation Support Area (SASA) for Sea-Tac Airport

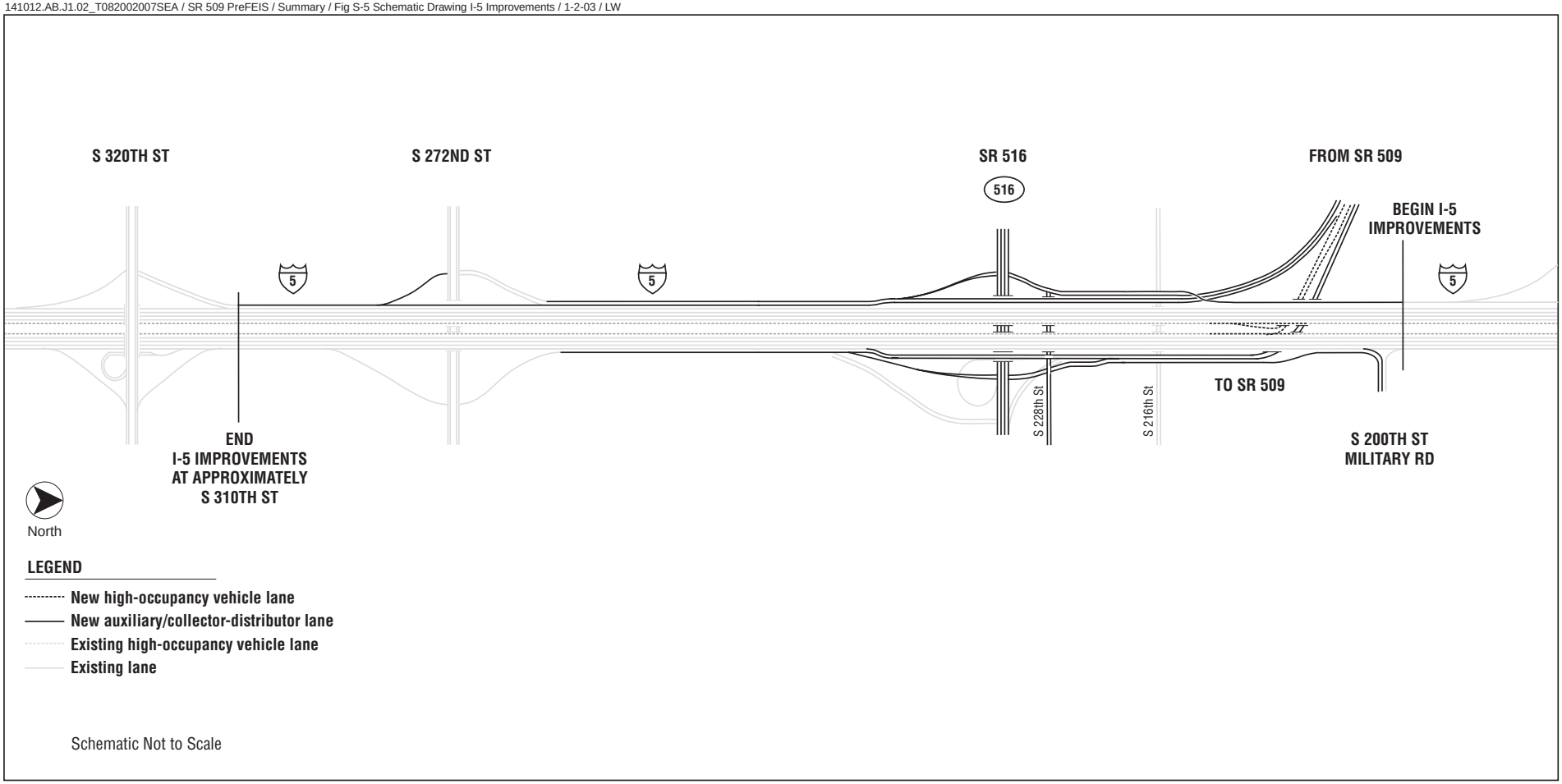
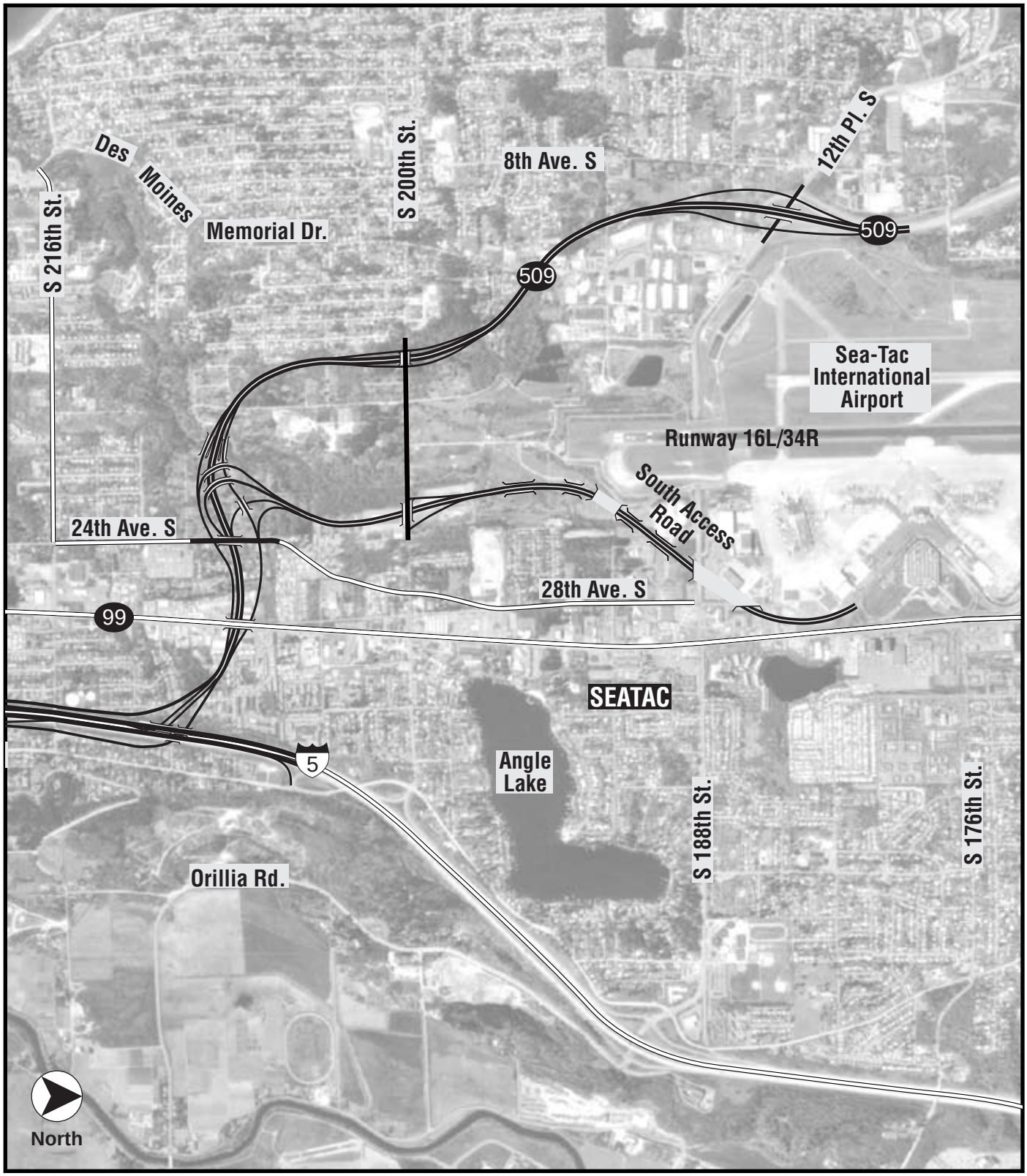


FIGURE S-5

Schematic Drawing of I-5 Improvements

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement



0 1/4 1/2 3/4 1 MILES

Legend

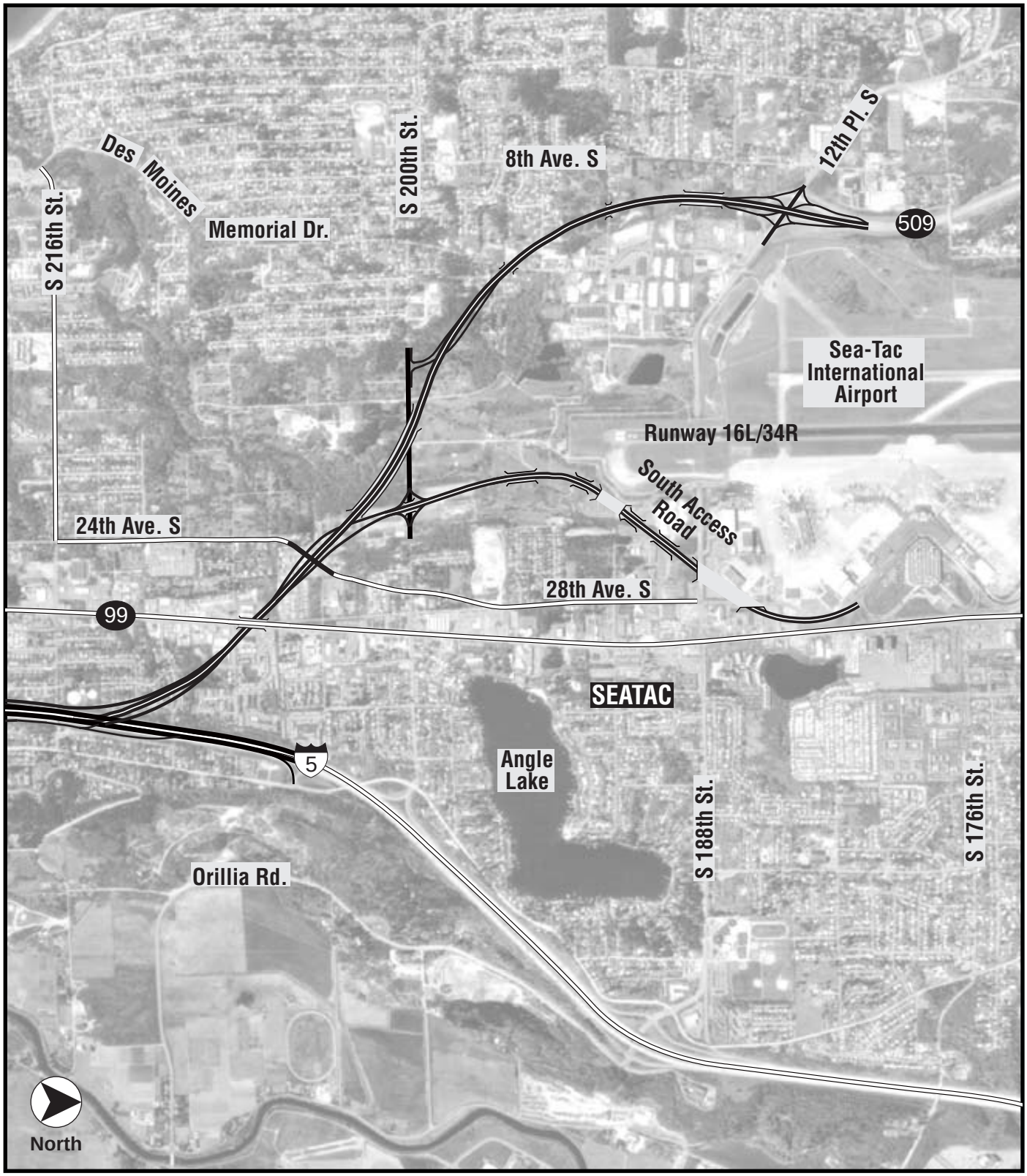
SR 509/South Access Road Improvements

Bridge

FIGURE S-6

Alternative B

SR 509: Corridor Completion/I-5/South Access Road Environmental Impact Statement



0 1/4 1/2 3/4 1 MILES

Legend

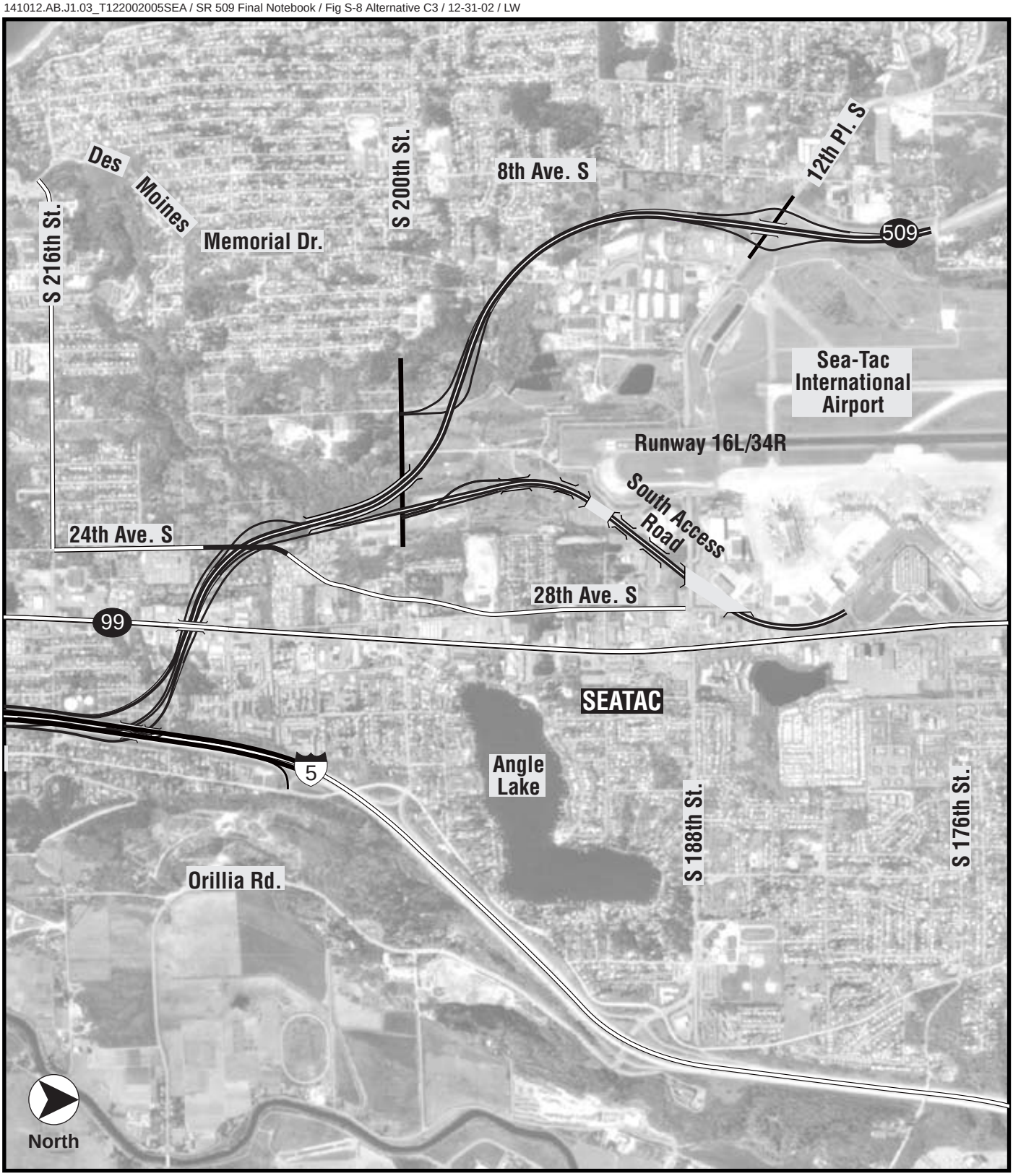
SR 509/South Access Road Improvements

Bridge

FIGURE S-7

Alternative C2 (Preferred)

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement



Legend

SR 509/South Access Road Improvements

Bridge

FIGURE S-8

Alternative C3

SR 509: Corridor Completion/I-5/South Access Road Environmental Impact Statement

- Redevelopment within the Port of Seattle Noise Remedy Program area
- Construction of an intermodal Ground Transportation Center at Sea-Tac Airport
- Development of City of SeaTac Central Business District and Aviation Business Center proposals
- Implementation of the Des Moines Creek Basin Plan
- Execution of the Sound Transit Move Program
- Completion of the redesign and construction of SR 99 through Tukwila and SeaTac

In addition, there are a number of currently planned local and regional transportation improvement projects that will be constructed in the project area and/or that would have a potential effect on traffic operations in the project area. These transportation projects, shown on Figure S-3, are programmed to be in place by 2020. The development and transportation projects are expected to affect traffic capacity and operation within the project area. These projects have already been, or will be, subject to separate environmental reviews; analysis of their specific impacts is not included in this report.

Events Since Publication of the Revised Draft Environmental Impact Statement

The Revised DEIS was issued on January 30, 2002. A public open house on the Revised DEIS was held on February 12, 2002, and a joint public hearing and open house on the Revised DEIS was held on February 27, 2002. Both of these meetings were held at Highline Community College. Court reporters were present at each meeting to record comments on the Revised DEIS. Comments were received from approximately 59 individuals, groups, or agencies. All comments received on the Revised DEIS, along with written responses to these comments, are provided in Chapter 5 of this FEIS.

Preferred Alternative

Alternative C2 has been identified as the preferred alternative by the Steering Committee, the Executive Committee, and the NEPA/SEPA Merger Agreement Signatory Agency Committee (SAC), and based on the environmental analysis presented in the January 2002 Revised DEIS and public input received during review of Revised DEIS.

Alternative C2 would result in less conversion of other land uses to roadway right-of-way than Alternative B, and fewer impacts on the natural and built environment, including residential and commercial displacements, number of sensitive noise receivers, right-of-way acquisition in Des Moines Creek Park, wetlands, wildlife habitat, and amount of new impervious surfaces. Alternatives C2 and C3 would have similar impacts; however, Alternative C3 would cross through the Alaska Airlines Gold Coast Center, which would have substantial negative effect on the economic base of the City of SeaTac. Alternative C2 would cause fewer single-family residential unit displacements than Alternatives B and C3. Although Alternative C2 would have more multifamily unit displacements than the other alternatives, it would be possible to relocate the residents within the area.

Based on the combination of lesser environmental impacts compared to the other build alternatives and the mitigation that has been proposed, Alternative C2 has been recommended as the preferred alternative.

Selection of the Preferred South Airport Link Design Option

Three South Link Design Options (Design Options H0, H2-A, and H2-B) were evaluated in the Revised DEIS. Since publication of the Revised DEIS, a modified Design Option H2-B has been selected by the lead and cooperating agencies for inclusion in the preferred alternative. This design option was selected because it provides the best connection between Sea-Tac Airport and the City of SeaTac downtown business district by providing connections at both South 200th Street and South 188th Street.

Design Option H2-B has been modified to eliminate the southbound off-ramp from the proposed South Airport Link to South 188th Street. This off-ramp was eliminated because its construction would create operational difficulties. The northbound on-ramp from South 188th Street to the proposed South Airport Link is still included in Design Option H2-B.

The Port of Seattle and the City of SeaTac consider egress in the vicinity of South 188th Street to be very important to the community. The Port and the City will continue to investigate options for providing acceptable egress from the South Airport Link to the local arterial network in the vicinity of South 188th Street. When a mutually acceptable egress solution has been developed, it will be subject to its own SEPA evaluation.

Additional Design of the Preferred Alternative

Since publication of the Revised DEIS, additional design and analyses have been conducted in support of the preferred alternative (Alternative C2). This extra level of detail on the preferred alternative is justified under FHWA Technical Advisory T6640.8A (October 30, 1987), Section V, Environmental Impact Statement, Part E, Alternatives, which states**:**

Development of more detailed design for some aspects (e.g., Section 4(f), COE or CG permits, noise, wetlands, etc.) of one or more alternatives may be necessary during preparation of the draft and final EIS to evaluate impacts or mitigation measures or to address issues raised by other agencies or the public.

The following sections describe the additional design, environmental analyses, and other studies that were performed.

Roadway Design

Since publication of the Revised DEIS, design has progressed to further develop and refine this alternative as it was presented in the Revised DEIS. The design effort resulted in two modifications—a change in the configuration of the interchange at South 188th Street/12th Place South and the separation of northbound and southbound lanes along a portion of the SR 509 freeway extension.

The existing SR 509 freeway terminates at South 188th Street/12th Place South in a trumpet (T-shaped) interchange. The proposed project would replace this interchange with a single-point urban interchange. This design is preferred over the diamond interchange described in the Revised DEIS because it provides better traffic flow, reduces queuing, and allows for better arterial signal spacing on 12th Place South.

Between the South 188th Street/12th Place South interchange and the western end of the bridge across Des Moines Creek Park, most of the SR 509 freeway extension would be divided by a 30- to 40-foot median. Separation of the northbound and southbound lanes would provide a more context-sensitive design by separating an imposing 120-foot-wide bridge across the park into two smaller bridge decks, which would better integrate the structure with the terrain. This separation has the added benefit of reducing shading impacts on the wetland beneath the bridge by allowing light and precipitation to reach the underlying vegetation.

Stormwater Design

In May 2002, WSDOT conducted a Stormwater Value Engineering (VE) study to develop a stormwater treatment strategy for the preferred alternative. The emphasis was to develop a strategy that included input from jurisdictional agencies to address comments on the Revised DEIS. The VE study team consisted of WSDOT and consultant team staff, as well as representatives from the Washington State Department of Ecology, National Marine Fisheries Service (NMFS), King County, City of SeaTac, and Port of Seattle. The *SR 509/I-5 Stormwater VE* (Olympic Associates Company, October 2002) identified and evaluated several recommendations for stormwater treatment for the proposed project.

Feasibility studies related to the VE study recommendations have been performed to determine which recommendations could be implemented and which would require additional design effort or study. Detailed stormwater design is being developed that incorporates some of the VE study recommendations. The design includes infiltration of stormwater runoff wherever feasible, given subsurface conditions. Where not feasible, stormwater design includes detention with enhanced treatment. Measures to reduce the total amount of impervious surface are being incorporated into the project stormwater design

If the SR 509 project is approved, WSDOT would increase its partnership with the Des Moines Creek Basin Plan by contributing funds to finance Capital Improvement Projects (CIP) described in the plan. WSDOT has committed to partially finance the replacement of the fish-impassable culvert at Marine View Drive with a bridge, as described in the Des Moines Creek Basin Plan. Additionally, stormwater design for the SR 509 project is being developed under the assumption that two other projects identified in the plan, a high-flow bypass around Des Moines Creek and increased storage volume of the Northwest Ponds regional detention facility, will be constructed. These two projects would have the net effect of reducing flows in Des Moines Creek relative to current conditions.

The outcomes of the revised stormwater design include reductions in overall stormwater treatment costs and associated property impacts, in conjunction with a design that meets the intent of the current agency stormwater treatment guidelines. Additionally, the project would apply a basinwide approach to flow control in Des Moines Creek Basin.

Additional Environmental Analyses of the Preferred Alternative

Additional environmental analyses that were conducted in support of the preferred alternative are described below.

Air Quality Analysis

After publication of the Revised DEIS, the preferred alternative was further analyzed to determine localized (hot-spot) and regional conformity with the Puget Sound region's air quality maintenance plans pursuant to the requirements of 40 CFR Part 93 and Washington Administrative Code, Chapter 173-420. FHWA policy is that project conformity must be demonstrated prior to issuance of the record of decision for a project on which they are a lead agency.

In May 2001, the Puget Sound Regional Council (PSRC) adopted a new regional transportation plan, *Destination 2030.* The SR 509: Corridor Completion/I-5/South Access Road Project is identified as a Candidate project in this plan. In their comment letter on the Revised DEIS, PSRC

recommended that WSDOT request PSRC to conduct a regional air quality conformity test of the final preferred alternative.

PSRC conducted the regional conformity analysis using the latest regional planning assumptions, including emission factors and an analysis year consistent with those used in the PSRC Metropolitan Transportation Plan (MTP), which was adopted in 2001 (*Destination 2030*), and its subsequent revisions. On June 27, 2002, the PSRC Executive Board approved refinement of the MTP to reflect the design of the preferred alternative. PSRC's modeling demonstrates that air quality in the Puget Sound region, including implementation of the preferred alternative, would conform at the regional level to the regional air quality maintenance plans. The preferred alternative would not cause any new exceedances or contribute to any existing regional exceedances of the national ambient air quality standards.

The proposed project is located in a carbon monoxide (CO) maintenance area. Project-level conformity is required for projects in CO maintenance areas. In the Revised DEIS, CO concentrations for the year 2020 were evaluated at three intersection locations for each of the build alternatives. To demonstrate compliance with *Destination 2030*, CO concentrations for the year 2030 were evaluated for the preferred alternative at the three intersection locations analyzed in the Revised DEIS, plus seven additional locations. Based on the modeling results, the preferred alternative for the proposed SR 509: Corridor Completion/I-5/South Access Road Project would not cause any new violations or contribute to any existing localized violations of the national ambient air quality standards for CO.

A detailed description of the updated regional and project-level air conformity analyses are provided in Appendix H of this FEIS.

Noise Analysis

The SR 509 project alternatives are spread over a relatively large area. Because terrain and roadway geometry information was not available for all alternatives evaluated in the Revised DEIS, a simplified version of the FHWA STAMINA 2.0 noise model developed by the Texas Department of Transportation was used to perform the noise analysis. This approach did not account for the effects of terrain, barriers, and buildings on noise propagation. Such factors could influence the location of proposed noise mitigation walls. FHWA concurred with this approach, with the proviso that a more detailed noise analysis with terrain information be conducted for the preferred alternative for inclusion in the FEIS.

In July 2002, a detailed noise analysis using the FHWA TNM was conducted for the preferred alternative. This analysis includes the I-5 improvements, which are common to all of the build alternatives. Additionally, 24-hour airport noise monitoring data were obtained to address comments on the

Revised DEIS pertaining to noise. The detailed noise analysis and proposed noise mitigation are provided in Appendix I of this FEIS.

Other Studies of the Preferred Alternative

Cost Estimate Validation Process

In March, May, and June 2002, Cost Estimating Validation Process (CEVP) workshops were held for the proposed project. The goal of these workshops was to review and validate the current cost estimates for large WSDOT projects. Each project is examined by a team of top engineers from private firms, contractor and risk experts from around the country, and WSDOT engineers. Many of the participants have had extensive first-hand experience in large project programming and delivery.

The CEVP workshop uses systematic project review and risk assessment methods, including statistics and probability theory, to evaluate the quality of the information at hand and to identify and describe cost and schedule risks. Importantly, the process examines, from the very beginning, how risks can be lowered and cost vulnerabilities managed or reduced.

The CEVP is intended to make recommendations to WSDOT that would allow a better understanding of the current project estimate and also identify potential cost and schedule ranges that depend on potential risk events, the level of project definition, and the time frame.

The final conclusion of the July 2002 CEVP was that the project would cost $903 to $985 million in year of expenditure dollars. The intention of the CEVP was for the project to develop a plan or strategy to reduce or eliminate the risks identified during the CEVP, including risks associated with cost increases and schedule delays. The greatest risks associated with project costs were, in descending order, changing market conditions, changes in seismic criteria, issues with the I-5/South 272nd Street Interchange, SR 509/Port of Seattle right-of-way costs, stormwater collection and treatment, and issues associated with the Midway Landfill Superfund site. The highest risks associated with project delays were issues with the Midway Landfill Superfund site, work restrictions, labor disruptions or major equipment breakdowns, utilities, permitting, combinations of lower risk items, and issues with the SR 509/Port of Seattle right-of-way. WSDOT is now in the process of developing and executing a plan to proactively manage these risks, including minimizing or reducing risks whenever possible.

Construction Staging VE Study

In early May 2002, a weeklong VE Study was held to examine the duration of the construction effort for the I-5 corridor facilities to determine ways to potentially reduce the construction duration. The outcome of this effort was a construction schedule reduction for the I-5 improvements from

approximately 6 years to 4 years or less, which, in turn, would reduce the construction duration for the entire project to 7 years. This would result in cost savings, reductions in temporary erosion and sediment control, and less public inconvenience.

Concurrence Point 3

In June 1995, the Interagency Working Agreement to Integrate Special Aquatic Resources (Section 404 of the Clean Water Act) Permit Requirements with NEPA and SEPA in the State of Washington was signed. This agreement integrates the Section 404 permit processes and other related permitting and certification procedures into the NEPA and SEPA processes early in the project programming and project development stages. The signatory agencies to this agreement are referred to as the SAC.

As part of the interagency agreement, concurrence is sought from the SAC at three points in the EIS process. Concurrence had previously been obtained from the SAC for Concurrence Point 1, project purpose and need and criteria for alternative selection, and Concurrence Point 2, project alternatives to be evaluated in the EIS and preliminary preferred alternative.

On September 12, 2002, WSDOT sent a letter to the SAC requesting concurrence on Concurrence Point 3. Concurrence Point 3 addresses three items: (1) the project Conceptual Wetland Mitigation Plan, (2) federal agency concurrence on the Preferred Alternative/Apparent Section 404 Least Environmentally Damaging Practicable Alternative, and (3) state agency concurrence on the NEPA/SEPA Preferred Alternative. Concurrence by each of the signatory agencies was obtained by November 15, 2002.

SAC concurrence on the proposed project is discussed in more detail in Appendix A.

Summary of Major Environmental Impacts

Table S-1 summarizes the major impacts each alternative is likely to have on the elements of the environment, along with any measures that are recommended or proposed to mitigate those impacts.

Permits, Licenses, and Other Required Actions or Approvals

- Federal Highway Administration
  - Interstate Access Approval

- U.S. Army Corps of Engineers
  - Section 404 of the Clean Water Act Permit
- Washington State Department of Ecology (Ecology)
  - Water Quality Certification, Section 401 of the Clean Water Act
  - National Pollutant Discharge Elimination System (NPDES) Stormwater Permit
  - NPDES Stormwater Site Plan—Individual
  - Coastal Zone Management Permit
- Washington Department of Natural Resources
  - Forest Practices Permit
- Washington State Department of Fish and Wildlife (WDFW)
  - Hydraulic Project Approval
- Cities of SeaTac, Des Moines, Federal Way, and Kent, and King County
  - Noise Variance
  - Clearing Permit
  - Critical Area Determination
  - SeaTac Essential Public Facilities Permit
- King County
  - Landfill Disturbance Permit (to be obtained by others)
- Federal Aviation Administration
  - Airport Highway Clearance

Estimated Cost and Construction Schedule

The estimated cost of constructing the SR 509: Corridor Completion/I-5/ South Access Road Project for each alternative is as follows:

- Alternative B—$715 to $735 million
- Alternative C2—$690 to $710 million
- Alternative C3—$695 to $715 million

These cost estimates are in 1999 dollars and are based on preliminary design information. These costs do not include the South Airport Link, the last 1,000 feet connecting the South Access Road to airport roadways.

In spring 2002, Cost Estimating Validation Process (CEVP) workshops were held for the proposed project based on the design for Alternative C2, the preferred alternative. The goal of these workshops was to review and validate the current cost estimates, and develop a plan or strategy to reduce or eliminate the risks associated with cost increases and schedule delays. The

final conclusion of the CEVP was that the project would cost $903 to $985 million in year of expenditure dollars and include the cost of identified risks. If the CEVP were applied to Alternatives B and C3, a similar increase in project cost in year of expenditure would be expected, relative to the estimates in 1999 dollars given above.

If one of the build alternatives is selected, construction could begin in 2006 and be completed by 2013. This anticipated start date is based on the availability of funds, which are not currently appropriated for the project. If funding is not available, the start of construction will be delayed.

Table S-1 Summary of Major Environmental Impacts				
Environmental Element	**Alternative A (No Action)**	**Alternative B**	**Alternative C2 (Preferred)**	**Alternative C3**
3.1 Air Quality	**Operation (Long-Term) Impacts** Localized pollutant concentrations would not exceed the NAAQS. **Mitigation Measures** None. **Construction (Short-Term) Impacts** None. **Mitigation Measures** None required.	**Operation (Long-Term) Impacts** Same as the No Action Alternative. **Mitigation Measures** None. **Construction (Short-Term) Impacts** Construction activities would result in temporary emissions of pollutants. **Mitigation Measures** Use of best management practices during construction would control particulate emissions.	**Operation (Long-Term) Impacts** Same as the No Action Alternative. **Mitigation Measures** None. **Construction (Short-Term) Impacts** Same as Alternative B. **Mitigation Measures** Same as Alternative B.	**Operation (Long-Term) Impacts** Same as the No Action Alternative. **Mitigation Measures** None. **Construction (Short-Term) Impacts** Same as Alternative B. **Mitigation Measures** Same as Alternative B.
3.2 Noise	**Operation (Long-Term) Impacts** Based on the detailed method of noise analysis, peak-hour traffic noise levels would increase by 1 dBA at noise sensitive locations along I-5. Noise levels would exceed noise abatement criteria at a few residential locations along I-5.	**Operation (Long-Term) Impacts** Approximately 2,458 impacted receptors (within the projected 66 dBA noise contour based on 2020 PM peak hour traffic volumes) would include mostly residences, plus 3 schools, 3 parks, and 5 churches (this number will decrease as noise barriers planned by WSDOT are completed along I-5 as mitigation for previous projects). Noise	**Operation (Long-Term) Impacts** Approximately 2,578 impacted receptors (within the projected 66 dBA noise contour based on 2020 PM peak hour traffic volumes) would include mostly residences, plus 3 schools, 3 parks, and 6 churches (this number will decrease as noise barriers planned by WSDOT are completed along I-5 as mitigation for previous projects). Noise	**Operation (Long-Term) Impacts** Approximately 2,390 impacted receptors (within the projected 66 dBA noise contour based on 2020 PM peak hour traffic volumes) would include mostly residences, plus 3 schools, 3 parks, and 6 churches (this number will decrease as noise barriers planned by WSDOT are completed along I-5 as mitigation for previous projects).

Table S-1 Summary of Major Environmental Impacts				
Environmental Element	**Alternative A (No Action)**	**Alternative B**	**Alternative C2 (Preferred)**	**Alternative C3**
	Mitigation Measures None proposed. **Construction (Short-Term) Impacts** No impacts. **Mitigation Measures** None proposed.	levels along I-5 would increase slightly over 1 dBA relative to the No Action Alternative. **Mitigation Measures** Noise barriers would be provided at appropriate areas where residents would likely be impacted by traffic noise and where construction of the barriers is justified. Other possible mitigation measures could include building insulation, retaining existing trees and vegetation, thereby reducing noise annoyance psychologically by removing the noise source from view, and constructing land forms. **Construction (Short-Term) Impacts** Typical construction-related activities—engine-powered equipment, truck movements, impact equipment—would result in short-term and localized noise impacts. **Mitigation Measures** Contractors would comply with all state and local regulations governing equipment source levels and noise resulting from construction site activities.	levels along I-5 would increase slightly over 1 dBA relative to the No Action Alternative. **Mitigation Measures** Same as Alternative B. **Construction (Short-Term) Impacts** Same as Alternative B. **Mitigation Measures** Same as Alternative B.	Noise levels along I-5 would increase slightly over 1 dBA relative to the No Action Alternative. **Mitigation Measures** Same as Alternative B. **Construction (Short-Term) Impacts** Same as Alternative B. **Mitigation Measures** Same as Alternative B.

Table S-1 Summary of Major Environmental Impacts				
Environmental Element	**Alternative A (No Action)**	**Alternative B**	**Alternative C2 (Preferred)**	**Alternative C3**
		Stationary noise sources would be placed as far from sensitive receivers as possible, idling equipment would be turned off, work that does not need to be done at night would be confined to daytime hours, and trucks would be equipped with properly sized and maintained mufflers.		
3.3 Energy	**Operation (Long-Term) Impacts** Continued consumption of energy due to traffic congestion, stopping and poor traffic at signals, and slower vehicle speeds. **Mitigation Measures** None. **Construction (Short-Term) Impacts** None. **Mitigation Measures** None.	**Operation (Long-Term) Impacts** Less energy consumption than the No Action Alternative due to better flow of traffic at higher, more efficient vehicle speeds compared to the No Action Alternative. Slightly more energy consump-tion than Alternatives C2 and C3. **Mitigation Measures** None. **Construction (Short-Term) Impacts** Highest energy consumption of the build alternatives. **Mitigation Measures** None.	**Operation (Long-Term) Impacts** Less consumption of energy than the No Action Alternative due to best flow of traffic at higher, more efficient vehicle speeds compared to the No Action Alternative. **Mitigation Measures** None. **Construction (Short-Term) Impacts** Lowest energy consumption of the build alternatives. **Mitigation Measures** Same as Alternative B.	**Operation (Long-Term) Impacts** Less consumption of energy than the No Action Alternative due to better flow of traffic at higher, more efficient speeds compared to the No Action Alternative. **Mitigation Measures** None. **Construction (Short-Term) Impacts** Similar energy consumption to Alternative C2, but less than Alternative B. **Mitigation Measures** Same as Alternative B.

Table S-1 Summary of Major Environmental Impacts				
Environmental Element	**Alternative A (No Action)**	**Alternative B**	**Alternative C2 (Preferred)**	**Alternative C3**
3.4 Geology and Soils	**Operation (Long-Term) Impacts** No impacts on earth sensitive areas. **Mitigation Measures** None proposed. **Construction (Short-Term) Impacts** No erosion or sedimentation impacts. **Mitigation Measures** None proposed.	**Operation (Long-Term) Impacts** Excavation and construction in seismic hazard areas. Approximately 4.2 million cubic yards of cut material and 3.5 million cubic yards of fill. **Mitigation Measures** Structures would be designed to Seismic Zone 3 standards. **Construction (Short-Term) Impacts** Highest potential for erosion and sedimentation. Clearing, grading, and excavation could result in erosion and sedimentation to streams and wetlands. Temporary increases in noise, dust, and traffic from hauling cut and fill material. **Mitigation Measures** Implementation of appropriate erosion control standards during construction.	**Operation (Long-Term) Impacts** Excavation and construction in seismic hazard areas. Approximately 3.2 million cubic yards of cut material and 1.2 million cubic yards of fill. **Mitigation Measures** Same as Alternative B. **Construction (Short-Term) Impacts** Lowest potential for erosion and sedimentation. Other impacts same as Alternative B. **Mitigation Measures** Same as Alternative B.	**Operation (Long-Term) Impacts** Excavation and construction in seismic hazard areas. Approximately 3.8 million cubic yards of cut material and 3.6 million cubic yards of fill. **Mitigation Measures** Same as Alternative B. **Construction (Short-Term) Impacts** Greater potential for erosion and sedimentation than Alternative C2, but lower than Alternative B. Other impacts same as Alternative B **Mitigation Measures** Same as Alternative B.

Table S-1 Summary of Major Environmental Impacts				
Environmental Element	**Alternative A (No Action)**	**Alternative B**	**Alternative C2 (Preferred)**	**Alternative C3**
3.5 Water Quality	**Operation (Long-Term) Impacts** No additional runoff from new impervious surface would be generated. **Mitigation Measures** None. **Construction (Short-Term) Impacts** None. **Mitigation Measures** None.	**Operation (Long-Term) Impacts** Approximately 126.5 acres of new impervious surfaces would be created, increasing the potential for higher flows during storms, pollution from highway runoff, and accidental spills. Accidental spills and sand and de-icing chemicals applied during maintenance could affect water quality of all receiving waters. Potential for impacts would be highest at one crossing of Des Moines Creek and four crossings of East Fork of Des Moines Creek. Groundwater recharge would be reduced in areas with fill. **Mitigation Measures** Detention and water quality measures according to Des Moines Creek Basin Plan, King County Surface Water Manual, and WSDOT Highway Runoff Manual. Stormwater would either be treated and infiltrated, or detained with enhanced treatment. WSDOT would contribute funds to capital improvement projects in the basin plan, which would significantly reduce peak flows in Des Moines Creek and stream bank erosion.	**Operation (Long-Term) Impacts** Approximately 113 acres of new impervious surfaces would be created, and less stormwater runoff would be generated than for Alternative B. After stormwater treatment, annual pollutant loadings to Des Moines and Miller Creek Basins would be the lowest of the build alternatives. This alternative would have one crossing of Des Moines Creek and four crossings of East Fork of Des Moines Creek. Other impacts would be the same as for Alternative B. **Mitigation Measures** Same as Alternative B. **Construction (Short-Term) Impacts** Same as Alternative B. **Mitigation Measures** Same as Alternative B.	**Operation (Long-Term) Impacts** Approximately 113.5 acres of new impervious surfaces would be created. Stream crossings would be the same as for Alternative C2. Other impacts would be similar to Alternative C2. **Mitigation Measures** Same as Alternative B. **Construction (Short-Term) Impacts** Same as Alternative B. **Mitigation Measures** Same as Alternative B.

Table S-1 Summary of Major Environmental Impacts				
Environmental Element	**Alternative A (No Action)**	**Alternative B**	**Alternative C2 (Preferred)**	**Alternative C3**
		Construction (Short-Term) Impacts Vegetation removal, interception of sheet flow, and soil compaction could temporarily increase runoff rates and cause erosion and sedimentation in receiving waters. Other pollutants, including fuel and lubricants, paving oils, chemicals, construction debris, and uncured concrete could enter surface waters. These pollutants could infiltrate to groundwater. **Mitigation Measures** A Stormwater Site Plan (SSP) would be developed to fulfill requirements of NPDES permit. The SSP would include provisions for implementation of BMPs to protect groundwater and public drinking water supply, measures to protect water and sewer lines, and construction monitoring. A Temporary Erosion and Sedimentation Plan (TESC) would also be developed according to King County guidelines. In addition, a Spill Prevention Control and Countermeasures (SPCC) plan would also be adopted as a construction planning element of		

Table S-1 Summary of Major Environmental Impacts				
Environmental Element	**Alternative A (No Action)**	**Alternative B**	**Alternative C2 (Preferred)**	**Alternative C3**
		the project to reduce accident-related water quality impacts.		
3.6 Wetlands	**Operation (Long-Term) Impacts** None. **Mitigation Measures** None. **Construction (Short-Term) Impacts** None. **Mitigation Measures** None.	**Operation (Long-Term) Impacts** 7.7 acres of direct wetland impacts on Wetlands A, B, D, F, N, 1, 2, 6, 7, 8, 9, 16, 18, 21, and 22 (Ecology Category 2, 3, and 4 wetlands). 22.5 acres of wetland buffer impacts, including wetlands without direct wetland impacts. Reduction in wetland functions (i.e. flood water detention/retention, groundwater recharge/discharge, and water quality improvement). Disruption of biological and wildlife support. **Mitigation Measures** Avoidance of wetland impacts through alternative alignment and engineering design. This design impact has been reduced to 7.7 acres. Minimization of wetland impacts could be further reduced through design of bridges and vertical wall structures.	**Operation (Long-Term) Impacts** 0.3 acres of direct wetland impacts on Wetlands A, B, M, N, 16, and 23 (Ecology Category 2, 3, and 4 wetlands). Potential shade effects from bridges to Wetlands A, B, and D. Direct wetland impacts would be limited to placement of bridge piers and 0.09 acre of fill in Wetland A. 7.1 acres of wetland buffer impacts, including wetlands without direct wetland impacts. Additional impacts are the same as Alternative B. **Mitigation Measures** Avoidance of wetland impacts through alternative alignment and engineering design. This design impact has been reduced to 0.3 acres. WSDOT has committed to avoiding Wetland F (northwest pond) and spanning Wetlands A, B, and D (Tyee Pond).	**Operation (Long-Term) Impacts** 5.4 acres of direct wetland impacts on Wetlands A, B, D, G, H, K, M, N, S, 16, 20, and 23 (Ecology Category 2, 3, and 4 wetlands). Potential shade effects to Wetland A from bridge structure. Direct wetland impacts would be limited to placement of bridge piers. 20.8 acres of wetland buffer impacts, including wetlands without direct wetland impacts. Additional impacts are the same as Alternative B. **Mitigation Measures** Avoidance of wetland impacts through alternative alignment and engineering design. This design impact has been reduced to 5.4 acres. Minimization of wetland impacts could be further reduced through design of bridges and vertical wall structures.

Table S-1 Summary of Major Environmental Impacts				
Environmental Element	**Alternative A (No Action)**	**Alternative B**	**Alternative C2 (Preferred)**	**Alternative C3**
		Compensatory mitigation for wetland impacts by creation of new wetlands, or restoration or enhancement of existing wetlands. Requirements include creation and/or restoration at a minimum 1:1 mitigation ratio. Additional mitigation is required to satisfy Ecology's wetland mitigation guidelines. **Construction (Short-Term) Impacts** Temporary wetland and buffer impacts during construction include limited clearing for access roads for bridge construction. Exposed soils could erode and increase sediment transport to wetlands. **Mitigation Measures** Wetlands impacted by short-term construction would be restored upon completion of construction. Affected wetlands and buffers would be replanted with native vegetation. Federal, state, and local best management practices would ensure that stormwater runoff is	Additional mitigation measures are the same as Alternative B. **Construction (Short-Term) Impacts** Same as Alternative B. **Mitigation Measures** Same as Alternative B.	Additional mitigation measures are the same as Alternative B. **Construction (Short-Term) Impacts** Same as Alternative B. **Mitigation Measures** Same as Alternative B.

Table S-1 Summary of Major Environmental Impacts				
Environmental Element	**Alternative A (No Action)**	**Alternative B**	**Alternative C2 (Preferred)**	**Alternative C3**
		collected and treated before entering existing bodies of water. A spill prevention plan will be in place during construction.		
3.7 Vegetation, Fish, and Wildlife	**Operation (Long-Term) Impacts** None. **Mitigation Measures** None. **Construction (Short-Term) Impacts** None. **Mitigation Measures** None.	**Operation (Long-Term) Impacts** Bridge structures that would cross wetlands and Des Moines Creek could restrict sunlight and precipitation to vegetation communities beneath the bridges. Operation-related impacts on wildlife are expected to be minor and related principally to ambient noise levels associated with vehicular traffic. Potential operation impacts on streams include water quality degradation from stormwater runoff to receiving waters. No federal- or state-listed sensitive, threatened, or endangered plant or wildlife species regularly breed, forage, or occupy the project area. No impacts on threatened or endangered species are anticipated. **Mitigation Measures** Mitigation measures for operation impacts would be	**Operation (Long-Term) Impacts** Same as Alternative B. **Mitigation Measures** WSDOT would contribute funds to capital improvement projects in the basin plan, which would significantly reduce peak flows in Des Moines Creek and stream bank erosion. This would reduce stream erosion impacts and improve the success rate of planned stream habitat restoration. Other mitigation measures would be the same as Alternative B. **Construction (Short-Term) Impacts** Alternative C2 would disturb less vegetation than Alternatives B and C3. Substantially less forested and wetland habitat would be cleared under Alternative C2. Other impacts would be the same as for	**Operation (Long-Term) Impacts** Same as Alternative B. **Mitigation Measures** Same as Alternative B. **Construction (Short-Term) Impacts** Alternative C3 would disturb less vegetation than Alternative B and more than Alternative C2. Other impacts would be the same as for Alternative B. Impacts associated with stream crossings would be similar to Alternative B and C2. **Mitigation Measures** Same as Alternative B.

Table S-1 Summary of Major Environmental Impacts				
Environmental Element	**Alternative A (No Action)**	**Alternative B**	**Alternative C2 (Preferred)**	**Alternative C3**
		similar for all build alternatives. Following construction, native plant communities would be established to replace exotic, invasive species. Disturbed soils would also be covered, seeded, and/or revegetated with native species following construction. Water quality degradation is not expected as long as stormwater management plans, facilities, and related best management practices are installed and maintained to comply with the King County Surface Water Design Manual, and WSDOT's Highway Runoff Manual. **Construction (Short-Term) Impacts** Alternative B would have greater impacts on vegetation communities, particularly forested and wetland habitats, than Alternatives C2 and C3. Exposed and/or compacted soils would be susceptible to colonization by invasive species. Vegetation removal would result in loss of wildlife habitat that provides protective cover, nesting areas, and food for animals and could displace and/or eliminate wildlife. Heavy equipment use would cause temporary audible and visual disturbance to wildlife.	Alternative B. Alternative C2 would result in one new bridge crossing of Des Moines Creek and four new crossings of the East Fork of Des Moines Creek. Anadromous fish runs do not occur in the reaches of Des Moines Creek that will be spanned by the bridges. An existing Des Moines Creek culvert beneath South 200th Street would be extended. **Mitigation Measures** Same as Alternative B.	

Table S-1 Summary of Major Environmental Impacts				
Environmental Element	**Alternative A (No Action)**	**Alternative B**	**Alternative C2 (Preferred)**	**Alternative C3**
		Alternative B would result in one new bridge crossing of Des Moines Creek and four new crossings of the East Fork of Des Moines Creek. Anadromous fish runs do not occur in the stream reaches that would be crossed by the project. An existing Des Moines Creek culvert beneath South 200th Street would be extended. Construction activities could introduce a variety of pollutants and sediments into adjacent water resources. No impacts on threatened or endangered species are anticipated. **Mitigation Measures** Mitigation measures for construction impacts would be similar for all build alternatives. Construction activities would be scheduled to take into account timing recommendations from WDFW and other agencies to avoid disturbance to breeding wildlife in sensitive habitats, such as wetlands. Monitoring would be conducted during construction to ensure that mitigation measures are successfully implemented and that performance standards are achieved. Construction activities would occur outside of stream channels, and the period of		

Table S-1 Summary of Major Environmental Impacts				
Environmental Element	**Alternative A (No Action)**	**Alternative B**	**Alternative C2 (Preferred)**	**Alternative C3**
		construction activity would be limited according to recommendations from WDFW, NMFS, and USFWS.		
3.8 Land Use	**Operation (Long-Term) Impacts** 96 acres of the existing SR 509 right-of-way would remain in its current use, along with the existing I-5 corridor right-of-way, between South 216th Street and South 310th Street. Regional traffic congestion patterns would continue to worsen. Accessibility to the airport would worsen. **Mitigation Measures** None. **Construction (Short-Term) Impacts** None. **Mitigation Measures** None.	**Operation (Long-Term) Impacts** Would require the greatest amount of new right-of-way acquisition (174-180 acres). This number does not include the existing/unutilized right-of-way for SR 509, I-5, or major arterials. 77 acres of the total needed would be vacant or undeveloped land (this is the most of all the build alternatives). Would require 0.5 acre of Des Moines Creek Park, and would avoid taking land from the Hillgrove Cemetery and the Federal Detention Center, but would take some land from the NW corner of the Alaska Airlines Gold Coast Center. **Mitigation Measures** WSDOT would coordinate with cities of SeaTac and Des Moines to identify alternative property that could offset impacts asso-ciated with acquiring portions of Des Moines Creek Park.	**Operation (Long-Term) Impacts** Would require the least amount of new right-of-way of all the build alternatives (96-102 acres). Would acquire the most land designated for Residential Low Density uses (30 acres), but the least Residential High Density land uses (17 acres). Would require the acquisition of 4.7 acres of Des Moines Creek Park, but would avoid the Hill-grove Cemetery, Alaska Airlines Gold Coast Center, and the Federal Detention Center. **Mitigation Measures** WSDOT would replace any lost parkland acreage through a negotiated land swap between WSDOT and the City of SeaTac. People and businesses displaced would be entitled to relocation assistance and payment programs. Permits and approvals would be acquired to ensure that the project is consistent with local	**Operation (Long-Term) Impacts** Would require 134-140 acres for new right-of-way. Would acquire the least amount of vacant or undeveloped land of all the build alternatives (29 acres). Would require 3.3 acres of Des Moines Creek Park. Would displace the Alaska Airlines Gold Coast Center, but avoid the Hillgrove Cemetery and the Federal Detention Center. **Mitigation Measures** WSDOT would replace any lost parkland acreage through a negotiated land swap between WSDOT and the City of SeaTac. People and businesses displaced would be entitled to relocation assistance and payment programs. Permits and approvals would be acquired to ensure that the

Table S-1 Summary of Major Environmental Impacts				
Environmental Element	**Alternative A (No Action)**	**Alternative B**	**Alternative C2 (Preferred)**	**Alternative C3**
		People and businesses displaced would be entitled to relocation assistance and payment. Permits and approvals would be acquired to ensure that the project is consistent with local comprehensive plans, zoning ordinances, and other regulations. **Construction (Short-Term) Impacts** Temporary traffic congestion, access, and parking restrictions would affect the quality and character of existing land uses. **Mitigation Measures** Access impacts would be mitigated through appropriate construction practices as mentioned in the transportation analyses.	comprehensive plans, zoning ordinances, and other regulations. **Construction (Short-Term) Impacts** Same as Alternative B. Could have fewer impacts than Alternative B because roughly 80 fewer acres would have to be acquired. **Mitigation Measures** Same as Alternative B.	project is consistent with local comprehensive plans, zoning ordinances, and other regulations. **Construction (Short-Term) Impacts** Same as Alternative B. Could have fewer impacts than Alternative B because roughly 40 fewer acres would have to be acquired. **Mitigation Measures** Same as Alternative B.

Table S-1 Summary of Major Environmental Impacts				
Environmental Element	**Alternative A (No Action)**	**Alternative B**	**Alternative C2 (Preferred)**	**Alternative C3**
3.9 Relocation	**Operation (Long-Term) Impacts** None. **Mitigation Measures** None. **Construction (Short-Term) Impacts** None. **Mitigation Measures** None.	**Operation (Long-Term) Impacts** 24-28 businesses, 106-113 single-family units, 250 multifamily units, and 4 mobile homes. **Mitigation Measures** Displacees would be eligible for relocation assistance to find suitable and comparable relocation sites under the Uniform Relocation Assistance and Real Property Acquisition Act of 1970, as amended. Planned and approved housing exists in the project area. Most replacement housing would be within walking distance of SR 99, which has good transit service. WSDOT will find replacement housing already within the Section 8 program for displaced persons who receive assistance. If Section 8 housing is not available, WSDOT will compute the entitlement. **Construction (Short-Term) Impacts** None.	**Operation (Long-Term) Impacts** 27-31 businesses, 80 single-family units, 196 multifamily units, and 5 mobile homes. **Mitigation Measures** Same as Alternative B. **Construction (Short-Term) Impacts** None. **Mitigation Measures** None.	**Operation (Long-Term) Impacts** 15-19 businesses, 114-118 single-family units, 127 multifamily units, and 4 mobile homes. **Mitigation Measures** Same as Alternative B. **Construction (Short-Term) Impacts** None. **Mitigation Measures** None.

Table S-1 Summary of Major Environmental Impacts				
Environmental Element	**Alternative A (No Action)**	**Alternative B**	**Alternative C2 (Preferred)**	**Alternative C3**
		Mitigation Measures None.		
3.10 Social	**Operation (Long-Term) Impacts** Community cohesion would be largely unaffected. The lack of access improvements would conflict with GMA concurrency requirements for proposed growth and development in the area. No impacts on recreational facilities. No direct impacts on services and utilities. No impacts on pedestrian and bicyclist facilities. **Mitigation Measures** None. **Construction (Short-Term) Impacts** None. **Mitigation Measures** None.	**Operation (Long-Term) Impacts** Moderately severe impacts on Homestead Park community cohesion. Moderate impacts on Madrona and Grandview community cohesion. Would assist jurisdictions within the project area to direct development in accordance with their comprehensive planning. 0.5 acre of Des Moines Creek Park would be acquired. No direct impacts on Midway Park, Linda Heights Park, or Mark Twain School Playfield. School access would be more complicated for some students who walk to school because of street closures. One church would be displaced. Some utilities would need to be relocated. **Mitigation Measures** Construct new access connections between South 208th Street and the SR 99 corridor to preserve and improve access to remaining apartment	**Operation (Long-Term) Impacts** Moderately severe impacts on Mansion Hill community cohesion. Moderate impacts on Madrona neighborhood community cohesion. Same regional and community growth impacts as Alternative B. Same recreational impacts as Alternative B, except would acquire 4.7 acres of Des Moines Creek Park. Same service and utility impacts as Alternative B. **Mitigation Measures** Same community cohesion mitigation as Alternative B except for the loss of connectivity at South 208th Street. Construct new access connections between South 208th, South 204th, and South 211th Streets to preserve access to remaining apartment complexes in the Madrona neighborhood. Portions of the existing WSDOT right-of-way would be traded to	**Operation (Long-Term) Impacts** Moderately severe impacts on Mansion Hill and Homestead Park community cohesion. Same regional and community growth impacts as Alternative B. Same recreational impacts as Alternative B, except would acquire 3.9 acres of Des Moines Creek Park. Same service and utility impacts as Alternative B. **Mitigation Measures** Same community cohesion mitigation as Alternative B. Same recreational mitigation as Alternative C2. Same service and utility mitigation as Alternative B. **Construction (Short-Term) Impacts** Existing utilities may need to be

Table S-1 Summary of Major Environmental Impacts				
Environmental Element	**Alternative A (No Action)**	**Alternative B**	**Alternative C2 (Preferred)**	**Alternative C3**
		complexes in the Madrona neighborhood and single-family homes in the Homestead neighborhood. Investigate the feasibility and benefits of maintaining through access on key streets and installing pedestrian access across the roadway. Portions of unused existing WSDOT right-of-way would be traded to local jurisdictions in exchange for acquired parkland. Extend school bus routes to include children whose school access would be disrupted. Sidewalk construction related to access improvements would improve pedestrian access to Madrona Elementary School. Access plans would be developed for emergency services in areas where street access would be changed. Minimize utility outages during utility relocation. **Construction (Short-Term) Impacts** Existing utilities may need to be relocated during construction. During construction of the bridges over Des Moines Creek,	local jurisdictions in exchange for acquired parkland. An extension of Des Moines Creek Park Trail would be incorporated into alignment design. Same service and utility mitigation as Alternative B. **Construction (Short-Term) Impacts** Existing utilities may need to be relocated during construction. During construction of the elevated structure in Des Moines Creek Park, the trailhead parking area and the northern end of Des Moines Creek Trail would likely need to be closed for safety reasons. **Mitigation Measures** If the trailhead parking area and trail (under Alternatives C2 and C3) need to be closed during construction for safety reasons. WSDOT would work closely with the City of SeaTac to minimize disruption to the facilities and, when unavoidable, work with the City to implement alternative routes/detours.	relocated during construction. During construction of the elevated structure in Des Moines Creek Park, the trailhead parking area and the northern end of Des Moines Creek Trail would likely need to be closed for safety reasons. **Mitigation Measures** WSDOT would work with local service providers to coordinate utility relocation efforts and to minimize service disruptions. Same mitigation measures as Alternative B.

Table S-1 Summary of Major Environmental Impacts				
Environmental Element	**Alternative A (No Action)**	**Alternative B**	**Alternative C2 (Preferred)**	**Alternative C3**
		Des Moines Creek Trail would likely need to be closed for safety measures. **Mitigation Measures** WSDOT would work with local service providers to coordinate utility relocation efforts and minimize service disruptions. WSDOT would work closely with the City of SeaTac to minimize disruption to the facilities and, when unavoidable, work with the City to implement alternative routes/detours.		
3.11 Economic	**Operation (Long-Term) Impacts** Traffic congestion on I-5, other north/south arterials, and some east/west arterials would continue to worsen despite numerous roadway improvements. This would impair the movement of goods and people within the cities of SeaTac and Des Moines and to Sea-Tac Airport. **Mitigation Measures** None. **Construction (Short-Term) Impacts**	**Operation (Long-Term) Impacts** The movement of goods and people from I-5 to Sea-Tac Airport and other locations along the SR 509 corridor would be improved. Commercial vehicles and individual passengers traveling to and from Sea-Tac Airport would experience travel time savings due to the improved roadway. The fiscal impacts associated with the initial loss of property tax revenues would represent less than 1 percent of each jurisdiction's total tax revenues; therefore, the impact would not be considered substantial. The	**Operation (Long-Term) Impacts** Same as Alternative B. **Mitigation Measures** Same as Alternative B. **Construction (Short-Term) Impacts** Construction would result in a $690-$710 million project and the associated positive impacts on employment and overall economic activity in the project area. Impacts on businesses might include temporarily increased congestion, noise, dust, and	**Operation (Long-Term) Impacts** Same as Alternative B. **Mitigation Measures** Same as Alternative B. **Construction (Short-Term) Impacts** Construction would result in a $695-$715 million project and the associated positive impacts on employment and overall economic activity in the project area. Impacts on businesses might include temporarily increased congestion, noise, dust, and

Table S-1 Summary of Major Environmental Impacts				
Environmental Element	**Alternative A (No Action)**	**Alternative B**	**Alternative C2 (Preferred)**	**Alternative C3**
	None. **Mitigation Measures** None.	impacts on sales tax revenues are also not likely to be substantial. The initial tax impacts associated with displacements would likely be offset eventually by tax revenues associated with increased development of vacant land and redevelopment of existing buildings throughout the project area. **Mitigation Measures** None. **Construction (Short-Term) Impacts** Construction would result in a $715-$735 million project and the associated positive impacts on employment and overall economic activity in the region. Impacts on businesses might include temporarily increased congestion, noise, dust, and possibly interrupted or more difficult access. Temporary reduction in retail sales might result as customers avoid shopping in the construction area (this would be partially offset by sales tax revenues generated by construction spending within the	possibly interrupted or more difficult access. Temporary reduction in retail sales might result as customers avoid shopping in the construction area (this would be partially offset by sales tax revenues generated by construction spending in the region). Right-of-way acquisition would displace between 27 and 31 businesses. Depending on the option selected, the construction of the South Airport Link would be expected to displace between 0 and 4 businesses in the SeaTac city center. I-5 improvements would displace 2 businesses. **Mitigation Measures** Same as Alternative B.	possibly interrupted or more difficult access. Temporary reduction in retail sales might result as customers avoid shopping in the construction area (this would be partially offset by sales tax revenues generated by construction spending in the region). Right-of-way acquisition would displace between 15 and 19 businesses. Depending on the option selected, the construction of the South Airport Link would be expected to displace between 0 and 4 businesses in the SeaTac city center. I-5 improvements would displace 2 businesses. **Mitigation Measures** Same as Alternative B.

Table S-1 Summary of Major Environmental Impacts				
Environmental Element	**Alternative A (No Action)**	**Alternative B**	**Alternative C2 (Preferred)**	**Alternative C3**
		project area). Right-of-way acquisition would displace between 24 and 28 businesses. Depending on the option selected, the construction of the South Airport Link would be expected to displace between 0 and 4 businesses in the SeaTac city center. I-5 improvements would displace 2 businesses. **Mitigation Measures** Install temporary signage to inform drivers that access to businesses during construction is temporarily changed or restricted. Require contractors to submit and receive approval of a construction plan to maintain access for all properties and businesses adjacent to construction activity. Coordinate with affected business owners to develop and implement strategies to maintain access to businesses during construction. Inform businesses and tenants displaced by new right-of-way acquisition or other construction activities that they would be		

Table S-1 Summary of Major Environmental Impacts				
Environmental Element	**Alternative A (No Action)**	**Alternative B**	**Alternative C2 (Preferred)**	**Alternative C3**
		entitled to relocation assistance in accordance with the Uniform Relocation Assistance and Real Property Acquisition Act of 1970 and RCW 8.26.		
3.12 Historic and Archaeological Resources	**Operation (Long-Term) Impacts** None. **Mitigation Measures** None. **Construction (Short-Term) Impacts** None. **Mitigation Measures** None.	**Operation (Long-Term) Impacts** No impacts would occur to known state or National Register listed or eligible resources. **Mitigation Measures** None. **Construction (Short-Term) Impacts** None. **Mitigation Measures** WSDOT would consult with the affected tribes during construction in accordance with Section 106 of the National Historic Preservation Act of 1966 and applicable state laws if eligible resources are inadvertently discovered. If required, archaeological monitoring will be undertaken during construction; in the event that potentially significant	**Operation (Long-Term) Impacts** Same as Alternative B. **Mitigation Measures** None. **Construction (Short-Term) Impacts** None. **Mitigation Measures** Same as Alternative B.	**Operation (Long-Term) Impacts** Same as Alternative B. **Mitigation Measures** None. **Construction (Short-Term) Impacts** None. **Mitigation Measures** Same as Alternative B.

Table S-1 Summary of Major Environmental Impacts				
Environmental Element	**Alternative A (No Action)**	**Alternative B**	**Alternative C2 (Preferred)**	**Alternative C3**
		archaeological remains are found, specific late discovery procedures will be followed. If any of the buildings to be removed during construction are determined by OAHP to be NRHP-eligible, mitigation measures may include modifications to the project design to avoid or minimize impacts; review and approval by SHPO and local Landmarks Preservation Board of project design elements that may damage, alter, or obscure views of a historic resource/designated local landmark; or relocation of the historic resource.		
3.13 Hazardous Waste	**Operation (Long-Term) Impacts** Increases potential for hazardous materials spills because of future increases in traffic congestion. **Mitigation Measures** None. **Construction (Short-Term) Impacts** No known or potentially contaminated sites would be affected.	**Operation (Long-Term) Impacts** Less potential for hazardous materials spills associated with lower levels of traffic congestion. **Mitigation Measures** None. **Construction (Short-Term) Impacts** Thirty-six known or suspected contaminated sites could be affected.	**Operation (Long-Term) Impacts** Same as Alternative B. **Mitigation Measures** None. **Construction (Short-Term) Impacts** Forty known or suspected contaminated sites could be affected. The four substantially identified for alternative B could potentially	**Operation (Long-Term) Impacts** Same as Alternative B. **Mitigation Measures** None. **Construction (Short-Term) Impacts** Forty known or suspected contaminated sites could be affected. Six substantially contaminated sites could be affected,

Table S-1 Summary of Major Environmental Impacts				
Environmental Element	**Alternative A (No Action)**	**Alternative B**	**Alternative C2 (Preferred)**	**Alternative C3**
	Mitigation Measures None.	Four substantially contaminated sites could be affected. Potential soil and groundwater contaminants include petroleum hydrocarbons, solvents, and heavy metals. Construction of I-5 improvements could require excavation in or adjacent to the Midway Landfill. **Mitigation Measures** General mitigation includes erosion control, spill prevention and containment measures. Removal, and disposal of demolition debris, underground storage tanks, and contaminated soil would be conducted in accordance with regulatory requirements. Mitigation for construction in the vicinity of Midway landfill could include construction of retaining walls, odor control, and modification of the existing geomembrane and gas extraction system. The City of Seattle is responsible for landfill mitigation.	be affected. Same impacts associated with the Midway Landfill as for Alternative B. **Mitigation Measures** Same as Alternative B.	including the four sites identified for Alternatives B and C2. Same impacts associated with the Midway Landfill as for Alternative B. **Mitigation Measures** Same as Alternative B.

Table S-1 Summary of Major Environmental Impacts				
Environmental Element	**Alternative A (No Action)**	**Alternative B**	**Alternative C2 (Preferred)**	**Alternative C3**
3.14 Visual Quality	**Operation (Long-Term) Impacts** None. **Mitigation Measures** None. **Construction (Short-Term) Impacts** None. **Mitigation Measures** None.	**Operation (Long-Term) Impacts** Visual impacts on Lower Des Moines Creek, South 208th St. Draw, Mansion Hill, Midway Ridge, and Kent/Federal Way caused by clearing of vegetation, installation of noise walls, and construction of new lanes, ramps, or bridge structures. Changes would be visible to residents and recreational users. **Mitigation Measures** Incorporate aesthetic considerations into project design; minimize clearing and preserve stands of mature trees and natural vegetation; plant vegetation to preserve character, screen views, and blend the project with adjoining landscapes; consider wide-span bridge crossings to minimize view obstruction and interruption of visual continuity; employ principles of architectural design to enhance the appearance of project features and to promote visual corridor continuity; investigate opportunities to acquire sufficient right-of-way to provide space for plantings near retaining walls; and design interchanges as enhancements.	**Operation (Long-Term) Impacts** Visual impacts on Upper Des Moines Creek, South 208th St., Mansion Hill, Midway Ridge, and Kent/Federal Way caused by clearing of vegetation, installation of noise walls, and construction of new lanes, ramps, or bridge structures. Changes would be visible to residents and recreational users. **Mitigation Measures** Same as Alternative B. **Construction (Short-Term) Impacts** Same as Alternative B. **Mitigation Measures** Same as Alternative B.	**Operation (Long-Term) Impacts** Visual impacts on Upper Des Moines Creek, Mansion Hill, Midway Ridge, and Kent/Federal Way caused by clearing of vegetation, installation of noise walls, and construction of new lanes, ramps, or bridge structures. Changes would be visible to residents and recreational users. **Mitigation Measures** Same as Alternative B. **Construction (Short-Term) Impacts** Same as Alternative B. **Mitigation Measures** Same as Alternative B.

Table S-1 Summary of Major Environmental Impacts				
Environmental Element	**Alternative A (No Action)**	**Alternative B**	**Alternative C2 (Preferred)**	**Alternative C3**
		Develop and implement visual guidelines for design and operation of the project. **Construction (Short-Term) Impacts** Construction equipment, materials, and signage could be visible in staging areas and temporary lighting could be necessary for nighttime construction. **Mitigation Measures** Locate material and equipment storage in areas that are not prominent and shield or locate roadway lighting so that light sources are not directly visible from residential areas.		

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1. Purpose of and Need for Action

1. Purpose of and Need for Action

1.1 Purpose of the Action

The purpose of the proposed action is to improve regional highway connections with an extension of State Route (SR) 509 to serve current and future transportation needs in southwest King County and to enhance southern access to Seattle-Tacoma International (Sea-Tac) Airport.

1.2 Project History

The existing SR 509 corridor was adopted by the Washington State Transportation Commission in 1957 and authorized by the legislature in 1959 to accommodate a limited-access highway between Seattle and Tacoma. Part of its function was to be an interregional freeway of up to six lanes running parallel to Interstate 5 (I-5).

Design and construction proceeded from south Seattle to Burien in the 1960s. In the early 1970s, approximately 3.3 miles of right-of-way was purchased from Burien to SR 516 in the City of Des Moines. Because of rising costs, tightening federal and state highway construction funds, and opposition to continuing the highway, the Washington State Department of Transportation (WSDOT) abandoned the plans to continue construction of the route. In 1979, the state completed the last freeway segment from South 160th Street to South 188th Street.

In 1985, the City of Des Moines passed a resolution for WSDOT to terminate SR 509 at South 216th Street or northwards, and turn back the remaining unused right-of-way to the city. In 1986, the Port of Seattle recommended construction of a new south access road to Sea-Tac Airport. This proposal was determined by King County to be in conflict with the limited capacity of the county's road network in place at that time. A 28th/24th Avenue South study was initiated by King County and later taken over by the City of SeaTac.

In 1986, WSDOT requested that King County include an SR 509 analysis in the *Sea-Tac/Communities Plan Update* and associated environmental impact statement (EIS). During 1987 and 1988, King County, with WSDOT participation, developed the *Sea-Tac Area Update* and issued an SR 509 report recommending extension of the highway to join I-5 in the vicinity of South 210th/211th Street.

These events, together with the incorporation of the City of SeaTac in 1989, a transportation planning study for the City of Des Moines, the desire of the

Port of Seattle to explore a new airport south access route, and a public/ private committee study identifying the need for additional facilities in the area, resulted in a joint public/private SR 509/South Access Advisory Committee being formed in 1990 for the further study of intermodal projects in the area. This committee evolved into the current SR 509/South Access Road Executive and Steering Committees. The Executive Committee is a non-Record of Decision body composed of cooperating local agencies with funding and/or ancillary decisionmaking obligations for the project. Committee members include the Cities of SeaTac, Kent, and Des Moines, King County, the Port of Seattle, and the WSDOT Regional Administrator. The role of the Executive Committee, for purposes of the National Environmental Policy Act (NEPA) and Washington's State Environmental Policy Act (SEPA), is advisory. The Steering Committee is composed of technical staff from the Cities of SeaTac, Des Moines, Burien, Kent, Federal Way and Normandy Park, King County, Port of Seattle, WSDOT, Federal Highway Administration (FHWA), and Federal Aviation Administration (FAA); the Steering Committee makes recommendations to the Executive Committee.

Between 1991 and 1995, the Steering Committee worked closely with a consultant team to screen corridor alternatives. A Notice of Intent to prepare an EIS for the project was published that identified FHWA as the NEPA lead agency and WSDOT as the SEPA lead agency. The Port of Seattle, King County, and the Cities of SeaTac and Des Moines became cooperating agencies at their request. A Draft EIS (DEIS) evaluating environmental impacts at a corridor level was issued in 1995 (FHWA et al. 1995). Specifically, it documented potential impacts within potential roadway corridors rather than within specific roadway alignments. In response to comments received on the DEIS, the decision was made to identify alternative roadway alignments to be evaluated in a project-level EIS.

An Interagency Working Agreement to Integrate Special Aquatic Resources (Section 404 of the Clean Water Act) Permit Requirements into the NEPA and the SEPA in the State of Washington has been in effect since June 1995. This agreement integrates the Section 404 permit processes and other related permitting and certification procedures into the NEPA and SEPA processes early in the project programming and project development stages. The signatory agencies to this agreement are the Federal Highway Administration (FHWA), National Marine Fisheries Service (NMFS), U.S. Army Corps of Engineers (USACOE), U.S. Environmental Protection Agency (EPA), U.S. Fish and Wildlife Service (USFWS), Washington State Department of Ecology (Ecology), Washington Department of Fish and Wildlife (WDFW), and WSDOT.

The Executive Committee, Steering Committee, and the Signatory Agency Committee (SAC) have worked to identify the alternatives evaluated in the project-level Revised DEIS, which was published in January 2002 and this

Final Environmental Impact Statement (FEIS). Chapter 2 includes a description of the alternatives selection process.

1.3 Need for Action

The proposed project is needed to create system linkages, accommodate travel demand and capacity needs, and improve intermodal relationships. The SR 509 freeway terminates at South 188th Street/12th Place South, 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 on major roadways increases.

1.3.1 System Linkages

An important link in the state freeway system is missing within southwestern King County—a limited access connection between I-5 and the existing limited access portion of SR 509, which commences northbound at South 188th Street/12th Place South in Burien. Currently, the SR 509 corridor consists of a four-lane freeway north of Des Moines Memorial Drive/12th Place South, with a two- to four-lane arterial street south of that point. To the north, SR 509 has major connections to SR 99; to the south, it passes through the Cities of Normandy Park, Burien, and Des Moines, serving as a major connection to the regional system for residents. South of Des Moines, Marine View Drive and 16th Avenue South were previously the signed SR 509 route. In 1992 the state transferred jurisdiction of these roads to the local agencies; 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.

The impact of this missing link is reflected in the heavy congestion on other freeways in the project vicinity, and the relatively low volume per hour per lane (vphpl) during the p.m. peak hour (between 4:30 p.m. and 5:50 p.m.) on SR 509 south of SR 518. In that section of roadway, the vphpl southbound is 1,150, but northbound it is only 500. In comparison, I-5 south of SR 518/ Interstate 405 (I-405) carries 2,060 vphpl southbound and 1,390 vphpl northbound. The underutilization of SR 509 is due primarily to its lack of a regional connection to and from the south.

A southern regional access route to Sea-Tac Airport from I-5 is also missing from the transportation system. Local access to Sea-Tac Airport from the south is only possible from the arterial street system at approximately South 182nd Street/SR 99. Local traffic can also access the North Access Expressway at South 170th Street. Currently, the primary regional access route from the south is I-5 via SR 518 and the North Access Expressway; this

route requires vehicles to pass through the congested I-5/I-405 interchange and the Southcenter Hill portion of I-5.

1.3.2 Travel Demand and Capacity

The following discussion of travel demand and capacity first describes existing conditions and then discusses anticipated conditions of the project implemented.

Existing Conditions

The I-5/SR 99/SR 509 corridor is one of the most heavily traveled in the state. A number of local roadways and intersections are congested because of high volumes of vehicles accessing the region's major transportation routes and Sea-Tac Airport.

Traffic Volumes and Level of Service

Traffic volumes in the project vicinity vary widely, with average daily traffic volumes as high as 200,000 vehicles per day on I-5 north of I-405. Peak-hour volumes (when congestion is highest) are typically about 8 percent of daily volumes. The highest single hour of demand typically occurs during the p.m. peak hour. The p.m. peak-hour volumes in the project vicinity range as high as 16,000 vehicles per hour (vph) total (in both directions) on I-5 north of I-405. The p.m. peak-hour traffic volumes are summarized in Figure 1.3-1.

On SR 509, the 1998 p.m. peak-hour volume (total both directions) was as high as 5,125 vph north of SR 518. Volumes decrease sharply south of SR 518, with a p.m. peak-hour volume of 3,325 vph (total both directions) at the south terminus of the freeway section. Between SR 516 and Des Moines Memorial Drive/12th Place South, traffic volumes are affected by the Cities of Normandy Park and Des Moines, with volumes (total both directions) ranging from 970 vph to 1,550 vph.

Level of service (LOS) is a qualitative description of the degree of comfort drivers experience as they travel a roadway. LOS grades range from LOS A, in which little or no delay is experienced, to LOS F, which denotes extreme congestion. WSDOT has established a LOS standard of D for peak-hour traffic operations on state highways.

Currently, major transportation routes within the project vicinity are heavily congested during peak periods. Portions of the I-5, SR 99, and I-405 corridors are operating at LOS E or F. (LOS on SR 99 between South 177th Street and South 200th Street has improved since 1998, when traffic volume measurements were taken, due to roadway improvements.) Congestion is acute on the I-5 Southcenter Hill south of the intersection with I-405. The existing LOS are shown in Figure 1.3-2.

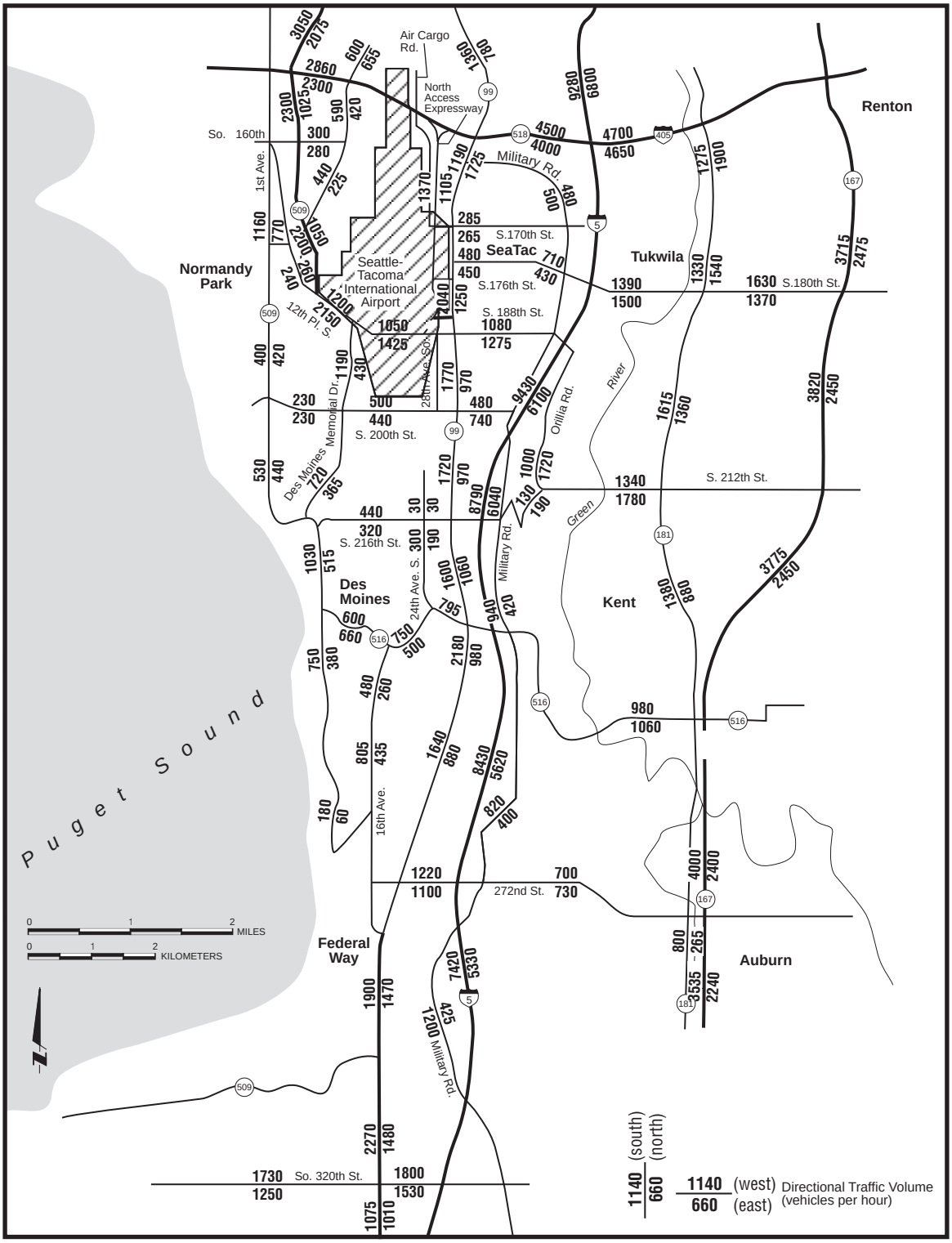

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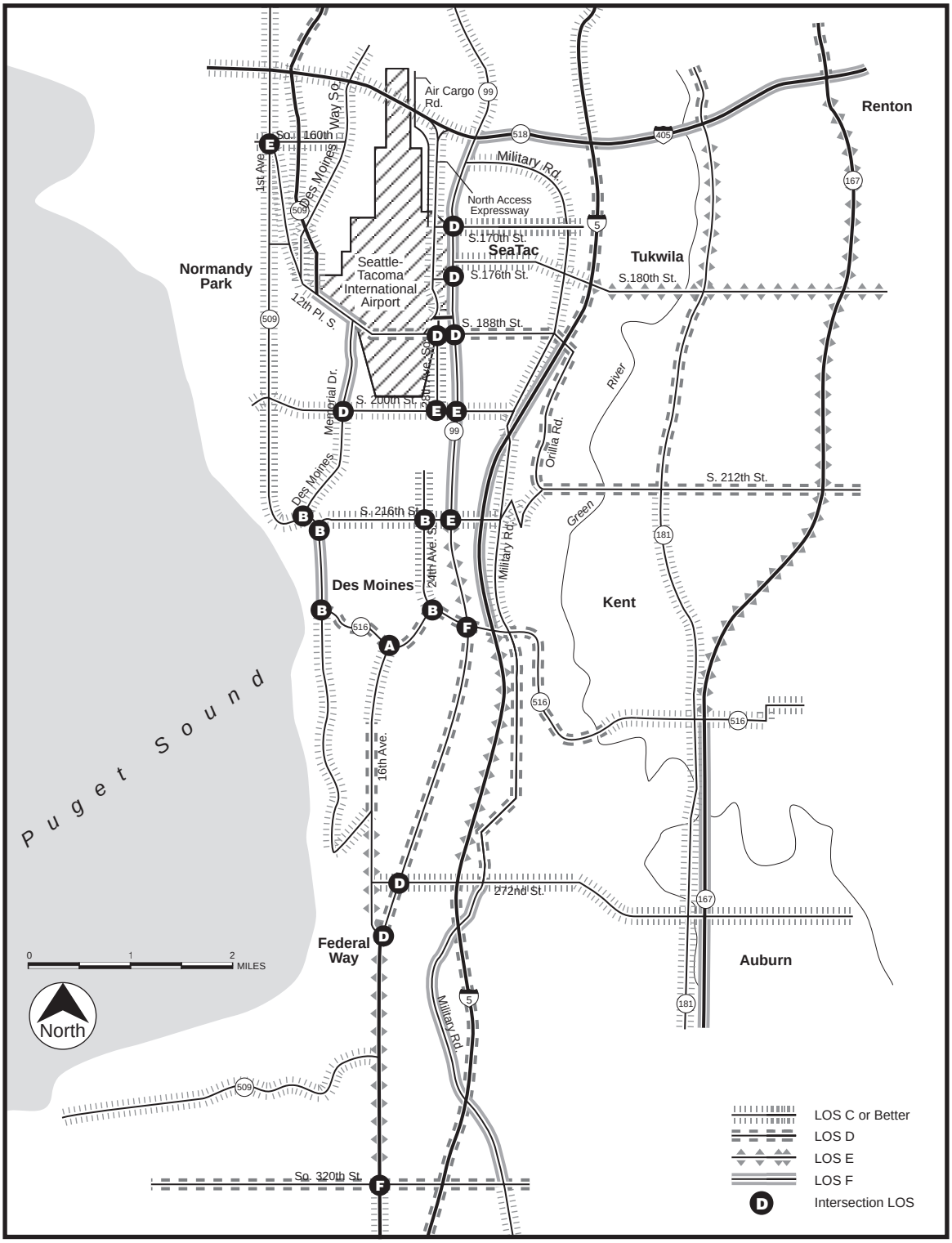
FIGURE 1.3-1

Existing Traffic Volumes 1998 PM Peak Hour

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement



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Note: Improvements made to SR 99 between South 170th Street and South 200th Street since 1999 have improved LOS within this roadway segment.

FIGURE 1.3-2

Existing Level of Service 1998 PM Peak Hour

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement

In the SR 509 corridor, the freeway segment operates at LOS C to D. Immediately south of the freeway terminus, the SR 509 corridor operates at LOS C or better to South 216th Street. Most traffic uses Des Moines Memorial Drive between the freeway and South 216th Street, rather than SR 509; as a result, portions of Des Moines Memorial Drive operate at LOS F. SR 509 operates at LOS F between South 216th Street and SR 516, where traffic volumes from SR 509 and Des Moines Memorial Drive merge.

Airport Traffic

Sea-Tac Airport is the single largest generator of vehicle trips in the project area. The airport handled more than 27 million annual passengers in 2001, and serves as a regional center for air cargo (Port of Seattle 2002).

In 1998, Sea-Tac Airport generated an annual average daily traffic volume of 66,000 vehicles. In August, the airport's busiest month, the average daily traffic volume is estimated at 84,000 vehicles, with 4,260 vph during the p.m. peak hour and 5,270 vph during the airport peak hour at midday (11 a.m. to 1 p.m.). This level of traffic volume impacts the adjacent roadway system, particularly at airport access points—the north access to and from SR 518 and along SR 99. Development supporting the airport such as hotels, rental car agencies, and offsite parking facilities also impacts circulation in the area.

Transit and High-Occupancy Vehicles

Transit service to the project area is provided by Metro and Sound Transit, which provide express and local service, transit centers, and park-and-ride lots. In addition to these services, taxis and private carriers serve the airport, and shuttle service is provided to the airport from hotels, car rental lots, and long-term offsite parking lots near Sea-Tac Airport.

The existing transit use within the vicinity of South 188th Street between approximately 1st Avenue South to I-5 is estimated at 17,400 person-trips per day. Transit mode split during the peak hours ranges from about 3 percent to 13 percent, with the higher mode splits for the cities of SeaTac, Renton, and Tukwila.

High-occupancy vehicle (HOV) facilities in the area consist primarily of HOV lanes on I-5, I-405, SR 167, and SR 99 from South 170th Street to South 200th Street. Use of the HOV lanes varies during the p.m. peak hour from less than 200 vph to more than 1,000 vph. The highest use of all lanes is southbound on I-5 south of SR 518/I-405. Average peak-hour car occupancy is estimated at 1.15 to 1.24 persons per car, which means that approximately 80 to 90 percent of the vehicles have only one occupant.

Truck Travel

I-5 is the most heavily used truck route in the project area, with over 7,500 trucks per day per direction on Southcenter Hill measured in 1998. Other access-controlled highways (SR 167, SR 599, and SR 18) are more heavily used than parallel highways that have frequent intersections and traffic signals, such as SR 99 and SR 181.

Most trucks travel during daytime hours to meet the operating schedules of suppliers and receivers. Approximately 75 percent of all truck movement occurs between 6:00 a.m. and 6:00 p.m. During the a.m. peak period, trucks represent about 6 percent of the total traffic volume; during the p.m. peak period, trucks range from 4 percent to 7 percent of the total traffic volume. Although trucks represent a small portion of the total traffic, their effect on operations is much greater. Each truck (in terms of capacity) is equivalent to between 1.5 and 4.5 passenger vehicles, depending on the grade of the roadway (source: *Highway Capacity Manual,* Transportation Research Board [TRB] 1997, Table 3-4).

Future Travel Demand and Capacity

A comparison of the total travel demand for the project area is summarized in Table 1.3-1. Total peak-hour vehicle travel demand in the project area would increase by 35 percent without the project by the year 2020. This equals an approximate 1.2 percent growth rate per year from 1991 to 2020. (The transportation analysis for the build alternatives relies on the travel demand model developed by The Transpo Group for forecasting future traffic volumes.)

Table 1.3-1
Vehicle Travel Demand Comparison[a] Year 2020

	1991	2020 (Without Project)	Percent Change
Total Trips[b]	128,500	173,600	35

[a] *p.m. peak hour.*
[b] *Total vehicle trips for all zones, including externals.*

A number of transportation improvements, including high-capacity transit (HCT) projects, HOV and other roadway improvements, and implementation of transportation demand management (TDM) strategies, are proposed in the project vicinity. When implemented, the transit projects are expected to reduce vehicle travel demand for work trips originating in or destined for the project area by up to 4 percent (and are accounted for in Table 1.3-1). Overall p.m. peak-hour travel demand, including through trips (trips which do not either originate or terminate in the project area), would be reduced by approximately 8.5 percent because of regional transit improvements. TDM

programs could reduce trips by as much as 20 percent. Without the planned regional and local transit improvements, vehicle travel demand would increase even more, resulting in more congestion and lower travel speeds.

Traffic Volumes and Level of Service

Figure 1.3-3 shows the forecast 2020 peak-hour traffic volumes without the project. In the SR 509 corridor north of SR 518, year 2020 traffic volumes would increase by approximately 6 percent to over 5,400 vph (total both directions). In the freeway section south of SR 518, volumes would increase up to 35 percent to over 4,500 vph (total both directions). The arterial section of SR 509 from Des Moines Memorial Drive/12th Place South to SR 516 would experience traffic growth of about 11 percent. The freeway section of SR 509 south of SR 518 would continue to be underutilized, particularly in the northbound direction.

Figure 1.3-4 shows the associated LOS for the year 2020, based on the above travel demand assumptions without the SR 509 extension. Large parts of the I-5, SR 99, I-405, SR 518, SR 181, and SR 167 corridors, as well as some arterials feeding the corridors, would operate at LOS F. The SR 509 corridor would continue to be underutilized due to poor access to major routes to the south.

Airport Travel Demand

Travel demand to and from Sea-Tac Airport in 2020 is a reflection of the total number of passengers and the amount of air cargo passing through the airport. The airport would generate approximately 155,400 vehicle trips per day and 8,100 p.m. peak-hour trips in 2020, an increase of more than 70 percent over existing conditions.

Under current conditions, approximately 57 percent of the airport passenger terminal traffic accesses Sea-Tac Airport via the North Airport Expressway, 25 percent via South 182nd Street, and 18 percent via South 170th Street at Air Cargo Road. However, by 2010, based on the Airport Master Plan Update (adopted by Resolution 3212 [as amended] on August 1, 1996), approximately 60 percent of airport traffic is expected to access the passenger terminal via the North Airport Expressway, 20 percent from South 182nd Street, and 20 percent via South 170th Street. Because of the increased traffic to and from the south, traffic congestion at the airport entrances on SR 99 would increase substantially.

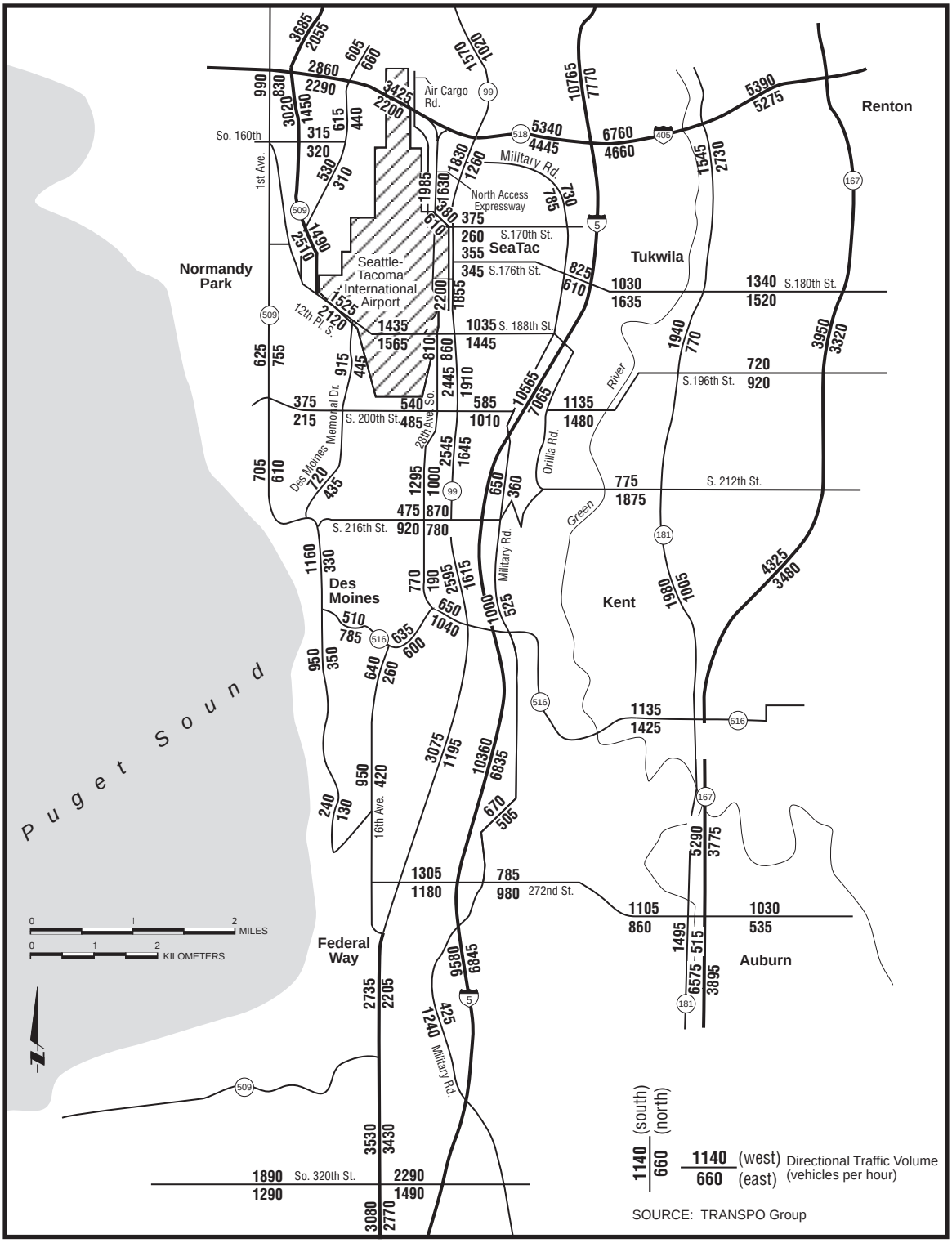
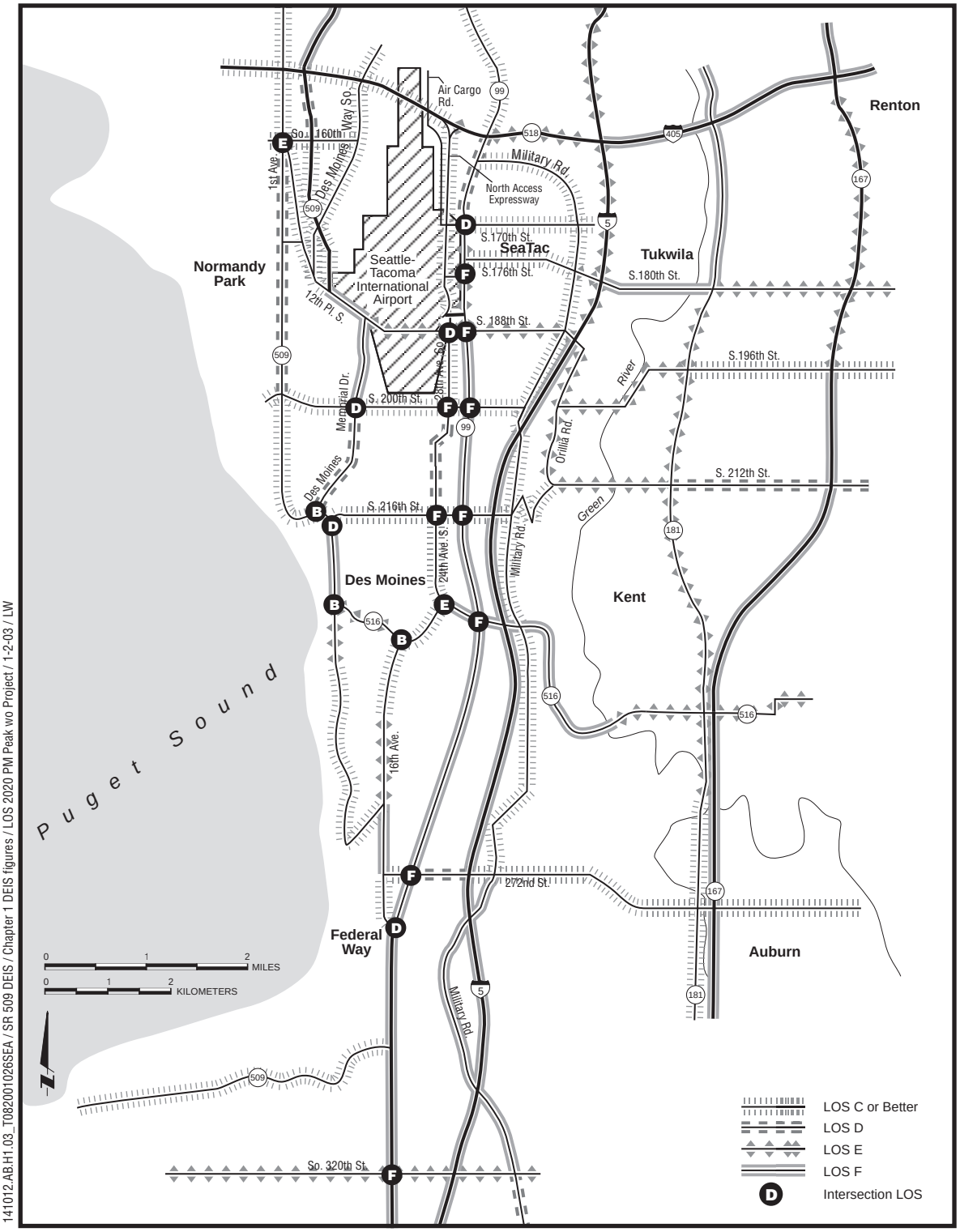


FIGURE 1.3-3

Traffic Volumes 2020 PM Peak Hour (Without Project)

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement



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Note: Roadway level of service displayed is for travel direction with highest volume.

FIGURE 1.3-4

Level of Service 2020 PM Peak Hour (Without Project)

SR 509: Corridor Completion/I-5/South Access Road Environmental Impact Statement

Transit and High-Occupancy Vehicles

Transit use would increase because of improved service (described below) and higher travel demand (described above). Despite the increased transit usage, congestion in the project vicinity would increase in the future.

Three major transit projects (Link Light Rail Transit System, Sound Transit's Sounder Commuter Rail in the Green River Valley, and Sea-Tac Airport People Mover) expected to be in place by 2020, even without the project, would result in substantial improvement in transit service in the project area. Other transit-related service, local transit routes, transit flyer stops, HOV lanes, and park-and-ride lots also would be part of the overall transit program. In addition, new transit/carpool lanes are either planned, under construction, or recently completed for I-5, SR 99, SR 167, and SR 509.

The HOV lanes would have higher usage in the future as more carpools are formed, and the number of carpools on I-5 would be expected to more than double by 2020. Travel demand by carpools traveling southbound on I-5 south of SR 518/I-405 could approach the theoretical capacity of the HOV lanes in the future.

TDM programs regionwide and specific to the project area would reduce peak-hour travel demand. Such strategies would result in higher average car occupancy, as well as higher transit mode splits. In 2020, the average car occupancy in the p.m. peak hour would range from 1.25 to 1.35 (an increase of approximately 9 percent over existing conditions), which is equivalent to 70 percent to 80 percent of the vehicles being single-occupant. Combined with increases in transit mode split, the transportation system would carry substantially more people in 2020 than in 1998.

Truck Travel

Truck volumes on SR 509, SR 99, I-5, SR 181, and SR 167 are expected to increase from about 30,000 trucks per day in 1998 to 46,600 trucks per day in 2020 because of population and employment growth and economic development and prosperity in the project area. This represents a growth rate of approximately 2 percent per year to 2020. Truck traffic is expected to increase at a faster rate than passenger-vehicle traffic.

1.3.3 Modal Interrelationships

The proposed project is located at the confluence of the movement of goods and people in the King County area. South King County has the largest concentration of manufacturing and wholesale/distribution industries in Washington. Air freight and passenger travel primarily flow through Sea-Tac Airport. Commuters pass through the area during the a.m. and p.m. peak hours on their way to and from jobs in the commercial centers of Seattle,

Bellevue, and elsewhere in the county. The movement of goods and people stretches the capacity of the existing transportation network as trucks, passenger cars, and HOVs compete with each other for roadway space.

Schedule reliability is one of the biggest concerns of the trucking industry. Traffic using I-5 is often delayed by accidents or major incidents that can make truck deliveries unreliable. In 1996, the section of I-5 between SR 599 and SR 516 experienced an average of 3 accidents per day and 1 major incident every 2 weeks. The time delays caused by accidents and congestion represent inefficiencies and costs for the trucking industry and the industries it serves.

As noted previously, in 1998 Sea-Tac Airport generated an annual average of 66,000 vehicles per day, which contributes to the inefficiencies of other modes.

1.4 Objectives of the Action

The objectives of the proposed SR 509 Corridor Completion/I-5/South Access Road Project improvements are as follows:

- Support local and regional comprehensive planning and development
  - Connect to existing and planned business centers (Aviation Business Center, Des Moines business parks, SeaTac Urban Center, and the City of Des Moines Pacific Ridge Neighborhood Improvement project)
  - Serve the Port of Seattle's South Aviation Support Area (SASA)
- Maintain efficiency of existing roadways in the immediate vicinity of the airport terminals and parking garage
  - Extend these existing airport roadways south to connect to regional highway system
- Relieve local congestion
  - Relieve truck traffic on city streets
  - Serve peak-hour travel demands to and from major residential and commercial areas
  - Relieve congestion on South 188th Street, South 200th Street, SR 99, Military Road, Marine View Drive, SR 516, 16th Avenue South, and Des Moines Memorial Drive
- Serve harbor freight operations

- Reduce travel times between harbor and freight destinations
- Provide alternative routes, including direct route to Kent

- Improve regional mobility and safety
  - Serve Cross-Valley Connector traffic
- Be compatible with connections to HCT
  - Allow for full HOV connectivity
  - Support HCT and south corridor bus plans of local transit agencies
- Develop broad public and political support for the preferred alternative
  - Involve citizens in the identification and recommendation of a preferred alternative
  - Obtain approval of government councils and agencies
- Design project in an environmentally responsible manner
  - Avoid or minimize detrimental effects on environmentally sensitive areas
  - Mitigate environmental impacts where avoidance is not possible
  - Partner with other agencies to provide watershed-based mitigation solutions
- Provide cost-effective alternatives and solutions
  - Balance street system capacity with demand
  - Balance engineering, environmental, social, and economic issues or costs with benefits

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2. Alternatives

2. Alternatives

2.1 Project Termini

The northern terminus of the proposed SR 509 mainline under all build alternatives would be approximately 1,700 feet north of South 188th Street/12th Place South, where the existing SR 509 freeway ends. The intent of the SR 509: Corridor Completion/I-5/South Access Road Project is to connect the new roadway with the existing facility at its current terminus. The SR 509 mainline would connect with I-5 between approximately South 211th Street and South 214th Street, depending on the build alternative.

The northern terminus of the South Access Road under all build alternatives would generally be at the south end of the existing upper and lower terminal drives at Sea-Tac Airport. The South Access Road would connect with the SR 509 mainline between South 200th and South 209th streets, depending on the specific build alternative.

The southern terminus of the entire project would be where a southbound I-5 auxiliary lane would match with an auxiliary lane to be provided under the Sound Transit I-5 @ South 317th Street Direct Access Ramp project at approximately South 310th Street.

2.2 Alternatives Considered But Rejected

The National Environmental Policy Act (NEPA) and corresponding Council on Environmental Quality (CEQ) regulations require development and consideration of reasonable alternatives that represent a range of possibilities to arrive at a proposed action. The alternatives are the basis for the subsequent comparative analysis of environmental consequences. The build alternatives considered in this FEIS represent different SR 509 extension and South Access Road alignments with different points of connection between SR 509 and the South Access Road and between SR 509 and I-5. All of the build alternatives address, in varying degrees, the purpose of and need for the action. These build alternatives are the result of an extensive screening process and reflect considerable public comment, traffic and environmental analyses, and design refinements. As required by NEPA, a No Action Alternative—in this case, one that assumes that neither the SR 509 extension nor the South Access Road would be built (although other planned local and regional transportation improvement projects could be implemented)—is also considered and analyzed in this FEIS. It is evaluated so that the level of impacts from any of the build alternatives can be clearly distinguished from the level of impacts that would occur without the proposed action.

2.2.1 Development and Screening of Corridor Alternatives for Tier 1 DEIS

The SR 509/South Access Road Corridor Project Draft EIS and Section 4(f) Evaluation (1995 DEIS) (FHWA et al. 1995) was intended to be the first tier of a two-tiered environmental evaluation process. The first tier examined wide corridors (general pathways), within which a more detailed analysis (Tier 2) would be conducted to define specific road alignments.

A two-stage screening process was used to identify the alternatives to be analyzed in the Tier 1 DEIS (Figure 2.2-1). Stage 1 involved the identification of 11 corridor build alternatives, 9 of which had been developed in previous reports and studies. Fifteen environmental and construction evaluation criteria were used in their screening, ranging from wetland impacts to effects on other elements of the existing transportation system. These 11 alternatives, plus the No Action Alternative, were presented to the public at an open house on May 6, 1992, and to public agency representatives on May 7, 1992. Based on the input received and the results of a workshop with WSDOT representatives and the Steering Committee (composed of staff members and participating agencies) on May 13, 1992, the 11 alternatives were each assigned an overall ranking and the "best" six were presented to the public at an open house on June 1, 1992. This open house concluded the Stage 1 screening process.

During Stage 2, the remaining six action alternatives were defined graphically and evaluated qualitatively, using 15 more detailed criteria. As during Stage 1, qualitative observations of each alternative for each evaluation category and its criteria were formulated and an overall ranking was assigned to each alternative by category during a Steering Committee workshop conducted on July 1, 1992.

The Stage 2 screening process reduced the number of corridor alternatives to three:

- Alternative 1 (No Action)
- Corridor Alternative 2 (intersecting I-5 at South 210th Street)
- Corridor Alternative 3 (intersecting I-5 at SR 516)
- Corridor Alternative 4 (intersecting I-5 near South 272nd Street)

These alternatives were presented to the public at a NEPA Scoping Meeting on September 30, 1992, and to public agency representatives on October 1, 1992. These meetings concluded the Stage 2 screening process and initiated the preparation of the 1995 DEIS (FHWA et al. 1995).



Legend

1 July 1994 Design Study Report and 1995 Draft EIS
2 Value Engineering Study
3 Selected for Inclusion in SEIS

FIGURE 2.2-1

Development of SR 509/ South Access Road Project Alternatives

SR 509: Corridor Completion/
I-5/South Access Road
Environmental Impact Statement

Public and agency comments on the DEIS were received in writing and at a public hearing held on January 10, 1996. In reviewing the comments, the Steering Committee concluded that they could be more fully addressed if finer detail were developed. This led to a decision to prepare the second-tier environmental document, addressing specific project-level alignments, in more detail within a Revised DEIS, rather than preparing a Final Corridor EIS.

2.2.2 Development and Screening of Alternative Project-Level Alignments for the Project-Level EIS

Subsequent to the publication of the corridor-level DEIS in December 1995, the alternatives were further evaluated. This reevaluation was initially directed by advice from the FHWA and was intended to ensure that the alternatives to be included in the project-level EIS were reasonable, avoided or minimized impacts as much as possible, and were not in some way fatally flawed. As a result of this process, corridor Alternative 4 was dropped from further consideration because of a combination of substantial impacts to two Section 4(f) resources—Des Moines Creek Park and Zenith Park—and indication from the United States Army Corps of Engineers (USACOE) that the impacts to a large Category 1 wetland south of South 260th Street were so substantial that it was unlikely that the alternative would receive permit approval. Please refer to Chapter 4 for a discussion of Section 4(f) resources in the project area.

Refinement of Remaining Corridor Alternatives

Corridor Alternative 2

Corridor Alternative 2 was revised (referred to as Alternative 2A) to avoid or greatly minimize the impacts on Des Moines Creek Park. In the corridor Alternative 2, there was an interchange within the boundaries of Des Moines Creek Park. However, there were only minimal intrusions into the restricted Sea-Tac Airport Runway Protection Zone (RPZ) at the end of the airport's main runway (Runway 16L/34R). Because of comments received from the Department of Interior concerning the impacts on Des Moines Creek Park and the need to avoid or minimize those impacts, the SR 509 Executive Committee (composed of elected officials and WSDOT's northwest regional administrator) decided to develop options with no or minimal park impacts. To do this, portions of the roadway had to be aligned to the north and within the RPZ.

Initially, nine optional project-level alignments of corridor Alternative 2 were developed and evaluated. Each option was a sequential refinement of a previously conceived option and included different designs for both SR 509 and the South Access Road. The series of options were:

- Options 1, 2, and 7 envisioned that SR 509 and the South Access Road would intersect north of Des Moines Creek Park and South 200th Street and that the combined SR 509/South Access Road would then traverse in a southeasterly direction east of the park.

- Options 3, 4, 5, and 6 envisioned that SR 509 and the South Access Road would generally parallel each other on the west and east sides, respectively, of the park. SR 509 would cross through the park at its narrowest point in the vicinity of South 210th Street before eventually intersecting with the South Access Road east of the park.

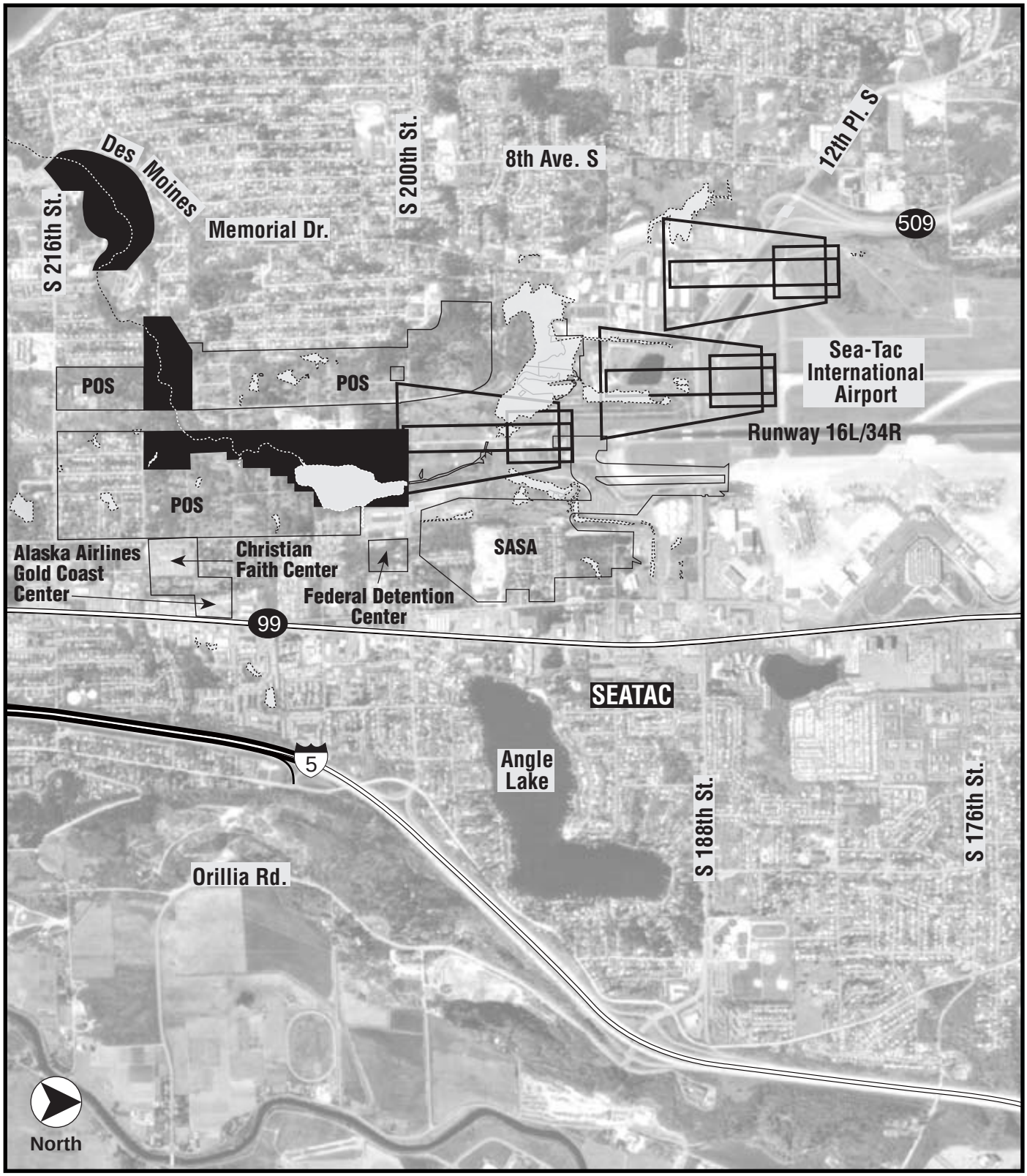
- Options 8 and 9 envisioned that the South Access Road would extend southwesterly to an interchange with SR 509 northwest of the park and that the combined roadway would extend southerly along the western boundary of the park before crossing through the park at its narrowest point in the vicinity of South 210th Street.

Each of these options was evaluated on the basis of specific environmental features and constraints (shown in Figure 2.2-2 or discussed in Chapter 3), including:

- Section 4(f) Property—Des Moines Creek Park
- Historic/archaeological resources
- Wetlands and streams
- Hazardous waste contaminated sites
- SASA
- Federal Detention Center (a facility for holding federal justice system detainees and inmates for a short time)
- FAA's Sea-Tac Airport RPZ
- Residences and businesses/potential displacements

As described in *White Paper: Evaluation of Alternative Alignments* (CH2M HILL July 1997), Options 6 and 8 were considered the most reasonable of the nine options because they minimized impacts relative to their predecessors and substantially minimized the corridor Alternative 2 impacts on Des Moines Creek Park. The other options were dropped from further consideration for a combination of reasons, including intrusions into the RPZ, impacts on residential neighborhoods, wetland impacts, impacts on the SASA, and poor traffic operations.

At the SR 509/South Access Road Executive Committee meeting on July 10, 1997, the committee directed that new design criteria be used to determine whether additional options could be developed to further minimize or avoid impacts. These criteria included a determination that the interchanges at South 200th Street with either SR 509 or the South Access Road were not necessary, nor was the accommodation of southbound traffic on the South Access Road to northbound SR 509. The committee also directed that, if



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Legend

- Wetlands and Streams
- Runway Protection Zones
- Des Moines Creek Park
- **POS** Port of Seattle Redevelopment Area

FIGURE 2.2-2

Environmental Features

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement

other feasible options could be identified, they should be evaluated and compared with Options 6 and 8 on the basis of an expanded list of environmental features and constraints that included:

- Port of Seattle-owned redevelopment areas
- Christian Faith Center
- Noise-sensitive residential receptors

Based on the new design criteria, six additional options were developed and evaluated. Continuing with the same numbering system used during the previous phase of alternative refinement, these options were numbered 10 through 15.

- Options 10, 11, and 12 were variations of the 1995 DEIS Alternative 2 in that SR 509 would extend southerly and cross through Des Moines Creek Park in the vicinity of South 204th Street, eventually intersecting with the South Access Road east of the park.

- Options 13, 14, and 15 envisioned that SR 509 would extend southeasterly north of South 200th Street, "thread the needle" between the northeast corner of the park, the southwest corner of the SASA, and the western boundary of the Federal Detention Center. The South Access Road would skirt the western boundary of SASA (similar to Option 6) and intersect SR 509 in the vicinity of South 200th Street.

As described in *White Paper: Evaluation of Alternative 2A Options* (CH2M HILL September 1997), Option 13 was perceived as the best of the six new options. The other options were determined to be flawed for a combination of reasons, including intrusions into the RPZ, complicated traffic movements, impacts on Des Moines Creek Park, and residential displacements.

Because of the addition of the Christian Faith Center to the list of environmental features and constraints to be considered, Option 6, which originally directly impacted the Center's administrative/education building (now the Alaska Airlines Gold Coast Center), was re-evaluated and a new Option 16 was developed. Option 16 envisioned that the SR 509 alignment would be moved roughly 500 feet north of Option 6, thus avoiding any direct impact on the Christian Faith Center's building. Option 16 also reflected a slight adjustment (from Option 6) to the alignment of the South Access Road to stay clear of the FAA Object-Free Area (OFA), another restricted area at the end of Runway 16L/34R.

At the Executive Committee meeting on September 17, 1997, Option 6 was dropped from further consideration in favor of Option 16. Option 8 was also dropped in favor of other, more feasible options. Option 13 was the Committee's preliminarily preferred Alternative 2A option, but the

Committee also requested that additional refinements be made. Finally, the Executive Committee directed that the refined Options 13 and 16, along with a revised version of corridor Alternative 3 (referred to as Alternative 3A), be presented to the public before final designation of a preliminary preferred option.

Refinements were made to Option 13 in four areas:

- The SR 509 alignment was shifted eastward in the vicinity of the Des Moines Creek Park to eliminate direct impacts on the park; however, impacts on the SASA increased.

- A half-diamond interchange between SR 509 and 28th/24th Avenue South was added to serve traffic movements from the City of SeaTac to and from the south on SR 509.

- The SR 509/South Access Road interchange was grade-separated from South 200th Street to provide for traffic movements to and from the airport on the South Access Road. Option 13 had an at-grade intersection at South 200th Street that required traffic to stop at a signalized intersection before continuing on to Sea-Tac Airport. By changing this connection to a grade-separated interchange, traffic could proceed from northbound I-5 to Sea-Tac Airport without encountering a traffic signal.

- The westerly SR 509/South 200th Street interchange, to serve traffic movements from the airport and the City of SeaTac to and from the north on SR 509, was moved farther west to avoid the RPZ and the Hillgrove Cemetery.

These refinements to Option 13 produced Option 17. By shifting the SR 509 alignment in the vicinity of South 200th Street and including a grade separation at that interchange, the SR 509 mainline was forced farther north before turning westerly through the RPZ.

Corridor Alternative 3

As with the corridor Alternative 2, the corridor Alternative 3 underwent a similar re-evaluation. Whereas the corridor alternative diverged from the existing SR 509 right-of-way in the vicinity of South 200th Street and traversed diagonally across Des Moines Creek Park, Alternative 3A, the project-level alternative, was intended to avoid impacts on the park by staying within the right-of-way until roughly South 214th Street before turning in a southeasterly direction. This refinement was very similar to the Section 4(f) Avoidance Alternative 3 DW analyzed in the DEIS. Alternative 3A also reflected modification in the alignment of the South Access Road. Whereas originally the South Access Road would extend generally southerly and intersect with SR 509 in the vicinity of South 205th Street, Alternative

3A envisioned that the roadway would extend southwesterly through the RPZ, pass under SR 509 north of South 200th Street, and eventually intersect with SR 509 in the vicinity of South 208th Street.

Alternative 3A was subsequently refined to avoid property purchased by the City of Des Moines for use as a "sports park" located in the area southwest of the intersection of South 216th Street and 24th Avenue South. The SR 509 alignment was extended farther south (to roughly South 220th Street) within the existing SR 509 right-of-way before turning southeasterly toward I-5.

Presentation of Refined Alternatives

Options 16 and 17 of Alternative 2A and the revised Alternative 3A were presented to the public at an open house on February 26, 1998. Based on the public input received, the Executive Committee, at its meeting on April 8, 1998, identified Option 17 (now redesignated as Alternative C) as the preliminary preferred alternative to be analyzed in the project-level EIS. This alternative was selected as the preliminary preferred alternative because, in comparison to the other alternatives, it had the fewest impacts on natural environmental features, had the potential of being considered a Section 4(f) avoidance alternative, left the greatest amount of Port of Seattle-owned redevelopment area untouched, and appeared to be the most direct route to the traveling public. The Executive Committee also recommended that Option 16 (redesignated Alternative B) and 3A Revised (redesignated Alternative D) be carried into the project-level EIS, along with Alternative A (No Action).

FAA Opinion

On September 29, 1998, FAA transmitted its position on each of the three build alternatives regarding the RPZ. The FAA indicated that Alternative B was clearly outside the RPZ and was thus worthy of further consideration. FAA indicated that Alternative C could possibly be acceptable if a cover (tunnel) designed to protect the people under it from the errant landing of an aircraft were constructed where the roadway passed through the Extended OFA (XOFA), a subarea of the RPZ. FAA strongly encouraged that the road be located as far to the south end of the XOFA as feasibly possibly, suggesting that if the road were located in the southern one-third of the XOFA, FAA might accept such a proposal without the requirement for the cover. FAA indicated that Alternative D would traverse through the OFA, violating the FAA design standard of no roads in the OFA.

Value Engineering

With that guidance from FAA, WSDOT assembled a Value Engineering (VE) team in February 1999 comprised of WSDOT, FHWA, Port of Seattle, U.S. Department of Interior (National Park Service), and City of SeaTac and Des Moines staff. The intent of the VE team was to evaluate the project-level

EIS alternatives and to determine if they could be further improved in terms of performance, cost, and minimization or avoidance of impacts. The VE team recognized the cost implications of the construction of a tunnel through the XOFA (estimated at an additional $12 million) and the associated safety concerns (trapping motorists in the tunnel during a car fire, or smoke and flames drawn into the tunnel by the ventilation system if an aircraft crash occurred near the portal). The VE team concluded that the Alternative C roadway alignment needed to be relocated farther south in the XOFA. By doing so, however, the road was forced into Des Moines Creek Park. Avoidance of the park was a critical design constraint that had shaped the development of all build alternatives to that point in the environmental review process, primarily because of the strength of Section 4(f) and its requirement to select an alternative that avoids impacts to parks if determined feasible and prudent. The VE team concluded that that constraint was unreasonable considering the complexity of the project area and that, by adhering to that constraint, other adverse impacts could result. The VE team recommended that new options to Alternative C be developed without that constraint.

As a result, three new options to Alternative B (22, 23, and 24), four new options to Alternative C (18, 19, 20, and 21), and one new option to Alternative D (Option VE-D1) were identified and qualitatively screened. On April 23, 1999, the Steering Committee approved Options 19, 21, and 23 to be further studied; the Committee also decided that two new options should be created and carried forward—Option 25 (a progression from Option 21 that would move the alignment farther south) and Option VE-D2 (a hybrid of the northern half of VE-D1 and the southern half of Alternative D). In May 1999, the Steering Committee conducted a structured decision-making process to determine whether any of the remaining VE options were superior to the original alternatives and should, therefore, be evaluated in the project-level EIS instead. Each option was compared against its alternative of origin. For Alternatives B and D, it was concluded that the options did not offer enough of an advantage to warrant substitution of the originals. For Alternative C, Option 21 was dropped, but Options 19 and 25, along with the original alternative, which was a true Section 4(f) avoidance alternative, were recommended to be carried forward. The original Alternative C was then redesignated C1, Option 19 was redesignated C2, and Option 25 was redesignated C3.

Feasibility and Prudence of Alternatives C2 and C3

Both Alternatives C2 and C3 would directly impact Des Moines Creek Park as a result of the southern shift within the XOFA. Despite the impacts on the park, WSDOT considered both alternatives to be reasonable and prudent for analysis in the project-level EIS because they would avoid or minimize the magnitude of social, economic, environmental, and cost impacts caused by Alternative C1, including the safety risks and costs associated with the tunnel

through the XOFA and the impacts to Class I wetlands and to SASA. (It should be noted that Alternative B would also directly impact Des Moines Creek Park at a different location than Alternatives C2 and C3.) On July 19, 1999, WSDOT met with Port of Seattle representatives and local officials with jurisdiction from the Cities of SeaTac and Des Moines (in other words, those who own, operate, and maintain Des Moines Creek Park). The consensus of that group was that, despite the impacts on the park, Alternatives C2 and C3 appeared feasible and prudent and should be included in the project-level EIS, as long as proposed mitigation was implemented by WSDOT as part of the overall project. The proposed mitigation included the northward extension of the Des Moines Creek Trail to South 188th Street/12th Place South (where it could connect with other existing trails or other planned regional trail improvements) and the provision of replacement acreage from the existing and unused state right-of-way equaling the amount of impacted parkland. At a meeting on August 26, 1999, FHWA concurred that even though Alternative C1 was a true Section 4(f) avoidance alternative, it was probably not a prudent avoidance alternative. FHWA also concurred with the inclusion of the nonavoidance alternatives (Alternatives C2 and C3) in the project-level EIS.

Public and Involved Agency Input

The five potential alternatives—B, C1, C2, C3, and D—were presented to the public at an open house on October 27, 1999. An informal vote based on written comments received at, and subsequent to, the open house indicated that Alternative C2 was most preferred, closely followed by Alternatives C3 and D.

At its November 17, 1999, meeting, the Executive Committee adopted Alternative C2 as the new preliminary preferred alternative (as opposed to Alternative C in April 1998). In its adoption, the committee indicated that its preference was based on the facts that Alternative C2:

- would not require a tunnel through the XOFA
- would have the best geometric configuration
- would result in the least amount of new impervious surface area
- would be the least expensive

In January 2000, the NEPA/SEPA/404 Merger Agreement Signatory Agency Committee (SAC) concurred with the alternatives to be evaluated in the project-level EIS.

Definition of I-5 Improvements

In January 2001, WSDOT assembled a second VE team to study the SR 509 southbound merge with I-5, traffic flow along I-5 south of that new interchange, and the need to rebuild the SR 5/SR 516 interchange. The VE

team concluded that in addition to two SR 509 southbound collector/ distributor (C/D) lanes from the SR 509/I-5 interchange to the SR 516/I-5 interchange(applicable to Alternatives B, C1, C2, and C3), there needed to be not one but two additional southbound auxiliary lanes and one northbound auxiliary lane between SR 516 and South 272nd Street (all build alternatives), and that one additional southbound auxiliary lane would be required between South 272nd Street interchange and South 310th Street (all build alternatives). These improvements to the alternatives were intended to improve traffic operations along I-5, to minimize economic and social impacts along and adjacent to the I-5 corridor (especially within the Des Moines Pacific Ridge Neighborhood Improvement Plan limits), and to not preclude a future connection to the City of Kent's South 228th Street corridor extension. The southern terminus of the project was subsequently revised as noted in the *Project Termini* section earlier.

Elimination of Alternatives C1 and D

Based on further consultation and coordination between WSDOT and other project partners, local agencies, and resource permitting agencies, WSDOT concluded that Alternatives C1 and D had clear conflicts with other essential regional projects important to the environment and economy, and would cause substantial impacts on water resources that the other build alternatives would avoid or lessen. Furthermore, WSDOT determined that given these conflicts and impacts, Alternatives C1 and D were not reasonable or permittable and should be eliminated from further evaluation in the project level EIS. The Executive Committee concurred with this recommendation on March 29, 2001. WSDOT's position was based on the following conclusions:

- Alternative C1 would impact almost 7 acres of a Class 1 wetland and its buffer area (approximately 5 acres under Alternative D). Both the USACOE and the Washington State Department of Ecology (regulatory agencies for Section 404 Wetlands and Section 401 Water Quality permits) expressed concerns about the impacts on this wetland and the resulting permitting difficulties.

- The wetland noted above is a critical component of the King County Des Moines Creek Basin Plan; the plan calls for the modification and use of portions of the wetland as a regional detention pond and water quality treatment facility. Alternatives C1 and D would reduce the wetland's intended capacity with little or no opportunity for expansion. As such, Alternatives C1 and D were not supported by any of the Des Moines Creek Basin Plan partnership agencies (King County, City of SeaTac, City of Des Moines, and Port of Seattle).

- Alternative C1 would cross the northern two-thirds of the XOFA and require an approximately 1,000-foot-long tunnel. In addition to the safety and cost issues associated with such a tunnel, any tunnel longer than 800

feet would require ventilation and fire control systems. The associated exhaust vents would be located on top of the tunnel; however, FAA indicated that surface structures such as vents would be prohibited within the XOFA.

- Alternative C1 would cross through a large portion of the Port's SASA and render the remaining portion of the area unusable to accommodate the intended aircraft and facilities. Because this area needs to be runway accessible and there are no other identified areas in the vicinity that meet this requirement, the Port opposed Alternative C1.

- Due to its longer length, Alternative D would create more new impervious surface area than any of the other alternatives. Minimizing impervious surface area has been emphasized by the Washington State Department of Ecology (Ecology) in terms of maintaining water quality standards, and by the U.S. National Marine Fisheries Service (NMFS) as being important in aiding salmon recovery. Because of the more stringent standards included with Ecology's 2001 *Stormwater Management Manual for the Puget Sound Basin*, efforts to minimize the amount of new impervious surface area have taken on added importance.

The rationale for eliminating the alternatives is documented in a position paper entitled *Screening of Alternatives C1 and D*, dated June 2001. In September 2001, WSDOT received concurrence from the NEPA/SEPA/404 Merger Agreement SAC, approving Alternatives B, C2, and C3 for evaluation in the project-level EIS (the SAC had previously concurred with Alternatives B, C1, C2, C3, and D in January 2000).

2.3 Alternatives Analyzed in the FEIS

The SR 509: Corridor Completion/I-5/South Access Road Project includes improving regional highway connections with an extension of existing SR 509 to serve future transportation needs in southwest King County and to enhance southern access to Sea-Tac Airport. (The location of the project area is shown in Figure 2.3-1 and project area vicinity is shown in Figure 2.3-2.) The project includes extending the SR 509 freeway from South 188th Street/12th Place South to a connection with I-5 in the vicinity of South 210th Street; improving I-5 between South 210th and South 310th streets; improving southern access to and from Sea-Tac Airport by a new roadway (the South Access Road); and improving related local traffic circulation patterns.

As part of the EIS process to examine reasonable alternatives, as required by NEPA and the State Environmental Policy Act (SEPA), three build alternatives for the SR 509 mainline/I-5/South Access Road and a No Action Alternative are examined in this FEIS. In addition, there are three design

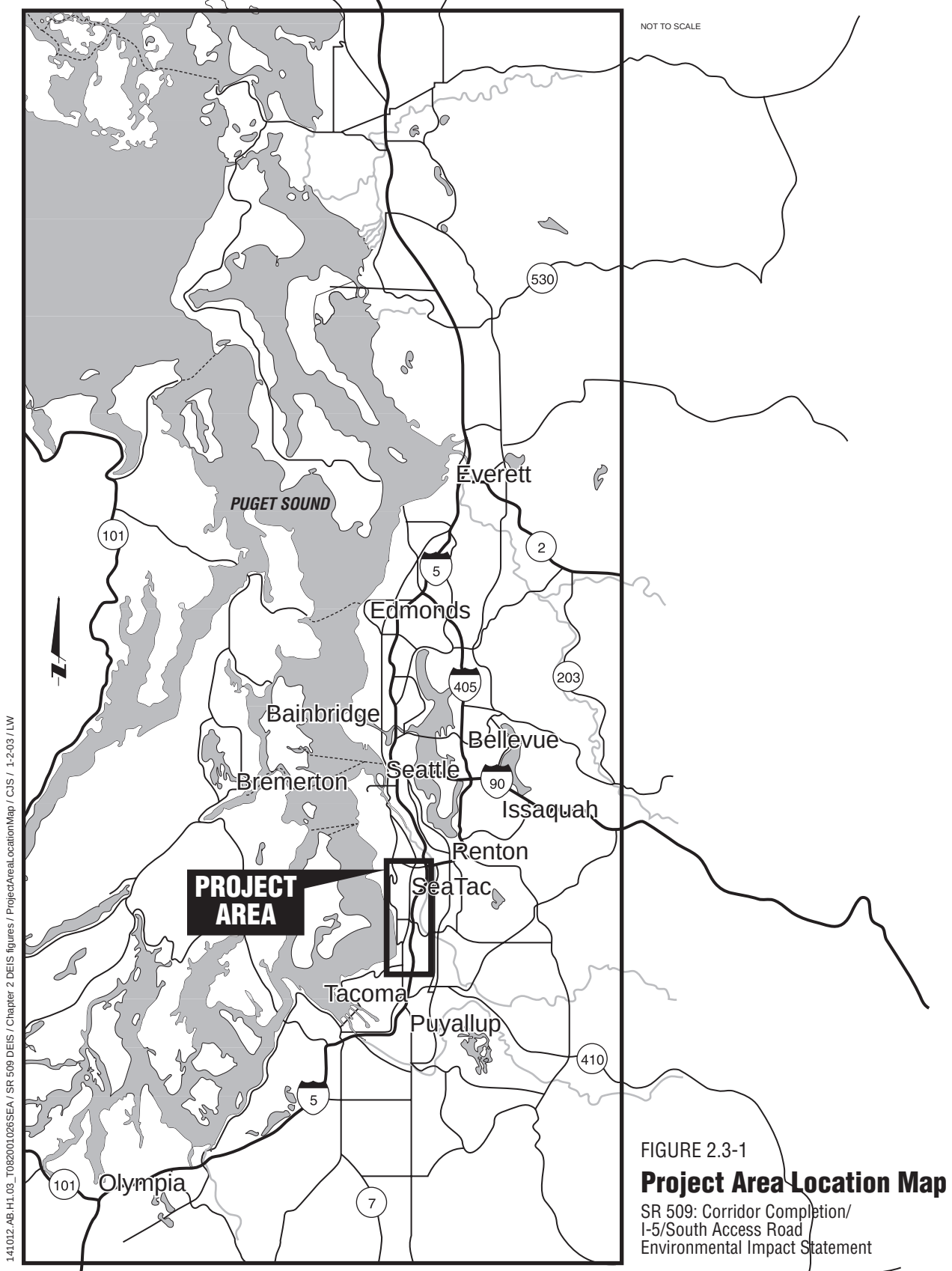

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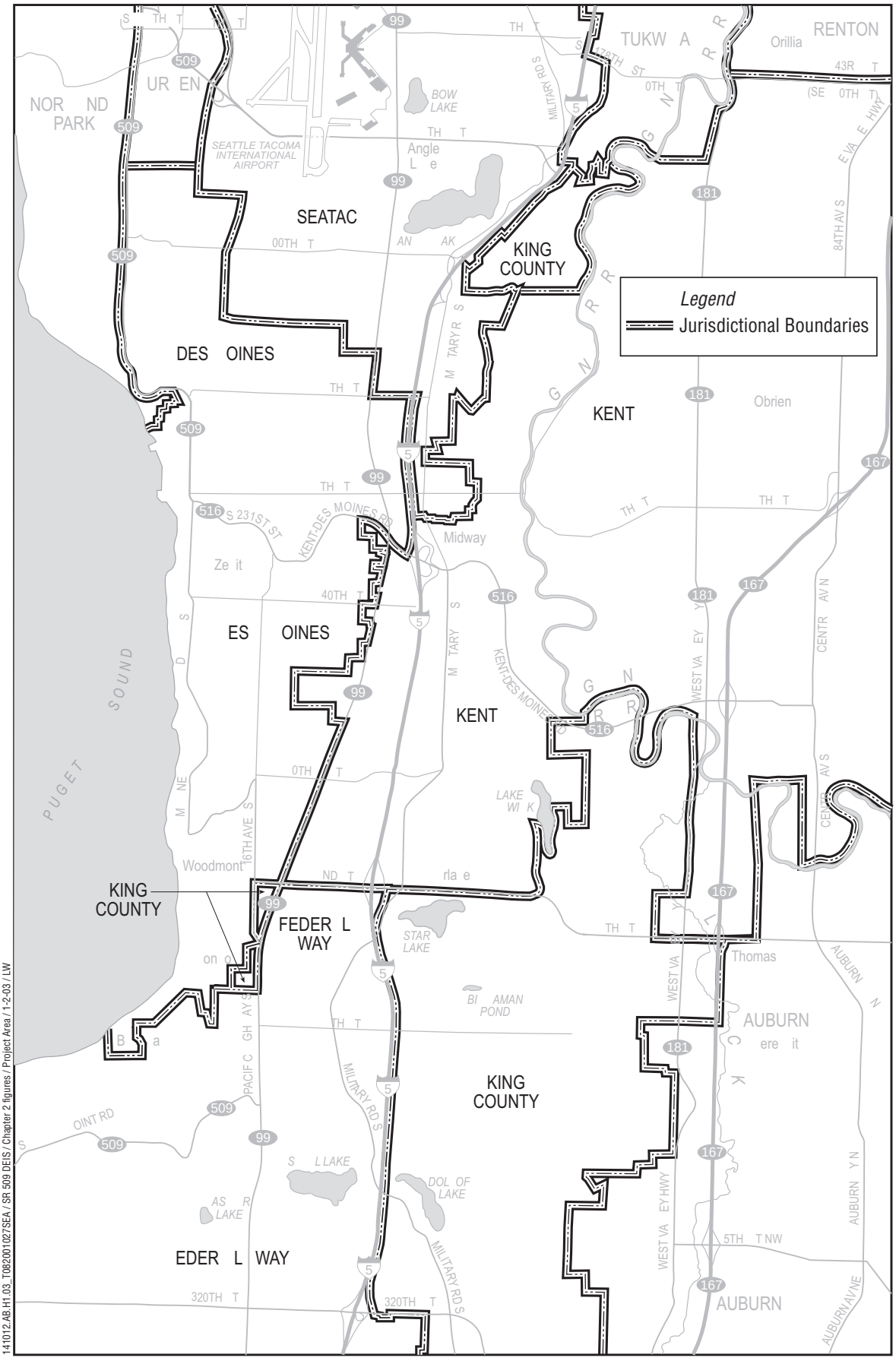
FIGURE 2.3-1

Project Area Location Map

SR 509: Corridor Completion/
I-5/South Access Road
Environmental Impact Statement



0 1900 3800
Scale in Feet

North

1410 12.AB.H1.03_T08200102 7SEA / SR 509 DEIS / Chapter 2 figures / Project Area / 1-2-03 / LW

FIGURE 2.3-2

Project Area

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement

options for the 1,000-foot connection of the South Access Road to the airport terminal roadways.

The following discussion first provides a description of the No Action Alternative, and then focuses on features of the project that are common to all the build alternatives, followed by an identification of features unique to each build alternative.

2.3.1 Alternative A (No Action)

The No Action Alternative (Figure 2.3-3) represents the baseline conditions assumed to exist in the future regardless of whether or not the proposed action is constructed. Inclusion of the No Action Alternative provides a "yardstick" against which to measure the potential effects of the various build alternatives. It also acknowledges that local jurisdictions, as well as the State of Washington, have the option not to go forward with the proposed project.

Under the No Action Alternatives, no new major construction activities described as the proposed project would occur. Short-term minor construction necessary for continued operation of existing roadway facilities would be accomplished, and minor safety improvements could be constructed as required. In addition, other funded or planned baseline transportation improvement projects within the project area (listed at the bottom of Figure 2.3-3) are assumed to be operational in the year 2020, as well as other projects such as development of the SASA, the third runway at Sea-Tac Airport, redevelopment within the Port of Seattle Noise Remedy Program area, the Des Moines Creek Basin Plan, the City of Des Moines Pacific Ridge Neighborhood Improvement project, the Des Moines Creek Basin Plan, and the City of SeaTac Central Business District (CBD) and Aviation Business Center projects. These projects have already been, or will be, subject to separate environmental reviews; analysis of their specific impacts is not included in this FEIS; however, these projects are considered in the analysis of secondary and cumulative impacts in this FEIS.

2.3.2 Features Common to All Build Alternatives

Each alternative for the SR 509 freeway extension would originate approximately 1,700 feet north of South 188th Street/12th Place South, where the existing SR 509 freeway terminates in a trumpet (T-shaped) interchange. Here, the existing interchange would be replaced with a single point urban interchange, with SR 509 passing over the intersecting street. For approximately the first mile of the project, the build alternatives would stay mostly within existing WSDOT-owned SR 509 right-of-way; points of departure from the existing right-of-way would vary with each alternative. The southern terminus of the South Access Road would connect with the SR 509 freeway extension; the location and design of this connection would vary with each alternative. The northern terminus of the South Access Road would

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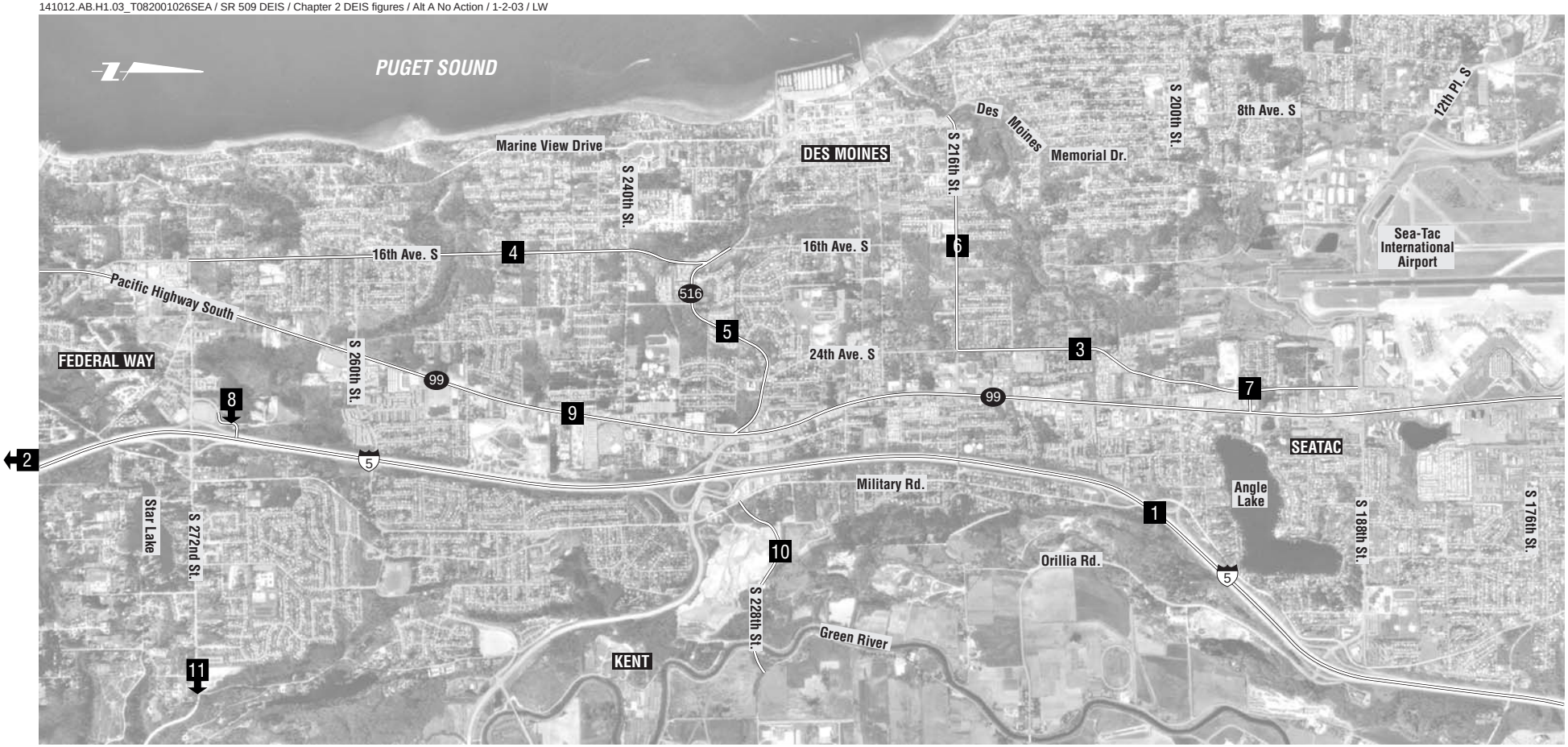


Legend

Baseline Projects by others

0 1/4 1/2 3/4 1 MILES

Baseline Projects Assumed for No Action Alternative.

1. I-5 HOV Lanes
2. I-5 @ S. 317th Street Direct Access Ramp
3. 28th/24th Avenue S. Arterial (Phase 1 completed – S. 188th to S. 204th Streets)
4. 16th Avenue S.
5. Kent-Des Moines (SR 516) Road
6. S. 216th Street
7. S. 195th Street
8. I-5 @ S. 272nd Street In-Line Station
9. Pacific Highway S./International Boulevard (SR 99) (Phases 1 and 2 completed – S. 170th to S. 200th Streets)
10. S. 228th Street
11. S. 272nd/S. 277th Street Corridor

FIGURE 2.3-3

Alternative A (No Action)

SR 509: Corridor Completion/I-5/South Access Road Environmental Impact Statement

be approximately 1,000 feet north of South 188th Street. Improvements to I-5 would be the same for all build alternatives.

SR 509 Mainline/South Access Road

The configuration of the SR 509 freeway extension would be six lanes: two general purpose travel lanes and an inside HOV lane in each direction. The South Access Road would consist of two general purpose lanes in each direction, for a total of four lanes. In general, rights-of-way would be at least 200 feet wide for the SR 509 freeway extension and at least 120 feet wide for the South Access Road. The width of right-of-way required would vary along the lengths of these facilities because of changing topography and adjacent land uses, and would be considerably greater in interchange areas. In some places, the right-of-way would be narrowed to avoid or minimize impacts on environmentally sensitive areas and other physical features.

Preliminary design features common to all build alternatives include the following:

- The SR 509 freeway extension would be designed to LOS D and a speed of 70 miles per hour (mph); the South Access Road would be designed to LOS D and a speed of 35 to 45 mph.

- SR 509 and the South Access Road would be grade-separated from all streets classified as arterials.

- Interchange ramps, ramp terminals, and modifications to arterials within 300 feet of ramp terminals would be considered part of the proposed project and included within the proposed right-of-way. There would be interchanges at South 200th Street and 28th/24th Avenue South, but not at SR 99.

- The South Access Road would terminate at the SR 509 freeway extension in a “partial Y” interchange. This would provide a continuous flow of traffic between the two roadways in two directions (south and north) by use of a flyover ramp.

South Airport Link Design Options

The South Airport Link is the northern 1,000 feet of the South Access Road that would connect to the existing Airport Terminal Drive System. There are three design options for the South Airport Link. At the south end, each design option would cross beneath South 188th Street and the southeast corner of Sea-Tac Airport via a tunnel. At the north end, the design options would maintain both southbound and northbound connections from the upper and lower terminal drives. They would also provide a southbound connection to a future "south bypass" lane for routing southbound traffic from the north without entering the terminal drive network.

Design Option H0

To fit into a narrow area between Sea-Tac Airport and two existing hotels, Air Cargo Road and the South Access Road would be "stacked" for more than half of the distance between South 188th Street and the airport parking garage via a tunnel that would be longer than the one for Design Options H2-A and H2-B (Figure 2.3-4). The extended tunnel would be designed to be compatible with the Link light rail extension to South 200th Street. An "S" curve would be created within the tunnel segment of the roadway to accommodate the necessary road widths and alignment. Currently, no vehicular access to the airport terminal drives would be provided from South 188th Street. The existing intersection at South 182nd Street and International Boulevard (SR 99) would be closed and local access provided at South 170th and South 200th Streets.

Design Option H2-A

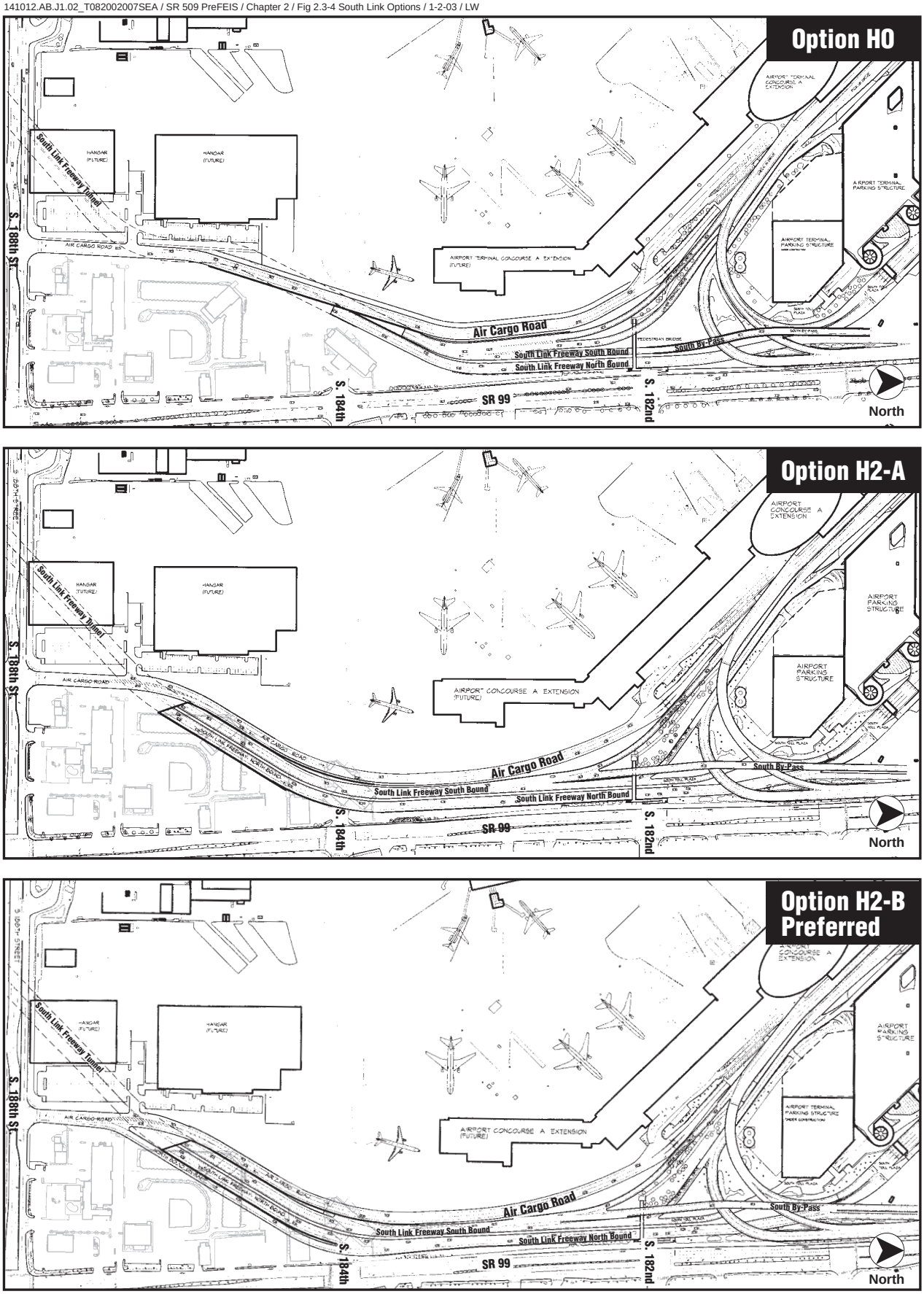
Under Design Option H2-A, Air Cargo Road and the southbound and northbound lanes of the South Airport Link would generally parallel each other and would be separated by medians (Figure 2.3-4). Air Cargo Road would run adjacent to the east edge of the airfield, followed to the east by the southbound and northbound lanes, respectively. The South Airport Link lanes would descend in elevation as they run from north to south, and Air Cargo Road would eventually cross over the top of them as they enter the tunnel. The tunnel entrance would be farther to the south than Design Option H0. Like Design Option H0, no vehicular access would be available for local traffic to replace the existing intersection at South 182nd Street.

Design Option H2-B (Preferred)

Design Option H2-B would be essentially the same as Design Option H2-A, except that it would provide local access routes only for northbound traffic at the intersection of South 188th Street and 28th Avenue South and would not provide a southbound ramp from the South Access Road (Figure 2.3-4). The local ramp would merge in the northbound direction on the east side of the northbound lanes (northbound traffic from the intersection), and also would merge with Air Cargo Road. The local access ramp would require a slight shift in the overall alignment, infringing into adjacent areas more than Design Option H2-A. All other features would be the same as Design Option H2-A.

I-5 Improvements

The SR 509 freeway extension would terminate at I-5 in a modified partial Y interchange, which would allow northbound I-5 traffic to continue north on SR 509 and southbound SR 509 traffic to continue south on I-5. In this configuration, the center HOV lanes of SR 509 would be grade-separated from the I-5 general purpose lanes, connecting directly with the interstate's



0 100 200
Approx.
Scale in Feet

FIGURE 2.3-4

South Airport Link Design Options

SR 509: Corridor Completion/I-5/South Access Road
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center HOV lanes. SR 509 general purpose lanes would connect with new C/D lanes on either side of I-5, requiring additional grade separations (Figure 2.3-5).

Because of the close spacing of the proposed SR 509/I-5 interchange to existing I-5 interchanges, such as those at South 200th Street and SR 516, the project would necessitate a C/D system on I-5. On southbound I-5, two C/D lanes would extend from the convergence of SR 509 with I-5 to the SR 516 interchange (a distance that would vary among the build alternatives). From the SR 516 interchange to the South 272nd Street interchange, two new southbound auxiliary lanes would be constructed. Between South 272nd Street and approximately South 310th Street a new southbound auxiliary lane would be constructed to connect with the auxiliary lane to be provided by the Sound Transit I-5 @ South 317th Street Direct Access Ramp project. On northbound I-5, a new auxiliary lane would extend from South 272nd Street to the SR 516 interchange. Two northbound C/D lanes would start at the SR 516 interchange. Improvements would also be made to the on- and off-ramps at the SR 516 and South 272nd Street interchanges to alleviate conflicts between merging and exiting traffic. In addition, a South 228th Street extension and underpass would be constructed, providing a direct connection to northbound I-5 from South 228th Street and from southbound I-5 to South 228th Street.

The improvements to I-5 would cover approximately 6.7 miles.

2.3.3 Alternative B

Under Alternative B (Figure 2.3-6), SR 509 would extend southward from its existing terminus at South 188th Street/12th Place South and intersect with I-5 in the vicinity of South 210th Street. The SR 509 freeway extension would curve away from the existing WSDOT-owned right-of-way near South 196th Street, and continue south. The freeway extension and the South Access Road would generally parallel each other in a north-south orientation on the west and east sides of Des Moines Creek Park, respectively. SR 509 would pass beneath South 200th Street in a "tight" diamond interchange, which would minimize right-of-way width through the use of retaining walls to support the change in grade between interchange ramps and travel lanes. These retaining walls would help avoid or minimize impacts on surrounding land uses, including a residential area, Hillgrove Cemetery, and Port of Seattle-owned redevelopment land. Curving eastward near South 208th Street, the alignment would cross over Des Moines Creek on two separate bridges (to accommodate the SR 509 mainline and the ramps associated with the proposed intersection at 28th/24th Avenue South) and through Des Moines Creek Park at its narrowest point, thus minimizing impacts on that property.

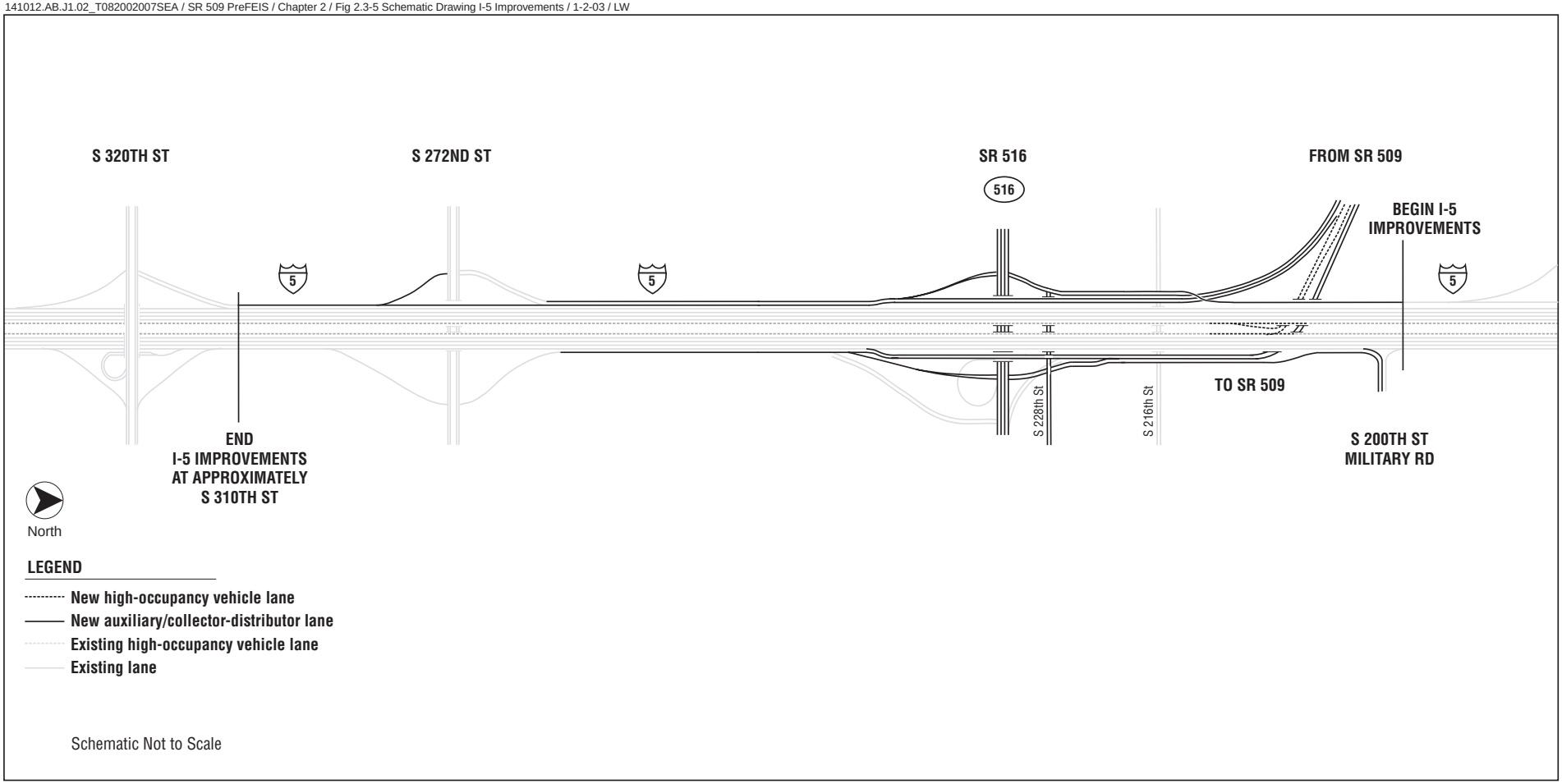
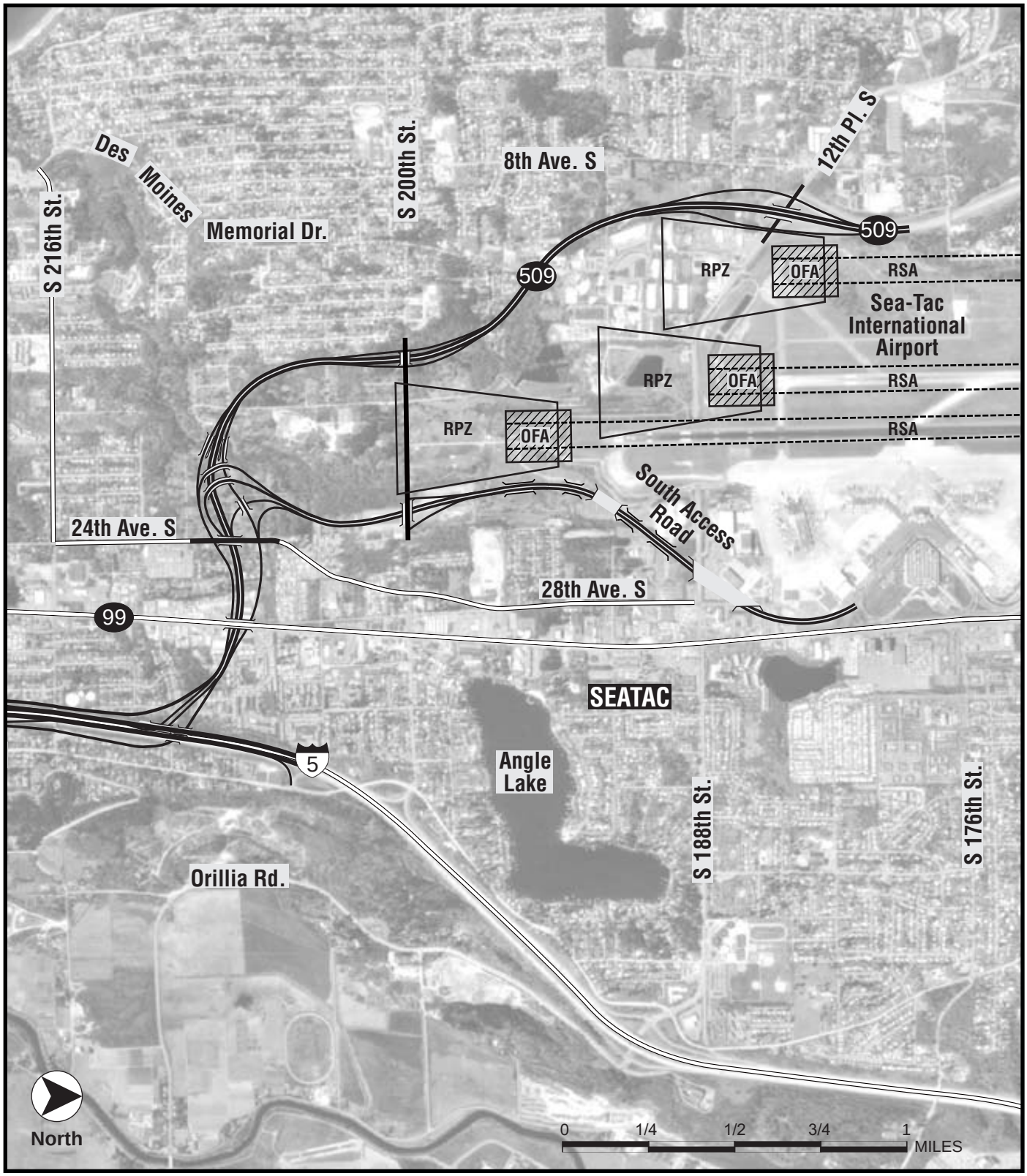


FIGURE 2.3-5

Schematic Drawing of I-5 Improvements

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement



Legend

SR 509/South Access Road Improvements

Bridge

Airport Restricted Areas

RSA Runway Safety Area

OFA Object Free Area

RPZ Runway Protection Zone

FIGURE 2.3-6

Alternative B

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement

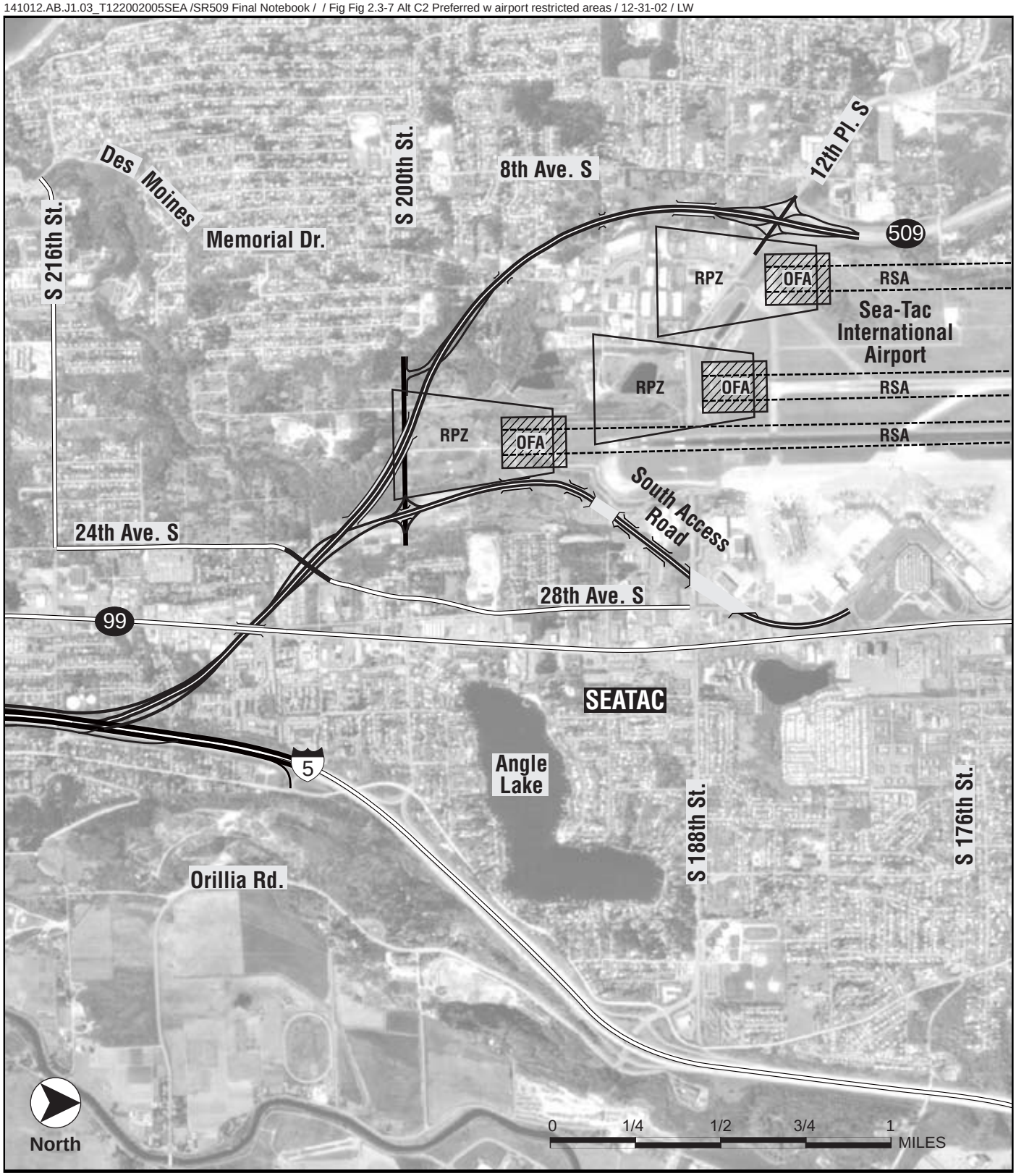
The South Access Road would parallel the eastern edge of the FAA RPZ for Runway 16L/34R and extend along the western edge of the SASA. It would then pass beneath South 200th Street at a tight, partial diamond interchange, which would provide for movements to and from the north on the South Access Road. Continuing southward between Des Moines Creek Park to the west and the Federal Detention Center and existing mobile home parks to the east, the alignment would curve along the park's eastern boundary. Near the proposed intersection of 24th Avenue South and South 208th Street, the South Access Road would join with the proposed SR 509 extension at a partial Y interchange. This partial Y interchange would be interconnected with a full diamond interchange between SR 509 and 28th/24th Avenue South. East of the interchange area, the SR 509 alignment would form a slight arc to the north of the Alaska Airlines Gold Coast Center south of South 208th Street, and then curve southward to join with I-5.

Under Alternative B, the length of the SR 509 freeway extension (including the South Access Road) would be approximately 3.8 miles.

2.3.4 Alternative C2 (Preferred)

Alternative C2 (Figure 2.3-7) would begin at the existing SR 509 terminus at South 188th Street/12th Place South. The alignment would follow the existing WSDOT right-of-way to just south of South 192nd Street. After traveling to the southeast, the alignment would cross through the existing WSDOT right-of-way slightly north of South 200th Street, passing through the southern one-third of the FAA XOFA, which would be far enough south of Runway 16L/34R to preclude the need for a tunnel. (If the alignment crossed through the northern two-thirds of the XOFA, the FAA would require the roadway to cross through the area in a tunnel.) At South 200th Street, the highway would be elevated to cross over the arterial, and would continue to be elevated on structure across the northeast corner of Des Moines Creek Park, thereby minimizing impacts on Des Moines Creek, wetlands, and the park. Between the South 188th Street interchange and the western end of the bridge across the park, most of the freeway would be divided by a 30-foot median. Continuing toward I-5, the SR 509 mainline would pass through existing mobile home parks and continue southeast, passing beneath SR 99 and joining I-5 at approximately South 212th Street.

The South Access Road would parallel the eastern edge of the FAA RPZ and Des Moines Creek Park. It would also be outside the SASA, precluding right-of-way acquisition of SASA property. The South Access Road interchange with SR 509 would be in the location of the existing mobile home parks. Access to and from 28th/24th Avenue South would be provided at this interchange. A second South Access Road interchange would be located at South 200th Street.



Legend

SR 509/South Access Road Improvements

Bridge

Airport Restricted Areas

RSA Runway Safety Area

OFA Object Free Area

RPZ Runway Protection Zone

FIGURE 2.3-7

Alternative C2 (Preferred)

SR 509: Corridor Completion/I-5/South Access Road
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Access between South 200th Street and SR 509 would be provided at two locations. A northbound SR 509 on-ramp and a southbound SR 509 off-ramp would be provided at South 200th Street west of Des Moines Creek Park. Southbound traffic from South 200th Street would access SR 509 via a frontage road to the SR 509 on-ramp at 24th/28th Street. Northbound SR 509 traffic would access South 200th Street via a frontage road from the SR 509 off-ramp at 24th/28th Street.

The length of Alternative C2, including the South Access Road, would be approximately 3.2 miles.

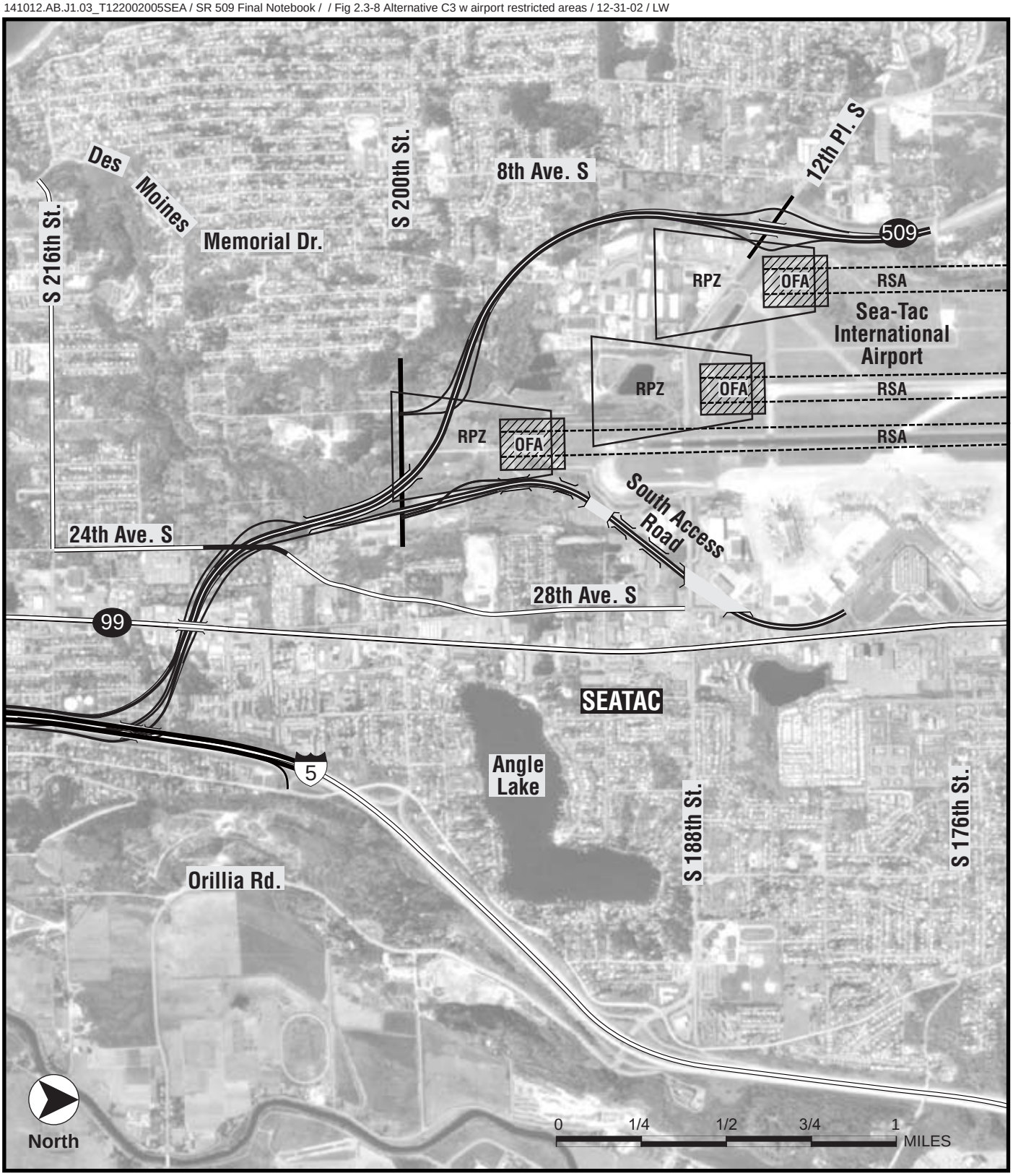
2.3.5 Alternative C3

Under Alternative C3 (Figure 2.3-8), SR 509 would extend southward from its existing terminus at South 188th Street/12th Place South. The alignment would follow the existing WSDOT right-of-way to just south of South 192nd Street. Like Alternative C2, it would traverse the southern one-third of the FAA XOFA, thus precluding the need for a tunnel. Alternative C3 would encroach into the northeast corner of Des Moines Creek Park by crossing through the park on an elevated structure, which would minimize impacts on wetlands and the park. The alignment would continue west and south of existing mobile home parks, and cross through the Alaska Airlines Gold Coast Center south of South 208th Street. The alignment would join I-5 in the vicinity of South 212th Street.

From its northern terminus to South 200th Street, the South Access Road would pass to the east of the FAA RPZ and Des Moines Creek Park. Alternative C3 would intrude on the southeast corner of the SASA. The South Access Road would run parallel to the east side the SR 509 mainline until the vicinity of South 204th Street, where the southbound on-ramp would cross the mainline to the west, eventually joining the mainline in the vicinity of 28th/24th Avenue South.

Northbound and southbound access from South 200th Street to SR 509 would be divided and provided at two locations. A northbound SR 509 on-ramp and a southbound SR 509 off-ramp would be provided at South 200th Street along the west side of Des Moines Creek Park. A southbound on-ramp and northbound off-ramp would be provided at South 200th Street on the east side of Des Moines Creek Park.

Under Alternative C3, the length of the SR 509 freeway extension (including the South Access Road) would be approximately 3.5 miles.



Legend

SR 509/South Access Road Improvements

Bridge

Airport Restricted Areas

RSA Runway Safety Area

OFA Object Free Area

RPZ Runway Protection Zone

FIGURE 2.3-8

Alternative C3

SR 509: Corridor Completion/I-5/South Access Road Environmental Impact Statement

2.3.6 Preferred Alternative

Alternative C2 has been identified as the preferred alternative by the Steering Committee, the Executive Committee, and the Merger Agreement Signatory Agency Committee (SAC) (see documentation of Concurrence Point #3 of the NEPA/SEPA/404 Merger Agreement in Appendix A), and based on public input received during review of the January 2002 Revised DEIS. The selection of Alternative C2 as the preferred alternative is based on the following factors:

- While Alternative B would require the least amount of park land, it would introduce vehicular traffic noise to the most isolated and pristine area of the park and could have a substantial adverse impact on the natural setting and the use and enjoyment of the Des Moines Creek Trail. In addition, the removal of numerous trees to accommodate the proposed bridge structures, the resulting artificial shading on the trail below the bridges, and the dominance of the bridges in the trail users' view would substantially impair the visual continuity of the natural stream valley. The cities of SeaTac and Des Moines parks directors have expressed concern about the character-changing effects of the proposed Alternative B crossing. This area is seen as having one of the highest values for recreational use in the park (compared to the area that would be impacted by Alternatives C2 and C3, which, except for the trailhead, is not currently used for recreation nor planned for future recreational development).

- Alternative C2 would have less wetland impact than Alternatives B and C3.

- Alternatives B and C3 have more lane miles than Alternative C2, which would create more new impervious surface area.

- Alternative B would impact the largest number of sensitive noise receptors (primarily residential units).

- Both Alternatives B and C3 would cause more single-family residential unit displacements than Alternative C2; on the other hand, Alternative C2 would have more multifamily unit displacements than the other alternatives; however, it would be possible to relocate residents within the area.

- Alternative A, the No Action Alternative, would not meet the project purpose and need.

- Alternative C3 would cross through the Alaska Airlines Gold Coast Center, possibly forcing the relocation of this facility to another city because of the lack of comparable alternative sites near the airport. The City of SeaTac indicated that it could not support an alternative that would have that great of a negative effect on the economic base of the community.

This is not to imply that Alternative C2 is without adverse impacts, including residential and business displacements, roadway right-of-way acquisition in Des Moines Creek Park, increased impervious surfaces in five drainage basins, increased noise at sensitive receptors, and loss of wildlife habitat. However, as discussed in detail throughout this document, mitigation has been proposed as part of the preferred alternative to adequately mitigate for all identified adverse impacts. These measures, in combination with the reasons listed above, have led to the conclusion that Alternative C2 is the preferred alternative.

2.4 Traffic Analysis of Alternatives Analyzed in the FEIS

The traffic analysis for the SR 509: Corridor Completion/I-5/South Access Road Project examines extending SR 509 south to I-5; increasing regional capacity and relieving congestion on I-5 from its connection with the SR 509 extension to South 310th Street; and providing a new high-capacity, limited access connection to Sea-Tac Airport, known as the South Access Road. As mentioned previously, there are three design options—H0, H2-A, and H2-B—for the last 1,000 feet of the South Access Road, known as the South Airport Link. With respect to transportation system characteristics, Design Options H0 and H2-A are very similar, and have therefore been combined for the purpose of presenting the results of the traffic analysis. The area evaluated in the traffic analysis extends north to South 144th Street, west to Puget Sound, south to South 310th Street, and east to SR 167. This area includes all or part of the Cities of SeaTac, Normandy Park, Des Moines, Tukwila, Renton, Kent, Auburn, Federal Way and Burien, and portions of unincorporated King County.

2.4.1 Traffic Model

The traffic analysis for the build alternatives relies on a travel demand model for forecasting future traffic volumes. The model used in forecasting for the proposed project is based on information from the comprehensive plans for the Cities of SeaTac and Des Moines and numerous transportation plans and studies, as cited in the *SR 509/South Access Road EIS Discipline Report: Transportation* (CH2M HILL January 2002a). The forecast year used for this study is 2020. The traffic analysis looked at two areas: the traffic analysis area (roughly from north of SR 518 to south of South 310th Street and Puget Sound to east of SR 167) and the primary traffic study area (roughly from South 170th Street to south of South 272nd Street). The traffic analysis area

captures project effects on the larger, regional network and the primary traffic study area addresses project effects on the local network.

The land use data for the traffic analysis area are based on regional forecasts by the Puget Sound Regional Council (PSRC), which have been modified to reflect local land use plans and information from meetings with local staff. Two land use scenarios were developed for 2020—one for the No Action Alternative and one for the build alternatives. This approach reflects the potential development that may not occur without improvements to SR 509, and complies with transportation service standards and Growth Management Act (GMA) regulations, which indicate that transportation and other public improvements needed to accommodate new development should occur concurrent with that development. Local jurisdictions do not currently have growth restrictions that require the proposed action to be built before growth in the area can proceed. The land use scenarios for the No Action Alternative and the build alternatives include the third runway at Sea-Tac Airport.

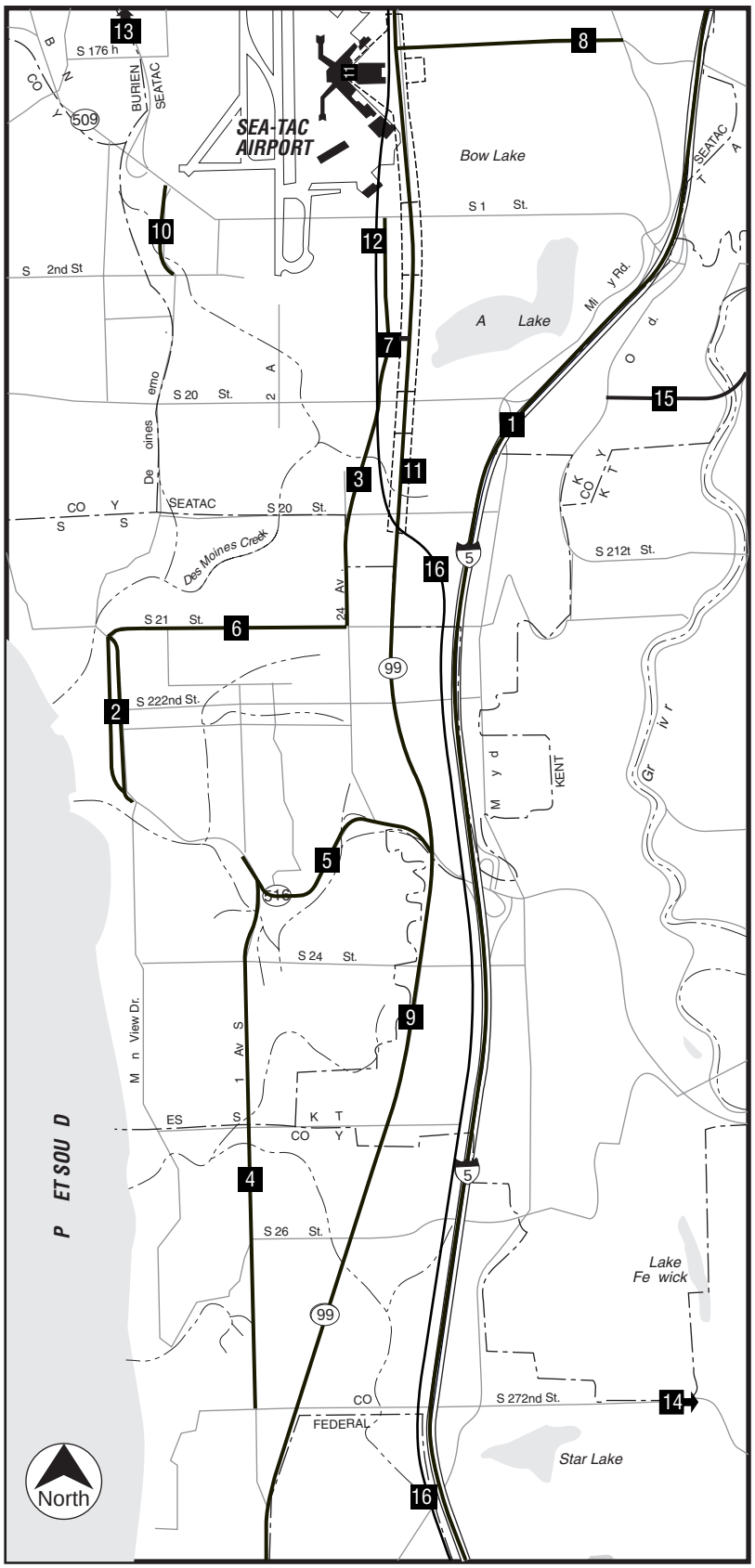
A base transportation network for the 2020 No Action Alternative was developed from the transportation plans for the transportation analysis area. The base year network includes a number of major transportation improvements. In addition to street/roadway improvements, the base year network includes construction of the first phase of the Sound Transit Link Light Rail system and commuter rail in the Green River valley. The transportation improvements included in the 2020 baseline transportation network are shown in Figure 2.4-1. Along with improved transit service, a variety of transportation system management (TSM) strategies are assumed to be implemented by employers in the traffic analysis area, including telecommuting, a compressed work week, parking pricing, and employer programs. These programs could reduce work trips by as much as 20 percent.

Without currently planned regional and local transit improvements, travel demand would increase, resulting in more congestion and lower travel speeds (particularly under the No Action Alternative). There would be a further shift of travel demand into other hours of the day, and impeded access and mobility throughout the day. If this were to occur, the traffic analysis area would need additional vehicle capacity. The analysis of the alternatives assumes that the proposed regional transit improvements would be built.

2.4.2 Vehicle Circulation

Street System

Improvements to the transportation system under the No Action Alternative would include the transit projects mentioned above and the planned capacity improvements to the system, as shown in Figure 2.4-1.



1 I-5 HOV Lanes
2 Marine View Drive/7th Ave S. Project (Completed)
3 28th/24th Avenue S. Arterial (Phase 1 completed – S. 188th to S. 204th Streets)
4 16th Avenue S.
5 Kent-Des Moines (SR 516) Road
6 S. 216th Street
7 S. 195th Street
8 S. 176th Street (Completed)
9 Pacific Highway S./International Boulevard (SR 99) (Phases 1 and 2 completed – S. 170th to S. 200th Streets)
10 Des Moines Memorial Drive (Completed)
11 Sea-Tac People Mover (Indefinitely on hold)
12 Sound Transit Project Link Light Rail Transit Route, Phase 1
13 1st Avenue S. Bridge (Completed)
14 S. 272nd/S. 277th Street Corridor
15 Cross-Valley Connector Along S. 192nd/196th/200th Street Corridor (Completed)
16 Sound Transit future phase

FIGURE 2.4-1

Baseline Transportation Network Year 2020 Improvements

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I-5/South Access Road
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141012.AB.H1.03_T082001026SEA / SR 509 DEIS / Chapter 2 DEIS figures / 2020 Improvements / 1-2-03 / LW

The build alternatives would also include the baseline improvements proposed under the No Action Alternative. Because the build alternatives would cut across several existing streets, grade separations would be provided for all streets with an arterial classification (principal, minor, or collector), as defined by the 1991 King County Functional Classification. Most other streets would be provided with a cul-de-sac or other suitable closure.

Each build alternative would provide improved access to Sea-Tac Airport and the SR 509 corridor for residents of the Green River valley (via SR 516), Federal Way, southern King County, and Pierce County.

Traffic Volumes

For the build alternatives, traffic volumes at the screenlines (imaginary lines that cross a number of key roadways to measure directional travel in broad corridors) would increase between approximately 1 percent to 23 percent compared to the No Action Alternative. The largest increases would occur at Screenline F (I-5) and Screenline C (South 188th Street), as shown in Table 2.4-1.

A summary of the existing and forecast traffic volumes at the screenlines is provided in Table 2.4-1. As expected, differences in the screenline traffic volumes among South Airport Link Design Options H0/H2-A and H2-B lessen the farther the screenline is from the South Access Road. Noticeable differences for the design options are noted in the vicinity of the airport—Screenline C (South 188th Street) and Screenline D (South 160th Street).

Table 2.4-1
Screenline Comparison of Traffic Volumes
2020 (p.m. peak hour)

Screenline	Existing (1998)	Alt. A (No Action)	Design Options H0/H2-A[a]			Design Option H2-B (Preferred)[a]		
			Alt. B	Alt. C2 (Preferred)	Alt. C3	Alt. B	Alt. C2 (Preferred)	Alt. C3
A (S. 272nd St.)	17,950	23,300	24,020	24,100	24,160	24,020	24,100	24,160
B (SR 516)	21,200	26,470	29,030	29,090	29,180	29,030	29,110	29,170
C (S. 188th St.)	24,550	30,810	35,760	35,780	35,590	34,850	34,900	34,750
D (S. 160th St.)	28,250	33,550	36,650	36,590	36,610	36,590	36,480	36,480
E (S. 144th St.)	30,500	34,910	35,180	35,240	35,310	35,180	35,240	35,310
F (I-5)	25,100	30,340	37,180	37,570	37,350	37,300	37,540	37,350

[a]Design Options H0/H2-A include South Access Road ramps to and from the north at South 200th Street. In Design Option H2-B, ramps are located at South 188th Street.

Source: The Transpo Group and CH2M HILL.

In the SR 509 corridor, traffic volumes would increase substantially under the build alternatives because of the diversion of traffic from I-5 to the SR 509 freeway extension. In the existing SR 509 freeway sections, the total volumes in both directions would range from approximately 6,550 to 6,850 vph north of SR 518 and approximately 7,750 to 8,150 vph south of SR 518, depending on the alternative. In the proposed sections of SR 509, maximum total volumes in both directions would range from approximately 7,400 (Alternative C3) to 7,800 vph (Alternative C2). These traffic volumes do not substantially differ among the alternatives.

Traffic volumes on the South Access Road would differ depending on the South Airport Link design. Traffic volumes under Design Options H0/H2-A for any of the build alternatives would be higher than Design Option H2-B, ranging from approximately 2,130 to 2,700 vph. With Design Option H2-B, traffic volumes on the South Access Road would be approximately 1,780 vph under Alternative B, 1,930 vph under Alternative C2, and 1,965 vph for Alternative C3. Traffic volumes on the South Airport Link would be lowest with Design Option H2-B because of the direct connection to the airport roadway network north of South 188th Street.

Under all the build alternatives, the SR 509 freeway extension and new South Access Road would divert traffic from other north-south facilities, as shown by the lower traffic volumes on other corridors in the project area (roughly South 170th Street to south of South 272nd Street and east of SR 509, and Puget Sound to west of SR 181). At Screenline C (South 188th Street), volumes would decrease on I-5, SR 99, and First Avenue South.

One of the major benefits of the build alternatives, compared to the No Action Alternative, would be improved access and mobility in the middle of the day and at other off-peak hours.

Vehicle miles of travel (vmt) and vehicle hours of travel (vht) are measures of travel and congestion based on number of trips. Alternative A would have the lowest vmt of any of the alternatives because there would potentially be less development in the primary traffic study area and, therefore, less travel demand. Despite the increased vmt and vht for the build alternatives, average speed would remain generally the same as for the No Action Alternative. As shown in Table 2.4-2, Alternative B would have the highest vehicle hours and miles traveled, and the lowest speed (15.3 mph). Alternative C2 would have the lowest vht and the highest speed of the build alternatives.

Level of Service

LOS is a qualitative description of the degree of comfort drivers experience as they travel along a corridor. LOS grades range from LOS A, in which little or no delay is experienced, to LOS F, which denotes extreme congestion. TRB Special Report 209, *1997 Highway Capacity Manual*, defines each LOS

Table 2.4-2
Comparison of Vehicle Miles of Travel and Vehicle Hours of Travel in the Project Area
2020 (p.m. peak hour)

	Design Options H0/H2-A[a]			Design Option H2-B (Preferred)[a]		
	VMT	**VHT**	**Speed (mph)**	**VMT**	**VHT**	**Speed[c] (mph)**
Alternative A (No Action)[b]	307,700	19,840	15.5	N/A	N/A	N/A
Alternative B	341,230	22,370	15.3	340,440	22,030	15.5
Alternative C2 (Preliminary Preferred)	339,060	21,540	15.7	338,705	21,475	15.8
Alternative C3	338,190	21,910	15.4	337,770	21,810	15.5

N/A = not applicable

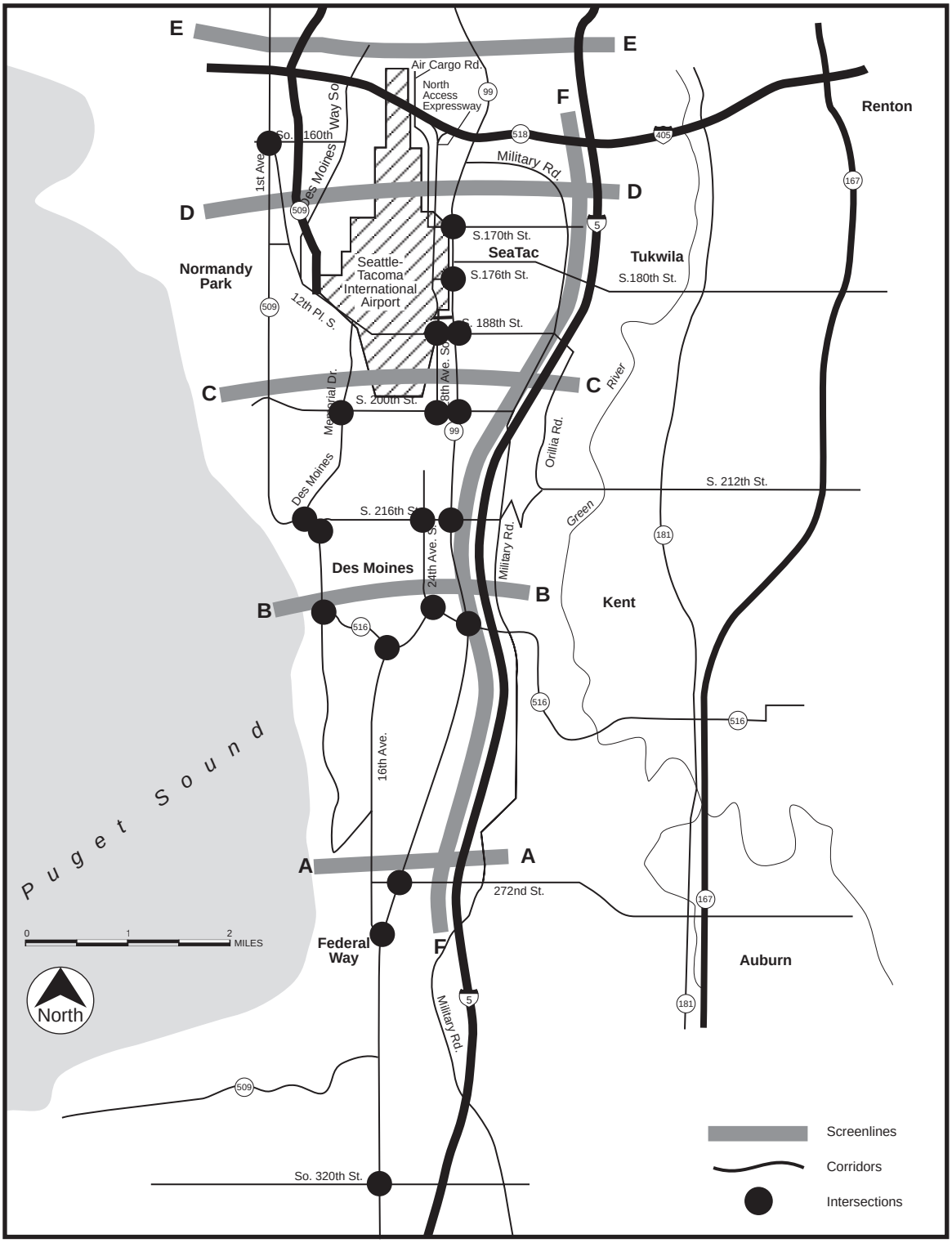
[a] *Design Options H0/H2-A include South Access Road ramps to and from the north at South 200th Street. In Design Option H2-B, ramps are located at South 188th Street.*

[b] *The No Action Alternative does not reflect either Design Options H0/H2-A or H2-B,* but is considered the baseline.

[C] *Speed is calculated by dividing the total vmt by total vht in the project area.*

grade (see *SR 509/South Access Road EIS Discipline Report: Transportation* [CH2M HILL January 2002a]).

A three-tiered system of analysis was used to determine the LOS. In the first tier, an analysis of screenlines (imaginary lines that cross a number of key roadways to measure directional travel in broad corridors) provided a regional perspective for the transportation analysis area. The screenline analysis provides a broad look at the system. The second tier was an analysis of each major corridor in the same area. This analysis provides a more detailed examination of changes in demand and operations. The third tier was an LOS analysis for 19 key intersections, which identified specific traffic bottlenecks. These roadway segments and intersections were selected for analysis because of their importance and because they would best reflect changes in travel demand and traffic operations due to implementation of the build alternatives. LOS was determined by comparing critical volumes to estimated capacity. Figure 2.4-2 provides a map of the locations of screenlines, corridors, and intersections used for this analysis. Figures 2.4-3 through 2.4-9 show the LOS for the No Action and the build alternatives under Design Options H0/H2-A and H2-B.

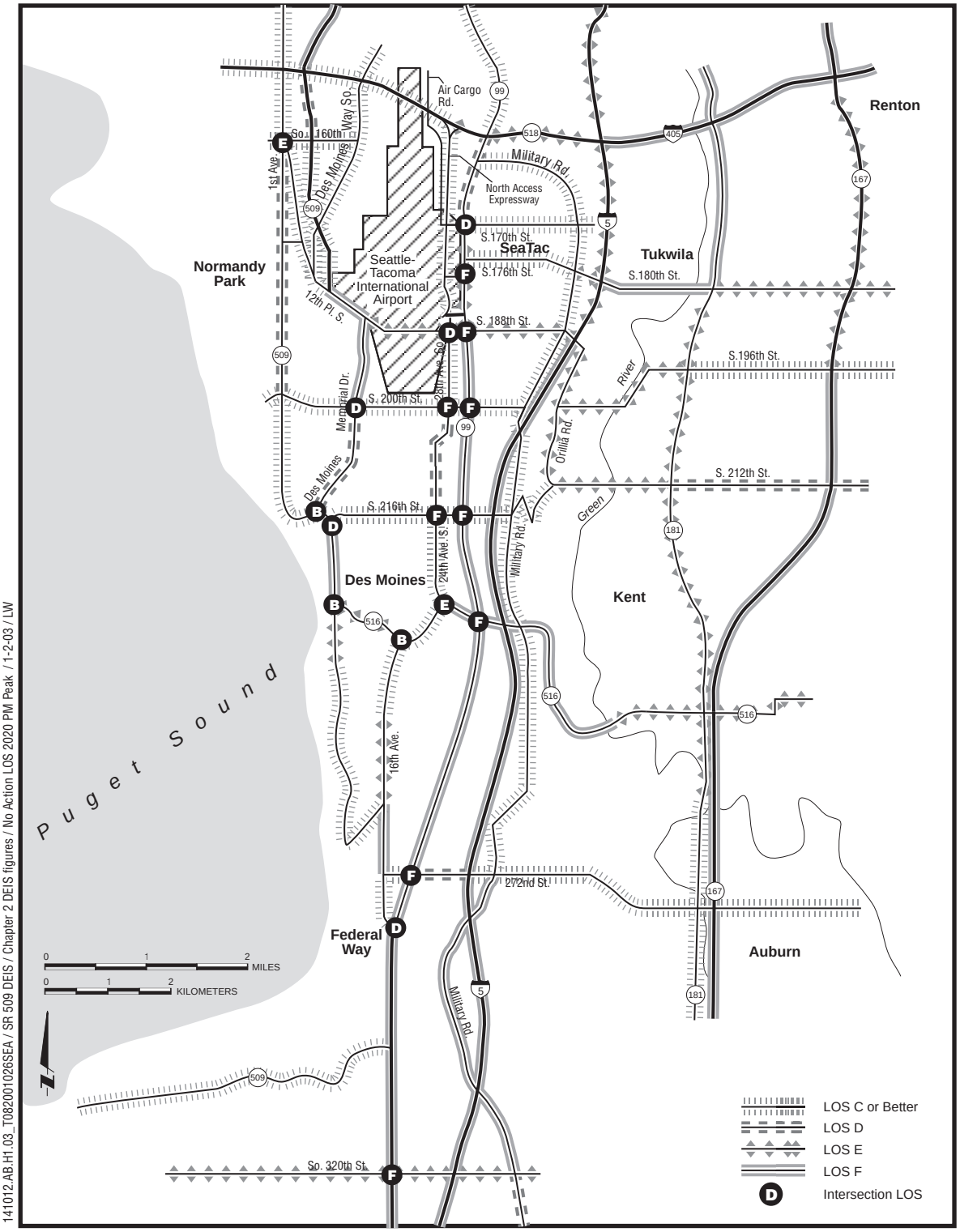


141012.AB.H1.03_T082001026SEA / SR 509 DEIS / Chapter 2 DEIS figures / Screenlines / 1-2-03 / LW

FIGURE 2.4-2

Screenlines and Intersections in Primary Traffic Study Area

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement



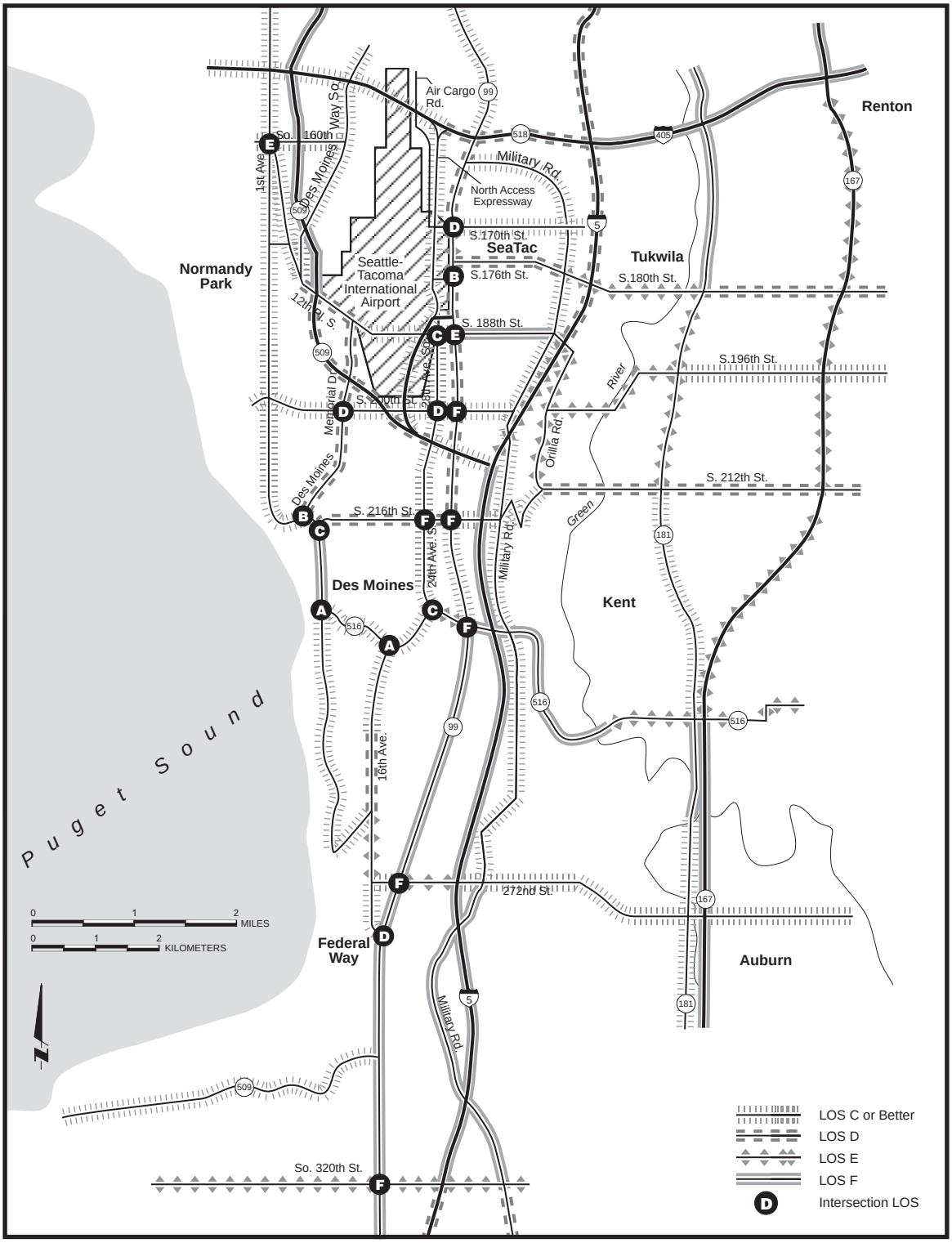
141012.AB.H1.03_T082001026SEA / SR 509 DEIS / Chapter 2 DEIS figures / No Action LOS 2020 PM Peak / 1-2-03 / LW

Note: Roadway level of service displayed is for travel direction with highest volume.

FIGURE 2.4-3

No Action Level of Service 2020 PM Peak Hour

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement



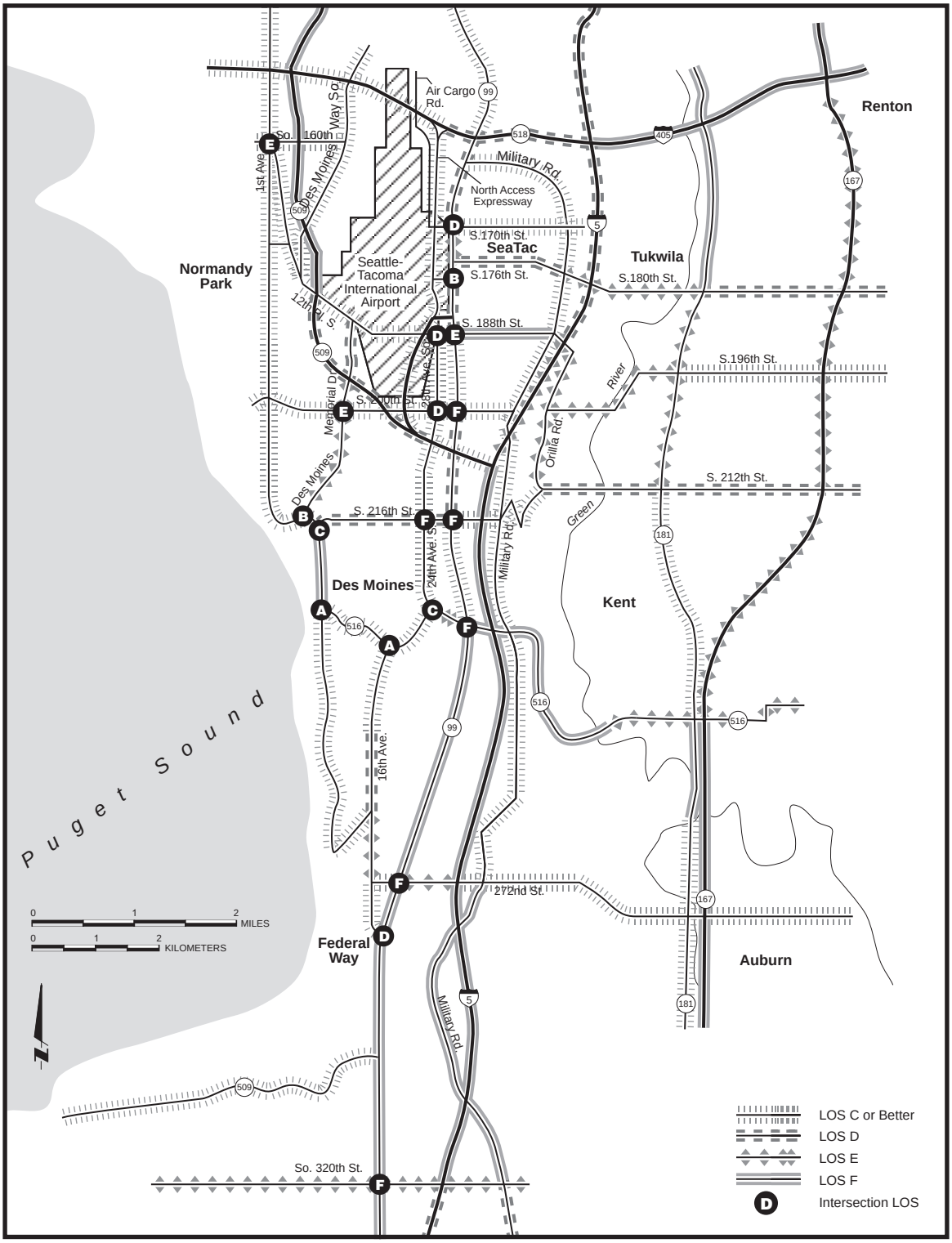
141012.AB.H1.03_T082001026SEA / SR 509 DEIS / Chapter 2 DEIS figures / AltBHO_H2A_2020 LOS 2.4-4 / 1-2-03 / LW

Note: Roadway level of service displayed is for travel direction with highest volume.

FIGURE 2.4-4

Alternative B – HO/H2-A Level of Service 2020 PM Peak Hour

SR 509: Corridor Completion/I-5/South Access Road Environmental Impact Statement



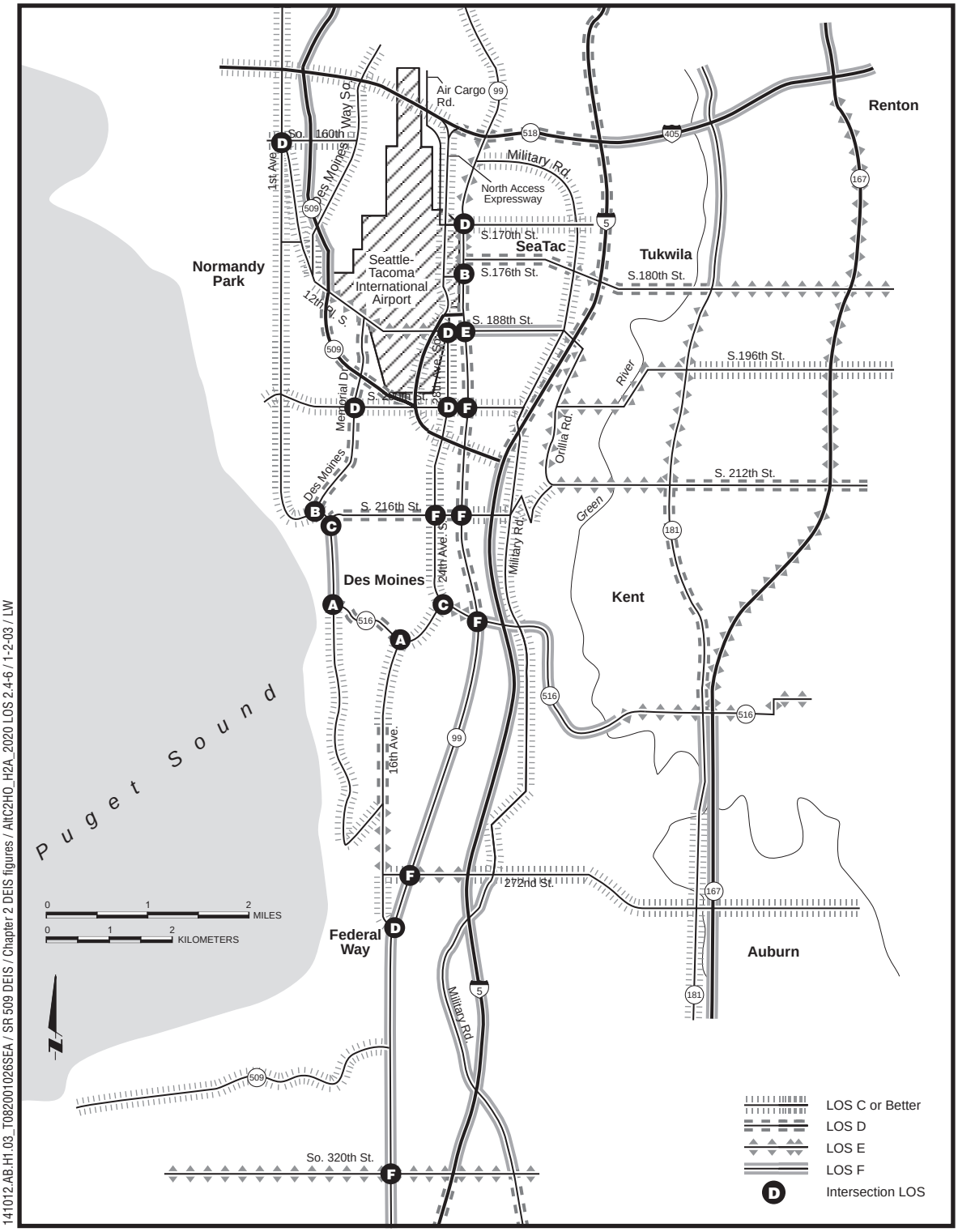
141012.AB.H1.03_T082001026SEA / SR 509 DEIS / Chapter 2 DEIS figures / AltBH2B_2020 LOS 2.4-5 / 1-2-03 / LW

Note: Roadway level of service displayed is for travel direction with highest volume.

FIGURE 2.4-5

Alternative B – H2-B Level of Service 2020 PM Peak Hour

SR 509: Corridor Completion/I-5/South Access Road Environmental Impact Statement



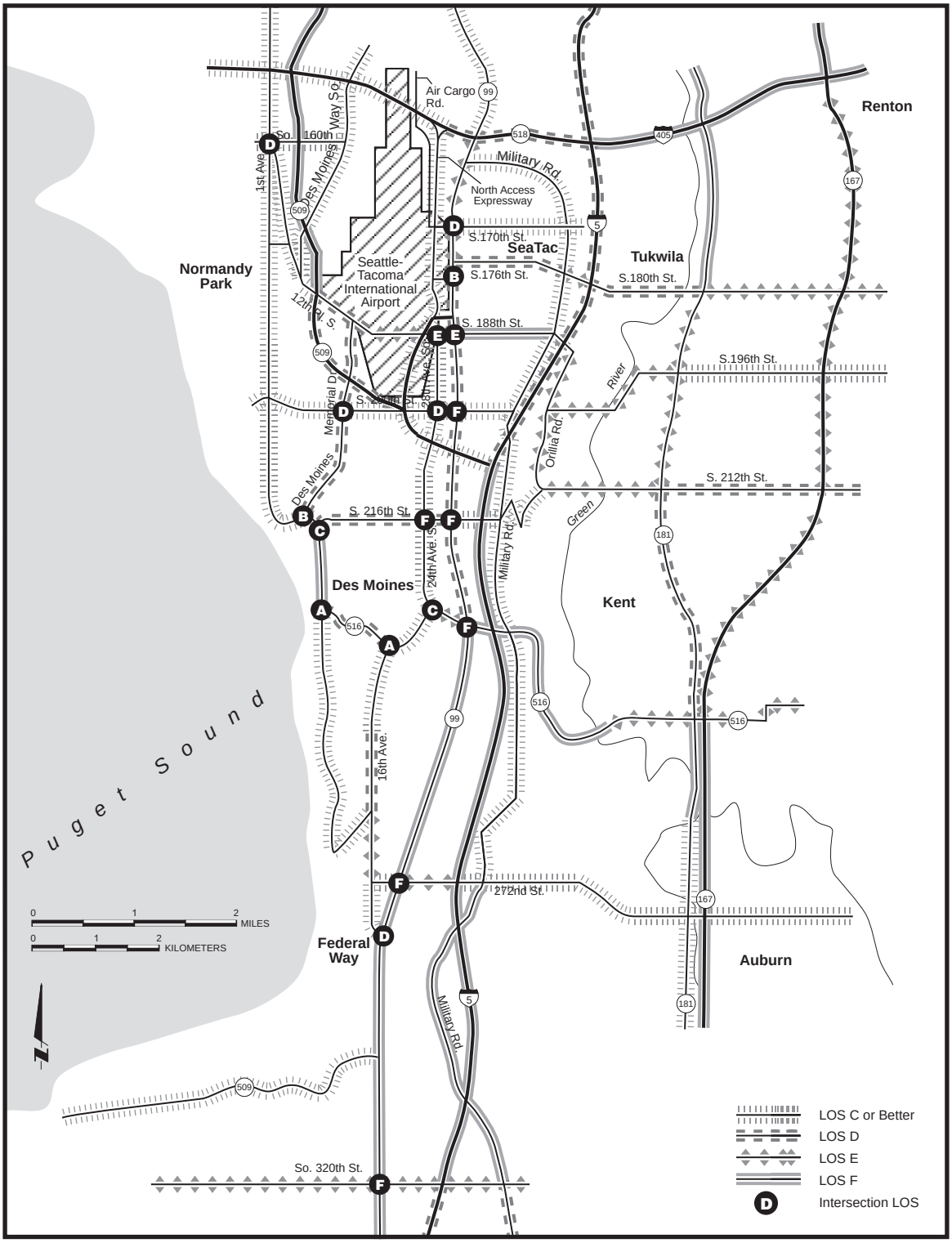
141012.AB.H1.03_T082001026SEA / SR 509 DEIS / Chapter 2 DEIS figures / AltC2HO_H2A_2020 LOS 2.4-6 / 1-2-03 / LW

Note: Roadway level of service displayed is for travel direction with highest volume.

FIGURE 2.4-6

Alternative C2 – HO/H2-A Level of Service 2020 PM Peak Hour

SR 509: Corridor Completion/I-5/South Access Road Environmental Impact Statement



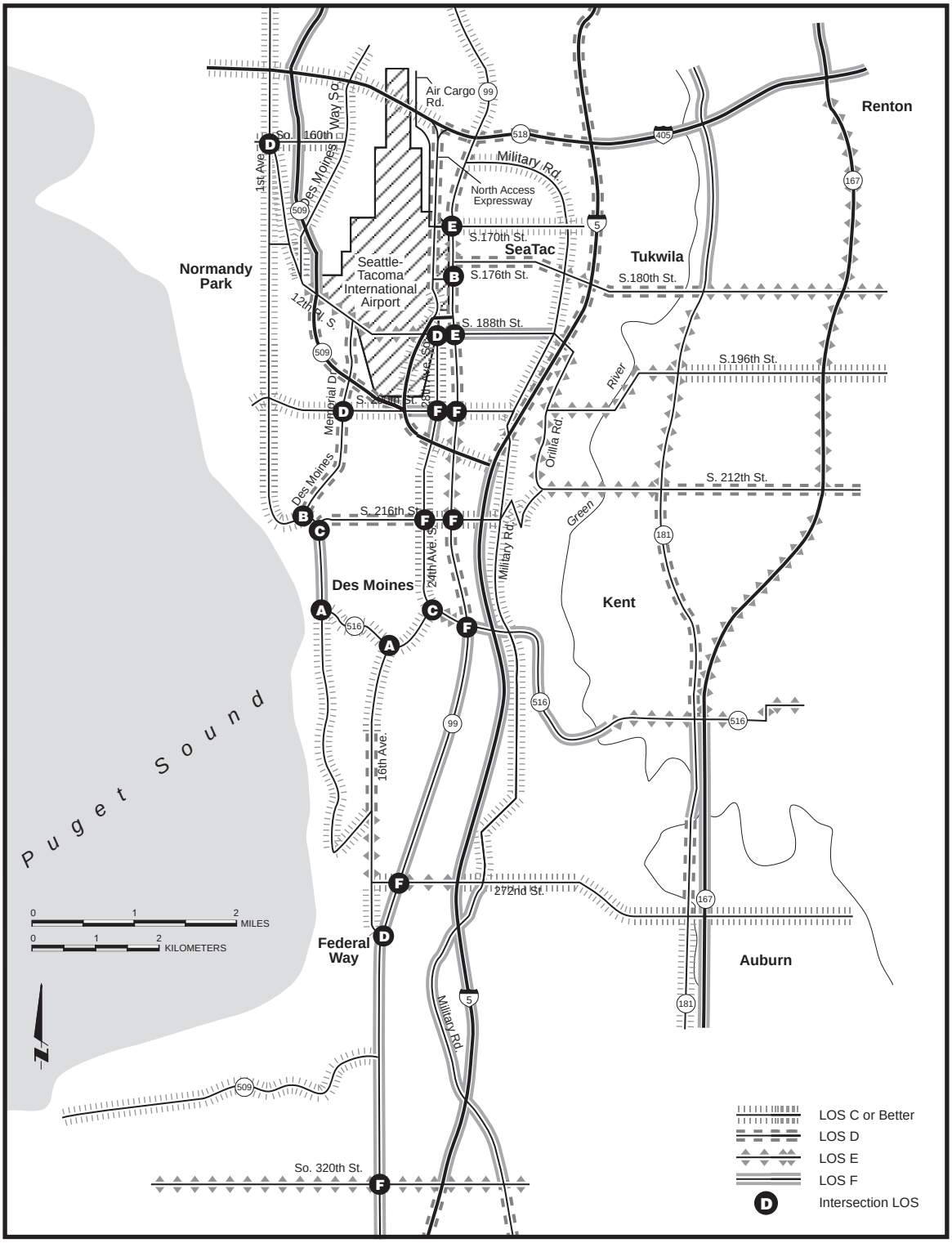
141012.AB.H1.03_T082001026SEA / SR 509 DEIS / Chapter 2 DEIS figures / AltC2H2B_2020 LOS 2.4-7 / 1-2-03 / LW

Note: Roadway level of service displayed is for travel direction with highest volume.

FIGURE 2.4-7

Alternative C2 – H2-B Level of Service 2020 PM Peak Hour

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement



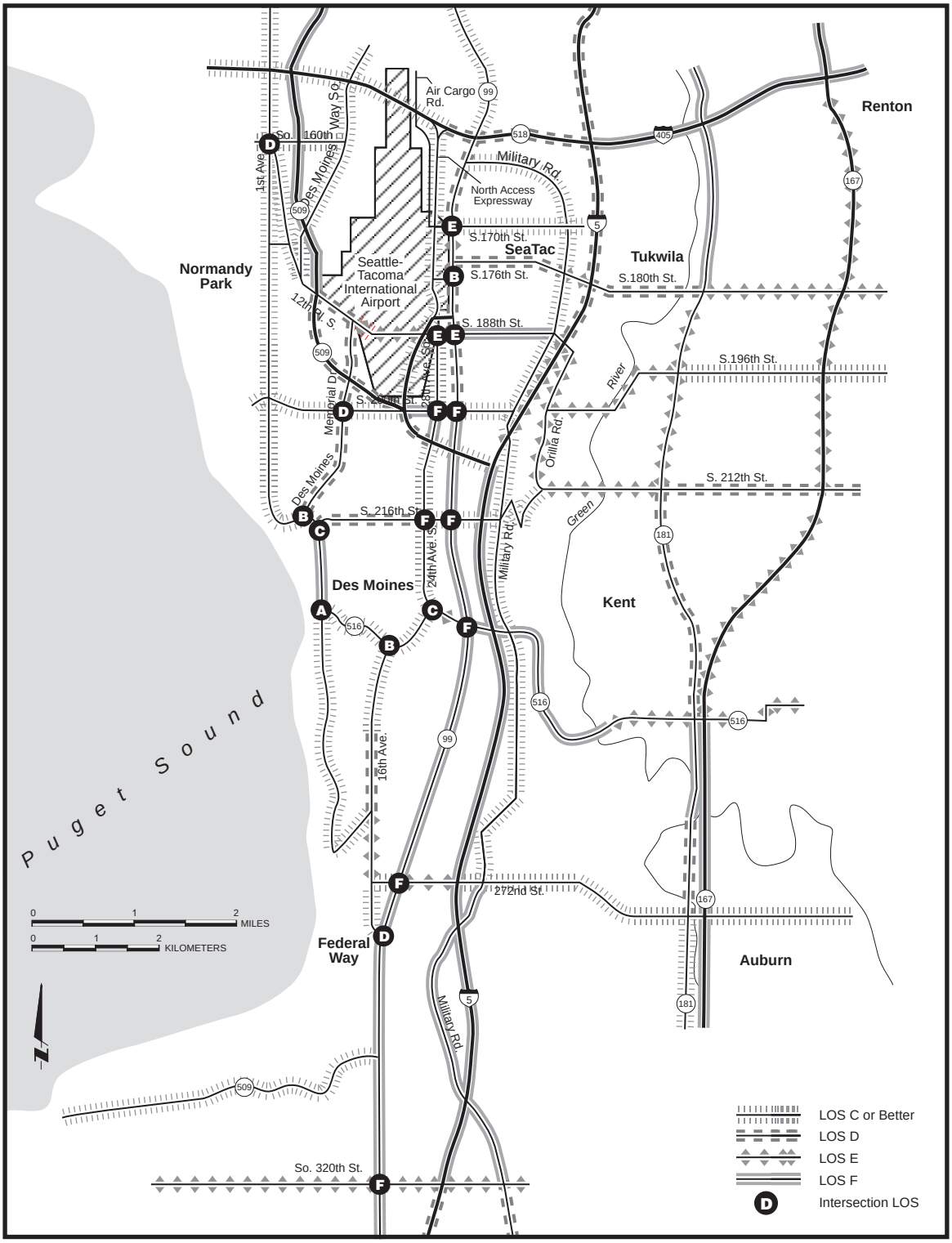
141012.AB.H1.03_T082001026SEA / SR 509 DEIS / Chapter 2 DEIS figures / AltC3HO_H2A_2020 LOS 2.4-8 / 1-2-03 / LW

Note: Roadway level of service displayed is for travel direction with highest volume.

FIGURE 2.4-8

Alternative C3 – HO/H2-A Level of Service 2020 PM Peak Hour

SR 509: Corridor Completion/I-5/South Access Road Environmental Impact Statement



141012.AB.H1.03_T082001026SEA / SR 509 DEIS / Chapter 2 DEIS figures / AltC3_H2B_2020 LOS 2.4-9 / 1-2-03 / LW

Note: Roadway level of service displayed is for travel direction with highest volume.

FIGURE 2.4-9

Alternative C-3 – H2B Level of Service 2020 PM Peak Hour

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement

Screenlines

Under the build alternatives, increased capacity in the project area would provide general overall improvements in traffic operations, despite the overall increase in travel demand (Table 2.4-3). Screenline LOS would be essentially the same for all build alternatives. Screenline A (South 272nd Street) and possibly Screenline F (I-5) would operate at LOS F. The anticipated changes in LOS would be a substantial improvement over the No Action Alternative, and only slightly worse than existing conditions for a few screenlines. Portions of SR 509, SR 99, South 188th Street, and Marine View Drive would operate at LOS E or F. In general, the overall system would operate at LOS D/E.

Table 2.4-3
2020 Alternative Screenline Level of Service Summary

	Alternative A	Alternative B		Alternative C2		Alternative C3	
Screenline	(No Action)	H0/H2-A	H2-B	H0/H2-A	H2-B	H0/H2-A	H2-B
A (S. 272nd)	F	E/F	E/F	E/F	E/F	E/F	E/F
B (SR 516)	F	E	E	E	E	E	E
C (S. 188th)	F	D	D	D	D	D	D
D (S.160th)	D/E	E	E	E	E	E	E
E (S. 144th)	D	D	D	D	D	D	D
F (I-5)	F	E/F	E/F	F	F	E/F	E/F

[a] *Peak direction southbound for Screenlines A through E and westbound for Screenline F.*

Source: The Transpo Group and CH2M HILL.

Corridors

Corridor LOS would improve on some roadways with implementation of the build alternatives. The primary roadways that would improve are I-5 north of the proposed SR 509 connection, SR 99 between South 188th Street and SR 516, South 188th Street west of SR 99, Des Moines Memorial Drive north of South 200th Street, and SR 516 west of SR 99. The South Access Road would have a localized affect on LOS along South 188th Street between 28th Avenue South and SR 99. LOS would improve under Design OptionsH0/H2-A for all of the build alternatives, because local access would not be available at South 188th Street. LOS would not differ between Design Option H2-B and the No Action Alternative.

Intersections

Intersection LOS would be substantially better under the build alternatives than under the No Action Alternative; however, many locations in the transportation analysis area would still operate at LOS E to F during the p.m. peak hour, particularly in the SR 99 corridor. The western portion of the transportation analysis area would have improved operating conditions, particularly in the Des Moines Memorial Drive/Marine View Drive/SR 516 corridor. Access to Sea-Tac Airport would be improved, although high volumes of local traffic would continue to use the South 170th Street entrance off of SR 99 under Alternative C3. LOS would vary slightly among the alternatives, and would vary most at the 28th/24th Avenue South intersection with South 200th Street. Under Alternative B, this intersection would primarily operate at LOS D, LOS C or D under Alternative C2, depending on the South Airport Link design option (H0/H2-A or H2-B), and LOS F under Alternative C3.

2.4.3 Accidents and Safety

In general, roadways with lower levels of congestion have lower vehicles accident rates than roadways with higher levels of congestion. In 2020, traffic volumes along the local roadways within the vicinity of the proposed project would be expected to be lower as traffic would shift from the local roadways to the SR 509 freeway and South Access Road. For example, the build alternatives would reduce future traffic volumes along SR 99, which would in turn reduce the potential for accidents. The proposed SR 509 freeway extension and South Access Road would be limited access facilities with higher safety design standards that typically yield lower accident rates than at-grade roadways.

The above findings apply equally to nonmotorized modes of travel. Lower levels of congestion around bicycle and pedestrian facilities imply safer roadways, even if the facilities do not change in other ways.

2.4.4 Travel Time

All build alternatives would reduce overall traffic congestion in the project area and would increase the use of SR 509. The SR 509 freeway extension to I-5 would improve travel times in the p.m. peak period direction (southbound) from south Seattle to Federal Way by approximately 10 minutes.

2.4.5 Other Modes of Transportation

Transit and High-Occupancy Vehicles

The build alternatives would provide additional facilities for use by transit and other HOVs.

Enhancements for transit would be included in the design of the alternatives. These enhancements could include ramp metering with HOV queue bypass lanes and direct ramps for transit into the proposed HOV lanes. The general reduction in traffic congestion and the additional HOV lanes would reduce transit travel times, improve schedule reliability, and reduce transit operating costs. The improved transit operations could lead to increased ridership.

Although improved facilities for transit and carpools would be provided for under all the build alternatives, the transit mode split and average car occupancy are expected to be the same for all build alternatives, including the No Action Alternative. Because of the improved HOV connections in the transportation analysis area, carpools would split between the I-5 and SR 509 corridors, resulting in lower volumes of carpools on I-5. Overall, travel times for carpools would be reduced.

Pedestrians and Bicycles

As traffic is diverted onto the SR 509 freeway extension conflicts with pedestrians and bicyclists on arterial roadways would be reduced. The existing nonmotorized facilities in the City of SeaTac would be maintained under the build alternatives. Many of the bicycle facilities and pedestrian routes in Des Moines would intersect with the build alternatives; however, the proposed project would not preclude their continued use.

Under Alternatives C2 and C3, the proposed project has the potential to improve the regional trail system. Alternatives C2 and C3 would disrupt the Des Moines Creek Park trailhead. WSDOT has committed to extending the Des Moines Creek Trail from the park to South 188th Street under Alternative C2, and would be willing to make this commitment for Alternative C3. The extension of the Des Moines Creek Trail would be one component that could be used in making a regional trail connection between southwestern King County and the Burke Gilman Trail in the City of Seattle.

2.4.6 Movement of Goods and People

Trucks

The amount of truck traffic in the transportation analysis area is expected to increase by approximately 2 percent per year during the period from 1999 to 2020. Currently, 75 percent of all truck movements occur between 6 a.m. and 6 p.m. Increased congestion would increase truck travel times and operating

costs, most severely during the off-peak period (9 a.m. to 3 p.m.) because of further spreading of the peak periods.

Truck access to the regional system would be improved under the build alternatives compared to the No Action Alternative. Lower levels of congestion would result in improved traffic operations. The SR 509 extension would provide an alternate truck route to the Ports of Seattle and Tacoma; truck travel times between the ports and their industrial areas would improve substantially compared to travel times under the No Action Alternative. The extension of SR 509 would reduce the travel distance between Seattle and Tacoma by approximately 1.2 miles, compared to using only I-5, and by approximately 1.7 miles compared to using SR 99 and I-5. (Additionally, the City of SeaTac, which is responsible for operation of SR 99, discourages its use as a truck route, and will not issue oversize or overload permits for SR 99.) Drivers traveling between Tacoma and Sea-Tac Airport would realize the largest reduction in travel distance. The build alternatives would reduce the travel distance by approximately 2.5 miles compared to the existing route along I-5 and South 188th Street.

Railroads

The Union Pacific and Burlington Northern Santa Fe Railroads have major rail lines that connect Seattle and Tacoma via the Green River valley. The tracks run north/south through the eastern part of the transportation analysis area near SR 181 (West Valley Road). There are no rail existing lines in the vicinity of the SR 509 corridor, so the build alternatives would have minimal, if any, impact on rail operations.

Air Travel

The Sea-Tac Airport Master Plan recently revised the air travel demand forecasts for the airport. Travel demand to Sea-Tac Airport in 2020 is a reflection of the total number of passengers and the amount of air cargo. The annual number of passengers forecast for 2020 is 44.6 million. The airport would generate approximately 155,400 vehicles per day and 8,100 p.m. peak-hour trips for 2020. This is an increase of more than 70 percent over existing conditions.

Under current conditions, approximately 57 percent of airport passengers travel to Sea-Tac Airport via the North Airport Expressway, 25 percent use South 182nd Street, and 18 percent use South 170th Street at Air Cargo Road. However, by 2010, based on the Airport Master Plan Update, approximately 60 percent of airport vehicle traffic is expected to access the passenger terminal via the North Airport Expressway, 20 percent from South 182nd Street, and 20 percent via South 170th Street. Because of the increased traffic to the south, traffic congestion at the airport entrances on International Boulevard under the No Action Alternative would increase substantially.

Access to Sea-Tac Airport would be substantially improved under the build alternatives. Travel times to and from the south would be reduced and direct access to airport facilities would be provided for residents to the south. In general, overall travel time for travelers using the new roadways would be reduced by approximately 10 minutes, thus improving access for trips to Sea-Tac Airport.

2.4.7 Added Access Analysis

The *Draft SR 509/South Access Road Access Point Decision Report* (CH2M HILL November 2002b) was prepared as a formal request to FHWA for approval of the new SR 509 interchange with I-5. Even though the report focused on the information required for the access point decision, the analysis also provided general observations regarding the operation of I-5 with implementation of the project.[2] The analysis of the report is based on Alternative C2; no substantial differences would be expected under Alternatives B or C3 because there would be no substantial difference in volumes along I-5 among the alternatives.

The access point decision analysis consistently shows that with the addition of the new SR 509 interchange, operations along I-5 would improve or maintain conditions found under the No Action Alternative. A portion of the I-5 mainline would operate at LOS F by 2020 under the No Action Alternative, but operations would improve to LOS E or better with the build alternatives. Operations would improve because added access to SR 509 would shift a substantial volume of traffic away from I-5 north of SR 516 and additional capacity would be added along the I-5 mainline. The additional capacity would be provided by the proposed auxiliary lanes, C/D lanes, and braided ramps near the SR 509/I-5 interchange with South 210th Street. The project would maintain or improve operations on all I-5 ramps compared to the No Action Alternative.

2.5 Anticipated Construction Schedule

If one of the build alternatives is selected, construction could begin in 2006 and be completed by 2013. Construction of the project would occur in four phases:

- Phase 1: Construction of the SR 509 freeway extension from South 200th Street to South 188th Street
- Phase 2: Construction of the SR 509 freeway extension from SR 99 to South 200th Street, and retaining wall construction along the west side of I-5 from SR 516 to South 204th Street

[2] The analysis was performed using HCM methodologies, and was supplemented by the FREQ simulation model.

- Phase 3: Construction of the I-5 improvements from the SR 516 interchange to SR 509 at the SR 99 crossing
- Phase 4: Construction of the I-5 improvements from the South 320th Street interchange to the SR 516 interchange

Environmental mitigation would commence prior to the relocation of utilities and construction of the roadway.

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3. Affected Environment and Environmental Consequences

3. Affected Environment and Environmental Consequences

This chapter presents the elements of the environment that could be potentially affected by the SR 509: Corridor Completion/I-5/South Access Road Project. Each element includes sections entitled *Studies and Coordination*, which describes the assumptions, evaluation methods, and sources of information; *Affected Environment*, which describes existing conditions; *Environmental Impacts*, which describes the potential impacts of each alternative; *Mitigation Measures*, which describes measures to mitigate impacts, where and when appropriate; and *Construction Activity Impacts and Mitigation*. These latter two sections describe possible measures to avoid or minimize adverse impacts. Impacts are divided into the following categories—long-term operational impacts and short-term construction-related impacts. Secondary (indirect) and cumulative impacts and discussed for all elements in the final section of this chapter.

The material presented in this chapter is based on a series of technical discipline reports prepared by the WSDOT, which are referenced in Appendix B, and incorporated into this FEIS by reference. Copies of these reports are available for review at FHWA and WSDOT.

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3.1 Air Quality

3.1 Air Quality

3.1.1 Studies and Coordination

This section is based on the findings of the *Technical Memorandum: Air Quality Summary* (WSDOT October 4, 2001); this report is included in this FEIS by reference. The following discussion identifies various air quality standards, presents the results of the air quality analysis, demonstrates air quality conformity, and presents mitigation measures for temporary construction impacts. For this analysis, the project area is defined as the immediate vicinity of the proposed SR 509 and South Access Road alignments, and along the I-5 corridor from approximately South 210th Street to South 310th Street.

The U.S. Environmental Protection Agency (EPA), Washington State Department of Ecology (Ecology), and Puget Sound Clean Air Agency (PSCAA) regulate air quality in the project area. Under the Clean Air Act, EPA has established the National Ambient Air Quality Standards (NAAQS), which specify maximum concentrations for carbon monoxide (CO), particulate matter less than 10 micrometers in size (PM_{10}), particulate matter less than 2.5 micrometers in size ($PM_{2.5}$), ozone, sulfur dioxide (SO_2), lead, and nitrogen dioxide. The standards applicable to transportation projects are summarized in Table 3.1-1. The 8-hour average maximum CO concentration of 9 parts per million (ppm) is the standard most likely to be exceeded because of a new transportation project. Nonconformance with the NAAQS would jeopardize funding of a transportation project. Other pollutant standards of importance in the Puget Sound region include ozone and PM_{10}.

Nonattainment areas are geographical regions where air pollutant concentrations exceed the NAAQS for one or more pollutants. Air quality maintenance areas are regions that have recently attained compliance with the NAAQS and are working to maintain that status.

The primary source of CO is vehicular traffic. Industry, wood stoves, and slash burns are also sources of CO. In urban areas, motor vehicles are often the source of more than 90 percent of the CO emissions that cause ambient levels to exceed the NAAQS (U.S. EPA 1993). The effects of CO are usually localized, occurring near congested roadways and intersections during autumn and winter, and are associated with light winds and stable atmospheric conditions. CO concentrations in most areas have been decreasing over time because of more stringent federal emissions standards for new vehicles and the gradual replacement of older, more polluting vehicles.

Ozone is a pungent-smelling, colorless gas produced in the atmosphere when oxides of nitrogen (NO_X) and volatile organic compounds (VOC) chemically react under sunlight. Ozone is not emitted directly, but is formed by a reaction between sunlight, NO_X, and hydrocarbons. Ozone is primarily a product of regional vehicular traffic, point source, and fugitive emissions of ozone precursors. In the Puget Sound area, the highest ozone concentrations occur from mid-May until mid-September, when urban emissions are trapped by temperature inversions followed by intense sunlight and high temperatures. Maximum ozone levels generally occur between noon and early evening at locations several miles downwind from the sources. Ozone is a pollutant of regional interest, but is not measured at the project level.

Table 3.1-1
Summary of Ambient Air Quality Standards

Pollutant	National Primary Standards	Washington State Standards	PSCAA Regional Standards
CO			
1-Hour Average (not to be exceeded more than once per year)	35 ppm	35 ppm	35 ppm
8-Hour Average (not to be exceeded more than once per year)	9 ppm	9 ppm	9 ppm
PM_{10}			
Annual Arithmetic Mean	50 µg/m^3	50 µg/m^3	50 µg/m^3
24-Hour Average Concentration (not to be exceeded more than once per year)	150 µg/m^3	150 µg/m^3	150 µg/m^3
$PM_{2.5}$			
Annual Arithmetic Mean	15 µg/m^3	--[b]	--[b]
24-Hour Average Concentration (not to be exceeded more than once per year)[a]	65 µg/m^3	--[b]	--[b]
Total Suspended Particulates			
Annual Arithmetic Mean	--[b]	60 µg/m^3	60 µg/m^3
24-Hour Average Concentration (not to be exceeded more than once per year)	--[b]	150 µg/m^3	150 µg/m^3
Ozone			
1-Hour Average (not to be exceeded more than once per year)	0.12 ppm	0.12 ppm	0.12 ppm
8-Hour Average (not to be exceeded more than once per year)	0.08 ppm	--[b]	--[b]

[a] The $PM_{2.5}$ standard has not yet been implemented by EPA.
[b] No applicable standards.
Sources: PSCAA Regulation 1 (1994); 40 CFR Part 50 (1997); WAC Chapters 173-470, 173-474, 173-175 (1987).
Annual standards never to be exceeded, short-term standards not to be exceeded more than once per year unless noted.
ppm = parts per million
µg/m^3 = micrograms per cubic meter

Particulate matter includes small particles of dust, soot, and organic matter suspended in the atmosphere. Particles less than 100 micrometers in size are measured as total suspended particulates (TSP). PM_{10} is a component of TSP and $PM_{2.5}$ is a component of PM_{10} and TSP. $PM_{2.5}$ and PM_{10} can be inhaled deeply into the lungs, potentially leading to respiratory diseases and cancer. Particulate matter may carry absorbed toxic substances, and the particle itself may be inherently toxic. Particulate matter can affect visibility, plant growth, and building materials. Sources of particulates include motor vehicles, industrial boilers, wood stoves, open burning, and dust from roads, quarries, and construction activities. Most vehicular emissions are in the $PM_{2.5}$ size range, while road and construction dust is often in the larger PM_{10} range. Most fine particulate vehicle emissions result from diesel vehicles, which release fine particulates both directly, mostly as carbon compounds, and indirectly in the form of SO_2, a gas that reacts in the atmosphere with sulfate particulates. High $PM_{2.5}$ and PM_{10} concentrations occur in autumn and winter during periods of air stagnation and high use of wood for heat. In the Puget Sound region, fireplaces and wood stoves account for almost two-thirds of winter $PM_{2.5}$ emissions (PPCAA, 1999). The project is located within the Puget Sound region, which has several PM_{10} Maintenance Areas. However, the project area is outside the Duwamish and Kent PM_{10} maintenance areas, so no design modification or mitigation would be required. EPA has not implemented $PM_{2.5}$ standards yet.

In the1970s, exceedances of the CO and ozone emissions standards prompted EPA to declare portions of the central Puget Sound region as nonattainment areas. Measures taken by EPA and local agencies since then have resulted in the achievement of attainment status. The region now is designated to be CO and ozone maintenance areas that are managed under the provisions of air quality maintenance plans (AQMP) for these pollutants. Any regionally significant transportation project in the Puget Sound air quality maintenance areas must conform to the AQMPs. Conformity is demonstrated by showing that the proposed project would not cause or contribute to any new violation of any NAAQS, would not increase the frequency or severity of any existing violation of any NAAQS, or would not delay timely attainment of the NAAQS. The proposed project is currently considered to be within the maintenance areas for ozone and CO.

Transportation conformity is a mechanism for ensuring that transportation activities, plans, programs, and projects are reviewed and evaluated for their impacts on air quality prior to funding or approval. The intent of transportation conformity is to ensure that new projects, programs, and plans do not impede an area from meeting and maintaining air quality standards. Specifically, regional transportation plans, improvement programs, and projects may not cause or contribute to new violations, exacerbate existing violations, or interfere with the timely attainment of air quality standards or the required interim emissions reduction towards attainment. Meeting conformity requirements takes the collective participation of all jurisdictions

and agencies that implement transportation projects and programs in the Puget Sound region.

CO is the most likely pollutant to exceed the NAAQS for transportation projects. Local CO concentrations from vehicle traffic were predicted for the project design year (2020). CO concentrations in 2020 were modeled for each build alternative and the No Action Alternative at three intersections within the project area—South 188th Street and SR 509, South 200th Street and SR 509, and South 200th Street and the South Access Road (collectively referred to as the modeled intersections). Impact analysis included three additional design options for the South Airport Link—H0, H2-A, and H2-B—using MOBILE5a and CAL3QHC. The modeled intersections were selected based on future traffic volume, LOS, and impacts of the proposed SR 509 freeway extension on the existing city streets or arterials. Complete modeling methods were described in the Technical Memorandum: Air Quality Summary (WSDOT October 4, 2001), which references earlier air quality analysis and documents prepared at various times as the alternatives were developed.

Because ozone is a regional pollutant, ozone concentrations from vehicle emissions resulting from the construction of the proposed project are not modeled at a local level. The PSRC models conformity to the ozone standards. The proposed SR 509: Corridor Completion/I-5/South Access Road Project is included on the 2001 to 2004 project list of the Regional Transportation Improvement Plan (TIP) that has been determined to conform to the State Implementation Plan (SIP).

Concentrations of PM_{10} during construction were estimated from EPA AP-42 emission values. EPA has not yet recommended any models or procedures to accurately measure PM_{10} concentrations along individual roadways. The project area is outside the Duwamish and Kent PM_{10} maintenance areas; consequently, no mitigation or design modification is required, though discussion of construction dust impacts is discussed later in this section.

3.1.2 Affected Environment

The evaluation of existing air quality is based on ambient air quality data collected and published by Ecology and the PSCAA. The air quality monitoring stations closest to the project area are located between 1 and 5 miles away. According to the 1997 Air Quality Report from Ecology, a CO exceedance of the NAAQS at the Puget Sound location was recorded in 1995, and an ozone exceedance was recorded in 1994. Trends for both pollutants have continued downward for the last 10 years.

3.1.3 Environmental Impacts

Long-term effects on air quality in the project area would result primarily from vehicle emissions. Air quality would meet the NAAQS at all of the modeled intersections; therefore, the alternatives would conform to the CO maintenance plan on the local level. The build alternatives are within the Puget Sound vehicle Inspection and Maintenance (I&M) Program area, and are subject to the air quality vehicle inspection program. Additionally, stricter vehicle emissions standards for new cars and the gradual replacement of older, more polluting vehicles with newer, cleaner cars have helped improve air quality, resulting in a reduction of the average emissions per vehicle on the road. Decreasing vehicle emissions would offset increasing emissions stemming from growing traffic volumes and slower vehicle speeds.

CO concentrations in the project area were modeled for 2020 conditions. CO emission factors consistent with the 1998 Metropolitan Transportation Plan (MTP) update were used. The latest CO emission factors developed by PSRC for 2020 in the Puget Sound region are substantially lower than those used in this study; therefore, the analysis methodology is highly conservative and was not revised to incorporate the newer PSRC emission factors. These results include 1-hour and 8-hour average CO concentrations for each alternative. Current CO readings within the project area were not modeled because the existing roadways, which are used as alternate routes, are arterials; consequently, they are not comparable to the proposed multilane and limited access SR 509 freeway extension. CO concentrations for the year of opening, 2009, are expected to be lower than the results modeled for 2020 in this analysis because traffic volumes would be less in 2009 and highly conservative emission factors were used for the 2020 analysis.

Tables 3.1-2 and 3.1-3 summarize the maximum CO concentrations projected for 2020 traffic volumes predicted at the SR 509 intersection of South 188th Street and South 200th Street, as well as the intersection of South 200th Street and the South Access Road. Modeling assumptions and the methodology used for all alternatives were consistent to allow for comparisons among the alternatives. CO concentrations under each of the build alternatives were compared to the No Action Alternative values to determine the impact of the build alternatives. Traffic operations for Alternatives C2 and C3 would be essentially the same; therefore, they were not modeled individually.

Table 3.1-2
Maximum 1-Hour Average CO Concentrations at Modeled Intersections in 2020

Modeled Intersections	Alternative A (No Action)	Alternative B	Alternative C2 (Preferred)	Alternative C3
South 188th Street and SR 509	7.5 ppm	10.7 ppm	10.9 ppm [a]	10.9 ppm [a]
South 200th Street and SR 509	5.4 ppm	9.2 ppm	8.3 ppm	8.3 ppm
South 200th Street and South Access Road	5.6 ppm	6.9 ppm	10.7 ppm	10.7 ppm

[a] Alternatives C2 and C3 at the South 188th Street intersection were not individually modeled because their emissions are not expected to differ substantially.
Note: The 1-hour NAAQS for CO is 35 ppm.

As shown in Table 3.1-2, CO values would not exceed the 1-hour average NAAQS for the No Action Alternative or any of the build alternatives. Table 3.1-3 shows that modeled maximum 8-hour average CO concentrations would range from 3.8 to 7.6 ppm, which are within the standard.

Table 3.1-3
Maximum 8-Hour Average CO Concentrations at Modeled Intersections in 2020

Modeled Intersections	Alternative A (No Action)	Alternative B	Alternative C2 (Preferred)	Alternative C3
South 188th Street and SR 509	5.3 ppm	7.5 ppm	7.6 ppm [a]	7.6 ppm [a]
South 200th Street and SR 509	3.8 ppm	6.4 ppm	5.8 ppm	5.8 ppm
South 200th Street and South Access Road	3.9 ppm	4.8 ppm	7.5 ppm	7.5 ppm

[a] Alternatives C2 and C3 at the South 188th Street intersection were not individually modeled because their emissions are not expected to differ substantially.
Note: The 8-hour NAAQS for CO is 9 ppm.

CO concentrations under 2020 conditions were modeled for the South Airport Link portion of the project area. Receptors along the South Access road were located 25 feet from the traveled lane. These locations take into consideration that new roadway will be controlled and would include some sort of physical separation between the road and pedestrians. Tables 3.1-4 and 3.1-5 summarize the maximum CO concentrations projected for 2020 traffic volumes predicted at the South 188th Street and 28th Avenue South intersection and at the South Airport Link 25 feet from the travel-way (the outside lane). These results include 1-hour and 8-hour average CO concentrations under Design Options H0, H2-A, and H2-B for each

alternative. The No Action Alternative was not modeled because there is currently no equivalent roadway at the location of the proposed South Access Road and South Airport Link.

Table 3.1-4
Maximum 1-Hour CO Concentrations Near the South Airport Link in 2020

Alternative/South Airport Link Design Option	South 188th Street and 28th Avenue South Intersection	South Airport Link (25 feet from travel-way)
B/H0 & B/H2-A	10.8 ppm	4.0 ppm
B/H2-B	11.4 ppm	4.2 ppm
C2/H0 & C2/H2-A	10.7 ppm	4.1 ppm
C2/H2-B	12.4 ppm	4.1 ppm
C3/H0 & C3/H2-A	10.7 ppm	4.1 ppm
C3/H2-B	12.4 ppm	4.1 ppm

Note: The 1-hour NAAQS for CO is 35 ppm.

As shown in Table 3.1-4, CO concentrations would not exceed the 1-hour average under any combination of design option and alternative. Modeled maximum 8-hour average CO concentrations values would range from 2.8 to 8.9 ppm, also falling within the standard (Table 3.1-5).

Table 3.1-5
Maximum 8-Hour CO Concentrations Near the South Airport Link in 2020

Alternative/South Airport Link Design Option	South 188th Street and 28th Avenue South Intersection	South Airport Link (25 feet from travel-way)
B/H0 & B/H2-A	7.6 ppm	2.8 ppm
B/H2-B	8.0 ppm	2.9 ppm
C2/H0 & C2/H2-A	7.5 ppm	2.9 ppm
C2/H2-B	8.9 ppm	2.9 ppm
C3/H0 & C3/H2-A	7.5 ppm	2.9 ppm
C3/H2-B	8.9 ppm	2.9 ppm

Note: The 8-hour NAAQS for CO is 9 ppm.

Alternative A (No Action)

The No Action Alternative would result in 25 to 30 percent lower 1-hour and 8-hour CO maximum concentrations than the build alternatives. Under the No Action Alternative, the maximum 8-hour average concentration predicted at South 188th Street and SR 509 would range from 5.3 to 7.5 ppm, depending on the alternative/design option.

Impacts Common to All Build Alternatives

The I-5 corridor would be improved to accommodate the flow of traffic to and from the SR 509 freeway extension. Improvements would include adding C/D lanes, auxiliary lanes and interchange ramp improvements. The I-5 corridor was not modeled because of its limited access and free-flow traffic volume; the I-5 lane additions also would occur within WSDOT right-of-way.

Alternative B

Under Alternative B, the maximum predicted 1-hour average CO concentrations would range between 6.9 and 10.7 ppm in 2020. None of the modeled intersections for the SR 509 freeway extension and the South Access Road were predicted to exceed the 1-hour NAAQS for CO of 35 ppm.

The maximum predicted 8-hour average CO concentrations would range between 4.8 and 7.5 ppm in 2020. None of the intersections were predicted to exceed the 8-hour average NAAQS for CO of 9 ppm.

Under Alternative B, South Airport Link Design Options H0 and H2-A would have 1-hour average CO concentrations of 10.8 ppm at the South 188th Street and 28th Avenue South intersection. The receptor located 25 feet from the travel-way was predicted at a maximum value of 4.0 ppm for 1-hour average CO concentrations. The 8-hour average CO concentrations were predicted to fall below the CO standard of 9 ppm at both locations as shown on Table 3.1-5.

For Design Option H2-B, 1-hour and 8-hour average CO concentrations were higher than those of Design Options H0 and H2-A. The 1-hour average CO concentrations at both locations were predicted to be well below the CO standard of 35 ppm. The 8-hour average CO concentrations were predicted to be below the CO standard of 9 ppm for both locations as shown on Table 3.1-5.

No design modifications would be required.

Alternative C2 (Preferred)

Under Alternative C2, the maximum predicted 1-hour average CO concentrations would range between 8.3 and 10.9 ppm in 2020. None of the modeled intersections were predicted to exceed the 1-hour NAAQS of 35 ppm for CO.

The maximum predicted 8-hour average CO concentrations would range between 5.8 and 7.6 ppm in 2020. None of the modeled intersections were predicted to exceed the 8-hour average NAAQS of 9 ppm.

Under Alternative C2, Design Options H0 and H2-A were predicted to have 1-hour average CO concentrations at a maximum of 10.7 ppm at the South 188th Street and 28th Avenue South intersection. The 1-hour average CO concentrations at the receptor located 25 feet away from the travel-way were predicted at a maximum value of 4.1 ppm. The 8-hour average CO concentrations were predicted to be below the CO standard of 9 ppm at both locations.

For Design Option H2-B, 1-hour and 8-hour average CO concentrations were predicted to be 10 to 15 percent higher than the other design options. The 1-hour average CO concentrations at both locations were predicted to be well below the CO standard of 35 ppm. The 8-hour average CO concentrations were predicted to be below the CO standard of 9 ppm for both locations as shown on Table 3.1-5.

No design modifications would be required.

Alternative C3

In terms of factors affecting air quality, Alternative C3 is the same as Alternative C2, and would have identical air quality implications.

Like Alternative C2, no design modifications would be required.

3.1.4 Conformity Determination

Subsequent to issuance of the Revised DEIS, the proposed SR 509: Corridor Completion/I-5/South Access Road Project preferred alternative was analyzed to determine localized (hot-spot) and regional conformity to the Puget Sound Region's air quality maintenance plans pursuant to the requirements of 40 CFR Part 93 and WAC 173-420. The results of the analysis demonstrate the project meets all requirements of 40 CFR Part 93 and WAC 173-420, and conforms to the Puget Sound Air Quality Maintenance Plans, and the proposed project is included in PSRC's current MTP and Regional TIP. The conformity analysis is provided in Appendix H of this FEIS.

3.1.5 Mitigation Measures

Because no project-level exceedances of the NAAQS are predicted, no operational design modifications would be needed.

3.1.6 Construction Activity Impacts and Mitigation

Construction Activity Impacts

Particulate emissions (in the form of fugitive dust during construction activities) are regulated by the PSCAA. The operator of a source of fugitive dust shall take reasonable precautions to prevent fugitive dust from becoming airborne and shall maintain and operate the source to minimize emissions. Construction impacts would be reduced by incorporating mitigation measures into the construction specifications for the proposed project per the Associated General Contractors (AGC) of Washington guidelines (*Guide To Handling Fugitive Dust From Construction Projects).*

Mitigation Measures

Possible mitigation measures to control PM_{10}, deposition of particulate matter, and emissions of CO and NO_X during construction but not limited are as follows:

- Spray exposed soil such as slopes, subgrades, and access roads with water or other dust palliatives to reduce emissions of PM_{10} and deposition of particulate matter.
- Gravel or pave access or haul roads to reduce particulate emissions.
- Cover trucks transporting materials, wet down materials in trucks, or provide adequate freeboard (space from the top of the material to the top of the truck) to reduce PM_{10} and deposition of particulates during transportation.
- Provide wheel washers to remove particulate matter that would otherwise be carried offsite by vehicles to decrease deposition of particulate matter on area roadways.
- Remove particulate matter deposited on paved public roads to reduce mud on area roadways.
- Schedule construction trucks to avoid peak travel times to reduce secondary air quality impacts caused by a reduction in traffic speeds while waiting for construction trucks.

- Place quarry spall aprons where trucks enter public roads to reduce mud track-out.

- Require devices compliant with federal emission-control rules on all construction equipment and transportation within the construction work area powered by gasoline or diesel fuel to reduce CO and NO_X emissions in vehicular exhaust.

- Plant vegetative cover as soon as possible after grading to reduce windblown particulates in the area.

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3.2 Noise

3.2 Noise

3.2.1 Studies and Coordination

This section is based on the findings of the *SR 509/South Access Road EIS Discipline Report: Noise* (Noise Discipline Report) (CH2M HILL July 2001), *SR 509/South Access Road EIS: South Airport Link* (CH2M HILL August 2001), and *SR 509/South Access Road EIS: I-5 Improvements Report* (CH2M HILL October 2001). These reports are incorporated into this FEIS by reference. The discipline reports also contain noise measurement data from locations in the vicinity of each alternative and from the area along I-5 south of South 216th Street to south of South 272nd Street. The *SR 509/South Access Road EIS: I-5 Improvements Report* (CH2M HILL October 2001) provided an additional analysis of existing and future traffic noise conditions and a discussion of noise mitigation for areas along the I-5 corridor between South 216th and South 310th Streets. Since publication of the RDEIS, a more detailed noise analysis was conducted to further evaluate potential noise barrier locations for the preferred alternative (Alternative C2), as required by FHWA. The detailed noise analysis is presented in Appendix I of this FEIS. For the purpose of the noise analyses, the project area is defined as the immediate vicinity of the SR 509 and South Access Road alignments and along the I-5 corridor from the proposed SR 509 interchange and South 310th Street.

In July 1992, The Parry Group completed and published a High Occupancy Vehicle Lane Traffic Noise and Noise Barrier Analysis (Parry 1992, revised 1993) of I-5 between the Fife/54th Avenue East interchange and the Southcenter/I-405 interchanges. The analysis identified 28 receptors with sound levels at 60 to 76 dBA. The analysis also identified two berms constructed in the 1980s to abate highway traffic noise for residents near the South 272nd Street interchange, and recommended barriers at 10 locations in the I-5 corridor. Seven of the ten barriers recommended in Parry (1992) were located between South 216th Street and South 320th Street. At the time of this FEIS, 6 of the 10 recommended barriers have been constructed.

Method of Analysis

Existing ambient sound levels were determined by measuring 38 sensitive receptor sites in the project area. Sound level measurements taken for the environmental documents for the third runway at Sea-Tac Airport and the I-5 HOV and truck climbing lane were also reviewed to determine ambient existing, as well as future, sound levels. A simplified version of the FHWA Noise Prediction Model Stamina 2.0, developed by Wayne C. Young of the Texas Department of Transportation, was used to generate noise contours at a

level approaching the FHWA abatement criteria. These contours were plotted onto aerial photographs that were then used to count the number of sensitive receptors impacted by each alternative. Current noise-sensitive areas within the Sea-Tac Airport Noise Remedy Program areas were not included in the counts because the homes within the areas covered by this program would either be relocated or acquired by the airport in the future. Because design data were not available to determine the feasibility and reasonableness of likely mitigation for each of the alternatives, an alternative method of screening the level of noise abatement within the project area was proposed by WSDOT and approved by FHWA.

A modified analytical approach approved by FHWA was applied to compare alternatives. Previous studies for this and other projects throughout the project area indicate that even short barriers would not be built when more than 100 lineal feet of barrier per household benefited was required. This reasonableness criterion was used for all the alternatives.

For the detailed noise study conducted for the preferred alternative (Appendix I), all impacted neighborhoods were analyzed and reasonable and feasible noise barriers are recommended for construction in accordance with 23 CFR 772 and WSDOT Traffic Noise Analysis and Abatement Policy and Procedures.

Construction noise levels were estimated based on typical expected equipment noise levels provided by EPA.

Noise Regulations and Impact Criteria

State and local governments have primary responsibility to control noise sources and regulate levels of noise permitted in the environment. The federal government establishes noise source emission standards for products engaged in interstate commerce, such as individual automobiles and aircraft.

Applicable noise regulations and guidelines provide a basis for evaluating potential noise impacts. Noise regulations and guidelines specifying ambient indoor and outdoor sound levels are established by the FHWA, Ecology, and local jurisdictions.

Federal Highway Administration Noise Abatement Criteria

For federally funded highway projects, traffic noise impacts occur when predicted hourly traffic noise levels (L_{eq}[h]) approach or exceed the noise abatement criteria (NAC) established by the FHWA, or substantially exceed existing sound levels (U.S. Department of Transportation, 1982). “Approach” is defined by WSDOT as meaning within 1 dBA decibel. “Substantially exceed” is defined by WSDOT as an increase of 10 dBA or more over the existing level. The FHWA NAC for various land activity categories are presented in Table 3.2-1.

Table 3.2-1 FHWA Noise Abatement Criteria		
Active Category	**L_{eq} (h) (dBA)**	**Description of Activity Category**
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D	--	Undeveloped lands.
E	52 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

Source: U.S. Department of Transportation (1982).

State and Local Noise Regulations

King County and the Cities of Kent, SeaTac, and Federal Way regulate noise as a nuisance, but neither city has established property line standards specifying noise levels that cannot be exceeded at receiving properties. The Cities of Des Moines, Federal Way, Kent, and SeaTac do not have noise ordinances that apply to road construction or traffic noise; all defer to Ecology limits.

Ecology limits noise levels at property lines of neighboring properties (WAC Chapter 173-60). The maximum permissible noise levels depend on the land uses of both the source noise and receiving property. Ecology's property line noise regulations are presented in Table 3.2-2.

Table 3.2-2 Ecology Maximum Permissible Noise Levels (dBA)				
	Receiving Property			
	Residential			
Noise Source	**Day**	**Night***	**Commercial**	**Industrial**
Residential	55	45	57	60
Commercial	57	47	60	65
Industrial	60	50	65	70

* *Maximum permissible noise levels are reduced by 10 dBA for residential receiving property between 10 p.m. and 7 a.m.*
Source: WAC 173-60-040 (1989).

Sounds from motor vehicles on public roads are exempt from Ecology's property line regulations presented in Table 3.2-2, although the FHWA noise criteria still apply.

Construction noise from the proposed project would be exempt from regulations during daytime hours. However, project contractors and WSDOT crews would need to meet Ecology and local jurisdiction property line regulations during nighttime hours. Noise levels in Table 3.2-2 apply to construction equipment only at rural and residential receiving properties between 10 p.m. and 7 a.m. on weekdays and between 10 p.m. and 9 a.m. on weekends.

Coordination with Other Agencies and Groups

The TRANSPO Group, in cooperation with WSDOT, projected the future traffic volumes and speeds upon which this FEIS is based. Modeled traffic is summarized in *SR 509/South Access Road EIS Discipline Report: Transportation* (CH2M HILL January 2002). Traffic noise levels for worst-case traffic conditions were predicted for each alternative using peak-hour volumes at various speed limits to calculate the distance to the 66-dBA contour. Heffron Transportation and K2 & Associates provided vehicle percentages. Actual traffic volumes used for this analysis were provided in the Noise Discipline Report (CH2M HILL July 2001).

The measurements taken for the Port of Seattle's third runway project and WSDOT's HOV and truck climbing lane projects were compared with those taken on this project for verification. These measurements were used to fill in missing data from adjustments made in the alignment as the proposed project alternatives evolved.

The methodology for noise analysis on this project was developed in close coordination with FHWA.

3.2.2 Affected Environment

Land Uses and Noise Sensitive Areas

The project area is mostly residential, but includes both commercial and light industrial uses. Sea-Tac Airport is the largest traffic generator in the project area (CH2M HILL January 2002). The existing land use along the I-5 corridor between South 216th Street and South 310th Street is primarily single- and multifamily residential. There are several small businesses mixed in the residential areas surrounding the I-5/SR 516 interchange.

A large portion of the project area is located within the Sea-Tac Airport Noise Remedy Program areas. The Port of Seattle has undertaken a series of noise mitigation programs in the area surrounding Sea-Tac Airport; these

include the Noise Acquisition and Relocation Program, under which the Port has purchased more than 1,360 homes, and the Neighborhood Reinforcement and Standard Insulation Programs to soundproof 10,000 additional homes (Port of Seattle 1991). Figure 3.2-1 shows the boundaries of the Noise Remedy Program areas, as well as the airport's annual average DNL (day-night average noise level) noise contours.

Many noise-sensitive receptors are located in the project area in the form of residences, apartment buildings, hospitals, libraries, parks, schools, retirement homes, and churches. Noise measurements were conducted at 38 representative receptor locations within the project area. Sensitive receptors evaluated in this FEIS were chosen based on accessibility and proximity to major projects, as well as their ability to represent overall conditions in the project area.

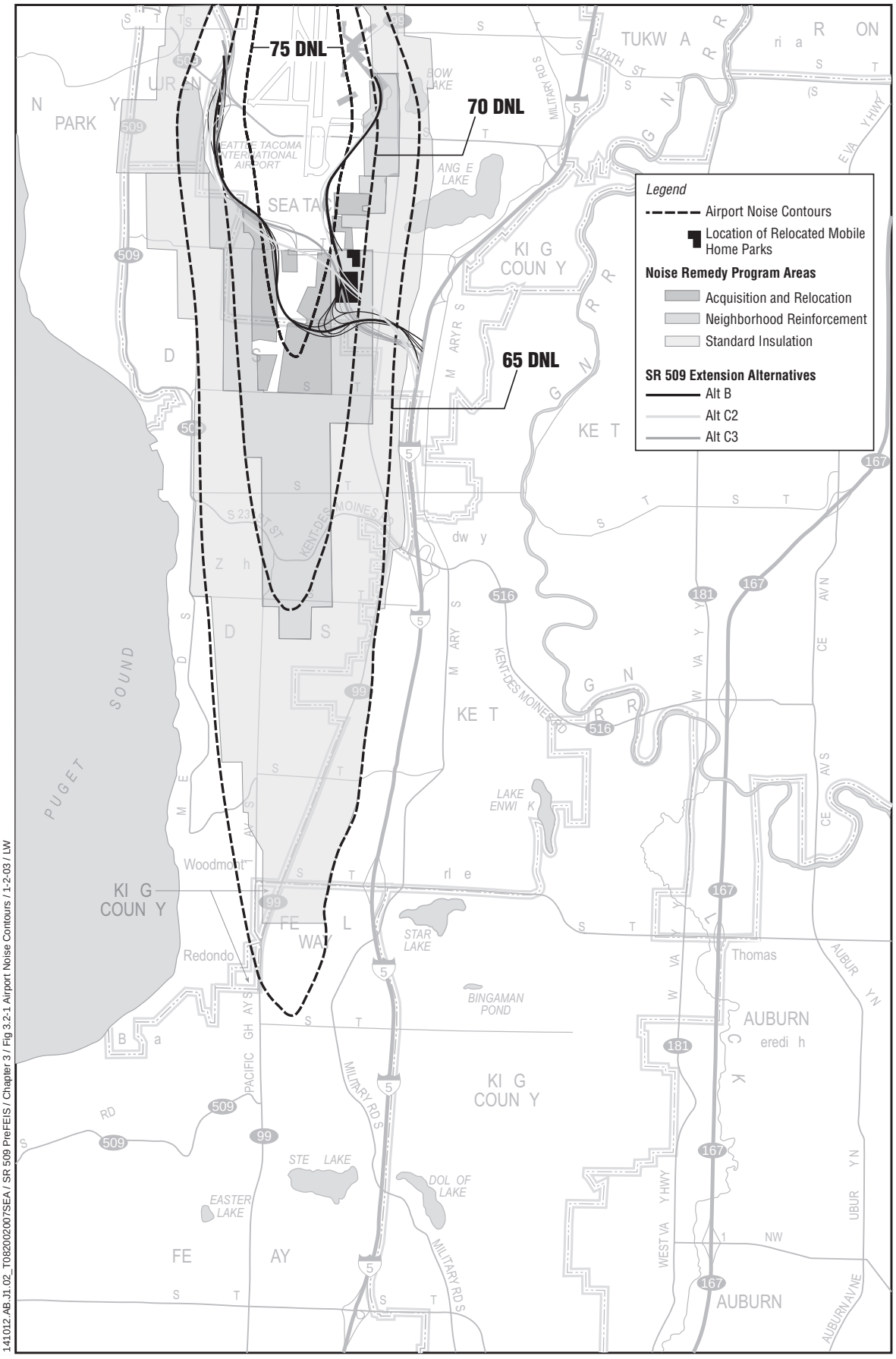
Existing Noise Levels

Ambient sound levels were measured to describe the existing noise environment and to identify major noise sources in the project area. Ambient sound levels were measured at 38 receptor locations in the project area; Figure 3.2-2 shows these locations.

Receptors were selected along the proposed project alignments at locations that would likely be impacted by traffic noise. Sound levels for the 30 receptors located along I-5 are presented in Table 3.2-3. Average noise levels (L_{eq}) at these receptors and at the receptors located during the HOV and truck climbing lane noise analyses were dominated by traffic and ranged from 54 to 78 dBA. Substantial noise sources other than traffic are also noted in Table 3.2-3. An additional eight measured receptors located in residential, commercial, industrial, and park areas near the proposed alignments for the build alternatives, where current traffic noise levels are minimal but the proposed project could create noise impacts (Table 3.2-3). In these areas, L_{eq} values ranged from 56 to 75 dBA. In most cases, the primary source of noise along the proposed alignments was aircraft operations.

The measured existing sound levels included all sounds that typically occur at each location. Noise measurements were taken only when unusual sounds did not occur; however, aircraft noise was included because it is common in the project area.

The dominant sources of noise in the project area are automobile and heavy truck traffic and aircraft overflights. Aircraft noise was dominant at receptors nearest the airport or directly in the flight path. Roadway noise was dominant at receptors located along I-5. Traffic speeds ranged from 30 to 55 mph.



141012 AB.J1.02_T082002007SEA / SR 509 PreFEIS / Chapter 3 / Fig 3.2-1 Airport Noise Contours / 1-2-03 / LW

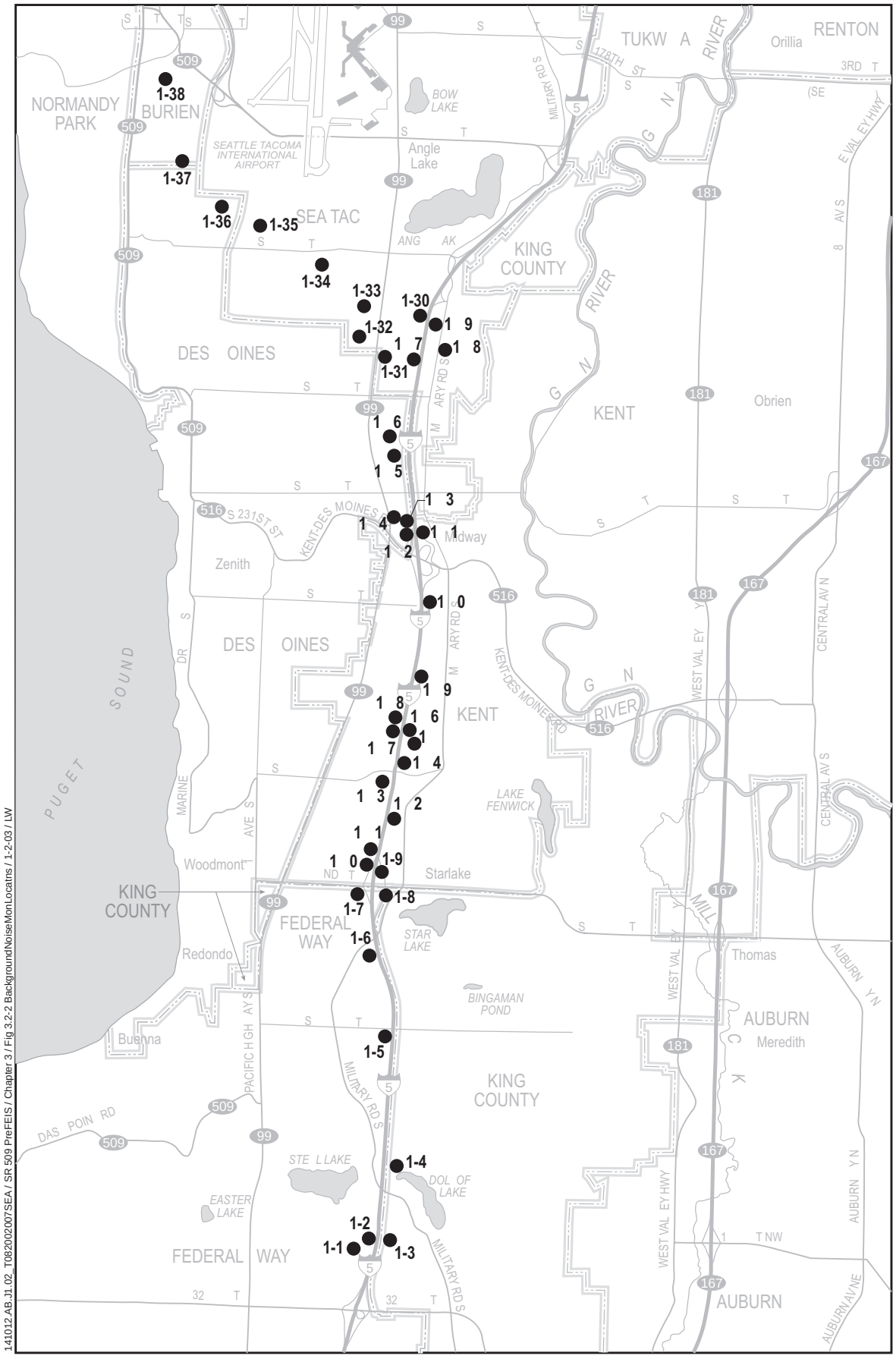
0 1900 3800
Scale in Feet

North

FIGURE 3.2-1

Airport Noise Contours and Port of Seattle Noise Remedy Program Areas

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement



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0 1900 3800
Scale in Feet

North

FIGURE 3.2-2

Background Noise Monitoring Locations

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement

Table 3.2-3
Noise Measurement Receptor Locations

Receptor Number	Location	Distance to I-5 (feet)	Measured A-Weighted Noise Level (dBA) L_{eq}	Comments
1-1	Steel Lake Park	450	60	
1-2	Steel Lake Court Apartments, back parking lot facing Southbound I-5	125	75	Exceeds FHWA criterion
1-3	Corner of 32nd Ave/312th Street, facing Northbound I-5	525	63	
1-4	Corner of South 304th Street/31st Avenue South, facing Northbound I-5	75	72	Exceeds FHWA criterion
1-5	End of Sir Lancelot Court, facing Southbound I-5	115	78	Exceeds FHWA criterion
1-6	Residence at 28138 29th Avenue South	220	62	
1-7	Mark Twain Elementary	413	67	Aircraft noise; exceeds FHWA criterion
1-8	Church at South 272nd Street and Military Road	440	65	
1-9	Residence at 3004 South 271st Street	381	69	Some aircraft noise; exceeds FHWA criterion
1-10	Residence at 26810 28th Avenue South	135	68	Exceeds FHWA criterion
1-11	26818 28th Avenue South (backyard of residence facing Southbound I-5)	150	73	Exceeds FHWA criterion
1-12	Residence at 3024 South 256th Street	285	66	Approaches FHWA criterion
1-13	Royal Skies Apartments	289	66	Approaches FHWA criterion
1-14	Residence at 25625 32nd Place South	259	63	
1-15	Residence at 25410 33rd Place South	630	63	Mostly aircraft noise
1-16	Residence at 25217 32nd Place South	538	65	
1-17	Residence at 25344 31st Avenue South	171	64	
1-18	Residence at 25317 31st Avenue South	289	65	
1-19	Linda Heights Park, City of Kent	308	69	Exceeds FHWA criterion
	Linda Heights Park, western edge, 20 feet south of bird nesting area	270	71	Exceeds FHWA criterion
1-20	Residential area at South 35th Avenue and 240th Street South	220	69	Exceeds FHWA criterion
1-21	Church at 22809 Military Road	89	73	Exceeds FHWA criterion
1-22	Heritage Court Apartments	98	69	Some aircraft noise; exceeds FHWA criterion
1-23	Apartment Complex, 3028 in grass facing Southbound I-5	100	74	Exceeds FHWA criterion
1-24	Raintree Apartments	580	54	Exceeds FHWA criterion
1-25	Apartment Building at 3059 South 224th Street	98	74	Exceeds FHWA criterion
1-26	Midway Park at South 221st Street	600	59	

Table 3.2-3
Noise Measurement Receptor Locations

Receptor Number	Location	Distance to I-5 (feet)	Measured A-Weighted Noise Level (dBA) L_{eq}	Comments
	Midway Park near entry to substation	350	70 71	Noise from I-5 and aircraft overflights Exceeds FHWA criterion
1-27	Residence at 21240 32nd Avenue South	116	65	Some aircraft noise
1-28	Residence at 21114 Military Road	620	64	Some aircraft noise
1-29	Residence at 3409 South 209th Street	190	69	Exceeds FHWA criterion
1-30	Sandpiper Apartments	160	61	
1-31	Residence at 21415 29th Avenue South	NA	68	Airplanes taking off; exceeds FHWA criterion
1-32	Residence at 20815 25th Avenue South	NA	75	Very loud airplane noise; exceeds FHWA criterion
1-33	Town and Country Villa Mobile Home Park	NA	69	Airplanes taking off; exceeds FHWA criterion
1-34	Des Moines Creek Park	NA	71 75	Airplanes taking off Exceeds FHWA criterion
1-35	Residence at 19509 13th Avenue South	NA	74	Airplanes taking off; exceeds FHWA criterion
1-36	Residence at 1045 South 194th Street	NA	63	Airplanes taking off
1-37	Residence at 860 South 192nd Street	NA	70	Airplanes taking off; exceeds FHWA criterion
1-38	Woodside School	NA	59	Some airplanes

NA = Not applicable; receptors are outside of the I-5 corridor.

Other sources of noise may include, but are not limited to, industrial and commercial activities, human voices in residences, children playing, and construction.

The highest traffic noise levels typically occurred during morning and evening rush hours. At the time of the Parry analysis in 1992, 28 receptors with sound levels at 60 to 76 dBA were identified. WSDOT estimated that nearly $3 million in noise barriers would have to be built to adequately mitigate the impacts associated with I-5 and the proposed HOV and truck climbing lane projects. Ten barrier systems were designed to supplement the two berms that were built in the 1980s to abate highway traffic noise for residents near the South 272nd Street interchange. Since then, 6 of the 10 recommended barriers have been constructed, reducing sound levels for adjacent residences by 7 to 10 dBA. The remaining four noise systems are awaiting construction funding.

Noise in Neighborhood Parks

Three parks could be adversely affected by increased noise levels due to the proposed project. These parks are Linda Heights Park, Midway Park, and Des Moines Creek Park. Background noise levels were measured at representative locations within the three parks (1-19, 1-26, and 1-34) near the proposed alternative alignments (Table 3.2-3).

Based on the results of these onsite noise level measurements and field observations, the following determinations were made:

- Traffic on I-5 is the dominant source of noise at Linda Heights Park. Existing average background noise levels near the west side of the park are in the 70 dBA range. Such levels are above the WSDOT/FHWA NAC.

- Existing noise exposure in Midway Park is dominated by noise from traffic on I-5. Current L_{eq} in the middle of the park are about 70 dBA. Such levels are above the WSDOT/FHWA NAC.

- At the Des Moines Creek Park, aircraft departures from Sea-Tac Airport are the main sources of environmental noise. Measured noise levels in the park average 71 to 75 dBA during periods when jet aircraft departures occur. In fact, based on the 1998 aircraft noise contours in the Sea-Tac Airport Part 150 Study Update (Port of Seattle 2000), aircraft noise exposure in Des Moines Creek Park is in the range of 70 dBA DNL.

3.2.3 Environmental Impacts

Noise from the proposed action would include short-term noise during road construction and long-term operational impacts from growth in traffic volumes and changes in traffic patterns on project area roadways. New

construction and road sections that would be widened were analyzed for noise impacts. Noise modeling data for the projects, including the No Action Alternative, were used with aerial photographs to estimate the number of receptors that might be impacted in 2020 under each alternative.

Areas along the SR 509 freeway extension and north of SR 516 on both sides of I-5 contain residential parcels that could experience partial or full right-of-way acquisitions because of construction of the proposed project. If these parcels were to be acquired in total, the summary of noise impacts and proposed noise mitigation would be adjusted accordingly during the final design of the I-5 improvements.

Alternative A (No Action)

Under the No Action Alternative, traffic and noise levels would increase along the roadways because of development and transportation improvements in the project area that would increase traffic volumes. Under 2020 predicted traffic volumes, approximately 683 single-family residences would be within the 66 dBA contours (Table 3.2-4). Additionally, approximately 655 multifamily residential units, 1 school, 2 parks, 3 assisted care facilities, and 4 churches would experience similar effects, for a total of approximately 1,348 impacted receptors. When noise barriers planned by WSDOT are completed along I-5 as mitigation for previous projects, the number of impacted receptors will decrease. The number of receptors benefited by noise barriers will largely depend on the amount of right-of-way acquired for all the build alternatives.

The number of noise impacts under the No Action Alternative was determined by counting the number of sensitive receivers within a 66 dBA noise contour (developed using 2020 PM peak-hour traffic volumes) and assuming ideal noise propagation conditions. The same assumptions used to determine the existing impact contours were also used to determine impact contours under the No Action Alternative. Traffic volumes were taken from the results of the 2020 No Action Alternative travel demand traffic model provided by the TRANSPO Group. The number of impacts for the 2020 No Action Alternative was compared with the number of existing impacts, as well as the number of impacts in 2020 for the build alternatives.

Table 3.2-4
Estimated Number of Impacted Receptors by Alternative

	2020 Alternative A (No Action)	2020 Alternative B	2020 Alternative C2 (Preferred)	2020 Alternative C3
Traffic Noise 66 dBA or Greater				
Single-family residential	683	1,638	1,744	1,636
Multifamily residential	655	806	819	979
Schools	1	3	3	3
Libraries	0	0	0	0
Hospitals and retirement homes	3	3	3	3
Parks	2	3	3	3
Churches	4	5	6	6
Total Receptors Impacted	**1,348**	**2,458**	**2,578**	**2,390**

Note: A receptor is any single-family residence, housing unit on a multifamily parcel, school, hospital, retirement home, park, or library. The number of individuals exposed at each receptor location was not determined. Mobile homes within the Sea-Tac Airport 70-DNL contour and properties acquired by the Sea-Tac Airport Noise Remedy Program are excluded from the counts.

Under the No Action Alternative, the noise levels in 2020 would increase at locations near I-5 and decrease at locations away from I-5. This is a direct result of the 33 percent forecasted increases in traffic volumes on I-5 and a decrease in background noise levels.

Impacts Common to All Build Alternatives

Projected traffic volumes on I-5 for each of the build alternatives are very similar, and would result in the same distances to the 66 dBA contours. Therefore, noise impacts in areas along I-5 would be common to all three build alternatives. The impacts summarized in Table 3.2-4 include all areas within the 66 dBA contour for the proposed I-5 improvements, which are common to all build alternatives.

Under all build alternatives, traffic noise exposure in Linda Heights Park and Midway Park would increase by only 1 dBA relative to the No Action Alternative. Nevertheless, future traffic noise levels within these two parks exceed the WSDOT/FHWA NAC for all of the build alternatives.

Alternative B

Under Alternative B, traffic noise levels would increase in parts of the project area because of development and transportation improvements. The number

of impacts under Alternative B was determined by counting the number of existing sensitive receivers within a 66 dBA noise contour (developed using 2020 PM peak-hour traffic volumes) and assuming ideal noise propagation conditions. Of the three build alternatives, Alternative B would impact the fewest additional receptors. Most of the additional sensitive receptors impacted by traffic noise under Alternative B are multifamily units located near the proposed SR 509/I-5 interchange.

In 2020, approximately 1,638 single-family residences would be impacted by noise levels of 66 dBA or greater (Table 3.2-4). Additionally, approximately 806 multifamily residences, 3 schools, 3 assisted care facilities, 3 parks, and 5 churches would be impacted by traffic noise, for a total of approximately 2,458 impacted receptors. The widening of South 200th Street between SR 509 and the new South Access Road would not impact any additional receptors because this location is within the Sea-Tac Airport Noise Remedy Program acquisition area.

Noise levels would increase slightly over 1 dBA relative to the No Action Alternative for receptors located along I-5 south of SR 509. This is the result of a 33 percent increase in traffic south of SR 509. Noise-sensitive receptors along I-5 north of SR 509 would experience a slight noise level decrease (less than 1 dBA) relative to the No Action Alternative, resulting from an approximately 16 percent decrease in traffic volumes north of the SR 509 interchange proposed in Alternative B.

Alternative B would introduce traffic noise to some areas of Des Moines Creek Park. Current noise levels at this location (based on extrapolation of data from other nearby noise receptors) are roughly 5 dBA less than those experienced near the existing Des Moines Creek trailhead along South 200th Street (and the area that would be impacted by Alternatives C2 and C3). Background roadway traffic noise is virtually nonexistent. Without aircraft operations, daytime noise levels at this location are in the 45 to 50 dBA range. This location is approximately 3,000 feet farther south of the airport runways than the trailhead area. Aircraft are higher over this location and, thus, aircraft noise is slightly less (up to 2 dBA) than that experienced at the trailhead. Alternative B would introduce traffic noise into this relatively quieter area of the park.

Alternative C2 (Preferred)

Under Alternative C2, traffic and noise levels would increase in portions of the project area because of development and transportation improvements. The number of noise impacts under Alternative C2 was determined by counting the number of existing sensitive receivers within a 66 dBA noise contour (developed using 2020 PM peak-hour traffic volumes) and assuming ideal propagation conditions.

Using 2020 predicted traffic volumes, approximately 1,744 single-family residential parcels would be impacted by noise levels of 66 dBA and above (Table 3.2-4). Additionally, approximately 819 multifamily residential units, 3 schools, 3 hospitals/retirement homes, 3 parks, and 6 churches could experience similar effects, for a total of 2,578 impacted receptors. The widening of South 200th Street between SR 509 and the South Access Road would not impact any additional receptors because this location is within the Sea-Tac Airport Noise Remedy Program acquisition area.

Alternative C2 would introduce traffic noise to some areas of Des Moines Creek Park. Current noise levels in the vicinity of the area that would be affected are higher than elsewhere in the park. This is a result of being closer to the south end of the airport runways and the vehicular traffic along South 200th Street. Because of this current level of background aircraft and vehicular noise, project-related increases in hourly average noise levels are not predicted to be substantial. During periods when southerly airplane departures are in effect, there would be an increase of no more than approximately 1 dBA within the park immediately adjacent to SR 509. If peak-hour traffic coincided with times when aircraft would approach from the south, traffic noise levels could increase by up to 5 dBA in hourly average noise levels, which is considered insubstantial. It should be further noted that increased noise levels in this localized area would be diminished somewhat due to the height of the roadway structures.

Alternative C3

Outside of areas in the vicinity of I-5 and SR 99, Alternative C3 would have approximately the same level of traffic noise impacts on nearby noise-sensitive areas as Alternative C2. Using 2020 predicted traffic volumes, approximately 1,636 single-family residential parcels would be impacted by noise levels of 66 dBA and above (Table 3.2-4). Additionally, approximately 979 multifamily residential units, 3 schools, 3 hospitals/retirement homes, 3 parks, and 6 churches could experience similar effects, for a total of 2,390 impacted receptors.

The widening of South 200th Street between SR 509 and the South Access Road would not impact any additional receptors because this location is within the Sea-Tac Airport Noise Remedy Program acquisition and relocation area. The number of noise impacts under Alternative C3 was determined counting the number of existing sensitive receivers within a 66 dBA noise contour (developed using 2020 PM peak-hour traffic volumes) and assuming ideal propagation conditions.

Alternative C3 would introduce traffic noise to some areas of Des Moines Creek Park. Similar to Alternative C2, current noise levels in the areas that would be affected are higher than elsewhere in the park, the result of being close to the south end of the airport runways and the vehicular traffic along

South 200th Street. Because of this current level of background aircraft and vehicular noise, project-related increases in hourly average noise levels are not predicted to be substantial. During periods when southerly airplane departures are in effect, there would be an increase of no more than approximately 1 dBA within the park immediately adjacent to SR 509. If peak-hour traffic coincided with times when aircraft would approach from the south, traffic noise levels could increase by up to 5 dBA in hourly average noise levels, which is considered insubstantial. Additionally, increased noise levels in this localized area would be diminished somewhat due to the height of the proposed roadway structures.

3.2.4 Mitigation Measures

The following noise abatement measures are likely to be incorporated into the selected alternative (if the No Action Alternative is not selected). Because the build alternatives would be constructed on a new alignment, the level of currently available design detail is limited. Therefore, the mitigation measures identified have been based on two assumptions: (1) a reasonable barrier is one that is not longer than 100 feet per household benefited; and (2) all barriers are feasible. Both of these assumptions were applied equally to all build alternatives. It is WSDOT policy to make final decisions on the construction of noise barriers after final horizontal and vertical alignments are determined and a detailed engineering analysis of the feasibility and reasonableness of noise abatement can be made. Only barriers that meet WSDOT criteria as accepted by FHWA would be constructed.

A variety of mitigation methods can be applied to projects to reduce noise impacts. Noise impacts from long-term operation of highways after projects have been constructed can be reduced by acquiring land as buffer zones, realigning the roadway, and constructing noise barriers (such as earth berms). The following mitigation measures could be incorporated into the design and operation of the proposed project.

Barriers

Complete visual shielding of all traffic noise sources with tall barriers could reduce long-term noise levels by as much as 20 dBA, but such shielding would be difficult to achieve. Noise barriers generally reduce traffic noise levels by 7 to 10 dBA, depending on barrier height and the distance that the sensitive receptor is located from the barrier. The effectiveness of a barrier would be determined by its height and length and by the topography of the project site. To be effective, the barrier must block the "line-of-sight" between the highest point of a noise source, such as a truck exhaust stack, and a receiver located within an outdoor area of frequent human use. A barrier must be long enough to prevent sounds from passing around the ends of the barrier, have no openings such as driveway connections, and be dense enough so that a substantial amount of noise energy would not pass through

it. Buildings that are not sensitive to noise could also be used as barriers. Barriers are less effective at reducing noise levels at locations that are farther from the noise source or are elevated above ground level, such as the second floor of a building. Roadway noise barriers would not decrease aircraft noise; therefore, they would provide little or no benefit in areas where ambient noise is dominated by aircraft.

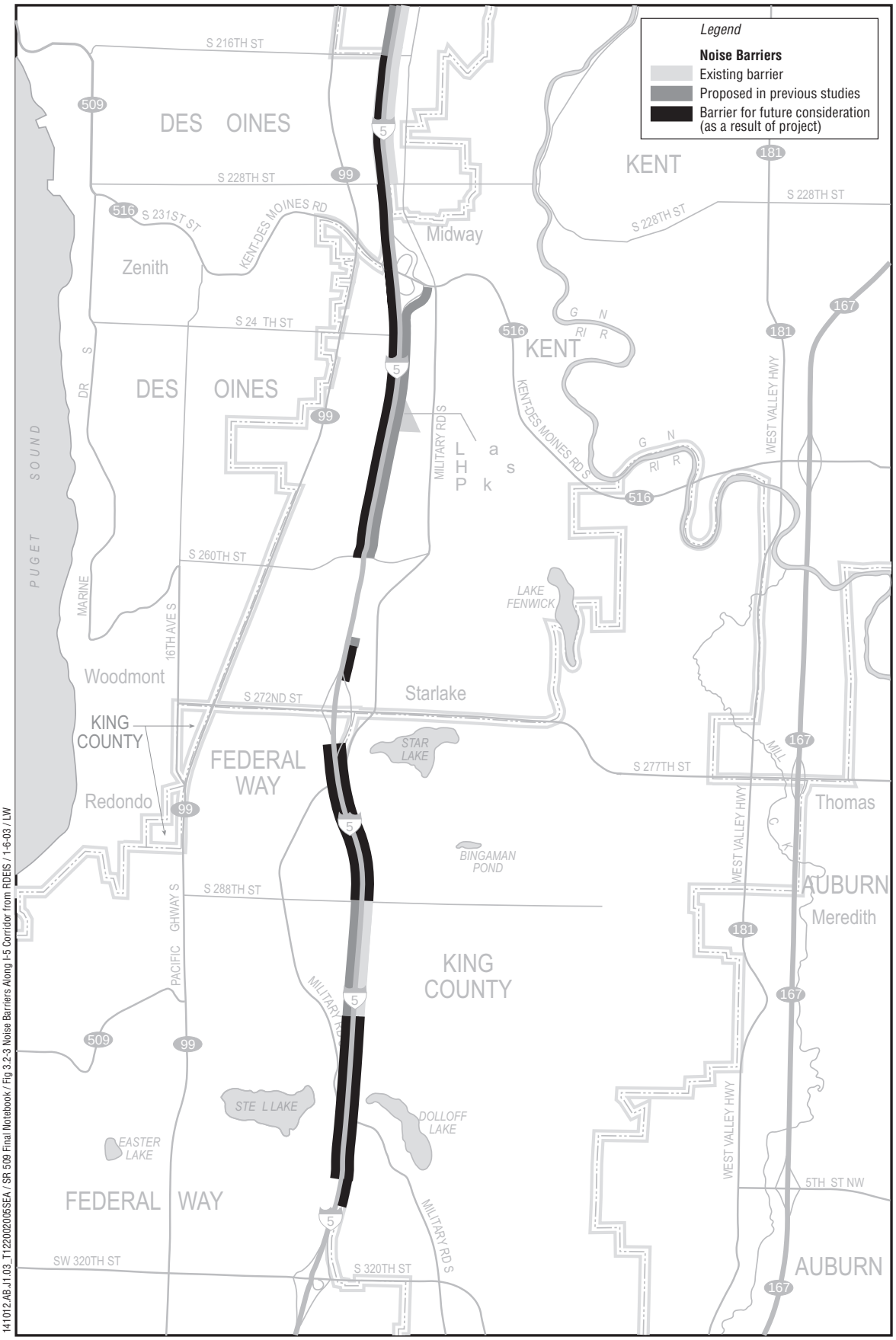
Under WSDOT policy D22-22, many factors are evaluated to determine whether barriers would be feasible and reasonable. The feasibility evaluation consists of engineering considerations, such as whether substantial noise reductions of 7 to 10 dBA can be achieved. The reasonableness evaluation considers factors such as the cost-effectiveness of the barriers and the concerns of the residents.

WSDOT is currently constructing or planning noise barriers along much of I-5 within the project area. Locations of noise barriers currently under construction or scheduled for construction along the east side of I-5 are shown on Figure 3.2-3. The locations include the area from roughly South 259th Lane to South 255th Street; South 252nd Street to South 248th Street; South 244th Street to South 241st Street; north of SR 516 to South 228th Street; South 221st Street to South 216th Street; and South 216th Street to South 211th Street. Additional locations that are planned but not yet finalized for construction are from South 211th Street to south of Military Road on the east side of I-5, and on the west side of I-5 from about South 211th Street to South 216th Street; South 216th Street to South 219th Street; and South 224th Street to SR 516.

Areas for barrier mitigation were considered for each of the build alternatives. Aerial photographs and field verification were used to determine appropriate areas for barrier evaluation based on residential land use. Final designs would not be available until noise barrier locations are identified during final design of the selected alternative; therefore, only general areas were determined where residents would likely be impacted by traffic noise and could possibly benefit from noise barriers. These areas are shown in Figures 3.2-4 through 3.2-6. Near Sea-Tac Airport, where aircraft noise dominates, noise barriers would not be effective at reducing noise levels; therefore, noise barriers may not be appropriate in some of the areas outlined in Figures 3.2-3 through 3.2-6. Exact length, height, and location of noise barriers would be determined during the design phase for the selected alternative as more information becomes available.

Potential Barriers Common to All Build Alternatives

Within the I-5 corridor between South 216th Street and South 310th Street, several areas within the 66-dBA contour could require mitigation. These mitigation areas along I-5 would be common to all build alternatives. Seven barrier locations were identified for future consideration (Figure 3.2-3):

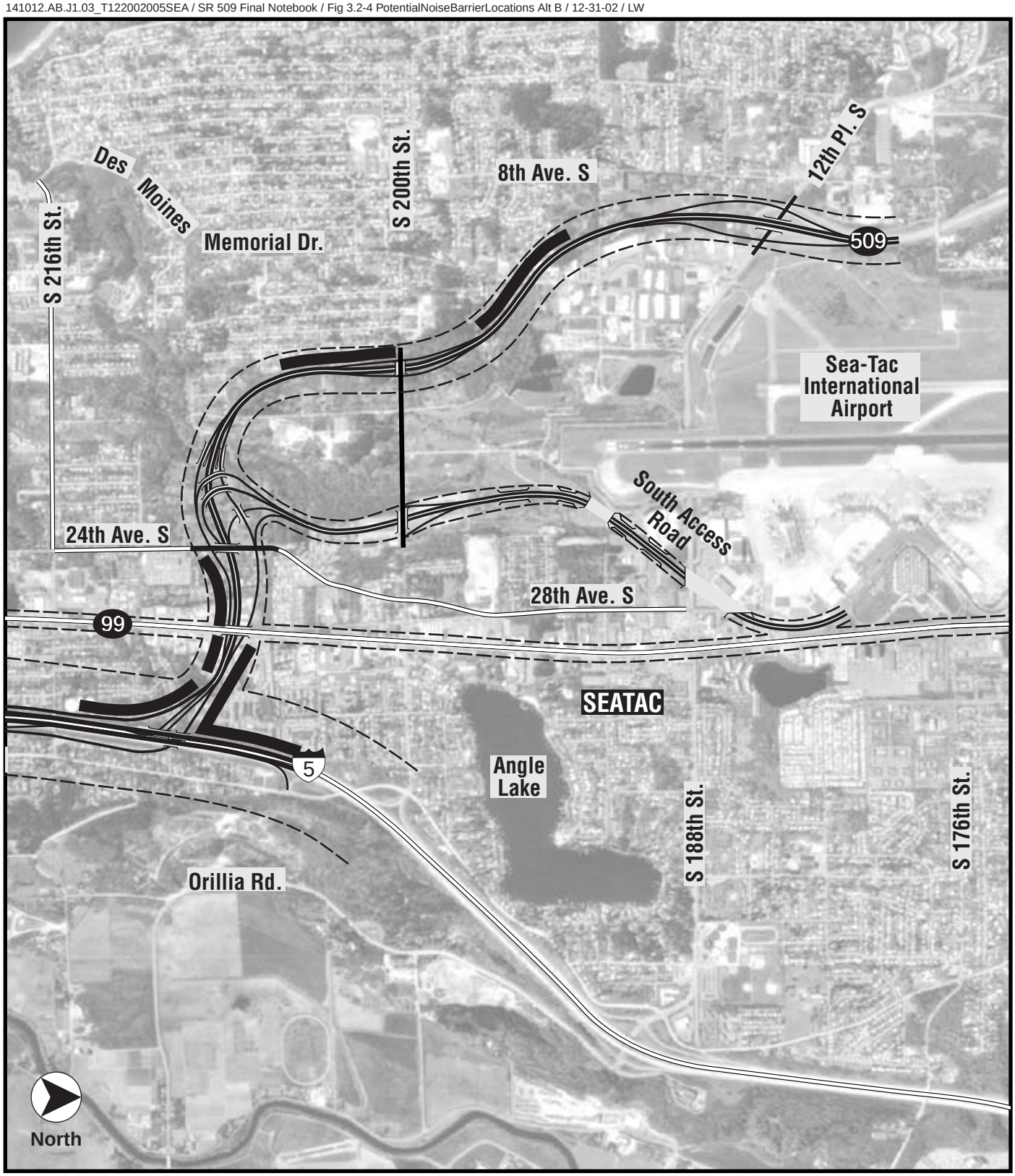


141012.AB.J1.03_T122002005SEA / SR 509 Final Notebook / Fig 3.2-3 Noise Barriers Along I-5 Corridor from RDEIS / 1-6-03 / LW

FIGURE 3.2-3

Potential and Constructed Noise Barrier Locations Along I-5 – All Alternatives

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement



0 1/4 1/2 3/4 1 MILES

Legend

- SR 509/South Access Road Improvements
- Bridge
- Potential Noise Barriers
- 66 dBA Contour

FIGURE 3.2-4

Potential Noise Barrier Locations – Alternative B

SR 509: Corridor Completion/I-5/South Access Road Environmental Impact Statement

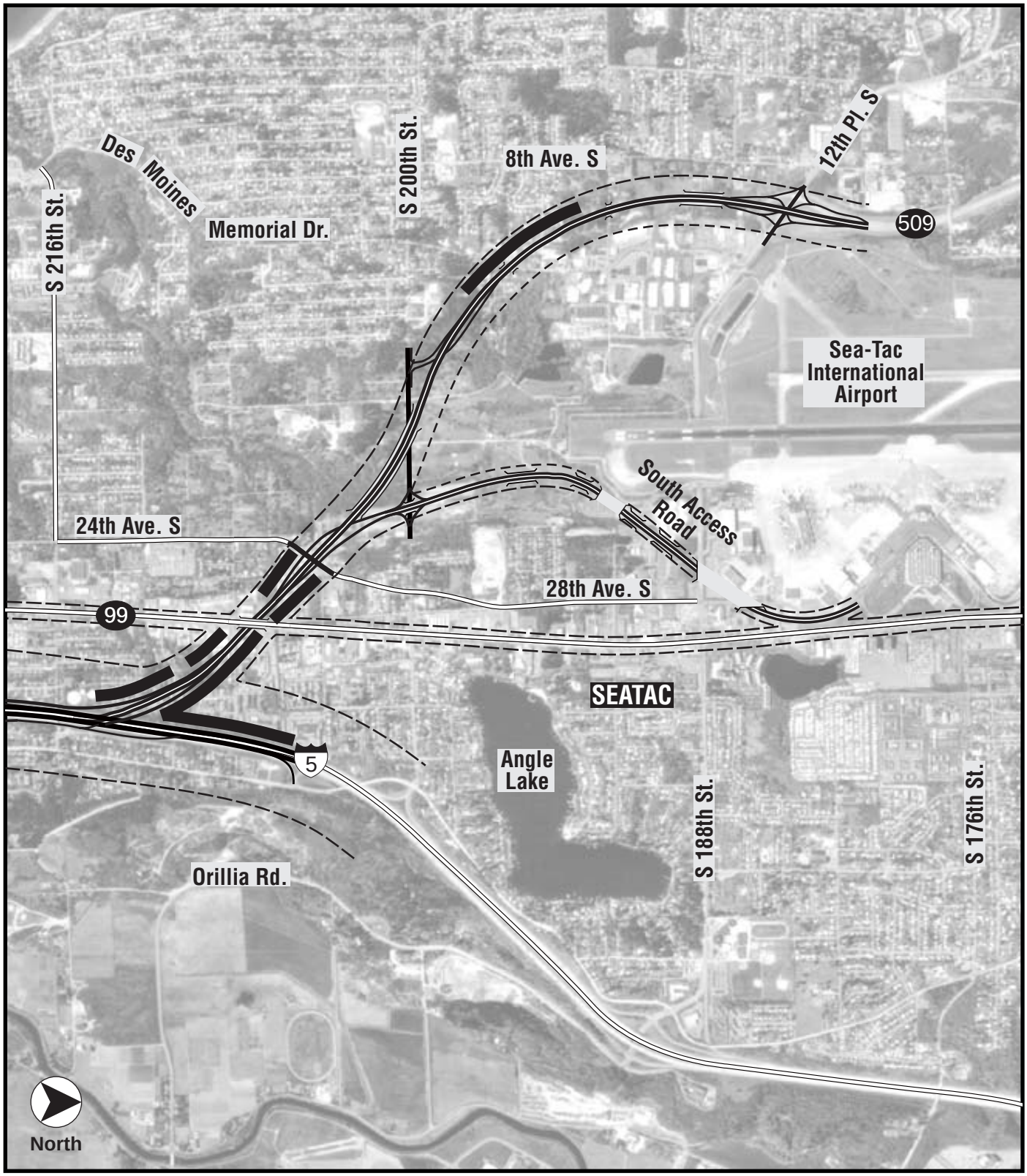


FIGURE 3.2-5

Potential Noise Barrier Locations – Alternative C2 (Preferred)

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement

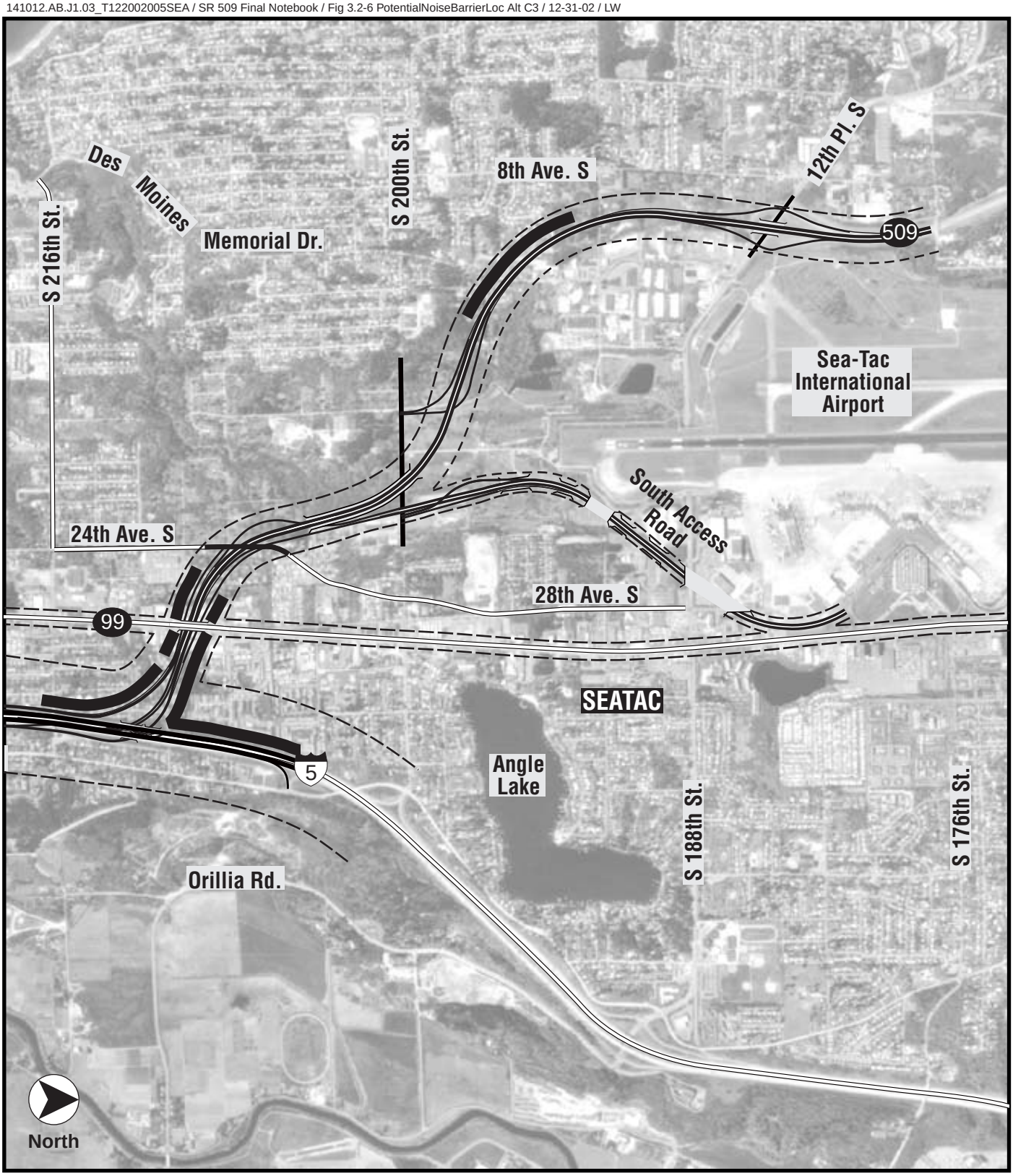


FIGURE 3.2-6

Potential Noise Barrier Locations – Alternative C3

SR 509: Corridor Completion/I-5/South Access Road Environmental Impact Statement

1. The residential area east of I-5 from South 310th Street to South 288th Street
2. The residential areas west of I-5 from South 310th Street to approximately 2,400 feet south of South 288th Street
3. The residential areas on both sides of I-5 from South 288th Street to South 272nd Street
4. The residential area on the east side of I-5 from South 272nd Street to South 268th Street
5. The residential area on the west side of I-5 from South 260th Street to South 228th Street
6. The residential area on the west side of I-5 from South 228th Street to South 216th Street

Alternative B

Seven additional potential barrier locations were identified (Figure 3.2-4):

1. Along the north side of SR 509 from I-5 to SR 99
2. Along the south side of SR 509 from I-5 to 32nd Lane South
3. Along the south side of SR 509 in the vicinity of 30th Avenue South
4. Along the south side of SR 509 from SR 99 to 24th Avenue South
5. Along the west side of SR 509 adjacent to 15th Avenue South from South 207th Street to South 200th Street
6. Along the west side of SR 509 from 196th Place to Des Moines Memorial Drive South
7. Along the west side of SR 509 from Des Moines Memorial Drive South to north of South 194th Street

Alternative C2 (Preferred)

Six additional potential barrier locations were identified (Figure 3.2-5):

1. Along the north side of SR 509 from I-5 to SR 99
2. Along the south side of SR 509 from I-5 to 32nd Lane South
3. Along the south side of SR 509 in the vicinity of 30th Avenue South to South 208th Street
4. Along the southwest side of SR 509 from SR 99 to 26th Avenue South
5. Along the northeast side of SR 509 from 27th Place South to a point south of 24th Avenue South

6. Along the west side of SR 509 from 13th Avenue South to Des Moines Memorial Drive South

Alternative C3

Six additional potential barrier locations were identified (Figure 3.2-6):

1. Along the north side of SR 509 from I-5 to SR 99
2. 0Along the south side of SR 509 from I-5 to 32nd Lane South
3. Along the south side of SR 509 in the vicinity of 30th Avenue South
4. Along the southwest side of SR 509 from SR 99 to 26th Avenue South
5. Along the east side of SR 509 beginning from South 208th Street northward
6. Along the west side of SR 509 from 15th Avenue South to Des Moines Memorial Drive South

Detailed Noise Barrier Evaluation

Since publication of the Revised DEIS, a detailed noise study was conducted to further evaluate the effectiveness of barriers as a noise abatement measure for the preferred alternative (Alternative C2), as required by FHWA. These barriers were further evaluated for feasibility and reasonableness in accordance with 23 CFR 772 and WSDOT Traffic Noise Analysis and Abatement Policies and Procedures. The preliminary results of the detailed analysis and recommended barrier locations are in Appendix I of this FEIS.

Other Possible Roadway Mitigation Measures

Noise impacts could also be reduced by land use controls throughout the project area. The Cities of Des Moines, Kent, Federal Way, and SeaTac and King County could implement land use plans and zoning that would restrict future land uses along SR 509 and I-5 to those compatible with roadway noise.

Public buildings could be insulated to reduce interior noise levels where it is determined that interior noise levels would approach or exceed FHWA's interior NAC of 52 dBA. Specific construction techniques could include acoustical doors and windows; insulation in walls, floors, and ceilings; and ventilation systems designed to preclude the need to open windows. Many of these activities have already been accomplished through the Sea-Tac Airport Noise Remedy Program for a number of public buildings and residences in the project area. Noise insulation would have no effect on exterior noise levels.

Retaining existing trees and vegetation and planting new vegetation along the selected alternative alignment would reduce noise annoyance psychologically by removing the noise source from view. To actually reduce noise levels, vegetation must completely block the line of sight between the observer and the source and be at least 15 feet tall. A dense line of trees with a depth of 100 feet would reduce noise by 5 dBA, in addition to the effect of distance (Barry and Reagan 1978).

3.2.5 Construction Activity Impacts and Mitigation

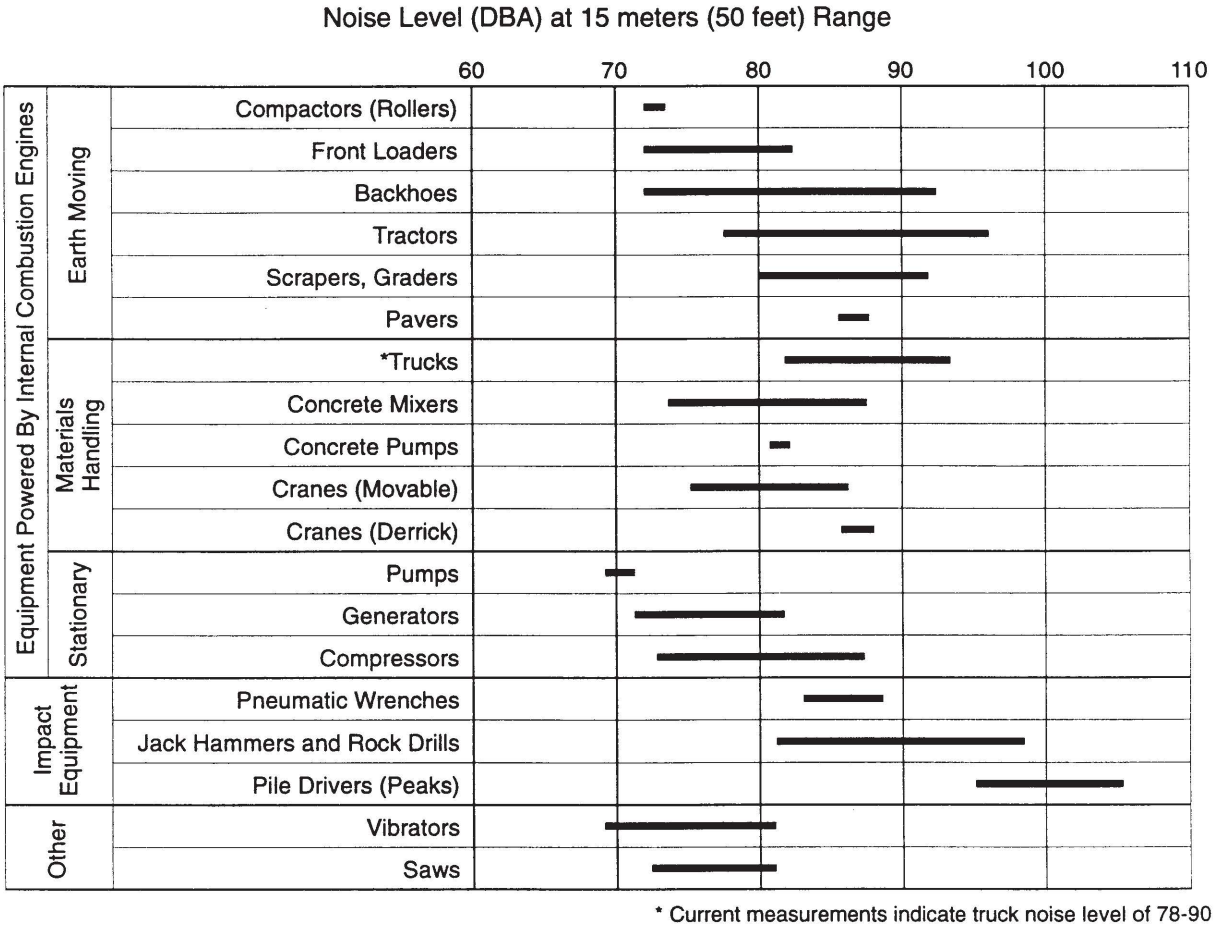
Construction Activity Impacts

Most typical highway construction activities would be common to all build alternatives. Roadways are usually constructed in several phases, each of which has its own mix of equipment and, consequently, its own noise characteristics. Roadway construction would involve clearing, cut-and-fill activities, pile driving, removing or reconditioning old roadways, bridge and wall construction, and paving.

The most prevalent noise source at construction sites is the internal combustion engine. Engine-powered equipment would include earth-moving equipment, vehicles, material-handling equipment, and stationary equipment. Mobile equipment operates in a cyclic fashion, while stationary equipment such as generators and compressors operates at fairly constant sound levels. Because trucks would be present during most phases of construction and would not be confined to the construction site, noise from trucks could affect more receptors. Other noise sources would include impact equipment and tools such as jackhammers. Impact tools could be pneumatically powered, hydraulic, or electric.

Construction noise would be short term in nature and limited to the length of the construction period. Construction noise effects would be temporary, intermittent, and depend on the type, amount, and location of construction activities. The construction methods used would determine the maximum noise levels of the construction equipment. The amount of construction activity would determine how often construction noise would occur throughout the day. The location of construction equipment relative to adjacent properties would determine any effects of distance in reducing construction noise levels.

Maximum noise levels of construction equipment under any of the build alternatives would be similar to the typical maximum construction equipment noise levels presented in Figure 3.2-7 at 50 feet from the equipment. Maximum noise levels from construction equipment would range from 69 to



NOTE: Based on limited available data samples.

SOURCE: U.S. Environmental Protection Agency, "Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," NTID 300.1, December 31 1971. Revised WSDOT District 1, February, 1991.

FIGURE 3.2-7

Construction Equipment Noise Ranges

SR 509: Corridor Completion/I-5/South Access Road Environmental Impact Statement

106 dBA at 50 feet. Construction noise at residences farther away would experience a decrease at a rate of 6 dBA per doubling of distance from the source. Extrapolating from Figure 3.2-7, maximum noise levels at 200 feet would range from 57 to 94 dBA. The number of occurrences of the L_{max} would increase during construction, particularly during pile-driving activities. Because various equipment would be turned off, idling, or operating at full power at any time, average L_{eq} noise levels during the day would be less than the maximum noise levels presented in Figure 3.2-7.

Alternative A (No Action)

There would be no construction noise impacts under the No Action Alternative.

Alternative B

Alternative B, including the South Access Road, would require the construction of 3.8 miles of new roadway. This would only be slightly more new construction than under Alternatives C2 or C3; therefore, only slightly more area would be affected by construction noise.

Alternative C2 (Preferred)

Alternative C2, including the South Access Road, would require the construction of 3.2 miles of new roadway. The number of receivers affected by construction noise would likely be lowest under this alternative.

Alternative C3

Alternative C3, including the South Access Road, would require the construction of 3.5 miles of new roadway. Alternative C3 would potentially expose a lower number of receivers to construction noise than Alternative B.

Mitigation Measures

Contractors are required to comply with all state and local regulations governing equipment source levels and noise resulting from the construction site activities during the life of the improvement. However, daytime construction activities are generally exempt from these limits. Construction noise can annoy people living and working in the area. Some simple and inexpensive techniques would be used to minimize the negative effects:

- Stationary noise sources would be placed as far from sensitive receivers as possible. Portable noise barriers, vehicles, and equipment or natural terrain features can be used between the noise source and sensitive receivers to provide shielding.

- Idling equipment would be turned off. Equipment operators would drive forward instead of backward whenever possible, lift instead of drag materials, and avoid scraping or banging activities to do work that can be accomplished by quieter hand methods.

- Work that does not need to be done at night would be confined to daytime hours. When work must be done at night, the contractor would complete the noisiest work as early as possible following ordinances of local jurisdictions.

- Construction noise can be further reduced through the use of properly sized and maintained mufflers, engine intake silencers, ambient sensitive backup alarms, engine enclosures, noise blankets, and rubber linings.

SEA/3-2 noise.doc

3.3 Energy

3.3 Energy

3.3.1 Studies and Coordination

The primary reference used to document existing transportation conditions was *SR 509/South Access Road EIS Discipline Report: Transportation* (CH2M HILL January 2002). This report is included in this FEIS by reference. The primary resource used to guide the analysis of potential energy impacts was *Fundamentals of Traffic Engineering*, 14th Edition (Homburger et al. 1996). *Highway Capacity Manual,* Transportation Research, Special Report 209, 1997. This section qualitatively assesses potential energy impacts resulting from the construction and operation of each of the project alternatives.

Consideration of roadway design principles was used to qualitatively compare and contrast the probable energy consumption of each of the alternatives. The estimated cost of construction (exclusive of right-of-way costs) was used to represent both the amount of energy used to manufacture construction materials and the amount of energy used to operate construction equipment and worker vehicles. Six factors were evaluated and combined based on Homburger et al. (1996) to represent the amount of energy consumed in the operation of each alternative. These factors are: (1) the length of each roadway alternative, (2) the roadway design speed, (3) the terrain traversed by the roadway, (4) the traffic flow, (5) the estimated number of street signals, and (6) the estimated annual average operation and maintenance costs for each of the alternatives.

Table 3.3-1 provides an estimated cost for each of the above factors. These costs were ranked between 1 and 5 based on the effect on energy consumption, with 1 representing the lowest energy consumption. For example, the design speed for Alternatives B, C2, and C3 would be 70 miles per hour (mph) compared to posted speed limits of 25 to 35 mph of the existing roads or the No Action Alternative. Because 45 mph is considered the optimum speed in terms of energy efficiency, this value is ranked 2 in Table 3.3-1 because they have design speeds greater or lesser than 45 mph, and vehicles generally would consume more energy than vehicles traveling at 45 mph. The fewer street signals under Alternatives B, C2, and C3 are ranked higher in Table 3.3-1 compared to the No Action Alternative because more energy is consumed with increasing numbers of street signals. The summation and ranking for the variables allow the project alternatives to be compared for the several operation factors.

Table 3.3-1
Comparison of Energy Consumption by Project Alternative

A. Comparison of Values

	Construction	Operation-Use					Operation-O&M
	Cost [a] (millions)	Length	Design Speed	Terrain	Traffic Flow	Street Signals	O&M Cost/Year [b]
Alternative A (No Action)	0	NA[c]	25/35 mph[d]	rolling	poor	4+	0
Alternative B	$715 - $735	10.5 miles	70/60 mph[e]	rolling	good	0[f]	$295,000
Alternative C2 (Preferred)	$690 - $710	9.9 miles	70/60 mph[e]	rolling	best	0[f]	$295,000
Alternative C3	$695 - $715	10.2 miles	70/60 mph[e]	rolling	good	0[f]	$295,000

B. Ranking of Values (1=Low, Less Energy)

	Construction	Operation-Use						Operation-O&M	Operation	Overall Ranking[g]
		Length	Design Speed	Terrain	Traffic Flow	Street Signals	Average			
Alternative A (No Action)	1	1	3[d]	5	5	5	3.8	1	2.4	1.7
Alternative B	4	3	2	2	2	2	2.2	3	2.6	3.3
Alternative C2 (Preferred)	2	2	2	2	1	2	1.8	3	2.4	2.2
Alternative C3	3	3	2	2	2	2	2.2	3	2.6	2.8

[a] Estimated construction costs (in 2000 dollars) provided by CH2M HILL on January 3, 2002. These cost estimates are preliminary and are subject to change during future design phases of the proposed project. Cost estimates do not include the 1,000 feet of the South Airport Link.

[b] Estimated operation and maintenance (O&M) costs (in 2000 dollars) include annual expenditures for highway and bridge maintenance, utilities, and maintaining ramp terminal signals. Because the approximate length of each of the alternatives is about the same, the comparison is between the No Action Alternative and any of the build alternatives.

[c] NA - Not applicable because there are multiple routes to I-5 from the current terminus of SR 509.

[d] The posted speed limits of the rural streets south of Sea-Tac Airport are between 25 and 35 mph.

[e] The design speed of the SR 509 lanes is 70 mph; the design speed of the I-5 C/D lanes is 60 mph.

[f] There would be no signal lights to stop traffic; street signals would be at each interchange on- and off-ramp.

[g] Overall ranking is the average of construction and operation total values.

3.3.2 Affected Environment

The project area is located within a populated urban area of western King County dominated by commercial and residential development. 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. The Tyee Valley Golf Course, 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, which accounts for approximately 6.7 miles of the project area, is the prominent feature in the southern part of the project area.

Traffic Circulation

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).

Traffic Volumes

Traffic on SR 509 north of South 188th Street/12th Place South is highly directional during the p.m. peak hour (when congestion is highest), with approximately 70 percent of the traffic traveling southbound. Between this point and South 216th Street, approximately 55 percent of traffic travels southbound and 45 percent northbound. Although there is heavy congestion on other freeways in the project area, SR 509 south of SR 518 carries a relatively low vphpl during the p.m. peak hour; in that section of roadway, the vphpl southbound is 1,150, while northbound it is only 500. In comparison, I-5 south of SR 518/I-405 carries 2,060 vphpl southbound and 1,390 vphpl northbound. The underutilization of SR 509 is due primarily to its poor connection to and from the south.

Traffic to and from the Sea-Tac Airport passenger terminal uses three major access points: North Access Expressway, South 170th Street to access expressway ramps, and the south entrance at approximately South 182nd Street. The highest volumes (1998) are on North Access Expressway, with a two-way p.m. peak-hour volume of more than 2,475 vph. The other two entrances have two-way p.m. peak-hour volumes of 1,220 and 1,130 vph, respectively. Trip distribution modeling for nonlocal traffic (i.e., traffic from outside the immediate influence area of Sea-Tac Airport) indicates that about 8 percent of the traffic is to or from the west, 18 percent to or from the east, 38 percent to or from the north, and 36 percent to or from the south. The Sea-Tac Airport peak hour generally does not coincide with commuter peak hours on adjacent roadways.

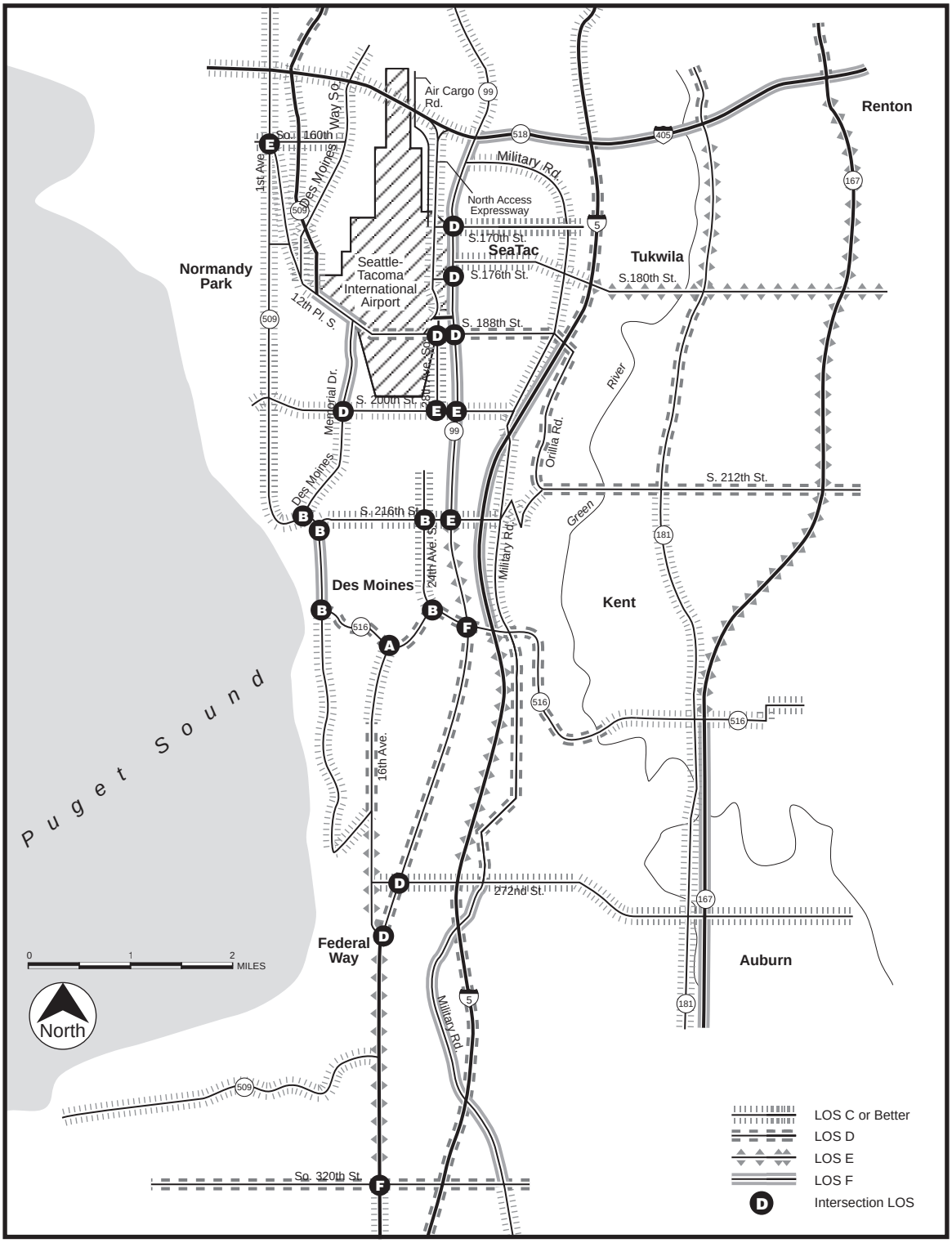
Level of Service

LOS is a qualitative description of the degree of comfort drivers experience as they travel along a corridor. LOS grades range from LOS A, in which little or no delay is experienced, to LOS F, which denotes extreme congestion. The TRB, in the *Highway Capacity Manual* (TRB 2000), provides definitions for each LOS grade.

Portions of the existing transportation system are highly congested during the p.m. peak hour. At the regional level, the I-5, SR 99, I-405, and SR 167 corridors are operating at LOS E or F. Portions of Des Moines Memorial Drive and SR 509 also are operating at LOS E and F. All of the signalized intersections along SR 99 operate at LOS D or worse. The intersections of First Avenue and South 160th Street and South 200th Street and 28th Avenue South operate at LOS E. The remaining intersections analyzed operate at LOS D or better (Figure 3.3-1).

In the SR 509 corridor, the freeway segment operates at LOS C to D. Immediately south of the freeway terminus, the SR 509 corridor operates at LOS C or better to South 216th Street. Most traffic uses Des Moines Memorial Drive between the freeway and South 216th Street rather than SR 509; as a result, portions of Des Moines Memorial Drive operate at LOS F. SR 509 operates at LOS F between South 216th Street and SR 516, where traffic volumes from SR 509 and Des Moines Memorial Drive merge. The arterial intersection at SR 509/SR 516 currently operates at LOS B.

Traffic on SR 509 through Des Moines has improved since 1992 as a result of completion of the Seventh Avenue South/Marine View Drive (SR 509) project, which added capacity in the corridor, and the additional work by WSDOT to improve the connections of First Avenue South and Des Moines Memorial Drive with Seventh Avenue South/Marine View Drive (SR 509) in the City's downtown business district.



141012.AB.H1.03_T082001026SEA / SR 509 DEIS / Chapter 1 DEIS figures / Existing LOS 1998 PM Peak / 1-3-03 / LW

Note: Improvements made to SR 99 between South 170th Street and South 200th Street since 1999 have improved LOS within this roadway segment.

FIGURE 3.3-1

Existing Level of Service 1998 PM Peak Hour

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All of these road conditions degrade travel efficiency within the project area. The primary arterials have many controlled (signaled) intersections and many direct access driveways. Stop-and-go travel conditions are common on the minor arterial and collectors. These conditions deteriorate the LOS of the primary arterials and tend to increase travel times and peak-hour congestion. Collectively, these conditions require more fuel consumption than under ideal conditions.

3.3.3 Environmental Impacts

Future use of the roadways under any of the project alternatives, including the No Action Alternative, would continue to result in the consumption of energy. A number of qualitative factors affects the consumption of energy. A first level of comparison is the number of miles traveled between two points. For example, if the distance traveled is substantially greater under one project alternative than another, then the consumption of energy for the same vehicle is greater for the longer route. Higher design speeds (above 55 mph) tend to increase energy consumption. Hilly terrain increases the consumption of energy. Uninterrupted travel would decrease energy consumption. And numerous traffic signals would increase energy consumption due to stop-and-go operation and idling. In addition, the annual cost of roadway maintenance is a quantitative measurement of the amount of energy consumed during operation. Table 3.3-1 compares the No Action Alternative and the build alternatives.

Alternative A (No Action)

Traffic flow would continue to be congested through the commercial and residential districts of project area. Vehicle speeds would be expected to remain between 25 to 35 mph. Actual speeds would vary due to the lack of controlled intersections and the high number of turning lanes along the east-west and north-south roadways. During periods of heavy use, traffic flow would likely be stop-and-go due to congestion.

Under the No Action Alternative, the length of the roadway system would not change, posted speed limits would remain between 25 and 35 mph, the terrain would remain rolling hills, traffic flow would be more congested given a projected 30 percent increase in the numbers of vehicles over the next 20 years, the existing street signal timing would remain, and the annual roadway maintenance costs would remain more or less the same as they are today. As described in Section 2.3.1 only minor construction and safety improvements of the local roads would occur under this alternative. Based on the comparative scheme, the total average rating for the No Action Alternative would be 1.7 points, the least of any of the build alternatives (see Table 3.3-1). Energy consumption during construction would be less than any of the build alternatives, however, energy consumption during operation would be higher.

Alternative B

Under Alternative B (including both the I-5 improvements and the South Access Road), a new 10.5-mile-long controlled roadway would be constructed and operated. This alternative would have a design speed of 70 mph on a six-lane roadway traversing rolling terrain, good traffic flow, and no traffic signals except for the on- and off-ramps. Table 3.3-1 assigns a rating to these factors based on the values presented in the table and relative energy consumption. Annual roadway operation and maintenance costs are estimated to be $295,000. Based on relative ratings that represent energy consumption, Alternative B would be 3.3 points. According to this rating scheme, Alternative B would consume the most amount of energy of the build alternatives.

Alternative C2 (Preferred)

Under Alternative C2 (including both the I-5 improvements and the South Access Road), a new 9.9-mile-long controlled roadway would be constructed and operated. The roadway would be a six-lane roadway and approximately six-tenths of a mile shorter than Alternative B. This Alternative would have a design speed of 70 mph traversing rolling terrain, and would have the best traffic flow of any of the alternatives, including the No Action Alternative. Annual operation and maintenance costs are estimated to be $295,000.

Based on the qualitative rating of these factors and their relationship to energy consumption, this alternative rating would be 2.2 points. Alternative C2 is anticipated to result in the lowest levels of energy consumption of the build alternatives and would provide the best traffic flow.

Alternative C3

Under Alternative C3 (including both the I-5 improvements and the South Access Road), a new 10.2-mile-long controlled roadway would be constructed and operated. The roadway would be a six-lane roadway and approximately two-tenths of a mile shorter than Alternative B. This alternative would have a design speed of 70 mph traversing rolling terrain, and would have good traffic flow compared to the other alternatives, including the No Action Alternative. Annual operation and maintenance costs are estimated to be $295,000.

Based on the qualitative rating of these factors and their relationship to energy consumption, this alternative rating would be 2.8 points. Alternative C3 is anticipated to result in the second lowest levels of energy consumption of the build alternatives and would provide good traffic flow.

3.3.4 Mitigation Measures

Once a roadway project has been constructed, few mitigation measures can be implemented to affect the consumption of energy resources. The physical characteristics of the roadway are set and the traffic signals and signs have been installed. The most effective measure to reduce the consumption of energy would be to generally improve the energy efficiency (gas mileage) of the vehicles using the roadway system. This mitigation measure, however, is beyond the scope of this proposed project.

The operation of the build alternatives would not affect the availability of local or regional supplies of fuel. No additional supplies of energy would need to be developed to ensure long-term use of the proposed project, nor would the scope of the alternatives impact the production of energy. Lacking potential impacts resulting from the operation of any of the project alternatives in comparison to the availability, sources, and production of energy resources in the Pacific Northwest, no mitigation measures are proposed to address these issues.

3.3.5 Construction Activities and Mitigation

During the construction of transportation projects, energy consumption is typically quite high. The manufacture of building materials for road projects, as well as the materials themselves, consume energy resources. Workers typically drive to job sites in single-occupancy vehicles. Much of the construction equipment is motorized. The engines of backhoes, bulldozers, and cranes often idle for long periods each day. As a result, the amount of energy consumed in the construction of a transportation project is considerable.

Total construction cost is often used as a substitute value to compare energy consumption during the construction period. The cost of materials reflects the amount of energy consumed in the manufacture of the materials. The cost of labor is a measure of the number of workers commuting to the work site, as well as the amount of energy consumed operating the construction equipment. Some costs typically assigned to construction, however, do not directly correlate with the consumption of energy. For example, the acquisition of additional right-of-way does not consume energy. In addition, construction activities to relocate residences, businesses, and utilities consume energy, though these types of activities are typically excluded from construction cost estimates.

Table 3.3-1 presents a summary of cost estimates prepared for the proposed project. Dollar values and comparative ratings are displayed. The following paragraphs describe the construction cost estimates for the project alternatives as a measure to compare and contrast energy consumption.

Alternative A (No Action)

Under the No Action Alternative, only minor construction and safety improvements would be completed in the future. Expenditures during construction would be minimal and therefore, for comparison purposes, the cost estimate has been set at zero. In comparison to the build alternatives, the No Action Alternative would consume the least amount of energy.

Alternative B

The total cost of constructing Alternative B is estimated to be $715 to $735 million. With the highest estimated construction costs, which in part is related to its longer length, this alternative would consume more energy to construct than the No Action Alternative or the other build alternatives.

Alternative C2 (Preferred)

The total cost of constructing Alternative C2 is estimated to be $690 to $710 million (see Table 3.3-1). Based on the assumption that cost estimates can be used as a substitute value for energy consumption during construction, the cost estimates show that Alternative C2 would consume the least amount of energy to construct of any of the build alternatives and more than the No Action Alternative.

Alternative C3

The total cost of constructing Alternative C3 is estimated to be $695 to $715 million. Based on the assumption that cost estimates can be used as a substitute value for energy consumption during construction, the cost estimates show that Alternative C3 would consume about the same amount of energy to construct as Alternative C2 and more than the No Action Alternative.

Construction Mitigation

Major construction activities are proposed for each of the build alternatives. Only minor future construction is proposed for the No Action Alternative. Potential mitigation measures to reduce energy consumption during construction are briefly described below.

The magnitude of the construction activities proposed for the build alternatives would not affect the availability of local or regional supplies of fuel. No additional supplies of energy would need to be developed during construction, nor would the scope of the build alternatives impact the production of energy during the construction phase of the alternatives. Lacking potential impacts due to the relatively small scale of the project alternatives in comparison to the availability, sources, and production of

energy resources in the Pacific Northwest, no mitigation measures are proposed to address these issues.

Alternative A (No Action)

No mitigation measures are necessary or proposed under the No Action Alternative to reduce energy consumption.

Alternative B

During construction, mitigation measures would be taken to reduce energy consumption. These mitigation measures could include the following: (1) 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, (2) limit the idling of construction equipment to the extent practical; (3) plan for the delivery of equipment and supplies during non-peak traffic periods to minimize disruptions to both traffic and construction activities, and (4) locate staging/laydown areas as close as possible to work sites to minimize travel distances.

Alternative C2 (Preferred)

The mitigation measures suggested for Alternative B are equally appropriate to reduce construction-related energy consumption under Alternative C2.

Alternative C3

The mitigation measures suggested for Alternative B and C2 are equally appropriate to reduce construction-related energy consumption under Alternative C3.

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3.4 Geology and Soils

3.4 Geology and Soils

3.4.1 Studies and Coordination

Method of Analysis

This analysis is based on the findings of the *SR 509/South Access Road EIS Discipline Report: Geology and Soils* (CH2M HILL February 2000), *SR 509/South Access Road EIS: South Airport Link* (CH2M HILL August 2001), and *SR 509*/*South Access Road EIS: I-5 Improvements Report* (CH2M HILL October 2001). These discipline reports, which are incorporated into this FEIS by reference, evaluated construction and operation impacts of the proposed project build alternatives and the No Action Alternative on geology and soils resources. For the purpose of this analysis, the project area is the area adjacent to the alignment of the proposed SR 509 and South Access Road alternatives and the I-5 improvements. The evaluation included inventory and assessment of the geology, soils, topography, and unique physical features of the project area through review of geologic surveys, soil surveys, and topographic maps; sensitive areas maps for King County and the Cities of Des Moines and SeaTac; and previous technical studies, engineering reports, and borehole logs. A field reconnaissance of the project area was also performed. Areas subject to severe risk of erosion, landslide, and earthquake damage were identified. Based on this information, probable project impacts were assessed, including the effects of excavating, filling, stockpiling, paving, and draining on erosion and on steep and unstable slopes. Soils and geologic conditions that could constrain project design, construction, and operation were also identified.

Coordination with Agencies and Groups

The following agencies and groups were contacted during preparation of this Revised DEIS:

- U.S. Natural Resources Conservation Service, Renton, Washington, (formerly the Soil Conservation Service)
- WSDOT
- King County Department of Development and Environmental Services
- City of SeaTac
- City of Des Moines
- City of Kent

3.4.2 Affected Environment

Topography

The landscape of the project area was primarily formed by glacial and alluvial processes. It consists of a broad glacial plain that has been dissected by stream drainages and the Green River. The glacial uplands have gently rolling topography with slopes that generally range from nearly level to about 15 percent. Valleys and ravines occur along channels of the Des Moines, Massey, Miller, and McSorley creek drainages. Slopes along these drainages generally range from 15 to 40 percent; slopes greater than 40 percent occur in some areas. The Green River valley runs along the eastern edge of the project area and is marked by bluffs of up to 350 feet along its east valley wall. Elevation in the project area ranges from about 450 feet above mean sea level (msl) in the glacial uplands to about 40 feet above msl in the Green River valley.

Geology and Soils

The project area is located on the Des Moines Drift Plain. The drift plain consists of glacial sediments, nonglacial sediments, and recent alluvium. Most of the surface material in the project area was deposited during the Vashon glaciation, the last major glaciation. Deposits of the older Salmon Springs glaciation are exposed in some areas. The drift plain is underlain by Tertiary volcanic and sedimentary rock.

Soils mapped in the project area by the Soil Conservation Service (SCS) (1973) are shown in Figures 3.4-1 and 3.4-2. Alderwood and Everett soils occur on glacial uplands and terraces, and are the most common and abundant soils in the project area. Norma, Indianola, Kitsap, Bellingham, Seattle, and Tukwila soils occur less extensively.

Alderwood gravelly sandy loams are moderately well-drained soils that have a substratum of consolidated till at a depth of approximately 24 to 40 inches. Arents-Alderwood materials are Alderwood soils that have been substantially disturbed by urban development, but still have many features of undisturbed Alderwood soils. In both soils, surface horizons have moderately rapid permeability, but the till substratum is very slowly permeable, creating a high water table in winter. Erosion hazard is slight on slopes of 0 to 6 percent, slight to moderate on slopes of 6 to 15 percent, and severe to very severe on slopes greater than 15 percent. Slippage potential along the till contact is moderate to severe on slopes greater than 15 percent.

Everett gravelly sandy loams formed in glacial outwash. They are somewhat excessively drained soils that are underlain by very gravelly sand at a depth of 18 to 40 inches. Permeability is rapid. Erosion hazard is slight on slopes of 0 to 6 percent, slight to moderate on slopes of 6 to 15 percent, and severe to

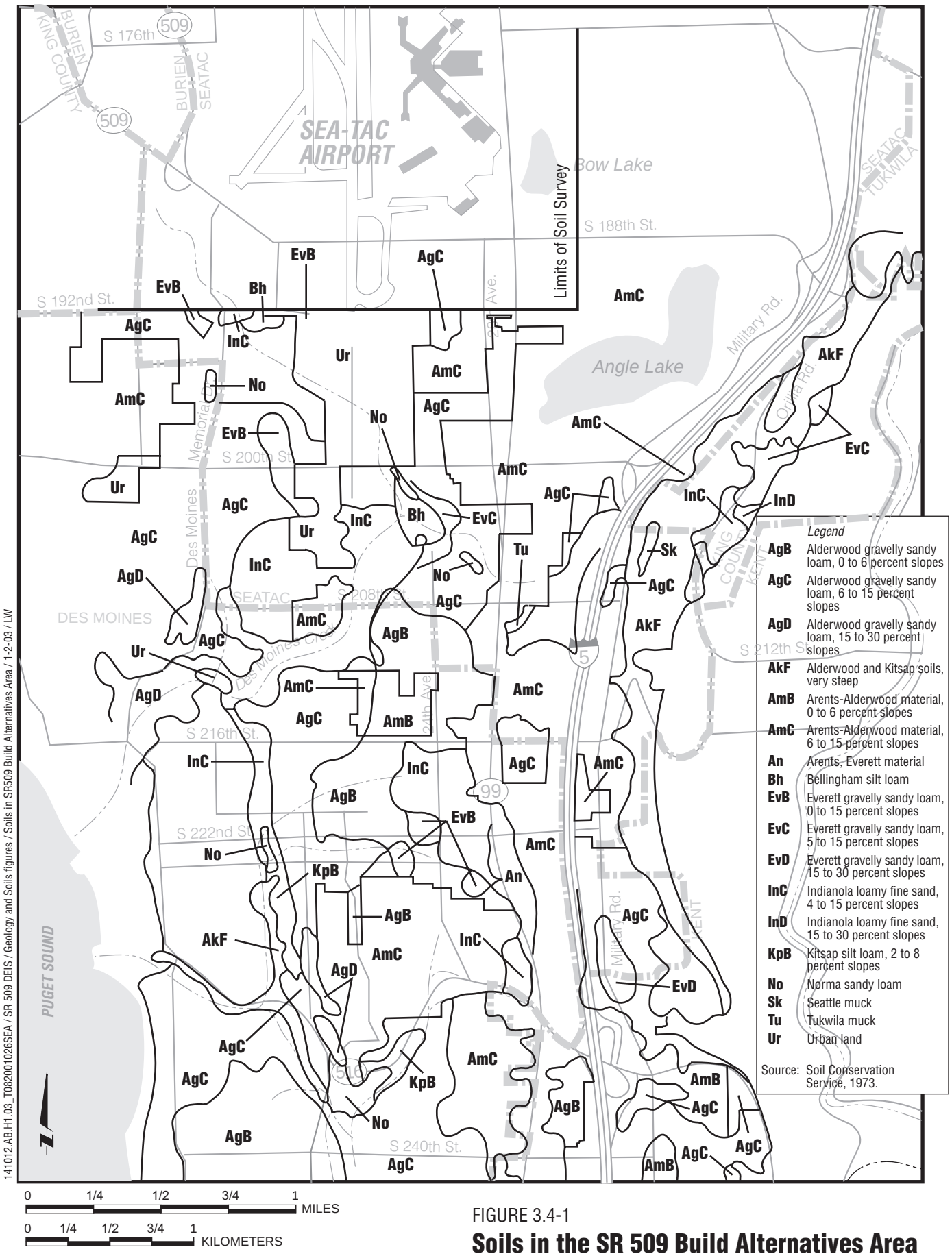

FIGURE 3.4-1

Soils in the SR 509 Build Alternatives Area

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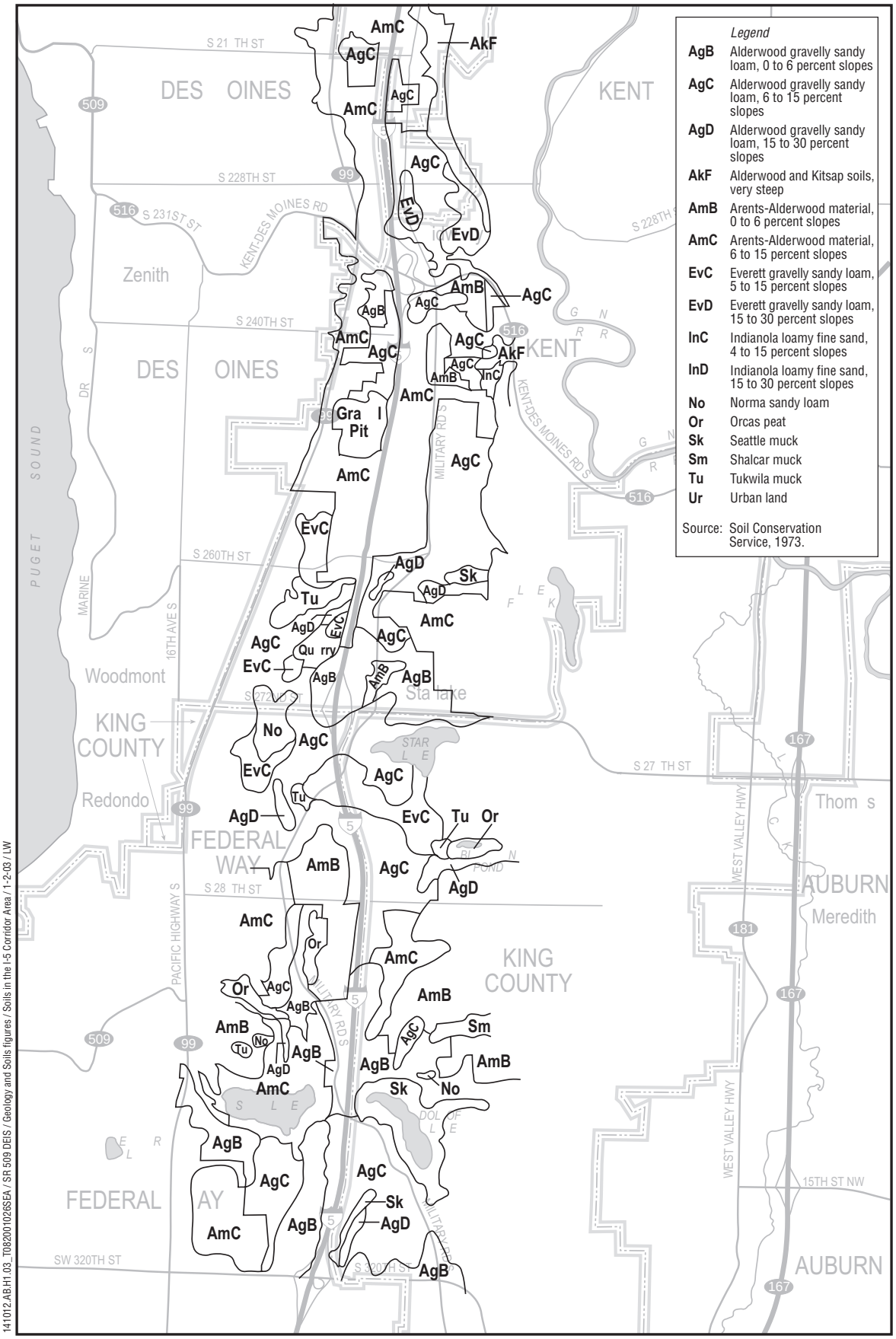

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FIGURE 3.4-2

Soils in the I-5 Corridor Area

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very severe on slopes greater than 15 percent. Arents-Everett materials are Everett soils that have been disturbed by urban development, but have features similar to undisturbed Everett soils. They are level to gently sloping, and erosion hazard is slight.

Indianola loamy fine sands are somewhat excessively drained soils formed in sandy, stratified recessional outwash. Permeability is rapid. Slopes range from 4 to 15 percent, and erosion hazard is slight to moderate.

Kitsap silt loams are moderately well-drained soils that formed in glacial lake deposits and are found on terraces and strongly dissected terrace fronts. They have a substratum of platy, silty sediments at a depth of 18 to 40 inches. Permeability is moderate above the substratum and very slow within it. Water perches on top of the substratum in winter. Erosion hazard is slight to moderate on slopes of 2 to 8 percent, moderate to severe on slopes of 8 to 15 percent, and severe to very severe on slopes greater than 15 percent. Slippage potential along the substratum contact is moderate to severe on slopes greater than 8 percent.

Bellingham silt loams and Norma sandy loams are poorly drained soils formed in alluvium. Permeability is slow, slopes are less than 2 percent, and erosion hazard is slight. Bellingham soils occur in small depressions on glacial till plains. Norma soils occur in basins on glacial uplands and along stream channels. The water table is at or near the soil surface during the winter rainy season.

Seattle mucks and Tukwila mucks are poorly drained organic soils formed in depressions on till plains and in river and stream valleys. Permeability is moderate, and the high water table is at or near the surface during winter. Slopes are less than 1 percent, and there is little or no erosion hazard.

Site Seismicity

The project area lies within the Puget Sound region and represents an area of high seismic risk. Since 1945, there have been seven earthquakes of magnitude 5.0 and greater with epicenters near Puget Sound (Pacific Northwest Seismograph Network 2002). Seismic activity in the region is a function of tectonic events and processes that occur as a result of collision between the Juan de Fuca plate and the North American plate. Geophysical investigations suggest that earthquakes may also occur from a network of faults beneath the Puget Sound basin. However, few active faults have been conclusively discovered because of the mid-crust depths of most of the earthquakes in the Puget Sound region and the thick overburden of geologically recent glacial and nonglacial sediments. No active faults are mapped in the project area (USGS 2002a). A north-west trending quaternary fault, referred to as the Coast Range Boundary fault, is mapped in the vicinity of the project, but its location is uncertain (USGS 2002b).

A seismic event may trigger slippage in areas susceptible to landslides or cause liquefaction in areas where relatively loose, fine-grained cohesionless soils occur below the water table. The following section discusses seismic hazards in the project area.

Sensitive Areas

Portions of the project area are designated as landslide, steep slope, erosion, and seismic hazard areas as defined in ordinances of King County (2001) and the Cities of Des Moines (2000), SeaTac (2001), Kent (2001), and Federal Way (2001). The intent of these ordinances is to regulate areas that have been identified as sensitive to help prevent and avoid activities that could have adverse impacts on property. Additional areas have been mapped as seismic hazard areas by Palmer et al. (1994, 1995).

Landslide hazard areas are sloping areas that are subject to a severe risk of landslide. They are defined as any area with a combination of slopes greater than 15 percent, impermeable soils, and springs or groundwater seepage. They are often associated with unconsolidated glacial deposits and alluvial fans. Steep slope hazard areas are landslide hazard areas on 40 percent or greater slopes. Erosion hazard areas are defined as areas of soils that are rated as having severe to very severe erosion hazard by the Natural Resources Conservation Service (SCS). They generally occur where slopes are greater than 15 percent. Landslide and erosion hazard areas identified within the project area are shown in Figure 3.4-3. These hazard areas occur along portions of the Green River and Des Moines Creek valley walls.

The proposed project is located within a seismic zone that represents an area susceptible to moderately high seismic activity. Seismic hazard areas are defined as areas subject to severe risk of earthquake damage as a result of seismically induced liquefaction. Liquefaction occurs when loose, saturated, and relatively cohesionless soil deposits temporarily lose strength because of earthquake shaking. Primary factors controlling the development of liquefaction include intensity and duration of strong ground motion, characteristics of subsurface soil, in situ stress conditions, and depth to groundwater. Potential effects of soil liquefaction include temporary loss of bearing capacity and lateral soil resistance, liquefaction-induced settlement, and lateral spreading.

Seismic hazard areas identified within the project area are shown in Figure 3.4-4. They generally occur in lacustrine deposits in the northern part of the project area, along a segment of Des Moines Creek, on the Green River floodplain, and in areas of fill.

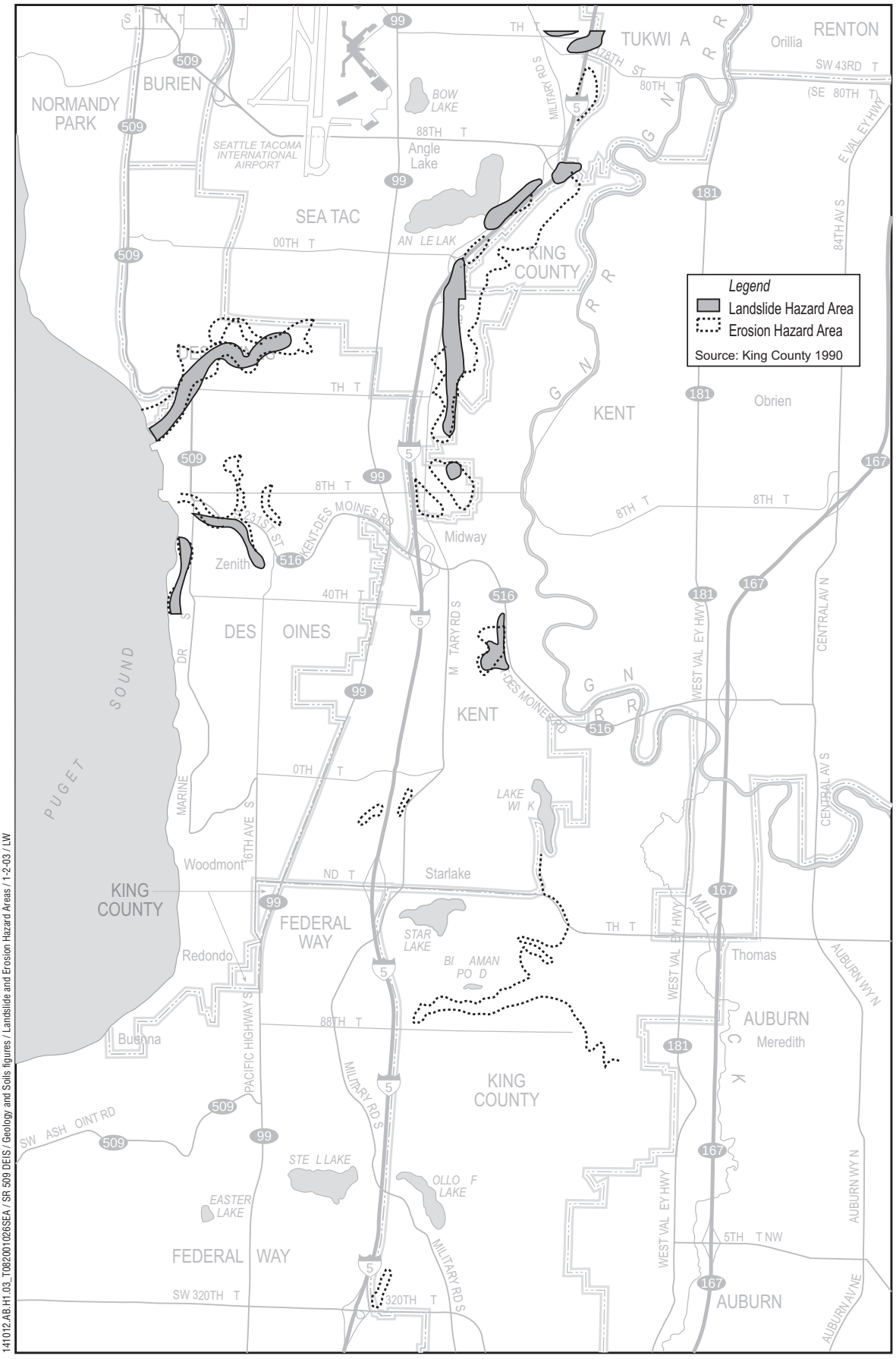

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FIGURE 3.4-3

Landslide and Erosion Hazard Areas

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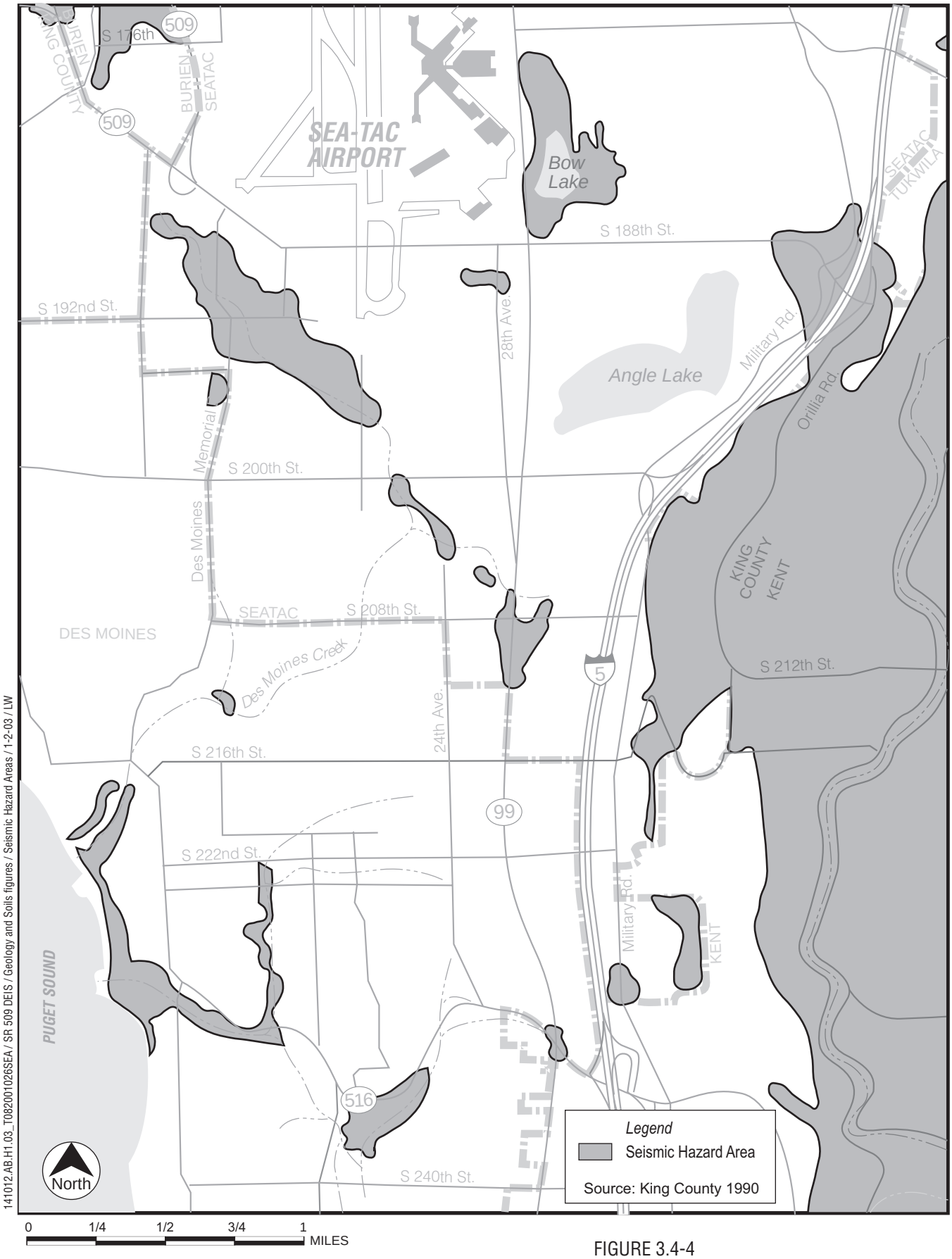

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FIGURE 3.4-4

Seismic Hazard Areas

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3.4.3 Environmental Impacts

Alternative A (No Action)

The No Action Alternative would not result in any impacts on earth resources.

Impacts Common To All Build Alternatives

After construction, exposed soils would be either paved or revegetated. Little erosion and sedimentation would be expected after establishing vegetation. The amount of impervious surface would increase.

The project area is located within the Puget sound Region, an area susceptible to moderately high seismic activity. During a seismic event, the site would be subjected to ground motion. The potential for strong ground motion in the project area is considered no greater than for the Puget Sound in general. Moderate levels of earthquake shaking should be anticipated during the design life of the facility.

All of the build alternatives would cross seismic hazard areas. Liquefaction of soils in these areas during an earthquake could result in vertical and lateral displacements of structures, embankments, and paved areas. The liquefaction potential of all potential seismic hazard areas would be confirmed during the design stage of the preferred alternative. Design of structures to resist seismic forces and also secondary effects such as liquefaction might be required.

Alternative B

Alternative B would create about 4.2 million cubic yards (cy) of cut material and require about 3.5 million cy of fill material, including the I-5 improvements (Inca January 2000, CH2M HILL October 2001). This alternative would produce more cut material and would require more fill than Alternative C2, and more cut material but less fill material than Alternative C3. Consequently, the potential for erosion and sedimentation impacts for Alternative B would be the highest of the build alternatives.

Alternative B would cross five seismic hazard areas. The SR 509 extension would cross two seismic hazard areas: (1) near the intersection of SR 99 and South 208th Street where a bridge over SR 509 is proposed, and (2) north of South 192nd Street. A third seismic hazard area would be crossed by the South Access Road, south of South 200th Street. A fourth area would be crossed by the widened South 200th Street, west of the South Access Road. A fifth seismic hazard area would be crossed by SR 516 in the vicinity of SR 99 as part of the reconstructed I-5/SR 516 interchange. Liquefaction of soils in these areas during an earthquake could result in vertical and lateral

displacement of the bridge at the SR 99 crossing, as well as the embankments and paved roads at the other affected areas.

The South Access Road alignment would cross a small area mapped as Norma and Bellingham soils by the National Resources Conservation Service (formerly SCS). These soils could contain strata of compressible silty and organic material. Near the south end of the Alternative B SR 509 extension, the roadway would cross a small area of organic soil, Tukwila muck. Areas where these three soils occur might need to be excavated prior to roadway/ embankment construction. These unsuitable materials would be removed from the project area, unless deemed suitable for landscaped areas.

Alternative C2 (Preferred)

Alternative C2 would create about 3.2 million cy of cut material and require about 1.2 million cy of fill material, including the I-5 improvements (Inca January 2000, CH2M HILL October 2001b). This alternative would produce the least amount of cut and fill material of all the build alternatives. The potential for erosion and sedimentation impacts for Alternative C2 would be the lowest of all the build alternatives.

Alternative C2 would cross five seismic hazard areas. These areas are: (1) near the intersection of SR 99 and South 208th Street where a bridge over SR 509 is proposed; (2) just northwest of the intersection of SR 99 and South 208th Street; (3) between South 204th Street and South 200th Street along the alignment; (4) north of South 200th Street near Des Moines Memorial Drive; and (5) west of Des Moines Memorial Drive between South 192nd Street and the existing SR 509 terminus. Liquefaction of soils in these areas during a seismic event could cause vertical and lateral displacements of soils under roadways, in embankment fill, and of the bridge footings at the SR 99 crossing.

Similar to Alternative B, small areas of the Norma sandy loam, Tukwila muck, and Bellingham silty loam are crossed by the alignment. These areas of potentially compressible soils might need to be excavated and replaced under roadways, embankments, and bridge footings.

Alternative C3

Construction of Alternative C3 would create about 3.8 million cy of cut material and require about 3.6 million cy of fill material, including the I-5 improvements (Inca January 2000, CH2M HILL October 2001b). This would be the more cut and fill material than for Alternative C2, and less cut material but more fill material than for Alternative B. The potential for erosion and sedimentation impacts for Alternative C3 would be higher than for Alternative C2, but less than Alternative B.

Alternative C3 would cross four seismic hazard areas. These areas are: (1) south of the intersection of SR 99 and South 208th Street where a bridge for SR 99 is proposed to go over SR 509; (2) between South 204th Street and South 200th Street along the alignment; (3) just south of Des Moines Memorial Drive between South 192nd Street and South 200th Street; and (4) west of Des Moines Memorial Drive between South 192nd Street and the existing SR 509 terminus. There is potential for liquefaction of soils in these areas during a seismic event. Liquefaction could cause vertical and lateral displacements of soils under roadways, embankment fills, and bridge footings at the SR 99 crossing.

Similar to Alternatives B and C2, small areas of the Norma sandy loam, Tukwila muck, and Bellingham silty loam are crossed by the alignment. These areas of potentially compressible soils might need to be excavated from under roadways, embankments, and bridge footings.

3.4.4 Mitigation Measures

A geotechnical investigation would be conducted as part of the design phase. Specific recommendations for liquefaction mitigation, subgrade preparation, roadway embankment, cut and fill, slope stability, foundation design, retaining structures, dewatering measures, and erosion control plans would be prepared prior to any construction. Suitable waste sites for unsuitable excavated soils would be identified prior to construction.

Structures would be designed to meet current seismic standards. Potential impacts of soil liquefaction could be mitigated by removing and replacing the loose materials with compacted fill materials. The need for removing and replacing would be evaluated on a case-by-case basis for the individual structural elements potentially impacted.

Retaining walls or other slope protection could be necessary where embankment fills need to be minimized. Where deep fills would be required, material should be selected from sources that allow construction of a compact base, yet afford fairly rapid drainage. Deep fill areas and retaining structures could require cross drainage.

3.4.5 Construction Activity Impacts and Mitigation

Construction Activity Impacts

Each of the build alternatives would require land clearing, grubbing and removing topsoil, cutting slopes, filling for roadway embankments, and paving roadways. Excavation and fill would result in minor topographic changes. Exposure of soils during excavation would increase the potential for erosion and downslope transport of sediment.

Most construction activity would occur in areas of dense to very dense glacial outwash and glacial till soils. These materials generally provide adequate subgrade support for roadways, embankments, and retaining structures. Settlement or stability problems with standard cuts and fills (2:1 or flatter) are not anticipated. Steepening slopes in areas of clean outwash, however, could increase the potential for soil erosion.

Prior to fill placement, overexcavation could be required in areas with soft organic or silt soils and areas with saturated soils. Existing fill that overlies native soil is likely of variable consistency and quality and also could require removal. The unsuitable soils would require removal from the project area, unless deemed suitable for landscaped areas.

Shallow groundwater is likely to be encountered in areas with poorly drained soils, areas adjacent to streams, wetland areas, and some areas underlain by till. Dewatering would be required for excavation below groundwater levels. Permanent drainage systems could be necessary in some areas to maintain the water table below the depth of excavation and to maintain stability of fill slopes and retaining structures.

Increased noise, dust, and traffic from hauling fill and excavated materials would be temporary impacts in the project vicinity. The magnitude of these impacts would depend on the location of borrow and waste sites, land uses along the haul routes, the duration of hauling operations, and construction phasing.

Mitigation Measures

A detailed erosion and sedimentation control plan would be required as part of the construction contract specifications. The plan would follow best management practices (BMPs). Drainageway protection and sediment retention would be approved by regulatory agencies prior to project construction (see Section 3.5, *Water Quality*). Additionally, construction activities would require a permit under the stormwater rules of the National Pollutant Discharge Elimination System (NPDES). Regular maintenance would be required for any permanent detention and sedimentation ponds constructed as part of the proposed project.

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3.5 Water Quality

3.5 Water Quality

3.5.1 Studies and Coordination

This section is based on the findings of the *SR 509/South Access Road EIS Discipline Report: Water Quality* (CH2M HILL August 2000), *SR 509*/*South Access Road EIS: South Airport Link* (August 2001a), and *SR 509*/*South Access Road EIS: I-5 Improvements Report* (CH2M HILL October 2001). The discipline reports, which are included in this FEIS by reference, evaluated previous technical studies, engineering reports, basin plans, and topographic and natural resource maps to assess resources that could be affected by the proposed project. Identifying and evaluating potential impacts resulting from the proposed project alternatives also required coordinating with project consultants and representatives from natural resource management and regulatory agencies. The following agencies and jurisdictions were contacted during preparation of this FEIS:

- U.S. EPA, Seattle Office, Region 10
- U.S. Department of Agriculture
- National Marine Fisheries Service
- Federal Aviation Administration
- Washington State Department of Ecology (Ecology), Northwest Regional Office, Bellevue
- WSDOT
- King County Department of Natural Resources, Water and Land Resources Division
- King County Department of Metropolitan Services
- Highline Water District
- City of Federal Way, Water and Sewer Department
- City of Des Moines, Public Works Department
- City of SeaTac, Public Works Department
- City of Kent, Public Works Department

- Port of Seattle

Methods

For this analysis, the project area includes all basins or watersheds potentially affected by this project (Figure 3.5-1). Information on drainage patterns, riparian land uses, riparian conditions, channel conditions, and hydrology in the project vicinity was augmented by field observations made during a jurisdictional wetland delineation and stream reconnaissance investigation. No water quality or flow data were collected.

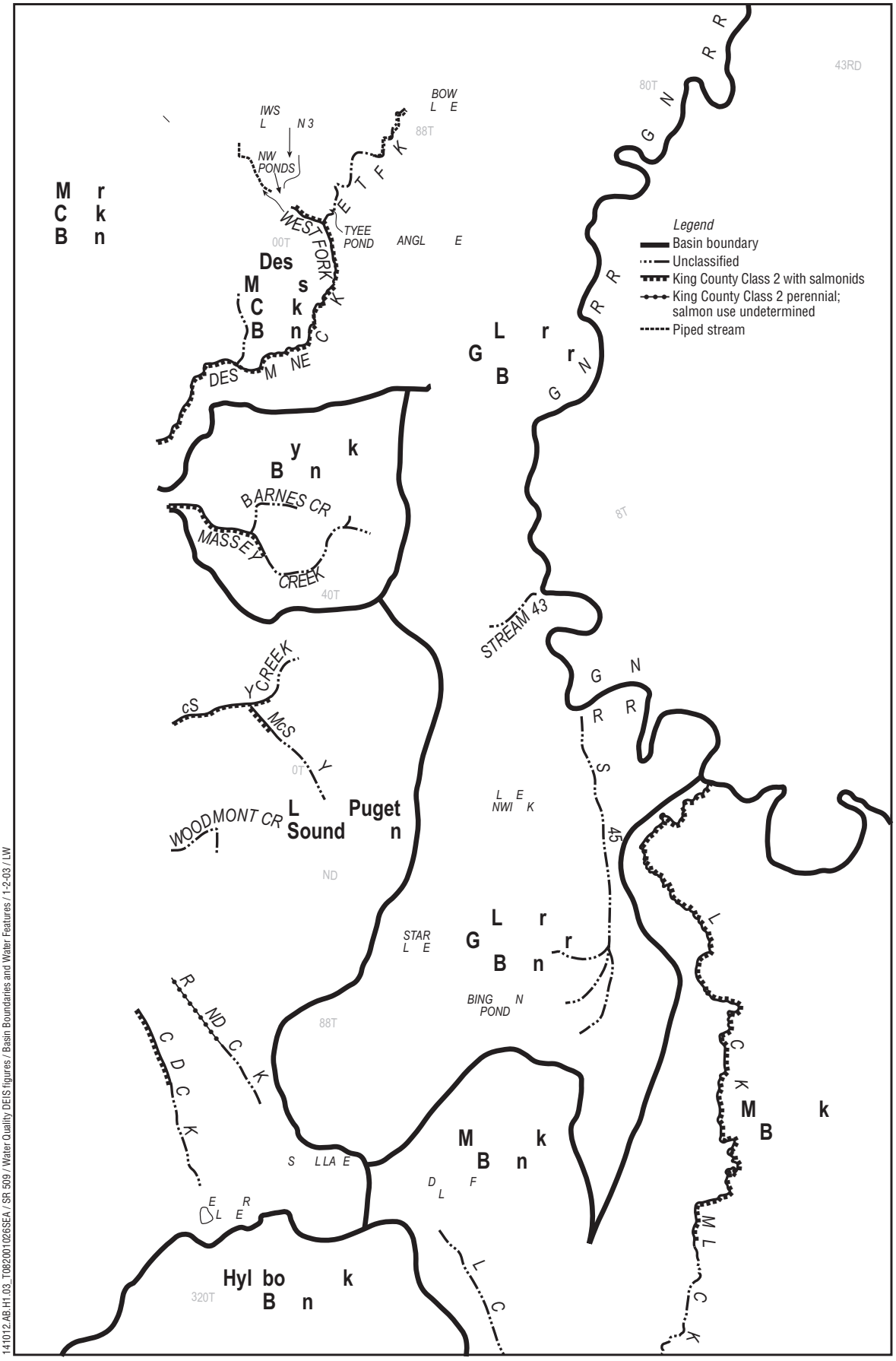
Potential operational or long-term effects on surface waters from the build alternatives were evaluated. Using the FHWA procedure (FHWA April 1990a, April 1990b), the probabilities of exceeding ambient background concentrations and Washington State Class A standards prior to any water quality treatment were estimated for each of the build alternatives. The FHWA procedure, which has been adopted by WSDOT, is a probabilistic dilution model developed and applied in EPA's Nationwide Urban Runoff Program (NURP). For each of the surface water basins affected by the proposed project alternatives, pollutant loadings for total suspended solids (TSS), chemical oxygen demand (COD), zinc, copper, nitrate/nitrite, total Kjeldahl nitrogen (TKN), and total phosphorus (TP) were estimated for the new roadway surfaces, before treatment, relative to background conditions. These pollutant concentrations were compared to threshold values, below which no stormwater treatment would be required.

Final pollutant concentrations and annual mass loading after treatment at various best management practices (BMPs) were estimated using the FHWA (1996) procedure. Pollutant concentrations from new roadway surfaces were computed for TSS, zinc, TKN, and TP. Treatment efficiencies of selected water quality treatment facilities were computed following median removal rates suggested in the WSDOT Instructional Letter No. IL 4020.00, Enclosure C (WSDOT 1999) and in FHWA (1996) (Table 3.5-1) and in the Surface Water Design Manual (King County 1998).

Table 3.5-1
WSDOT Best Management Practices Effectiveness Rates

BMP[a]	Treatment Efficiency (%)			
	TSS	TKN	TP	Zinc
Wet Vault	23	5	5	5
Biofiltration Swale	72	25	28	67
Wet Pond	72	36	53	56
Vegetated Filter Strip	80	34	53	75

[a] *WSDOT (1999).*



1410I2.AB.H1.03_T08200102GSEA / SR 509 / Water Quality DEIS figures / Basin Boundaries and Water Features / 1-2-03 / LW

FIGURE 3.5-1

Basin Boundaries and Water Features

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Wet ponds, bioswales, wet vaults, stormwater treatment wetlands, and some other innovative technologies, including treatment trains, have been considered for stormwater treatment. A description of technologies and some experimental BMPs being considered were presented in the *Stormwater Treatment Technical Memorandum* (CH2M HILL August 2001b) and the *SR 509/I-5 Stormwater VE* (Olympic Associates Company 2002).

3.5.2 Affected Environment

Basins and Resources

The proposed project would potentially affect the quality of water resources in five basins. These water resources include rivers, creeks, lakes, wetlands, and groundwater.

Miller Creek Basin

Miller Creek Basin includes a drainage area of 5,200 acres and drains into Puget Sound. The Washington State Department of Fish and Wildlife (WDFW) identifies Miller Creek as stream 09.0371. The basin would be affected to an equal extent by each of the build alternatives; however, only a relatively small area of the basin would be disturbed, and there would likely be no substantial water quality impacts.

Des Moines Creek Basin

Des Moines Creek Basin includes a drainage area of 3,700 acres. Sea-Tac Airport in the northern portion of the basin occupies approximately 27 percent of the total basin area. The remainder of the basin is largely urbanized. Important resources in the basin include Des Moines Creek (King County 1987) and associated wetlands. Bow Lake, Northwest Ponds (Wetland F), and Tyee Pond currently provide stormwater detention and treatment and are also near the build alternatives. Additional wetlands also are located within the Des Moines Creek Basin. Des Moines Creek, a King County Class 2 stream with salmonids, is the main drainage course in that basin.

Des Moines Creek generally flows south to southwest and empties into Puget Sound near South 222nd Street. WDFW identifies Des Moines Creek as stream 09.0377. Two major tributaries and two minor tributaries flow into Des Moines Creek. The major tributaries are known informally as the East Fork and West Fork. The East Fork, originating from Bow Lake, is a King County Class 3 stream in its lower reaches and unclassified in its upper reaches. Class 3 streams have intermittent flow and are not used by salmonids. The West Fork flows out of the Northwest Ponds complex at the western edge of the Tyee Valley Golf Course. The upper reaches of the West Fork are either designated Class 3 or are unclassified, while the lower reaches

are Class 2. The two minor tributaries to Des Moines Creek are both unclassified.

Just upstream of the project area, near the Bow Lake outlet to the East Fork of Des Moines Creek, the corresponding flood frequency exceedance levels are 21, 29, and 35 cubic feet per second (cfs) (Des Moines Creek Basin Committee 1997). In general, impervious surfaces associated with development in the watershed have increased peak flows, resulting in downstream flooding in Des Moines Creek relative to predeveloped conditions. The higher peak flows, in turn, have led to problems with channel erosion and scouring of spawning gravel in downstream reaches of Des Moines Creek. The frequent flooding in the creek has also damaged public buildings and facilities in Des Moines Beach Park (Des Moines Creek Basin Committee 1997).

Lower Green River Basin

The Lower Green River Basin is a large basin that drains to the Duwamish River. Streams designated as 43 and 45 by USFWS drain the basin north to Green River, which drains north to Puget Sound.

Stream 43 flows into the Green River at about river mile (RM) 20.0, and is located about 3,000 feet east of the project area. Stream 45 flows into the Green River at about RM 21.7, and is located more than 1 mile east of the project area. Star Lake is located about 1,000 feet east of the project area, and Lake Fenwick is located more than 1 mile east of the project area.

Lower Puget Sound Basin

Streams in the Lower Puget Sound Basin include McSorley Creek, Woodmont Creek, Redondo Creek, and Cold Creek, all draining to Puget Sound. This basin would be impacted by stormwater runoff from the improvements along the I-5 corridor, located on the eastern boundary of the basin.

McSorley Creek is located within Saltwater State Park and flows into Puget Sound. Woodmont Creek flows directly into Puget Sound. The creek originates in a forested ravine more than 1 mile west of the project area. Woodmont Creek functions primarily as a stormwater conveyance channel with severe bank erosion (King County 1991). Redondo Creek flows directly into Puget Sound. Redondo Creek is located more than 1 mile west of the project area. Redondo Creek is one of the most severely incised channels in the basin, with heavy erosion associated with high flows and poor water quality resulting from nonpoint pollution from residential and commercial sources (King County 1991).

Cold Creek, located more than 1 mile west of the project area, flows into Puget Sound. Cold Creek has been piped and channeled in several locations.

According to the *Lower Puget Sound Basin Plan* (King County 1991), Cold Creek drains from Easter Lake.

Mill Creek Basin

Water resources in the Mill Creek Basin include Mill Creek and Lake Dolloff. This basin would be impacted by stormwater runoff from the improvements along 4,000 feet of the I-5 corridor, located on the eastern boundary of the basin.

Mill Creek flows into the Green River at about RM 24.0. Lake Dolloff is located about 1,000 feet west of the project area. Mill Creek flows to the south from the outlet at the southeast end of Lake Dolloff, about 2,000 feet from the project area. Mill Creek drains first south, then north for about 8.4 miles into the Green River.

Groundwater

The project area has three aquifers, including a shallow aquifer, an intermediate aquifer, and a deep aquifer.

The shallow aquifer is composed of the Vashon Advance Outwash (Esperance Sand). Groundwater occurs under unconfined conditions and is typically protected from direct surface water infiltration by overlying fill or till. The base of the shallow aquifer ranges between elevation 200 and 250, and its thickness varies seasonally, typically between 50 and 75 feet. The water table is approximately 10 to 50 feet below the ground surface. This aquifer has moderate permeability and a maximum well capacity of 500 gallons per minute (gpm).

The intermediate aquifer typically occurs between sea level and elevation 200, with thickness ranging from approximately 50 to 250 feet. Flow in this aquifer is under confined conditions in the west and under unconfined conditions in the east. The aquifer has high permeability and a maximum well capacity of 3,000 gpm.

The deep aquifer is composed of coarse-grained deposits. It is highly confined, generally below elevation (–100), and has saturated thickness below 150 feet. The aquifer has low to moderate permeability and a maximum well capacity of 1,500 gpm (in its most permeable parts).

The shallow aquifer is separated from underlying aquifers with a layer of Lawton clay that has very low permeability. The intermediate aquifer is separated from the deep aquifer with a layer of fine-grained sand and silty sand.

Groundwater generally flows downward from the shallow aquifer to the intermediate and deep aquifers. Laterally, groundwater discharges into the

streams of the Green River Watershed to the east, and into the streams of Puget Sound to the west. Groundwater also discharges as underflow to the Green River Valley and Puget Sound, and as pumped water from municipal water supply wells in the Des Moines area.

Groundwater is recharged by infiltrating precipitation across all pervious surfaces in the study area. The magnitude of recharge primarily depends on the permeability of the surface sediments and topography. However, recharge occurs only after evapotranspiration and soil moisture deficits have been satisfied.

The water quality of underlying aquifers was studied as part of the preparation of the EIS for the Seattle-Tacoma International Airport (Federal Aviation Administration and Port of Seattle 1996). Water samples from several wells in the shallow aquifer showed groundwater to be of good water quality. The intermediate aquifer and deep aquifer have excellent water quality based on the studies by the Seattle Water Department (Seattle Water Department, et al. 1990).

The underlying aquifers have been used historically as a source of groundwater for water supply. The shallow aquifer has been used for domestic, irrigation, and/or commercial purposes. The intermediate aquifer and the deep aquifer have been primarily used for municipal water supply. The largest municipal user is the Highline Water District, which draws approximately 1.5 million gallons per day of water from the deep aquifer via the Angle Lake and Des Moines production wells. Highline Water District owns two wells, Tyee Well and Well #2, both of which are on Port of Seattle property. Tyee Well is being developed for municipal use and will replace Well #2, which is now being used for groundwater monitoring. Other suppliers in the area include King County Water Districts 24 and 75.

Non-municipal water wells in the area include a Washington Natural Gas Company well and three private wells that are not used for drinking water. Two of the private wells are located along Des Moines Memorial Drive near South 192nd Street, and the third is located along South 188th Street near 32nd Avenue South (Department of Ecology water well reports, June 2002). Use of these wells is unknown. Two additional wells are located on Port of Seattle property and are owned by the Port: Well 2M, which is used for groundwater monitoring, and Well #1, which is used to irrigate Tyee Valley Golf Course. Well locations are shown in Figures 3.5-2, 3.5-3, and 3.5-4.

Well #1, Well 2M, Tyee Well, Well #2, and two private wells are in the immediate vicinity of the SR 509 corridor. Angle Lake well, Des Moines well, and the Washington Natural Gas well are at least 400 feet from the planned SR 509 roadway or the South Access Road. All other wells are far from the construction of the project.

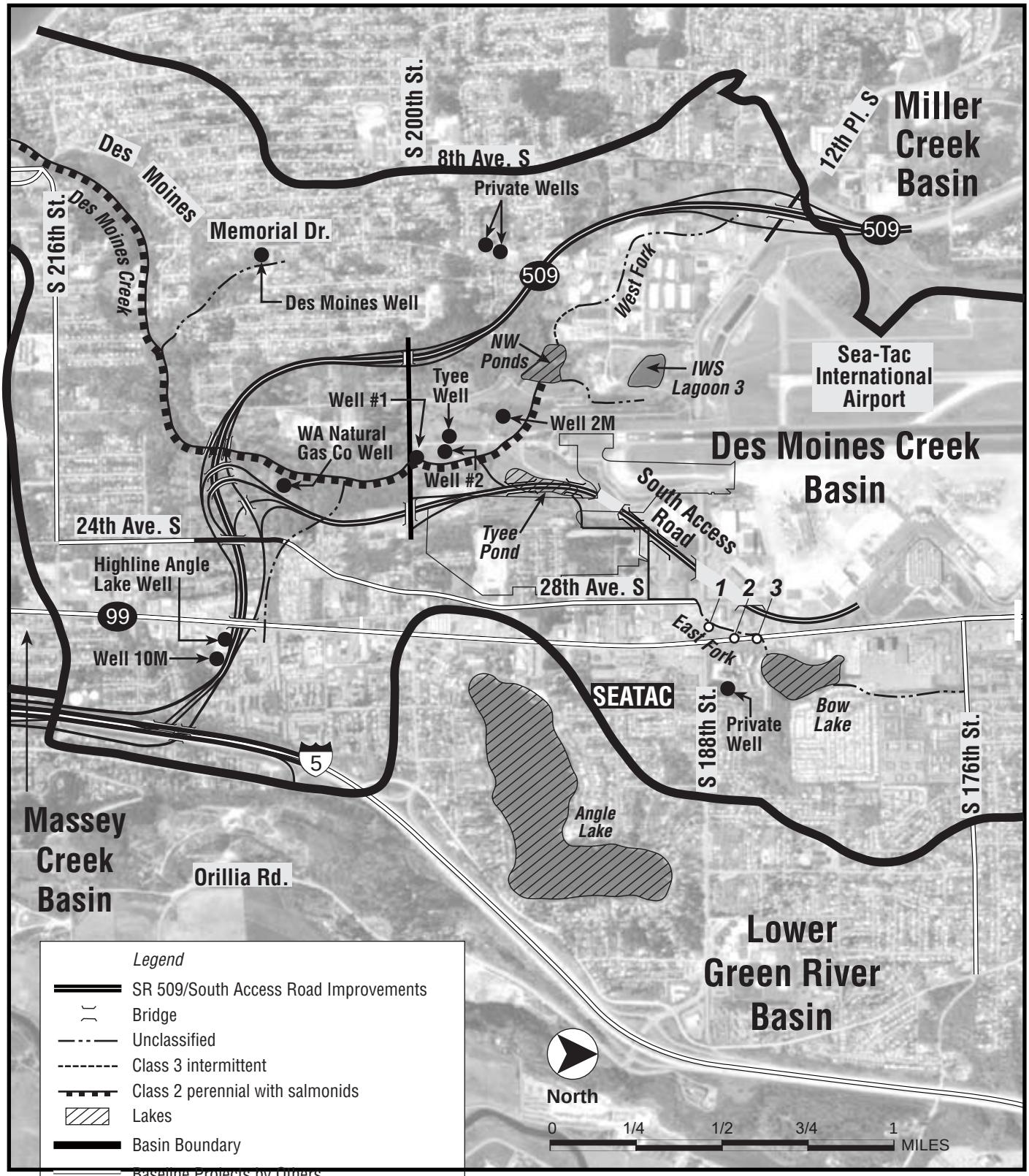

FIGURE 3.5-2

Water Resources and Basin Boundaries – Alternative B

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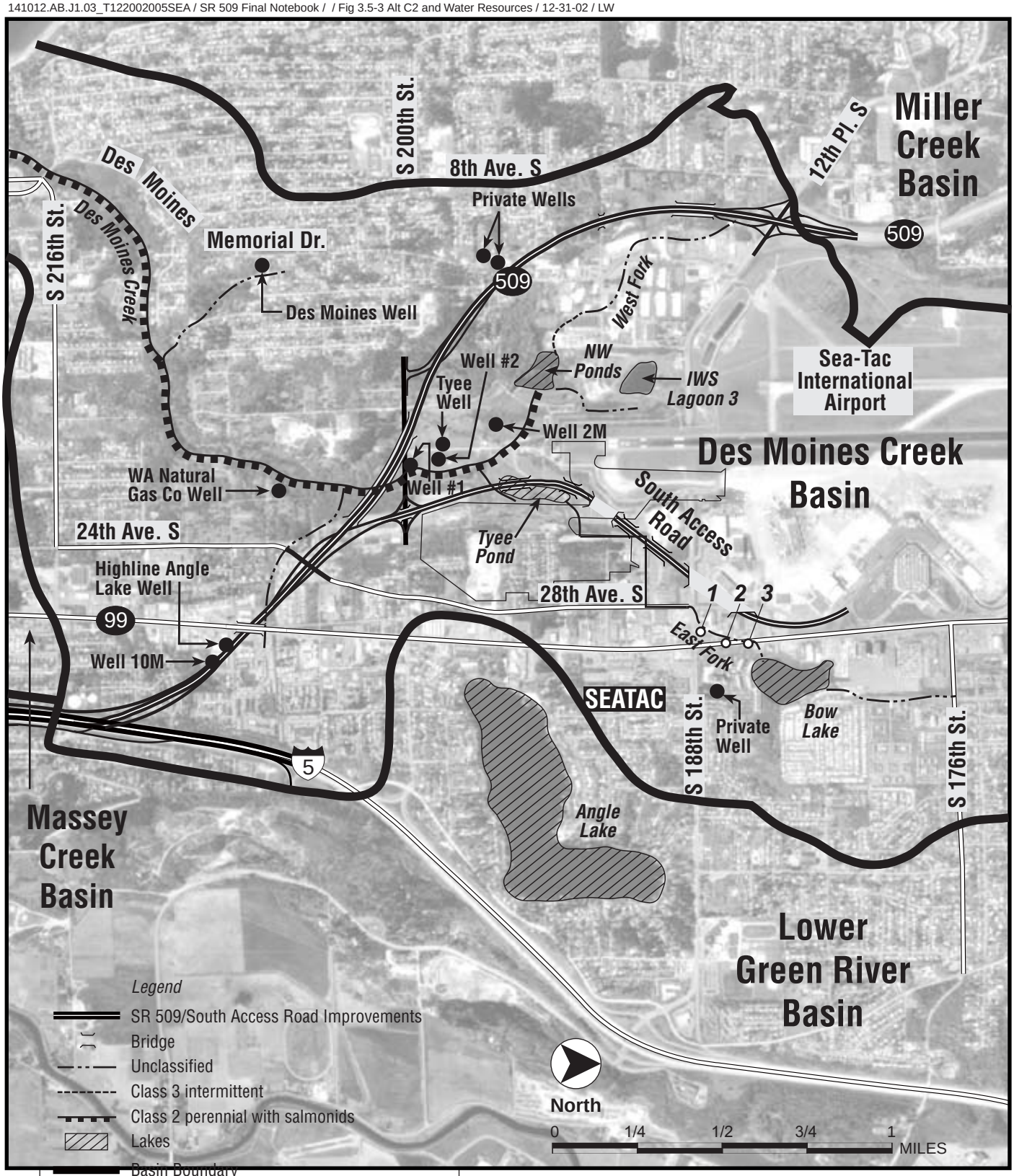

FIGURE 3.5-3

Water Resources and Basin Boundaries – Alternative C2 (Preferred)

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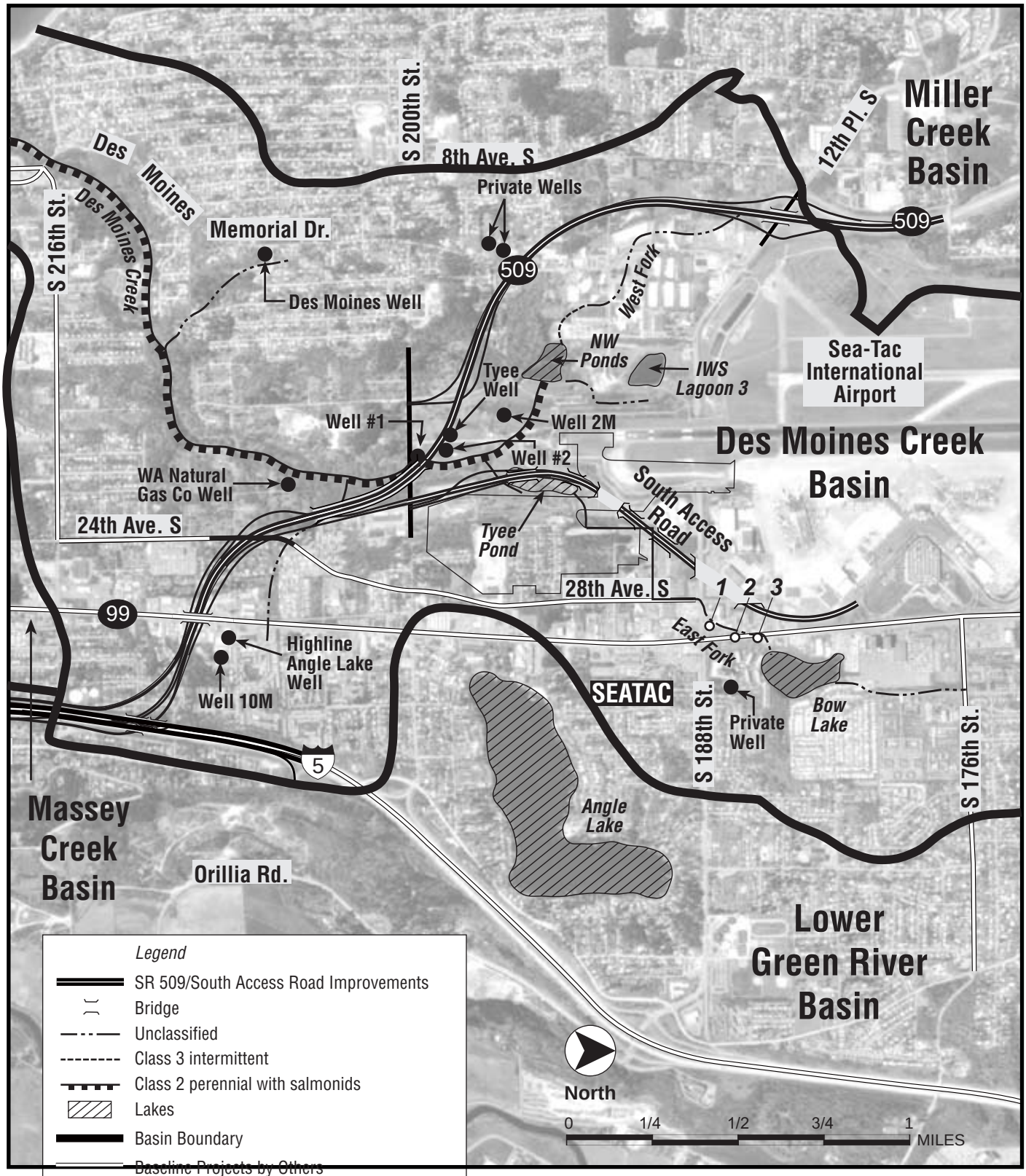


FIGURE 3.5-4

Water Resources and Basin Boundaries – Alternative C3

SR 509: Corridor Completion/I-5/South Access Road Environmental Impact Statement

Surface Water

Des Moines Creek

Des Moines Creek is classified by the Washington State Department of Ecology as Class AA (extraordinary) (Des Moines Creek Basin Committee 1997). Class AA waters should be usable for water supply, livestock watering, fish and wildlife, and recreation. Water quality standards for Class AA waters are discussed relative to WAC Chapter 173-201A, *Water Quality Standards for Surface Waters of the State of Washington* (Table 3.5-2).

Water quality data collected in recent years indicate that elevated pollutant levels frequently occur in Des Moines Creek. Water quality monitoring conducted as part of the *Five-Year Project Report: City of Des Moines Water Quality Monitoring Program* (Herrera 2001) identified the following water quality concerns: high temperatures and low dissolved oxygen during base flow; high turbidity, total suspended solids, and metals concentrations during storm flows; and high fecal coliform concentrations during storm and base flows.

In response to concerns over increased urbanization within the Des Moines Creek Basin, a multiagency watershed management team represented by Metro, King County, Port of Seattle, Ecology, and Trout Unlimited was established in 1986 to formulate a restoration plan for the creek. The team prepared a watershed management plan to control and maintain water quality and restore and maintain viable populations of salmon and trout. The recommended restoration plan is outlined in the *Des Moines Creek Restoration Project* (Herrera and Hall 1989). In the restoration plan, violations of water quality standards were reported for fecal coliform bacteria, metals, and turbidity.

In addition to water quality concerns associated with urban development, pollutants from operations at Sea-Tac Airport also are a concern (Des Moines Creek Basin Committee 1997). In general, water quality monitoring at the airport has shown runoff from the airport to be comparable to that of runoff from other urban land uses in the basin. However, there are industrial pollutants unique to airport operations that are collected and treated by the airport's Industrial Wastewater System (IWS). The IWS collects and processes drainage from areas in the airport that are more likely to contribute pollutants such as the aircraft servicing, loading, and de-icing locations. Effluent from the IWS is treated and then routed by pipeline along Des Moines Creek to just below the Midway Sewage Treatment Plant, where the IWS line joins the deep sewer outfall, which discharges to Puget Sound. Three fuel spills from the airport into Des Moines Creek between 1973 and 1986 resulted in mortality to fish and aquatic life (Parametrix 1994). Since these accidental spills, modifications to the IWS and inclusion of the Tyee

Pond within the Regional Detention Facility make it unlikely that an impact of this nature would ever be repeated. Tyee Pond was designed to contain hydrocarbon spills and prevent them from reaching Des Moines Creek.

The airport's Storm Drain System (SDS) generally drains the runways, taxiways, and building roofs. Because these areas contribute relatively small pollutant loads, stormwater from the SDS discharges directly to Des Moines Creek in several locations along the perimeter of the airport. Monitoring

Table 3.5-2
Washington State Department of Ecology Water Quality Standards for Class AA Freshwaters and Lake Class

Parameter	Water Type	Standard[a]
Fecal coliform bacteria	Freshwater/ Lake	Shall not exceed a geometric mean of 50 colonies per 100 mL, and no more than 10% of samples used in calculating the geometric mean shall exceed 100 colonies per 100 mL.
Dissolved oxygen	Freshwater	Shall exceed 9.5 mg/L.
	Lake	No measurable decrease from natural conditions.
Total dissolved gas	Freshwater/ Lake	Shall not exceed 100% of saturation at any point of sample collection.
Temperature	Freshwater	Shall not exceed 16°C due to human activities. Incremental increases resulting from nonpoint source activities shall not exceed 2.8°C.
pH	Freshwater	Shall be in the range 6.5 to 8.5, with the human-caused variation within a range of less than 0.2 units.
	Lake	No measurable change from natural conditions.
Turbidity	Freshwater	Shall not exceed 5 NTU over background conditions when the background is 50 NTU or less, or have more than 10% increase in turbidity when background is more than 50 NTU.
	Lake	Shall not exceed 5 NTU over background conditions.
Toxic, radioactive, or deleterious material concentrations	Freshwater	Shall be below concentrations that may adversely affect characteristic water uses, cause acute or chronic conditions in the most sensitive aquatic biota, or adversely affect public health.

[a] *Adapted from Water Quality Standards for Surface Waters of the State of Washington, WAC Chapter 173-201A, November 18, 1997. See this statute for complete language on water quality standards for these parameters and acute and chronic standard for toxic substances (e.g., metals, pesticides, and organics), which are not listed here.*
mL = milliliter
mg/L = milligrams per liter
°C = degree(s) Celsius
% = percent
NTU = nephelometric turbidity units

conducted by the Port of Seattle indicates that stormwater from the airport is generally cleaner compared to similar urban runoff for TSS, biological oxygen demand (BOD), TP, total copper, total lead, total zinc, and oil and grease (Port of Seattle November 1996, June 1997, September 1997, November 1998). Chemicals associated with de-icing activities have also been detected in stormwater samples from the airport (Des Moines Creek Basin Committee 1997). For example, ammonia (from urea) in airport stormwater has been detected at concentrations that violate both chronic and acute toxicity standards for aquatic life (Port of Seattle April 1996). However, because urea is no longer used as a de-icer at the airport, observed ammonia levels have been generally lower compared to other urban land uses (Port of Seattle 1999). Both the airport's IWS and SDS facilities are covered by an NPDES permit issued by Ecology. This permit regulates the discharges from both systems and is periodically reviewed and updated.

In 1997, the *Des Moines Creek Basin Plan* (Des Moines Creek Basin Committee 1997) was produced through a cooperative interjurisdictional effort undertaken by King County, the Cities of SeaTac and Des Moines, and the Port of Seattle. One of the primary goals of this basin plan was to develop a shared plan for addressing water quality and quantity issues. The specific water quality-related concerns that were identified in the *Des Moines Creek Basin Plan* are: Turbidity and suspended solids; high nutrient levels; water temperatures that frequently exceed optimal upper temperature limits for salmonid species; and low dissolved oxygen.

Average seasonal flow rates near the outlet of Des Moines Creek range from 1.3 cfs in July to 12.3 cfs in December. At the outlet of Des Moines Creek, flow levels for events with 2-, 5-, and 10-year recurrence intervals are estimated to be 171, 211, and 255 cfs, respectively. In general, impervious surfaces associated with development in the watershed have increased peak flows and downstream flooding in Des Moines Creek relative to predeveloped conditions. The higher peak flows have, in turn, led to problems with channel erosion and scouring of spawning gravel in downstream reaches of Des Moines Creek. The frequent flooding in the creek has also damaged public buildings and facilities in Des Moines Beach Park.

Lower Green River

The Lower Green River has been listed as a Class AA (extraordinary) freshwater creek (WAC 173-201A 1997). Class AA waters generally exceed the water quality requirements for all beneficial uses. The Lower Green River watershed is part of the Green River/Duwamish River watershed, and is located east of I-5 and the Sea-Tac Airport, including Angle Lake. United States Geological Survey (USGS), Ecology, and Metro have measured water quality at several locations on this watershed during the last decade. The focus of these studies was nutrients from precipitation and domestically applied fertilizers. Precipitation is estimated to contribute from 1 to 2 tons of

nitrogen per square mile each year, and from 0.10 to 0.2 ton of phosphorus per square mile of the watershed each year (USGS 1995). Additionally, these studies estimated annual contribution of 1 ton per square mile per year of inorganic nitrogen. No additional water quality data have been collected for this project.

Streams of Lower Puget Sound Basin

No water quality data are available for Woodmont Creek. Redondo Creek and Cold Creek have been monitored by King County (1991). However, water quality standards in those creeks have not been exceeded since 1998 (Ecology 1998).

Water quality monitoring of McSorley Creek was conducted by Parametrix (1988-89), King County (1990), and Herrera (2001). King County and Parametrix showed that the North Fork of McSorley Creek receives stormwater runoff from the Midway landfill. The monitoring showed that concentration of fecal coliforms, dissolved oxygen, and phosphorus all exceeded recommended WAC standards. During the five-year monitoring period (1995-1999), Herrera confirmed that both stormwater and base-flow samples exceeded the WAC standards for temperature and dissolved oxygen. Storm-flow ammonia nitrogen concentrations in the downstream reaches were also 50 percent higher than the median level at the other King County streams. Concentrations of dissolved copper, total copper, and dissolved lead all often exceeded the WAC standards during both base flow and stormwater events. The fecal coliform bacteria concentrations were particularly high in Lower McSorley Creek.

Mill Creek

King County and Ecology conducted water quality monitoring on the creek during 1993 and 1994. Water temperatures exceeded the Washington State standards upper temperature limits several times. Fecal coliform bacteria similarly exceeded the Washington State standards upper limits numerous times.

Clean Water Act Section 303(d) Waters

According to Ecology's Section 303(d) list (1998), Des Moines Creek, Mill Creek, and some reaches of the Green River do not meet Washington State water quality standards for selected parameters.

Des Moines Creek is listed as a 303(d) water because of high fecal coliform bacteria concentrations. Temperature and dissolved oxygen in the creek were also measured above the standards during one monitoring event. Green River is listed as a 303(d) water because of exceedances for mercury, fecal coliforms, chromium, and temperature. Mill Creek is listed as a 303(d) water

because of exceedances for temperature, dissolved oxygen, and fecal coliforms.

3.5.3 Environmental Impacts

Alternative A (No Action)

Under the No Action Alternative, adverse effects on water quality from the proposed project would not occur. However, other roadway construction and developments are planned and anticipated to occur over the next few years in the project vicinity. These activities would add impervious surfaces to the basins in the project area that could adversely affect the water quality of streams and wetlands.

Under the No Action Alternative, WSDOT would not contribute funds to the Capital Improvement Projects (CIPs) in the Des Moines Creek Basin Plan, which would make financing of these projects more difficult and could result in delays to these projects.

Impacts Common to All Build Alternatives

Surface Water

Each of the build alternatives would result in vegetation removal, regrading of the existing ground surfaces, and creation of new impervious surfaces. Removing vegetation would decrease stormwater infiltration into the soil profile, expose mineral soils, and decrease evapotranspiration. Removing vegetation adjacent to streams could reduce shading and increase the temperature of water in the streams. Regrading the ground surface along the alternative alignments would disrupt upstream surface waters, including sheet flow and channelized flow. Sheet flow that currently flows across the project area from land upstream and adjacent to the roadway would be intercepted, conveyed, and discharged to a collection system.

Stormwater runoff from the highway, accidental spills, sanding and de-icing, and vegetation controls are operational activities that have the potential to affect surface water. The maintenance of road and drainage structures would potentially impact surface water. The operational impacts are described below.

Water Quantity

New impervious highway surfaces and reduced soil infiltration capacity resulting from grading and landscaping in the remaining portion of the right-of-way would increase surface water runoff rates and volumes. The increase in surface water flow rates and volumes could cause erosion and subsequent

sedimentation in receiving channels. Stormwater from the highway would be collected and conveyed to management facilities to attenuate peak flow rates.

If the proposed project is approved and funded, WSDOT would contribute to CIPs identified in the Des Moines Creek Basin Plan. The stormwater facility design for the SR 509 project within Des Moines Creek basin would assume the construction of three CIPs: the expansion of the Northwest Ponds as a regional detention facility; a high-flow bypass pipe; and replacement of a culvert under Marine View Drive with a bridge. These three projects would reduce peak flows in Des Moines Creek to approximately 1940 levels. In all affected basins, the proposed project would collect stormwater runoff for every storm less than the 6-month storm event.

With implementation of the three CIPs, the SR 509 project stormwater facilities would be designed to King County Level I flow criteria (*King County Surface Water Design Manual* 1998) using 1994 development levels for the existing runoff model. When this design criterion is applied along with the basin plan projects, peak flows in the basin for the 2-, 10-, 50-, and 100-year events would be reduced in comparison to existing conditions. Because stormwater releases to Des Moines Creek would be significantly reduced, no increase in erosion potential to the stream banks is anticipated as a result of the project.

Stormwater facilities in the Green River, Lower Puget Sound, Mill Creek. and Miller Creek Basins would meet King County Level II or III flow control criteria (King County 1998) as dictated by the local jurisdictions and based on assessments of a stream's or basin's susceptibility to high flows. King County Level II criteria would require the project to match the duration of flows between 50 percent of the 2- and 50-year storm events to the predeveloped condition and would also require reducing the duration of these flows to 50 percent of existing conditions. Level II would be applied to the Green River, Lower Puget Sound and Miller Creek Basins. In the more sensitive Lower Puget Sound Basin, flows would be released on the basis of the King County Level III criteria; this meets Level II standards and additionally requires matching peak flows for a 100-year storm event.

Nevertheless, total runoff volumes would most likely be higher compared with existing conditions, and the duration of flow for a given storm volume would be shorter.

Water Quality

Operation and maintenance of the build alternatives could degrade the quality of surface waters unless stormwater is effectively treated. Pollutants such as oil and grease, zinc, copper, wear from tires, vehicle particle flake, and sediments are commonly associated with highway stormwater runoff. The relative impact of a particular activity would depend to a large extent on its

proximity to the receiving water bodies and the susceptibility of the water to the delivered pollutant. Specifically, Alternatives B, C2, and C3 would affect Des Moines Creek at one crossing of the main stem of Des Moines Creek, and four crossings of the East Fork of Des Moines Creek. No streams would be crossed by the I-5 improvements.

Using the FHWA procedure (FHWA April 1990a, April 1990b), the probabilities of exceeding ambient background concentrations and Washington State Class A standards prior to any water quality treatment were estimated for each of the build alternatives. Stormwater pollutant concentrations for all pollutants would exceed the 0.35 percent threshold, below which no stormwater treatment is required. Statistically, there would be no difference among the build alternatives. The slight differences in concentrations would be due to different tributary watershed sizes and percentage of impervious surfaces on each watershed.

Water quality protection would be provided through water quality treatment facilities. Proposed treatment BMPs for the proposed project would include infiltration ponds, infiltration vaults, detention ponds, bioswales, filter strips, and constructed wetlands. Where subsurface conditions allow, stormwater would be treated, then infiltrated. Where infiltration would not be feasible, stormwater would be detained and would receive enhanced treatment for metals, such as filter strips and constructed wetlands.

Clean Water Act Section 303(d) Waters

The 303(d) listing cites Des Moines Creek for high fecal coliforms; the Green River for heavy metals and temperature; and Mill Creek for temperature, dissolved oxygen, and fecal coliforms. Water temperature is not expected to inadvertently increase because trees and shrubs would be planted around treatment facilities in the Des Moines Creek and Mill Creek Basins and along the banks of Des Moines Creek. Additional design features would be incorporated into stormwater facility outfalls to replenish oxygen levels. Fecal coliform bacteria are usually not generated by highway runoff and therefore would not contribute fecal coliforms to project area streams.

Heavy metals typically appear in the creeks during first fall flush storms. However, the enhanced treatment provided by the proposed stormwater treatment facilities would prevent most metals from entering the streams. Storms with a return period higher than 6 months could be released into the creeks and could bypass some facilities. However, during these infrequent storm events, pollutants of concern for 303(d) listing would be diluted in runoff from these storms and are not expected to present significant water quality issues.

Groundwater

Infiltrated stormwater pollutants from new impervious surfaces could cause potential adverse impacts on groundwater quality. Well 1, Well 2M, and Tyee well are the only municipal wells close to the future alignment of SR 509. Two private wells are located close to the alignment where it crosses Des Moines Memorial Drive. These two private wells are not used for drinking water. During construction of the SR 509 roadway, WSDOT would work with the Highline Water District to ensure no contamination of the existing water supply. WSDOT would likely decommission one or both of the private wells that are located in proposed new right-of-way. Construction BMPs and water quality monitoring and reporting of the stormwater runoff from the construction site would be implemented.

Groundwater recharge from the surface would be reduced in areas where fill would be placed and compacted. Recharge could be increased in areas where till would be removed to expose Esperance Sand.

Accidental Spills

The volume of hazardous materials (such as petroleum products) that would be transported through and delivered within the project area is determined predominantly by the local demand for such materials. Each of the build alternatives would provide a transportation corridor designed under current regulatory safety standards, which would result in a lower frequency of accidents compared with existing roads designed to earlier standards. Thus, the risk of accident-related spills would be expected to be lower under any of the build alternatives compared to the No Action Alternative because the new roadway would improve the overall safety of the road system.

The Tyee wetland/stormwater pond was designed to control stormwater flow and allow temporary shut down of flow to Des Moines Creek in the event of a pollutant spill further upstream. Where the pond could not be avoided, each of the build alternatives would span the pond with a bridge. Because no fill or bridge supports would be placed within the pond, there would be no reduction in pond storage volume, and, therefore, no effect on its stormwater control function.

Vegetation Management

Vegetation would be managed through implementation of Integrated Vegetation Management (IVM) within WSDOT's *Roadside Classification Plan* (RCP) (WSDOT 1996). The IVM promotes use of native vegetation, implementation of the visual quality policy, and reduced use of fertilizers, pesticides, and other chemical controls. The visual quality policy promotes environmentally beneficial landscaping, including use of water-efficient and runoff-reduction practices and construction with minimum impact on habitat. However, even with the most conservative use, some amounts of landscaping

chemicals or herbicides would be expected to enter the receiving surface water bodies during storm events.

Alternative B

Under Alternative B, the SR 509 freeway extension and South Access Road (Figure 3.5-2) would create 89.5 acres of new impervious surface in Des Moines Creek and Miller Creek Basins. Total new impervious surface area for Alternative B, including the I-5 improvements, would be 126.5 acres. The SR 509 alignment of Alternative B would necessitate one stream channel crossing over a Class 2 reach of Des Moines Creek near the intersection of South 208th Street and 18th Avenue South. The alignment of the South Access Road would cross the channelized and piped upper reaches of the East Fork tributary to Des Moines Creek at four locations, which are either Class 3 or unclassified.

SR 509 Freeway Extension/South Access Road

The SR 509 freeway extension/South Access Road portion of the project is located in the Des Moines Creek and Miller Creek basins. Using WSDOT BMP effectiveness rates (Table 3.5-1), final pollutant concentrations after treatment at various BMPs were estimated and are presented in Table 3.5-3. The thresholds recommended by the EPA, along with the Washington State Class A threshold for zinc, are also included for comparison. The estimated concentrations represent typical concentrations of pollutants after passing through the proposed water quality treatment facilities and before entering natural soil or being discharged to receiving waters. Where infiltrated, pollutant concentrations would be further reduced as they pass through the soil.

The average annual pollutant loadings from new roadway surfaces were computed for TSS, zinc, TKN, and TP using the FHWA procedure (FHWA 1996). For comparison purposes, the obtained annual loadings were then reduced assuming treatment efficiencies for biofiltration swales and wet ponds (Table 3.5-1) for each of the proposed alternatives. These estimated loadings, before and after treatment, are presented in Table 3.5-4.

Annual mass loading would be the highest of the build alternatives for each pollutant evaluated. Assuming biofiltration and wet pond stormwater treatment, annual TSS loading would range from nearly 4,300 kg (Des Moines Creek Basin) to 337 kg (Miller Creek Basin) (Table 3.5-4).

Proposed treatment BMPs for the SR 509 freeway extension and South Access Road would include infiltration ponds, infiltration vaults, detention ponds, bioswales, filter strips, and constructed wetlands (See Section 3.5.4, Mitigation Measures).

Table 3.5-3
Pollutant Removal Using Various BMPs for Selected Parameters

Basin/Parameter	Site Median Concentration (mg/L)[b]	Background Concentration (mg/L)[c]	EPA Acute Criteria (mg/L)[d]	WA State Standard (stormflow; baseflow) (mg/L)[e]	Concentration After BMP Treatment (mg/L)[a]				Biofiltration Swale and Wet Pond Train (mg/L)
					Wet Vault	Biofiltration Swale	Wet Pond	Vegetated Filter Strip	
Des Moines Creek Basin									
Total Suspended Solids	142.00	58.70			109.34	39.76	39.76	28.40	11.13
Zinc	0.33	0.02	0.18	0.064; 0.095	0.31	0.11	0.14	0.08	0.05
Total Phosphorus	0.40	0.15			0.38	0.29	0.19	0.19	0.14
Total Kjeldahl Nitrogen	1.83	---			1.74	1.37	1.17	1.21	0.88
Miller Creek Basin									
Total Suspended Solids	142.00	60.00			109.34	39.76	39.76	28.40	11.13
Zinc	0.33	0.02	0.18	0.064; 0.095	0.31	0.11	0.14	0.08	0.05
Total Phosphorus	0.40	0.15			0.38	0.29	0.19	0.19	0.14
Total Kjeldahl Nitrogen	1.83	---			1.74	1.37	1.17	1.21	0.88
Lower Green River Basin									
Total Suspended Solids	142.00	7.9			109.34	39.76	39.76	28.40	11.13
Zinc	0.33	0.023	0.18	0.064; 0.095	0.31	0.11	0.14	0.08	0.05
Total Phosphorus	0.40	0.031			0.38	0.29	0.19	0.19	0.14
Total Kjeldahl Nitrogen	1.83	---			1.74	1.37	1.17	1.21	0.88
Lower Puget Sound Basin									
Total Suspended Solids	142.00	12.0			109.34	39.76	39.76	28.40	11.13
Zinc	0.33	0.023	0.18	0.064; 0.095	0.31	0.11	0.14	0.08	0.05
Total Phosphorus	0.40	0.141			0.38	0.29	0.19	0.19	0.14
Total Kjeldahl Nitrogen	1.83	---			1.74	1.37	1.17	1.21	0.88
Mill Creek Basin									
Total Suspended Solids	142.00	12.0			109.34	39.76	39.76	28.40	11.13
Zinc	0.33	0.023	0.18	0.064; 0.095	0.31	0.11	0.14	0.08	0.05
Total Phosphorus	0.40	0.141			0.38	0.29	0.19	0.19	0.14
Total Kjeldahl Nitrogen	1.83	---			1.74	1.37	1.17	1.21	0.88

[a] See Table 3.5-1 for BMP treatment efficiencies.
[b] FHWA (1996). Site median concentration values are the median site values from the FHWA database (993 runoff events) for urban highways with average annual daily traffic >30,000 vehicles/day.
[c] Stream background concentrations for the Miller Creek and Green River Basins (for all pollutants except zinc and copper) were estimated as arithmetic averages from samples in the Des Moines Creek and Massey Creek Basins. Stream concentrations for the Lower Puget Sound and Mill Creek Basins were estimated as arithmetic averages form samples in the Mill Creek Basin. Stream concentrations for the Lower Green River Basin were estimated from the water quality samples from the Green River in Kent at 212th Street.
[d] National Urban Runoff Program (NURP) conducted by EPA.
[e] Source: WAC Chapter 173-201A (storm flow hardness = 50 ppm, base flow hardness = 80 ppm).

Table 3.5-4
Total Pollutant Loading From New Roadway Surfaces from SR 509/South Access Road Alternatives (kg/year)

Pollutant	Alternative	Annual Mass Loading Before Treatment		Annual Mass Loading After Treatment at Bioswale and Wet Pond	
		Des Moines Creek	Miller Creek	Des Moines Creek	Miller Creek
Total Suspended Solids	Alternative B	55,937	4,295	4,385	337
	Alternative C2	41,518	1,267	3,255	99
	Alternative C3	43,808	1,297	3,435	102
Zinc	Alternative B	130	9.5	19	1.4
	Alternative C2	96	2.8	14	0.4
	Alternative C3	101	2.9	15	0.4
Total Kjeldahl Nitrogen	Alternative B	721	52.6	346	25.2
	Alternative C2	535	15.5	257	7.4
	Alternative C3	565	16.9	271	8.1
Total Phosphorus	Alternative B	130	9.5	44	3.2
	Alternative C2	96	2.8	32	0.9
	Alternative C3	101	2.9	34	1.0

Note: Annual mass loadings for each alternative were computed using the FHWA procedure (FHWA, 1996). Pollutant loadings were then reduced assuming treatment efficiencies from Table 3.5-1.

I-5 Improvements

The proposed I-5 improvements would create approximately 37 acres of new impervious surface. Approximately 1.3 acres would be located in the Mill Creek Basin, 10.3 acres in the McSorley Creek Subbasin of the Lower Puget Sound Basin, 23.3 acres in the Lower Green River Basin, and 2.1 acres in the Des Moines Creek Basin. Runoff from the new impervious surfaces has the potential to adversely affect water quality; however, no streams would be crossed by the proposed I-5 improvements.

Using WSDOT BMP effectiveness rates (Table 3.5-1), final pollutant concentrations after treatment at various BMPs were estimated for each of the affected basins and are presented in Table 3.5-3. The thresholds recommended by the EPA, along with the Washington State Class A threshold for zinc, are also included for comparison.

The average annual pollutant loadings from new roadway surfaces were computed for TSS, zinc, TKN, and TP using the FHWA procedure (FHWA 1996). The obtained annual loadings were then reduced assuming treatment efficiencies for biofiltration swales and wet ponds (Table 3.5-1). These estimated loadings, before and after treatment, are presented in Table 3.5-5. The highest removal efficiency would be achieved in the Des Moines Creek and Mill Creek basins for all pollutants. The removal of TSS pollutants would be the most efficient (56 to 72 percent). The removal of TKN pollutants would be the least efficient (24 to 36 percent), especially in the Lower Green River Basin (24 percent).

Proposed stormwater treatment for the I-5 improvements would primarily be detention and treatment by stormwater treatment wetlands (See Section 3.5.4, Mitigation Measures).

South Airport Link

This 1,000-foot segment of the proposed South Access Road would impact only the East Fork of Des Moines Creek. For design options H0, H2-A, and H2-B (the preferred option), bioswales in combination with wet vaults are proposed for stormwater treatment.

Pollutant concentrations after treatment at several BMPs, including biofiltration swales and wet vaults as shown in the preliminary stormwater treatment for the South Airport Link, were included for comparison (Table 3.5-6). The results show that use of vegetated filter strips could improve treatment efficiencies. The results for annual pollutant loading for the three South Airport Link design options, after treatment at bioswales followed by wet vaults, are presented in Table 3.5-7. TSS and zinc loading would be reduced 3 to 4 times after treatment, while TP and TKN would be reduced only 1 to 2 times.

Table 3.5-5
Total Pollutant Loading from New Roadway Surfaces for I-5 improvements

Pollutant	Basin Impacted by I-5	Annual Mass Loading Before Treatment (kg/year)	Annual Mass Loading After Treatment (kg/year)	Overall Efficiency (%)
TSS	Des Moines	4,342	1,216	72
	Lower Green River	54,632	24,010	56
	Lower Puget Sound	25,585	9,320	64
	Mill Creek	4,284	1,199	72
Zinc	Des Moines	10	4	56
	Lower Green River	127	74	42
	Lower Puget Sound	59	30	50
	Mill Creek	10	4	59
TKN	Des Moines	56	36	36
	Lower Green River	704	538	24
	Lower Puget Sound	330	237	28
	Mill Creek	55	37	33
TP	Des Moines	12	6	53
	Lower Green River	154	105	32
	Lower Puget Sound	72	44	39
	Mill Creek	12	7	46

Note: Annual mass loadings for each alternative were computed using the FHWA procedure (FHWA, 1996). Pollutant loadings were then reduced assuming efficiency of treatment facilities from Table 3.5-1. No treatment was applied for the pollutant loading for the existing conditions.

Table 3.5-6
Pollutant Removal Using Various BMPs for Selected Parameters for South Airport Link Design Options

Option/Parameter	Site Median Concentration (mg/L)[b]	Background Concentration (mg/L)[c]	EPA Acute Criteria (mg/L)[d]	WA State Standard (stormflow; baseflow) (mg/L)[e]	Concentration After BMP Treatment (mg/L)[a]			
					Biofiltration Swale	Biofiltration Swale and Wet Vault	Wet Pond	Vegetated Filter Strip
Option H0, H2A, H2B								
Total Suspended Solids	142.000	58.700	--	--	39.76	30.62	39.76	28.40
Zinc	0.329	0.023	0.18	0.064; 0.095	0.11	0.10	0.14	0.08
Total Phosphorus	0.400	0.151	--	--	0.29	0.27	0.19	0.19
Total Kjeldahl Nitrogen	1.830	--	--	--	1.37	1.30	1.17	1.21

[a] *See Table 3.5-1 for BMP treatment efficiencies. The analysis is limited only to the parameters defined in Table 3.5-1.*
[b] *FHWA (1996). Site median concentration values are the median site values from the FHWA database (993 runoff events) for urban highways with average annual daily traffic >30,000 vehicles/day.*
[c] *Background concentrations are based on the average of 15 stormwater samples collected from 2 locations in Des Moines Creek. (Herrera & Hall 1997).*
[d] *FHWA (April 1990a).*
[e] *WAC 173-201A (stormflow hardness = 50 ppm, baseflow hardness = 80 ppm).*
-- = No criteria/rules available.

Table 3.5-7
Total Pollutant Loading From New Roadway Surfaces for South Airport Link Design Options

Pollutant	Option	Annual Mass Loading Under Existing Conditions (kg/year)	Annual Mass Loading After Wet Vault and Bioswale (kg/year)
Total Suspended Solids	Option H0	3,626	778
	Option H2-A	4,599	1,007
	Option H2-B	5,002	1,135
Zinc	Option H0	8	3
	Option H2-A	11	3
	Option H2-B	12	4
Total Kjeldahl Nitrogen	Option H0	47	33
	Option H2-A	59	43
	Option H2-B	64	48
Total Phosphorus	Option H0	8	6
	Option H2-A	11	7
	Option H2-B	12	8

Note: Annual mass loadings were computed using the FHWA procedure (FHWA 1996). Pollutant loadings were then reduced assuming treatment efficiency from Table 3.5-1. No treatment was applied for pollutant loading for existing conditions.

Alternative C2 (Preferred)

Under Alternative C2 (Figure 3.5-3), the proposed SR 509 freeway extension and South Access Road would create 76 acres of new impervious surface in Des Moines Creek and Miller Creek Basins. Total new impervious surface area for Alternative C2, including the I-5 improvements, would be 113 acres. Water quality impacts from construction and operation would be the highest in areas where the roadway alignment would cross Des Moines Creek and at three crossings of the East Fork of Des Moines Creek.

SR 509 Freeway Extension/South Access Road

As was done for Alternative B, pollutant concentrations after treatment at various BMPs were estimated and are presented in Table 3.5-3. Average annual pollutant loadings from new roadway surfaces were computed for TSS, zinc, TKN, and TP using the FHWA procedure (FHWA 1996). For comparison purposes, the obtained annual loadings were then reduced assuming treatment efficiencies for biofiltration swales and wet ponds. These estimated loadings, before and after treatment, are presented in Table 3.5-4.

Pollutant loadings in both the Des Moines Creek and Miller Creek Basins would be lowest of the build alternatives for each pollutant evaluated. Assuming biofiltration and wet pond stormwater treatment, annual TSS loading would range from 3,255 kg (Des Moines Creek Basin) to 99 kg (Miller Creek Basin), which would be 36 percent lower than in Alternative B and 6 percent lower than in Alternative C3 (Table 3.5-4).

Proposed treatment BMPs for the SR 509 freeway extension and South Access Road would include infiltration ponds, infiltration vaults, detention ponds, bioswales, filter strips, and constructed wetlands (See Section 3.5.4, Mitigation Measures).

I-5 Improvements and South Airport Link

Potential impacts associated with the proposed South Airport Link design options and I-5 improvements would be the same as described for Alternative B.

Alternative C3

Under Alternative C3 (Figure 3.5-4), the proposed SR 509 freeway extension and South Access Road would create 76.5 acres of new impervious surface in Des Moines Creek and Miller Creek Basins. Total new impervious surface area for Alternative C3, including the I-5 improvements, would be 113.5 acres. Potential water quality impacts from construction and operation would be the highest in areas where the roadway alignment would cross Des Moines Creek and the East Fork of Des Moines Creek. The number and locations of stream crossings would be the same as Alternative C2.

SR 509 Freeway Extension/South Access Road

As was done for Alternatives B and C2, pollutant concentrations after treatment at various BMPs were estimated and are presented in Table 3.5-3. Average annual pollutant loadings from new roadway surfaces were computed for TSS, zinc, TKN, and TP using the FHWA procedure (FHWA 1996). For comparison purposes, the obtained annual loadings were then reduced assuming treatment efficiencies for biofiltration swales and wet ponds. These estimated loadings, before and after treatment, are presented in Table 3.5-4.

Pollutant loadings in both Des Moines Creek and Miller Creek Basins would be higher than in Alternative C2, but lower than in Alternative B, for each pollutant evaluated. Assuming biofiltration and wet pond stormwater treatment, annual TSS loadings would range from 3,435 kg (Des Moines Creek Basin) to 102 kg (Miller Creek Basin) (Table 3.5-9), which would be 24 percent lower than in Alternative B.

Proposed treatment BMPs for the SR 509 freeway extension and South Access Road would include infiltration ponds, infiltration vaults, detention ponds, bioswales, filter strips, and constructed wetlands (See Section 3.5.4, Mitigation Measures).

I-5 Improvements and South Airport Link

Potential impacts associated with the proposed South Airport Link design options and I-5 improvements would be the same as described for Alternative B.

3.5.4 Mitigation Measures

Project Design Mitigation Measures

Mitigation has been incorporated into the design of the build alternatives to reduce potential water quality impacts. The project stormwater treatment would be designed in accordance with King County's detention and water quality treatment criteria according to the basic water quality menu in the *Surface Water Design Manual* (King County 1998), the WSDOT 1995 *Highway Runoff Manual* (WSDOT 1995), and additional WSDOT guidance. In addition, to increase the effectiveness of onsite surface water management, stormwater from the roadways would be managed separately from upstream surface water intercepted by the highway in most cases. Whenever possible, the build alternative alignments have been selected to avoid or reduce impacts on sensitive resource areas.

WSDOT would maintain stormwater management facilities for the proposed project, except for facilities at the South Access Road, which would be maintained by the Port of Seattle. WSDOT's maintenance measures would

follow RCP (WSDOT 1996) and the *Regional Road Maintenance Endangered Species Act Program Guidelines* (NMFS 2001). The IVM would promote use of native vegetation and reduced use of fertilizers, pesticides, and other controls. The visual quality policy would assume environmentally beneficial landscaping, use of water-efficient and runoff-reduction practices, and construction with minimal impact on habitat. Regional facilities constructed as part of the Des Moines Creek Basin Plan would not be maintained by WSDOT.

In May 2002, WSDOT conducted a stormwater VE study for the proposed project. The focus of the study was to develop a more detailed and comprehensive stormwater treatment strategy for the project. Although the study was based on the design for Alternative C2, the preferred alternative, the resultant stormwater strategy is applicable to each of the build alternatives.

Opportunities to address stormwater issues using a watershed approach have been incorporated in the stormwater treatment strategy for the project. This approach focuses on treating stormwater at the subwatershed level, emphasizing infiltration techniques, and restoration of natural hydrological functions where practicable. A subwatershed scale analysis of existing soil types, geology, and land use cover, interfaced with the existing Des Moines Creek Basin Plan, has been used to identify such opportunities (Olympic Associates Company 2002).

For the SR 509 freeway extension and South Access Road, stormwater runoff would be infiltrated where subsoil and groundwater conditions allow. In the I-5 corridor, stormwater runoff would be detained then released into stormwater treatment wetlands, where it would be infiltrated into the soil and cleansed by wetland plants. The infiltration facilities would be constructed only at the locations where groundwater is not near the surface, so infiltration from the bottom of the infiltration facilities would not be impeded by high groundwater. Infiltration facilities would not be located in the vicinity of public wells. Where infiltration is not feasible, stormwater runoff would be detained and receive enhanced treatment in most areas.

As a member of the Des Moines Creek Basin Planning Committee, WSDOT would help finance the CIPs included in the Plan if the project EIS is approved and project construction is funded. The primary goals of the Plan are to address water quality and quantity issues, to develop prioritized list of CIPs, and to improve the quality of human interactions with the creek. The implementation of this plan would reduce high flows and stream bank erosion, and slow degradation of wetlands, and fish and wildlife habitat in the basin. As a part of this plan, all WSDOT activities within Des Moines Creek Basin would comply with the basin plan.

One of the goals of the Des Moines Creek Basin Plan is to address elevated temperatures in Des Moines Creek. As part of the proposed project, trees and

shrubs would be planted around detention ponds and along stream banks adjacent to the proposed alignment to provide shade and help lower stream temperatures.

Operation Mitigation Measures

Operation mitigation measures would include operation and maintenance of stormwater management systems, implementation of an accidental spill response plan, and discriminate use of de-icing materials and herbicides for vegetation management within the highway right-of-way.

Stormwater Treatment Outfalls

Outfalls from proposed stormwater treatment facilities would be designed to dissipate the energy of the discharged water to prevent streambed scouring. Where practical, outfalls would be designed to improve fish habitat in the stream by including an alcove of low-velocity water. Such an alcove would provide refuge during high flows to overwintering juvenile and migrating adult salmonids (King County 1998).

Stormwater Management

Potential measures to mitigate operational impacts on water resources would include implementing design specifications from a number of existing plans and regulations, including WSDOT's NPDES permit for stormwater runoff. WSDOT has a Municipal NPDES permit that regulates and defines methods to manage, control, and treat runoff from highways and associated shoulders within the project area. Through the NPDES permit process, WSDOT is required to provide water quantity control and water quality treatment for all new and reconstructed impervious surfaces to avoid or effectively mitigate impacts on water resources (WSDOT 1997). FAA design standards for airports place restrictions on the use of open water impoundments such as wet ponds and biofiltration swales because of their potential for attracting wildlife that could interfere with airport operations (FAA 1997). Permanent open water impoundments must be designed in such a manner that the open water is not visible to wildlife. Project elements constructed by the Port on its property (e.g., South Airport Link) would be included under the airport's NPDES permit and appropriate controls and conditions for those facilities would be developed in conjunction with that permit.

Vehicle access to stormwater and water quality treatment structures would be provided to allow operation and maintenance. The maintenance of all structures would be conducted according to the Stormwater Site Plan (SSP) prepared per WSDOT's *Highway Runoff Manual* (WSDOT 1995), WSDOT's RCP (WSDOT 1996), and King County's *Surface Water Design Manual* (King County 1998).

The outlets of facilities and interceptor swales would be designed to adequately dissipate the energy of discharged water before it reaches the receiving stream. Depending on the flow rates from the facility and the configuration of the system, this could be accomplished with a variety of structures, including rock pads, gabion outfalls, dispersion trenches, or level spreaders (King County 1998).

Accidental Spills Mitigation

To help control the spread of accidental spills during highway operation, the flow-control structures at stormwater detention facility outlets would be equipped with baffles and a spill-control separator to retain buoyant materials (lighter than water) such as petroleum products. Spilled liquids collected by the drainage system would thereby be detained in the stormwater detention facility until cleanup is complete.

Vegetation-Control Mitigation

Herbicide sprays to control vegetation would be applied only in dry weather under zero or mild wind conditions. In addition, spraying would be done only by a licensed sprayer. Precautions would be taken when spraying near sensitive water resources. Records would be maintained to keep track of the date, location, type, and amount of herbicides applied. Additional applicable guidelines for vegetation management, as outlined in WSDOT's RCP (WSDOT 1996), would be followed.

Bare or thinly vegetated ground surface areas within the right-of-way would be minimized, particularly on slopes. Where possible, grass vegetation could be used between the edge of pavement and roadside ditches and in earth-lined ditches to reduce erosion and encourage biofiltration of stormwater.

3.5.5 Construction Activity Impacts and Mitigation

Construction Impacts

Construction activities could introduce a variety of pollutants into surface waters, including sediment, fuel and lubricants, paving oils, chemicals, construction debris, and uncured concrete. Nutrients from seed mixtures applied for stabilizing soils and creating final landscaping have the potential to reach adjacent water resources.

Potential construction impacts on groundwater quality would include a range of pollutants used or generated during construction, such as petroleum products and construction waste. Pollution could result from accidental release of these substances, leaking storage containers, or construction equipment maintenance. The potential for construction impacts would be low because of the short period of construction and implementation of BMPs.

Well 1, Well 2, Well 2M, Tyee well, and two private wells are close to the proposed alignment of SR 509. During construction of the SR 509 roadway, WSDOT will work with the Highline Water District to ensure no contamination of the existing water supply. WSDOT would also coordinate with the private well owners. The construction BMPs and water quality monitoring and reporting of the stormwater runoff from the construction site will be implemented.

Mitigation Measures

Local, state, and federal government permit requirements would be implemented to mitigate potential construction impacts on surface and groundwater resources for all build alternatives. Stormwater, grading, and water quality-related permits required for the proposed project could include Hydraulic Project Approval (HPA), NPDES Permits for Construction and Operation of Sites Disturbing More Than 5 Acres, NPDES Permits For Construction Activity for Sites Greater than 1 Acre (Phase II of the NPDES Stormwater Program [U.S. EPA December 1999]), and local clearing, grading, and other permits.

To fulfill requirements of the construction NPDES permit, an SSP would need to be developed. The SSP would include measures for controlling erosion and sedimentation and preventing discharge of pollutants contained in stormwater to water bodies during construction and operation. The SSP would also include provisions for implementation of BMPs to protect groundwater and public drinking water supply, and measures to protect water and sewer lines, and construction monitoring. In developing the SSP, detailed data collection and analysis of local site conditions would be conducted. This would incorporate a thorough soils assessment, including jar tests, to determine potential for erosion and persistent water turbidity. Other site specific information on drainage, topography, ground cover, rainfall records, existing encumbrances, and water table elevation would be used in developing a Temporary Erosion and Sediment Control (TESC) plan.

The TESC plan is a required component of the SSP. In developing the TESC plan, appropriate construction BMPs would be selected for each of the particular types of anticipated construction activities. Implementing effective BMPs at construction sites, such as minimizing exposed soil surfaces and controlling erosion and sedimentation, would prevent or reduce potential impacts on surface water and groundwater quality. The King County *Surface Water Design Manual* (King County 1998) and WSDOT's *Highway Runoff Manual* (WSDOT 1995) would be used for BMP selection and design criteria. BMPs for the types of construction activities anticipated typically include the following:

- Phasing construction to minimize the amount of earth exposed at any one time to erosive forces

- Designing construction entrances, exits, and parking areas to reduce tracking of sediment onto public roads

- Using vegetative erosion-control practices (seeding, mulching, soil conditioning with polymers, flocculants, sod stabilization, vegetative buffer strips, and protection of trees with construction fences)

- Implementing erosion-control practices (mulching, erosion-control blankets, and application of soil tackifiers)

- Implementing sediment-control practices (straw bales, silt fences, check dams, sediment traps, sedimentation basins, and flocculation methods)

- Controlling erosion of stockpiled materials (e.g., diverting upslope water around stockpiles, covering stockpiles, and placing silt fences around stockpiles)

- Preserving the permeability of pervious areas within the project construction site to the greatest extent practical

- Performing routine operation and maintenance of erosion and sediment control BMPs.

If construction takes place during the wet season (October 1 through April 30), exposed soils would be subjected to additional controls specified in King County's erosion and sedimentation control standards (King County 1998).

A Spill Prevention Control and Countermeasures (SPCC) plan would be adopted as a construction planning element of the proposed project to reduce accident-related water quality impacts (Wilson pers. comm. 1999). The plan would specify the responsibilities of those involved during accidental spills.

SEA/3-05 water qual.doc/020220066

3.6 Wetlands

3.6 Wetlands

3.6.1 Studies and Coordination

This section is based on the finding of the *SR 509/South Access Road EIS Discipline Report: Wetlands* (Wetland Discipline Report) (CH2M HILL August 2000b), *SR 509/South Access Road EIS: South Airport Link* (August 2001), and *SR 509/South Access Road EIS: I-5 Improvements Report* (CH2M HILL October 2001). These discipline reports, which are incorporated into this FEIS by reference, contain detailed descriptions of methods, results of the field investigation, and an evaluation of the characteristics and functions of wetlands identified in the project area.

The identification of wetlands along the SR509: Corridor Completion/ I-5/South Access Road Project is based on methods presented in the 1987 USACOE *Wetland Delineation Manual* (Manual) (USACOE 1987), and the 1997 *Washington State Wetland Identification and Delineation Manual* (WIDM) (Ecology 1997). Two levels of investigation were conducted for the evaluation of the wetlands within the project area: (1) a review and analysis of site-specific literature and data, and (2) site-specific field investigations to determine the presence and extent of wetlands. For this investigation, the wetlands within 100 feet of the proposed project alignments were identified. The methods used in the field investigation are described in the *SR 509/South Access Road EIS Discipline Report: Wetlands* (Wetland Discipline Report) (CH2M HILL August 2000b).

Existing information was reviewed to identify documented wetlands or site characteristics that would indicate wetlands within the project area. The following documents were reviewed to gather preliminary information about the vegetation, soils, and hydrology of the area:

- *National Wetland Inventory*, *Des Moines and Poverty Bay*, *Washington Quadrangles* (U.S. Fish and Wildlife Service [USFWS] 1987)
- *King County Sensitive Areas Map Folio* (King County 1990a)
- *King County Wetland Inventory* (King County 1990b)
- *Soil Survey of King County Area*, *Washington* (SCS 1973)
- Color aerial photographs, 1994 and 1997 (scale 1:24,000)
- *Wetland Delineation Report, Master Plan Update Improvements Seattle-Tacoma International Airport* (Parametrix 1999a)

- *Wetland Functional Assessment and Impact Analysis, Master Plan Update Improvements Seattle-Tacoma International Airport* (Parametrix 1999b)

Following the field investigations, these documents were reviewed again to determine the connection between wetlands and surface water features outside the project area.

Coordination was initiated with the following local agencies and groups of the NEPA/SEPA/Section 404 Merger SAC:

- Port of Seattle, Sea-Tac Airport
- King County, Department of Natural Resources
- City of Des Moines, Department of Community Development
- City of SeaTac, Department of Planning and Community Development

3.6.2 Affected Environment

The proposed project would extend south of Sea-Tac Airport from 12th Place South/South 188th Street and the airport south terminal drives in the City of SeaTac to as far south as South 310th Street in the City of Federal Way. Segments of the build alternatives would extend through the Des Moines Creek, Miller Creek, Lower Puget Sound, Lower Green River, and Mill Creek watersheds. The project area is characterized as urbanlands, residential, and open green space.

The project area is located on glacial highlands that drain to the Green River Valley and Puget Sound. Topography is gently undulating to hilly, with ravines along riparian corridors. Soils within a large portion of the project area consist of excessively drained to moderately well-drained soils that have developed in glacial outwash and till. In many areas, dense slightly permeable glacial till occurs at a depth of 20 to 40 inches. Soil map units in the project area are described in Section 3.4, *Geology and Soils.*

The build alternatives would cross Des Moines Creek. Des Moines Creek has been classified by King County as a Class 2 stream with salmonids up to river mile 1.0 (King County 1990a).

The build alternatives, including the I-5 improvements, directly affect 32 wetlands or wetland buffers (Table 3.6-1, Figures 3.6-1 through 3.6-4). Two wetlands (Wetlands A and 9) occur along the mainstem of Des Moines Creek. Three wetlands (Wetlands D, F, and G) have surface water connections to drainages that flow into Des Moines Creek. Twenty-one wetlands (Wetlands B, H, K, M, N, S, 1, 2, 5, 6, 7, 8, 15, 16, 17, 18, 19, 20, 21, 22, and 23) are isolated slope or depression systems. Two wetlands (Wetlands I-13 and I-19) are associated with McSorley Creek. One wetland (I-7) consists of cut-slope seeps within the Mill Creek watershed. Three

Table 3.6-1
Summary of Wetland Characteristics

Wetland and Basin	Size (acres)	USFWS Classification	Hydrologic Connection	Ecology Rating	Local Rating	Ecology Buffer Size (feet)*
Des Moines Creek Basin						
A	16.0	PFO/PSS	Riparian along Des Moines Creek	2	1[a]	100
B	6.6	PFO/PSS/PEM	Depressional	2	1[a]	100
D	4.9	PFO/PSS/PEM	Riparian, East Fork of Des Moines Creek	2	2[a]	100
F	28.8	PFO/PSS/PEM/ POW	Headwater of East Fork of Des Moines Creek	2	1[a]	100
G	7.9	PSS/PEM	Riparian along Des Moines Creek	2	2[a]	100
H	0.09	POW/PEM	Isolated Depression	4	3[a]	25
K	0.09	PEM	Isolated Depression	3	3[a]	50
M	0.1	PSS	Isolated Depression	3	3[a]	50
N	0.1	PSS	Isolated Depression	3	3[a]	50
S	0.5	PEM	Isolated Slope	4	3[a]	25
1	0.02	PFO	Isolated Slope	3	3[a]	50
2	0.7	PFO	Isolated Depression	3	3[a]	50
5	0.9	PFO/PSS	Isolated Depression	3	3[a]	50
6	0.03	PFO/PSS	Isolated Depression	3	3[a]	50
7	0.6	PFO/PSS	Isolated Depression	3	3[a]	50
8	0.08	PFO/PSS	Isolated Depression	3	3[a]	50
9	0.07	PSS/Stream	Riparian along Des Moines Creek	2	SW[b]	100
15	0.2	PFO	Isolated Depression	3	3[a]	50
16	0.04	PFO	Isolated Depression	3	3[a]	50
17	0.06	PFO	Isolated Depression	3	3[a]	50
18	0.9	PEM	Isolated Slope	4	3[a]	25
19	0.5	PFO/PSS	Isolated Slope	3	3[a]	50
20	0.3	PFO/PSS	Isolated Depression	4	3[a]	25
21	0.2	PEM	Isolated Depression	3	IW[b]	50
22	0.01	Ditch	Isolated Depression	4	IW[b]	25
23	0.01	PEM	Isolated Slope	4	3[a]	25
Mill Creek Watershed						
I-7	0.06	PEM	Cut slope discharge to I-5 drainage system	3	3[c]	50
Lower Green River Watershed						
I-10	0.05	PEM/PSS	Isolated culvert connection with I-5 drainage system	3	3[c]	50
I-11	0.2	PFO/PSS	Isolated culvert connection with I-5 drainage system	3	3[c]	50
I-12	0.3	PEM/PSS	Isolated depression	3	3[c]	50
Lower Puget Sound Watershed						
I-13	0.2	PFO	Riparian system along McSorley Creek or tributary	3	3[c]	50
I-19	78.5	PFO	Riparian system along McSorley Creek or tributary	1	1[d]	200

** Lower range of Washington Department of Ecology (1998) recommended buffer width*

SW = significant wetland

IW = important wetland

PFO = palustrine forested

PSS = palustrine scrub-shrub

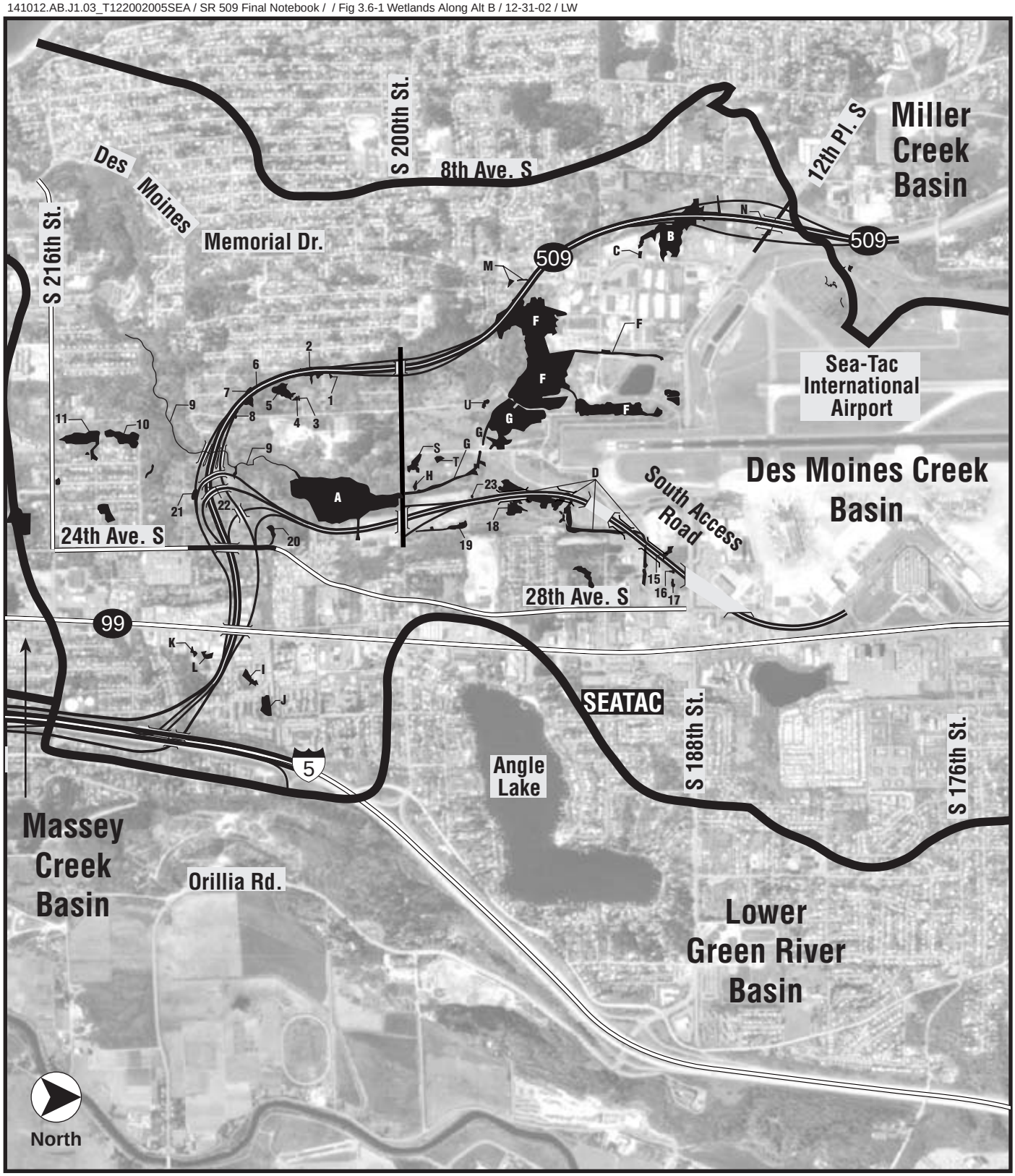
PEM = palustrine emergent

[a] *Using City of SeaTac Environmentally Sensitive Areas Ordinance (1994)*

[b] *Using City of Des Moines Environmentally Sensitive Areas Ordinance (1997)*

[c] *Using City of Federal Way Environmentally Sensitive Areas Ordinance Chapter 22.12 (2001)*

[d] *Using City of Kent Wetlands Management Ordinance Chapter 11.04 (2000)*



Legend

- SR 509/South Access Road Improvements
- Bridge
- Baseline Projects by Others
- Wetlands
- Basin Boundary

FIGURE 3.6-1

Wetlands Along Alternative B Alignment

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement

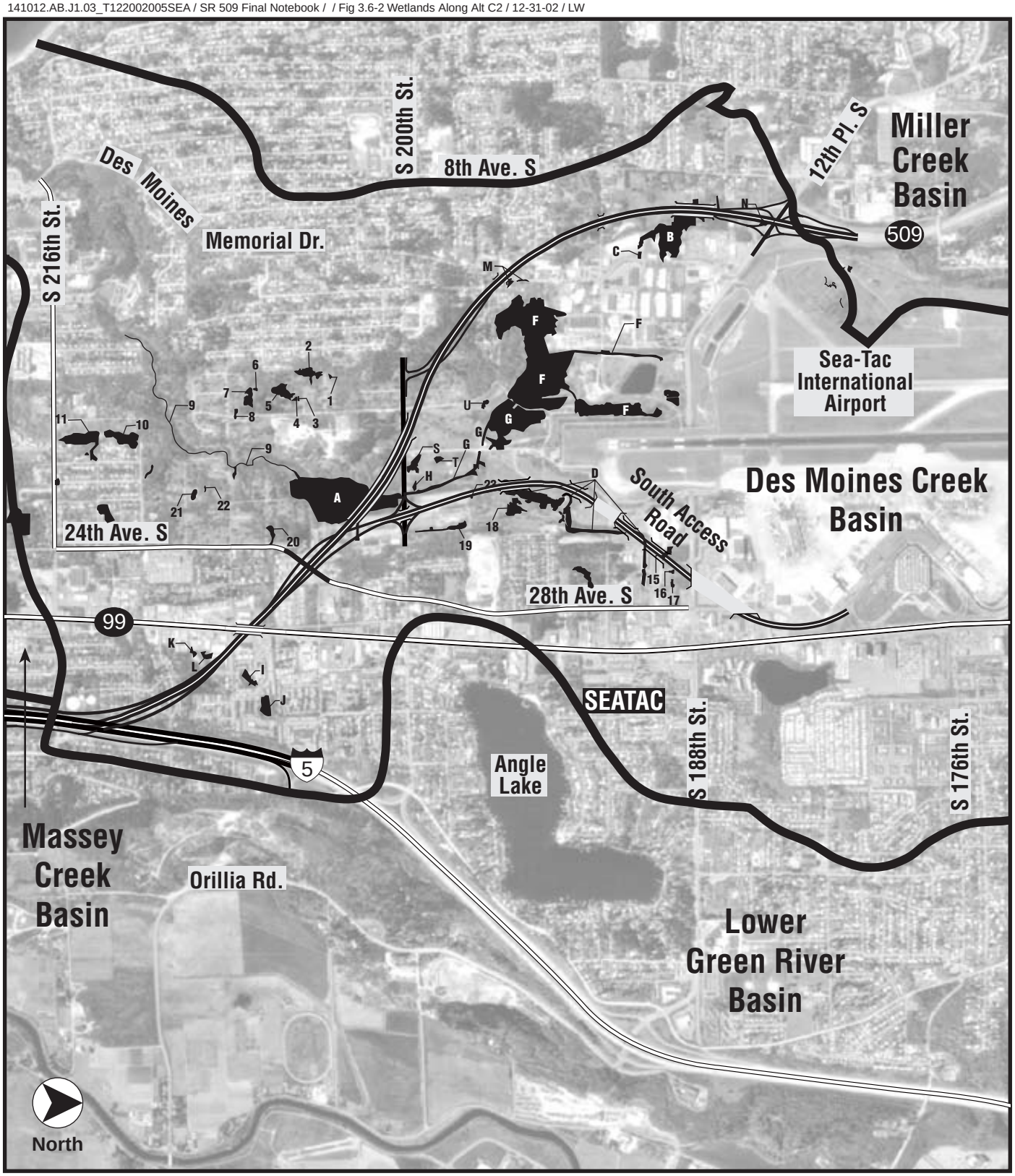


FIGURE 3.6-2

Wetlands Along Alternative C2 Alignment (Preferred)

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement

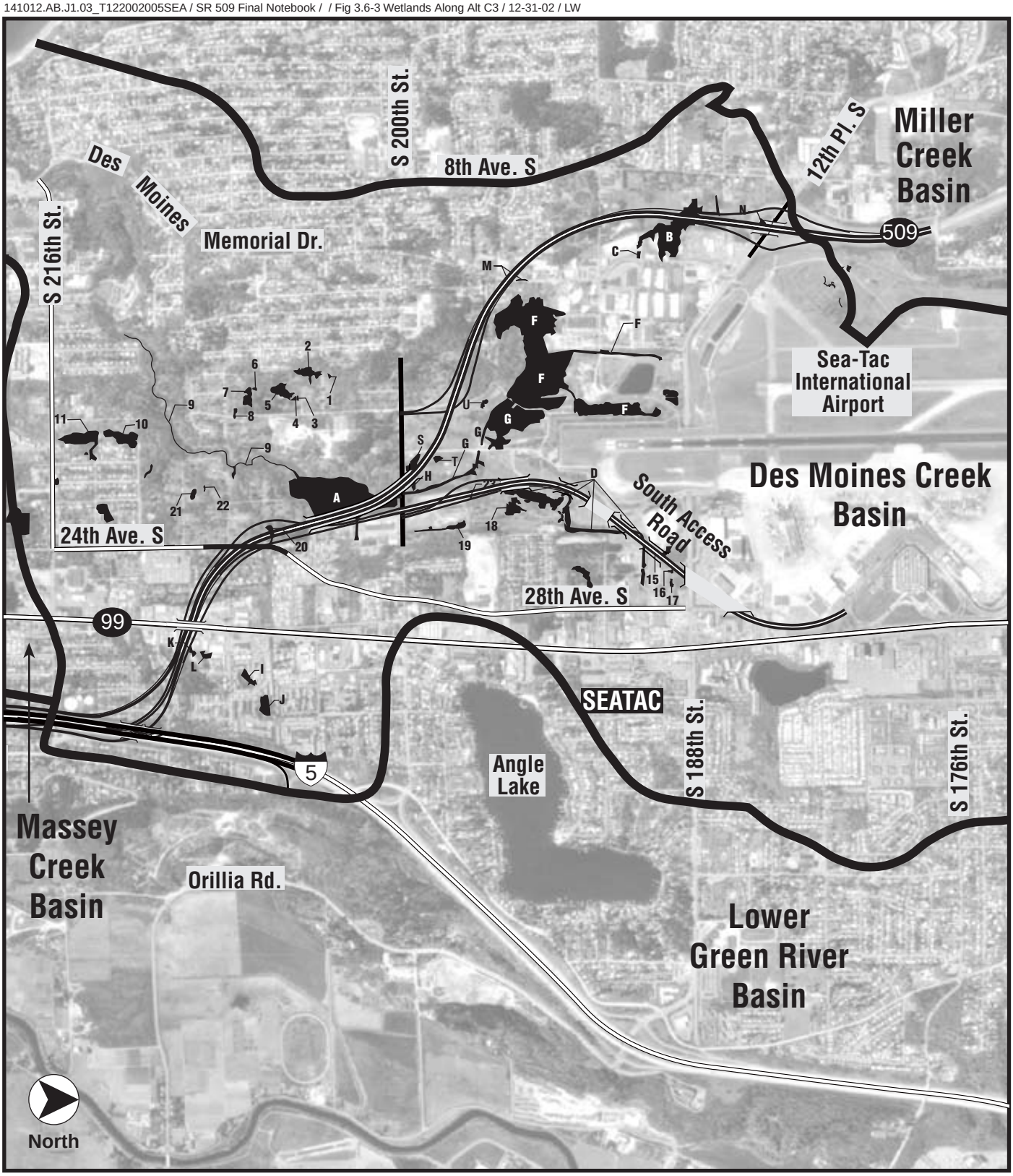
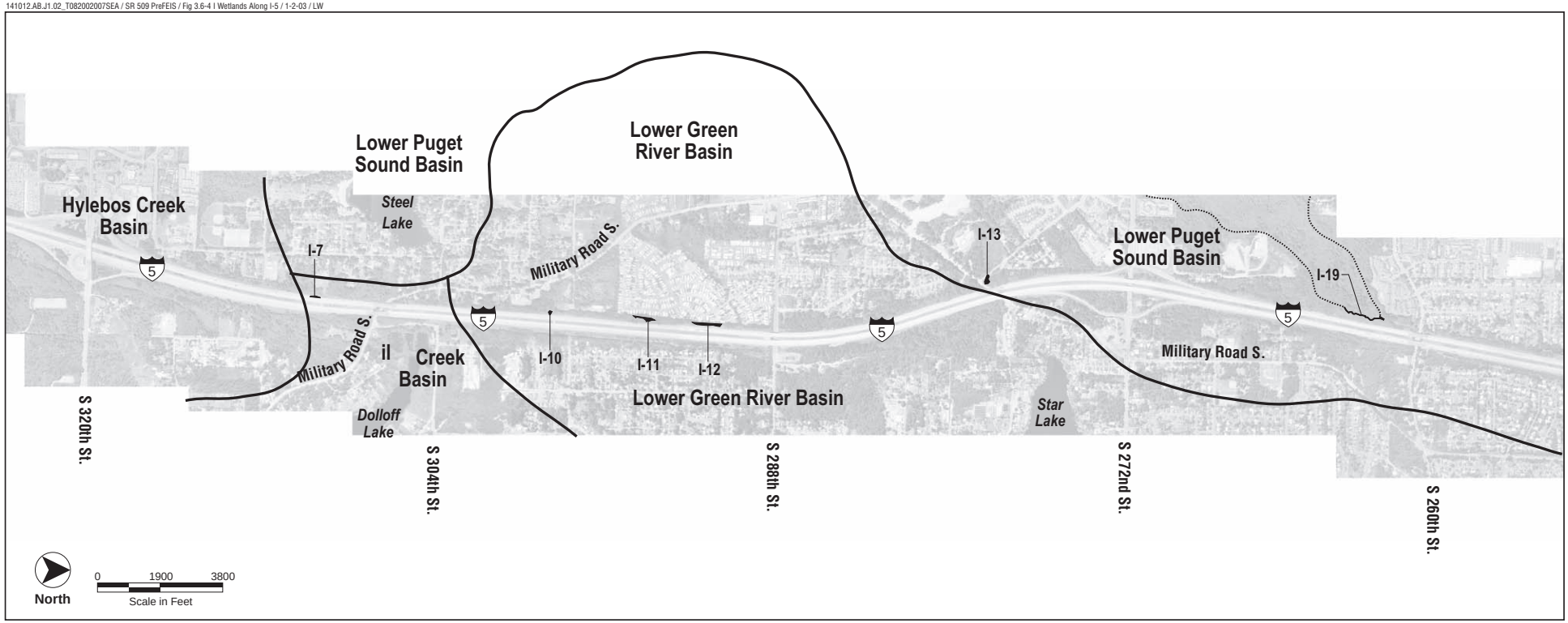


FIGURE 3.6-3

Wetlands Along Alternative C3 Alignment

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement



Legend

Basin Boundaries

FIGURE 3.6-4

Wetlands Along I-5

SR 509: Corridor Completion/I-5/South Access Road Environmental Impact Statement

wetlands (Wetlands I-10, I-11, and I-12,) are isolated or culverted depression systems. No wetlands were identified along the South Airport Link segment of the build alternatives. Table 3.6-1 shows the wetland size; USFWS classification; hydrologic connection; classification in accordance with the Washington State Wetlands Rating System for Western Washington (Ecology 1993); City of SeaTac, City of Des Moines, City of Federal Way, or City of Kent Wetland Rating; buffer size; and primary wetland function(s). In state and local wetland rating systems, Class 1 wetlands are highest quality wetlands, and Class 3 and 4 wetlands are lowest quality wetlands. Wetland buffer size is related to wetland class, and requirements vary according to the jurisdiction with regulatory authority; in general, larger wetland buffers are required for higher quality wetlands. Common and scientific names for plant species observed in these wetlands are provided in Table 3.6-2. Table 3.6-3 provides a summary of generalized values for major wetland functions. The semi-quantitative method developed by Cooke (1997) was used to develop the qualitative assessment of wetland functions.

Wetlands were rated using the Washington State Wetlands Rating System for Western Washington (Ecology 1993) along with the City of SeaTac Environmentally Sensitive Areas Ordinance (1994), the City of Des Moines Environmentally Sensitive Areas Ordinance (1997), King County Environmentally Sensitive Areas Ordinance Chapter 21A.24 (2001), the City of Federal Way Environmentally Sensitive Areas Ordinance Chapter 22.12 (2001), and the City of Kent Wetlands Management Ordinance Chapter 11.04 (2000).

Information described for Wetlands 1, 2, 5, 6, 7, 8, 9, 15, 16, 17, 18, 19, 20, 21, 22, and 23 was obtained during a reconnaissance visit and/or the *Wetland Delineation Report for Master Plan Update Improvements, Seattle-Tacoma International Airport* (Parametrix 1999a).

Wetland A

Wetland A is a 16-acre Category 2 riparian wetland along Des Moines Creek (Ecology 1993). Only the portion of this wetland that could potentially be affected by the proposed alternatives was delineated. Wetland A extends south from South 200th Street along the Des Moines Creek corridor and connects to Wetland 9. Wetland A contains PFO and PSS habitat. Wetland vegetation is dominated by red alder, vine maple, Himalayan blackberry, salmonberry, wild lily-of-the-valley, and lady fern. Subdominant vegetation includes red elderberry, skunk cabbage, and slough sedge. Soils are black muck. The wetland hydrologic indicators are saturated soil and inundation. Soils not saturated or inundated were assumed to have wetland hydrology based on the presence of oxidized rhizospheres in the rooting zone, wetland drainage patterns, low soil chroma, and soil mottling.

Table 3.6-2
List of Observed Plant Species in Wetlands

Common Name	Scientific Name	Wetland Indicator Status[a]
Trees		
vine maple	*Acer circinatum*	FAC-
big-leaf maple	*Acer macrophyllum*	FACU
red alder	*Alnus rubra*	FAC
Oregon ash	*Fraxinus latifolia*	FACW
black cottonwood	*Populus balsamifera ssp. Trichocarpa*	FAC
Lombardy poplar	*Populus nigra*	NI
Quaking aspen	*Populus tremuloides*	FAC+
Douglas fir	*Pseudotsuga menziesii*	FACU
cascara	*Rhamnus purshiana*	FAC-
mountain ash	*Sorbus scopulina*	FACU
western red-cedar	*Thuja plicata*	FAC
Western hemlock	*Tsuga heterophylla*	FACU-
Shrubs		
redstem dogwood	*Cornus sericea = C. stolonifera*	FACW
Scotch broom	*Cytisus scoparius*	UPL
pacific crabapple	*Malus fusca*	FACW
Indian plum	*Oemleria cerasiformis*	FACU
Evergreen blackberry	*Rubus laciniatus*	FACU+
Himalayan blackberry	*Rubus procerus = R. discolor*	FACU
salmonberry	*Rubus spectabilis*	FAC+
Trailing blackberry	*Rubus ursinus*	FACU
willow	*Salix sp.*	NI
Pacific willow	*Salix lucida var. lasiandra*	FACW+
Scouler willow	*Salix scouleriana*	FAC
Sitka willow	*Salix sitchensis*	FACW
red elderberry	*Sambucus racemosa*	FACU
Douglas spirea	*Spiraea douglasii*	FACW
Grasses and Forbs		
colonial bentgrass	*Agrostis capillaris = A. tenuis*	FAC
redtop	*Agrostis gigantea = A. alba var. alba*	FAC
lady fern	*Athyrium filix-femina*	FAC
slough sedge	*Carex obnupta*	OBL
Canada thistle	*Cirsium arvense*	OBL
orchardgrass	*Dactylis glomerata*	FACU
Watson willowherb	*Epilobium ciliatum = E. watsonii*	FACW-
Fireweed	*Epilobium anagallidifolium*	FACU-

Table 3.6-2
List of Observed Plant Species in Wetlands

Common Name	Scientific Name	Wetland Indicator Status[a]
field horsetail	*Equisetum arvense*	FAC
giant horsetail	*Equisetum telmateia*	FACW
tall fescue	*Festuca arundinacea*	FAC-
bedstraw	*Galium sp.*	NI
Tall mannagrass	*Glyceria elata*	FACW+
common velvetgrass	*Holcus lanatus*	FAC
Creeping velvetgrass	*Holcus mollis*	FACU
Western St. John's wort	*Hypericum perforatum*	NI
tapertip rush	*Juncus acuminatus*	OBL
Daggerleaf rush	*Juncus ensifolius*	FACW
soft rush	*Juncus effusus*	FACW
duckweed	*Lemna minor*	OBL
birdsfoot trefoil	*Lotus corniculatus*	FAC
skunk cabbage	*Lysichiton americanum*	OBL
purple loosestrife	*Lythrum salicaria*	FACW+
wild lily-of-the-valley	*Maianthemum dilatatum*	FAC
Water parsley	*Oenanthe sarmentosa*	OBL
reed canarygrass	*Phalaris arundinacea*	FACW
waterpepper	*Polygonum hydropiper*	OBL
Japanese knotweed	*Polygonum cuspidatum*	FACU
Sword fern	*Polysticum munitum*	FACU
Bracken fern	*Pteridium aquilinum*	FACU
creeping buttercup	*Ranunculus repens*	FACW
true water cress	*Rorippa nasturtium-aquaticum*	OBL
curly dock	*Rumex crispus*	FAC+
small-fruited bulrush	*Scirpus microcarpus*	OBL
softstem bulrush	*Scirpus tabernaemontanii = S. validus*	OBL
bittersweet nightshade	*Solanum dulcamara*	FAC+
white clover	*Trifolium repens*	FAC
clover	*Trifolium sp.*	NI
common cattail	*Typha latifolia*	OBL
American brooklime	*Veronica americana*	OBL

[a] *Reed (1988, 1993) separates vascular plants into the following basic groups according to their "wetland indicator status" based on each species' frequency of occurrence in wetlands: Obligate wetland plants (OBL) occur almost always in wetlands (estimated probability >99%) under natural conditions. Facultative wetland plants (FACW) occur almost always in wetlands (estimated probability 67-99%), but occasionally are found in nonwetlands. Facultative plants (FAC) are equally likely to occur in wetlands or nonwetlands (estimated probability 34-66%). Faculative upland plants (FACU) usually occur in nonwetlands (estimated probability 67-99%), but occasionally are found in wetlands (estimated probability 1-33%). Obligate upland plants (UPL) occur almost always in nonwetlands under natural conditions (estimated probability >99%). No Indicator plants (NI) are not assigned an indicator status by Reed.*

Table 3.6-3
Wetland Functions

Wetland	Flood/ Stormwater Control	Base Flow/ Groundwater Support	Erosion/ Shoreline Protection	Water Quality Improvement	Natural Biological Support	Habitat Functions	Recreation
A	M	M	M/L	M	M	M	M
B	M	M	M/L	M	M	M/L	L
D	M/H	M/H	M/L	M	M	M	M
F	H	H	M	M/H	H	M/H	M
G	M	M	M	M	M/L	M/L	M/L
H	M	M	M/L	M/L	L	L	M/L
K	M/L	M/L	NA	M	L	L	L
M	M	M/L	NA	M/L	M/L	M/L	L
N	M	M/L	M/L	M	L	L	L
S	M/L	M/L	NA	M	L	L	M
1	M/L	M/L	NA	M	M/L	M/L	L
2	M/L	M/L	NA	M	M/L	M	L
5	M/L	M/L	NA	M	M/L	M	L
6	M/L	M/L	NA	M	M/L	M/L	L
7	M/L	M/L	NA	M	M/L	M/L	L
8	M/L	M/L	NA	M	M/L	M/L	L
9	M/L	M/L	M/L	M/L	M	M	M
15	M/L	L	NA	M	L	L	L
16	M/L	L	NA	M	L	L	L
17	M/L	L	NA	M	L	L	L
18	L	M/L	NA	M	L	L	M
19	L	M/L	NA	M	M/L	M/L	L
20	M/L	M/L	NA	M	M/L	M/L	L
21	M/L	M/L	NA	M	L	M/L	L
22	M/L	M/L	NA	M	L	M/L	L
23	L	M/L	NA	M	L	L	M/L
I-7	M/L	M	NA	M	M/L	L	L
I-10	M	M	NA	M/H	L	L	L
I-11	M	M	NA	M/H	M/L	M	L
I-12	M	M/L	NA	M/H	L	L	L
I-13	M	M	M	M/H	M	M/L	M/L
I-19	M	M	M	M/H	M	M/H	M/H

L = low

M/L = moderately low

M = moderate

M/H = moderately high

H = high

NA = Not Applicable

Wetland B

Wetland B is a 6.6-acre Category 2 wetland system in the northwest portion of the project area (Ecology 1993). Wetland B is west of Des Moines Memorial Drive, north of South 192nd Street, and south of the existing terminus of SR 509. It was not possible to determine the hydrologic connections for Wetland B because surface flow enters a culvert and discharges at an unknown location.

This wetland contains PFO, PSS, and PEM habitat. Wetland vegetation is dominated by red alder, Himalayan blackberry, and Scouler willow. Subdominant vegetation includes mountain ash, western red-cedar, Watson willowherb, American brooklime, orchardgrass, reed canarygrass, field horsetail, and giant horsetail. Soils are very dark brown sandy loam, dusky red loamy sand with strong brown mottles, and very dark gray sandy loam. The wetland hydrologic indicators are saturated soil and inundation, oxidized rhizospheres, wetland drainage patterns, low soil chroma, and soil mottling.

Wetland D

Wetland D is a 4.9-acre Category 2 wetland and stream system associated with the east fork (Tyee Fork) of Des Moines Creek (Ecology 1993). Wetland D extends northeast from the Tyee Valley Golf Course toward Bow Lake. The wetland/stream includes culvert crossings for both the golf course and airport parking. The southern portion of the wetland (2.9 acres) was modified in the late 1980s as a stormwater detention pond for the east fork of Des Moines Creek. At this time, the wetland is being considered a jurisdictional wetland. Outflow from the pond is diverted into a culvert to the south, which in turn discharges into the middle of Wetland G.

This wetland contains PFO, PSS, and PEM habitat and includes approximately 3,250 feet of the east fork of Des Moines Creek. Wetland vegetation is dominated by red alder, Sitka willow, birdsfoot trefoil, white clover, colonial bentgrass, tall fescue, soft rush, common velvetgrass, small-fruited bulrush, and true watercress. Subdominant vegetation includes Himalayan blackberry, bittersweet nightshade, curly dock, tapertip rush, softstem bulrush, and redtop. Soils include black muck, dark greenish gray sand, very dark brown sandy loam with dark yellowish brown mottles, and dark grayish brown loamy sand with dark yellowish brown mottles. The wetland hydrologic indicators are saturated soil and inundation. The hydrology in wetland areas was inferred based on wetland drainage patterns, drift lines, oxidized rhizospheres, low soil chroma, and soil mottling.

Wetland F

Wetland F is a 28.8-acre Category 2 wetland system associated with the western fork of Des Moines Creek (Ecology 1993). This wetland has been referred to as the “Northwest Ponds” and serves as a portion of the

headwaters of Des Moines Creek. Wetland F extends north from the Tyee Valley Golf Course and west toward Des Moines Memorial Drive. This wetland's outflow is connected to Wetland G through a 54-inch culvert.

This wetland contains PFO, PSS, PEM, and POW habitat. Forested areas are dominated by red alder and creeping buttercup. Scrub-shrub vegetation is dominated by Pacific willow, purple loosestrife, and waterpepper. Emergent areas are dominated by creeping buttercup, giant horsetail, bittersweet nightshade, and maintained golf course grass. Other subdominant vegetation includes Himalayan blackberry, soft rush, small-fruited bulrush, reed canarygrass, common cattail, Scouler willow, cascara, Indian plum, salmonberry, red elderberry, Douglas spirea, lady fern, and sword fern. Soils include black muck, peat, and organic loam. The wetland hydrologic indicators are saturated soil and inundation, wetland drainage patterns, and low soil chroma. A culvert that enters the wetland from the northwest contributes to wetland hydrology.

Wetland G

Wetland G is a 7.9-acre Category 2 wetland and stream system associated with Des Moines Creek (Ecology 1993). Wetland G extends south from the outflow of Wetland F to South 200th Street. This wetland/stream system has areas flowing through culverts.

This wetland contains PSS and PEM habitat and includes approximately 2,100 feet of Des Moines Creek. Wetland vegetation is dominated by Pacific willow and red alder in the scrub-shrub community. Wetland areas on the golf course fairways are dominated by mowed grasses. The delineation was based largely on hydric soil conditions. Soils include black muck. The wetland hydrologic indicators are saturated soil, inundation, oxidized rhizospheres, wetland drainage patterns, low soil chroma, and soil mottling.

Wetland H

Wetland H is a 0.09-acre Category 4 wetland that functions as a pond for the Tyee Valley Golf Course (Ecology 1993). Wetland H is just north of South 200th Street. It is adjacent to, but hydrologically isolated from, Des Moines Creek.

This wetland contains POW and a fringe of PEM habitat. Wetland vegetation is dominated by mowed grasses, soft rush, and reed canarygrass. Soils include black muck. The wetland hydrologic indicators are saturated soil and inundation.

Wetland K

Wetland K is a 0.09-acre Category 3 wetland (Ecology 1993) located south of South 208th Street, adjacent to Wetland L, and near a sanitary sewer lift

station. It was not possible to determine the hydrologic connections for Wetland K. The wetland is isolated by fill, and all inflows and outflows are in culverts. It is likely connected to Des Moines Creek through the area's stormwater system. A chainlink fence around the wetland minimizes human intrusions.

The wetland contains PEM habitat. Wetland vegetation is dominated by colonial bentgrass and reed canarygrass. Subdominant vegetation includes black cottonwood and creeping buttercup. Soils include very dark grayish brown sandy loam with yellowish brown mottles. The wetland hydrologic indicators are saturated soil, inundation, and wetland drainage patterns.

Wetland M

Wetland M is a 0.1-acre Category 3 wetland (Ecology 1993) located north of South 192nd Street and west of Des Moines Memorial Drive. The wetland is mostly a section of an old ditch. The southern end was filled sometime in the past, and the northern end enters a culvert crossing under South 192nd Street. It was not possible to determine the hydrologic connections for Wetland M. It is likely connected to Wetland F and Des Moines Creek through the area's stormwater system.

The wetland contains PSS habitat. Wetland vegetation is dominated by Scouler willow, red alder, and creeping buttercup. Subdominant vegetation includes Himalayan blackberry, giant horsetail, and Japanese knotweed. Soils include black sandy muck. The wetland hydrologic indicators are saturated soil and inundation, wetland drainage patterns, and low soil chroma.

Wetland N

Wetland N is a 0.1-acre Category 3 wetland (Ecology 1993) located within the half cloverleaf at the terminus of SR 509 at South 188th Street. The wetland is a depression and ditch surrounded by roads, and it flows into the roadway drainage system to the south. It was not possible to determine the hydrologic connections for Wetland N. It is likely connected to Wetland F and Des Moines Creek through the area's stormwater system.

Wetland N contains PSS habitat. Wetland vegetation is dominated by red alder, Douglas spirea, and grasses. Subdominant vegetation includes soft rush and pacific crabapple. Soils include gray loamy sand. The wetland hydrologic indicators are saturated soil and inundation, surface-scoured areas, wetland drainage patterns, and low soil chroma.

Although Wetland N meets the soils, hydrology, and vegetation criteria of a wetland, it appears to be a constructed drainage feature in an upland area and, therefore, may not be regulated. WSDOT will coordinate with the U.S. Army Corps of Engineers (USACOE) to make a determination about the regulatory status of this wetland.

Wetland S

Wetland S is a 0.5-acre Category 4 wetland (Ecology 1993) located west of Des Moines Creek and north of South 200th Street within the Tyee Valley Golf Course. It is immediately west of Wetland H. The wetland is a seep on a gentle slope. The water from this wetland appears to enter the golf course drainage system. The wetland contains PEM habitat. Wetland vegetation is dominated by grasses planted for the golf course fairways. Soils include very dark gray gravelly sandy loam. The wetland hydrologic indicator is saturated soil.

Wetland 1

Wetland 1 is a 0.02-acre Category 3 wetland system (Ecology 1993) in the western portion of the project area. Wetland 1 is west of 18th Avenue South and south of South 200th Street. This wetland contains PFO habitat with a shrub understory. Wetland vegetation is dominated by red alder, Himalayan blackberry, salmonberry, and giant horsetail. Hydric soils and wetland hydrology have been identified within the delineated wetland boundary.

Wetland 2

Wetland 2 is a 0.7-acre Category 3 wetland system (Ecology 1993) in the western portion of the project area. Wetland 2 is west of 18th Avenue South, south of South 200th Street, and south of Wetland 1. This wetland contains PFO habitat and a shrub understory. Wetland vegetation is dominated by red alder, black cottonwood, willows, redstem dogwood, Himalayan blackberry, lady fern, and reed canarygrass. Soils consist of black loam over very dark gray gravelly sandy loam. Saturation and inundation have been observed during the growing season. The western boundary of the wetland is a seep zone, and water generally flows to a depression. An intermittent swale extends out of the wetland to the southeast.

Wetland 5

Wetland 5 is a 0.9-acre Category 3 wetland system (Ecology 1993) in the western portion of the project area. Wetland 5 is west of 18th Avenue South and south of South 200th Street. This wetland contains PFO habitat and a PSS understory. Wetland vegetation includes western red-cedar, red alder, willows, Douglas spirea, creeping buttercup, and bittersweet nightshade. Soils consist of black peaty muck over gray loam. Standing water has been observed on the site.

Wetland 6

Wetland 6 is a 0.03-acre Category 3 wetland system (Ecology 1993) in the western portion of the project area. Wetland 6 is west of 18th Avenue South, south of South 200th Street, and south of Wetland 5. This wetland contains

PSS and PFO habitat. Wetland vegetation is dominated by red alder, Himalayan blackberry, salmonberry, and Douglas spirea. Hydric soils and wetland hydrology have been identified within the delineated wetland boundary.

Wetland 7

Wetland 7 is a 0.5-acre Category 3 wetland system (Ecology 1993) in the western portion of the project area. Wetland 7 is west of 18th Avenue South, south of South 200th Street, and south of Wetland 6. This wetland contains PSS and PFO habitat. Wetland vegetation is dominated by red alder over Himalayan blackberry. Hydric soils and wetland hydrology have been identified within the delineated wetland boundary.

Wetland 8

Wetland 8 is a 0.08-acre Category 3 wetland system (Ecology 1993) in the western portion of the project area. Wetland 8 is west of 18th Avenue South, south of South 200th Street, and south of Wetland 7. This wetland contains PSS habitat with overhanging forest trees (PFO). Wetland vegetation is dominated by red alder, Oregon ash, willows, creeping buttercup, and bedstraw. Hydric soils and wetland hydrology have been identified within the delineated wetland boundary.

Wetland 9

Wetland 9 is an 0.07-acre Category 2 wetland around Des Moines Creek (Ecology 1993). Wetland 9 is downstream from Wetland A and includes the Des Moines Creek channel and associated riparian wetlands. The PSS habitat is dominated by red alder, vine maple, Himalayan blackberry, and salmonberry.

Wetland 15

Wetland 15 is a 0.2-acre Category 3 wetland (Ecology 1993) located south of South 188th Street and west of 28th Avenue South. The wetland is separated from a roadside ditch by a berm. No outlets or surface water inflows are identified for this wetland. The wetland contains PFO habitat. Wetland vegetation is dominated by black cottonwood, Scouler's willow, and red alder saplings. Soils include black gravelly sandy loam over gray gravelly sandy loam. The wetland hydrologic indicators are saturated soil and surface water inundation.

Wetland 16

Wetland 16 is a 0.04-acre Category 3 wetland (Ecology 1993) located south of South 188th Street and west of 28th Avenue South. The wetland is highly disturbed and might have been created through past land use. No outlets or

surface water inflows were identified for this wetland. The wetland contains PFO habitat. Wetland vegetation is dominated by black cottonwood, red alder, and Himalayan blackberry. Soils include black gravelly sandy loam over gray gravelly sandy loam. The wetland hydrologic indicators are saturated soil and surface water inundation.

Wetland 17

Wetland 17 is a 0.06-acre Category 3 wetland (Ecology 1993) located south of South 188th Street and west of 28th Avenue South. The wetland is highly disturbed and might have been created through past land use. No outlets or surface water inflows were identified for this wetland. The wetland contains PFO habitat. Wetland vegetation is dominated by black cottonwood, red alder, and Himalayan blackberry. Soils include black gravelly sandy loam over gray gravelly sandy loam. The wetland hydrologic indicators are saturated soil and surface water inundation.

Wetland 18

Wetland 18 is a 0.9-acre Category 4 wetland (Ecology 1993) located east of Wetland D (Tyee Pond) within the Tyee Valley Golf Course. The wetland is a large seep area on a slope. Surface water from this wetland does not connect with Wetland D. The wetland contains PEM habitat. Wetland vegetation is dominated by grasses planted for the golf course fairways. Soils include very dark gray to gray gravelly sandy loam with mottling. The wetland hydrologic indicator is saturated soil.

Wetland 19

Wetland 19 is a 0.5-acre Category 3 wetland (Ecology 1993) located north of South 200th Street and east of Des Moines Creek. The wetland occurs on a slope and includes a ditch. The water from this wetland flows into the drainage system at 200th Street. The wetland contains PFO and PSS habitat. Wetland vegetation is dominated by salmonberry. Soils include black mucky loam. The wetland hydrologic indicators are saturated soil, watermarks, and wetland drainage patterns.

Wetland 20

Wetland 20 is a 0.3-acre Category 4 wetland (Ecology 1993) located between 24th Avenue South and Des Moines Creek near South 208th Street. The wetland is a small depression and receives runoff from development to the east. The wetland contains PFO and PSS habitat. Wetland vegetation is dominated by red alder, black cottonwood, salmonberry, Himalayan blackberry, and Douglas spirea. Soils include very dark gray clay loam under a deep organic surface layer. The wetland hydrologic indicators are saturated soil, water-stained leaves, watermarks, and wetland drainage patterns.

Wetland 21

Wetland 21 is a 0.2-acre Category 3 wetland (Ecology 1993) located between Des Moines Creek and 24th Avenue South and south of Wetland A. The wetland is a previously farmed area. It was not possible to determine the hydrologic connections for Wetland 21. The wetland contains PEM habitat. Wetland vegetation is dominated by reed canarygrass. Soils include reddish gray gravelly sandy loam with mottles. The wetland hydrologic indicators are inundation, saturated soil, watermarks, and wetland drainage patterns.

Wetland 22

Wetland 22 is a 0.01-acre Category 4 wetland located near Wetland 21 (Ecology 1993). The wetland contains PEM habitat. Wetland vegetation is dominated by reed canarygrass. Hydric soil conditions and wetland hydrologic characteristics were observed in the wetland.

Wetland 23

Wetland 23 is a 0.01-acre Category 4 wetland (Ecology 1993) located east of Wetland G and south of Wetland D (Tyee Pond) within the Tyee Valley Golf Course. The wetland is a small seep area on a slope. The water from this wetland does not connect with other wetlands. The wetland contains PEM habitat. Wetland vegetation is dominated by grasses planted for the golf course fairways. Soils include very dark gray to gray gravelly sandy loam with mottling. The wetland hydrologic indicator is saturated soil.

Wetland I-7

Wetland I-7 is a 0.06-acre Category 3 cut-slope seep wetland along the I-5 roadcut (Ecology 1993). This wetland is located along the western side of I-5, north of South 310th Street. The water from this wetland enters a ditch that empties into the I-5 stormwater drainage system. A previously surveyed wetland delineation for Wetland I-7 (WSDOT 1997) represents the conditions observed during the 2001 field investigation.

This PEM wetland is in the Mill Creek watershed. Wetland vegetation is dominated by soft rush, colonial bentgrass, redtop, creeping velvetgrass, and field horsetail. Subdominant vegetation includes trailing blackberry, tapertip rush, daggerleaf rush, and reed canarygrass. Soils include grayish brown to very dark grayish brown gravelly loam surface soil over a greenish gray and black sandy loam. The wetland hydrologic indicators are saturated soil and wetland drainage patterns.

Wetland I-10

Wetland I-10 is a 0.05-acre Category 3 (Ecology 1993) depression located between I-5 and Military Road north of South 304th Street and south of

South 288th Street. There is a culvert in the western portion of the wetland that extends to the east. A previous surveyed wetland delineation for Wetland I-10 represents the conditions observed during the 2001 field investigation.

This wetland is located in the Lower Green River watershed, and contains a PEM and a PSS portion. The vegetation is dominated by salmonberry, Scouler willow, and reed canarygrass. Subdominant vegetation includes evergreen blackberry. Soils are very dark gray to dark brown sandy and gravelly loam. The wetland hydrologic indicators are saturated soil, wetland drainage patterns, and low soil chroma.

Wetland I-11

Wetland I-11 is a 0.2-acre Category 3 (Ecology 1993) depression located between I-5 and Military Road north of South 304th Street and south of South 288th Street. There is a culvert in the western portion of the wetland that extends to the east. The entire wetland was delineated in the field.

This PFO and PSS wetland is located in the Lower Green River watershed. Wetland vegetation is dominated by quaking aspen, Douglas spirea, slough sedge, and tall mannagrass. Subdominant vegetation includes Himalaya blackberry, Pacific willow, and Scouler willow. Soils are black organic loam. The wetland hydrologic indicators are saturated soil and wetland drainage patterns.

Wetland I-12

Wetland I-12 is a 0.3-acre Category 3 (Ecology 1993) isolated depression located between I-5 and Military Road, north of South 304th Street and south of South 288th Street. No outflow channel or culverts were observed during the field visit. The entire wetland was delineated in the field.

The wetland contains PEM and PSS habitats and is located in the Lower Green River watershed. Wetland vegetation is dominated by Douglas spirea and reed canarygrass. Subdominant vegetation includes trailing blackberry and bracken fern. Soils are black to very dark grayish brown loam with areas of peat. The wetland hydrologic indicators are wetland drainage patterns, low soil chroma, organic soils, and depressional topography.

Wetland I-13

Wetland I-13 is a 0.2-acre Category 3 (Ecology 1993) wetland associated with the headwaters of McSorley Creek and is located between I-5 and Star Lake Road north of Military Road. A culvert discharges into the eastern end of the wetland, and surface water flows to the west. Only a portion of the wetland was delineated in the field.

Wetland I-13 contains PFO habitat and is located in the Lower Puget Sound watershed. Wetland vegetation is dominated by red alder, black cottonwood, Himalaya blackberry, Douglas spirea, and redtop. Subdominant vegetation includes Pacific willow and giant horsetail. Soils are dark gray loam. The wetland hydrologic indicators are saturated soil, low soil chroma, and depressional topography.

Wetland I-19

Wetland I-19 is a 78.5-acre Category 1 (Ecology 1993) wetland associated with McSorley Creek located west of I-5 and south of South 159th Street. Surface water flows to the southwest. The eastern portion of the wetland was flagged in the field.

The wetland is a PFO system in the Lower Puget Sound watershed. Wetland vegetation is dominated by red alder, salmonberry, lady fern, and field horsetail. Subdominant vegetation includes western red-cedar and water parsley. Soils include black organic loams over greenish gray sandy gravelly loam and peat. The wetland hydrologic indicators are inundation, saturated soil, water-stained leaves, and wetland drainage patterns.

3.6.3 Environmental Impacts

This section describes potential long-term environmental impacts on wetlands and wetland buffers from construction and operation of the SR 509: Corridor Completion/I-5/South Access Road Project. Permanent construction impacts are direct effects on wetlands through filling, dredging, or altering hydrology. Operation impacts are impacts resulting from the ongoing use of the roadway after construction.

Alternative A (No Action)

With this alternative, no direct impacts on wetlands would occur as a result of construction.

Impacts Common to All Build Alternatives

The primary direct effect from project construction would be the permanent fill or dredge (from cut and fill slopes) of wetlands and their buffer areas. Some wetlands would be cleared, graded, and filled, while in other cases wetland buffers would be affected. Table 3.6-4 lists wetland impacts and wetland buffer impacts.

Wetland functions that would be reduced as a result of construction include flood water detention and retention, flood flow desynchronization, groundwater recharge and discharge, and water quality improvement. Vegetated wetland and adjacent upland areas that currently allow infiltration

Table 3.6-4
Summary of Potential Direct Impacts from Build Alternatives

Wetland and Basin	USFWS Classification	Wetland Rating*	Size (acres)	Potential Direct Impact (acres)					
				Wetlands			Buffers		
				Alternative B	Alternative C2 (Preferred)	Alternative C3	Alternative B	Alternative C2 (Preferred)	Alternative C3
Des Moines Creek Basin									
A	PFO/PSS	2/1[a]	16.0	0.04	0.1	0.01	1.2	0.9	5.1
B	PFO/PSS/PEM	2/1[a]	6.6	2.9	0.01	2.7	4.0	1.8	1.9
D	PFO/PSS/PEM	2/2[a]	4.9	1.5	0	1.5	5.7	1.7	8.1
F	PFO/PSS/PEM/POW	2/1[a]	28.8	1.5	0	0	2.5	0.01	0.4
G	PSS/PEM	2/2[a]	7.9	0	0	0.08	0	0.2	0.7
H	POW/PEM	4/3[a]	0.09	0	0	0.09	0	0	0.2
K	PEM	3/3[a]	0.09	0	0	0.01	0	0	0
M	PSS	3/3[a]	0.1	0	0.06	0.1	0.04	0.5	1.2
N	PSS	3/3[a]	0.1	0.1	0.1	0.1	0.6	0.6	0.6
S	PEM	4/3[a]	0.5	0	0	0.5	0	0	0
1	PFO	3/3[a]	0.02	0.02	0	0	0.4	0	0
2	PFO	3/3[a]	0.7	0.7	0	0	1.5	0	0
5	PFO/PSS	3/3[a]	0.9	0	0	0	0.5	0	0
6	PFO/PSS	3/3[a]	0.03	0.01	0	0	0.4	0	0
7	PFO/PSS	3/3[a]	0.5	0.5	0	0	0.7	0	0
8	PFO/PSS	3/3[a]	0.08	0.07	0	0	0.5	0	0
9	PSS, Stream	2/SW[b]	0.07	0.04	0	0	0.1	0	0
15	PFO	3/3[a]	0.2	0	0	0	0.2	0.05	0.3
16	PFO	3/3[a]	0.04	0.04	0.04	0.04	0.5	0.4	0.5
17	PFO	3/3[a]	0.06	0	0	0	0.3	0.05	0.4
18	PEM	4/3[a]	0.9	0.08	0	0	0.3	0	0
19	PFO/PSS	3/3[a]	0.5	0	0	0	1.2	0	0
20	PFO/PSS	4/3[a]	0.3	0	0	0.3	0	0	0.5
21	PEM	3/IW[b]	0.2	0.2	0	0	0.6	0	0
22	Ditch	4/IW[b]	0.01	0.01	0	0	0.4	0	0
23	PEM	4/3[a]	0.01	0	0.01	0.01	0.05	0.1	0.1

Table 3.6-4
Summary of Potential Direct Impacts from Build Alternatives

Wetland and Basin	USFWS Classification	Wetland Rating*	Size (acres)	Potential Direct Impact (acres)					
				Wetlands			Buffers		
				Alternative B	Alternative C2 (Preferred)	Alternative C3	Alternative B	Alternative C2 (Preferred)	Alternative C3
Basin Total			69.6	7.7	0.3	5.4	21.6	6.3	19.9
Mill Creek Watershed									
I-7	PEM	3/3[c]	0.06	0	0	0	0.05	0.05	0.05
Lower Green River Watershed									
I-10	PEM/PSS	3/3[c]	0.05	0	0	0	0.03	0.03	0.03
I-11	PFO/PSS	3/3[c]	0.2	0	0	0	0.04	0.04	0.04
I-12	PEM/PSS	3/3[c]	0.3	0	0	0	0.1	0.1	0.1
Basin Total			0.5	0	0	0	0.2	0.2	0.2
Lower Puget Sound Watershed									
I-13	PFO	3/3[c]	0.2	0	0	0	0.03	0.03	0.03
I-19	PFO	1/1[d]	78.5	0	0	0	0.6	0.6	0.6
Basin Total			78.7	0	0	0	0.6	0.6	0.6
Grand Total			148.7	7.7	0.3	5.4	22.5	7.1	20.8

NA= not available
SW = significant wetland
IW = important wetland
** 2/1[a] = Ecology(2)/local ordinance rating (1)*
[a] Using City of SeaTac Environmentally Sensitive Areas Ordinance (1994)
[b] Using City of Des Moines Environmentally Sensitive Areas Ordinance (1997)
[c] Using City of Federal Way Environmentally Sensitive Areas Ordinance Chapter 22.12 (2001)
[d] Using City of Kent Wetlands Management Ordinance Chapter 11.04 (2000)

of rainwater would be replaced by impervious road surfaces. Biological and wildlife support would be affected by reduced production and disruption of connections among habitats (Table 3.6-3). Placement and sizing of culverts, bridges, berms, and other structures that direct the flow of surface water could alter wetland hydrology by diverting, restricting, or increasing the flow of water in adjacent wetlands. The type and magnitude of construction impacts would depend on final designs, including stormwater management systems, for each build alternative. Additional discussion of stormwater and water quality issues is included in Section 3.5, *Water Quality*.

Pollutants such as petroleum products, heavy metals, and sediments that are carried into wetlands by stormwater running off highways could negatively affect wetland functions. Plant stress, habitat degradation, and loss of flood storage capacity could result from the influx of such pollutants. Noise and visual disturbance from traffic on roads passing through and next to wetlands could disrupt breeding, nesting, and feeding of many types of wildlife.

Under each of the build alternatives, increases in roadway and other impervious surfaces could change hydrologic function in the wetlands and streams.

Alternative B

The total area of direct wetland impact from Alternative B, including the I-5 improvements, would be 7.7 acres, which would be the highest of all the build alternatives. This includes impacts on 6.0 acres of Category 2 wetlands, 1.6 acres of Category 3 wetlands, and 0.1 acre of Category 4 wetlands, using Ecology's wetland ratings system. Areas of PFO, PSS, and PEM habitat would be affected. No direct wetland impacts would occur in Category 1 wetlands. There would be a total of 22.5 acres of buffer impacts with Alternative B (Table 3.6-4), the highest of the build alternatives.

The SR 509 freeway extension and South Access Road portion of Alternative B would directly affect 7.7 acres of wetland and 21.6 acres of wetland buffer. Direct impacts would occur in Wetlands A, B, D, F, N, 1, 2, 6, 7, 8, 9, 16, 18, 21, and 22 (see Figures 3.6-1 and 3.6-4). Although Wetland N meets the soils, hydrology, and vegetation criteria of a wetland, it appears to be a constructed drainage feature in an upland area and, therefore, may not be regulated. No direct impacts would occur in Wetlands M, 5, 17, 15 19, and 23, but portions of their buffers would be affected.

There would be no direct wetland impacts along the I-5 corridor. Approximately 0.8 acre of wetland buffer along Wetlands I-7, I-10, I-11, I-12, I-13, and I-19 could, however, be affected (Table 3.6-4).

Alternative C2 (Preferred)

The total area of direct wetland impact from Alternative C2, including the I-5 improvements, would be approximately 0.3 acre. This includes impacts on 0.1 acre of Category 3 wetlands and 0.01 acre of Category 4 wetlands, using Ecology's wetland rating system. Areas of PFO, PSS, and PEM habitat would be affected. Impacts on Wetlands A and B include 0.02 acre for bridge support piers. Wetland A would also have 0.09 acre of fill in an east ditch extension. No direct wetland impacts would occur in Category 1 wetlands. There would be a total of 7.1 acres of buffer impacts associated with this alternative (see Table 3.6-4). The direct wetland and buffer impacts would be the lowest of all the build alternatives.

The SR 509 freeway extension and South Access Road portion of Alternative C2 would directly affect 0.3 acre of wetland and 6.3 acres of wetland buffer. Direct impacts would occur in Wetlands A, B, M, N, 16, and 23 (Figures 3.6-2 and 3.6-4). Although Wetland N meets the soils, hydrology, and vegetation criteria of a wetland, it appears to be a constructed drainage feature in an upland area and, therefore, may not be regulated. No direct impacts would occur in Wetlands D, F, or G, but portions of their buffers would be affected.

The bridges over Wetland A would vary in height between 30 and 46 feet. The northbound and southbound roadway structures would each be approximately 60 to 65 feet wide, and would be separated by 30 to 46 feet. The bridges over Wetland B would vary between 23 and 32 feet in height for the northbound roadway, and between 38 and 41 feet in height for the southbound roadway. The northbound and southbound roadway structures would vary in width—between 70 and 90 feet for the northbound roadway and between 50 and 110 feet for the southbound roadway—because of the ramps to and from South 188th Street. The northbound and southbound roadways would be separated by 39 to 43 feet.

The heights of the bridges over Wetlands A and B, along with the separation of the northbound and southbound roadways, would help to ensure the preservation of wetland function and health beneath the structures. More light and precipitation would reach the underlying wetlands and vegetation than would be possible if northbound and southbound lanes were both on the same span.

The bridges over Wetland D would vary in height between 12 and 20 feet, and would have a width of 80 feet.

Impacts along the I-5 corridor would be the same as for Alternative B (Table 3.6-4).

Alternative C3

The total area of direct wetland impact from Alternative C3, including the I-5 improvements, would be 5.4 acres, which would be higher than Alternative C2, but lower than Alternative B. This would include impacts on 4.2 acres of Category 2 wetlands, 0.3 acre of Category 3 wetlands, and 0.9 acre of Category 4 wetlands, using Ecology's wetland rating system. Areas of PFO, PSS, and PEM habitat would be affected. No direct wetland impacts would occur in Category 1 wetlands. There would be a total of 20.8 acres of buffer impacts associated with this alternative (Table 3.6-4), which would be lower than Alternative B but higher than Alternative C2.

The SR 509 freeway extension and South Access Road portion of Alternative C3 would directly affect 5.4 acres of wetland and 19.9 acres of wetland buffer. Direct impacts would occur in Wetlands A, B, D, G, H, K, M, N, S, 16, 20, and 23 (Figures 3.6-3 and 3.6-4). Although Wetland N meets the soils, hydrology, and vegetation criteria of a wetland, it appears to be a constructed drainage feature in an upland area and, therefore, may not be regulated. A bridge would be constructed across Wetland A. Approximately 3.3 acres of the wetland would lie under the bridge deck and could be affected by shading. Direct impacts in Wetland A would be limited to potential placement of bridge support piers. No direct impacts would occur in Wetlands F, 15, and 17, but portions of their buffers would be affected.

Impacts along the I-5 corridor would be the same as for Alternative B (Table 3.6-4).

3.6.4 Mitigation Measures

Wetlands are recognized as an important and valuable natural resource, and their protection is a matter of public interest. The federal government and the State of Washington have a "no net loss" policy concerning wetlands. Environmental Sensitive Areas Ordinances of the City of SeaTac (1994), the City of Des Moines (1997), the City of Federal Way City (2001), the City of Kent (2000), and King County (2001) were implemented to protect wetlands and mitigate unavoidable impacts. One goal of these policies is to achieve no overall loss of wetland acreage or function through mitigation of wetland impacts that results from regulated activities. Mitigation includes (in order of preference) avoidance, minimization, rectification, reduction, compensation, and monitoring.

As part of agency coordination for Alternative C2, the preferred alternative, WSDOT has committed to avoiding all Category 1 wetlands and spanning all Category 2 wetlands with bridges to minimize impacts. In addition, the South Access Road would span the Tyee wetland/stormwater pond with a bridge to eliminate any direct impacts. If Alternative B or C3 is selected as the

preferred alternative, similar design features to avoid and/or minimize wetland impacts would be evaluated.

Where direct impacts on wetlands cannot be avoided, compensation for impacts may be accomplished through wetland enhancement, restoration, or creation. Wetland impacts would be mitigated by the creation of new wetlands or enhancement of existing wetlands. Requirements include creation and/or restoration at minimum 1:1 mitigation ratio. Additional mitigation is required to satisfy Ecology's wetland mitigation guidelines. To mitigate for bridge shading impacts, shade-tolerant native species would be planted, where appropriate, to ensure further preservation of wetland function and health.

An assessment of local and Ecology mitigation ratios indicates that Ecology's ratio requires more mitigation (Ecology 1998) than is required by the ordinances of SeaTac (1994), Des Moines (1997), Federal Way (2001), Kent (2000), or King County (2001). Table 3.6-5 shows preliminary estimates for areas of wetland mitigation required using mitigation ratios from Ecology (1998). A Conceptual Mitigation Plan has been developed to address mitigation for wetland impacts. Wetland mitigation will be designed to create wetland in size and function equal to or greater than the wetland affected by project construction.

In addition, any wetland enhancement, restoration, or creation projects would need to adhere to guidance presented in the FAA advisory circular (FAA 1997) regarding wildlife attractions on or near airports. This circular discourages the placement of wetland mitigation projects that could attract certain wildlife in areas where air traffic is present. This would likely require that certain wetland functions restricted by the FAA be mitigated at one or more mitigation sites outside the FAA 10,000-foot restricted zone.

3.6.5 Construction Activity Impacts and Mitigation

Potential temporary impacts resulting from construction of any of the build alternatives include clearing, grading, excavation, and filling. Types of construction include temporary access roads along vertical wall structures or bridge piers during construction. Without proper controls, these activities could expose erodible soils, increasing the potential for erosion and sediment transport to wetlands. Sedimentation could degrade water quality by increasing turbidity, suspended solids, and pollutants. Sediment deposition in wetlands could reduce floodwater storage capacity, change water depth and flow patterns, and block water inflow or outflow paths. Large volumes of sediment could kill trees by cutting off oxygen to their roots and could bury the eggs of aquatic organisms.

Table 3.6-5
Preliminary Mitigation Requirements for Wetland Impacts Based on Ecology (1998)

				Recommended Mitigation by Vegetation Community Type (acres)											
				Alternative B				Alternative C2 (Preferred)				Alternative C3			
Wetland and Basin	USFWS Classification	Ecology Rating	Mitigation Ratio	Total	PFO	PSS	PEM	Total	PFO	PSS	PEM	Total	PFO	PSS	PEM
Des Moines Creek Basin															
A	PFO/PSS	2	3:1	0.1	0.1			0.3	0.3			0.03	0.03		
B	PFO/PSS/PEM	2	3:1	8.7	8.7			0.03	0.03			8.0	8.0		
D	PFO/PSS/PEM	2	2:1	3.1		3.1						3.0		3.0	
F	PFO/PSS/PEM/ POW	2	3:1	4.4	4.4										
G	PSS/PEM	2	2:1									0.2		0.2	
H	POW/PEM	4	1.25:1									0.1			0.1
K	PEM	3	2:1									0.02			0.02
M	PSS	3	2:1					0.1		0.1		0.2		0.2	
N	PSS	3	2:1	0.2		0.2		0.2		0.2		0.2		0.2	
S	PEM	4	1.25:1									0.7			0.7
1	PFO	3	3:1	0.07	0.07										
2	PFO	3	3:1	2.2	2.2										
5	PFO/PSS	3	3:1												
6	PFO/PSS	3	3:1	0.04	0.04										
7	PFO/PSS	3	3:1	1.5	1.5										
8	PFO/PSS	3	3:1	0.2	0.2										
9	PSS, Stream	2	2:1	0.08		0.08									
15	PFO	3	3:1												
16	PFO	3	3:1	0.1	0.1			0.1	0.1			0.1	0.1		
17	PFO	3	1.25:1												
18	PEM	4	1.25:1	0.1			0.1								
19	PFO/PSS	3	3:1	0.01	0.01										
20	PSS	4	1.25:1									0.3		0.3	
21	PEM	3	2:1	0.4			0.4								
22	Ditch	4	1.25:1	0.01			0.01								
23	PEM	4	1.25:1					0.01			0.01	0.01			0.01
Basin Total				21.1	17.2	3.4	0.5	0.8	0.5	0.3	0.01	12.9	8.1	4.0	0.8
Mill Creek Watershed															
I5-7	PEM	3	2:1	0	0	0	0	0	0	0	0	0	0	0	0
Lower Green River Watershed															
I-10	PEM/PSS	3	2:1												
I-11	PFO/PSS	3	3:1												
I-12	PEM/PSS	3	2:1												
Basin Total				0	0	0	0	0	0	0	0	0	0	0	0
Lower Puget Sound Watershed															
I-13	PFO	3	3:1												
I-19	PFO	1	6:1												
Basin Total				0	0	0	0	0	0	0	0	0	0	0	0
Grand Total				21.1	17.2	3.4	0.5	0.8	0.5	0.3	0.01	22.7	18.3	4.0	1.1

Ecology (1998) = How Ecology Regulates Wetlands. Publication No. 97-112.

Minimum mitigation ratio for creation or restoration:

Category 1 = 6:1

Category 2 or 3--PFO = 3:1

Category 2 or 3--PSS or PEM = 2:1

Category 4 = 1.25:1

Numbers may not add precisely due to rounding

Pollutants from an accidental spill could be carried to adjacent wetlands by surface water runoff, degrading both water quality and wildlife habitat.

Adherence to BMPs and local environmental protection policies would ensure that stormwater runoff is collected and treated and that discharge to existing water bodies is controlled. A Stormwater Pollution Prevention Plan and TESC Plan would be prepared and implemented to avoid or minimize construction impacts on wetlands and streams. No storage or disposal of sediments or chemicals will occur within wetlands or wetland buffers. Settling ponds, containment berms, silt fences, sediment traps, seeding of exposed slopes, and other measures would be implemented as appropriate. Temporary construction impacts, such as construction access, staging areas, and scaffolding, will be designed to minimize impacts on wetlands where structures would be built. Areas of short-term construction impacts would be restored by replanting with native trees and shrubs upon completion of construction activities.

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3.7 Vegetation, Wildlife, Fish, and Threatened and Endangered Species

3.7 Vegetation, Wildlife, Fish, and Threatened and Endangered Species

3.7.1 Studies and Coordination

This section is based on previous reports, including the *SR 509/South Access Road EIS Discipline Report: Vegetation, Wildlife, and Fisheries* (CH2M HILL March 2000), the *SR 509/South Access Road EIS Discipline Report: South Airport Link* (CH2M HILL August 2001), the *SR 509/South Access Road EIS: I-5 Improvements Report* (CH2M HILL October 2001). These reports are included in this FEIS by reference.

To identify and evaluate vegetation, wildlife, fish, and associated habitats within the project area, information was gathered from a variety of sources. USFWS, NMFS, and the WDFW were contacted to provide information on federal and state threatened, endangered, proposed, and candidate species that may occur in or near the project area. The Washington State Department of Natural Resources (WDNR) Natural Heritage Program (NHP) was consulted regarding priority habitats and sensitive plant and wildlife species that may occur in or near the project area. The King County *Sensitive Areas Map Folio* (King County 1990) and the *Catalog of Washington Streams and Salmon Utilization* (Williams et al. 1975) were reviewed for information regarding fisheries resources.

Analysis of agency information and aerial photographs along with environmental studies prepared for the proposed project allowed for development of an inventory and assessment of resources that could be affected by the proposed project. A field reconnaissance of the project area was conducted on August 24, 2001, to verify information collected on vegetation communities, wildlife, fish, and general wildlife use of the project area. Habitats within approximately 500 feet of the proposed build alternatives were assessed. Wetlands within the project area are identified and documented in Section 3.6, *Wetlands*.

In accordance with Section 7 of the Endangered Species Act (ESA), a Biological Assessment (BA) was prepared to provide a detailed evaluation for all listed, proposed, and candidate species, and species of concern identified by USFWS and NMFS as potentially occurring in the project area. Consultation with USFWS and NMFS resulted in an agreement for preparation of a BA and associated Section 7 coordination on the preferred alternative (Alternative C2) (Grettenberger pers. comm. 1998, Nelson pers. comm. 2000). USFWS and NMFS concurred with the findings of the BA, and Section 7 consultation has been completed (concurrence letters are included in Appendix A of this FEIS). The threatened and endangered

species discussion in this section includes summary information from the BA prepared for the proposed project, as well as a discussion of state-listed species that are not under jurisdiction of USFWS and NMFS.

3.7.2 Affected Environment

The discussion is divided into three elements—vegetation and wildlife, fish, and threatened and endangered species. Vegetation and wildlife describes upland plant communities and potential wildlife use in the project area. Vegetation and wildlife of the project area are discussed together because of the close interaction between these two natural resources. The *Vegetation and Wildlife* section also discusses wetlands, but in the context of wildlife habitat. A detailed description of wetlands in the project area and an analysis of the proposed project's effects on wetlands are presented in Section 3.6, *Wetlands*. The *Fish* section discusses the freshwater habitat and potential fish use of the project area. The *Threatened and Endangered Species* section discusses listed threatened and endangered wildlife, fish, and plant species that are regulated under the ESA.

Vegetation and Wildlife

Vegetation communities within the project area consist of mowed and unmowed grassland areas; shrubland; mixed deciduous/coniferous forest; commercial and residential areas containing a fragmented mixture of native, nonnative, and ornamental plant species; and wetlands.

The project area is located within a densely populated urban area of western King County that is dominated by commercial and residential development. As a result, the majority of vegetation communities located within the project area are fragmented and associated with roads or located between residential and commercial development. The Tyee Valley Golf Course, Sea-Tac Airport, and facilities associated with the airport, are the significant features in the northern portion of the project area. The I-5 improvements, which account for 6.7 miles of the project length, are the significant feature in the southern portion of the project area.

Grassland areas are common throughout the project area. Portions of the project area that are dominated by grassland habitat include the Tyee Valley Golf Course and habitat adjacent to I-5. Plant species within the grassland habitat include a variety of native and nonnative grasses and herbaceous species that are common within King County. Grassland areas associated with the Tyee Valley Golf Course are fairways that are frequently mowed. Grassland habitat adjacent to I-5 generally consists of a mosaic of mowed and unmowed grassland areas interspersed with parcels of shrubland, mixed deciduous/coniferous forest, and wetlands. Various combinations of native and nonnative tree and shrub species occur adjacent to I-5. The majority of

these vegetation communities are located within 100- to 200-foot-wide tracts of land between the roadway and residential and commercial development.

Fragmented stands of mixed deciduous/coniferous forest are also located in several areas in the northern portion of the project area, including south of South 192nd Street and the Des Moines Creek Park area. Mixed deciduous/coniferous forest habitat is dominated by an assemblage of species typical of Puget Sound lowland forests. Nonnative, invasive species such as English ivy (*Hedera helix*), Scot's broom (*Cytisus scoparius*), and Himalayan blackberry (*Rubus procerus*) are frequent components of the shrub and forested habitats. Forested habitat in the project area is typically relatively young, second growth forest. No stands of old growth forest habitat are located within the project area.

Commercial and residential areas often include a combination of mowed grasses and a fragmented mixture of native, nonnative, and ornamental trees and shrubs. Most of the habitat associated with residential and commercial development is located south of Tyee Valley Golf Course and north of the project area associated with the I-5 corridor.

The South Airport Link design options H0, H2-A, and H2-B are located in the northeast portion of the project area, in a densely populated urban area dominated by residential and commercial development. The dominant features of this portion of the project area are buildings, parking lots, and paved roads, primarily associated with Sea-Tac Airport facilities.

Riparian habitat within the project area is limited to areas associated with Des Moines Creek. South of South 200th Street the riparian habitat of Des Moines Creek includes high quality shrub and forested habitat within Des Moines Creek Park. North of South 200th Street, the riparian habitat of Des Moines Creek is dominated by fairways with mowed grasses within the Tyee Valley Golf Course. Tree canopy and bank vegetation are largely absent in this area. Des Moines Creek also flows through several ponds in the Tyee Valley Golf Course that function as wetland habitat.

Several wetland communities were identified along the alignments of the build alternatives. These wetlands are all palustrine systems and include open water, emergent, scrub-shrub, and forested wetland systems. A detailed discussion of these wetlands is presented in Section 3.6, *Wetlands*.

The mosaic of vegetation communities within the project area provides habitat for a variety of terrestrial and aquatic wildlife. Wildlife diversity is generally related to the structure and composition of plant species within vegetative communities. Wetlands and forested areas with well-developed shrub layers are likely to support the greatest number of species and populations of wildlife (Brown 1985). Wildlife habitats in the project area range in quality from low in commercial and residential areas, to high in the

wetland habitat and forested riparian habitat associated with Des Moines Creek Park.

A moderate variety of native birds, mammals, reptiles, and amphibians are expected to inhabit shrubland, forested, and wetland habitats in the project area.

Areas of mixed deciduous/coniferous forest in the northern portion of the project area provide valuable habitat for native wildlife species. These areas are likely to provide breeding habitat for edge species, interior-dependent wildlife species, and migrant songbirds.

Ponds located in the Tyee Valley Golf Course, other wetlands in the project area, and riparian areas associated with Des Moines Creek provide habitat for a variety of amphibians, reptiles, mammals, and birds that depend on water for foraging and breeding habitat. Open-water sections of the ponds and wetlands in the project area are also expected to provide habitat for wintering and migratory waterfowl.

Urbanized areas near Sea-Tac Airport, SR 99, and I-5, and along roadways with adjacent businesses and residences offer the least valuable wildlife habitat in the project area because of their fragmented and disturbed nature. The relatively narrow habitats and the proximity between areas with high levels of human activity limits the value of available wildlife habitat to species that are not sensitive to human disturbance. Additionally, wildlife species that typically prefer interior forest habitat or require large areas of unbroken habitat to forage and reproduce are unlikely to regularly occur in these portions of the project area. These areas likely support an assemblage of native wildlife species typically found in western Washington and King County that have adapted to disturbance associated with populated urban areas, as well as nonnative wildlife species. No evidence of rare, uncommon, or unique wildlife or wildlife habitat is apparent within the project area (Guggenmos pers. comm. 2001, Moody pers. comm. 2001).

Fish

The project area is located within the Lower Duwamish River Basin (Water Resource Inventory Area [WRIA] 9). Freshwater and marine resources that support fisheries and other aquatic biota within WRIA 9 include Puget Sound, Duwamish River, Green River, and a variety of streams, tributaries, and lakes. The proposed project passes through five stream basins (Des Moines Creek, Miller Creek, Lower Green River, Lower Puget Sound, and Mill Creek). Basin boundaries and stream locations are shown in Figure 3.5-1.

Des Moines Creek is the only fish-bearing aquatic resource that would be crossed by the proposed project. No additional aquatic resources with

potential fish habitat are located within 0.2 mile of the project build alternatives. Aquatic resources located more than 0.2 mile from the proposed project would not be directly affected by construction activities, but could be affected by stormwater runoff.

Des Moines Creek Basin

Des Moines Creek is the main drainage course in the Des Moines Creek Basin. Originating from Bow Lake north of South 192nd Street, Des Moines Creek generally flows south to southwest and eventually empties into Puget Sound near South 222nd Street.

A Catalog of Washington Streams for the Puget Sound Region (Williams, et al. 1975) lists coho salmon and possibly chum salmon as the primary salmonid species using Des Moines Creek. WDFW considers cutthroat to be the dominant trout species in Des Moines Creek, although steelhead and rainbow trout have also been observed (Parametrix 1994, Phillips pers. comm. 1998). The WDFW Priority Habitat and Species (PHS) data system identifies the reach of Des Moines Creek from Puget Sound to RM 1.0, as providing an anadromous fish presence and priority anadromous/resident fish presence (Guggenmos pers. comm. 2001). King County and WDFW have not detected spawning activity upstream of RM 1.0 (Masters pers. comm. 1999, Phillips pers. comm. 1998, Schnieder pers. comm. 1999).

WSDOT and King County identify the box culvert at Marine View Drive, at approximately RM 0.4, as a fish barrier that "appears to limit all anadromous fish passage" (King County 1997). Replacement of the box culvert with a bridge is a project identified in the Des Moines Creek Basin Plan, and is scheduled to be completed prior to completion of the SR 509 project. Therefore, anadromous fish use in Des Moines Creek is assumed to extend up to RM 1.0 in this FEIS.

From Puget Sound to South 200th Street (RM 2.1), Des Moines Creek flows in a natural channel through forested habitat that provides nearly unbroken shade cover. Portions of this reach contain good spawning habitat; however, rearing habitat is limited (Johnson 1989, Shapiro 1999). Upstream of South 200th Street the creek contains little or no salmon spawning or rearing habitat. In this reach the creek flows through the Tyee Valley Golf Course. The final 3,600-foot reach of the creek is culverted and channelized up to Bow Lake.

Miller Creek, Lower Green River, Lower Puget Sound, and Mill Creek Basins

Natural resource information identifies the location of the nearest fish bearing streams in these basins with fish use by resident or anadromous fish as more than 0.2 mile from the project area (Guggenmos pers. comm. 2001, King County 1990, Williams et al. 1975). Potential fish-bearing aquatic resources

located between 0.2 and 0.5 mile of the proposed project include Mill Creek (Mill Creek Basin), Star Lake (Lower Green River Basin), Steel Lake (Lower Puget Sound Basin), and Lake Dolloff (Mill Creek Basin).

Mill Creek flows to the south from the outlet at the southeast end of Lake Dolloff for about 8.4 miles before flowing into the Green River. From Lake Dolloff to about RM 4.0, Mill Creek is unclassified by King County. From RM 4.0 to its confluence with the Green River, Mill Creek is classified by King County as a Class 2 stream with salmonids (King County 1990). The WDFW PHS database identifies Mill Creek as supporting anadromous fish runs up to about RM 7.0, the location of impassable cascades (Williams et al. 1975, WDFW 2001). RM 7.0 is located more than 1.2 miles east of the project.

The *Catalog of Washington Streams and Salmon Utilization* (Williams et al. 1975) and the WDFW PHS database (WDFW 2001) identify salmon use of Mill Creek to include coho salmon up to the location of impassable cascades at about RM 7.0, which is more than 1.2 miles east of the proposed project. These sources do not identify chinook salmon in Mill Creek. Additional analysis of fish habitat and fish use within these basins is presented in the technical reports previously prepared for the proposed project (see Section 3.7.1, *Studies and Coordination*).

Threatened and Endangered Species

According to correspondence with state and federal agencies, wildlife and fish species that are listed as threatened or endangered may occur near the project area. Table 3.7-1 shows the federally listed species under the jurisdiction of USFWS or NMFS that could occur near the project area; these species were evaluated in the BA prepared for the project. Species under USFWS jurisdiction include bald eagle, marbled murrelet, and the Coastal-Puget Sound Distinct Population Segment (DPS) of bull trout (Berg pers. comm. 2001). NMFS indicated that Puget Sound chinook salmon, listed as threatened, could occur near the project area, and identifies the project area as occurring within the designated critical habitat for Puget Sound chinook salmon. NMFS also identified one candidate species for listing, coho salmon, as potentially occurring near the project area (Kirkpatrick pers. comm. 2001).

A review of the WDFW PHS data system and nongame data system revealed that no federal or state-listed sensitive, threatened, endangered, or proposed wildlife species regularly occupy, breed, or forage within 1 mile of the project area (Guggenmos pers. comm. 2001).

Table 3.7-1
USFWS and NMFS Listed Endangered, Threatened, Proposed, and Candidate Species Evaluated in the Project Biological Assessment

Common Name	Scientific Name	Federal Status	State Status
USFWS			
Bald Eagle	*Haliaeetus leucocephalus*	Threatened	Threatened
Bull Trout (Coastal/Puget Sound DPS)	*Salvelinus confluentus*	Threatened	Candidate
Marbled Murrelet	*Brachyramphus marmoratus marmoratus*	Threatened	Threatened
NMFS			
Chinook Salmon (Puget Sound ESU)	*Oncorhynchus tshawytscha*	Threatened	Candidate
Chinook Salmon Critical Habitat (Puget Sound ESU)	*NA*	Critical Habitat	None
Coho Salmon (Puget Sound/ Straight of Georgia ESU)	*Oncorhynchus kisutch*	Candidate	None

Source: Berg pers. comm. (2001), Kirkpatrick pers. comm. (2001).

ESU = Evolutionary Significant Unit
NA = not applicable

WDFW identified four bald eagle nests and/or breeding territories located within 3 miles of the project area. None of these nests are located within 1 mile of the project area. One nest is located along the northeast corner of Angle Lake, more than 1 mile north of the project area. A second nest is located south of North Lake, more than 1 mile south of the project area. The third and fourth nests are located along the shoreline of Puget Sound, more than 2 miles west of the project area. A fifth nest is located south of Seahurst Park, more than 4 miles northwest of the project area (Guggenmos pers. comm. 2001).

Wintering populations of bald eagles use shoreline areas along Puget Sound for foraging and perch sites. Bald eagles may perch near the project area; however, quality breeding and foraging habitats typically associated with bald eagles are not located adjacent to the proposed project, and no bald eagle breeding, nesting, or winter roosting is documented within 1 mile of the project area (Guggenmos pers. comm. 2001).

Marbled murrelets occur in many areas of western Oregon and Washington, where suitable forested habitat occurs within approximately 50 miles of Puget Sound or the Pacific Ocean (Hamer et al. 1991). Potential murrelet habitat has been described as mature coniferous forest, coniferous forest with an old growth component, old growth forest, or younger coniferous forests that have deformations or structures suitable for nesting.

WDFW has not documented any marbled murrelet occupancy sites within at least 5 miles of the project area (Guggenmos pers. comm. 2001). Potentially suitable marbled murrelet nesting habitat is not located within 5 miles of the project area. Old-growth forest communities typically associated with marbled murrelet habitat are not located in western King County.

On October 29, 1999, the Coastal-Puget Sound DPS of bull trout was listed by the federal government as a threatened species because of habitat degradation, dams and diversions, and predation by nonnative fish. Freshwater and anadromous populations of bull trout have been documented in Washington. While USFWS has indicated that the species may be present in the project area, it does not provide specific habitat use information (Berg pers. comm. 2001). A 1999 distribution map by USFWS does not identify current or historic spawning areas for bull trout within 1 mile of the project area (USFWS 1999). A 1993 report on the distribution and status of bull trout and Dolly Varden in Washington does not identify any drainages within 1 mile of the project area as having populations of bull trout (Washington State Department of Wildlife [WDW] 1993). Bull trout have not been documented and are very unlikely to occur in Des Moines Creek (Schnieder pers. comm. 1999, Phillips pers. comm. 1998, Masters pers. comm. 1999).

On March 24, 1999, the Puget Sound chinook salmon Evolutionary Significant Unit (ESU) was listed by NMFS as a threatened species. Juveniles and adults of Puget Sound populations of chinook salmon migrate through Puget Sound. Adult chinook salmon returning to Puget Sound rivers to spawn typically pass through Puget Sound between July and October (NMFS 1999).

On February 16, 2000, NMFS designated critical habitat of the Puget Sound chinook salmon ESU as protected under the ESA (50 CFR Part 226). The rule was effective March 17, 2000. Critical habitat for the Puget Sound chinook salmon includes all marine, estuarine, and fresh waters that are accessible to chinook salmon.

According to NMFS, Puget Sound chinook salmon may occur in the vicinity of the proposed project. NMFS does not provide specific habitat use data. The NMFS data system identifies potential species occurrence in a project area based on the Township and Range where the project is proposed. NMFS' reference to chinook salmon is likely in regard to the Puget Sound and Green River habitat. Puget Sound chinook salmon are not documented and are unlikely to occur in Des Moines Creek (Guggenmos pers. comm. 2001, Masters pers. comm. 1999, Schnieder pers. comm. 1999). Chinook salmon are not documented to occur in Mill Creek (Williams et al. 1975, WDFW 2001).

NMFS has received petitions to list Puget Sound/Straight of Georgia coho salmon as threatened, though they are not protected under the ESA at this

time (Kirkpatrick pers. comm. 2001). Coho salmon are documented in Des Moines Creek from the outlet at Puget Sound to RM 1.0. Coho salmon are documented in Mill Creek up to the location of impassable cascades at about RM 7.0, which is more than 1.2 miles east of the project.

WDFW documented the presence of pileated woodpeckers more than 1 mile northwest of the project area (Guggenmos pers. comm. 2001). This species is currently considered a candidate for state listing as threatened or endangered. Pileated woodpeckers are typically found in dense, mature forests.

The WDFW PHS data system and the WDNR NHP were consulted regarding rare plants and priority habitats within the project area. No federal or state-listed sensitive, threatened, or endangered plant species or high quality native plant communities are located within the areas that would be directly affected by the proposed alignments (Guggenmos pers. comm. 2001, Moody pers. comm. 2001).

3.7.3 Environmental Impacts

Alternative A (No Action)

Under the No Action Alternative, impacts on vegetation and wildlife, fish, and threatened and endangered species associated with the proposed project would not occur. No impacts or construction would occur that would entail removal or alteration of existing vegetation communities, wildlife, or fish habitats within the project area.

Impacts Common to All Build Alternatives

The section below describes long-term impacts associated with construction of the proposed project. Short-term impacts associated with construction of the proposed project are described in Section 3.7.5, *Construction Activity Impacts and Mitigation.*

Vegetation and Wildlife

Potential impact area estimates are based on aerial photo analysis and preliminary engineering plans prepared for the proposed project and represent the maximum extent of clearing that would occur under each of the build alternatives. Construction elements include lane construction, intersection construction, on-ramp and off-ramp construction, access roads, bridges, laydown and equipment storage areas, and stormwater detention facilities. Actual clearing or disturbance would likely be less than the total area shown on Table 3.7-2.

Table 3.7-2 Vegetation Community Impacts Under Each of the Proposed Build Alternatives (acres)			
Habitat Type	**Alternative B**	**Alternative C2 (Preferred)**	**Alternative C3**
Mixed Deciduous/Coniferous Forest	106.5	48.2	67.3
Shrubland	40.5	28.1	33.3
Grassland	37.7	30.9	24.1
Residential and Commercial Development	15.3	19.1	19.5
Wetlands	7.7	0.3	5.4
Total	**207.7**	**126.6**	**149.6**

Operation impacts on vegetation communities would be limited to shading associated with the bridges that would cross Wetlands A, B, and D and Des Moines Creek. (Refer to Section 3.6 for a discussion of wetland shading impacts.) Other than those communities shaded by bridges, operation of the project would not affect existing vegetation communities.

The proposed project would result in audible and visual disturbances to wildlife following construction. Species particularly sensitive to such disturbances would likely avoid the project area. Operation-related impacts on wildlife are expected to be relatively minor and related principally to ambient noise levels associated with vehicular traffic. Wildlife not tolerant of traffic disturbance would attempt to relocate to quieter areas. This avoidance behavior requires individuals to find new food sources and/or nesting areas. Such areas are usually already occupied, and the increased stress of competition for limited resources could cause displaced wildlife to perish. Other behavioral reactions include altered migration patterns and changes in individual's home ranges (Informatics 1980). Noise effects primarily would be limited to the immediate vicinity of roadways. The portion of the project associated with I-5 is an existing roadway that has been in place for several decades. Noise levels associated with vehicular traffic on I-5 following construction are expected to be consistent with current traffic noise. Noise impacts associated with operation of the SR 509 freeway extension are unlikely to be significant because it is located within a populated urban area.

Wildlife mortality from vehicles would likely increase in areas where new roads are constructed. Fragmentation of habitat would affect wildlife movement and restrict species home ranges. Animals that would most likely be affected are black-tailed deer and small mammals such as raccoon, opossum, and skunk (Informatics 1980). Mortality rates for mammals may be greatest during spring and early summer when young animals disperse from nesting locations (Leedy 1975).

Fish

In evaluating risks to fish habitat, water quality in receiving waters is the primary concern. Des Moines Creek is the only fish-bearing aquatic resource that would be crossed by the proposed project. None of the build alternatives would include stream crossings within the Miller Creek, Lower Green River, Lower Puget Sound, and Mill Creek basins. Potential operation impacts on Des Moines Creek include water quality degradation from operation and maintenance activities associated with stormwater runoff from new and existing impervious surfaces near the creek. The extent of the impacts would depend on several factors, including the amount of new impervious surfaces and increased pollutant loading in stormwater runoff, the types and locations of stormwater treatment facilities, and the pollutant-removal efficiencies of the facilities. Significant water quality degradation is not expected as long as stormwater management plans, facilities, and related BMPs are installed and maintained to comply with the King County *Surface Water Design Manual* (King County 1998) and WSDOT's *Highway Runoff Manual* (WSDOT 1995). Section 3.5, *Water Quality,* contains more detailed information on water quality impacts.

Worn rubber from tires, lubricants, heavy metals in the fine sediments, and fuel on the road would wash off with the rain and possibly flow into receiving waters, including Des Moines Creek and the Green River. These impacts, relative to existing effects from nonpoint source pollution, would not be significant because all runoff from new impervious surfaces would be treated under the build alternatives.

At the completion of the project, all stormwater runoff generated from new impervious surfaces created by the project would be collected and treated for quality. Where feasible, collected stormwater would be treated and infiltrated. Where subsurface conditions do not allow for infiltration, collected stormwater would be detained and receive enhanced treatment prior to discharge. Proposed stormwater collection, detention, and treatment facilities include infiltration vaults, detention ponds, infiltration ponds, biofiltration trenches, filter strips, and constructed wetlands. These facilities would be located within existing WSDOT right-of-way or right-of-way acquired for the project (see Section 3.5, *Water Quality*, for a more detailed description of proposed water quality treatment and impacts). All stormwater collection and treatment facilities would be constructed and operated to manage expected stormwater volumes related to the project.

Within the Des Moines Creek Basin, stormwater that is not infiltrated would discharge to Des Moines Creek or wetland systems with connections to Des Moines Creek. (See Section 3.5 for a description of stormwater design criteria.) The proposed stormwater facility design, in conjunction with the Des Moines Creek Basin Plan flow control project, would reduce project peak flows in the basin for the 2-, 10-, 50-, and 100-year events to 40 to 43

percent of 1994 peak flows (Olympic Associates Company October 2002) stormwater releases to the creek would be significantly reduced, no increase in erosion potential to the existing stream banks is anticipated.

Within Miller and Mill Creek basins, treated stormwater would discharge to wetland systems that have no known fish use or surface water connections to fish-bearing streams.

Within the Lower Puget Sound and Lower Green River basins, most of the facilities would discharge to wetland systems that have no known fish use or surface water connections to fish-bearing streams. Four stormwater facilities within the Lower Puget Sound and Lower Green River basins would discharge to drainage systems that eventually reach Midway Creek and McSorley Creek. Midway Creek and McSorley Creek are located more than 1 mile from the project area. Prior to reaching these creeks, stormwater would be diverted through more than 6,000 feet of drainage ditches, culverts, and storm drain systems that do not provide habitat for fish species.

Another potential operational impact could result from accidental spills of deleterious or hazardous substances. Such impacts would likely be reduced to insignificant levels by existing stormwater management plans and future mitigation stipulated in regulatory permits. The proposed build alternatives would provide a transportation corridor designed under current regulatory safety standards, which would result in a lower frequency of accidents compared with existing roads designed to earlier standards. Thus, the risk of accident-related spills would be expected to be lower than existing conditions because the new roadway would improve the overall safety of the road system.

Operation of the build alternatives could affect potential salmon and resident fish habitat in Des Moines Creek and marine receiving waters of Puget Sound. Potential impacts would depend on pollutant loads in stormwater runoff, runoff volumes and rates, and the configuration and effectiveness of stormwater management facilities (see Section 3.5, *Water Quality*). Currently, there are no water quality treatment facilities located within the proposed project area to treat stormwater runoff of impervious areas. The addition of stormwater detention and treatment facilities would improve the quality of stormwater runoff from the project area compared to existing conditions. With mitigation, potential unavoidable impacts on fish habitat are unlikely to be significant.

Threatened and Endangered Species

No federal- or state-listed sensitive, threatened, or endangered wildlife species regularly breed, forage, or regularly occupy the project area of the build alternatives. For this reason, and reasons discussed above for fish, no impacts on threatened and endangered species are anticipated.

These species were addressed in the BA prepared for the project in accordance with Section 7 of the ESA. USFWS and NMFS have concurred with the BA findings of "may affect/not likely to adversely affect" for bald eagle, bull trout, Puget Sound chinook salmon, and coho salmon; "no effect" for marbled murrelet; and "not likely to significantly impact" chinook salmon critical habitat.

South Link Design Options H0, H2-A, and H2-B

Because of the similarity of the proposed alignments associated with the South Airport Link portion of the project area (design options H0, H2-A, and H2-B), impacts on vegetation and wildlife, fish, and threatened and endangered species would be the same for each design option under all build alternatives. Vegetation habitats in this portion of the project area are limited to fragmented patches of grassland communities adjacent to roads and parking lots and isolated ornamental shrubs and trees associated with commercial development. Because of the low quality habitat, fragmented nature, and high degree of disturbance in this portion of the project area, the South Airport Link design options would have no significant impact on vegetation and wildlife.

Des Moines Creek is culverted below street level in this portion of the project area. The South Airport Link design options would not occur where the culvert is located. Based on the current engineering design, there would be no net gain or loss in impervious surface area under Option H0. Option H2-A would result in a net gain of 0.1 acre of impervious surface. Option H2-B (the preferred option) would result in a net gain of 0.5 acre of impervious surface. Potential impacts on Des Moines Creek would be limited to water quality impacts. Water quality impacts on Des Moines Creek from stormwater runoff, relative to existing effects from nonpoint source pollution, would not be substantial because all runoff from new impervious surfaces would be treated under Options H0, H2-A, and H2-B. Some pollutant loading would be unavoidable with proposed stormwater treatment. These impacts would not likely be significant because concentrations of pollutants would be below Washington State water quality standards, which are protective of aquatic life. See Section 3.5, *Water Quality,* for more discussion.

Alternative B

Vegetation and Wildlife

Alternative B would have greater impacts on vegetation communities than Alternatives C2 and C3 (Table 3.7-2). Under Alternative B, approximately 0.5 acre of forested and riparian habitat in Des Moines Creek Park would be acquired for roadway right-of-way. This area is located at the park's narrowest point, in the area of South 209th Street. The roadway would span the park on a bridge, and little or no vegetation would be removed. Riparian

areas that would be affected under Alternative B occur within the Tyee Valley Golf Course and Des Moines Creek Park. Alternative B would result in less clearing of vegetation communities associated with residential and commercial development than Alternatives C2 and C3. Under Alternative B a significantly greater amount of forested and wetland habitat would be cleared than under Alternatives C2 and C3.

Fish

Alternative B would cross Des Moines Creek on one bridge near South 209th Street, at about RM 1.7. Alternative B would also cross the East Fork of Des Moines Creek at four locations north of South 200th Street in the Tyee Valley. An existing culvert beneath South 200th Street would be extended. No other alterations of existing stream crossings would occur. While anadromous fish runs do not occur in the reach of Des Moines Creek crossed by Alternative B, Des Moines Creek upstream and downstream of South 209th Street does contain quality stream and riparian habitat. Anadromous fish runs are located in the downstream reach of Des Moines Creek below about RM 1.0 and in the receiving waters of Puget Sound. Alternative B would not involve any additional stream crossing and would not include any construction activity on streams within the Des Moines Creek, Miller Creek, Massey Creek, Lower Green River, Lower Puget Sound, and Mill Creek basins.

Threatened and Endangered Species

No federal- or state-listed sensitive, threatened, or endangered wildlife species regularly breed, forage, or occupy the Alternative B project area. For this reason, and reasons discussed above for fish, no impacts on threatened and endangered species are anticipated.

Alternative C2 (Preferred)

Vegetation and Wildlife

Alternative C2 would have less impact on vegetation communities than Alternatives B and C3 (Table 3.7-2). Alternative C2 would encroach into the northeast corner of Des Moines Creek Park, requiring the acquisition of 4.7 acres of mixed deciduous/coniferous forest habitat within the park for roadway right-of-way. The roadway would be on a bridge structure within the park, and vegetation removal would be limited to clearing for construction access and bridge piers. Riparian areas that would be affected under Alternative C2 occur in the Tyee Valley Golf Course and the northern area of Des Moines Creek Park. No large habitat tracts would be fragmented.

Fish

Alternative C2 would bridge Des Moines Creek at one location in Des Moines Creek Park, at the northern portion of the park directly south of South 200th Street, at about RM 2.1. Four bridge crossings of the East Fork of Des Moines Creek would occur in the Tyee Valley Golf Course north of South 200th Street. An existing culvert beneath South 200th Street would be extended. No other alterations of existing stream crossings would occur. Aquatic habitat in the golf course area does not provide quality habitat for fish. While anadromous fish runs do not occur in the reach of Des Moines Creek that would be crossed by the proposed alignment, Des Moines Creek downstream of South 200th Street does contain quality stream and riparian habitat. Anadromous fish runs are located in the downstream reach of Des Moines Creek below about RM 1.0 and in the receiving waters of Puget Sound. Alternative C2 would not involve any additional stream crossing and would not include any construction activity on streams within the Des Moines Creek, Miller Creek, Lower Green River, Lower Puget Sound, and Mill Creek basins.

Threatened and Endangered Species

No federal- or state-listed sensitive, threatened, or endangered wildlife species regularly breed, forage, or occupy the Alternative C2 project area. For this reason, and reasons discussed above for fish, no impacts on threatened and endangered species are anticipated.

Alternative C3

Vegetation and Wildlife

Alternative C3 would disturb less vegetation than Alternative B and more than Alternative C2 (Table 3.7-2). Alternative C3 would encroach into the northeast corner of Des Moines Creek Park, requiring the acquisition of approximately 3.9 acres of parkland for roadway right-of-way. Similar to Alternative C2, the roadway would be on a bridge structure within the park, and vegetation removal would be limited to clearing for construction access and bridge piers. Riparian areas affected by Alternative C3 would be in the Tyee Valley Golf Course and the northern portion of Des Moines Creek Park. No large habitat tracts would be fragmented.

Fish

Alternative C3 would cross Des Moines Creek south of South 200th Street within Des Moines Creek Park at about RM 2.1. Alternative C3 would also cross the East Fork of Des Moines Creek at four locations north of South 200th Street within the Tyee Valley Golf Course. An existing culvert beneath South 200th Street would be extended. No other alterations of existing stream crossings would occur. Fish and wildlife habitat in the golf course area is low

quality. While anadromous fish runs do not occur in the reach north of South 200th Street, the reach of Des Moines Creek south of South 200th Street does contain high quality fisheries resources. Alternative C3 would not involve any additional stream crossing and would not include any construction activity on streams within the Des Moines Creek, Miller Creek, Lower Green River, Lower Puget Sound, and Mill Creek basins.

Threatened and Endangered Species

No federal- or state-listed sensitive, threatened, or endangered wildlife species regularly breed, forage, or occupy the Alternative C3 project area. For this reason, and reasons discussed above for fish, no impacts on threatened and endangered species are anticipated.

3.7.4 Mitigation Measures

Mitigation measures for operation impacts would be similar for all build alternatives. Mitigation measures for construction impacts are discussed in Section 3.7.5. No mitigation measures are necessary for the No Action Alternative.

Vegetation and Wildlife

Establishment of native plant communities to replace exotic, invasive species would be an important component in mitigation. Covering, seeding, and/or revegetating disturbed soils with native species would follow construction and final grading to help reduce soil erosion and colonization by nonnative species. Maintenance practices following construction of the proposed project could include a variable mowing schedule for grassy rights-of-way to create a diversity of grassland habitat over time. A post-construction monitoring program would be conducted and include measures to ensure mitigation effectiveness. If mitigation performance standards are not met during post-construction monitoring, additional mitigation would be required and implemented as appropriate.

Fish

Potential operational impacts on water quality and fisheries resources would be mitigated through compliance with drainage and erosion-control requirements and implementation of stormwater BMPs. More detailed discussion of measures used to mitigate potential impacts on water quality are presented in Section 3.5, *Water Quality*. These mitigating measures would reduce increases in pollutant loading to waters receiving stormwater runoff and reduce potential impacts on aquatic resources from water quality degradation.

Measures used to mitigate water quality degradation and associated impacts on fisheries include designing the preferred alternative to minimize

impervious surface area. Additional measures could include exceeding drainage control requirements and maximizing opportunities for infiltration. Potential habitat impacts on anadromous and resident fish habitat at stream crossings would be mitigated by the project Hydraulic Project Approval (HPA) conditions. Potential baseflow impacts could be reduced by infiltrating stormwater runoff and recharging shallow groundwater to the maximum extent practicable. Federal, state, and local agencies will review plans to ensure proposed stormwater management designs avoid or minimize potential impacts that would otherwise adversely affect fish habitat in offsite streams. These mitigation requirements are expected to prevent significant impacts on water quality resulting from operation of the proposed build alternatives.

Mitigation measures related to water quality and hydrology impacts completed for operation impacts would be monitored after the proposed project is completed to determine their overall effectiveness and appropriateness. Roadway maintenance would be conducted in accordance with the BMPs outlined in the *Regional Road Maintenance Endangered Species Act Program Guidelines* (NMFS 2001).

Threatened and Endangered Species

No operation-related mitigation measures are necessary for terrestrial species. Fish and water quality-related design guidelines will comply with various federal, state, and local permit requirements. Implementation of these measures will protect aquatic resources outside the project area. Mitigation for threatened and endangered aquatic species will be the same as those described above for fish.

3.7.5 Construction Activity Impacts and Mitigation

Construction Activity Impacts

Vegetation and Wildlife

The primary impact associated with project construction would be vegetation removal and loss of wildlife habitat. The extent of impact would depend on the type and quantity of affected vegetation for each alternative. Loss of plant communities that provide limited wildlife habitat, such as commercial and residential areas, would have a minor adverse effect, while more complex vegetation associations, such as forested areas and wetlands, would be of greater consequence.

Habitats associated with the proposed project that would be cleared include mowed and unmowed grassland areas; shrubland; mixed deciduous/coniferous forest; commercial and residential areas containing a fragmented mixture of native, nonnative, and ornamental plant species; and

wetlands. An element of each of these habitat types would be cleared under each of the build alternatives.

Construction of the proposed project would create an environment conducive to the establishment of invasive and exotic species in native areas unless appropriate plant restoration and maintenance methods are implemented. Exposed, unvegetated, and/or compacted soils that result from land conversion would be susceptible to colonization by invasive species. Generally, construction would most likely promote the establishment of invasive weeds along the perimeter of undeveloped vegetation communities.

Construction also would result in soil compaction from the use of heavy equipment on the site. Soil compaction might cause direct damage to plants with shallow root systems and might reduce the infiltration of water and nutrients into the soil.

Clearing native vegetation during the proposed construction would eliminate and modify existing wildlife habitat (Table 3.7-2). Such impacts on habitats would displace and/or eliminate wildlife that currently depends on this vegetation. Loss of snags and coarse woody debris negatively affects primary and secondary cavity nesters. Removing the overstory adversely affects mammals and birds that use the canopy and it decreases thermal cover. Decreases in understory adversely affect ground-dwelling species. The loss of existing vegetation eliminates protective cover, nesting areas, and food for animals. Birds, small mammals, amphibians, and reptiles currently using the project area would be adversely affected by this loss of habitat. Most wildlife species (such as birds and mammals) would be able to move away from areas of disturbance. Wildlife with limited mobility, such as amphibians, reptiles, and some small mammal species would be directly affected by road construction. While it is anticipated that some individuals of these species would perish during construction, it is not possible to accurately predict the actual number of wildlife that would be affected.

Wildlife populations are generally considered to be at or near carrying capacity in all habitat types (Krebs 1994, Morrison et. al. 1992, Miller 1990, Robinson and Bolen 1989, Wallace 1987). Once vegetation has been removed, wildlife displaced into adjacent habitats may be unsuccessful in colonizing nearby suitable habitats because these areas are usually already occupied. The increased stress of competition for limited resources and susceptibility to predation may cause displaced animals to perish or to displace other individuals that in turn might perish. Heavy equipment use during clearing and grading would cause the greatest audible and visual disturbance to wildlife.

Disturbances caused by road construction on the project site may affect wildlife in adjacent habitats by disrupting feeding and nesting activities. Forested habitats in the project area are used for breeding by migrant and

resident songbirds. Increased noise levels created by operation of heavy machinery could cause birds to abandon their nests and may temporarily displace wildlife during construction. Many wildlife species, particularly mammals, are nocturnal and are relatively inactive during daylight hours. They typically retreat to burrows and other resting areas and generally would not be affected by construction noise during the day. Once construction activities are complete, wildlife might resume use of the site.

Waterfowl concentrations near airports are typically deterred to avoid potential collisions with aircraft. Stormwater facilities constructed within the Des Moines Creek and Miller Creek basins would be subject to Sea-Tac Airport requirements to minimize potential wildlife attractants. WSDOT and the Port of Seattle will coordinate with the FAA regarding appropriate covers over open-water ponds to prevent bird attraction.

Wildlife species that typically prefer interior forest habitat or require large areas of unbroken habitat to forage and reproduce are unlikely to regularly occur in the project area. No large habitat tracts would be fragmented. No evidence of rare, uncommon, or unique wildlife or wildlife habitat is apparent within the project area. No critical or priority habitat would be affected.

Fish

Each of the build alternatives would include construction of bridge crossings over Des Moines Creek but would not require in-water work. One culvert in Des Moines Creek under South 200th Street would be extended. This existing fish barrier will remain in accordance with FAA policy that no anadromous fish be allowed to travel north of South 200th Street because they may attract raptors, which would create a bird strike risk for airplanes. No other streams occur within 0.2 mile of the proposed alternatives.

Construction impacts are generally proportional to the amount of clearing and grading and the effectiveness of structural and nonstructural BMPs. Some nonpoint chemical pollution would be expected to result from general construction practices, even with BMPs employed. With the implementation and maintenance of BMPs, there is a low likelihood for adverse impacts on fish habitat associated with the build alternatives. Construction practices resulting in soil compaction and tree removal might increase the rates of surface water runoff during storms. Impacts on offsite fish and fish habitat are not anticipated because stormwater will be managed using best available technology for detention and infiltration systems.

Exposing soil, removing vegetation, clearing, and grading associated with construction could result in increases in erosion and sedimentation and temporarily elevated levels of TSS. Adverse effects on streams associated with clearing and grading are well documented (Leedy 1975). Water quality is impaired and fisheries habitat is degraded when fine sediments less than

0.85 mm in diameter are released during uncontrolled major erosion events. Large volumes of fine sediments can collect in pools and low-gradient reaches to reduce stream capacity for fish rearing. Sediments can also decrease production of fish food organisms by embedding in stream substrates. Des Moines Creek is the only fish-bearing stream within 2,000 feet of the project area. Spawning habitat is not located in the reach of Des Moines Creek within the project area; however, adverse effects on water quality in the project area could harm downstream habitats (Puget Sound).

Construction equipment, materials, and waste generated onsite could be sources of pollutants, including oil and grease, hydraulic fluid, concrete leachate, and polynuclear aromatic hydrocarbons (PAHs). Accidental spills and releases of these materials could contaminate water resources. Water quality degradation from temporary increases in suspended solids and accidental spills could adversely affect fish and other aquatic biota. Degradation could occur through reduced light transmittance, photosynthesis, and primary productivity. Additionally, increased TSS could reduce feeding success, increase stress, and modify the behavior of fish using these areas, increasing susceptibility to disease or mortality.

If appropriate buffers and construction setbacks are not established in the location of the bridge crossings, trees and riparian vegetation might be removed, which would impair the function of the riparian zone. Des Moines Creek, upstream of South 200th Street does not have quality, native riparian vegetation and is frequently ditched or flows through culverts. For cover and prey organisms, fish need large woody debris that comes from the riparian zone and overhanging vegetation along stream banks.

Water quality impacts related to construction are expected to be short term and would be minimized to the extent possible with proper management. Construction activities would occur outside of stream channels, and the period of construction activity would be limited according to recommendations from WDFW, NMFS, and USFWS. Section 3.5, *Water Quality*, contains more information on potential water quality impacts.

Threatened and Endangered Species

No federal- or state-listed sensitive, threatened, or endangered wildlife species regularly breed, forage, or occupy the project area. For this reason, and reasons discussed above for fish, no impacts on threatened and endangered species are anticipated.

Mitigation Measures

Mitigation measures for construction impacts would be similar for all build alternatives. No mitigation measures are necessary for the No Action Alternative.

Vegetation and Wildlife

Road construction would avoid significant forested areas, wetlands, and riparian areas, where possible. Construction of any of the build alternatives would require the clearing of mixed deciduous/coniferous woodland. Where possible, snags, brush piles, and downed trees would be left in forested and wetland areas, where they provide a variety of wildlife habitats, such as perch sites for raptors, nesting areas for passerine birds, den habitat for small mammals, and cover for amphibians and reptiles. Snags would be left standing where consistent with safety requirements, particularly when associated with wetlands (Leedy 1975). Construction activities would be scheduled to take into account timing recommendations from WDFW and other agencies to avoid disturbing breeding wildlife in sensitive habitats such as wetlands. While no construction timing restrictions are anticipated as conditions of project permits, land clearing of woody vegetation would be scheduled, to the extent possible, so that it does not occur in early spring when most bird species are nesting (Brown 1985).

Construction procedures would be used that would minimize damage to existing vegetation, avoid habitat loss, and minimize soil compaction and erosion.

Monitoring would be conducted during construction to ensure mitigation measures are successfully implemented and that performance standards are achieved.

Fish

Several measures are proposed to reduce or eliminate construction impacts on aquatic habitats by maintaining good water quality in the project area.

WSDOT is initiating several mitigation measures for the SR 509: Corridor Completion/I-5/South Access Road Project. Mitigation commitments based on the results of the 404 Merger Process would include:

- All streams would be crossed with bridges to minimize impacts on streams and fish habitat from the project.
- If the SR 509 project is approved and funded, WSDOT would contribute $1.8 million toward the construction of a replacement bridge across Des Moines Creek at Marine View Drive (RM 0.3), and provide stream restoration and riparian zone enhancement in the vicinity of Marine View Drive. This bridge would replace an existing box culvert, which is identified in the Des Moines Creek Basin Plan as the major fish barrier in the Des Moines Creek system (King County 1997). While partial fish barriers are also located near the Midway Sewage Treatment Plant (RM 1.0), replacing the culvert at Marine View Drive would potentially

significantly improve anadromous fish access up to RM 1.0 within the Des Moines Creek system.

- Enhancement opportunities for Des Moines Creek in the vicinity of the project area are being investigated. The type of mitigation could be enhancement or restoration of the stream or the riparian buffer in locations that are currently biologically or topographically deficient.

Additionally, the build alternatives would require fish and water quality-related design guidelines and other forms of mitigation to comply with various federal, state, and local permit requirements and applicable regulations defined in local comprehensive plans. Requirements or conditions of permits and government approvals might include conditions to provide specific protection of aquatic resources. Such conditions of permits or government approvals would include erosion and sediment control plans, stormwater management plans, limitations on the timing of construction, and BMPs (e.g., mulching, hydroseeding, check dams, biofiltration swales, phased clearing, silt fencing, and sediment ponds). Specifically, a spill control and containment plan (SCCP), a TESC plan, and a Stormwater Pollution Plan (SPP) would be developed prior to construction. Additionally, the design of the alternative would comply with the King County *Surface Water Design Manual* (King County 1998) and WSDOT's *Highway Runoff Manual* (WSDOT 1995). These mitigation requirements are expected to prevent significant impacts on water quality resulting from construction and operation of the proposed build alternatives.

In developing the SCCP, TESC, and SPP plans, appropriate construction BMPs would be selected for construction activities. Implementing BMPs would prevent or reduce potential impacts on surface water quality. At a minimum, BMPs involving state and local jurisdictions would include the following: (1) phasing construction to minimize the amount of earth exposed to erosive forces; (2) designing construction entrances, exits, and parking areas to reduce tracking of sediment onto public roads; (3) implementing various types of sediment, erosion control, and water quality protection measures; (4) preserving the permeability of pervious areas within the project site to the greatest extent; and (5) monitoring and maintaining erosion, sediment, and water quality control BMPs.

In addition, project BMPs would include treatment of surface runoff from new impervious surfaces that are either approximately the same or slightly larger than the existing impervious surfaces. Thus, the BMPs would yield a net reduction in overall pollutant loading compared to existing conditions. This was discussed further in Section 3.5, *Water Quality*.

Where road construction includes stream crossings, WDFW would require an HPA. The HPA permit would likely require that construction in and over streams occur during a specified time, typically between July 1 and September 1. NMFS and USFWS might also provide construction window

recommendations. Water-related construction would be timed to avoid critical migratory, spawning, and rearing periods of anadromous and important resident fish. In addition, a detailed erosion and sedimentation control plan would be prepared and implemented to prevent exposed soil or construction material from reaching the stream.

Impediments to fish passage would be averted by proper design and installation of bridges at stream crossings. The use of bridges for stream crossings could improve fish passage and reduce disturbance to benthic flora and fauna. Bridges would be designed to comply with WDFW criteria for safe fish passage.

In affected reaches of the stream, the goal of mitigation would be to create stable, usable stream channels that would function in a manner and quality consistent with properly functioning habitat. Efforts would be made to retain downed logs, overhanging banks, and streamside vegetation for shade, whenever possible. Habitat enhancement structures such as spawning gravel, boulders, root wads, and streamside cover could be used to add to the diversity of the channel. Root wads and boulders provide low-level or instream cover for fish, reduce water velocities, and encourage the formation of pools. Such channel features could provide areas for fish spawning, feeding, hiding, and holding, and thereby increase the productivity of the creek.

Mitigation measures related to water quality and hydrology impacts completed for construction impacts would be monitored after the project is completed to determine their overall effectiveness and appropriateness.

Threatened and Endangered Species

No construction-related mitigation measures are necessary for terrestrial species. Fish and water quality-related design guidelines will comply with various federal, state, and local permit requirements. Implementation of these measures will protect the aquatic resources of Des Moines Creek and other aquatic resources outside the project area. Mitigation for threatened and endangered aquatic species will be the same as those described above for fish.

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3.8 Land Use

3.8 Land Use

3.8.1 Studies and Coordination

This section is based on the findings of the *SR509/South Access Road EIS Discipline Report: Land Use* (CH2M HILL October 2000), *SR 509/South Access Road EIS: South Airport Link* (August 2001), and *SR 509/South Access Road EIS: I-5 Improvements Report* (CH2M HILL October 2001). These reports are incorporated by reference into this FEIS. Personal communications and comprehensive plans, transportation plans, zoning codes, and relevant maps for each jurisdiction were reviewed to determine existing conditions and impacts. Aerial photographs taken in March 1997, and several site visits provided the data needed for this analysis.

For the purpose of this analysis, the project area is defined as the Cities of SeaTac and Des Moines and portions of the Cities of Kent and Federal Way and King County in the immediate vicinity of the proposed alignments and along the I-5 Corridor. The following agencies were contacted to obtain information for this FEIS:

- City of SeaTac Planning Department
- City of Des Moines Planning Department
- City of Kent Planning Department
- City of Federal Way Planning Department
- King County

3.8.2 Affected Environment

Comprehensive Plan Designations

Comprehensive plans guide development toward a community's vision of its future. These plans allow communities to design their goals and to map a strategy to achieve those goals. To provide an overall context of planned land uses within the project area, generalized comprehensive plan designations and existing land uses are shown in Figures 3.8-1 and 3.8-2, respectively. Because the five affected jurisdictions have slight variations in their designations, they have been generalized into the following comprehensive plan designation categories:

- (RLD) Residential Low Density—Areas primarily of single-family residences
- (RHD) Residential High Density—Areas primarily of multifamily complexes, apartment complexes, and mobile home parks

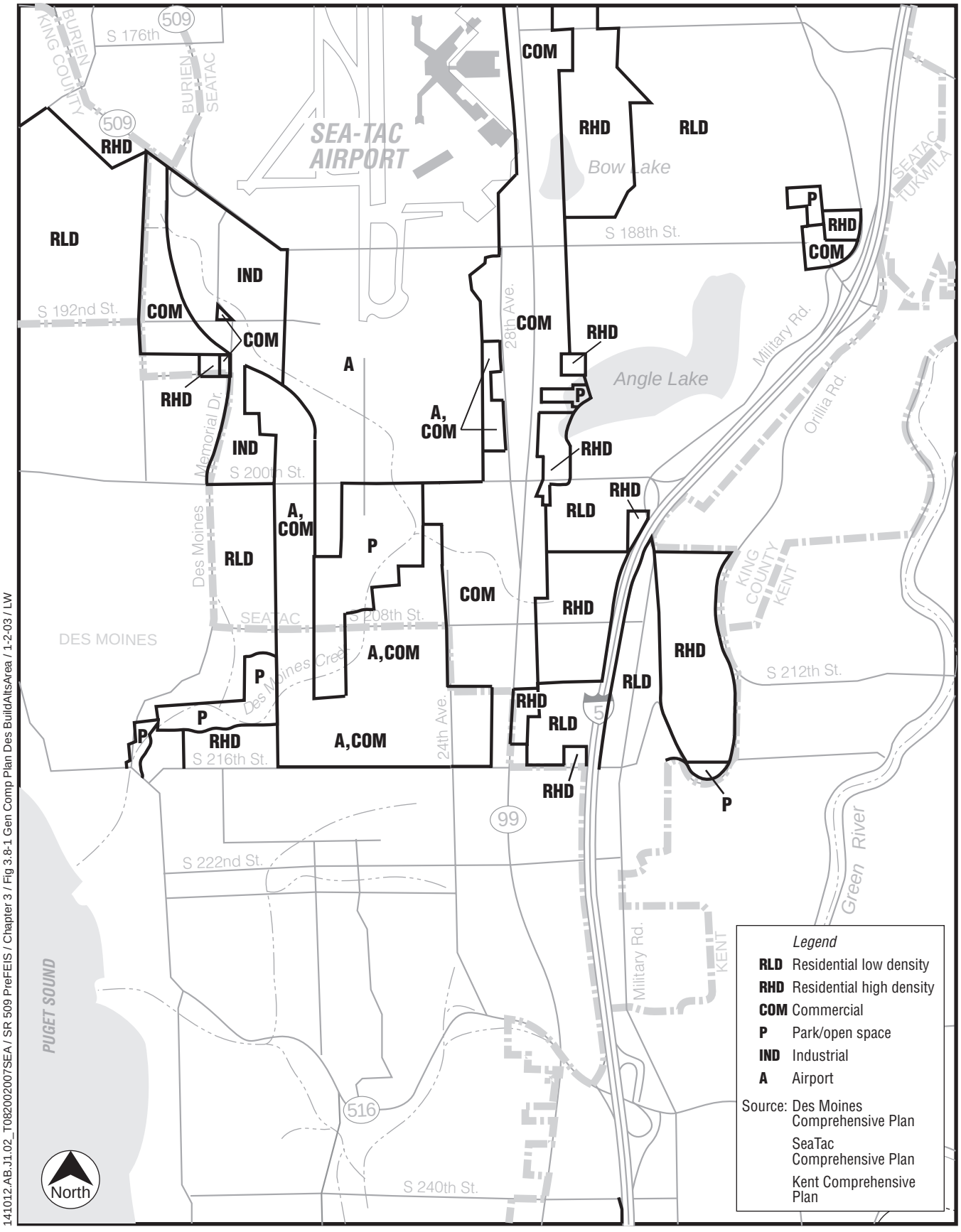

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FIGURE 3.8-1

Generalized Comprehensive Plan Designations in the Build Alternatives Area

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement

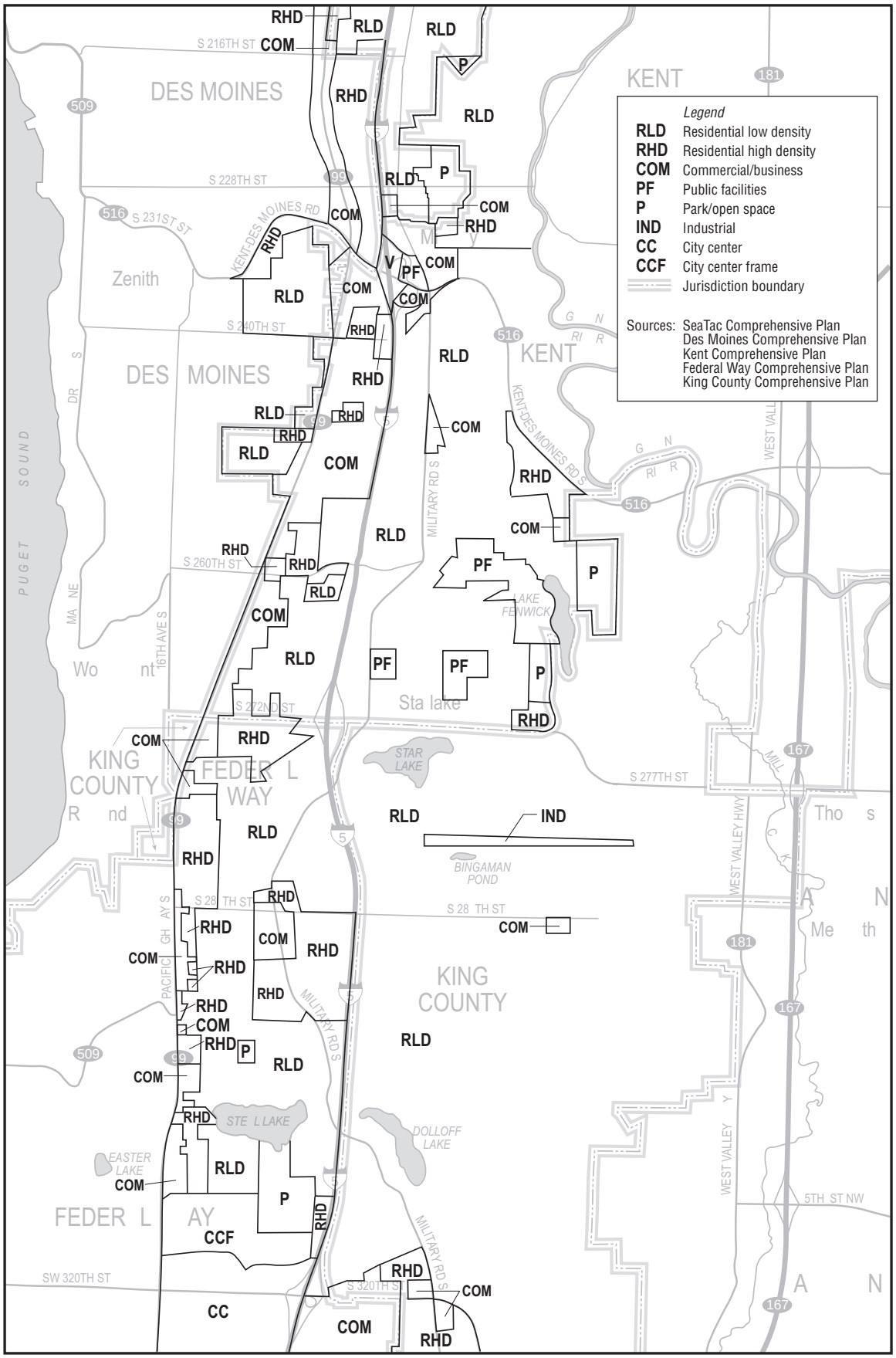

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FIGURE 3.8-2

Generalized Comprehensive Plan Designations in the I-5 Corridor Area

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- (COM) Commercial—Areas primarily of wholesale and retail businesses, service businesses, and offices
- (IND) Industrial—Areas primarily of manufacturing and warehousing enterprises
- (P) Park—Park properties/open space
- (A) Airport—Land owned by the Port of Seattle, comprising Sea-Tac Airport and land from the Sea-Tac Airport Noise Remedy Program's Acquisition and Relocation Area (referred to hereafter as the Noise Remedy Program acquisition area)
- (CC) City Center—Land reserved for mixed use developments, aimed at providing a central gathering place for the community
- (CCF) City Center Frame—Land surrounding a designated city center
- (PF) Public Facilities—Land devoted to public uses, such as schools, fire stations, park and rides, etc.

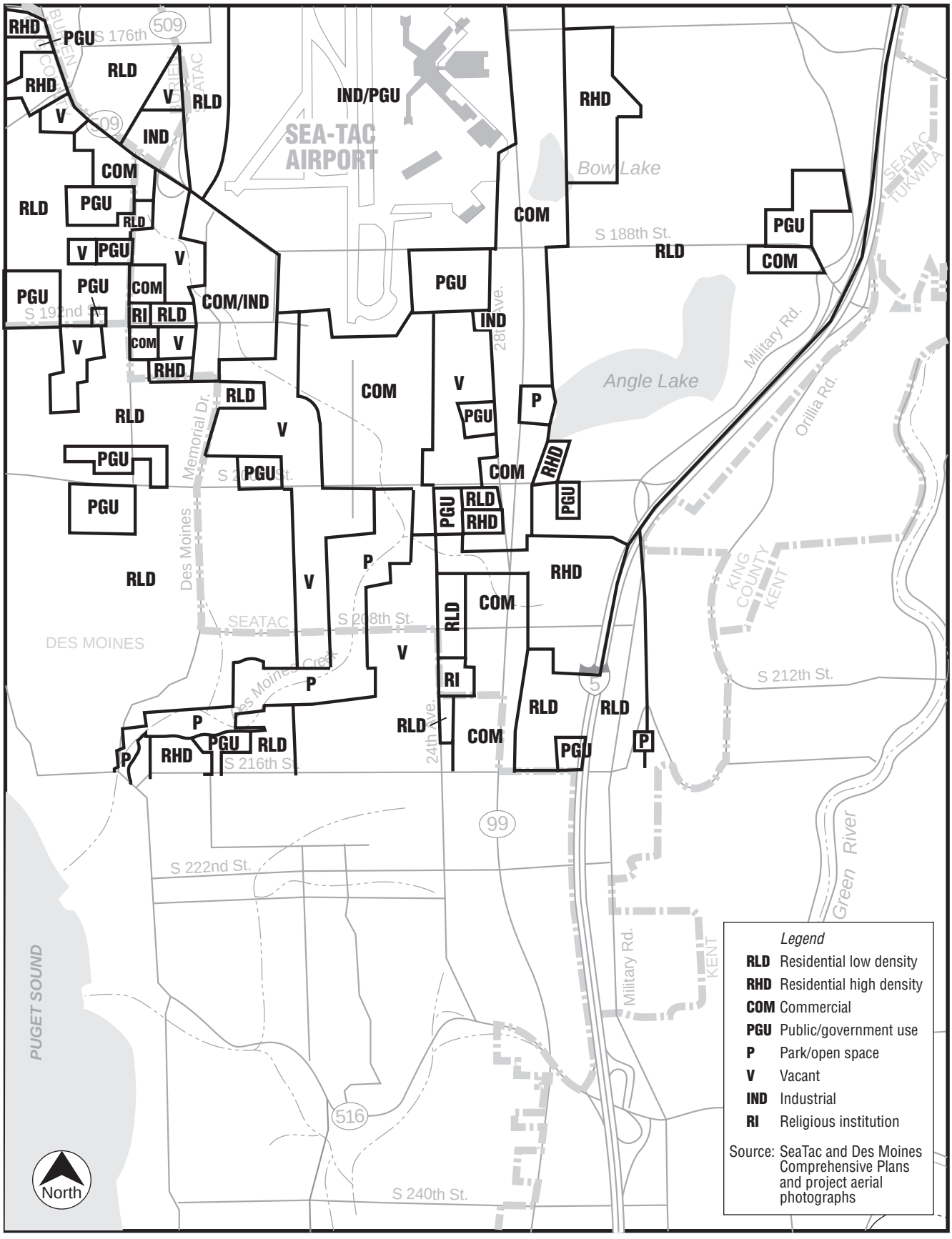
Existing land uses were initially determined as they appear on the 1:400 scale aerial photographs taken in March 1997, and as they are listed in the comprehensive plans for the Cities of SeaTac, Des Moines, Kent, Federal Way, and portions of unincorporated King County. For example, parcels listed as single-family houses by the assessor's office that appeared to be used for residences on the aerial photograph were classified as Residential Low Density. Areas that appeared to be unused and covered by unlandscaped shrubs and trees with no listed improvements were classified as Vacant. In some cases, these vacant areas might be part of parcels that are committed to residential uses by actual parcel boundaries and zoning classifications. The land uses were confirmed by site visits. Existing land uses were compiled under the same designations as those used for comprehensive plan designations, with a few additions:

- V (Vacant)—Areas that appeared to be unused and covered by unlandscaped shrubs and trees with no listed improvements
- PGU (Public/Government Use)—For the existing use analysis, land used for fire stations, police stations, schools, and government offices
- RI (Religious Institution)—Land used for religious facilities

Figures 3.8-3 and 3-8.4 show existing land uses in the project area.

Zoning

Zoning often reflects existing land use patterns and comprehensive plan designations for an area. However, where existing uses are inconsistent with

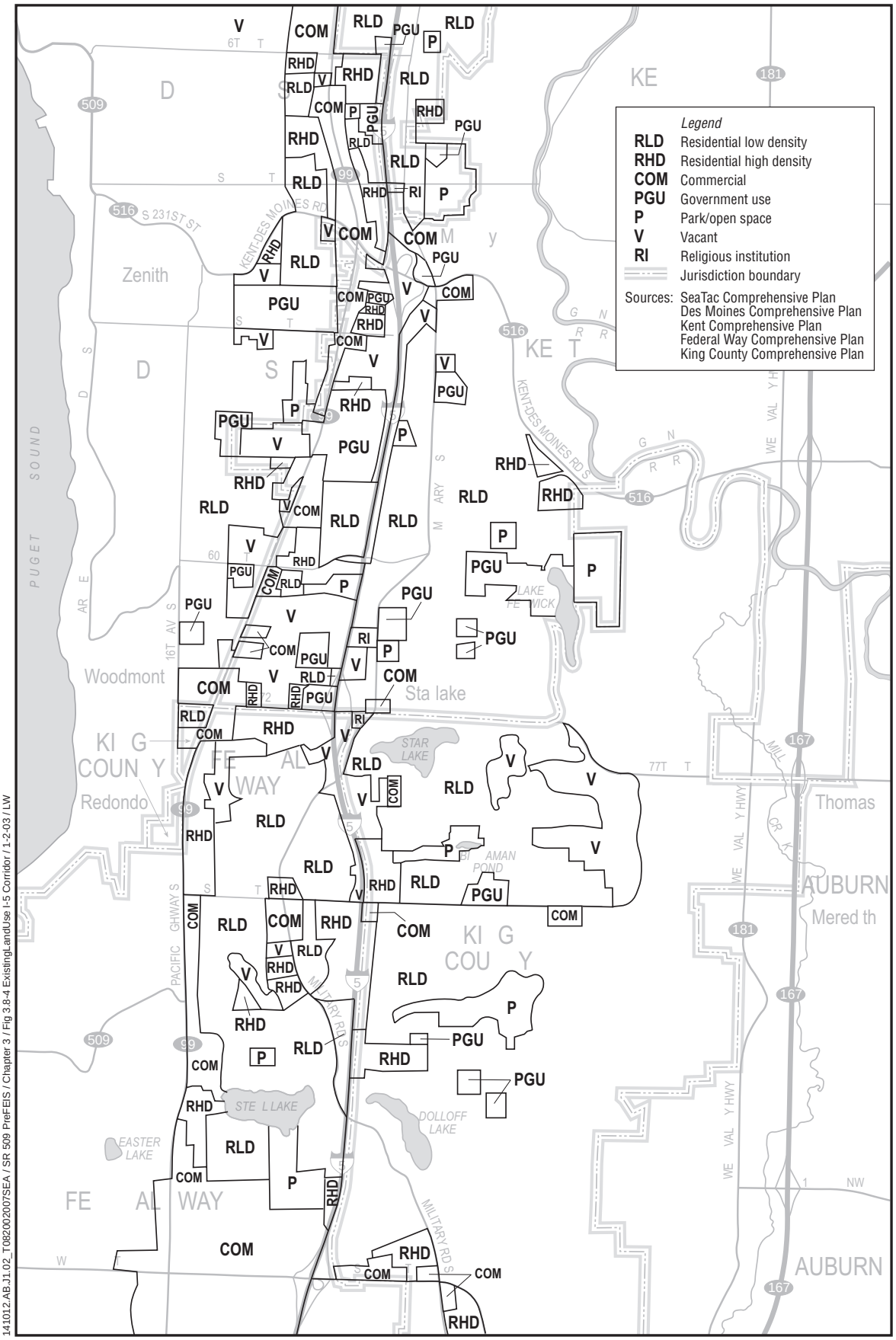


141012.AB.J1.02_T082002007SEA / SR 509 DEIS / Land Use DEIS figures / Fig 3.8-3 Existing Land Use BuildAltsArea / 1-2-03 / LW

FIGURE 3.8-3

Existing Land Use in the Build Alternatives Area

SR 509: Corridor Completion/I-5/South Access Road Environmental Impact Statement



141012.AB.J1.02_T08200207SEA / SR 509 PreFEIS / Chapter 3 / Fig 3.8-4 ExistingLandUse I-5 Corridor / 1-2-03 / LW

FIGURE 3.8-4

Existing Land Use in the I-5 Corridor Area

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the planned uses for an area indicated in the relevant comprehensive plan, zoning for the area may reflect the planned use, rather than the existing use.

Land use zones are often more geographically and use-specific than comprehensive plan designations. For example, a comprehensive plan may direct an area to be developed as Residential Low Density and the zoning code may divide that same area into several zones emphasizing different densities of single-family residences. Because of the project area's large extent, only land use zoning was considered for the assessment of impacts within the project area.

Because different jurisdictions have different notations for similar types of zones, all zoning designations were unified by use and density under one common listing. The following zones have been used for this analysis:

- R-15000—Single-family residential zone with an approximate density of 2 dwelling units per acre; minimum lot size of 15,000 square feet
- R-9600—Single-family residential zone with an approximate density of 4.5 dwelling units per acre; minimum lot size of 9,600 square feet
- R-7200—The densest single-family residential zone at approximately 6 dwelling units allowed per acre; minimum lot size of 7,200 square feet
- M-2400—A moderate-density residential zone allowing approximately 18 dwelling units per acre
- H-1800—A high-density residential zone allowing 24 dwelling units per acre
- H-900—The densest residential zone at 48 dwelling units per acre
- MHP—Areas zoned for mobile home parks
- HC—Highway Commercial zone, found mainly along SR 99
- GC—General Commercial zone, including areas zoned for business parks and offices
- ABC—Properties zoned for the Aviation Business Center in the City of SeaTac
- A—Airport zoning including Sea-Tac Airport, as well as Port of Seattle-owned property such as the Noise Remedy Program acquisition area
- IND—Industrial property
- PRK—Park lands, including Hillgrove Cemetery, which is zoned as a park

Growth Management Act

The State of Washington's Growth Management Act (GMA) requires that cities and counties within the state develop and adopt comprehensive plans. Mandatory elements of these plans are land use, housing, capital facilities, utilities, and transportation. The GMA also requires that when the comprehensive plans (or updates of existing plans) are adopted, the jurisdictions must also adopt and enforce ordinances reflecting the comprehensive plans. In most cases, this includes zoning provisions.

The proposed SR 509: Corridor Completion/I-5/South Access Road project is a part of Destination 2030, the regional transportation plan developed in compliance with GMA. Destination 2030 prioritizes major corridor projects in an effort to complete a regional transportation network the connects designated urban centers. Additional analysis of this project's consistency with adopted plans and policies can be found in Section 3.8.3.

Existing and Future Land Uses

The project area includes five jurisdictions: the Cities of SeaTac, Des Moines, Kent, Federal Way, and portions of unincorporated King County. The growth and development of these jurisdictions has been substantially influenced by several factors, including Sea-Tac Airport, which dominates the area both physically and economically; regional economic trends such as the growth of aerospace and computer industries and expansion of trade with Pacific Rim nations; regional transportation systems, primarily I-5, SR 516, and SR 99; and regional and state planning and development plans and regulations.

Besides Sea-Tac Airport, which is operated by the Port of Seattle, the project area is predominantly characterized by urban/suburban residential developments. Commercial development is concentrated in the downtown areas of the affected cities and as strip development along and extending a couple of blocks east and west of SR 99. (It should be noted that Highway 99 is referred to as Pacific Highway South in the Cities of Des Moines and Federal Way, and as International Boulevard in the City of SeaTac.)

City of SeaTac

Although the City of SeaTac was incorporated in 1990, its neighborhoods and commercial areas became well-established much earlier during the development booms of the 1940s and 1950s. The Port of Seattle is the largest property owner within the City, with about 2,471 acres at the airport, including land that has been acquired as part of the Noise Remedy Program (see Figure 3.2-1 in Section 3.2, *Noise*). Sea-Tac Airport is a dominant land use presence within the City, substantially influencing the character and mix of uses found throughout the community.

Outside of the airport, the City is largely urban, composed primarily of well-established residential neighborhoods. Multifamily and mobile home park neighborhoods are generally located between the commercial areas along SR 99, just southeast of the airport.

Much of the commercial development south of the airport terminal along SR 99 in the City of SeaTac is focused on travel-related services, with the highest concentration closest to the main terminal.

The Tyee Valley Golf Course is located west of 24th Avenue South and extends from South 200th Street north to the toe of the slope that supports Runway 34R/16L. The 18-hole, public golf course is operated by a private company on land leased from the Port of Seattle. Since 1992, the lease has been renewed on a monthly basis. The golf course lease stipulates that termination depends on whether the property would be needed for airport-related development.

Des Moines Creek Park is a mostly undeveloped park that lies in the Cities of SeaTac and Des Moines. King County and the City of SeaTac are negotiating the transfer of land for that portion of land within SeaTac. The park provides an important open space link between the two cities and between other open space/recreational facilities in these jurisdictions. About 51.9 acres of the park are located in the City of SeaTac, generally south of South 200th Street and north of the abandoned South 208th Street right-of-way, and between the existing undeveloped SR 509 right-of-way and 23rd and 22nd Avenues South.

The Federal Detention Center is an approximately 275,000-square-foot facility lying along South 200th Street at 26th Avenue South, immediately south of the proposed SASA project. It consists of a single multistory structure providing roughly 500 units for short-term detention (generally 6 months or less) of pretrial and trial detainees, unsentenced inmates who are going through the sentencing process, and sentenced inmates awaiting assignment.

The FAA has designated that several areas around Sea-Tac Airport be protected and kept clear of obstructions to ensure the safety of arriving and departing aircraft, as well as people and property in the vicinity of the airport. These areas include the Runway Safety Area (RSA) immediately adjacent to the runway; the OFA, extending 1,000 feet off the end of the runway at a width of 800 feet; the XOFA, continuing another 1,500 feet past the OFA; and the Controlled Activity Area (CAA), which provides an additional 100 feet to 475 feet on both sides of the OFA and XOFA (the CAA becomes wider the farther away from the end of the runway). Collectively, these areas are known as the RPZ. All areas within the RPZ have standards that define whether or not a road can exist in a given zone and under what conditions.

A variety of residential uses and mostly airport-related warehouses located off Des Moines Memorial Drive are found west of the proposed rights-of-way for the build alternatives. The remaining portion of the proposed rights-of-way in the City of SeaTac is located in the Noise Remedy Program acquisition area.

Future Development

Future development in the City of SeaTac will be guided by the *City of SeaTac Comprehensive Plan* (SeaTac 1994, with1999 updates) and the city's zoning code. The SeaTac Comprehensive Plan undergoes a yearly amendment process; the City Council acted on proposed 1999 amendments in December 1999. Subsequently, the city's zoning code was revised to reflect the new plan. In addition, the Port of Seattle adopted an update to the Sea-Tac Airport Master Plan by Resolution 3212 (as amended) on August 1, 1996.

Specific projects that have been proposed and formally reviewed and that were considered in this analysis are outlined below. These projects would likely have indirect land use effects on areas far beyond the project area; however, because they would be largely located in the City of SeaTac, they are addressed here.

***Sea-Tac Master Plan Update and Third Runway*.** The Port of Seattle's latest update to its Sea-Tac Airport Master Plan addresses the airport in a comprehensive fashion, including airfield, terminal, parking, surface transportation, support facilities, and potential fill sites for the Third Runway, and recommends facility developments. The plan anticipates facilities that would accommodate the 38 million annual passengers expected to pass through Sea-Tac Airport in approximately 2010. Although the Final EIS was completed in 1996 (Port of Seattle and FAA 1996), a Supplemental EIS was prepared in 1997 (Port of Seattle and FAA 1997) to more accurately reflect aviation demand forecasts. A Record of Decision was issued in 1997 (FAA 1997).

Current surface transportation demand forecasts and other proposed actions in the area, including the proposed project, were considered in preparing the Sea-Tac Airport Master Plan Update. As a member of the Steering Committee for the proposed project, the Port of Seattle has provided input into the development of the proposed alternatives.

South Aviation Support Area. The SASA has been proposed to relocate existing line maintenance facilities, locate new maintenance expansion facilities (primarily hangars), and accommodate major base maintenance facilities and air cargo uses in response to existing or future market demands associated with Sea-Tac Airport. The SASA would include large facilities located on approximately 100 acres south of South 192nd Street and north of

South 200th Street. A taxiway bridge crossing over the proposed South Access Road and Des Moines Creek would provide direct access for airplanes between the SASA hangars and the aircraft operating area. The EIS prepared for SASA project assumed the existence of the SR 509 extension and the South Access Road (Port of Seattle and FAA 1992). The completion of these roadway projects is considered to be important to the development, operational efficiency, and success of the SASA project.

28th/24th Avenues South Arterial Project. The cities of SeaTac and Des Moines, the Port of Seattle, King County, Equitable Capital Group, and Alaska Airlines are modifying the alignment of 28th/24th Avenue South to accommodate local access traffic generated by anticipated development within the cities of SeaTac and Des Moines. The design has generally anticipated the potential development of the Aviation Business Center. Construction of the project from South 188th Street to South 202nd Street began in April 2000 and is substantially complete.

West SeaTac Sub-Area Plan. The City of SeaTac and the Port of Seattle intend to engage in a planning process to address land use alternatives in the West SeaTac Sub-Area (generally located west of Sea-Tac Airport). Some local residents believe residential uses adjacent to the airport are not appropriate, especially considering the Port of Seattle's proposed third runway.

City of Des Moines

The City of Des Moines has well-established patterns of land use. Most land within the City is developed as single-family residential and multifamily areas. Retail commercial development is located in the downtown/marina area substantially west of the project area and along SR 99 (Pacific Highway South). Localized commercial development is also located along arterial streets, such as the Kent-Des Moines Road (SR 516).

Future Land Uses

Future development in the City of Des Moines is guided by the 1995 *Greater Des Moines Comprehensive Plan* (Des Moines Comprehensive Plan), which is supported by the City’s zoning code and map.

The Des Moines Comprehensive Plan recognizes that the City has undergone rapid growth and development during the last 10 years, and that such development has been substantially influenced by activities outside the City. Past development has resulted in substantial changes to, and in many cases deterioration of, the character of the City's neighborhoods and business districts. The Des Moines Comprehensive Plan policies and implementation strategies are intended to correct land use inconsistencies and maintain community values.

Because of the severe noise impacts experienced from aircraft, the relatively large amount of undeveloped and underdeveloped land, and the close proximity to future large commercial centers to the north in the City of SeaTac, the City will encourage business park development in the north, south, and east subareas of the North Central planning neighborhood. The area is expected to develop with offices, wholesale trade, light manufacturing, research, and other related uses, while discouraging warehouses.

Specific projects that are being considered within the City of Des Moines include the following.

Pacific Ridge Neighborhood Improvement Plan. The City of Des Moines has developed a subarea plan for a portion of the North Midway neighborhood called Pacific Ridge. The plan focuses upon the area roughly bounded by South 212th Street to the north, Kent-Des Moines Road (SR 518) to the south, I-5 to the east, and the west line of the properties on the west side of SR 99 (Pacific Highway South). Des Moines is largely built out, making it difficult for the city to achieve population and employment growth targets. The transformation of Pacific Ridge will include replacement of lower-scale existing buildings with a denser combination of buildings (up to 120 feet tall) and open spaces designed for both pedestrians and motorists. The ability of the neighborhood to redevelop is based on its excellent transportation access, good views, nearby employment opportunities, established infrastructure, and stable soils. Goals, policies, and strategies for implementing the plan have been incorporated into the Des Moines Comprehensive Plan.

28th/24th Avenue South Arterial Project. This project is described in the section on the City of SeaTac above.

City of Kent

The project area includes a portion of the City of Kent, often referred to as the Midway area, which is generally southeast of the City of Des Moines and north of the Woodmont neighborhood. West of I-5, Kent is characterized by commercial development along SR 99 (Pacific Highway South), and neighborhoods that are composed of a combination of single-family residential areas, several mobile home parks, and residential high-density apartment complexes. The Midway Crossing Shopping Center, located in the southwestern quadrant of the SR 516/SR 99 (Pacific Highway South) interchange, is the primary neighborhood shopping center for the area. The northeast section of the SR 516/I-5 interchange features a park and ride, and a short section of commercial development to the north on Military Road South.

Future Land Uses

Future development in the City of Kent will be guided by the *City of Kent Comprehensive Plan* (Kent 1995). The plan seeks to establish a framework of goals and policies that will implement the community's vision and enhance quality of life.

In May 2000, the City of Kent updated its *Comprehensive Plan Land Use Map* (Kent 2000), and is currently in the process of updating the 1995 Kent Comprehensive Plan.

The Kent Comprehensive Plan and land use map designates the area around the I-5/SR 516 interchange as commercial, with some single-family residential designations farther to the southeast. A mixture of vacant, developed, and land with redevelopment potential surrounds the southern portion of the interchange.

Future development potential exists near the South 272nd Street/I-5 intersection. This area is not within the Kent city limits, but is designated as potential annexation area. Most of the area between SR 99 (Pacific Highway South) and I-5 is vacant (from South 260th to South 272nd Street). The Kent Comprehensive Plan and land use map designates this area to be primarily commercial along SR 99 (Pacific Highway South), but the remaining area is single-family residential. The map also shows the area as accommodating community facilities in the future.

City of Federal Way

Improvements to I-5 would take place between South 272nd Street and South 310th Street within the City of Federal Way. Primary land uses bordering the project area to the west of I-5 include single-family high density and multifamily housing between South 272nd Street and South 316th Street. The Federal Way city center core, with primarily commercial land uses, borders the remaining 4 blocks of the project area, including the South 310th Steet/I-5 intersection.

Future Land Uses

Future development within the City of Federal Way will be guided by the *City of Federal Way Comprehensive Plan* (Federal Way 2000). The comprehensive plan, recently revised in 2000, included revisions to the City's comprehensive plan designations and zoning maps.

Future land use concepts recognized within the comprehensive plan that are applicable to the proposed project include:

- Promotion of new residential opportunities near transit centers

- Promotion of redevelopment of "strip commercial" areas along major arterials into attractive, mixed-use corridors served by automobiles and transit.

- Transformation of the retail core into an intensely developed city center that is the focus of civic activity and provides a sustainable balance of jobs and housing.

The transportation section of the Federal Way Comprehensive Plan mentions the plans for the I-5 improvements within the Federal Way planning area. Many of the City's goals outlined within the transportation section place high priority on the development of HOV lanes, and suggest applying for funding for HOV improvements and park and rides within the City (Federal Way 2000).

King County

Part of the project area would border areas of unincorporated King County, primarily to the east of I-5 and south of South 253rd Street. Commercial development is concentrated near SR 99 (Pacific Highway South), including a neighborhood shopping center at the intersection of South 260th Street. Multifamily residential complexes are generally located adjacent to the commercial areas. There are also sizeable vacant, open-space areas associated with riparian areas, and a large Class 1 wetland complex north of the King County Star Lake park-and-ride facility and the King County Star Lake gravel pit. East of I-5 near Star Lake, land use is generally single-family residential areas and vacant properties along Military Road South and commercial development near the intersections of Military Road South, and major crossroads.

Future Land Uses

Future guidance for the area is generally covered in the *King County Comprehensive Plan* (King County 2000), but also is substantially influenced by the surrounding cities. Land west of SR 99 (Pacific Highway South) was annexed by the City of Des Moines; the Cities of Federal Way and Kent also have annexation interests. Property owners within the applicable boundaries would have the final vote in determining any jurisdictional changes due to annexation. According to the 2000 King County land use map, areas bordering the east side of the I-5 project area, between South 272nd Street and South 310th Street are considered Urban Residential, with a density of 12 dwelling units per acre.

3.8.3 Environmental Impacts

This FEIS considers the potential direct impacts of the proposed project on the quality of land uses in the project area. The most direct changes in land

use would be property acquisitions necessary to construct SR 509, and the South Access Road, and to make the necessary improvements to I-5 between South 216th Street and South 310th Street.

Alternative A (No Action)

Under the No Action Alternative, the 96 acres of the existing SR 509 right-of-way would not be used to construct the SR 509 freeway extension. Numerous options would be available to WSDOT for future use of the property, including, but not limited to, maintaining the right-of-way for other possible transportation-related projects or disposing of the property if no transportation-related use is found. The existing right-of-way in the I-5 corridor would remain in its current use.

Under this alternative, the proposed project would not occur and local and regional traffic congestion patterns would continue to worsen. In turn, accessibility to the airport and businesses in the project area, as well as regional mobility, would be hindered. The livability of residential neighborhoods served by and adjacent to major arterials and highways would indirectly worsen from increased noise, air pollution, and commuting times.

Impacts Common to All Build Alternatives

Under all build alternatives, additional right-of-way would be required to accommodate new roadway surfaces, shoulder areas, structures, and cut-and-fill slopes.

All build alternatives would also use portions of the existing SR 509 right-of-way extending south of its current northern terminus and portions of the existing I-5 right-of-way extending between South 216th Street and South 310th Street. Construction of the proposed project would result in direct impacts by converting current vacant areas that provide a sense of open space to roadway use. Each build alternative would require rights-of-way through the Port of Seattle's large employee parking lots just east of the south end of Sea-Tac Airport's Runway 34R/16L. The South Access Road in this area would pass under a bridge that connects SASA to Runway 34R/16L.

All build alternatives would introduce a major roadway into areas characterized by residential, commercial, and park uses. A decrease in distance between land uses and new roadways would increase the exposure of businesses and residences to noise levels and highway glare, thereby indirectly reducing the livability of these areas. Conversely, overall local and regional access and mobility would be directly improved, thereby enhancing the livability of the affected communities.

Improved access between the planned urban center in the City of SeaTac and the new roadway would directly improve the intra- and interregional

transport of goods, people, and services that would encourage these planned developments. Improvements to the I-5 corridor would accommodate the expected increase in volume stemming from the proposed project. Acquisition acreage totals provided below under each alternative include the rights-of-way needed for the I-5 improvements and the South Airport Link.

Alternative B

Residential areas that would experience direct impacts from increased noise levels and highway glare would include the 8th Avenue South/Des Moines Memorial Drive area; the Homestead Park area; and the Madrona, North Hill, Grandview, and Pacific Ridge neighborhoods. Although I-5 currently runs between Mansion Hill and Grandview, these neighborhoods would also experience additional noise from new C/D lanes stretching along I-5 to the I-5/SR 516 interchange. Such effects would indirectly affect the livability and market value of these properties.

Right-of-Way Acquisition

Alternative B would require the greatest amount of new right-of-way. As shown in Table 3.8-1, this alternative would require the acquisition of approximately 174 to 180 acres for right-of-way purposes, not including the use of unutilized I-5 right-of-way, new rights-of-way for major arterials, or the existing SR 509 right-of-way. Ranges in acreage represent difference in right-of-way acquisition among the South Airport Link design options. Most of the new right-of-way requirements would be located in the City of SeaTac. Approximately 1.4 acres of industrial uses, all located within the City of SeaTac, would be required. New right-of-way requirements in the City of Des Moines would mainly be from Port of Seattle property, with the rest spread evenly among single-family, multifamily, and park uses. New right-of-way in the City of Kent would be limited to 1.8 acres of commercial use. Of the total acquired land, approximately 47 acres and 28 to 31 acres would be in residential and commercial uses, respectively.

Approximately 77 acres of new right-of-way would be on vacant or undeveloped land; this is higher than the other build alternatives because the SR 509 alignment would travel south into the Noise Remedy Program acquisition area before turning east towards I-5. Of the approximately 29 acres of acquisitions needed for right-of-way in Des Moines, roughly 24 acres are vacant or undeveloped because of the Noise Remedy Program acquisition area. This buyout area constitutes most of the roughly 97 to 100 acres of public or government use land that would be required.

Table 3.8-1
Alternative B Right-of-Way Acquisition by Existing Land Use

Existing Land Use Category	City of SeaTac		City of Des Moines		City of Kent		
	Total Land To Be Acquired (acres)	Vacant Land To Be Acquired (acres)	Total Land To Be Acquired (acres)	Vacant Land To Be Acquired (acres)	Total Land To Be Acquired (acres)	Vacant Land To Be Acquired (acres)	Total Land To Be Acquired (acres)
RLD (Residence Low Density)	34.2	2.6	2.8	0.8	--	--	37.0
RHD (Residence High Density)	7.6	--	2.4	--	--	--	10.0
COM (Commercial)	25.9 - 28.6	4.7	0.1	--	1.8	--	27.8 - 30.5
IND (Industrial)	1.4	0.6	--	--	--	--	1.4
PGU (Public/Government Use)	73.8 - 76.4	45.3	23.1	23.1	--	--	96.9 - 99.5
P (Park)	--	--	0.5	--	--	--	0.5
RI (Religious Institution)	0.8	--	--	--	--	--	0.8
Total	**143.7 - 149**	**53.2**	**28.9**	**23.9**	**1.8**	**--**	**174.4 - 179.7**

Note: Ranges reflect differences in right-of-way acquisitions among the South Airport Link design options.

Alternative B would cross Des Moines Creek Park's narrowest point. Approximately 0.5 acre of Des Moines Creek Park would be required for a bridge spanning Des Moines Creek, resulting in a visual impact on the park (although not precluding park and trail usage) C/D lanes associated with Alternative B would impact the eastern portion of a property adjacent to the Puget Sound Energy (PSE) electrical substation on South 221st Street. This property was recently designated by the City of Des Moines in the Pacific Ridge Neighborhood Improvement Plan as part of Midway Park. WSDOT and the City of Des Moines have been working together to ensure that the envisioned eastward expansion of the park would not encroach into the widened I-5 right-of-way proposed as part of this project.

Alternative B would have varying impacts on the major land uses within its vicinity. Retaining walls would be used to avoid taking land from Hillgrove Cemetery. The Federal Detention Center also would not be impacted. This alternative would take some land from the northwest corner of the Alaska Airlines Gold Coast Center, but would not take any of the buildings on the site, nor would it preclude the use of any of these buildings.

The SR 509 freeway extension would run just west of Sea-Tac Airport's proposed third runway RPZ. The South Access Road would skirt the RPZ of Runway 16L/34R, but would clip the southwest and northwest corners of the SASA. However, no RPZs would be encroached upon under Alternative B.

I-5 improvements between South 216th Street and SR 516 (South Kent-Des Moines Road) would account for 14.5 acres of the roughly 174 to 180 acres needed for right-of-way under Alternative B. Most of the I-5 improvement

acreage requirements (61 percent) would be located in the City of SeaTac. All the land impacted by the I-5 improvements within the City of SeaTac would be single-family residential, except for one religious institution, the Puget Sound Church of God Holiness.

Acreage needed for I-5 improvements in the City of Des Moines would be acquired from the eastern edge of the Pacific Ridge neighborhood; most of this land is zoned multifamily.

The City of Kent would have the least amount of land impacted as a result of the I-5 improvements—1.8 acres. Only commercial land uses would be impacted. The Kent park-and-ride lot would not be affected by the proposed I-5 improvements.

All land acquired would be immediately adjacent to the existing I-5 right-of-way, resulting in conversion of relatively small amounts of other land uses to right-of-way. Right-of-way acquired in the Pacific Ridge area would not prevent the planned scale of development.

Land acquisition for the South Airport Link design options would account for as little as 0.6 acre, and as much as 5.8 acres, of the approximately 174 to 180 acres required for new right-of-way purposes under Alternative B. All of the South Airport Link right-of-way requirements would be located in the City of SeaTac.

Zoning

Except for roughly 29 acres of property in the City of Des Moines and 1.8 acres in the City of Kent, all of the property affected by Alternative B is zoned by the City of SeaTac. Table 3.8-2 provides a summary of the area of each land use zone potentially required by Alternative B. Alternative B would use the most vacant land (not including the existing SR 509 and I-5 rights-of-way) of all the build alternatives. Alternative B would require 96 to 99 acres of Airport-use zoned properties, including the Noise Remedy Program acquisition and relocation area and the SASA project area; this would constitute the greatest impact of all the affected land uses. The second greatest land use impacted under Alternative B would be single-family residential land. Approximately 35 acres of property zoned collectively as R-15000, R-9600, and R-7200 would be required for additional right-of-way under Alternative B. The three South Airport Link design options would require from 0.6 acre to 5.8 acres of land zoned CB-C and AVO.

Table 3.8-2 Alternative B Right-of-Way Acquisition by Zone				
Zone	City of SeaTac Total Land To Be Acquired (acres)	City of Des Moines Total Land To Be Acquired (acres)	City of Kent Total Land To Be Acquired (acres)	Total Land To Be Acquired (acres)
Low-Density Residential				
R-15000	3.1	--	--	**3.1**
R-9600	16.3	--	--	**16.3**
R-7200	14.5	1.1	--	**15.6**
High-Density Residential				
M-2400	6.5	--	--	**6.5**
H-1800	0.4	0.6	--	**1.0**
H-900	0.6	3.6	--	**4.2**
MHP	0.1	--	--	**0.1**
Commercial/Industrial				
HC	--	--	--	**--**
GC	11.8	--	1.8	**13.6**
CB	1.5 - 4.2	--	--	**1.5 - 4.2**
ABC	5.4	--	--	**5.4**
A	72.9 - 75.5	23.1	--	**96.0 - 98.6**
IND	10.6	--	--	**10.6**
Park				
P	--	0.5	--	**0.5**
Total	**143.7 - 149**	**28.9**	**1.8**	**174.4 - 179.7**

Note: Ranges reflect differences in right-of-way acquisitions among the South Airport Link design options.

Alternative C2 (Preferred)

Residential areas that would be directly impacted by increased noise levels and highway glare as a result of Alternative C2 would be the same as those in Alternative B. Such effects could indirectly affect the livability and market value of these properties.

Right-of-Way Acquisition

Alternative C2 would require the least amount of new right-of-way of all the build alternatives. As shown in Table 3.8-3, Alternative C2 would require approximately 96 to 102 additional acres for right-of-way purposes, not including existing street rights-of-way. This alternative would require considerably less land in the City of Des Moines, compared to Alternative B, because none of the Noise Remedy Program acquisition and relocation area in Des Moines would be acquired. Most of the new right-of-way (approximately 87 to 93 acres) would still be in the City of SeaTac. Approximately 43 acres of the new right-of-way would be on vacant or undeveloped land. While the land use with the greatest loss would be the same as Alternative B (Public/Government Use), Alternative C2 would only require roughly one-third of the acreage (33 to 36 acres compared with 97 to 100 acres) needed under Alternative B. Approximately 29 acres and 11 to

14 acres would be acquired under Alternative C2 for Residential Low Density and Commercial land, respectively, less than would need to be acquired under Alternatives B and C3. More Residential High Density land would be acquired under Alternative C2 (17.4 acres) than any of the other build alternatives.

Table 3.8-3
Alternative C2 Right-of-Way Acquisition by Existing Land Use

Existing Land Use Category	City of SeaTac		City of Des Moines		City of Kent		
	Total Land To Be Acquired (acres)	Vacant Land To Be Acquired (acres)	Total Land To Be Acquired (acres)	Vacant Land To Be Acquired (acres)	Total Land To Be Acquired (acres)	Vacant Land To Be Acquired (acres)	Total Land To Be Acquired (acres)
RLD (Residence Low Density)	26.1	2.8	3.3	0.8	--	--	29.4
RHD (Residence High Density)	14.9	4.7	2.5	--	--	--	17.4
COM (Commercial)	8.2 - 10.9	2.7	1.2	--	1.8	--	11.2 - 13.9
IND (Industrial)	--	--	--	--	--	--	--
PGU (Public/Government Use)	32.9 - 35.5	32.4	--	--	--	--	32.9 - 35.5
P (Park)	4.7	--	--	--	--	--	4.7
RI (Religious Institution)	0.6	--	--	--	--	--	0.6
Total	**87.4 - 92.7**	**42.6**	**7.0**	**0.8**	**1.8**	**--**	**96.2 - 101.5**

Note: Ranges reflect differences in right-of-way acquisitions among the South Airport Link design options.

Approximately 4.7 acres of Des Moines Creek Park would be needed under this alternative. The existing trailhead parking area would be immediately adjacent to the SR 509 alignment (a small portion would actually be situated under the roadway structure). The rest of the park, however, would remain unaffected and contiguous. Midway Park would be affected in the same manner as Alternative B.

Under the C2 Alternative, SR 509 would cross the southern one-third of the Runway 16L/34R XOFA. The FAA has indicated that a road located in the southern one-third of the XOFA would not be required to have a tunnel or cut-and-cover design. The South Access Road would remain to the east of all RPZs. Construction within the XOFA would need to accommodate aircraft landing lights. Alternative C2 would completely avoid Hillgrove Cemetery, Alaska Airlines Gold Coast Center, and the Federal Detention Center.

Right-of-way acquisitions for improvements to the I-5 corridor between South 216th Street and South 310th Street and the South Airport Link design options would be the same as those described under Alternative B.

Zoning

Table 3.8-4 provides a summary of the area of each land use zone potentially required by Alternative C2. Land zoned Airport would constitute the greatest amount of right-of-way acquisitions (approximately 32 to 35 acres) under Alternative C2. Alternative C2 would require the most acreage zoned for mobile home parks (10 acres) of all the High Density Residential zoned land required for new right-of-way (roughly 23 acres). Alternative C2 is the only build alternative that would not impact any land zoned Industrial.

Table 3.8-4
Alternative C2 Right-of-Way Acquisition by Zone

Zone	City of SeaTac	City of Des Moines	City of Kent	
	Total Land To Be Acquired (acres)	**Total Land To Be Acquired (acres)**	**Total Land To Be Acquired (acres)**	**Total Land To Be Acquired (acres)**
Low-Density Residential				
R-15000	3.1	--	--	**3.1**
R-9600	8.6	--	--	**8.6**
R-7200	9.4	1.6	--	**11**
High-Density Residential				
M-2400	4.4	--	--	**4.4**
H-1800	2.7	0.7	--	**3.4**
H-900	1.0	3.6	--	**4.6**
MHP	10.1	--	--	**10.1**
Commercial/Industrial				
HC	--	--	--	**--**
GC	5.4	1.1	1.8	**8.3**
CB	2.3 - 5.0	--	--	**2.30 - 5.0**
ABC	3.1	--	--	**3.1**
A	32.3 - 34.9	--	--	32.3 - 34.9
IND	0.3	--	--	0.3
Park				
P	4.7	--	--	4.7
Total	**87.4 - 92.7**	**7.0**	**1.8**	**96.2 - 101.5**

Note: Ranges reflect differences in right-of-way acquisitions among the South Airport Link design options.

Alternative C3

Residential areas that would be impacted by increased noise levels and highway glare in Alternative C3 would be the same as those in Alternatives B and C2. Such effects could indirectly affect the livability and market value of these properties.

Right-of-Way Acquisition

As shown in Table 3.8-5, Alternative C3 would require approximately 134 to 140 acres for right-of-way purposes, not including existing street right-of-way. This alternative would require approximately the same amount of land in the cities of Des Moines and Kent as would Alternative C2; most of the acreage (roughly 125 to 130 acres) would be in the City of SeaTac.

Approximately 29 acres of the new right-of-way would be on vacant or undeveloped land, lower than Alternatives B and C2. The land use with the greatest loss would be Public/Government Use (approximately 66 to 68 acres). Although very little Residential High Density land would be acquired, substantial amounts of Residential Low Density and Commercial land would be acquired (approximately 36 acres and 25 to 27 acres, respectively).

Table 3.8-5
Alternative C3 Right-of-Way Acquisition by Existing Land Use

Existing Land Use Category	City of SeaTac		City of Des Moines		City of Kent		
	Total Land To Be Acquired (acres)	Vacant Land To Be Acquired (acres)	Total Land To Be Acquired (acres)	Vacant Land To Be Acquired (acres)	Total Land To Be Acquired (acres)	Vacant Land To Be Acquired (acres)	Total Land To Be Acquired (acres)
RLD (Residence Low Density)	30.4	1.4	5.6	0.8	--	--	36.0
RHD (Residence High Density)	1.8	0.3	1.8	--	--	--	3.6
COM (Commercial)	22.6 - 25.3	10.8	0.1	--	1.8	--	24.5 - 27.2
IND (Industrial)	0.1	0.1	--	--	--	--	0.1
PGU (Public/Government Use)	65.7 - 68.3	15.2	--	--	--	--	65.7 - 68.3
P (Park)	3.3	--	--	--	--	--	3.3
RI (Religious Institution)	1.0	--	--	--	--	--	1.0
Total	**124.9 - 130.2**	**27.8**	**7.5**	**0.8**	**1.8**	**--**	**134.2 - 139.5**

Note: Ranges reflect differences in right-of-way acquisitions among the South Airport Link design options.

Zoning

Table 3.8-6 provides a summary of the area of each land use zone that would potentially be affected by Alternative C3. Except for approximately 7.5 acres of property within the City of Des Moines, and 1.8 acres in the City of Kent, all of the Alternative C3 property acquisitions would be zoned according to the City of SeaTac. Alternative C3 would impact more City of SeaTac General Commercial zones than Alternatives B or C2, but substantially less high-density residential land. Similar to Alternative B, the greatest impacts would be to land zoned Airport (roughly 65 to 68 acres). The second greatest impact by type of zoned land would be General Commercial (approximately 21 acres). Approximately 19 acres of property zoned R-7200 (Single-Family Residential) would be required for right-of-way under Alternative C3.

Table 3.8-6
Alternative C3 Right-of-Way Acquisition by Zone

Zone	City of SeaTac Total Land To Be Acquired (acres)	City of Des Moines Total Land To Be Acquired (acres)	City of Kent Total Land To Be Acquired (acres)	Total Land To Be Acquired (acres)
Low-Density Residential				
R-15000	3.1	--	--	**3.1**
R-9600	8.7	--	--	**8.7**
R-7200	15.4	3.9	--	**19.3**
High-Density Residential				
M-2400	--	--	--	**--**
H-1800	1.6	--	--	**1.6**
H-900	--	3.6	--	**3.6**
MHP	0.2	--	--	**0.2**
Commercial/Industrial				
HC	--	--	--	**--**
GC	18.8	--	1.8	**20.6**
CB	0.1 - 2.8	--	--	**0.1 - 2.8**
ABC	8.2	--	--	**8.2**
A	65.1 - 67.7	--	--	**65.1 - 67.7**
IND	0.4	--	--	**0.4**
Park				
P	3.3	--	--	**3.3**
Total	**124.9 - 130.2**	**7.5**	**1.8**	**134.2 - 139.5**

Note: Ranges reflect differences in right-of-way acquisitions among the South Airport Link design options.

Relationship to Plans and Policies

This section identifies the relationship of the proposed project to relevant existing land use plans, policies, implementation strategies, and development regulations. The proposed project's consistency with policies that apply to recreational facilities is discussed in Section 3.10, *Social*, of this FEIS.

Regional Plans

Destination 2030 Metropolitan Transportation Plan

On May 24, 2001, Central Puget Sound leaders unanimously adopted Destination 2030 at a meeting of the PSRC's General Assembly in Seattle. Destination 2030 is the MTP for the central Puget Sound region and the transportation element of Vision 2020 (PSRC 2001). Destination 2030 identifies future transportation improvements and examines how they will influence the performance of the region's transportation systems, in addition to discussing how to preserve and manage the existing systems to make them more efficient (PSRC 2001).

Destination 2030 identifies various short term investment strategies in projects and programs (to occur prior to 2010), which will increase travel alternatives, complete regional systems, address transportation choke points, and fund projects that are "ready to go" (PSRC 2001). The completion of key freeway system missing links including SR 509 were some of the early actions identified within the "Ten Year Investment Program." All build alternatives would be consistent in implementing this strategy.

The proposed project is consistent with several of the priorities identified in Destination 2030. According to Destination 2030 (Chapter 5, Implementation Guidance and Actions: Completing Regional Roadway Systems), the region's priorities for roadway system development include:

- Completion of missing freeway links
- Completion of a regional arterial network
- Projects on major corridors
- Projects that connect designated urban centers

The No Action Alternative would be inconsistent with this plan by failing to support the strategies to improve regional mobility.

The proposed project is consistent with the goals and policies of the following plans:

Vision 2020 and Metropolitan Transportation Plan (MTP)

Urban Growth Policies

RG-1.9—Encourage growth in compact, well-defined urban centers which: (1) enable residents to live near jobs and urban activities; (2) help strengthen existing communities; and (3) promote bicycling, walking and transit use through sufficient density and mix of land uses. Connect and serve urban centers by a fast and convenient regional transit system. Provide service between centers and nearby areas by an efficient, transit-oriented multimodal transportation system.

Regional Transit Policies

RT-8.18—Investments in transportation facilities and services should support compact, pedestrian-oriented land use development throughout urban communities, and encourage growth in urban areas, especially in centers.

RT-8.5—Encourage public and private sector partnerships to identify freight mobility improvements which provide access to centers and regional facilities, and facilitate convenient intermodal transfers between marine, rail, highway and air freight activities.

RT-8.6—Promote efficient multimodal access to interregional transportation facilities such as airports, seaports, and inter-city rail stations.

King County Countywide Planning Policies

Framework Policies

FW-15—All jurisdictions in the county, in cooperation with Metro, the Metropolitan Planning Organization, and the state, shall develop a balanced transportation system and coordinated financing strategies and land use plan which implement regional mobility and reinforce the countywide vision. Vision 2020 Regional Growth Strategies shall be recognized as the framework for creating a regional system of centers linked by High Capacity Transit and an interconnected system of freeway High Occupancy Vehicle (HOV) lanes, and supported by a transit system.

Transportation Policies

T-8—In order to maintain regional mobility, a balanced multimodal transportation system shall be planned that includes freeway, highway and arterial improvements by making existing roads more efficient. These improvements should help alleviate existing traffic congestion problems,

enhance HOV and transit operations, and provide access to new desired growth areas, as identified in adopted land use plans. General capacity improvements promoting only Single Occupant Vehicle traffic shall be a lower priority. Transportation plans should consider the following mobility options/needs:

a. Arterial HOV treatments;

b. Driveway access management for principal arterials within the Urban Growth Area; and

c. Improvements needed for access to manufacturing and industrial centers, and marine and air terminals.

SeaTac Comprehensive Plan (1994, with 1999 amendments)

Transportation

Policy 3.2B—Proceed with environmental, feasibility, and funding studies to develop a new expressway or limited access arterial with multimodal capability to provide a south access route between the airport and I-5 with connections serving SeaTac's Urban Center.

Policy 3.2C—Continue coordination with the WSDOT and other local agencies to define and implement an extension of SR 509 to connect with I-5.

Policy 3.2J—Prior to construction of the South Access Roadway, development in the south portion of the Urban Center (excluding the South Aviation Support Area development) should be limited to the equivalent of 1,000,000 gross square feet unless the 28th/24th Avenue South (and associated improvements to South 200th Street) project is scheduled for completion within 6 years.

Policy 3.4C—Coordinate with Regional Transit Authority (RTA), Metro, WSDOT, King County, Port of Seattle, and other regional and local agencies to plan and implement for High Capacity Transit (HCT), and/or Personal Rapid Transit (PRT) systems to serve the City of SeaTac. Integrate the systems into planned transportation system improvements, such as the South Access Roadway project.

Greater Des Moines Comprehensive Plan (1995)

Conservation Element

Policy 4-03-04—Promote the preservation of native vegetation and mature trees; revegetation; and appropriate landscaping to improve air and water quality and fish and wildlife habitat.

Policy 4-03-05—Regulate significant land clearing, grading, and filling to minimize the area, time, and slope length of exposed soils and to reduce onsite erosion and offsite sediment transport. Prohibit any significant clearing, grading, or filling operations prior to drainage and erosion/sedimentation plan approval and implementation.

Policy 4-03-06—Regulate public and private development proposals in ways to ensure that the valuable functions of natural resources are preserved, restored, or improved.

Policy 4-03-07—Analyze the chain of environmental impacts from public and private development proposals in context of the whole watershed. Approve, condition, restrict, or deny development proposals based upon accurate and well-documented environmental information.

Policy 4-03-09—Take measures to control noise pollution and reduce noise impacts.

Policy 4-03-10—Regulate land uses to conserve all forms of energy.

Land Use Element

Policy 2-03-02—Preserve open spaces where appropriate to (1) protect environmentally sensitive areas; (2) provide visual separation between land use, neighborhood and city boundaries; and (3) moderate the environmental and visual impacts of new developments.

Policy 2-03-03—Limit future development to areas where adequate public facilities and services exist or can be concurrently provided.

Policy 2-03-04—Preserve the integrity of existing single-family neighborhoods.

Policy 2-03-05—Promote a land use pattern, scale, and density which supports public transportation services and encourages people to walk and bicycle, as well as provide convenient and safe automobile usage.

Policy 4-03-09—The city should plan for future development in the North Central neighborhood recognizing… (4) requirements of new development for transportation and other infrastructure improvements and (5) the potential for new development to enhance the economic or environmental quality of the city.

Implementation Strategy 2-04-20—Seek to minimize negative impacts of new development on neighborhoods by providing uniform standards at the interface of incompatible land uses which address, but are not limited to, the following: site access and circulation; structure height, bulk, and scale;

preservation of views; separation or buildings; landscaping; density; and noise buffering.

Transportation Element

Policy 3-03-01—Design the transportation system to serve the Land Use Element of the Greater Des Moines Comprehensive Plan.

Policy 3-03-05—Maintain convenient access to business districts. Discourage traffic congestion that would negatively affect access to businesses.

Policy 3-03-07—Provide facilities to accommodate safe pedestrian and bicycle movement.

Policy 3-03-08—Support programs that improve transit service and promote transit use.

Policy 3-03-11—Minimize the adverse impacts of constructing new transportation facilities.

Policy 3-03-12—Ensure adequate funding for needed transportation improvements.

Policy 3-03-13—Minimize the impacts of noise generated from new or expanded transportation systems.

Policy 3-03-14—Provide opportunities for residents and business owners to participate in the design and development of Des Moines' transportation systems.

City of Kent Comprehensive Plan (Revision 1, October 1997)

Land Use Element

LU-2.1—Establish transportation levels of service that will help guide development into desired areas and discourage sprawling development patterns.

LU-21.1—Incorporate bicycle paths in all roadway designs, ensure that sidewalks and other pedestrian amenities are provided in conjunction with private and public development, and incorporate convenient transit stations in designs for mixed use development.

Community Design Element

CD-2.3—Design intersections to safely accommodate both pedestrian and vehicular traffic. Construct intersections with the minimum dimension necessary to maintain established levels of service.

CD-2.4—Provide attractive streetscapes with street trees and sidewalks on both sides of all streets, planting strips, attractive transit shelters, benches, and pedestrian-scale street lights in appropriate locations.

CD-2.7—In general, construct sidewalks on both sides of all new streets. In industrial districts, sidewalks may not be appropriate, unless significant pedestrian traffic is projected, the absence of a sidewalk poses a public safety risk, or the streets are on existing or planned transit routes.

CD-3.2—Except where they are necessary to reduce noise or to create private rear yards, discourage fences, walls, and other barriers that inhibit pedestrian traffic, isolate neighborhoods, or separate neighborhoods from main roads.

Transportation Element

TR-1—Locate commercial, industrial, multi-family, and other uses that generate high levels of traffic in designated activity centers around intersections of principal or minor arterials or around freeway interchanges.

TR-1.4—Along all principal and minor arterial corridors, consolidate access points to residential, commercial, and industrial development. Consider proposals to consolidate access points during development review, as part of road improvement projects, or as part of land use redevelopment projects.

TR-1.5—Ensure consistency between land use and transportation plans so that land use and adjacent transportation facilities are compatible.

TR-3—Provide a balanced transportation system that recognizes the need for major road improvements to accommodate many travel modes. Create a comprehensive street system that provides reasonable circulation for all users throughout the city.

TR-4—Eliminate disruptions that reduce the safety and reasonable functioning of the local transportation system.

TR-4.1—Maximize traffic flow and mobility on arterial roads, especially on regional through routes, while protecting local neighborhood roads from increased traffic volumes.

TR-4.6—Minimize the effects of regional traffic congestion and overflow onto the local transportation system.

TR-4.7—Develop strategies to reduce traffic flows in local areas experiencing extreme congestion.

TR-5.3—Protect neighborhoods from transportation facility improvements that are not in character with the residential areas. Encourage pedestrian

and bicycle connections among residential developments to serve as an alternative to automobile use.

TR-5.4—Arrange streets and pedestrian parks in residential neighborhoods as an interconnecting network and connect them to other streets.

TR-7—Improve the nonmotorized transportation system for both internal circulation and linkages to regional travel, and promote the use of non-motorized transportation.

TR-8—Encourage the development and use of alternatives to single-occupancy vehicles.

City of Federal Way Comprehensive Plan (1995, with 2000 revisions)

Transportation Policies

TP-9—Identify and implement changes to the transportation system that reduce reliance on the single occupant vehicle. Support state, regional, and local visions and policies.

TP-20—Take advantage of opportunities to open new road connections to create route alternatives, especially in areas with few access choices.

TP-29—Reduce reliance on the single occupant auto by prioritizing and implementing supportive local-level transit, HOV, and nonmotorized improvements.

TP-30—Identify and plan for multimodal freeway, arterial, and collector street improvements which ensure more efficient use of existing roads and enhancement of HOV, transit, and nonmotorized operations.

TP-32—Structure the City's improvement program to strategically place increments of public and private investment that complement the multi-modal vision of the plan. This should include "matching" improvements to supplement the efforts by other agencies to provide HOV and transit facilities.

TP-42—Arterial HOV improvements will be constructed along key corridors to improve flow and encourage use of these more efficient modes.

Transportation Goals

TG-7a.—Place high priority on development of HOV and transit priority lanes.

3.8.4 Mitigation Measures

Operational Impacts

WSDOT would continue to coordinate with local jurisdictions and regional authorities to integrate the proposed project or No Action Alternative with other transit-related projects and to minimize unavoidable adverse effects on land uses from the combination of the projects.

All applicable federal, state, and local permits and approvals would be acquired to complete construction and to ensure that the proposed project is consistent with local comprehensive plans, zoning ordinances, and other applicable regulations in effect at the time of review.

For Alternatives B, C2, and C3, WSDOT would coordinate with the Cities of SeaTac and Des Moines to identify alternative property that could offset impacts resulting from the required acquisition of portions of Des Moines Creek Park. Such coordination is being conducted in conjunction with a detailed Section 4(f) Evaluation.

People and businesses displaced by new right-of-way acquisition would be entitled to relocation assistance and payment programs. A discussion of these programs is provided in Section 3.9, *Relocation*. Section 3.2, *Noise*, discusses mitigation of unavoidable adverse noise impacts; Section 3.14, *Visual Quality*, discusses mitigation of visual impacts.

3.8.5 Construction Activity Impacts and Mitigation

This analysis considers the temporary impacts of construction on the project area. It is assumed that these impacts would end after project construction is completed.

Alternative A (No Action)

No construction would occur under the No Action Alternative and, thus, there would be no construction impacts to land use.

Impacts Common to All Build Alternatives

Construction-related impacts affect the quality and character of existing land uses. These include impacts from noise, dust, and access and parking restrictions.

Noise impacts associated with the SR 509 extension would occur primarily to nearby residents along 8th Avenue South and Des Moines Memorial Drive near the SR 509 freeway extension, where the SR 509 alignment is similar for all of the build alternatives. Dust impacts on these residences and on

commercial development would occur. Although the motels and restaurants located near the northern terminus of the South Access Road are insulated for airport-related noises, some additional noise and dust impacts on these businesses would likely occur. Temporary traffic congestion would occur along South 188th Street near its current interchange with SR 509, at varying locations along South 200th Street, and at different locations, along SR 99 and I-5, depending on the alternative.

All build alternatives would require substantial amounts of landform grading and filling, some of which would include jurisdictional wetlands, steep slopes, and the demolition of several buildings. These direct impacts would require grading permits, sensitive areas ordinance variances, and demolition permits from each affected jurisdiction.

Alternative B

Noise and dust impacts associated with construction would occur at residences along 8th Avenue South near South 192nd Street, Des Moines Memorial Drive south of South 192nd Street, 15th Avenue South, south of South 200th Street, 24th Avenue South near South 208th Street, and in the City of SeaTac's Mansion Hill neighborhood. Commercial businesses on the west side of SR 99 from South 188th Street to roughly South 180th Street, businesses in the vicinity of the SR 99/South 208th Street intersection, and apartment complexes along South 208th Street and east of SR 99 would have noise and dust impacts. Homes and businesses along the west side of Military Road would also be affected, in addition to residents and businesses located along the I-5 corridor between South 216th Street and South 310th Street, especially those apartment complexes and other residences between 30th Avenue South and I-5 from South 216th Street south to SR 516. The King's Arms Motel located at the Kent Des Moines Road/I-5 intersection might experience a decline in business because of noise and construction.

Temporary traffic congestion would occur in the 24th Avenue South/ South 208th Street intersection area, along SR 99 in the vicinity of its current intersection with South 208th Street, along South 200th Street at the 2400 and 1600 blocks, Des Moines Memorial Drive just south of South 192nd Street, and along South 188th Street near its current intersection with Air Cargo Road. Local access traffic would not be able to use Air Cargo Road during some portions of construction of the South Airport Link. Further temporary traffic congestion would occur along South 216th Street near its current interchange with I-5 and at the South Kent-Des Moines Road (SR 516)/I-5 intersection. Buses and automobiles entering and exiting the Kent park and ride, located just northeast of the SR 516/I-5 interchange might experience delays because of the construction. Various streets that cross I-5 or are near to the proposed project might also encounter traffic congestion because of the I-5 improvements.

Alternative C2 (Preferred)

Temporary direct impacts, including noise and dust from the construction of the proposed project, would be similar to those described under Alternative B. However, because approximately 80 fewer acres would be acquired under Alternative C2, it is expected that the construction would not impact as many residences or businesses as Alternative B. Although temporary direct impacts associated with the construction of the proposed project would vary depending upon the alternative, temporary construction impacts stemming from the I-5 improvements and the South Airport Link would be the same as those described under Alternative B.

Alternative C3

Temporary direct impacts from the construction of the proposed project would include noise, dust, and traffic congestion. Noise and dust impacts would occur at residences on South 194th Street, around Des Moines Memorial Drive and South 196th Street, around 24th Avenue South and South 208th Street, and in the City of SeaTac's Mansion Hill neighborhood adjacent to the proposed I-5/SR 509 interchange. Single-family homes and a business along the west side of Military Road would also be impacted. Construction impacts would also affect commercial business south of South 208th Street on SR 99.

Temporary direct impacts from construction of the I-5 improvements and the South Airport Link would be the same as those described under Alternatives B and C2.

Construction Mitigation Measures

Various temporary traffic control measures would be implemented to minimize traffic congestion during construction.

Permits and approvals would be acquired to ensure that the proposed project is consistent with local comprehensive plans, zoning ordinances, and other applicable regulations.

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3.9 Relocation

3.9 Relocation

3.9.1 Studies and Coordination

This section is based on the findings of the *SR 509/South Access Road EIS Discipline Report: Relocation* (CH2M HILL August 2000), *SR 509/South Access Road EIS: South Airport Link* (August 2001), and *SR 509/South Access Road EIS: I-5 Improvements Report* (CH2M HILL October 2001). These reports are incorporated in this FEIS by reference.

Displacements were determined from aerial photos with alignment overlays, and a range of relocation figures was calculated to show the minimum and maximum number of possible displacements. Impact estimates were confirmed with WSDOT staff through field-checks in the project area.

Single-family house values and sizes were obtained from records at the King County Department of Assessments. Information on project area demographics and economic issues was obtained from 2000 U.S. Census data and personal communication with public agency and school district staff, as well as property owners and managers. Information on business characteristics and economic activity in the project area was obtained from published documents of affected jurisdictions and through consultation with city personnel. Additional contact was made with commercial property owners, as well as business owners, to confirm fundamental information about each individual business potentially impacted by the build alternatives.

The project area includes portions of five jurisdictions: the Cities of SeaTac, Des Moines, Kent, and Federal Way and King County. Staff in these jurisdictions were contacted to determine areas of planned or approved new development that could act as replacement housing.

3.9.2 Affected Environment

In general, the project area is characterized by somewhat higher minority and ethnic populations than the King County average, substantially lower housing prices than the county overall, and a lower-than-average median household income (see Table 3.10-1 in Section 3.10, *Social*). Affected neighborhoods are described in detail in Section 3.10, *Social*. In general, these neighborhoods have racial and economic characteristics similar to their respective cities; however, exceptions do exist. The neighborhood of Madrona has a noticeably higher percentage of minorities than the City of SeaTac overall. Similarly, the neighborhood of Pacific Ridge has a higher percentage of minorities and a lower median household income than the City of Des Moines overall. Demographic characteristics of census blocks with

displacements are discussed in more detail below. Because displacements would only occur in the Cities of SeaTac, Des Moines, and Kent, demographic information for Federal Way has not been included. Demographic information for King County is included for reference.

The project area supports a wide variety of businesses. Businesses in the area around Sea-Tac Airport are generally related to airport operations and/or tourism. The businesses include airline and air freight companies, hotels and motels, rental car facilities, and similar services. Commercial development around SR 99 (Pacific Highway South) through the central and southern portions of the project area is widely varied, with shops, restaurants, and service businesses catering to neighborhood residents and the surrounding communities. Industrial development is limited to scattered light-industrial, small-scale manufacturing businesses and warehouses located along major arterials in the City of SeaTac.

By the project design year of 2020, the Cities of SeaTac and Des Moines are predicted to experience substantial employment growth. Major contributors to this growth include the redevelopment of the City of SeaTac Central Business District (CBD), aviation-related developments (described in Sections 3.8 and 3.10 of this FEIS), business redevelopment opportunities within the Noise Remedy Program acquisition area, and the buildout of areas designated for business park use in the *Greater Des Moines Comprehensive Plan* (Des Moines 1995). Realization of these employment projections would depend to some extent on the access provided by the proposed project's roadway improvements.

3.9.3 Environmental Impacts

Tables 3.9-1, 3.9-4, and 3.9-6 summarize the relocation impacts of each build alternative on existing buildings in the project area. Impacts are characterized by a range of potentially displaced single-family and multifamily residential units and businesses. Ranges occur in the displacement totals because either (1) only part of a building would be impacted, resulting in the potential to avoid displacements, or (2) there is a difference in the number of displacements for the South Airport Link design options. Through future, more detailed roadway design efforts, the total number of displacements may be reduced.

Alternative A (No Action)

No displacements would occur under the No Action Alternative.

Alternative B

Alternative B would result in the displacement of 106 to 113 single-family residences, 250 multifamily units in 45 buildings, and 4 mobile homes

Table 3.9-1
Displacements by Type, Alternative, Neighborhood, and 2000 Census Blocks

Neighborhood*	Census Block(s)	Alternative B				
		Single Family	Multi-Family[a]	Mobile Home	Business[b]	Other[c]
8th/Des Moines Rd.						
	530330285 4001	0	0	0	4(3)	0
	53033028801 2001	4-5	0	0	0	0
	53033028801 2005	3	0	0	0	0
	Total	7-8	0	0	4(3)	0
Homestead Park						
	53033028801 3001	18-20	0	0	16(4)	0
	53033028801 3002	0	0	0	0	0
	53033028801 3004	0	0	0	0	0
	53033028801 3005	16	0	0	0	0
	Total	34-36	0	0	16(4)	0
City Center						
	53033028402 4004	0	0	0	0-4(0-4)	0
	Total	0	0	0	0-4(0-4)	0
Madrona						
	53033028802 2003	0	0	0	0	0
	53033028802 3000	0	0	0	0	0
	53033028802 3001	6-8	120(27)	0	0	0
	53033028802 5004	0	23(3)	0	1(1)	0
	53033028802 5005	0	0	0	0	0
	Total	6-8	143(30)	0	1(1)	0
Mansion Hill						
	53033028802 3004	15	0	0	0	0
	53033028802 3003	5	0	0	0	0
	53033028802 3002	0	0	0	0	0
	Total	20	0	0	0	0
North Hill						
	530330287 1002	2	0	0	0	0
	530330287 1000	0	12(2)	0	1(1)	0
	Total	2	12(2)	0	1(1)	0
Pacific Ridge						
	53033028902 1000	0	16(3)	0	0	0
	53033028902 1007	1	0	0	0	0
	53033028902 3000	0	0	0	0	0
	53033028902 3001	0	0	0	0	0
	53033028902 3004	0	11(3)	0	0	0
	53033028902 3005	1	56(4)	0	0	0
	53033028902 3006	1	12(3)	0	0	0
	53033028902 3007	0	0	0	0	0
	Total	3	95(13)	0	0	0
Grandview						
	530330283 3039	16-18	0	0	0	0
	530330291 1007	14	0	0	0	0
	530330291 1010	3	0	1	0	0
	530330291 1014	1	0	3	0	1
	Total	34-36	0	4	0	1
Midway						
	53033029100 1016	0	0	0	2(2)	0
	Total	0	0	0	2(2)	0
Entire Project Area						
	Total[d]	**106-113**	**250(45)**	**4**	**24-28(11-15)**	**1**

Source: 2000 U.S. Census

[a] Displacements are given in housing units followed by the number of affected buildings shown in parenthesis.

[b] Displacement counts are individual businesses followed by the actuall number of displaced structures shown in parenthesis.

[c] This category represents social and religious institutions and facilities.

[d] Ranges exist because the displacement of a partcular structure is questionable; further design work must be carried out untill an exact number can be determined.

(located on single-family parcels). Most of the single-family impacts would be within the neighborhoods of Homestead Park and Grandview in the City of SeaTac (see Table 3.9-1). Multifamily displacements would occur mostly in the Madrona neighborhood in SeaTac and the Pacific Ridge neighborhood in the City of Des Moines. There are high minority populations and federally-assisted tenants present in the Madrona and Pacific Ridge neighborhoods. Between 24 and 28 businesses and one church would also be displaced.

Residential

As many as 113 single-family homes could be displaced by this alternative. Table 3.9-2 shows the demographic characteristics of the census blocks that would have displacements. The neighborhoods of Grandview, Homestead Park, and Mansion Hill would have the largest amounts of single-family housing displacements under this alternative. The affected census blocks for all of these neighborhoods generally have similar or lower percentages of minorities compared to their respective neighborhoods. The median household income in affected blocks of Homestead Park ($34,091) is somewhat lower than the City of SeaTac median ($41,202). Affected blocks in neighborhoods other than Homestead Park have relatively high median household incomes. Four mobile homes located on individual parcels also would be displaced in the Grandview neighborhood. Neighborhoods in the City of Des Moines would have 5 single-family displacements. The South Airport Link design options would cause no residential displacements, but the I-5 improvements would displace 3 single-family houses in the Pacific Ridge neighborhood in Des Moines. There would be no residential displacements within the City of Kent.

Alternative B would displace 250 multifamily units in 45 buildings. More than half of these displacements would be caused by the SR 509 mainline in the Madrona neighborhood. The Presidential Estates, Colonial Commons, and Maybill apartment complexes in Madrona would have the largest number of impacts. These complexes are located in census blocks that are 48 percent minorities (120 displacements) and 58 percent minorities (23 displacements). The Madrona neighborhood overall is approximately 51 percent minorities. Median household incomes in these two census blocks are $43,125 (120 displacements) and $37,708 (23 displacements) compared to the neighborhood median of $42,730. SeaTac's median household income is $41,202.

According to King County Housing Authority (KCHA) data, only one apartment complex (located in Madrona) has Section 8 tenants in its units. Five of these units would be impacted. Other apartment buildings have no

Table 3.9-2
Demographic Characteristics of Alternative B Displacements by Census Blocks

Neighborhood	Census Block(s)	SF	MF[g]	MH	Bus[h]	Oth[i]	Pop.	White	African Amer.	Amer. Ind./ Alaska Native	Asian/ Pacific Islander[a]	Hispanic[b]	Elderly[c]	Median Household Income[d]	Median Value of Owner-Occupied Housing Units[d]	Median Contract Rent[d,e]
8th/Des Moines Rd.[f]	530330285 4001	0	0	0	4(3)	0	31	100%	0%	0%	0%	0%	13%	$60,313	$162,600	$824
	53033028801 2001	4-5	0	0	0	0	41	54%	0%	0%	36.5%	0%	17%	$53,333	$139,400	$540
	53033028801 2005	3	0	0	0	0	35	83%	0%	0%	0%	2.9%	3%	$53,333	$139,400	$540
	Total	7 to 8	0	0	4(3)	0										
Homestead Park	53033028801 3001	18-20	0	0	16(4)	0	1246	61%	8%	2.5%	13.4%	28.4%	3.6%	$34,091	$29,500	$503
	53033028801 3002	0	0	0	0	0	121	73%	6.6%	2.5%	3.3%	33.1%	10.7%	$34,091	$29,500	$503
	53033028801 3004	0	0	0	0	0	31	58%	3.2%	32.3%	0%	6.5%	9.7%	$34,091	$29,500	$503
	53033028801 3005	16	0	0	0	0	60	58%	6.70%	3.30%	26.7%	15%	10%	$34,091	$29,500	$503
	Total	34-36	0	0	16(4)	0										
Madrona[f]	53033028802 2003	0	0	0	0	0	160	61.9%	16.9%	0%	19.4%	3.8%	11.9%	$68,542	$155,400	$725
	53033028802 3000	0	0	0	0	0	92	20.7%	25%	2.2%	47.8%	1.1%	3.3%	$43,125	$162,200	$653
	53033028802 3001	6 to 8	120(27)	0	0	0	352	51.7%	17.6%	2.3%	15.3%	13.4%	6.5%	$43,125	$162,200	$653
	53033028802 5004	0	23(3)	0	1(1)	0	1668	41.5%	23.6%	0.9%	12%	25.7%	3.1%	$37,708	$66,404	$587
	53033028802 5005	0	0	0	0	0	227	56.8%	22%	0.9%	10.1%	11.0%	0.9%	$37,708	$66,404	$587
	Total	6 to 8	143(30)	0	1(1)	0										
City Center[f]	53033028402 4004	0	0	0	0-4(0-4)	0	0	0%	0%	0%	0%	0%	0%	$0	$0	$0
	Total	0	0	0	0-4(0-4)	0										
Mansion Hill	53033028802 3004	15	0	0	0	0	263	70.7%	4.2%	3.0%	16.0%	5.7%	8.7%	$43,125	$162,200	$653
	53033028802 3003	5	0	0	0	0	47	78.7%	0%	0%	19.1%	6.4%	17.0%	$43,125	$162,200	$653
	53033028802 3002	0	0	0	0	0	244	77.5%	4.1%	2.0%	12.3%	2.7%	32.8%	$43,125	$162,200	$653
	Total	20	0	0	0	0										
North Hill[f]	530330287 1002	2	0	0	0	0	276	83%	0.7%	1.1%	4.7%	17.3%	8.7%	$47,717	$152,200	$467
	530330287 1000	0	12(2)	0	1(1)	0	139	76.3%	2.9%	1.4%	5.8%	4.7%	4.3%	$47,717	$152,200	$467
	Total	2	12(2)	0	1(1)	0										
Pacific Ridge[f]	53033028902 1000	0	16(3)	0	0	0	153	26.1%	28.1%	1.3%	30.1%	13.1%	1.3%	$28,803	$17,400	$556
	53033028902 1007	1	0	0	0	0	268	16.0%	1.1%	0.3%	22.8%	71.6%	0.4%	$28,803	$17,400	$556
	53033028902 3000	0	0	0	0	0	1	100%	0%	0%	0%	0%	0%	$31,023	$90,600	$546
	53033028902 3001	0	0	0	0	0	86	48.8%	7.0%	0%	38.4%	9.3%	12.8%	$31,023	$90,600	$546
	53033028902 3004	0	11(3)	0	0	0	180	48.9%	14.4%	2.2%	24.4%	10%	7.2%	$31,023	$90,600	$546
	53033028902 3005	1	56(4)	0	0	0	387	45.5%	17.6%	1.0%	15.5%	20.7%	1.3%	$31,023	$90,600	$546
	53033028902 3006	1	12(3)	0	0	0	161	28.6%	39.1%	0.6%	10.5%	20.5%	1.2%	$31,023	$90,600	$546
	53033028902 3007	0	0	0	0	0	52	44.2%	15.4%	0%	15.4%	17.3%	0%	$31,023	$90,600	$546
	Total	3	95(13)	0	0	0										

Table 3.9-2
Demographic Characteristics of Alternative B Displacements by Census Blocks

Neighborhood	Census Block(s)	SF	MF[g]	MH	Bus[h]	Oth[i]	Pop.	White	African Amer.	Amer. Ind./ Alaska Native	Asian/ Pacific Islander[a]	Hispanic[b]	Elderly[c]	Median Household Income[d]	Median Value of Owner-Occupied Housing Units[d]	Median Contract Rent[d,e]
Grandview[f]	**530330283 3039**	16-18	0	0	0	0	46	80.4%	0%	0%	0%	8.7%	10.9%	$61,000	$173,800	$823
	530330283 3040	0	0	0	0	0	78	87.2%	0%	0%	2.6%	7.7%	14.1%	$61,000	$173,800	$823
	530330291 1007	14	0	0	0	0	91	88%	0%	2.2%	2.2%	5.5%	7.7%	$51,023	$158,600	$683
	530330291 1010	3	0	1	0	0	22	68.2%	18.2%	0%	0%	4.5%	18.2%	$51,023	$158,600	$683
	530330291 1014	1	0	3	0	1	26	73%	0%	7.7%	0%	0%	15.4%	$51,023	$158,600	$683
	Total	34-36	0	4	0	1										
Midway[f]	**53033029100 1016**	0	0	0	2(2)	0	0	0%	0%	0%	0%	0%	0%	$0	$0	$0
	Total	0	0	0	2(2)	0										

Source: 2000 U.S. Census

[a] *Includes the Native Hawaiian race.*

[b] *Includes all races alone or in combination with one or more races.*

[c] *65 years of age or older.*

[d] *Income figures are at the Census block-group level; all blocks in the same block-group have the same level of income, rent, and median house value.*

[e] *Mean Contract Rent is the monthly rent agreed to or contracted for, regardless of any furnishings, utilities, fees, meals, or services that may be included.*

[f] *For neighborhoods containing more than one block group, medians were averaged proportionate to the population, number of households, rental units, or owner-occupied housing units within each group.*

[g] *Displacements are given in housing units followed by the number of affected buildings in parenthesis.*

[h] *Displacement counts are individual businesses followed by the actual number of displaced structures shown in parenthesis.*

[i] *This category reresents social and religious institutions and facilities.*

Note: For racial characteristics "Other" and "Two or more races" are not depicted in this data, therefore totals may not equal 100%. Neighborhood boundaries do not correspond exactly with census blocks or block groups; a rough correlation has been established so that census data can be used to give a general idea of population, income, and housing characteristics. Ranges exist because the displacement of a partcular structure is questionable; further design work must be carried out untill an exact number can be determined.

Section 8 tenants but have households that could qualify as low-income or have households on fixed incomes. Apartment managers who were contacted by WSDOT reported generally uniform racial mixture in the affected apartment units and estimated that most tenants work within 20 miles of the neighborhood. KCHA data also showed that other Section 8 tenants are scattered through the neighborhood, but they would not be displaced.

Most of the remaining multifamily displacements would be caused by the I-5 improvements in the Pacific Ridge neighborhood. The Heritage Court and Silverwood Park complexes in Pacific Ridge would face substantial relocation impacts (approximately 70 units in 7 buildings). Census blocks with multifamily displacements all have minority percentages higher than 50 percent. Two of the census blocks (totaling 28 displacements) have minority percentages approaching 75 percent. These blocks have median household incomes similar to the neighborhood median ($31,892), which is considerably below the City of Des Moines median ($48,971).

Pacific Ridge is known to have large stocks of low-income housing, and KCHA data confirm that Section 8 tenants are spread throughout the neighborhood. Although none of these tenants listed by KCHA would be displaced, apartment managers contacted by WSDOT speculated that some of their impacted units indeed house low-income families. Fifteen displaced households were identified as potentially being low-income by neighborhood apartment managers.

Other Neighborhood Characteristics

The neighborhoods of Homestead Park, Madrona, Grandview, and Pacific Ridge would have the greatest displacement impacts. Owner and renter occupancy for the impacted Census blocks in these neighborhoods varies greatly but predictably. Apartment-heavy Census blocks in Madrona and Pacific Ridge have renter-occupied percentages of up to 100 percent. Conversely, affected Census blocks in Grandview and Homestead Park, which are predominantly single-family housing, have owner-occupation rates ranging from 70 to 90 percent.

Businesses

Between 24 and 28 businesses in 11 to 15 buildings would be displaced by Alternative B. Table 3.9-3 shows the businesses and employees that would be displaced by Alternative B, as well as the other build alternatives. The South Airport Link design options would displace between 0 and 4 of these businesses (each in their own building), depending on the design option. The I-5 improvements would displace 2 businesses. WSDOT communication records with business owners show that very few of these businesses are minority-owned.

Table 3.9-3
Maximum Business Displacements

Business	Alternative B	Alternative C2 (Preferred)	Alternative C3	Address	Retail	Service	Restaurant	Industrial/ Manufacturing/ Warehouse	Employees
City of SeaTac									
Madrona									
Alamo Rent-a-Car	x	x		20636 International Boulevard					20
Squeaky Clean			x	21010 International Boulevard		x			1
Pacific Auto			x	20856 International Boulevard		x			3
Homestead Park									
Alaska Airlines Gold Coast Center			x	20833 International Boulevard		x			300
Nordic Construction	x			2612 South 208th Street		x			20
Best Western Executel	x			20717 International Boulevard		x			80
PAC Stainless, Ltd.	x	x		2407 South 200th Street				x	10
Orca Pacific	x	x		2403 South 200th Street				x	5
Mach 1 Air Services, Inc.	x	x	x	2301 South 200th Street				x	4
AEI	x	x	x	2325 South 200th Street		x			5
Virtual Distribution Center	x	x		2333 South 200th Street				x	N/A
Tricor America	x	x		2355 South 200th Street		x			42
Vacant Commercial Space	x	x		2361 South 200th Street					
Vacant Commercial Space	x	x		2363 South 200th Street					
PacBrake Company	x	x		2367 South 200th Street				x	4
CDK International	x	x		2369 South 200th Street				x	4
Metrocall Inc.	x	x		2373 South 200th Street					N/A
Beta Laboratories	x	x	x	2375 South 200th Street		x			N/A
Vacant Commercial Space	x	x	x	2377 South 200th Street					
Marinelli Shellfish	x	x	x	2383 South 200th Street	x				9
8th Avenue/Des Moines Rd.									
Freeway Automotive	x	x	x	18205 Des Moines Way South		x			N/A
JJ's at the South End	x	x	x	18205 Des Moines Way South			x		2
Express Rent-a-Car		x		18451 Des Moines Way South		x			3
Foreman's Welding	x	x	x	18451 Des Moines Way South		x			1
Hangar 1 Auto Rebuild		x		18451 Des Moines Way South		x			8
Jim's Autorama		x		18451 Des Moines Way South	x				2
Jim's Detail Shop	x	x	x	18429 Des Moines Way South		x			9

Table 3.9-3
Maximum Business Displacements

Business	Alternative B	Alternative C2 (Preferred)	Alternative C3	Address	Retail	Service	Restaurant	Industrial/ Manufacturing/ Warehouse	Employees
Koolit Truck Sales, Inc.		x		18441 Des Moines Way South	x				2
Upholstery Zone		x		1243 South 196th Place		x			1
City Center									
Airport Plaza Hotel	x	x	x	18601 International Boulevard		x			N/A
Budget "Park & Lock" Airport Parking	x	x	x	18445 International Boulevard		x			N/A
West Coast Gateway Hotel	x	x	x	18415 International Boulevard		x			N/A
Sharp's Roaster & Alehouse	x	x	x	18427 International Boulevard			x		N/A
City of Des Moines									
Tech-Marine Enterprises, Inc.	x	x	x	1122 South 194th Street		x			10
Upholstery Zone		x		1243 South 196th Place		x			1
City of Kent									
Poulsbo RV	x	x	x	23051 Military Road South	x				53
Gai's Northwest Bakery	x	x	x	23009 Military Road South	x				18

Most of the displacements would be in the City of SeaTac; many of these displacements are either in the service industry or are warehouse uses. For warehouse businesses that use their location as a distribution point, proximity to the airport is key to their operation and is their main siting consideration.

Most of the businesses displaced by this alternative would be from a grouping of three warehouses on South 200th Street near the Federal Detention Center. Other business displacements are scattered throughout neighborhoods in the Cities of SeaTac, Des Moines, and Kent.

None of the businesses reported that employee transfers would be feasible, mainly because their other locations were already fully staffed and would be unable to increase staffing levels. Nearly all of the businesses would choose to relocate rather than to suspend operations. Many would relocate within the City of SeaTac—primarily to remain close to Sea-Tac Airport.

Alternative B would acquire property from the Puget Sound Church of God Holiness that would require the removal of buildings immediately adjacent to the proposed right-of-way. This church is located in the Grandview neighborhood and draws parishioners from throughout the project area.

Alternative C2 (Preferred)

Displacement impacts under Alternative C2 would be smaller than under Alternative B. Alternative C2 would result in the displacement of 80 single-family residences, 196 multifamily units in 30 buildings, and 5 mobile homes located on single-family parcels (see Table 3.9-4). The displaced single-family units would be primarily in the 8th Avenue/Des Moines Memorial Drive, Mansion Hill, and Grandview neighborhoods in the City of SeaTac. Most of the multifamily displacements would be in the Madrona neighborhood of SeaTac and the North Hill and Pacific Ridge neighborhoods in Des Moines. There are high minority populations and federally-assisted tenants present in the Madrona and Pacific Ridge neighborhoods. There also would be 27 to 31 businesses and 1 church displaced under Alternative C2. Table 3.9-4 shows census blocks with displacements under Alternative C2 and their demographic characteristics.

Residential

80 single-family houses would be displaced by Alternative C2. Table 3.9-5 shows the demographic characteristics of the Census blocks that would have displacements. The Grandview neighborhood would see the most single-family displacements. Additionally, four mobile homes located on individual parcels would be displaced in Grandview. The census blocks within Grandview that would be impacted are the same blocks discussed for Alternative B. These blocks have comparable minority compositions and median household incomes compared to the rest of Grandview.

Table 3.9-4
Displacements by Type, Alternative, Neighborhood, and 2000 Census Blocks

Neighborhood*	Census Block(s)	Alternative C2 (Preferred)				
		Single Family	Multi-Family[a]	Mobile Home	Business	Other[b]
8th/Des Moines Rd.						
	530330285 4001	0	0	0	8(6)	0
	53033028801 2001	7	0	1	0	0
	53033028801 2005	9	0	0	1(1)	0
	Total	16	0	1	9(7)	0
Homestead Park						
	53033028801 3001	0	0	0	14(3)	0
	53033028801 3002	0	0	0	0	0
	53033028801 3004	0	0	0	0	0
	53033028801 3005	0	0	0	0	0
	Total	0	0	0	14(3)	0
City Center						
	53033028402 4004	0	0	0	0-4(0-4)	0
	Total	0	0	0	0-4(0-4)	0
Madrona						
	53033028802 2003	0	0	0	0	0
	53033028802 3000	0	0	0	0	0
	53033028802 3001	2	57(8)	0	0	0
	53033028802 5004	0	12(2)	0	1	0
	53033028802 5005	0	0	0	0	0
	Total	2	69(10)	0	1(1)	0
Mansion Hill						
	53033028802 3004	12	4(1)	0	0	0
	53033028802 3003	6	0	0	0	0
	53033028802 3002	0	0	0	0	0
	Total	18	4(1)	0	0	0
North Hill						
	530330287 1002	3	0	0	0	0
	530330287 1000	0	26(5)	0	1(1)	0
	Total	3	26(5)	0	1(1)	0
Pacific Ridge						
	53033028902 1000	0	16(3)	0	0	0
	53033028902 1007	1	0	0	0	0
	53033028902 3000	0	0	0	0	0
	53033028902 3001	0	0	0	0	0
	53033028902 3004	0	11(3)	0	0	0
	53033028902 3005	1	56(4)	0	0	0
	53033028902 3006	1	12(3)	0	0	0
	53033028902 3007	0	0	0	0	0
	Total	3	95(13)	0	0	0
Grandview						
	530330283 3039	20	0	0	0	0
	530330291 1007	14	2(1)	0	0	0
	530330291 1010	3	0	1	0	0
	530330291 1014	1	0	3	0	1
	Total	38	2(1)	4	0	1
Midway						
	53033029100 1016	0	0	0	2(2)	0
	Total	0	0	0	2(2)	0
Entire Project Area						
	Total[d]	**80**	**196(30)**	**5**	**27-31(14-18)**	**1**

Source: 2000 U.S. Census

[a] Displacements are given in housing units followed by the number of affected buildings shown in parenthesis.

[b] Displacement counts are individual businesses followed by the actuall number of displaced structures shown in parenthesis.

[c] This category represents social and religious institutions and facilities.

[d] Ranges exist because the displacement of a partcular structure is questionable; further design work must be carried out untill an exact number can be determined.

Table 3.9-5
Demographic Characteristics of Alternative C2 Displacements by Census Blocks

Neighborhood	Census Block(s)	SF	MF[g]	MH	Bus[h]	Oth[i]	Pop.	White	African Amer.	Amer. Ind./ Alaska Native	Asian/ Pacific Islander[a]	Hispanic[b]	Elderly[c]	Median Household Income[d]	Median Value of Owner-Occupied Housing Units[d]	Median Contract Rent[d,e]
8th/Des Moines Rd.[f]	530330285 4001	0	0	0	8(6)	0	31	100%	0%	0%	0%	0%	13%	$60,313	$162,600	$824
	53033028801 2001	7	0	1	0	0	41	54%	0%	0%	36.5%	0%	17%	$53,333	$139,400	$540
	53033028801 2005	9	0	0	1(1)	0	35	83%	0%	0%	0%	2.9%	3%	$53,333	$139,400	$540
	Total	16	0	1	9(7)	0										
Homestead Park	53033028801 3001	0	0	0	14(3)	0	1246	61%	8%	2.5%	13.4%	28.4%	3.6%	$34,091	$29,500	$503
	53033028801 3002	0	0	0	0	0	121	73%	6.6%	2.5%	3.3%	33.1%	10.7%	$34,091	$29,500	$503
	53033028801 3004	0	0	0	0	0	31	58%	3.2%	32.3%	0%	6.5%	9.7%	$34,091	$29,500	$503
	53033028801 3005	0	0	0	0	0	60	58%	6.70%	3.30%	26.7%	15%	10%	$34,091	$29,500	$503
	Total	0	0	0	14(3)	0										
Madrona[f]	53033028802 2003	0	0	0	0	0	160	61.9%	16.9%	0%	19.4%	3.8%	11.9%	$68,542	$155,400	$725
	53033028802 3000	0	0	0	0	0	92	20.7%	25%	2.2%	47.8%	1.1%	3.3%	$43,125	$162,200	$653
	53033028802 3001	2	57(8)	0	0	0	352	51.7%	17.6%	2.3%	15.3%	13.4%	6.5%	$43,125	$162,200	$653
	53033028802 5004	0	12(2)	0	1(1)	0	1668	41.5%	23.6%	0.9%	12%	25.7%	3.1%	$37,708	$66,404	$587
	53033028802 5005	0	0	0	0	0	227	56.8%	22%	0.9%	10.1%	11.0%	0.9%	$37,708	$66,404	$587
	Total	2	69(10)	0	1(1)	0										
City Center[f]	53033028402 4004	0	0	0	0-4(0-4)	0	0	0%	0%	0%	0%	0%	0%	$0	$0	$0
	Total	0	0	0	0-4(0-4)	0										
Mansion Hill	53033028802 3004	12	4(1)	0	0	0	263	70.7%	4.2%	3.0%	16.0%	5.7%	8.7%	$43,125	$162,200	$653
	53033028802 3003	6	0	0	0	0	47	78.7%	0%	0%	19.1%	6.4%	17.0%	$43,125	$162,200	$653
	53033028802 3002	0	0	0	0	0	244	77.5%	4.1%	2.0%	12.3%	2.7%	32.8%	$43,125	$162,200	$653
	Total	18	4(1)	0	0	0										
North Hill[f]	530330287 1002	3	0	0	0	0	276	83%	0.7%	1.1%	4.7%	17.3%	8.7%	$47,717	$152,200	$467
	530330287 1000	0	26(5)	0	1(1)	0	139	76.3%	2.9%	1.4%	5.8%	4.7%	4.3%	$47,717	$152,200	$467
	Total	3	26(5)	0	1(1)	0										
Pacific Ridge[f]	53033028902 1000	0	16(3)	0	0	0	153	26.1%	28.1%	1.3%	30.1%	13.1%	1.3%	$28,803	$17,400	$556
	53033028902 1007	1	0	0	0	0	268	16.0%	1.1%	0.3%	22.8%	71.6%	0.4%	$28,803	$17,400	$556
	53033028902 3000	0	0	0	0	0	1	100%	0%	0%	0%	0%	0%	$31,023	$90,600	$546
	53033028902 3001	0	0	0	0	0	86	48.8%	7.0%	0%	38.4%	9.3%	12.8%	$31,023	$90,600	$546
	53033028902 3004	0	11(3)	0	0	0	180	48.9%	14.4%	2.2%	24.4%	10%	7.2%	$31,023	$90,600	$546
	53033028902 3005	1	56(4)	0	0	0	387	45.5%	17.6%	1.0%	15.5%	20.7%	1.3%	$31,023	$90,600	$546
	53033028902 3006	1	12(3)	0	0	0	161	28.6%	39.1%	0.6%	10.5%	20.5%	1.2%	$31,023	$90,600	$546
	53033028902 3007	0	0	0	0	0	52	44.2%	15.4%	0%	15.4%	17.3%	0%	$31,023	$90,600	$546
	Total	3	95(13)	0	0	0										

Table 3.9-5
Demographic Characteristics of Alternative C2 Displacements by Census Blocks

Neighborhood	Census Block(s)	SF	MF[g]	MH	Bus[h]	Oth[i]	Pop.	White	African Amer.	Amer. Ind./ Alaska Native	Asian/ Pacific Islander[a]	Hispanic[b]	Elderly[c]	Median Household Income[d]	Median Value of Owner-Occupied Housing Units[d]	Median Contract Rent[d,e]
Grandview[f]	**530330283 3039**	20	0	0	0	0	46	80.4%	0%	0%	0%	8.7%	10.9%	$61,000	$173,800	$823
	530330283 3040	0	0	0	0	0	78	87.2%	0%	0%	2.6%	7.7%	14.1%	$61,000	$173,800	$823
	530330291 1007	14	2(1)	0	0	0	91	88%	0%	2.2%	2.2%	5.5%	7.7%	$51,023	$158,600	$683
	530330291 1010	3	0	1	0	0	22	68.2%	18.2%	0%	0%	4.5%	18.2%	$51,023	$158,600	$683
	530330291 1014	1	0	3	0	1	26	73%	0%	7.7%	0%	0%	15.4%	$51,023	$158,600	$683
	Total	38	2(1)	4	0	1										
Midway[f]	**53033029100 1016**	0	0	0	2(2)	0	0	0%	0%	0%	0%	0%	0%	$0	$0	$0
	Total	0	0	0	2(2)	0										

Source: 2000 U.S. Census

[a] *Includes the Native Hawaiian race.*

[b] *Includes all races alone or in combination with one or more races.*

[c] *65 years of age or older.*

[d] *Income figures are at the Census block-group level; all blocks in the same block-group have the same level of income, rent, and median house value.*

[e] *Mean Contract Rent is the monthly rent agreed to or contracted for, regardless of any furnishings, utilities, fees, meals, or services that may be included.*

[f] *For neighborhoods containing more than one block group, medians were averaged proportionate to the population, number of households, rental units, or owner-occupied housing units within each group.*

[g] *Displacements are given in housing units followed by the number of affected buildings in parenthesis.*

[h] *Displacement counts are individual businesses followed by the actual number of displaced structures shown in parenthesis.*

[i] *This category reresents social and religious institutions and facilities.*

Note: For racial characteristics "Other" and "Two or more races" are not depicted in this data, therefore totals may not equal 100%. Neighborhood boundaries do not correspond exactly with census blocks or block groups; a rough correlation has been established so that census data can be used to give a general idea of population, income, and housing characteristics. Ranges exist because the displacement of a partcular structure is questionable; further design work must be carried out untill an exact number can be determined.

The Mansion Hill neighborhood would have 18 single-family homes displaced. Similar to Alternative B, the affected census blocks where these homes are located have comparable minority compositions and median household incomes compared to the rest of the neighborhood.

16 single-family houses would be displaced in the 8th Avenue/Des Moines Memorial Drive neighborhood. Seven of those displacements would occur in a census block with 46 percent minorities. Median household incomes for both of the affected census blocks are above the neighborhood and city medians.

Alternative C2 would displace 196 multifamily units in 30 buildings. Substantially fewer multifamily units would be displaced in the Madrona neighborhood compared to Alternative B. Impacts on apartment complexes in this neighborhood would be much less severe under Alternative C2. There would be 57 displacements in the census block with 48 percent minorities and 12 displacements in the census block with 51 percent minorities. Median household incomes in these two census blocks are comparable to or somewhat lower than the neighborhood median.

Similar to Alternative B, only one apartment complex (located in Madrona) would have Section 8 tenants displaced by this alternative (5 total units). Other Section 8 tenants are located near the alignment but would not be displaced.

There would be more multifamily units acquired in the North Hill neighborhood compared to Alternative B. Twenty-six units would be acquired in a census block that is approximately 24 percent minorities compared to the 15 percent neighborhood average. The median household income of this census block is $47,717, somewhat below the neighborhood median of $56,835. The median income level of this census block is comparable to the City of Des Moines median ($48,971).

Alternative C2 would pass through an area where four mobile home parks currently exist—Tyee Valley Mobile Home Park, Des Moines Estates, Town and Country Lane, and Town and Country Villa. The Port of Seattle, according to FAA noise mitigation policy (Part 150), has committed to relocating these mobile homes as a part of their current noise mitigation plan. The timing of these relocations has not been determined; however, WSDOT is working with the Port of Seattle to develop the best program for timely relocation of the mobile home residents.

For both single-family and multifamily units, the I-5 improvements would have the same impact as described under Alternative B. Up to 95 multifamily units in 13 buildings would be displaced in the Pacific Ridge neighborhood. The same four census blocks with multifamily displacements as in Alternative B would be impacted by Alternative C2. These census blocks

have minority percentages higher than 50 percent and have median household incomes similar to the neighborhood median. The same fifteen displaced households identified as potentially being low-income under Alternative B would also be affected by this alternative.

Other Neighborhood Characteristics

The Madrona and Pacific Ridge neighborhoods would have the greatest displacement impacts under Alternative C2. The displacements in Madrona would occur slightly farther south than under Alternative B; however, this section of the neighborhood still contains many of the multifamily developments that contribute to the high renter-occupancy rate. This area of Madrona has similar characteristics to those described under Alternative B. The same Census blocks in Pacific Ridge would be impacted as in Alternative B.

Businesses

Alternative C2 would displace 27 to 31 businesses in 14 to 16 buildings (Table 3.9-3), most of which would be in the City of SeaTac. Service businesses and industrial/manufacturing/warehouse businesses would be the most common types of business displacements. Similar to Alternative B, the warehouses on South 200th Street would represent the most concentrated area of displacements. The South Airport Link design options and I-5 improvements would cause the same number of displacements as in Alternative B. WSDOT communication records with business owners show that very few of these businesses are minority-owned.

Because many of the same businesses impacted by Alternative B would be impacted by Alternative C2, siting issues and opinions on relocation options are the same as those described above.

Alternative C2 would have the same impact on the Puget Sound Church of God Holiness as Alternative B.

Alternative C3

Alternative C3 would displace more single-family houses, but fewer multifamily houses than Alternative C2. Alternative C3 would result in the displacement of 114 to 118 single-family residences, 127 multifamily units in 19 buildings, and 4 mobile homes located on single-family parcels (see Table 3.9-6). Most of the single-family impacts would be within the City of SeaTac's Mansion Hill neighborhood. Multifamily impacts would only occur in the North Hill and Pacific Ridge neighborhoods in Des Moines. Pacific Ridge has high minority populations and federally-assisted tenants living in the neighborhood. Thirteen to 17 businesses and one church would also be displaced by this alternative.

Table 3.9-6
Displacements by Type, Alternative, Neighborhood, and 2000 Census Blocks

Neighborhood*	Census Block(s)	Alternative C3				
		Single Family	Multi-Family[a]	Mobile Home	Business	Other[b]
8th/Des Moines Rd.						
	530330285 4001	0	0	0	4(3)	0
	53033028801 2001	8	0	0	0	0
	53033028801 2005	7	0	0	0	0
	Total	15	0	0	4(3)	0
Homestead Park						
	53033028801 3001	6	0	0	5(2)	0
	53033028801 3002	0	0	0	0	0
	53033028801 3004	0	0	0	0	0
	53033028801 3005	13-14	0	0	1(1)	0
	Total	19-20	0	0	6(3)	0
City Center						
	53033028402 4004	0	0	0	0-4(0-4)	0
	Total	0	0	0	0-4(0-4)	0
Madrona						
	53033028802 2003	0	0	0	0	0
	53033028802 3000	0	0	0	0	0
	53033028802 3001	0-2	0	0	2(2)	0
	53033028802 5004	0	0	0	0	0
	53033028802 5005	0	0	0	0	0
	Total	0-2	0	0	2(2)	0
Mansion Hill						
	53033028802 3004	20	0	0	0	0
	53033028802 3003	16	0	0	0	0
	53033028802 3002	6-7	0	0	0	0
	Total	42-43	0	0	0	0
North Hill						
	530330287 1002	3	0	0	0	0
	530330287 1000	2	32(6)	0	1(1)	0
	Total	5	32(6)	0	1(1)	0
Pacific Ridge						
	53033028902 1000	0	16(3)	0	0	0
	53033028902 1007	1	0	0	0	0
	53033028902 3000	0	0	0	0	0
	53033028902 3001	0	0	0	0	0
	53033028902 3004	0	11(3)	0	0	0
	53033028902 3005	1	56(4)	0	0	0
	53033028902 3006	1	12(3)	0	0	0
	53033028902 3007	0	0	0	0	0
	Total	3	95(13)	0	0	0
Grandview						
	530330283 3039	12	0	0	0	0
	530330291 1007	14	0	0	0	0
	530330291 1010	3	0	1	0	0
	530330291 1014	1	0	3	0	1
	Total	30	0	4	0	1
Midway						
	53033029100 1016	0	0	0	2(2)	0
	Total	0	0	0	2(2)	0
Entire Project Area						
	Total[d]	**114-118**	**127(19)**	**4**	**15-19(11-15)**	**1**

Source: 2000 U.S. Census

[a] Displacements are given in housing units followed by the number of affected buildings shown in parenthesis.

[b] Displacement counts are individual businesses followed by the actuall number of displaced structures shown in parenthesis.

[c] This category represents social and religious institutions and facilities.

[d] Ranges exist because the displacement of a partcular structure is questionable; further design work must be carried out untill an exact number can be determined.

Residential

The number of single-family displacements would be slightly higher than in Alternative B. However, Alternative C3 would acquire fewer homes in the Homestead Park area and more houses in the Mansion Hill neighborhood. Mansion Hill would have the greatest number of single-family displacements (42 to 43). Table 3.9-7 shows the demographic characteristics of the Census blocks that would have displacements. The affected census blocks in Mansion Hill generally have similar or lower percentages of minorities compared to their respective neighborhoods (see Table 3.9-7). Median household incomes are comparable to the larger Mansion Hill neighborhood, as well as the City of SeaTac.

The Homestead Park neighborhood would have 19 to 20 single-family homes displaced. Roughly two-thirds of these would be located in a census block that is 42 percent minorities, slightly higher than the neighborhood average. The median household income in affected blocks of Homestead Park ($34,091) is somewhat lower than the City of SeaTac median ($41,202).

15 single-family houses would be displaced in the 8th Avenue/Des Moines Memorial Drive neighborhood. Eight of those displacements would occur in a census block with 46 percent minorities. Median household incomes for both of the affected census blocks are above the neighborhood and city medians.

Alternative C3 would displace the fewest multifamily units of any of the alternatives. All multifamily displacements would be in the City of Des Moines, in the North Hill and Pacific Ridge neighborhoods. Thirty-two units in six buildings would be displaced along South 194th Street in the North Hill neighborhood. The census block where these units are located is approximately 24 percent minorities. The median household income of this census block is somewhat below the neighborhood median and comparable to the City of Des Moines median.

Because the I-5 improvements would be the same as in the other two build alternatives, there would be the same multifamily impacts to the Pacific Ridge neighborhood. Ninety-five units in 13 buildings would be displaced in Pacific Ridge. These census blocks have minority percentages higher than 50 percent and have median household incomes similar to the neighborhood median. The same fifteen displaced households identified as potentially being low-income under Alternative B would also be affected by this alternative.

Other Neighborhood Characteristics

Alternative C3 would impact nearly the same Census blocks as Alternative B. The main difference is that Alternative C3 would mostly avoid the Madrona neighborhood—an area with Census blocks that have a high percentage of

Table 3.9-7
Demographic Characteristics of Alternative C3 Displacements by Census Blocks

Neighborhood	Census Block(s)	SF	MF[g]	MH	Bus[h]	Oth[i]	Pop.	White	African Amer.	Amer. Ind./ Alaska Native	Asian/ Pacific Islander[a]	Hispanic[b]	Elderly[c]	Median Household Income[d]	Median Value of Owner-Occupied Housing Units[d]	Median Contract Rent[d,e]
8th/Des Moines Rd.[f]	530330285 4001	0	0	0	4(3)	0	31	100%	0%	0%	0%	0%	13%	$60,313	$162,600	$824
	53033028801 2001	8	0	0	0	0	41	54%	0%	0%	36.5%	0%	17%	$53,333	$139,400	$540
	53033028801 2005	7	0	0	0	0	35	83%	0%	0%	0%	2.9%	3%	$53,333	$139,400	$540
	Total	15	0	0	4(3)	0										
Homestead Park	53033028801 3001	6	0	0	5(2)	0	1246	61%	8%	2.5%	13.4%	28.4%	3.6%	$34,091	$29,500	$503
	53033028801 3002	0	0	0	0	0	121	73%	6.6%	2.5%	3.3%	33.1%	10.7%	$34,091	$29,500	$503
	53033028801 3004	0	0	0	0	0	31	58%	3.2%	32.3%	0%	6.5%	9.7%	$34,091	$29,500	$503
	53033028801 3005	13-14	0	0	1(1)	0	60	58%	6.70%	3.30%	26.7%	15%	10%	$34,091	$29,500	$503
	Total	19-20	0	0	6(3)	0										
Madrona[f]	53033028802 2003	0	0	0	0	0	160	61.9%	16.9%	0%	19.4%	3.8%	11.9%	$68,542	$155,400	$725
	53033028802 3000	0	0	0	0	0	92	20.7%	25%	2.2%	47.8%	1.1%	3.3%	$43,125	$162,200	$653
	53033028802 3001	0-2	0	0	2(2)	0	352	51.7%	17.6%	2.3%	15.3%	13.4%	6.5%	$43,125	$162,200	$653
	53033028802 5004	0	0	0	0	0	1668	41.5%	23.6%	0.9%	12%	25.7%	3.1%	$37,708	$66,404	$587
	53033028802 5005	0	0	0	0	0	227	56.8%	22%	0.9%	10.1%	11.0%	0.9%	$37,708	$66,404	$587
	Total	0-2	0	0	2(2)	0										
City Center[f]	53033028402 4004	0	0	0	0-4(0-4)	0	0	0%	0%	0%	0%	0%	0%	$0	$0	$0
	Total	0	0	0	0-4(0-4)	0										
Mansion Hill	53033028802 3004	20	0	0	0	0	263	70.7%	4.2%	3.0%	16.0%	5.7%	8.7%	$43,125	$162,200	$653
	53033028802 3003	16	0	0	0	0	47	78.7%	0%	0%	19.1%	6.4%	17.0%	$43,125	$162,200	$653
	53033028802 3002	6 to 7	0	0	0	0	244	77.5%	4.1%	2.0%	12.3%	2.7%	32.8%	$43,125	$162,200	$653
	Total	42-43	0	0	0	0										
North Hill[f]	530330287 1002	3	0	0	0	0	276	83%	0.7%	1.1%	4.7%	17.3%	8.7%	$47,717	$152,200	$467
	530330287 1000	2	32(6)	0	0	0	139	76.3%	2.9%	1.4%	5.8%	4.7%	4.3%	$47,717	$152,200	$467
	Total	5	32(6)	0	0	0										
Pacific Ridge[f]	53033028902 1000	0	16(3)	0	0	0	153	26.1%	28.1%	1.3%	30.1%	13.1%	1.3%	$28,803	$17,400	$556
	53033028902 1007	1	0	0	0	0	268	16.0%	1.1%	0.3%	22.8%	71.6%	0.4%	$28,803	$17,400	$556
	53033028902 3000	0	0	0	0	0	1	100%	0%	0%	0%	0%	0%	$31,023	$90,600	$546
	53033028902 3001	0	0	0	0	0	86	48.8%	7.0%	0%	38.4%	9.3%	12.8%	$31,023	$90,600	$546
	53033028902 3004	0	11(3)	0	0	0	180	48.9%	14.4%	2.2%	24.4%	10%	7.2%	$31,023	$90,600	$546
	53033028902 3005	1	56(4)	0	0	0	387	45.5%	17.6%	1.0%	15.5%	20.7%	1.3%	$31,023	$90,600	$546
	53033028902 3006	1	12(3)	0	0	0	161	28.6%	39.1%	0.6%	10.5%	20.5%	1.2%	$31,023	$90,600	$546
	53033028902 3007	0	0	0	0	0	52	44.2%	15.4%	0%	15.4%	17.3%	0%	$31,023	$90,600	$546
	Total	3	95(13)	0	0	0										

Table 3.9-7
Demographic Characteristics of Alternative C3 Displacements by Census Blocks

Neighborhood	Census Block(s)	SF	MF[g]	MH	Bus[h]	Oth[i]	Pop.	White	African Amer.	Amer. Ind./ Alaska Native	Asian/ Pacific Islander[a]	Hispanic[b]	Elderly[c]	Median Household Income[d]	Median Value of Owner-Occupied Housing Units[d]	Median Contract Rent[d,e]
Grandview[f]	**530330283 3039**	12	0	0	0	0	46	80.4%	0%	0%	0%	8.7%	10.9%	$61,000	$173,800	$823
	530330283 3040	0	0	0	0	0	78	87.2%	0%	0%	2.6%	7.7%	14.1%	$61,000	$173,800	$823
	530330291 1007	14	0	0	0	0	91	88%	0%	2.2%	2.2%	5.5%	7.7%	$51,023	$158,600	$683
	530330291 1010	3	0	1	0	0	22	68.2%	18.2%	0%	0%	4.5%	18.2%	$51,023	$158,600	$683
	530330291 1014	1	0	3	0	1	26	73%	0%	7.7%	0%	0%	15.4%	$51,023	$158,600	$683
	Total	30	0	4	0	1										
Midway[f]	**53033029100 1016**	0	0	0	2(2)	0	0	0%	0%	0%	0%	0%	0%	$0	$0	$0
	Total	0	0	0	2(2)	0										

Source: 2000 U.S. Census

[a] *Includes the Native Hawaiian race.*

[b] *Includes all races alone or in combination with one or more races.*

[c] *65 years of age or older.*

[d] *Income figures are from 1999 and are at the Census block-group level; all blocks in the same block-group have the same level of income, rent, and median house value.*

[e] *Mean Contract Rent is the monthly rent agreed to or contracted for, regardless of any furnishings, utilities, fees, meals, or services that may be included.*

[f] *For neighborhoods containing more than one block group, medians were averaged proportionate to the population, number of households, rental units, or owner-occupied housing units within each group.*

[g] *Displacements are given in housing units followed by the number of affected buildings in parenthesis.*

[h] *Displacement counts are individual businesses followed by the actual number of displaced structures shown in parenthesis.*

[i] *This category reresents social and religious institutions and facilities.*

Note: For racial characteristics "Other" and "Two or more races" are not depicted in this data, therefore totals may not equal 100%. Neighborhood boundaries do not correspond exactly with census blocks or block groups; a rough correlation has been established so that census data can be used to give a general idea of population, income, and housing characteristics.

Ranges exist because the displacement of a partcular structure is questionable; further design work must be carried out untill an exact number can be determined.

renter-occupied housing. Instead, Alternative C3 would impact additional blocks in the Mansion Hill neighborhood. This area consists of mainly single-family houses and correspondingly has a much higher owner-occupied housing rate than the City of SeaTac.

Businesses

Alternative C3 would displace between 15 and 19 businesses in 11 to 15 buildings. Unlike Alternatives B and C2, business displacements under Alternative C3 generally would be well spread out among the project area neighborhoods. This alignment would only partially encroach on the largest warehouse located on South 200th Street, thereby allowing businesses to operate in the remaining portion. Most of the displacements would be service businesses. The South Airport Link design options and I-5 improvements would cause the same number of displacements as in Alternative B and C2. WSDOT communication records with business owners show that very few of these businesses are minority-owned.

Because many of the same businesses impacted by Alternative B and C2 would be impacted by this alternative, siting issues and opinions on relocation options are the same as those described above. One exception is the Alaska Airlines Gold Coast Center, which employs an estimated 300 people. Because of the large amount of office and meeting space contained in the center, it poses a unique relocation challenge. Alaska Airlines intends to expand their facilities at this site to accommodate their west coast and regional headquarters for maintenance and operation. Similarly sized buildings close to the airport are scarce. Representatives of Alaska Airlines have indicated that the facility would relocate to a different city (outside the region) if displaced.

Alternative C3 would have the same impact on the Puget Sound Church of God Holiness as Alternatives B and C2.

3.9.4 Mitigation Measures

It is a State of Washington policy that persons displaced as a result of programs designed to benefit the public as a whole shall be provided relocation assistance in a consistent manner. Individuals, families, and businesses displaced by transportation and other public works projects may be eligible for relocation advisory services and payments provided under the Uniform Relocation Assistance and Real Property Acquisition Policy Act (49 CFR Part 24) and Washington State's Uniform Relocation Assistance and Real Property Acquisition Policy (RCW 8.26). Services offered include advisory services from a relocation specialist, payment of moving costs, and replacement housing payments, including purchase supplements, rental assistance, and down-payment assistance. Translation services and translations of

handouts for the Spanish- and Vietnamese-speaking communities will continue to be offered during the relocation process.

As the proposed project is built and right-of-way is acquired in phases, displaced households and businesses would become eligible for relocation assistance. Because the impacts would be staggered over a few years, WSDOT would be able to identify suitable replacement facilities as and if they develop. In some cases, acquisition of property would be made a couple of years before the actual relocation happens, and the State could act as landlord for many people if necessary. WSDOT is committed to working with local housing authorities to ensure that all displacees would find suitable housing.

In the same manner, comparable relocation alternatives would be found for businesses in the area. Because the types of businesses displaced are common in the project area, similar commercial space (as well as employment opportunities for any displaced jobs) exists nearby. Retail and industrial (warehouse) space would be the two types of commercial space needed for relocation purposes. Displaced businesses occupying warehouse space near the airport would be relocated with similar proximity to the airport, so that they can maintain their essential close access. The success of these businesses depends on close proximity to the airport. The most desirable locations for commercial retail space are in shopping centers, such as the Midway Crossing complex at the intersection of SR 516 and SR 99 (Pacific Highway South). Planned redevelopment in each of the four closest jurisdictions to the proposed project (Cities of SeaTac, Des Moines, Kent, and Federal Way) is also expected to increase retail space, as well as residential units.

Future Development

The City of SeaTac is already heavily urbanized; therefore, there is limited potential for extensive new development. Most new residential development would happen through infill and redevelopment (Scarey pers. comm. 1998). A number of new warehouse/office developments in the project area are reported to be offering space for lease. The City of SeaTac has 160 acres of undeveloped land that is suitable for the types of warehouses and light industrial uses that would be displaced in that area. Large warehouse/industrial facilities located on South 192nd and South 186th Streets, similar to those on South 200th Street that would be displaced, could potentially serve as relocation sites. Additional redevelopment within the City of SeaTac, such as in their recently designated city center or near the 28th/24th Avenue South Arterial Project (some already built), could provide additional retail or airport-related commercial space. Land around 28th/24th Avenue South in particular has already been zoned for airport-related commercial uses.

The City of Des Moines has two areas of active development and redevelopment—the Pacific Ridge neighborhood and downtown Des Moines. The downtown area of the City of Des Moines is becoming highly gentrified, with many beachfront cabins being replaced with expensive condominiums. Although this type of development might be out of the price range of many of the displacees, there are opportunities for more affordable units to be developed under the current zoning, which allows mixed-use development (Loch pers. comm. 2001). The City has not yet made a formal planning effort to encourage more affordable housing units in the downtown area, instead allowing redevelopment to occur as dictated by the real estate market. Downtown Des Moines also has a concentration of general retail stores and land appropriately zoned for such uses. Available retail space is currently limited in Des Moines, however. This condition is not likely to improve as no new construction is under way and when new space is developed, tenants are identified beforehand (Varacalli pers. comm. 2000).

The Pacific Ridge neighborhood is planned to undergo substantial intensification of land uses in accordance with its recently adopted plan. New zoning in Pacific Ridge will allow the replacement of lower-scale existing buildings with new structures five to eight stories in height. Emphasized land uses will include retail, office, and multifamily residential uses. The City's economic analysis showed that in 20 years, Pacific Ridge could accommodate 8,800 people compared to 3,653 current residents. New multifamily units are anticipated to be market rate, particularly condominiums, which would improve owner-occupancy rates in the neighborhood (*Pacific Ridge Neighborhood Improvement Plan 2000* [Des Moines 2000]). In addition, a 50-acre business park planned adjacent to Pacific Ridge will provide new business and employment opportunities for area residents.

The City of Kent has no current large-scale housing developments planned; however, the 2001 comprehensive plan amendments include several rezones in residential areas. The City is amending their Downtown Subarea Plan, which could include an intensification of uses and the inclusion of mixed-use zones. Furthermore, the City is planning the area near the Kent Station Sound Transit commuter site. This area would be expected to develop with transit-friendly uses, including a substantial number of housing units (Osborne pers. comm. 2001).

Although the City of Federal Way has no specific large-scale planning efforts underway that would intensify land uses, there is a consistent level of development within the city. Currently, 23 separate residential projects, including both single-family and multifamily units, are either pending or have preliminary approval. These developments are scattered throughout the city. Federal Way also has a number of office and retail developments either planned or under construction.

Because all of the multifamily buildings and units affected are rental apartment buildings, relocation of those affected residents would involve moving them to comparable rental units, which are abundant in the Cities of SeaTac and Des Moines project vicinity (with more currently planned). Single-family relocations mean a more difficult and costly process because these would involve moving families to comparable single-family homes in the project vicinity, which are less abundant and far more expensive (than rental relocations).

Affordable Housing

Most of the housing units displaced represent affordable housing. A small amount represents true low-income housing, including units with tenants who qualify for federal Section 8 assistance. Still, WSDOT is responsible for finding suitable affordable or low-income housing for displaced households. WSDOT will commit to relocating all households to units they can afford.

Vacancy rates have been increasing over the past 18 months, revealing an increase in the ability of the project area to accommodate relocations. Rates (for complexes with 20 or more units) in all of the nearby project cities were higher than those of King County in general. Vacancies ranged from 7.6 percent to 8.2 percent in SeaTac, Des Moines, Kent, Burien, and Federal Way in the Fall Apartment Vacancy Report by Dupre + Scott Apartment Advisors, Inc.

Most replacement housing (in the form of apartments) is within walking distance of SR 99, which has good transit service. The mean rents in Madrona, the most affected area in terms of affordable multifamily housing, are in the $550 to $650 range. Recent apartment listings in the *Seattle Times* classified ads showed, on average, eight units within the price range that could serve as replacement housing. Additional units of the same price were available in Des Moines, Federal Way, and Kent. The true number of apartments available should be assumed to be considerably higher than those observed in the newspaper. No central database exists for multifamily listings, and therefore no one source has a truly comprehensive list of available apartments. Furthermore, complexes may have more than one multifamily unit available, but will not specify so in an advertisement. Adding to the ability to accommodate multifamily displacements is the fact that relocations will occur over a period of time.

For households (usually renters) using Section 8 assistance, special mitigation will be used. First, WSDOT will try to find replacement housing already within the Section 8 program for those displaced persons who receive assistance. If Section 8 housing is not available, WSDOT will compute an entitlement using the 30 percent income rule and finding available replacement housing outside the Section 8 program. In addition, if possible, WSDOT will try to get people into Section 8 if it appears they would be

eligible. Recent listings of landlords who accept Section 8 tenants provided by the King County Housing Authority showed dozens of available units of various sizes through the project area. This amount of supply should easily accommodate the identified Section 8 households impacted by this project.

Commitment to Last-Resort Housing

If WSDOT, at the time it acquires real estate or rights to real estate, determines that there is insufficient replacement housing for displaced residents, it will commit funds authorized for this project to provide such housing by constructing, rehabilitating, purchasing, renting, or otherwise financing the acquisition of the necessary housing in a manner feasible for the individual displacement situation.

3.9.5 Construction Activity Impacts and Mitigation

Construction Activity Impacts

Construction activities would not result in any additional displacements for any of the build alternatives.

Mitigation Measures

No mitigation measures are proposed for construction activities.

SEA/3-09 relocation.doc/

3.10 Social

3.10 Social

3.10.1 Studies and Coordination

This section is based on the findings of the *SR 509/South Access Road EIS Discipline Report: Social* (CH2M HILL February 2000), *SR 509/South Access Road EIS: South Airport Link* (August 2001), and *SR 509/South Access Road EIS: I-5 Improvements Report* (CH2M HILL October 2001). These reports are incorporated by reference into this FEIS. The primary source of demographic data was the 2000 U.S. Census because it is the most comprehensive, complete, and detailed data source currently available. Block group-level statistics on housing characteristics, racial/ethnic composition, income level, and related information were obtained for each of the project area neighborhoods that would be affected by the build alternatives. Personal communication with public agency and school district staff, as well as property owners, was used to corroborate census demographic data and to identify pockets of low-income or minority populations. The project area is composed of portions of five jurisdictions: the Cities of SeaTac, Des Moines, Kent, and Federal Way, and King County. Aggregated data for the Cities of Des Moines, SeaTac, and Kent, and King County were used to establish a regional context for comparison. Reconnaissance of the affected neighborhoods was used to confirm neighborhood boundaries and identify the locations of important community facilities, such as churches and schools, whose access or usage patterns might be disrupted if the proposed project were built.

3.10.2 Affected Environment

Community Cohesion

Areas of the Cities of SeaTac and Des Moines within the project area are mostly residential neighborhoods with commercial development concentrated along SR 99. Residential and commercial development along I-5 from approximately South 230th Street to South 272nd Street is within the Kent city limits. South of South 272nd Street, the City of Federal Way lies on the west side of I-5; unincorporated portions of King County lie to the east. Demographic characteristics for the Cities of SeaTac, Des Moines, and Kent, and their neighborhoods where measurable impacts to community cohesion are likely, are presented in Table 3.10-1. Information for King County has been included for comparative purposes.

The identification of neighborhoods for analysis purposes was based on neighborhood descriptions in comprehensive planning documents. Figure 3.10-1 shows the general locations of project area neighborhoods.

Eight neighborhoods that could potentially be impacted by the proposed project were identified. Each neighborhood is discussed briefly below.

City of SeaTac

Sea-Tac Airport is located almost squarely in the center of the City of SeaTac. It has to a large extent defined the patterns of commercial and residential development in the city. Although SR 99 is densely developed with commercial enterprises, many of the businesses are airport- and tourism-related. Consequently, there are few businesses catering specifically to neighborhood residents. With a median value of $147,000 for owner-occupied housing units, as compared to a median value of $226,400 for King County as a whole (Table 3.10-1), the City of SeaTac includes some of the region's most affordable housing. Rental prices are also somewhat less, on average, than for King County overall.

Five SeaTac neighborhoods would be measurably affected to varying degrees by the proposed project. The City Center neighborhood, which could have four displacements from the South Airport Link design options, would not have a substantial enough impact to community cohesion to merit detailed discussion. The characteristics of impacted neighborhoods, as reflected in census and other data, are described below.

8th Avenue South/Des Moines Memorial Drive

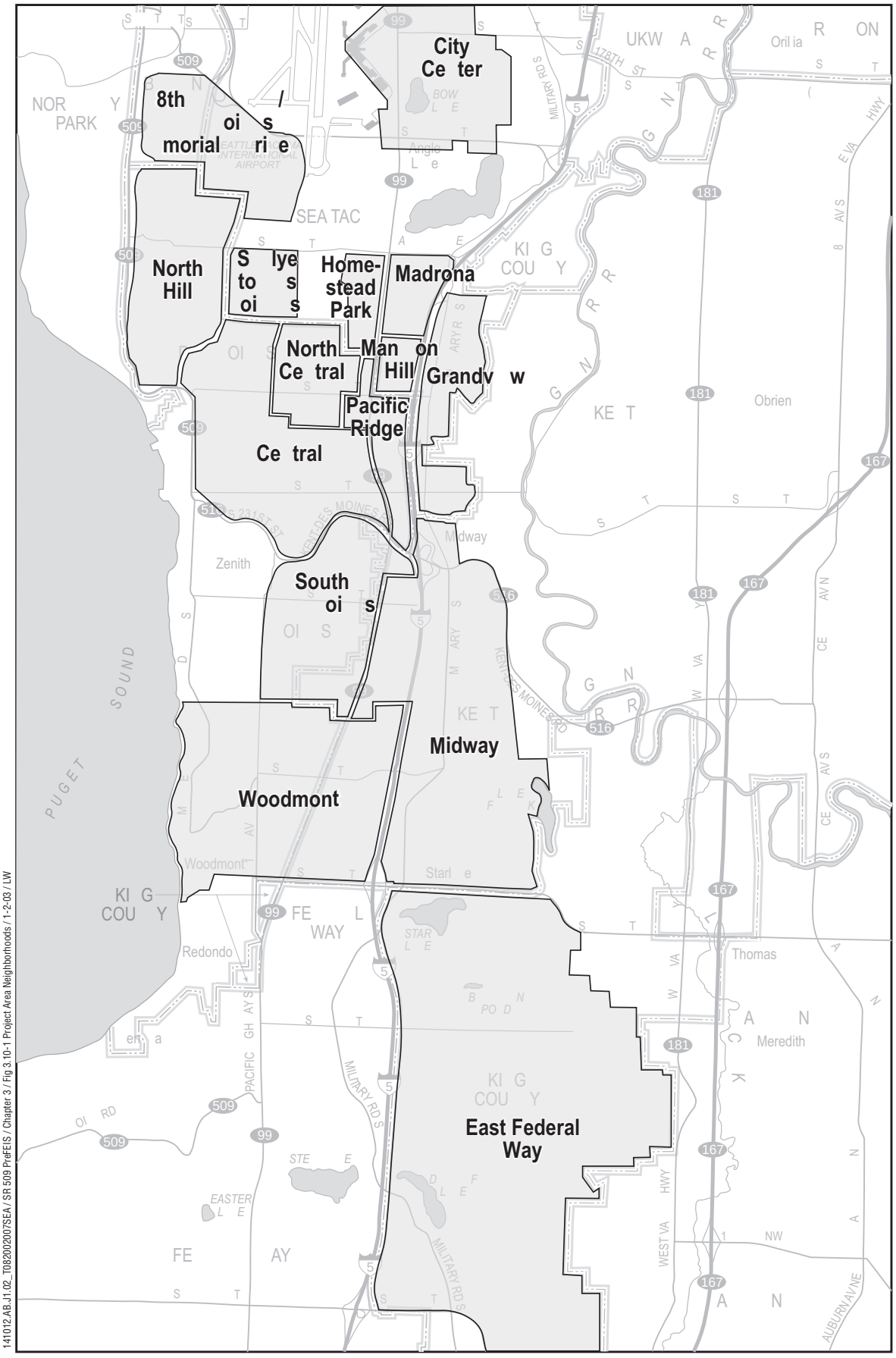
This neighborhood consists mainly of a few scattered single-family houses and multifamily dwellings, interspersed with commercial and industrial businesses, in the area south and east of the current terminus of SR 509 and partially within Burien. Because of the relatively low density of development and an increasing mixture of land uses, this area is less socially cohesive than more traditional neighborhood groupings such as residential subdivisions. The City of SeaTac's long-range plans for the neighborhood include increased business park and industrial development, which would likely accelerate a residential-to-commercial transition.

Fifty-seven percent of the residences in this neighborhood are owner-occupied, slightly above the average for the City of SeaTac. Median household income ($45,429) is slightly lower than the city's median income ($47,202). The median value of homes ($135,690) is also lower than the City of SeaTac's median house value ($147,000). The median contract rent ($668) is substantially above the median for the City of SeaTac ($582). Eighth Avenue South/Des Moines Memorial Drive has the second-smallest percentage of minorities of the City of SeaTac neighborhoods, with roughly 28 percent minority residents. There is a slightly lower proportion of residents over the age of 65 in the neighborhood compared to the City of SeaTac and King County.

Table 3.10-1
Project Area Social Characteristics

	Households				Population (%)						
	Owner/ Renter Occupied (%)	Median Value of Owner-Occupied Housing Units ($)	Median Contract Rent[a] ($)	Median Household Income[b] ($)	White	African-Amer.	Amer. Indian, Alaska Native	Asian	Pacific Islander/ Native Hawaiian	Hispanic Origin[d]	Elderly[f]
King County	60/40	226,400	695	53,157	75.7	5.4	0.9	10.8	0.5	5.5	10.5
City of SeaTac	54/46	147,000	582	41,202	62.9	9.2	1.5	11.1	2.7	13.0	9.7
8th Avenue/Des Moines[e]	57/43	135,690	668	45,429	72.3	6.9	1.2	8.6	1.0	9.1	8.9
Homestead Park	79/21	29,500	503	34,091	61.8	7.6	3.2	12.0	0.7	27.9	4.8
Madrona[e]	19/81	123,106	601	42,730	48.5	19.8	1.1	9.1	5.3	18.6	4.6
Mansion Hill	60/40	162,200	653	43,125	74.4	3.8	2.3	11.0	3.6	4.3	20.2
Grandview[e]	49/51	166,200	705	54,824	69.5	6.8	1.3	6.3	0.3	6.6	8.4
City of Des Moines	61/39	170,000	639	48,971	74.2	7.2	1.0	8.3	1.3	6.6	14.9
North Hill[e]	88/12	172,100	792	56,835	84.6	3.3	0.9	5.7	0.3	4.7	12.2
Pacific Ridge[e]	18/82	104,438	599	31,892	46.0	17.7	1.4	12.6	4.1	17.5	8.0
City of Kent	49/51	168,100	655	46,046	70.8	8.2	1.0	9.4	0.8	8.1	7.3
Midway[e]	62/38	155,052	645	49,159	68.7	8.9	1.5	7.8	1.5	12.1	8.1

Source: 2000 U.S. Census
** Neighborhood boundaries do not correspond exactly with census blocks or block groups; a rough correlation has been established so that census data can be used to give a general idea of population, income, and housing characteristics.*
[a] Mean Contract Rent is the monthly rent agreed to or contracted for, regardless of any furnishings, utilities, fees, meals, or services that may be included.
[b] Income figures are at the Census block-group level.
[c] Includes the Native Hawaiian race.
[d] Includes all races alone or in combination with one or more races.
[e] For neighborhoods containing more than one block group, medians were averaged in proportion to the population, number of households, rental units, or owner-occupied housing units within each group.
[f] 65 years of age or older.



141012.AB.J1.02_T082002007SEA / SR 509 PrefEIS / Chapter 3 / Fig 3.10-1 Project Area Neighborhoods / 1-2-03 / LW

FIGURE 3.10-1

General Location of Project Area Neighborhoods

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement

Homestead Park

This small neighborhood is located just west of SR 99 and south of South 200th Street. It consists mainly of single-family homes to the south and mobile home parks to the north. Tucked between the commercial development along SR 99 to the east and the fences of the Noise Remedy Program acquisition area to the west, the neighborhood is internally cohesive. Within the context of the city, however, it is an isolated residential pocket in an area of increasing commercial development. Both the City of SeaTac Comprehensive Plan and the zoning code designate the area for airport-related commercial development; therefore, the existing residences are nonconforming uses in terms of the code.

Homestead Park's owner-occupancy percentage of 79 percent is substantially above the City of SeaTac's rate, and is the second highest average in the project area. This is due to the proportionately large number of mobile homes within the neighborhood. (These mobile homes will be relocated as a part of the Port of Seattle and FAA Part 150 Noise Remedy Program.) The substantial presence of the mobile homes is noticeable in the median value for all owner-occupied housing units in the neighborhood - $29,500. This is one-fifth of the City of SeaTac's median value. The median household income ($34,091) is also noticeably lower than that of the City of SeaTac and King County. In addition, the median contract rent is approximately $503, which is below that of the City of SeaTac ($582), and is the lowest of all the project area neighborhoods in SeaTac. Homestead Park has roughly the same percentage of minorities as the City of SeaTac. The percentage of elderly residents in Homestead Park, however, is only half that of the City of SeaTac and King County.

Mansion Hill

This established neighborhood lies just west of I-5 between approximately South 211th Street and the southern ends of 31st and 32nd Avenues South. Bordered on the north by a steep bluff and on the east by I-5, the neighborhood is made up of single-family houses, many with views west to Puget Sound. This neighborhood is extremely cohesive and has organized on behalf of various issues in the past (Booth pers. comm. 1994).

The percentage of owner-occupied housing in Mansion Hill (60 percent) is on par with the rates of the City of SeaTac and King County. Mansion Hill's median household income ($43,125) is slightly above the median for the City of SeaTac and the house values ($162,200) are higher than most of the project area neighborhoods. The median contract rent (approximately $653 per month) is substantially higher than the median rent prices for the City of SeaTac. Mansion Hill has a lower percentage of minorities (25 percent) than the City of SeaTac overall, but has a considerably higher proportion of elderly residents (20.2 percent).

Madrona

This established neighborhood lies just west of I-5, from South 200th Street to just south of South 208th Street. Its southernmost portion contains several large apartment complexes, which tend to be of newer construction than many in the project area. In the northern part of this neighborhood, single-family residential subdivisions ring the Madrona Elementary School, which draws students from throughout the neighborhood.

The Madrona neighborhood consists mainly of rental units. The very low (19 percent) owner-occupied housing rate is around one-third of the City of SeaTac and King County percentages and is well below the rates of most of the other neighborhoods in the project area. Madrona has a median household income of $42,730 per year, which is close to the City of SeaTac average. However, school data suggest that groups of low-income households are present within or near the neighborhood; 74 percent of the students at Madrona Elementary School participate in the federal free- or reduced-price lunch program for low-income families (*Seattle Times*, 2002). The average home price ($123,106) is below the City of SeaTac average housing unit value. However, the median contract rent is approximately $600, which is slightly higher than the City of SeaTac average. Madrona has a high minority percentage (51 percent) compared to the other City of SeaTac neighborhoods and is known for its racially balanced makeup. This is confirmed and reflected in Madrona Elementary School, which is nearly evenly composed of one-quarter whites, one-quarter African Americans, one-quarter Asian Americans, and one-quarter Hispanics (*Seattle Times*, 2002). Madrona also has the smallest percentage of residents over 65 (4.6 percent) of all the City of SeaTac neighborhoods.

Grandview

The Grandview neighborhood is wedged between I-5 and the steep ridge that drops into the Kent Valley. Single-family houses exist primarily along Military Road and 33rd Avenue South. The Grandview neighborhood has lost some of its connection to the City of SeaTac because it is cut off from the Mansion Hill and Madrona neighborhoods and there are few crossing points over I-5, limiting access to public facilities.

Forty-nine percent of the homes in Grandview are occupied by owners. Grandview has the highest median household income level ($54,824) of the City of SeaTac project area neighborhoods. The average house value and average rent prices ($166,200 and $705, respectively) are well above City of SeaTac averages. In fact, rent prices within the Grandview neighborhood are the highest of all the project area neighborhoods in the City of SeaTac. Grandview has a smaller percentage of minority residents (30 percent) than the City of SeaTac or King County. The percentage of residents over 65 (8.4 percent) is close to those for both the City of SeaTac and King County.

City of Des Moines

Located south of the City of SeaTac along the Puget Sound shoreline, the City of Des Moines is a bedroom community, suburban in character, with commercial and civic activity split between its downtown district near the waterfront and SR 99. Somewhat more affluent overall than the City of SeaTac, the Des Moines median owner-occupied housing value is $170,000. Des Moines still represents an area of lower-priced housing compared to King County, where the median value of housing units averaged $226,400. It has a higher proportion of elderly than the county overall, primarily because of several large nursing homes located within its boundaries.

The Des Moines Comprehensive Plan identifies nine neighborhoods within the Greater Des Moines planning area, which includes areas east, south, and north of Des Moines in the Cities of SeaTac and Kent. These areas are socially contiguous with Des Moines neighborhoods despite being outside the city limits. Two neighborhoods in the city of Des Moines—Pacific Ridge and North Hill—would be directly affected by one or more of the build alternatives. Both of these Des Moines neighborhoods are described below.

Pacific Ridge

The Pacific Ridge (formerly North Midway) neighborhood is dominated by commercial development along SR 99, including considerable automobile-related businesses in the vicinity of its intersection with SR 516. Several multifamily residential complexes are located between the commercial development along SR 99 and I-5 to the east and single-family residential areas to the west. The City of Des Moines has developed a subarea plan for Pacific Ridge that will include replacement of lower-scale existing buildings with a denser combination of buildings (up to 120 feet) and open spaces designed for pedestrians and motorists.

Due to the prevalence of multifamily housing, the Pacific Ridge neighborhood has a high renter-occupied percentage (82 percent)—the highest of all the project area neighborhoods. At the time of the 2000 U.S. Census, Pacific Ridge also had the largest percentage of minorities (54 percent) of all the project area neighborhoods. Enrollment information from Midway Intermediate School, which draws in part from the Pacific Ridge neighborhood, indicates that nearly half the students are minorities (*Seattle Times*, 2002) The median household income of $31,892 is the lowest of all of the project area neighborhoods. The City of Des Moines confirmed that many of the families in Pacific Ridge are low-income and that essentially all of the housing qualified as low-income housing. Midway Intermediate School has 49 percent of its students participating the federal free- or reduced-lunch program (*Seattle Times*, 2002), further substantiating the likely presence of low-income families. The median value of housing units ($104,438) is about two-thirds that of the value for the City of Des Moines

overall; the median contract rent ($599 per month) is lower than the City of Des Moines and King County averages. This neighborhood has a small percentage (8.0 percent) of elderly residents compared to the City of Des Moines.

North Hill

The North Hill neighborhood exists in the very northwestern corner of Des Moines. It is made up almost entirely of single-family subdivisions and has two elementary schools (one contains kindergarten through third grade, the other fourth through sixth grades) located in the center of the neighborhood. Several homes in this neighborhood have quality views of Puget Sound or the Cascade Mountains.

Because of the prevalence of single-family homes, the North Hill neighborhood has a high owner-occupied percentage (88 percent). North Hill also has the highest median household income level ($56,835) of all of the project area neighborhoods. At $172,100, the average value of an owner-occupied housing unit is comparable to the City of Des Moines average. The average rent price ($792) is also the most expensive of any of the project area neighborhoods. North Hill is more racially homogenous than most of the project area, having an 84.6 percent white population. Slightly fewer elderly residents live in this neighborhood (12.2 percent compared to 14.9 percent in Des Moines).

City of Kent

A small portion of the City of Kent would be affected as a result of the I-5 improvements. The affected area begins at the South 229th Place/Military Road intersection, and stretches southward to the intersection of I-5 and SR 516. This area includes a couple of businesses north of SR 516 and a series of residential subdivisions along the east side of I-5. This area is loosely associated with the Midway neighborhood. Despite two business displacements, community cohesion impacts would be very minor; however, demographic data are presented in Table 3.10-1 for comparative purposes.

Regional and Community Growth

Local and Regional Population and Employment

Like the entire Puget Sound region, the project area experienced considerable growth during the 1980s as the Northwest economy grew, and the Seattle area's quality of life was praised by the national media. It is likely that rapid growth in the project area is also partly the result of relatively low housing prices; the low housing prices became particularly important during the late 1980s when the average price of homes in King County increased so dramatically that home ownership became out of reach for many families. Of the project area cities, only the City of SeaTac showed modest growth during

the 1980s. This is probably due, in part, to the large buyout of single-family homes that took place because of the Port of Seattle and FAA Part 150 Noise Remedy Program.

Population in the project area is expected to continue to increase. Implementation of the GMA by cities and counties in the Puget Sound region through the use of comprehensive plans and zoning will serve to concentrate population and employment growth into areas already developed or identified for development within urban growth boundaries (UGBs). In the project area, the City of SeaTac plans to replace some areas currently occupied by single-family housing with its proposed urban center development, which will be centered around Sea-Tac Airport and aviation-related businesses (see *Status of Communities* below). In contrast, the City of Des Moines is expected to increase its residential population, primarily through annexation and infill of less densely developed neighborhoods, and also through the redevelopment of the Pacific Ridge neighborhood.

Status of Communities

On the whole, project area communities are fairly stable, with increases in population and employment expected to result from intensification of, rather than changes in, existing land uses such as in the Pacific Ridge neighborhood (see *SR 509/South Access Road EIS Discipline Report: Land Use* [CH2M HILL October 2000]). One exception is the redevelopment of the City of SeaTac CBD, which is discussed below.

The City of SeaTac has embarked on a process of substantial transition as a result of proposals to establish the city as an urban center focused on an expanded and redeveloped CBD, much of which is in the Homestead Park neighborhood. A number of projects are expected to be factors in the urban center's development: a proposed mixed-use CBD core located west of SR 99 between South 192nd and 204th Streets; the SASA, an airport-related facility on 100 acres lying west of the proposed CBD; and proposed land use changes for the west SeaTac subarea, including the Third Runway Project. A number of local and regional transportation system improvement projects, including the proposed project, are seen as essential factors in the development of the urban center. These projects will result in the virtual removal of the residential aspect of the Homestead Park neighborhood as it currently exists. All of the neighborhood’s mobile homes will be relocated as a part of the Port of Seattle and FAA Part 150 Noise Remedy Program. Other single-family homes will be displaced as a part of other transportation projects. Eventually, Homestead Park will be redeveloped into the City’s envisioned and planned commercial urban environment.

Recreation

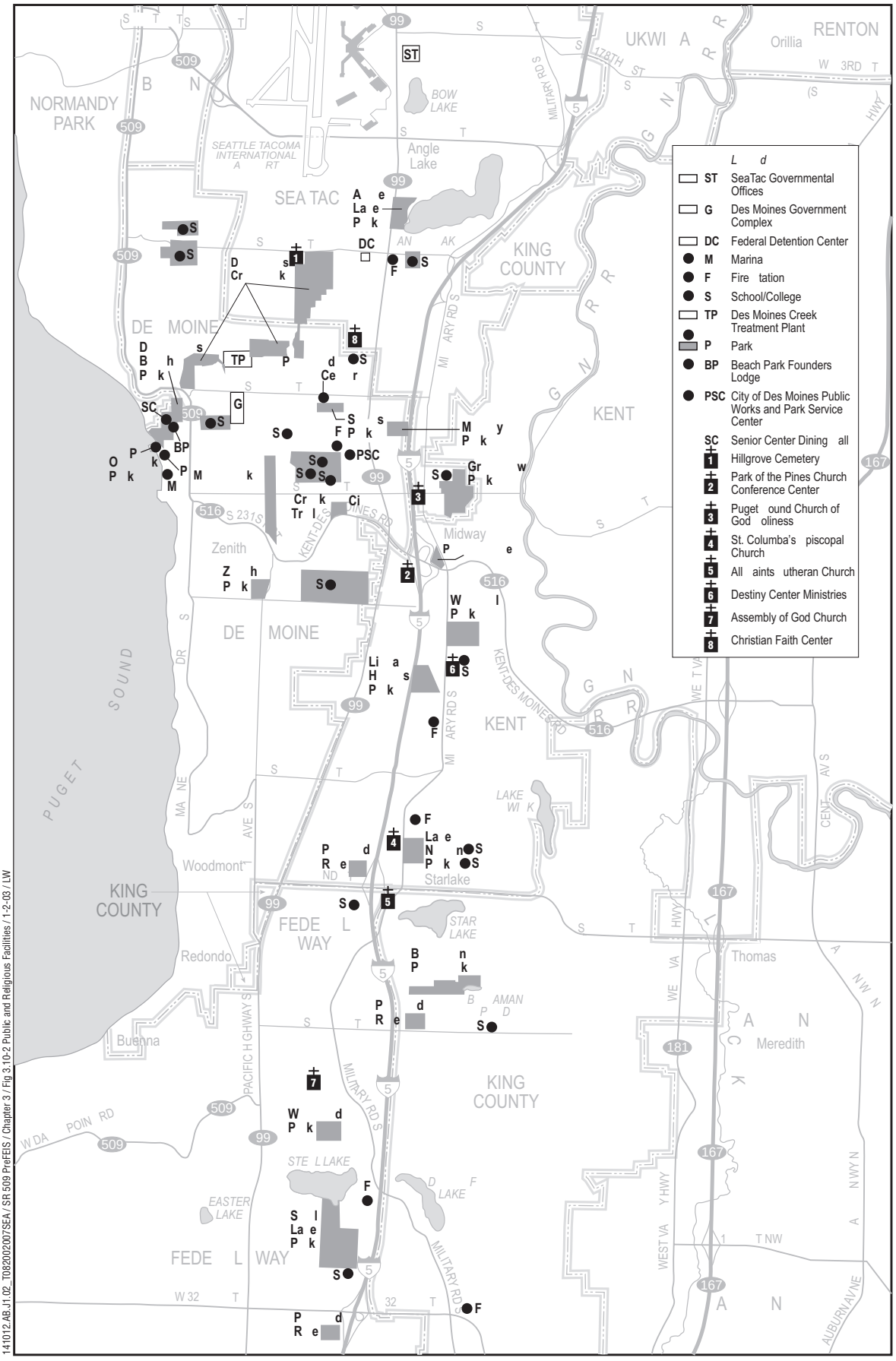
Recreational facilities that could be impacted by the build alternatives include three parks (including a planned trail extension), a golf course, and a school playfield. This section describes the potentially affected facilities. These recreational facilities are shown in Figure 3.10-2.

Des Moines Creek Park

Located in a steep, wooded ravine that runs from northeast to southwest through the Cities of SeaTac and Des Moines, this 96-acre "conservancy and community" park is jointly managed by the two cities. The park is intended to protect the natural resources surrounding Des Moines Creek and, secondarily, to provide passive recreational opportunities for the citizens of SeaTac and Des Moines. Its primary value is its natural open space character. Access is currently limited by the fencing erected for the Port of Seattle's Noise Remedy Program, although a trail has been paved along the creek, with a trailhead at South 200th Street. The City of SeaTac Comprehensive Plan indicates a possible extension of the trail northward from the park to North SeaTac Park and linkages to the regional trail system.

Tyee Valley Golf Course

This 18-hole, 116-acre golf course, located directly south of Sea-Tac Airport, is operated as a public golf course through a lease between the Port of Seattle and a private company. Members of the public can use the golf course for a fee. The golf course lease is month-to-month, and stipulates that the Port of Seattle has the right to reduce the acreage or permanently close the course, with a 30-day notice, to allow for its use by planned Port or other public projects. Based on currently known plans, it is likely that the course will be substantially reconfigured and possibly closed prior to any construction for the SR 509 project. The Port of Seattle intends to use the southwest quadrant of the golf course as a staging area and topsoil stockpile area as part of Borrow Area 4 associated with construction of the Sea-Tac Airport third runway project. By late 2003, the Highline Water District plans to begin construction of the Tyee well and treatment facility on the golf course between Des Moines Creek and the proposed alignment of the South Access Road. The northwest corner of the golf course is the site of the proposed regional detention facility included in the Des Moines Creek Basin Plan.



141012.AB.J1.02_T082002007SEA / SR 509 PreFEIS / Chapter 3 / Fig 3.10-2 Public and Religious Facilities / 1-2-03 / LW

0 1900 3800
Scale in Feet
North

FIGURE 3.10-2

Public and Religious Facilities

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement

Midway Park

Midway Park is a 1.6-acre neighborhood park located along the south side of South 221st Street in the Pacific Ridge neighborhood of the City of Des Moines and immediately adjacent to a Puget Sound energy (PSE) substation. Figure 3.10-3 shows the park location and Figure 3.10-4 provides a detailed view of the park. Currently, the park contains two small child play areas, a basketball court, an open playfield, and picnic tables. The City of Des Moines *Greater Des Moines Comprehensive Plan* (Des Moines 1995) indicates that the park will eventually be expanded eastward to the I-5 right-of-way.

Midway Park is dominated by noise from traffic on I-5. The current measured noise levels in the middle of the park range from 67.5 dBA to 70 dBA. Such noise levels are above the FHWA noise abatement criteria (NAC) for parks of 67 dBA.

Linda Heights Park

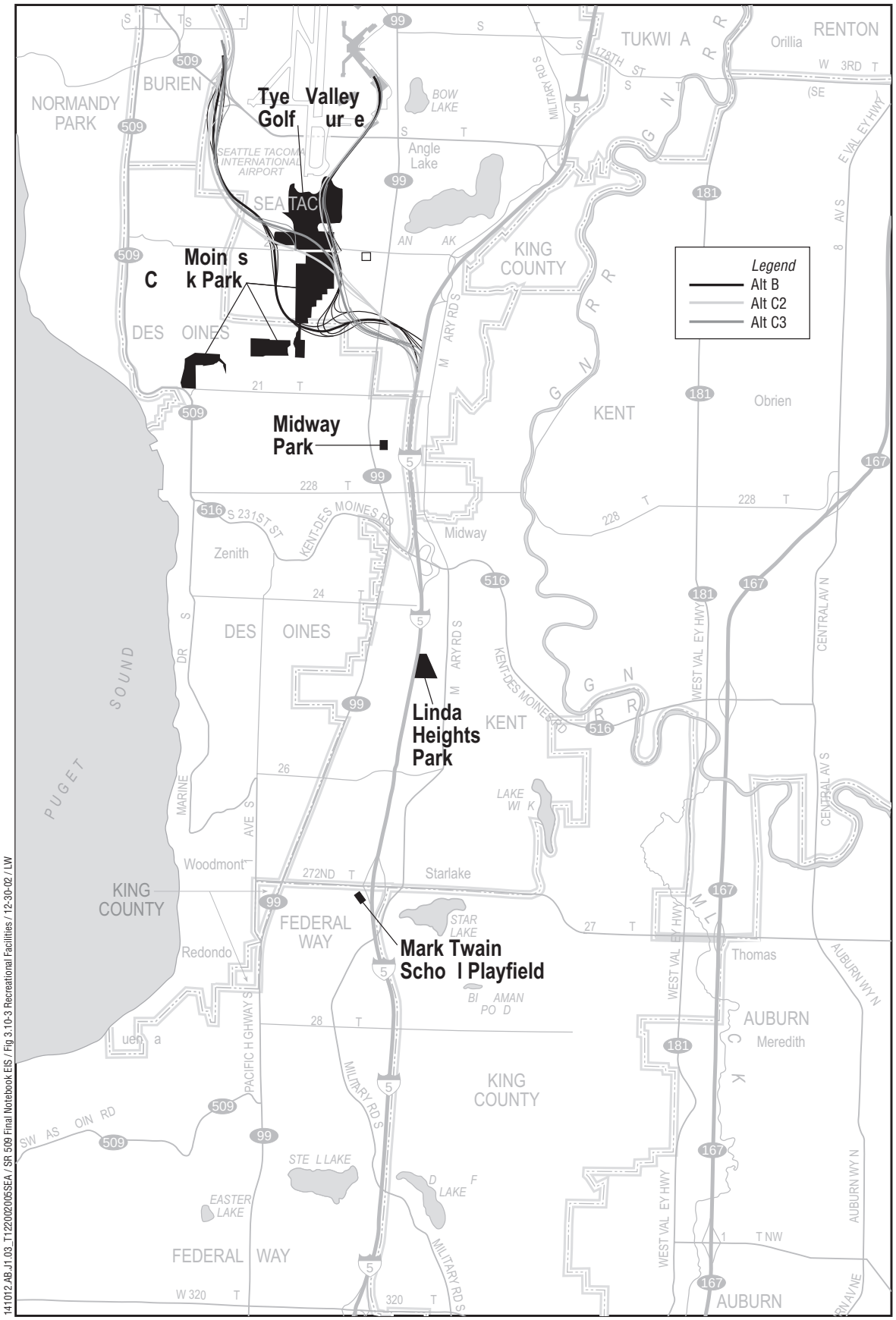
Linda Heights Park is a neighborhood park located on a site owned by the City of Kent Public Works Department for its regional stormwater retention and sanitary sewer lift station. Figure 3.10-3 shows the park location and Figure 3.10-5 provides a detailed view of the park. The newly remodeled park is adjacent to the I-5 right-of-way at approximately South 248th Street west of 35th Avenue South. Comprising 4.2 acres, the park includes one half basketball court, picnic tables, play equipment, and public art. Linda Heights Park is designated in the Kent Comprehensive Plan as a neighborhood park, which is used primarily by residents in the surrounding neighborhood.

I-5 traffic noise is a dominant feature of the park. Current measured noise levels in the park are in the 70 to 71 dBA range. Such noise levels are above the FHWA NAC for parks of 67 dBA.

Mark Twain Elementary School Playfield

The Mark Twain Elementary School playfield is located immediately west of the I-5 right-of-way and south of South 272nd Street. Figure 3.10-3 shows the playfield location and Figure 3.10-6 provides a detailed view of the playfield. The playfield is used during school hours for the school's physical education program; after hours, the playfield is available for public use, including the Federal Way Youth Soccer League.

I-5 traffic noise is a dominant feature. The measured average noise level was 67 dBA, which is equivalent to the FHWA NAC for a school, park, or playfield.

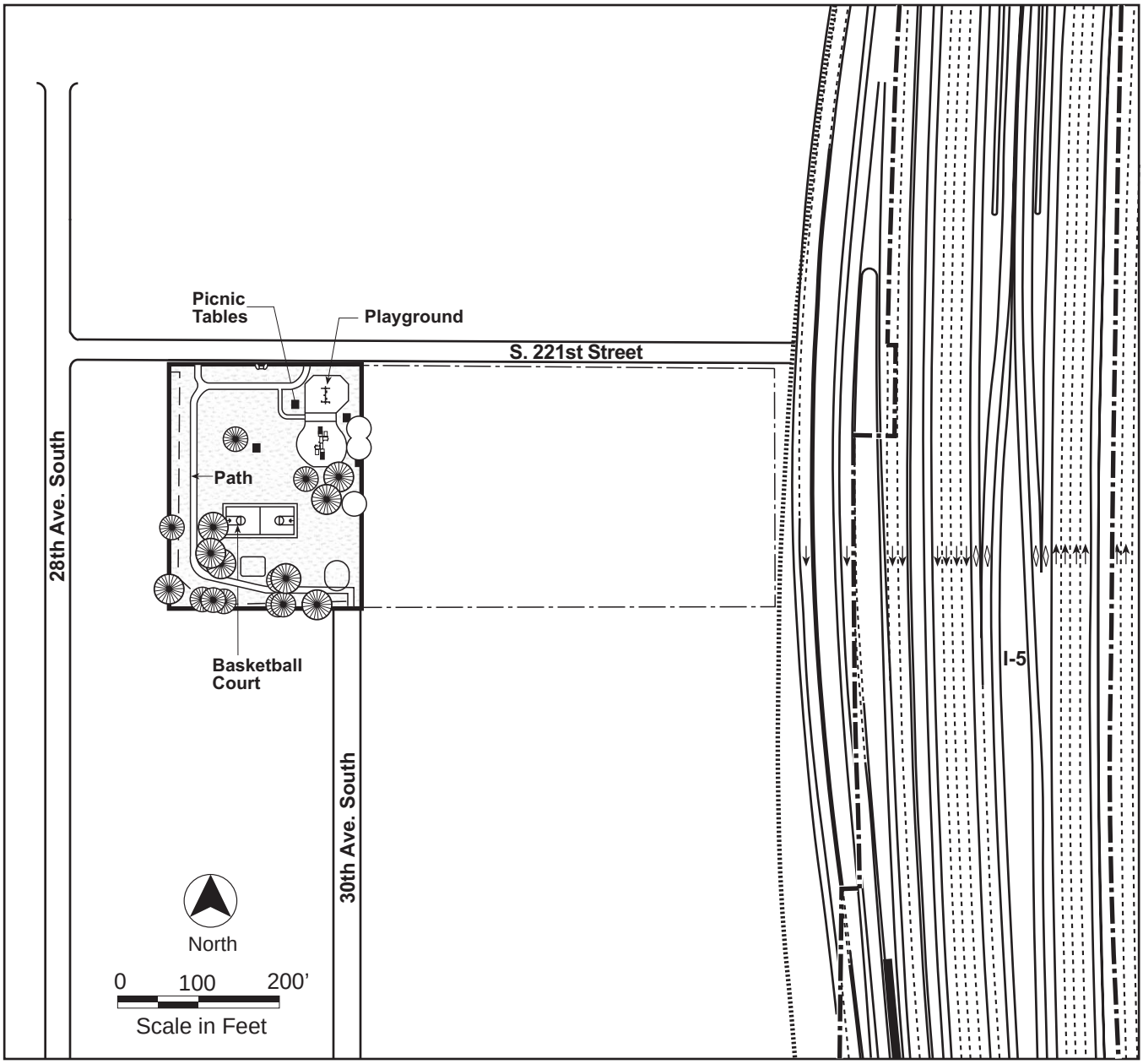


141012 AB J1.03_T122002005SEA / SR 509 Final Notebook EIS / Fig 3.10-3 Recreational Facilities / 12-30-02 / LW

FIGURE 3.10-3

Existing and Proposed Recreational Facilities Impacted by Project Alternatives

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement



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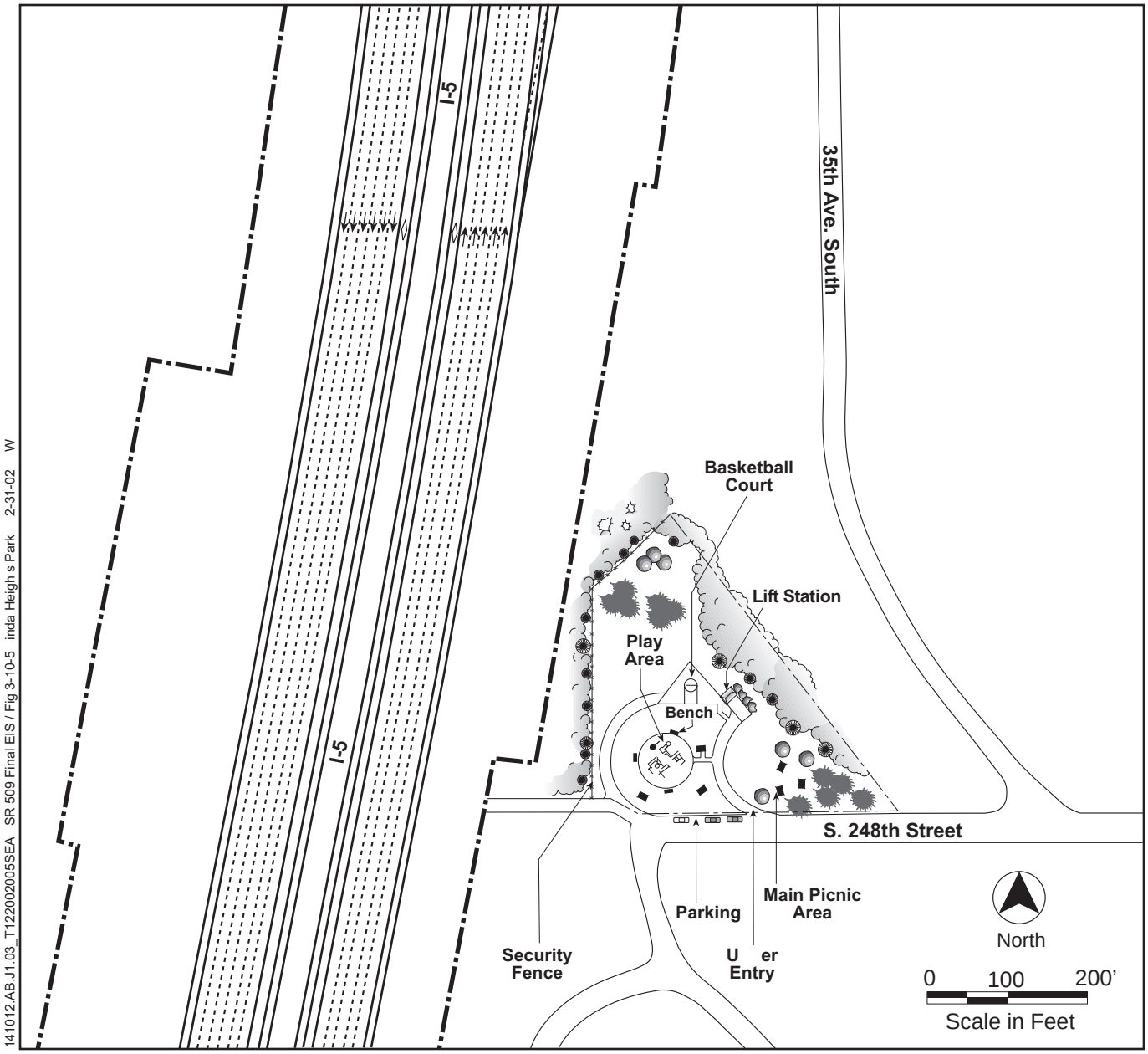
Legend

- Existing Right-of-Way
- Proposed Right-of-Way
- Existing Midway Park Area
- Proposed Expansion of Park

FIGURE 3.10-4

Impacts on Midway Park

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement



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Legend

Existing Right-of-Way

Picnic Tables

FIGURE 3.10-5

Impacts on Linda Heights Park

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement

Services and Utilities

Figure 3.10-2 shows the location of public facilities in the project area.

Schools

The project area is served by the Highline, Federal Way, and Kent School Districts. Although attendance boundaries have been established for schools within each respective district, students may attend another school in a given district. The service area of each school varies with the area's population density and the school's grade level.

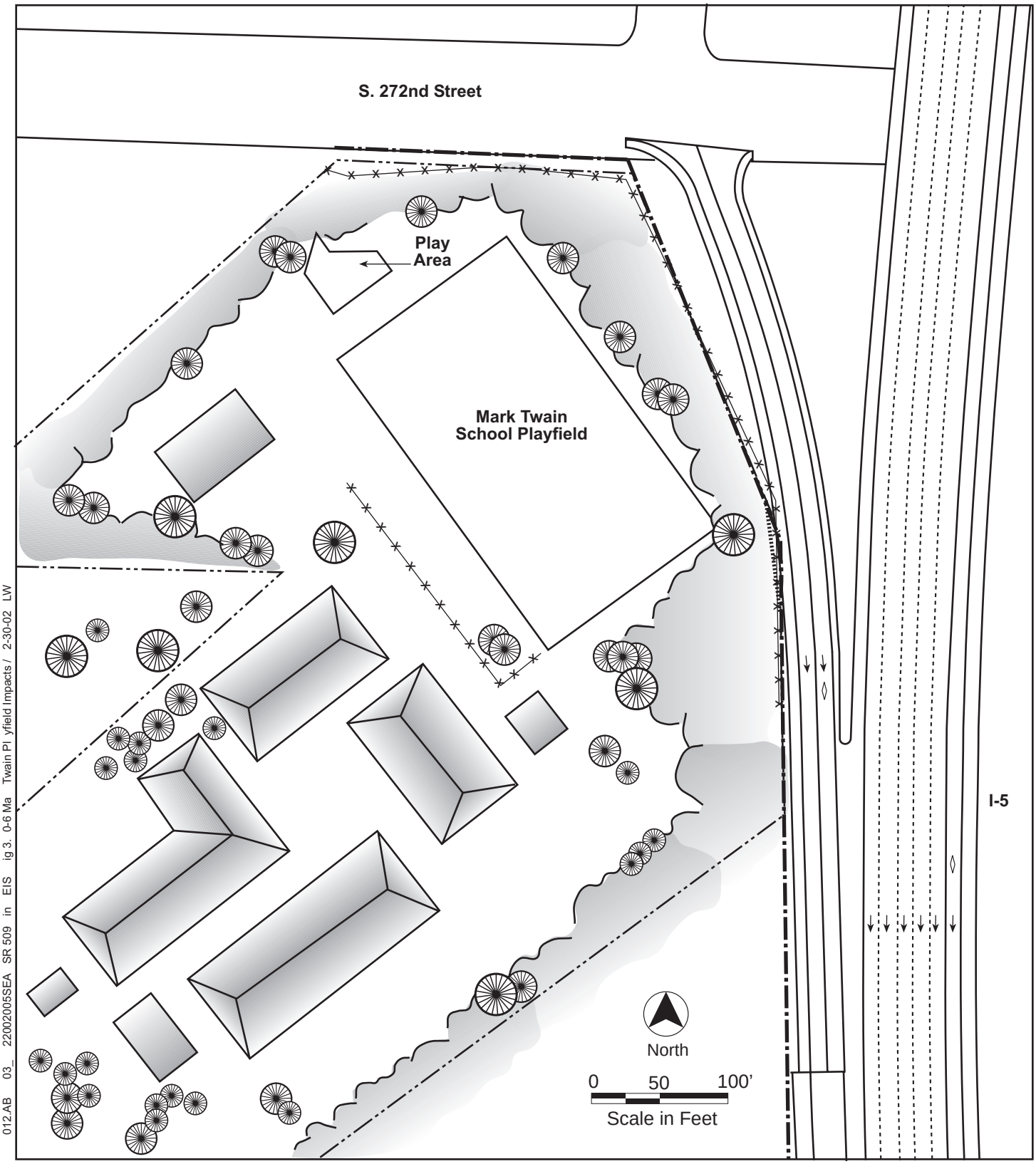
Bus transportation is generally provided for students living outside a set distance from, but within the attendance boundaries of, their designated school. Information regarding school bus routes on I-5 is listed below, in addition to each district's bus policy.

Highline School District 401

The Highline School District serves the Cities of SeaTac and Des Moines. There are several schools in and about the project area. Bus transportation is provided for students living outside a set distance from, but within the attendance boundaries of, their designated school. School buses transport elementary students who live more than 1 mile from the school, junior high students who live more than 1-1/2 miles away, and high school students who live more than 2 miles away. The Director of Transportation within the Highline School District estimates that 6 to 10 buses travel on I-5 daily; in addition, buses going on field trips use I-5 from time to time (Carr pers. comm. 2001).

Kent School District

Schools close to the project area in the Kent School District include the Kent Learning Center and Neely O'Brien Elementary School. Bus transportation is provided for students living outside a set distance from, but within the attendance boundaries of, their designated school. School buses transport elementary students (Kindergarten through 6th grade) who live more than 1-1/3 miles from the school, junior high students who live more than 1-3/4 miles away, and high school students who live more than 2 miles away. Within these boundaries, students may walk to school. Special Education students who require special transportation are picked up and dropped off as close to their home as possible, depending on their disability. According to the transportation department within Kent School District, 2 bus routes currently travel on I-5 each day in addition to the daily buses; buses also use I-5 for field trips throughout the year (Catton pers. comm. 2001).



Legend

- Existing Right-of-Way
- Proposed Right-of-Way
- Fence
- School Property Line
- School Buildings

FIGURE 3.10-6

Impacts on Mark Twain School Playfield

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement

Federal Way School District

The Federal Way School District covers all of Federal Way and also extends east across I-5 into some parts of unincorporated King County. Several Federal Way schools are close to the project area. Students residing more than 1 radius mile measured as a straight line from their assigned school to their residence are eligible for bus transportation. Students living within the 1-mile radius may also be eligible for bus service if the walking route is evaluated as hazardous according to state guidelines. Such routes are called "safety routes." Students with disabilities may be eligible for transportation service without distance limitations, depending on the student's abilities. According to the Federal Way School District transportation department, at least 2 bus routes currently travel on I-5 each day. Buses might also use I-5 during field trips (Calhoon pers. comm. 2001).

Highline Community College in Des Moines is also located within the project area. It serves Community College District 9, whose boundaries extend from the southern boundary of Seattle to Pierce County, and from Puget Sound to the western city limits of Kent and Auburn. The student population, however, is drawn from far beyond the district's boundaries. Each year about 10,000 students enroll at the college, which provides opportunities in higher education, vocational training, and continuing education.

Religious Institutions

The project area contains a number of churches of varying denominations, some of which have preschools and schools associated with them (Figure 3.10-2). Two churches are located close to the proposed footprint of construction—Puget Sound Church of God Holiness located at Military Road and South 228th Street, and St. Columba's Episcopal Church located at 26715 Military Road. One church conference center—Park of the Pines Church Conference Center on 30th Avenue South—is also located in the project area. Additionally, the Christian Faith Center operates a private school on 24th Avenue South near South 208th Street in the City of SeaTac. Because of denominational affiliations and personal preferences, church attendance is not typically tied to place of residence; people may travel across town or to a neighboring town to attend the church of their choice.

Medical Services

Medical services in the project area include several general purpose and specialty clinics. Hospitals serving the project area are all located outside of its boundaries. They include the Highline Community Hospital, which maintains a hospital facility in the area west of SeaTac, a hospital facility northeast of SeaTac, Auburn General Hospital, Valley Medical Center in Renton, and St. Francis Hospital in Federal Way. A University of

Washington Physicians' Clinic operates in the Midway Shopping Center in Kent.

Fire and Police Protection

Fire protection and other emergency services in the project area are provided by King County Fire Districts No. 26 and 37 and the fire departments of Kent, Federal Way, and SeaTac. These fire districts work cooperatively, using automatic response and mutual aid agreements to enhance fire protection and related emergency services. A hazardous materials response team, Plan 20, provides specialized equipment and personnel for emergencies involving hazardous materials. Fire District No. 39 in Federal Way has command responsibility for Plan 20, although King County Fire District No. 26 is also involved.

Police protection in the project area is provided by the SeaTac, Des Moines, Kent and Federal Way police departments. The King County Sheriff is present at the SeaTac police department. The Port of Seattle also maintains police and fire departments, whose primary service area is Sea-Tac Airport. Police departments participate in cooperative enforcement activities, as outlined in various interlocal agreements for such things as jail services; use of K-9 units; and bomb, special weapons and tactics (SWAT), and hostage negotiation units.

The Federal Detention Center is an approximately 275,000-square-foot facility with a single multistory structure providing roughly 500 units for short-term detention of pretrial and trial detainees, unsentenced inmates who are going through the sentencing process, and sentenced inmates awaiting transfer to another federal facility. Built in 1996, it lies along South 200th Street at 26th Avenue South, immediately south of the proposed SASA project.

Cemeteries

The Hillgrove Cemetery, located on South 200th Street west of 18th Avenue South, is the only cemetery near the proposed improvements. Created in 1900, it is the final resting place of many early pioneers. Some of its headstones date to the early 20th century.

Governmental Institutions and Services

Governmental facilities in the project area include the SeaTac City Hall and the Des Moines governmental complex. These facilities house city administration, planning and public works, and police departments, as well as the cities' municipal courts. The Des Moines governmental complex also contains the City's public library. The Des Moines Parks and Public Works Service Center is located on the corner of South 223rd Street and 24th Avenue South. In addition to the facilities noted, Des Moines operates an

800-slip public marina, the Senior Center Dining Hall, and the Beach Park Founders Lodge.

Water

Domestic and fire protection water within the project area is provided by the Highline Water District, Lakehaven Utility District, and the City of Kent. The Highline Water District spans from the north end of the project area (South 216th Street) to approximately South 288th Street. The Lakehaven Utility District begins near the intersection of I-5 and South 288th Street and continues south to encompass the rest of the project area. The Lakehaven Utility District serves parts of south Des Moines, unincorporated parts of King County, and all of Federal Way. The City of Kent has its own domestic water system, which currently extends north to Military Road South, south of the SR 516/I-5 interchange.

The Highline Water District and the Port of Seattle each have a well located in the vicinity of South 200th Street and 20th Avenue South. A Seattle Public Utilities (formerly Seattle Water Department) transmission line runs south along Des Moines Memorial Drive to South 216th Street. Water mains 10 inches in diameter or larger are located along SR 99, as well as along several east-west arterials (South 200th, 208th, and 216th Streets, as well as parallel to I-5) (Keown pers. comm. 2001). Within the Lakehaven Utility District, there are at least 4 water mains that cross I-5 between South 288th Street and South 317th Street (Bowman pers. comm. 2001). A water main crosses underneath I-5 at South 240th Street and ties the City of Kent water system to the Highline Water District. This water main connects to Kent pump station #8, located at 35th Avenue South and South 240th Street. The Highline-Kent intertie acts as a critical emergency back-up water supply to the City of Kent (Hall pers. comm. 2001).

Sanitary Sewer

Portions of the project area are serviced by sewer lines from the Midway Sewer District, Lakehaven Utility District, and the City of Kent. Major facilities within the project area include the Des Moines Creek Treatment Plant and a number of sewer trunk lines 10 inches or larger in diameter. Trunk lines in the vicinity of the proposed build alternatives alignments run along Des Moines Creek from near Sea-Tac Airport to the treatment plant, along 16th and 20th Avenues South, and along SR 516 from Marine View Drive to SR 99. Smaller lateral lines also exist throughout the project area. Two Kent system pump stations in the project area are located at the South 224th Street/Military Road South intersection and at Linda Heights Park where South 248th Street and 35th Avenue South intersect. One 8-inch sewer main crosses I-5 near South 260th Street (Kase pers. comm. 2001). At least one sewer main in the Lakehaven District crosses I-5 in the project area (Bowman pers. comm. 2001).

Electrical Power

Electrical service within the project area is provided by PSE. Five substations are located within the project area, along with a number of overhead and underground transmission lines. The Midway Transmission Substation, located near the corner of 30th Avenue South and South 211th Street, is a major area electrical facility that delivers power to local distribution substations. Next to the transmission switching substation is a distribution substation that feeds into 115 kV transmission lines.

Five PSE transmission lines cross the I-5 project area in an east to west fashion. The crossings occur at South 216th Street, South 221st Street, South 22nd Street, South 224th Street, and South 288th Street. Furthermore, there are plans for a sixth crossing of I-5 near South 224th Street. The proposed line would carry twice the power (230 kV) of the existing 115 kV lines.

The Bonneville Power Administration owns a Bulk Transmission System line that crosses I-5 around South 320th Street and provides power to all the PSE transmission lines.

Natural Gas

PSE also supplies natural gas to portions of the project area. A major high-pressure trunk line follows SR 99 and branches off to South 222nd Street, runs west to 16th Avenue South, and continues outside the project area. A gas supply main runs along Military Road South throughout the entire length of the project area. This gas main crosses I-5 twice, once near Star Lake Road and a second time farther south near Steel Lake.

Other Utilities

The Olympic Pipeline Company operates petroleum supply lines and the Petroleum Supply Aircraft Fuel Tank Farm near the southeast corner of Sea-Tac Airport. Access roads, system feeds, and distribution routes for the fuel facilities are also located in this area.

Other

Other services in the project area include cable television provided by AT&T Cable Television, conventional telephone provided by U.S. West Communications, and wireless cellular service provided by a number of companies, such as U.S West/New Vector, Cellular One, AT&T Wireless, Verizon, Sprint, Nextel, and Voice Stream. Solid waste collection and disposal within the project area is provided by a conglomerate of companies including Tri-Star (RST), SeaTac Disposal, Nick Raffo Garbage Company, Kent Disposal Company, Federal Way Disposal, and Rabanco. Various recycling centers are located throughout the project area, in addition to residential curbside and yard debris services. Nonrecycled waste is disposed

of in the King County Cedar Hill landfill, located approximately 20 miles southeast of Seattle. According to the King County Solid Waste Division, the Cedar Hill landfill has approximately 14 million tons or 15 years capacity.

Pedestrians and Bicyclists

Pedestrian and bicyclist facilities in the project area consist of sidewalks, paved and unpaved shoulders, walkways, and trails. Most of these facilities are shared roadway shoulders and sidewalks. One exception (the Des Moines Creek Trail) is discussed in the *Recreation* section of this FEIS. There are no pedestrian or bicyclist facilities on I-5. Pedestrian and bicyclist facilities in the project area are discussed in greater detail in the *SR 509/South Access Road EIS Discipline Report: Transportation* (CH2M HILL January 2002).

3.10.3 Environmental Impacts

Community Cohesion

Community cohesion would be affected in all affected neighborhoods to some degree through the loss of single- and multifamily homes, the physical fragmentation of residential areas, and the disruption of access to community facilities and services. Total impact on community cohesion was assessed by observing the pattern of right-of-way acquisition and the resulting physical disruption (such as demolition of houses and severing of neighborhood streets) that the proposed roadway would cause with each build alternative. The main general difference between the three build alternatives is that Alternatives B and C2 would have greater impacts on the Madrona neighborhood, while Alternative C3 would have greater impacts on the Mansion Hill neighborhood.

Alternative A (No Action)

Neighborhoods such as 8th Avenue South/Des Moines Memorial Drive and Homestead Park, which are planned for a transition to new commercial and industrial development, could retain their cohesion for a greater amount of time.

Impacts Common to All Build Alternatives

Pacific Ridge Neighborhood

Several multifamily units near I-5 would be displaced. Thirteen apartment buildings with 95 multifamily units would be acquired in the Pacific Ridge neighborhood. The displacements would occur mostly within one large apartment complex, Heritage Court, which sits adjacent to the existing I-5 right-of-way. Fifty-two of Heritage Court's 135 units would be displaced. The remaining displacements in the neighborhood would be to the north and

south of this complex, also along the existing I-5 right-of-way. Among these multifamily units, three houses would be displaced as well.

From a physical standpoint, the neighborhood would retain its cohesiveness. No roads would be severed, and the circulation of internal traffic would be unimpeded. Connections to SR 99 and the neighborhoods would remain, and I-5 would be easily accessible. While the I-5 improvements would directly impact the cohesiveness of the eastern edge of the neighborhood, the rest of the neighborhood would remain completely intact, including the remainders of the affected multiunit complexes. No part of the project would physically isolate a section of the neighborhood, and no barriers would be created because the project would be constructed on the edge of the neighborhood.

Socially, the loss of multifamily units would represent a loss of affordable housing and would likely include the displacement of low-income households. To the extent that vacancies exist, households could relocate within the neighborhood since most of the housing stock is affordable. The City of Des Moines expects properties in the neighborhood to redevelop eventually in accordance with the subarea plan. As described in the Pacific Ridge Neighborhood Improvement Project FEIS, replacement of low-income housing in the neighborhood is encouraged but not mandated; therefore, the creation of additional low-income units in the future is uncertain. Despite the loss of housing, no community facilities would be impacted and public services to the neighborhood would remain intact. The neighborhood would benefit from less congestion on SR 99, which leads to regional employment centers and also supports several bus routes. No businesses near the neighborhood would be displaced, ensuring that local residents would continue to have commercial support services and job opportunities nearby.

Midway Neighborhood

Social cohesion impacts on the Midway neighborhood would be limited to two businesses displacements and limited right-of-way acquisition along I-5. Local streets and access to nearby services would be maintained. Impacts would be low.

Alternative B

Alternative B would route a limited-access roadway with heavy traffic volumes through five existing neighborhoods in the City of SeaTac: 8th Avenue South/Des Moines Memorial Drive, Homestead Park, Mansion Hill, Madrona, and Grandview. Homestead Park would experience the greatest impacts resulting from displacements and physical fragmentation. Of these five neighborhoods, 8th Avenue South/Des Moines Memorial Drive would experience the lowest level of impacts on community cohesion because the fewest number of residential units would be displaced. Two neighborhoods in

Des Moines, North Hill and Pacific Ridge would also be affected by Alternative B.

Eighth Avenue South/Des Moines Memorial Drive

Eighth Avenue South/Des Moines Memorial Drive Neighborhood would experience the lowest level of impact on community cohesion in the City of SeaTac, considering that development is scattered and the major arterials (South 188th, 192nd, and 200th Streets) would remain intact. The neighborhood as a whole would be physically fragmented, but arterial connections would maintain accessibility between single-family residences west of the proposed right-of-way and commercial activity to the east of the right-of-way. Census blocks that would be affected generally have high median incomes. One of the affected blocks has a minority percentage of 46 percent; this block would have three displacements. Alternative B would not preclude access to any community facilities from this neighborhood. Businesses that would be displaced are not key employers and do not have strong associations to the neighborhood, but may be used by some nearby residents (mechanics, coffee shop, etc.). To the degree that these businesses could be used by residents, social cohesion may suffer somewhat.

Homestead Park Neighborhood

Impacts on this neighborhood would be moderately severe, involving the acquisition of between 34 and 36 single-family homes for new right-of-way. Affected census blocks in Homestead Park have owner-occupant rates ranging from 61 to 81 percent. Homestead Park has a minority population close to the City of SeaTac average, and the impacted census blocks reflect that average. None of these displacements have been identified as low-income households or Section 8 housing. Sixteen businesses would be displaced from the neighborhood; however, these businesses are primarily warehousing-oriented and serve the airport instead of the neighborhood. A loss of job opportunities for local residents would not be expected since these businesses have indicated they would likely relocate near the airport and consequently near the affected neighborhood.

The Alternative B alignment would isolate the remaining single-family homes in the southern part of the neighborhood from the rest of Homestead Park. It would also make access to these homes more circuitous because South 208th Street would be closed just west of SR 99. These impacts would be somewhat temporary, as the neighborhood is planned for complete redevelopment in coordination with new transportation infrastructure.

Madrona Neighborhood

The southern section of this neighborhood, which is composed mainly of multifamily complexes, would experience numerous displacements as a result

of Alternative B. Thirty buildings with 143 multifamily units would be displaced. The affected Census blocks in Madrona have high minority populations (some over 50 percent) and median household incomes well below the City of SeaTac median household incomes. Some households receiving federal Section 8 assistance would be displaced by this alternative. Socially, unless households could be relocated within the neighborhood, the substantial loss of affordable housing and displacement of minority households would reduce the size of the neighborhood and could affect the cultural balance that this neighborhood currently enjoys.

Madrona residents would benefit from reduced traffic near the neighborhood, which would increase accessibility to local and regional employment centers. Access to businesses and public transit on SR 99 would also be maintained.

Despite the number of displacements, the physical impacts on Madrona as a whole would be less severe. Because the roadway would travel through a corner of the neighborhood, barrier effects would be minimal. The affected corner of the neighborhood contains businesses on SR 99 that generally serve passing automobile traffic and not specifically the Madrona neighborhood (one of these businesses would be displaced). South 208th Street would be closed just west of SR 99; however, a new access road would be constructed to preserve access to remaining residential units. This would help to keep the neighborhood together physically, and would keep access to community facilities intact. Thus, despite a large number of displacements, the total level of impacts on Madrona would be moderate.

Mansion Hill Neighborhood

Impacts on community cohesion under Alternative B in the Mansion Hill neighborhood would be low to moderate. Twenty single-family homes would be displaced as a result of this alternative; no low-income or high-minority areas would be impacted. All of these displacements would occur around the intersection of South 211th Street and 32nd Avenue South; even though this intersection would be severed, no internal circulation problems or external access difficulties would be created. The loss of housing would reduce the size of the neighborhood and in that manner incrementally reduce its cohesion. However, because only the northeast corner of the neighborhood would be impacted, no part of the neighborhood would be physically fragmented from the rest and no barrier would be created through the neighborhood. No businesses or community facilities would be affected. Since the neighborhood is adjacent to SR 99, it would benefit from the improved traffic and access to employment centers and transportation facilities.

Grandview Neighborhood

Social cohesion impacts in this neighborhood would be moderate. Alternative B would displace between 34 and 36 single-family homes along the residential streets parallel to I-5. Affected census blocks in Grandview have higher owner occupation rates than the City of SeaTac. Grandview also has minority percentages at or below the City of SeaTac average and median household income well above the City's median. The loss of housing would impact Grandview's social cohesion because little replacement housing exists directly in the narrow linear neighborhood.

The cohesion of these local residential streets would be impacted, but the overall effect on the neighborhood would be lower because the impact would be isolated along the edge of the neighborhood. A similar impact would occur near South 216th Street and 32nd Avenue South. Just south of the neighborhood, one business (that does not appear to have strong connections to the surrounding neighborhood) would be displaced. This alignment would not fragment the neighborhood into parts, and would preserve arterial connections (Military Road South and South 216th Street) across I-5 that connect the neighborhood to public facilities located in SeaTac and Des Moines.

One church—Puget Sound Church of God Holiness, located at Military Road and South 228th Street—would be displaced. The church has no particular association with the Grandview neighborhood and is attended by residents throughout the project area.

North Hill Neighborhood

With two single-family displacements, 12 multifamily unit displacements, one business displacement, and no physical fragmentation, this neighborhood would experience limited impact on social cohesion. The SR 509 mainline would just clip the corner of this neighborhood. No low-income or high-minority areas would be impacted. Of the neighborhoods with measurable community cohesion impacts, North Hill would be the least impacted neighborhood under Alternative B.

Alternative C2 (Preferred)

Eighth Avenue South/Des Moines Memorial Drive and North Hill

Impacts on community cohesion in areas north of South 200th Street would occur in the same neighborhoods and general areas as in Alternative B. In the northwest project area, the Alternative C2 alignment would run farther west, resulting in 14 more multifamily unit displacements in North Hill and 8 to 9 single-family house displacements in 8th Avenue/Des Moines Memorial Drive. Despite the larger number of displacements in these neighborhoods, the overall social impacts would be primarily the same as described under

Alternative B. The displacements would be confined to the same isolated areas, and internal and external access and circulation would remain intact. Business impacts would be the same. The same census blocks would be affected, including one with a minority percentage of 46 percent; this block would have seven displacements.

Homestead Park Neighborhood

Alternative C2 would have a low impact on the Homestead Park neighborhood. Although a sizable portion of this neighborhood would be acquired for the future SR 509 right-of-way, the land acquired would be vacant (following the Port of Seattle's relocation of homes in four mobile home parks). The same 16 businesses displaced under Alternative B would be displaced from the neighborhood in this alternative. Neither a loss of job opportunities nor other cohesion impacts would be expected.

Single-family houses south of South 208th Street would become more isolated in the midst of anticipated and planned commercial development, even though their access to SR 99 and South 208th Street would remain intact. Access to services would not be any more circuitous with the proposed alignment in place. No neighborhood arterial streets would be cut off as a result of Alternative C2. These houses would enjoy the benefits of reduced congestion on SR 99.

Madrona Neighborhood

Alternative C2 would impact less of the Madrona neighborhood than Alternative B. This alternative would cut across a smaller portion of the southwest corner of the neighborhood, displacing 10 buildings with 69 multifamily units. The displacements would occur in census blocks that have high minority populations (some over 50 percent) and median household incomes well below the City of SeaTac median. Some households receiving federal Section 8 assistance would be displaced by this alternative. A more moderate amount of affordable housing would be displaced by this alternative, increasing the chance that households could be relocated nearby. Still, the loss of housing diminishes the population of the neighborhood and some of its cohesiveness. To the extent that relocation within the neighborhood is successful, Madrona's cultural diversity and balance could be better preserved than under Alternative B. Madrona residents would benefit from reduced traffic near the neighborhood which would increase accessibility to local and regional employment centers. Access to businesses and public transit on SR 99 would also be maintained

As with Alternative B, the roadway would travel through the corner of the neighborhood, and barrier effects would be minimal. The affected corner of the neighborhood contains a few businesses on SR 99 that generally serve passing automobile traffic and not specifically Madrona. Additionally,

Madrona would experience an enhancement of dual access to SR 99, including access by traveling either north to South 204th Street or south via South 211th Street (Mansion Hill). Currently there is no interaction between Madrona and Mansion Hill due to the lack of any collector road connections and the physical barrier created by the steep hillside between the two neighborhoods. This alternative would take advantage of this unpopulated corridor to create a connector road, improving community connections and establishing a new access point to SR 99.

Mansion Hill Neighborhood

Impacts on community cohesion in the Mansion Hill neighborhood would be moderate. Under Alternative C2, 18 single-family homes would be displaced. All of these displacements would occur near the intersection of South 211th Street and 32nd Avenue South. No low-income or high-minority areas would be impacted. The loss of housing would reduce the size of the neighborhood and in that manner incrementally reduce its cohesion , similar to Alternative B. Alternative C2 would not create any internal circulation problems or any external access difficulties within the Mansion Hill neighborhood. The neighborhood would have improved access and circulation as a result of the connector road that would be constructed leading to the Madrona neighborhood, and would also benefit from the reduced congestion along SR 99. No part of the neighborhood would be physically fragmented from the rest because only the northeast corner of the neighborhood would be impacted.

Grandview Neighborhood

Impacts to the Grandview neighborhood would be similar to those of Alternative B. Compared to Alternative B, Alternative C2 would have two additional single-family displacements in a census block with a low percentage of minorities and a high median income. The loss of housing would impact Grandview's social cohesion because little replacement housing exists directly in this narrow linear neighborhood.

The impact on cohesion of these local residential streets would be low because the impact would be isolated along the edge of the neighborhood. Just south of the neighborhood, one business would be displaced. This alignment would preserve arterial connections across I-5 that connect the neighborhood to public facilities located in SeaTac and Des Moines.

One church—Puget Sound Church of God Holiness located at Military Road and South 228th Street—would be displaced. The church has no particular association with the Grandview neighborhood and is attended by residents throughout the project area.

Alternative C3

Eighth Avenue South/Des Moines Memorial Drive and North Hill

Alternative C3's impact on community cohesion in areas north of South 200th Street would be nearly the same as that of Alternative C2. Alternatives C2 and C3 would have similar alignments in the 8th Avenue South/Des Moines Memorial Drive and North Hill neighborhoods.

Madrona Neighborhood

Alternative C3 would nick the corner of the neighborhood, displacing only two single-family houses and two businesses in the Madrona neighborhood. The small number of displacements would have a minimal effect on community cohesion. No barriers would be created through the neighborhood, and all internal circulation patterns would be unaffected. Access to nearby public facilities and services would remain the same. The neighborhood would benefit from reduced congestion along SR 99.

Homestead Park Neighborhood

Impacts on the Homestead Park neighborhood would be similar to those of Alternative B, except that fewer single-family homes (19 to 20) would be displaced. Affected census blocks reflect moderate median incomes and low percentages of minorities. None of the displacements have been identified as low-income households or Section 8 housing. Six businesses would be displaced from the neighborhood; these businesses are primarily warehousing oriented and serve the airport instead of the neighborhood. One exception is the Alaska Airlines Gold Coast Center, which currently employs an estimated 300 people. Because of the large amount of office and meeting space contained in the center, it poses a unique relocation challenge. In addition, Alaska Airlines intends to expand its facilities at this site to accommodate its West Coast and regional headquarters for maintenance and operation, which would increase employment in the area. Similarly sized buildings close to the airport are scarce. Representatives of Alaska Airlines have indicated that the facility would relocate to a different city (outside the region) if displaced. This would hurt the cohesion of several neighborhoods, including Homestead Park, if local residents are employed at this center or count on the business traffic it generates. No other effects to neighborhood cohesion from the relocation of these businesses is expected.

The Alternative B alignment would isolate the remaining single-family homes in the southern part of the neighborhood from the rest of Homestead Park. It would also make access to these homes more circuitous because South 208th Street would be closed just west of SR 99.

Mansion Hill Neighborhood

While avoiding the Madrona neighborhood, Alternative C3 would traverse a wide portion of Mansion Hill as it crosses SR 99 and heads toward I-5. This would result in moderately severe social cohesion impacts. Alternative C3 would displace 42 to 43 single-family housing units in the north and east sections of the neighborhood. Despite the high number of displacements, no low-income or high-minority areas would be impacted. The loss of housing would substantially reduce the size of the neighborhood and in that manner reduce its cohesion. No part of the neighborhood would be physically fragmented from the rest, and no barrier would be created through the neighborhood, although the alignment's presence would occupy a large portion of the existing neighborhood.

Internal circulation would be disrupted because the Alternative C3 alignment would turn several neighborhood streets into cul-de-sacs.. There would no longer be any through streets in the neighborhood, making access to services more circuitous for some houses. No businesses or community facilities would be affected. Since the neighborhood is adjacent to SR 99, it would benefit from the improved traffic and access to employment centers and transportation facilities.

Grandview Neighborhood

Social cohesion impacts on the Grandview neighborhood would be somewhat less than Alternative B, but more than Alternative C2. Alternative C3 would displace 30 single-family houses; these displacements would occur in the same general areas and would have the same general effect as in the other two build alternatives. One church—Puget Sound Church of God Holiness located at Military Road and South 228th Street—would be displaced. The church has no particular association with the Grandview neighborhood and is attended by residents throughout the project area.

Regional and Community Growth

Alternative A (No Action)

Because of the general lack of north-south access and direct access to the southern end of Sea-Tac Airport, the No Action Alternative would conflict with the GMA's concurrency requirements for proposed development in the area. Two possible consequences would be the denial of permits for proposed projects or an attempt by one or more jurisdictions to improve the transportation network on a patchwork basis, perhaps with funding obtained from developer fees. Neither scenario represents a long-term solution to providing the infrastructure needed to support local and regional goals for the concentration of growth in SeaTac and Des Moines.

Impacts Common to All Build Alternatives

As a single project, the proposed project would not constitute a direct cause of growth in the community or the region. In the context of regional planning under the GMA, the proposed project would serve two important functions: (1) to provide a critical and long-needed transportation link that could help alleviate traffic problems on I-5 and project area surface streets, and (2) to assist jurisdictions within the project area to direct and achieve development in accordance with their comprehensive plans. This latter function of the proposed project would respond to the GMA's requirement that the infrastructure (primarily roads and utilities) necessary to support development must be in place within 6 years of that development. Meant to ensure that development will not inflict severe impacts on inadequate transportation and utility systems, this "concurrency requirement" has become a crucial consideration in community planning.

The comprehensive plans of the Cities of SeaTac and Des Moines (where most of the population and employment growth in the project area is expected to occur) stress the need for SR 509 and the South Access Road, or another north-south roadway of equivalent function, to help implement planned development projects and increase densities to the levels allowed by zoning. The City of SeaTac also requires the South Access Road to realize its goals for the CBD and the SASA site. In some cases, permitting of new development is explicitly made contingent on the presence of north-south roadway capacity.

It is not anticipated that growth in the project area would result in critical changes in population characteristics. Although housing values in the project area have appreciated in a manner consistent with the regional market, these houses remain affordable to people of low and moderate income. To the extent that people live near their places of work, income levels might rise because of jobs created in the proposed business parks and in airport-related enterprises. The ethnic and racial composition of the project area would not be expected to change substantially over time.

Recreation

The proposed project has the potential to affect five recreational facilities: Des Moines Creek Park and the associated Des Moines Creek Trail, Tyee Valley Golf Course, Midway Park, Linda Heights Park, and Mark Twain Elementary School Playfield. Figure 3.10-3 shows the locations of these facilities.

Alternative A (No Action)

No impacts to recreational facilities would occur under the No Action Alternative.

Impacts Common to All Build Alternatives

To the extent that the proposed project would improve transportation conditions in the project area, access to local recreational facilities would be improved.

While the proposed alignments of SR 509 and/or the South Access Road would traverse through portions of what is today the Tyee Valley Golf Course, as previously noted, it is anticipated that prior to any construction for SR 509 and the South Access Road, the golf course would be substantially reconfigured and possibly closed as a result of the development of other public projects that would render the continued use of the course in its existing configuration unlikely. The Port of Seattle, the Highline Water District, and the Des Moines Creek Basin Plan intend to use portions of the golf course for near-future projects that will render the continued use of the course unlikely. Therefore, for the purpose of this EIS analysis, it is assumed that the SR 509 project would not adversely impact a facility that would not be in existence at the time of construction.

There would be no direct impacts on Midway Park. Although the City of Des Moines' *Greater Des Moines Comprehensive Plan* (Des Moines 1995) indicates that the park will eventually be extended eastward to the existing I-5 right-of-way (Figure 3.10-4), the City and WSDOT have been working together to ensure that the envisioned eastward expansion of the park would not encroach into the widened I-5 right-of-way proposed as part of this project. Despite the proposed westward shift of I-5 with the three build alternatives, at most locations within the park there would be a decrease in noise levels because of the earthen berm immediately to the west of the existing I-5 right-of-way to accommodate the SR 509 to SR 516 southbound connector ramp. The noise-reducing effect of the earthen berm would be more pronounced at park locations closest to I-5. In areas near the I-5 right-of-way, traffic noise could decrease by as much as 5 dBA below existing levels in 2020 as a result of the project. Future (2020) peak-hour noise levels near the western edge of the park (where the existing facilities are located) are projected to be 63 dBA, or 1 dBA below projected noise levels under the No Action Alternative. Construction of the earthen berm would result in the removal of some trees immediately to the west of the existing I-5 right-of-way. Depending on the height of the berm, eastward views from the park toward I-5 (the only view of note from the park to the east) may be blocked. This view is already somewhat blocked by the trees that would be removed. The berm would be landscaped after construction to provide a green visual buffer along the eastern perimeter of the expanded park area.

No land would be directly acquired from Linda Heights Park. The proposed improvements along I-5 in the vicinity of the park (the additional northbound auxiliary lane) would bring roadway traffic closer to the right-of-way line and result in a slight, but unnoticeable increase in noise levels (less than 1 dBA)

within the park compared to the No Action Alternative. Construction of the additional lane would result in the removal of some trees immediately adjacent to the I-5 right-of-way. These trees are approximately 165 feet from the western edge of the park and below the height of the park. Removal of these trees may afford a slightly clearer view toward I-5. However, there would remain many other intervening trees that would continue to obscure the view toward the west. In addition, WSDOT would replant trees along the park, either within the I-5 right-of-way or within the park.

The project proposes a new southbound auxiliary lane south of South 272nd Street, resulting in the highway being moved closer to the edge of the Mark Twain Elementary School playfield. It is not anticipated, however, that there would be any direct impact to the playfield. Moving roadway traffic closer to the playfield would result in a slight but unnoticeable increase in noise levels (2 dBA) compared to the No Action Alternative. The existing berm between the playfield and the southbound on-ramp would be rebuilt slightly closer to the playfield, without affecting existing playfield use, and replanted with native vegetation. As a result, views from the playfield toward the east (of I-5) would be similar to current views.

Alternative B

Two bridge structures would cross through Des Moines Creek Park and over Des Moines Creek and Des Moines Creek Trail. The footprint of the two bridges would be acquired, amounting to 0.5 acre of park property. Because of the length of the span for the bridges (less than 150 feet each), it is assumed that these bridges could be built without support piers actually placed in the park. The bridge crossing would be located in one of the most isolated, secluded, and pristine areas of the park. Noise levels are roughly 5 dBA less than those experienced near the existing Des Moines Creek trailhead (the area that would be impacted by Alternatives C2 and C3). Background roadway traffic noise is virtually nonexistent. Without aircraft operations, daytime noise levels are in the 45- to 50-dBA range. This location is also approximately 3,000 feet farther south of the airport runways than the trailhead area. Aircraft are considerably higher at this location and thus aircraft noise is slightly less (up to 2 dBA) than that experienced at the trailhead. The project would introduce traffic noise into this relatively quieter area of the park and could substantially impair the natural setting and use and enjoyment of the underlying trail. In addition, numerous trees would be removed for construction of the two bridge structures, new shading effects would be created, and the bridges would dominate the trail user's view. As a result, the visual continuity of this natural stream valley would be interrupted and substantially impaired.

Alternative C2

SR 509 would cross the northeast corner of Des Moines Creek Park, requiring acquisition of approximately 4.7 acres of the park. The alignment would be on two separate 60-foot-wide elevated structures through the park and would skirt the Des Moines Creek Park trailhead and associated parking area, but would not necessarily displace it. The height of both structures would also accommodate the continued use of the trail itself, although the trail would be covered for approximately 75 feet by the northbound structure and an additional 75 feet by the southbound structure. The roadway would separate a small 2.1-acre triangular area to the north from the remaining 90 acres of the park to the south. This separated northern area is mostly wetland and wetland buffer and is not currently used for recreation or planned for future recreational development. The rest of the park would remain unaffected and contiguous. Covering of the wetland by the roadway structures could result in shading effects on the underlying wetland vegetation; however, considering the height of the structures and the space between them, light and precipitation should reach the ground and minimize any shading impacts. The two separate elevated roadway structures would be a dominating visual feature in the north portion of the park and associated trail, and would cause a visual impact for park and trail users. This impact, however, would only be experienced along the northernmost 275 feet of the trail. Noise levels in the vicinity of the impacted area are higher than elsewhere in the park, the result of being closer to the south end of the airport runways and the vehicular traffic along South 200th Street. Because of this current level of background aircraft and vehicular noise, project-related increases in hourly average noise levels are not predicted to be substantial (no more than 1 dBA when southerly departures would be in effect and up to 5 dBA when aircraft would approach from the south).

Alternative C3

Alternative C3 would clip the northeast corner of Des Moines Creek Park, requiring acquisition of approximately 3.9 acres of the park. The single, 120-foot-wide roadway structure would cover roughly 75 percent of the existing trailhead parking area. Similar to Alternative C2, however, the structure would be well above the parking area, allowing for continued use after construction. The height of the structure would also accommodate the continued use of the trail itself; only about 75 feet of the trail would actually be covered near its northern terminus. A small area of the park would be isolated between the SR 509 mainline structure and the South Access Road. Similar to Alternative C2, this area is mostly wetland and wetland buffer and is not currently used for recreation or planned for future recreational development. The rest of the park would remain unaffected and contiguous. Covering the wetland beneath the single 120-foot-wide elevated structure would result in greater shading effects than Alternative C2. Without Alternative C2's relatively narrower structures and the space between them,

less light and precipitation would likely reach the ground. The presence of the roadway structure would be a dominating visual feature for those who use the trail and trailhead parking area; this impact, however, would only be experienced along the northernmost 75 feet of the trail. Similar to Alternative C2, noise levels in the impacted area are higher than elsewhere in the park. Project-level increases in hourly average noise levels are not predicted to be substantial.

Services and Utilities

Alternative A (No Action)

No impacts on services or utilities would occur under the No Action Alternative, although continued and increasing traffic congestion on project area streets would increase response times for emergency service vehicles and make access to area facilities and services slower.

Impacts Common to All Build Alternatives

As described below, each of the build alternatives would have similar impacts on services and utilities. Existing underground utilities within the project area limits would be field located and surveyed to develop a base map that shows the location of underground utilities. This base map would be checked and verified by the utility companies and used to identify conflicts between proposed improvements and existing utilities.

Schools

The project's primary impact on schools would be the disruption of access for students living within a school's attendance boundaries. Impacts would be most severe on children who live within the school district's "walk boundary," because those who live on the far side of the proposed roadway might be forced to make long detours to cross it. Neighborhoods where such impacts could occur include Homestead Park and Mansion Hill, where students walking to Madrona Elementary School would likely face more circuitous routes to school and additional traffic. Access to the Christian Faith Center School for those who walk or drive would also be more circuitous. Conversely, better traffic flow after construction would allow school buses to reach their destinations more quickly.

Religious Institutions

All of the build alternatives would partially acquire property from the Puget Sound Church of God Holiness. This would require the removal of buildings immediately adjacent to the proposed right-of-way, displacing the church.

Medical Services

The build alternatives would not have an adverse impact on area medical services and would, overall, improve access to major regional medical facilities.

Fire and Police Protection

Emergency access to project area properties could be disrupted because of the severing of through streets. Delays in emergency response time could result from the need to detour to the nearest roadway crossing, and then double back through neighborhood streets to the scene of the emergency. Homes in the south area of Homestead Park would likely be most affected—emergency vehicles would no longer be able to access these homes using South 208th Street. Completion of the 28th/24th Avenue South Arterial Project would alleviate this problem. The Federal Detention Center would be unaffected.

Cemeteries

No impacts on cemeteries would occur under any of the build alternatives.

Governmental Institutions and Services

The build alternatives are not expected to seriously impair access to, or use of, governmental institutions or services in the project area.

Water and Sanitary Services

The build alternatives could parallel or cross several water mains and sewer trunk lines. Relocation of these lines could be required in crossing areas and in areas where the lines would lie within excavated portions of the right-of-way.

Electrical Power

Under the build alternatives, the proposed project would cross overhead or underground wires in several areas. Crossings would occur underground at two locations: where I-5 intersects with South 272nd Street, and farther south at the I-5/Military Road intersection near Star Lake Road. These electrical lines would have to be relocated as a result of the I-5 improvements (Yurovchak pers. comm. 2001). The remaining crossings would all be overhead and might require relocation if the support poles were displaced because of the proposed project.

Natural Gas

The build alternatives would parallel or cross up to five high-pressure natural gas trunk lines.

Other Utilities

The build alternatives would not be expected to impact the Olympic pipeline or Northwest Fuel Farm.

Other

Minor short-term impacts on telecommunication lines, including cable television and telephone, might occur because of improvements to I-5 in the project area and construction of the SR 509 freeway extension. In addition, solid waste collection and disposal companies might experience temporary traffic congestion associated with construction; however, these short-term impacts would occur only during construction.

Pedestrian and Bicyclist Facilities

Alternative A (No Action)

There would be no impacts on pedestrian or bicyclist facilities.

Impacts Common to All Build Alternatives

Although the proposed project would to some extent affect King County's plans for nonmotorized transportation facilities in the area, the project design can generally accommodate the widened shoulders and additional lanes or sidewalks called for in the Nonmotorized Transportation Plan in the *King County Comprehensive Plan* (King County 2000). At this time, bicycle facilities are being planned through the I-5/SR 516 interchange, either along South 228th Street as it crosses under I-5 or on SR 516 under I-5. WSDOT is committed to providing bike access through the interchange. As final design progresses, the location of the bicycle facilities would be selected based on safety, constructability, and cost comparisons, if a build alternative is selected. Other bike improvements include the extension of the Des Moines Creek Park bike trail north approximately 1 mile to the SR 509/South 188th Street interchange, and added bicycle areas along South 200th Street in the vicinity of the SR 509 on- and off-ramps.

3.10.4 Mitigation Measures

Community Cohesion

The effects of a limited-access roadway on community cohesion are difficult to mitigate. If either Alternative B or C2 is selected, WSDOT is committed to constructing a new access connection between South 208th and South 204th Streets to preserve access to remaining apartment complexes in the Madrona neighborhood. Alternative C2 would have dual access to SR 99 if constructed—both to the north between South 204th and South 208th Streets and to the south via South 211th Street (Mansion Hill). Additionally,

pedestrian access would be maintained from the end of South 208th Street to SR 99, to transit services, and to nearby businesses where the alignment blocks the existing right-of-way. Pedestrian safety and access would also be enhanced in the Madrona neighborhood with the improvement of pedestrtian access near Madrona Elementary School. These mitigation measures would benefit the community by increasing access options to transit services and nearby employment opportunities and businesses. WSDOT will continue to refine the selected alternatives to further minimize impacts to neighborhoods.

Displaced households would be relocated as close to their original residences as possible unless otherwise requested. In particular, low-income households would be relocated in close proximity to places of employment and public transportation. Most replacement multifamily housing in the area is within walking distance of SR 99, which has good transit service. All households would be relocated to a unit they could afford. If affordable housing is not available, WSDOT would provide housing through housing of last resort. See Section 3.9, *Relocation,* for a full discussion of mitigation measures for displacements.

Other measures that WSDOT could consider include:

- Investigate the feasibility and benefits of maintaining through access on key neighborhood streets (even if not arterials) by means of additional overcrossings or undercrossings.

- Investigate the feasibility and benefits of installing pedestrian access across the roadway to provide connection between portions of bisected neighborhoods.

- Work with school districts and other community service providers to solve access problems caused by cutoff streets.

Regional and Community Growth

Because the regional and community growth facilitated by the proposed project would be consistent with local and areawide plans and policies, no mitigation is proposed.

Recreation

Alternative B

WSDOT would replace any parkland acreage acquired with an equal amount of acreage of reasonably equivalent or greater recreational utility within the existing SR 509 right-of-way north of South 208th Street. Native trees would be planted to mitigate for vegetation removal between I-5 and Linda Heights Park. Mitigation for noise and visual impacts are addressed in Section 3.2, *Noise,* and Section 3.14, *Visual Quality,* of this document.

Alternatives C2 and C3

WSDOT would replace any parkland acreage acquired with an equal amount of acreage of reasonably equivalent or greater recreational utility within the existing SR 509 right-of-way north of South 208th Street and immediately adjacent to Des Moines Creek Park's western boundary.

To mitigate the potential impacts of Alternatives C2 and C3 on Des Moines Creek Park, a northbound extension of the existing Des Moines Creek Trail would be integrated into the design of the SR 509 improvements. As currently designed, the trail would cross South 200th Street near the entrance to Des Moines Creek Park and parallel South 200th Street westward along the north side of the arterial. The trail would turn in a northerly direction west of the South 200th Street/SR 509 intersection. The trail would continue northward along the western edge of the proposed SR 509 fill slopes. The trail would terminate at South 188th Street, with future linkages to the regional trail network to be completed by others under separate environmental review.

Native trees would be planted to mitigate for vegetation removal between I-5 and Linda Heights Park.

Services and Utilities

Schools

Mitigation for impacts on neighborhood access to schools could include the following measures:

- Extend school bus routes to include children whose school access would be disrupted.

- Provide pedestrian-safety features (sidewalks, crossing lights, crossing guards) along walking routes from affected areas to neighborhood schools.

Medical Services

No mitigation would be necessary for medical service facilities.

Fire and Police Protection

WSDOT would coordinate with area police departments and fire districts on the location of freeway crossings to develop access plans for emergency services in areas where street access would be changed by the proposed project. Care would be taken to ensure that water lines on cut-off streets would be of adequate size to meet fire flow standards. If street cutoffs were to result in excessively circuitous neighborhood access routes that could

substantially hinder the progress of emergency vehicles, WSDOT would investigate possibilities for providing alternate access by extending existing streets (such as cul-de-sacs) into the affected neighborhoods.

Cemeteries

No mitigation is necessary.

Governmental Institutions and Services

No mitigation is necessary.

Water and Sewer Services

No mitigation is necessary.

Electrical Power

No mitigation is necessary.

Natural Gas

No mitigation is necessary.

Pedestrians and Bicyclists

Pedestrian and bicycle facilities along the local streets would be redirected to the nearest arterial that would cross the proposed improvements.

Other Utilities

No mitigation is necessary.

3.10.5 Construction Activity Impacts and Mitigation

Construction Activity Impacts

Construction-related impacts of the build alternatives on neighborhoods would include additional traffic on neighborhood streets, detours, congestion, increased dust and exhaust from construction vehicles, and increased noise levels in the vicinity of construction sites. Details of these impacts and the mitigation proposed for them are contained in the Transportation Discipline Report, *SR 509/South Access Road EIS Discipline Report: Air Quality* (WSDOT 1999), and *SR 509/South Access Road EIS Discipline Report: Noise* (CH2M HILL July 2001).

Under Alternative B, the Des Moines Creek Trail would likely need to be closed for safety measures during construction of the bridges over

Des Moines Creek Park. Under Alternatives C2 and C3, the trailhead parking area and the northern end of the trail would likely need to be closed for safety reasons during construction of the elevated roadway structure in the park. In all cases, WSDOT would work closely with the City of SeaTac to minimize disruption to these facilities and, when unavoidable, work with the City to implement alternative routes/detours.

School bus routes using I-5 and local streets might be somewhat delayed during construction.

Mitigation Measures

Mitigation measures for construction-related transportation, air quality, visual quality, and noise impacts are discussed in the applicable SR 509/South Access Road EIS discipline reports and in previous sections of this document.

WSDOT would coordinate with project area water and sewer districts on potential relocations of mains, trunk lines, and other facilities. Service disruption impacts would be minimized through early warning notifications to customers regarding scheduled outages.

WSDOT would work with PSE to avoid or minimize disruption of the local power and gas supply. Crossings of transmission and distribution lines could be mitigated as follows:

- Wood, power transmission and distribution poles could be replaced, as necessary, with tall steel poles to provide adequate roadway and flyover ramp clearance.

- WSDOT could coordinate with PSE to locate new transmission and distribution poles and to ensure that required transmission and distribution line relocations would not result in service interruptions.

- Crossings of high-pressure gas pipelines would meet PSE's standards for protection of its pipelines. During final design of the selected alternative, WSDOT would submit plans of the crossings to PSE for review and approval prior to construction.

3.10.6 Compliance with Executive Order 12898 and FHWA Order 6640.23 on Environmental Justice

The build alternatives were evaluated for compliance with Presidential Executive Order (EO) 12898 and FHWA Order 6640.23 (Appendix F of this FEIS). These orders establish that it is federal policy to avoid, to the extent practicable, disproportionately high and adverse human health or environmental impacts on minority or low-income populations. As reported

in the series of discipline reports prepared for the FEIS, and further confirmed through discussions with the report authors, no disproportionate impacts are expected to fall on minority or low-income populations. In addition, the impacts are not considered high and adverse as a result of this project after proposed mitigation measures are implemented. Based on appropriate and adequate mitigation resulting in no high and adverse impacts, along with a determination that we are not disproportionately impacting any minority or low-income populations, the analysis concludes that the SR 509: Corridor Completion/I-5/South Access Road Project does not have any disproportionately high and adverse impacts on minority or low-income populations. The SR 509: Corridor Completion/I-5/South Access Road Project can therefore be considered to be consistent with the policy established in EO 12898 and FHWA Order 6640.23.

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3.11 Economics

3.11 Economics

3.11.1 Studies and Coordination

This section is based on the findings of the *SR 509/South Access Road EIS Discipline Report: Economics* (CH2M HILL June 2001), *SR 509/South Access Road EIS: South Airport Link* (October 2001), and *SR 509/South Access Road EIS: I-5 Improvements Report* (CH2M HILL October 2001). These reports are included in this FEIS by reference. The project area primarily includes portions of three jurisdictions: SeaTac, Des Moines, and Kent. Information on overall economic activity in the project area was gathered from the Southwest King County Chamber of Commerce, the Greater Des Moines Chamber of Commerce, and PSRC.

Information on displaced businesses and property impacted by right-of-way acquisition was obtained from the *SR 509/South Access Road EIS Discipline Report: Land Use* (CH2M HILL October 2000) and *SR 509/South Access Road EIS Discipline Report: Relocation* (CH2M HILL August 2000). Information on the existing commercial real estate market was obtained from telephone interviews with two local commercial real estate brokers.

Data on population and employment in the project area was obtained from the *SR 509/South Access Road EIS Discipline Report: Transportation* (CH2M HILL January 2002). Information on taxable retail sales and sales tax rates was obtained from the Washington State Department of Revenue. Information on total assessed value, by jurisdiction, and parcel-specific assessed values and property tax levy rates were obtained from the King County Department of Assessments. Information on annual revenues for affected cities was obtained from annual budget reports from the Cities of SeaTac, Des Moines, and Kent.

3.11.2 Affected Environment

Overall Economic Activity

The project area supports a wide variety of economic activities, ranging from Sea-Tac Airport, with its major airline and air freight operations and surrounding hotel, motel, and rental car facilities, to the locally oriented shopping, restaurant, and service businesses located along and extending several blocks east and west of SR 99.

Table 3.11-1 presents the population and number of households in the project area. In 2000, the City of Kent had a population of approximately 79,524, and the Cities of Des Moines and SeaTac had populations of 29,267 and

25,496, respectively. The total number of households within the three cities is approximately 52,158.

Table 3.11-1
Population and Households in Project Area

Jurisdiction	Population	Households
Des Moines	29,267	11,337
SeaTac	25,496	9,708
Kent	79,524	31,113
Total	**134,287**	**52,158**

Source: 2000 U.S. Census

Table 3.11-2 shows the employment levels in the overall project area in 1990, as well as future employment levels with and without the proposed project. The largest center of employment is Kent, which accounted for 33,855 jobs in 1990. However, the City of SeaTac is the only jurisdiction in the project area that is expected to experience greater employment growth by 2020 with construction of the proposed project. According to projections used in the travel demand modeling, the proposed project would increase job growth at a greater rate than the No Action Alternative. Employment levels with the proposed project are expected to grow at an annual rate of 2.4 percent from 1990 levels to 2020. By comparison, employment levels are estimated to grow at an annual rate of 1.8 percent under the No Action Alternative for the same time period.

Table 3.11-2
Future Employment in Project Area

Area*	Employment Levels			Average Annual Growth Rate Between 1990 and 2000	
	1990-91	2020 with Project	2020 Alternative A (No Action)	With Project (%)	Alternative A (No Action) (%)
SeaTac	19,725	59,201	41,626	3.7	2.5
Des Moines	3,278	10,854	10,854	4.1	4.1
Kent Valley	33,855	44,209	44,209	0.9	0.9
Total	**56,858**	**114,264**	**96,689**	**2.4**	**1.8**

Source: SR 509/South Access Road Corridor EIS Phase II, Travel Demand Forecasting Procedures and Assumptions (CH2M HILL October 1993).

** Areas based on aggregation of Puget Sound Regional Council (PSRC) Transportation Analysis Zones and do not match municipal boundaries.*

The primary retail businesses in the project area are located in Des Moines, Kent, and Tukwila. Industrial development in the project area is limited to scattered light-industrial and small-scale manufacturing enterprises located along major arterials, such as Des Moines Memorial Drive, South 200th Street, and South 188th Street.

Several large commercial/industrial and transportation-related projects are currently proposed within the project area, including:

- An Aviation Business Center consisting of civic, hotel, conference, and aviation base facilities on a 200-acre site between SR 99 and the proposed South Access Road.

- A Port of Seattle-sponsored airline maintenance facility (SASA) on a 100-acre site south of South 192nd Street and north of South 200th Street.

- A multimodal Light Rail Transit station (South King County Terminus) just north of South 200th Street in the 28th Avenue South corridor. An associated parking lot for 500 to 900 cars is also planned. Construction is currently anticipated for 2004 to 2006.

- A 15-acre sports park identified by the City of Des Moines as a Priority One project. Priority One projects are considered to be of pressing importance or are one-time opportunities that meet an identified need of the community.

- The 28th/24th Avenue South arterial project, which would modify the alignments of 28th/24th Avenue South to accommodate local access traffic generated as a result of the anticipated development of the Cities of SeaTac and Des Moines. The design has generally anticipated the potential development of the Aviation Business Center noted above. (Portions of this proposed project are currently under construction or recently completed.)

- A third runway on the west side of the Sea-Tac Airport. The final EIS was completed in February 1996.

- A 99-room hotel at the northwest corner of South 200th and 28th Avenue South. A SEPA review is being conducted by the City of SeaTac.

Residential and commercial/industrial growth within the project area is expected to continue. For example, the King County Growth Management Planning Council (GMPC) has designated the Cities of SeaTac and Kent as 2 of the 14 “urban centers” targeted to absorb much of the residential and employment growth within King County over the next 20 years (King County 1994).

City Revenue Sources

As shown in Table 3.11-3, the Cities of SeaTac, Des Moines, and Kent receive the majority of their revenues from property and retail sales and use taxes.

Table 3.11-3
1999 Tax Revenues by Type

Type of Tax	City of SeaTac	City of Des Moines	City of Kent
Property	$7,589,148	$2,127,201	$16,981,356
Retail Sales and Use	$7,415,194	$1,382,330	$14,172,845
Parking	$4,230,468	NA	NA
Utility Business	NA	$1,478,559	$6,645,603
Gambling	$232,901	$23,037	$422,956
Other	$1,926,771	$1,041,512	$21,191
Total	**$21,394,482**	**$6,052,639**	**$38,243,951**

Source: City of Des Moines Finance Department, City of Kent Finance Department, City of SeaTac Finance Department.

NA = not applicable

3.11.3 Environmental Impacts

Alternative A (No Action)

Under the No Action Alternative, no businesses or residences would be displaced by right-of-way acquisition for the proposed project, and there would be no resulting job losses or decreases in property or sales tax revenue. Traffic congestion on I-5, other north/south arterials, and some east/west arterials would likely continue to worsen under the No Action Alternative, despite numerous roadway improvements. This would further impair the movement of goods and people within the Cities of SeaTac and Des Moines and to Sea-Tac Airport and the seaport. Increased congestion would also dampen the potential economic growth in the communities in the project area. Population and employment are expected to grow more slowly in the City of SeaTac under the No Action Alternative.

Impacts Common to All Build Alternatives

During operation of the proposed project, the movement of goods and people from I-5 to Sea-Tac Airport and other locations along the SR 509 corridor would be improved under all of the build alternatives. Commercial vehicles and individual passengers traveling to and from Sea-Tac Airport would experience travel time savings due to the improved roadway. The movement

of commercial freight would be enhanced along the SR 509 and I-5 corridors. According to the *Freight Mobility Study: SR 509/South Access Road Project* (CH2M HILL December 1998), completion of the proposed project would result in improved reliability of goods movement, decreased travel times for several routes along the Seattle to Tacoma corridor, and improved access to a large amount of industrially zoned land near Sea-Tac Airport. The proposed project would likely encourage development of vacant land or redevelopment of existing properties.

The City of SeaTac is expected to receive greater employment growth with construction of the proposed project. As shown in Table 3.11-2, approximately 59,200 jobs are projected to be located within the City of SeaTac by 2020 under the build alternatives versus a projection of 41,600 jobs under the No Action Alternative. The difference in employment levels can be attributed to the City of SeaTac's policies to control development in its proposed activity center until access to the area is improved (see CH2M HILL January 2002, Appendix B, Travel Forecasting Methodology).

The level of congestion on north/south arterial corridors within the project area, including SR 99 (International Boulevard) and Des Moines Memorial Drive, would decrease as trips currently made on surface streets divert onto SR 509 and the South Access Road. Overall mobility along these arterials would be improved, resulting in better access to businesses. Traffic volumes on east-west streets might increase or decrease, depending on the location of new interchanges proposed under the build alternatives. It is expected that traffic flow along South 188th Street would improve with the completion of the proposed project. Overall, access, mobility, and operating conditions would improve with construction of the proposed project.

Business Displacement

Right-of-way acquisition for the three build alternatives would displace between 15 and 31 businesses. Alternative B is expected to displace between 24 and 28 businesses, 16 of which are located in the Homestead Park neighborhood in the City of SeaTac. Alternative C2 would displace between 27 and 31 businesses, with 14 businesses also located in Homestead Park. Alternative C3 would displace between 15 and 19 businesses, including 6 businesses in the Homestead Park area. All of the build alternatives would displace 2 businesses in the Midway neighborhood in Kent.. Depending on the design option selected, the construction of the South Airport Link would be expected to displace between 0 and 4 businesses in the SeaTac city center. The I-5 improvements would displace 2 businesses.

Businesses in the project area are generally engaged in airport operations, tourism, retail, restaurant, and services that cater to neighborhood residents and the surrounding communities, as well as Sea-Tac Airport. Business displacements might reduce the sales tax revenue collected by the affected

jurisdictions, depending on where, when, or whether the impacted businesses relocate. Similarly, the employment represented by those displaced businesses would also be affected.

While recognizing that supply-demand relationships change frequently, two commercial real estate brokers familiar with the real estate market in the SeaTac and Des Moines area indicated that the supply of available retail and office space within the project area is limited (Stoll pers. comm. 1999; Corr pers. comm. 1999). They suggested that businesses in the cities of SeaTac and Des Moines that would be displaced under any of the build alternatives might find it difficult to relocate within the project area. According to one broker, the low supply is partly because there is little demand in the area for commercial strip locations. The most desirable locations for commercial retail space appear to be shopping centers, such as the Midway Crossing shopping center at the junction of SR 99 and SR 516 (Corr pers. comm. 1999).

Overall, the market in the Cities of SeaTac and Des Moines is tight for the types of commercial space occupied by the businesses that would potentially be displaced. SeaTac and Des Moines could experience the most business displacements under all the build alternatives, losing between 10 and 22 businesses within the project area. This suggests that businesses displaced within the Cities of SeaTac and Des Moines might find it difficult to relocate within the project area.

Sales and Property Tax Revenue

Impacts on sales tax revenues are difficult to predict and would depend on where businesses affected by the proposed project relocate. Relocating outside of the project area jurisdiction would result in decreased sales tax revenues for that jurisdiction.

Approximately 95 to 180 acres of additional right-of-way would be required to accommodate the various build alternatives. All of the build alternatives would use some portion of the existing state-owned and tax-exempt right-of-way located between South 188th Street and SR 516. The remaining right-of-way would be acquired from taxable property within the jurisdictions affected by the proposed project. The taxable property acquired would be removed from the cities' tax rolls, adversely impacting property tax revenues.

For the purpose of determining potential initial property tax impacts, taxable property within the proposed right-of-way of each build alternative was assigned to one of the six following land use categories: commercial, industrial, public/government use, residential-high density, residential-low density, and religious institutions. A database containing all the properties affected by the build alternatives was prepared using maps and tax information for affected parcels from the King County Department of Assessments

(King County 2000). This information was used to assign developed properties to one of these categories based on existing land use. Vacant land was assigned to a land use category based on the zoning for the property as indicated in the database.

The figures were calculated for each build alternative by grouping taxable properties to show the initial property tax impact for each jurisdiction by build alternative. The total property tax impact includes the initial property tax impact for full displacements and for partial encroachments. The tax impact for the partial encroachments was calculated by multiplying the estimated 2000 property tax collected for the parcel by an estimate of the percentage of the parcel taken for the proposed project.

For all build alternatives, the initial property tax impact is not expected to be substantial. The fiscal impacts associated with the initial loss of property tax revenues represents less than 1 percent of each jurisdiction's total tax revenues. The impacts on sales tax revenues are also not likely to be substantial.

The initial tax impacts associated with displacements would likely be offset eventually by tax revenues associated with increased development of vacant land and redevelopment of existing buildings throughout the project area. There is a large amount of vacant industrial land near the Sea-Tac Airport that would be more accessible with construction of the proposed project, which could lead to new development. Some commercial development such as office buildings, retail complexes, restaurants, and hotels would also likely occur on land adjacent to new or improved interchanges. This would definitely be the case if the employment projections for the City of SeaTac prove to be accurate.

3.11.4 Mitigation Measures

There are no economic impacts associated with any of the build alternatives that would require mitigation.

3.11.5 Construction Activity Impacts and Mitigation

Construction Activity Impacts

The estimated cost of constructing the SR 509: Corridor Completion/I-5/ South Access Road project for each alternative is presented in Table 3.11-4.

Table 3.11-4 Estimated Project Costs for the Build Alternatives	
Alternative	**1999 Dollars**
Alternative B	$715-$735 million
Alternative C2 (Preferred)	$690-$710 million
Alternative C3	$695-$715 million

Source: CH2M HILL estimates.

These costs do not include the South Airport Link, the last 1,000 feet connecting the South Access Road to airport roadways.

These estimates are based on preliminary design information and may be revised during the final design and construction phase of the project.

Depending on the alternative selected, construction of the build alternative would result in a $690 to $735 million project and the associated positive impacts on employment and overall economic activity in the project area. As shown in Table 3.11-5, it is estimated that 4,534 to 4,698 person-years of employment would be needed for the build alternatives, which translates into an average of 648 to 671 construction jobs over the 7-year construction period.

Table 3.11-5 Estimated Employment Impacts by Alternative		
Alternative	**Person-years of Employment**	**Average Annual Construction Jobs**
Alternative B	4,698	671
Alternative C2 (Preferred)	4,534	648
Alternative C3	4,567	652

Source: CH2M HILL estimates.

Project construction would also result in so-called multiplier effects. Indirect impacts would occur as construction firms purchase materials from local suppliers who in turn, employ workers and purchase materials. Induced impacts would occur when wages paid to workers in construction trades or supporting industries are spent on locally produced goods and services.

The magnitude of the indirect and induced impacts within the project area would depend on many factors, including:

- Where construction workers live and spend their income
- Where equipment and material needed for construction would be purchased

- The extent to which the proposed project is funded by out-of-region sources

When local funds are used, residents and businesses have that much less income to spend on other goods and services in the regional economy, thus representing a shift in the local economy's product mix rather than net new economic activity. At the state level, project construction would result in economic benefits to the extent that federal funding is received.

Impacts on businesses during construction might include temporarily increased congestion, noise, dust, and possibly interrupted or more difficult access. Temporary reduction in retail sales might result as customers avoid shopping in the construction area. Any temporary loss in sales tax revenue resulting from impacts on businesses during construction would be partially offset by sales tax revenues generated by construction spending in the region.

Mitigation Measures

Measures to mitigate identified economic impacts resulting from construction could include the following:

- Installing temporary signage to inform drivers that access to businesses during construction is unchanged, temporarily changed, or restricted.

- Requiring contractors to submit and receive approval of a construction plan to maintain reasonable access for all properties and businesses adjacent to construction activity.

- Coordinating with affected business owners to develop and implement strategies to maintain access to businesses during construction.

- Informing businesses or tenants displaced by new right-of-way acquisition or other construction activities that they would be entitled to relocation assistance in accordance with the Uniform Relocation Assistance and Real Property Acquisition Act of 1970 and RCW 8.26.

- Minimizing construction period.

- Minimizing the number of major traffic detours.

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3.12 Historic and Archaeological Resources

3.12 Historic and Archaeological Resources

3.12.1 Studies and Coordination

This discussion is based on the following reports, which are included in this FEIS by reference:

- *SR 509/South Access Road EIS Discipline Report: Historical and Archaeological Preservation* (CH2M HILL January 2000).
- *SR 509/South Access Road EIS Discipline Report: South Airport Link* (CH2M HILL August 2001)
- *Technical Memorandum: SR 509/South Access Road Alternative C2 Minimized* (CH2M HILL September 2001)
- *SR 509/South Access Road EIS: I-5 Improvements Report* (CH2M HILL October 2001)

These reports are included in this FEIS by reference. Site files of the Washington State Office of Archaeology and Historic Preservation (OAHP) and the King County Cultural Resources Division were examined to check for any historic or prehistoric sites previously found within the project area. For the purpose of this analysis, the project area has been defined as the cities of SeaTac, Des Moines, Kent, and Federal Way and unincorporated King County in the immediate vicinity of the proposed SR 509 extension and South Access Road and along the I-5 corridor between the proposed SR 509 interchange and South 310th Street. These jurisdictions were contacted for information about known cultural resources. The Des Moines Historical Society was also contacted for information.

Cultural resource survey and excavation reports pertinent to the project area were examined at OAHP to gain an understanding of the types and density of cultural resources that could be present. The National Register of Historic Places (NRHP) and the Washington State Register of Historic Places (WSRHP) were checked to see if any listed properties were within the proposed alignment of the three build alternatives.

During preparation of the *Final Environmental Impact Statement, Proposed Master Plan Update Development Action at Seattle-Tacoma International Airport* (Port of Seattle and FAA 1996), useful documentation of cultural resources in the project area was compiled. The Airport Master Plan and the proposed project share large areas of overlap. Efforts to identify potential historic properties in the project area focused on examination of buildings not otherwise reviewed by Shapiro & Associates for the Airport Master Plan.

Tribal consultations occurred to secure information about traditional cultural properties and/or culturally sensitive locations within or adjacent to the project area that should be avoided.

Following the completion of the literature review and records search, a reconnaissance was conducted of the three build alternative alignments. The reconnaissance involved driving through the Areas of Potential Effect (APE) of each project alternative to identify and then record previously unrecorded historic properties. The APE is the anticipated ground-disturbing footprint of construction, lay down areas, and one-property deep on either side of the proposed alternative right-of-way. A separate reconnaissance survey to identify archaeological sites was also conducted.

Because systematic cultural resource surveys for the APE had not been previously conducted, all buildings located within the APE that appeared to be potentially eligible for inclusion in the NRHP were recorded. Recording each property of potential historical or architectural significance entailed photographing each building and preparing an OAHP Historic Property Inventory Form. Within the APE, seven individual properties of potential historical or architectural significance were identified. The inventory forms for these properties were included in the Historical and Archaeological Preservation Discipline Report (CH2M HILL January 2000), and were updated in July 2002.

The archaeological reconnaissance survey attempted to examine all open, easily accessible areas within the APE. Unfortunately, much of the project area could not be systematically examined because the area has been dramatically altered by urban development (roads/buildings/structures) or obscured by dense, impenetrable vegetation (Des Moines Creek Park, neighborhoods "cleared" of homes by the Port of Seattle Noise Remedy Program, now overgrown with vegetation). Geotechnical borings and test pits associated with preconstruction activities were archaeologically monitored at locations near the intersection of the existing SR 509 terminus at Des Moines Memorial Drive South. No significant cultural deposits were observed in the 4 borings and 12 backhoe test pits (Luttrell 2001).

3.12.2 Affected Environment

Background Cultural Resource Information

Prehistory

The project area is located within the Southern Puget Sound archaeological study area (Wessen 1985). This study area encompasses all of King County and most of northwestern Washington. Over 325 cultural resource surveys have been conducted within this study area, with most efforts focused in King and Pierce counties. Over 300 prehistoric sites have been recorded that

include shell middens, lithic scatters (the remains of chipped stone tools and tool manufacturing debris), and wet sites (sites in water-saturated areas). Indian burials have been found in association with 14 of the shell middens. Archaeological sites within the Southern Puget Sound area date between 11,000 and 250 years B.P. (before present) (Wesson 1985, Thompson and Stilson 1988). Two dugout cedar canoes were found in the project area at Angle Lake (sites 45-KI-422 and -423). See the Historical and Archaeological Preservation Discipline Report (CH2M HILL January 2000) for a more in-depth discussion.

Ethnography

During the ethnographic period, there were two Coast Salish groups that may have used the natural resources within the project area. The Green and White River people (now Muckleshoot) occupied the White River Valley to the west of Des Moines; the Duwamish people occupied the central Puget Sound near Seattle (Spier 1936). The Muckleshoot Tribe consists of descendants of the White and Green River Indians and the Duwamish Indians.

Coast Salish cultures were maritime adapted, exploiting both terrestrial and aquatic mammalian resources, as well as harvesting the abundant fish, berries, and roots that were present (Greengo 1966, Jorgenson 1969). At European contact, the project area was used by the Duwamish Tribe and several major Duwamish villages were located along the Green River and along the shoreline of Puget Sound (Campbell 1981, Thompson and Stilson 1988). Known campsites of the *St-ka-mish* (Green River) and the *Skopahmish* (White River) Indians were located just south of the project area (King County Site Files, No. 0064).

According to Kennedy (1989), there is ample evidence of Duwamish and Muckleshoot travel through the Des Moines area. The tribes liked to come over the hills, following the streambeds, to catch spawning salmon and dig for clams. Shell mounds have been found on the beaches and near the mouths of Des Moines, Massey, and McSorley Creeks. An Indian grave was uncovered while sluicing down the bank on the northwest side of the Van Gasken-Pedersen property to fill in Des Moines Creek for a millpond.

The project area also abounds with Indian stories and legends. One of the earliest stories implies that this area was once an island, as told by Tom Milroy (an upper-Puyallup Indian informant) to anthropologists Thomas T. Waterman and Arthur Ballard (Kennedy 1989).

Several Indian place names are located in the general project vicinity (Waterman ca. 1920). These include Three Tree Point (*S-he-lahb*) [“loading things into a canoe”]; *Qah-weils* [“glistening white”]—a white rock now under the east side of the parking lot of Anthony’s HomePort Restaurant east of the Des Moines marina float B; *Ko-KWOI-lt-sah* [“Blanket Rock”]—

located at Redondo; *Tsike'ib* ["swift, cold stream" located just north of Des Moines (Des Moines Creek); D.Lkok [one of the forks of Des Moines Creek]; *Ba'xkwab* ["prairie"—an open space in the timber], now the present site of downtown Des Moines; *Tca'gKqks* ["the first one in"—Massey Creek]; and *Tca'xgwEs* [McSorley Creek].

Historical Background

While navigating down the east side of Vashon Island in 1792, British naval Captain George Vancouver observed smoke hanging over the forest where local Indians had set fire to the underbrush to drive out their quarry deer (Kennedy 1989). Following Vancouver's initial visit, Puget Sound remained untraveled by Europeans for 32 years. On November 28, 1824, James McMillan embarked with a party of 40 to locate a site for a new Hudson's Bay Company post on Puget Sound. During their return trip, McMillan's party was driven ashore at Three Tree Point, just north of present day Des Moines (Kennedy 1989).

In 1833, Hudson's Bay Company constructed Fort Nisqually to secure fur-trading holdings in the area, and a few years later, a fur trading post was built just south of the proposed project (Nikulla 1977). Hudson's Bay Company constructed this secondary post because the Indians in the area were friendly and using the area as a campground and because there were trails to the site through the dense, otherwise impenetrable forest (Nikulla 1977). The spot was also close to the Sound and allowed for easy transportation of goods and furs.

This secondary post was abandoned in 1846 when the 49th parallel was designated as the U.S./Canadian boundary and, in 1869, the U.S. paid Hudson's Bay Company for its rights and claims. In the early 1880s, Jacob Reith settled on the abandoned Hudson's Bay post through a 640-acre timber claim (Nikulla 1977). A recent cultural resource survey of the original Indian campground, Reith homesite, and the Hudson's Bay post site indicates no remains are currently observable (Larson and Lewarch [ed.] 1994).

In the mid-1850s, the state militia erected a blockhouse in the vicinity to protect white settlers during the Indian uprisings. Its exact location is uncertain but is believed to have been either south of Three Tree Point and north of Massey Creek or at the present Masonic Home site in Zenith (Kennedy 1989).

The Puyallup to Duwamish segment of the historic Military Road, which passes along the eastern edge of the project area, was constructed in 1858 but was in many places a rough trail, winding around stumps and unfit for wagons.

Des Moines' first settler, John Moore, acquired a 154-acre land claim from the government in July 1872 under the provisions of the Homestead Act (Bagley 1929). Due to unpaid taxes, Moore's land was sold to John Murray in 1881 and, in turn, Murray sold it to F.O. Chezum in 1886 for $600 (Kennedy 1989). F.A. Blasher, who arrived in 1888 from Iowa, convinced other Midwesterners to follow him to the area (Warren 1981). Active development of a townsite began in 1889 when J.W. Kleeb, O.W. Barlow, and Blasher organized the Des Moines Improvement Company. They laid out a townsite on about 120 acres of the original Moore land claim. Kleeb called the city Des Moines after his former home in Iowa (Bagley 1929).

Good stands of fir and cedar made lumbering an important industry in the early days. The first sawmill was built by the Des Moines Improvement Company in 1889 and was sold in 1900 to William Van Gasken.
Des Moines' easily accessible shoreline and deep harbor facilitated hauling logs to the mills. The steep hillside above Des Moines included valleys and several streams, which was ideal terrain for logging. During this period, the extensive logging of the Des Moines Creek Canyon probably occurred (Lyons 1992). Oxen were driven up the valleys to drag down the heavy timbers to the water's edge (Eyler and Yeager 1972).

Town growth was rapid, according to an 1890 advertisement in a southwestern Washington business directory, which claimed that Des Moines had some 300 houses, business blocks, a school, churches, mercantile houses, hotels, blacksmith and wagon shops, a chair factory, a boat manufactory, brick yards, and the only tin factory on the coast (Kennedy 1989). In 1890, James Markwell came to the area to start a shingle bolt business that employed about 25 men. At his mill were a bunkhouse and cookshack. Markwell also drove the pilings and built a dock out from the old Indian burial grounds, on the northwest side of the Van Gasken property. In 1918, a millpond was excavated at the Markwell mill site, exposing a Native American burial site (Kennedy 1989).

Despite considerable promotion and speculation, the area began to decline after 1891 until 1903, when property once again was avidly sought by those seeking retreat from city life in pleasant country surroundings (Warren 1981). The Southern Pacific Land Company filed a plat in late 1891, adding 40 acres south of the Town of Des Moines plat. In 1890, James Hyatt built a three-story hotel and started a store in this same building. In 1908, Herman and Annie Draper established their home for children in the former Hyatt Hotel; it was still operating as such on the eve of the Great Depression (Bagley 1929). In the early 1890s, Robert and Anna Hanke started a second hotel in the area.

The Des Moines Wharf and Improvement Company, which was organized in late 1892 by Hanke, John Flynn, and William Martin, constructed the wharf at Des Moines. Beginning in the 1880s, a succession of small steamers (known as the Mosquito Fleet) linked the area with neighboring communities

on the Sound until 1919 (Warren 1981). Transportation to outside communities also was available by walking or riding to the Interurban stations at neighboring Kent or O'Brien in the White River Valley. Even before brick-surfaced roads replaced the rutted mud or gravel roads in 1916, bus service to Seattle was inaugurated (Warren 1981).

Telephone service came to the area by 1908, provided by Pacific Telephone and Telegraph Company. Fred Russell started a water works in 1914, but as late as 1929, most property owners still drew water from their own wells. By the 1920s, electricity was supplied by Puget Sound Power & Light Company (Bagley 1929). Even as late as the 1920s, the area had no public sewer system, and citizens maintained their own septic tanks.

In 1915, changes took place in the area that had far reaching effects. Until 1915, most transportation was by water, providing residents equal access to both Seattle and Tacoma. When the first roads to the area were built, they came from Seattle. With convenient land access, the Mosquito Fleet and local ties with Tacoma declined. As a result of better roads and the automobile, the area experienced another growth spurt during and after World War I, which continued through the Great Depression because of the availability of inexpensive housing (Kennedy 1989).

Prior to the completion of the "Brick Highway" (Des Moines Memorial Drive) in 1916, much work had to be done to the existing gravel road before it could be bricked. Curves were straightened, wet spots and springs were filled in or drained, and in 1912/13, a bridge was built across Des Moines Creek (canyon). By 1922/23, the bridge had worn out, the canyon was filled in, and Des Moines Creek was channeled through culverts (Kennedy 1989).

Other important transportation links included the Kent-Des Moines Road, which was first just a trail around the turn of the century but was later improved to a winding two-lane road. In the 1920s and 1930s, (SR 99 Pacific Highway South) was built to Tacoma. Throughout the first decades of the 20th century, a car-ferry service between Vashon Island and Des Moines embarked at the dock on S. 227th Street (Kennedy 1989).

Although there were several attempts to establish small industries, the area depended primarily on its lumber and shingle mills, chicken ranches, and truck gardens. During World War II, defense plants south of Seattle attracted a sizable number of new residents.

The Boeing Company was a major factor that contributed to population growth in the area during and after World War II. But the most important event was the decision to build the Seattle-Tacoma Airport at Bow Lake; ground breaking took place on January 2, 1942 (Eyler and Yeager 1972).

As the airport grew in the post-war years, it took the homes and property of many of the pioneer families. Most of these families stayed in the vicinity but moved away from the immediate airport area. In recent years, the Port of Seattle has implemented a Noise Remedy Program, consisting chiefly of noise insulation improvements to affected residences and businesses. In many cases, the remaining stock of pre-World War II and/or historic housing units have been subject to noise abatement window retrofits. The replacement of original windows with modern triple-pane insulated windows has compromised the original architectural integrity of these remaining houses.

Known/Recorded Historic and Archaeological Resources

Hillgrove Cemetery (King County Historic Site Survey, No. 0844), which is located at South 200th Street near 16th Avenue South, is the final resting place of numerous local pioneers (Eyler and Yeager 1972). Prior to 1900, the dead were taken to Kent or Seattle for burial. In 1900, Frederick Kindling, who lived on the south side of 200th Street east of Des Moines Way, donated a 1 acre piece of ground for a cemetery.

In the post-war years, vandalism became a major problem in the cemetery, but in the early 1970s, the Maywood Garden Club took on the cemetery as a special project and made many improvements. In 1975, local Girl and Boy Scouts of Maywood School were also working to improve the cemetery (Draper 1975).

Cemeteries are generally excluded from NRHP listing unless they derive their primary importance from graves of persons of transcendent importance, from age, from distinctive design, or from association with important historic events. The Hillgrove Cemetery does not appear to meet any of these requirements. Hillgrove Cemetery was determined ineligible for listing in the NRHP (Shapiro & Associates 1995).

Recently, a small shell mound was discovered in Marine View Park (City of Normandy Park) after a winter storm in January 1996 (Leeds 1996). This prehistoric archaeological site was designated 45-KI-446 by the OAHP and is located outside the project area.

For the *Final Environmental Impact Statement, Proposed Master Plan Update Development Action at Seattle-Tacoma International Airport* (Port of Seattle and FAA 1996), Shapiro & Associates undertook a comprehensive review of known/recorded cultural resources. The Master Plan area overlaps large portions of the project area. Shapiro & Associates conducted a literature search, an evaluation of previously inventoried properties, and a field survey. A total of 67 sites (two previously recorded and 65 newly identified) were recorded within the area to be acquired for construction of the proposed airport Master Plan alternatives. OAHP determined that none of the 67 properties were NRHP-eligible. In the spring of 1995, the Cities of Burien,

Des Moines, and Normandy Park designated a number of historic resources that had been included in the Airport Community Coalition Historic Properties Survey as locally significant; none of these resources are in the SR 509 project area.

Ms. Melanie Draper (Des Moines Historical Society) provided a list of 12 historic properties in Des Moines. None of the structures are located within the project area.

Traditional Cultural Properties

Traditional cultural properties (TCPs) are one of a number of historic property types that can be eligible for listing in the NRHP. "Culture" is understood to mean the traditions, practices, lifeways, arts, crafts, and social institutions of any community, be it an Indian tribe, a local ethnic group, or people of the nation as a whole. "Traditional" refers to those beliefs, customs, and practices of a living community of people that have been passed down through the generations, usually orally or through practice. A TCP can be:

- A location associated with the traditional beliefs of a Native American group about its origins, its cultural history, or the nature of the world
- A rural community whose organization, buildings and structures, or patterns of land use reflect the cultural traditions valued by its long-term residents
- An urban neighborhood that is the traditional home of a particular cultural group and that reflect its beliefs and practices
- A location where Native American religious practitioners have historically gone, and are known or thought to go today, to perform ceremonial activities in accordance with traditional cultural rules or practice
- A location where a community has traditionally carried out its economic, artistic, or other cultural practices important in maintaining its historical identity

A TCP can be defined as one that is eligible for inclusion in the NRHP because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community (Parker and King 1990).

Recently, Larson and Lewarch (1991) reported that no studies of Duwamish traditional cultural use have been undertaken in the general project vicinity but suggest that Waterman's (1920) thesis on geographic names is a good source of information on areas with potential Duwamish or Muckleshoot cultural significance. As noted previously, Waterman's (1920 and 1922)

studies documented several spots on the landscape that were named by the local tribes. These "place-names" can be TCPs if they designate spots that have high cultural importance to the tribes today and meet NRHP eligibility criteria.

In order that TCPs are adequately considered in this analysis, several local tribes were contacted to solicit information about traditional Indian use of the project area (see *Studies and Coordination* above). Consultations with tribes have not resulted in the identification of TCPs in the immediate project area.

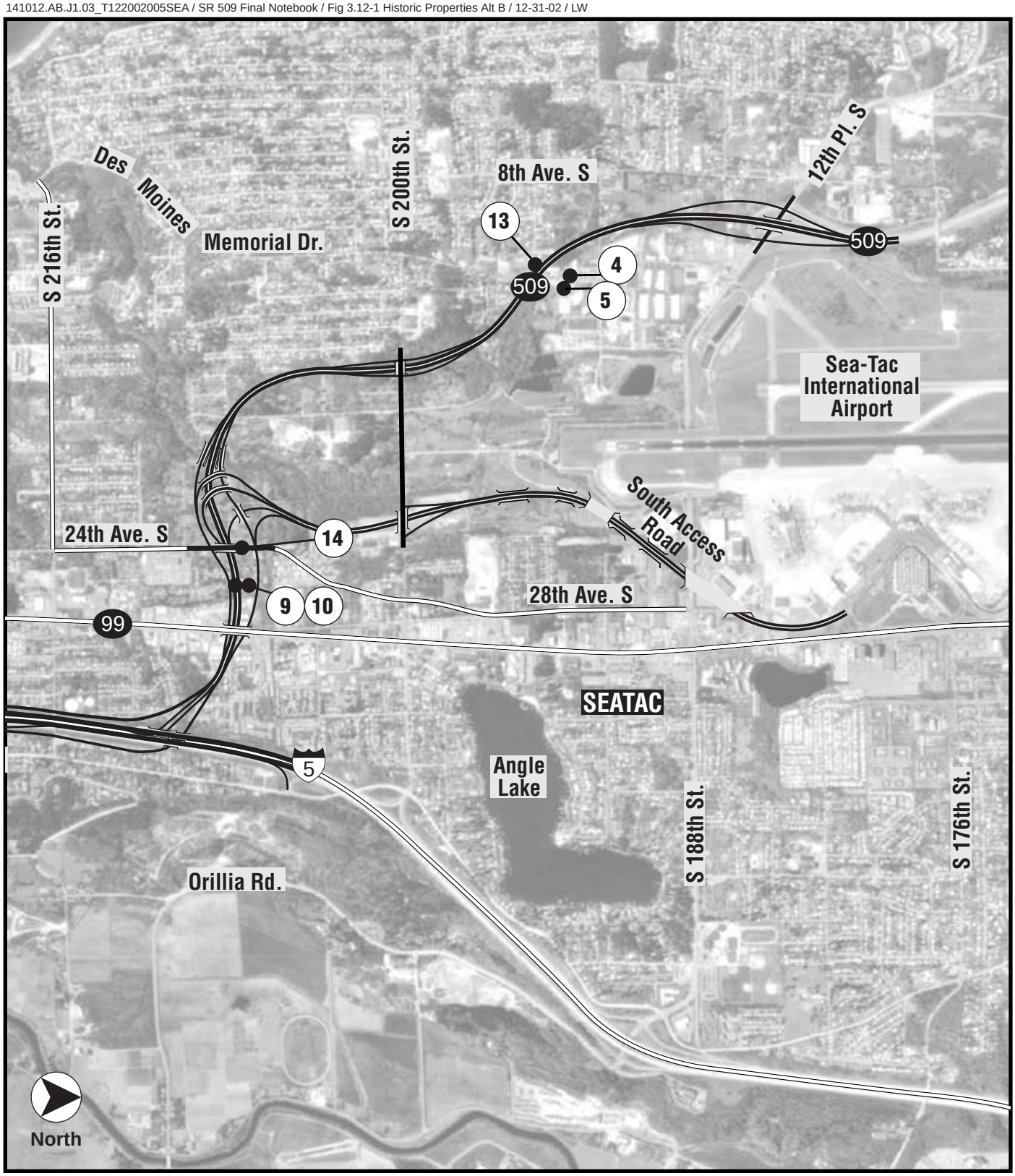
Historic Properties

The field investigation identified historic properties potentially eligible for listing on the NRHP, which is the official federal list of cultural resources worthy of preservation. Cultural resources listed in the NRHP include districts, sites, buildings, structures, and objects that are significant in American history, architecture, archaeology, engineering, and culture. The criteria for eligibility for NRHP are defined as:

> the quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and,
>
> - that are associated with events that have made a significant contribution to the broad patterns of our history; or
> - that are associated with the lives of persons significant in our past; or
> - that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
> - that have yielded, or may be likely to yield, information important in prehistory or history.

Seven properties of potential historic or architectural significance lie within the APE (see Figures 3.12-1 through 3.12-3).

No known state or NRHP-listed or NRHP-eligible buildings or structures are located within the APE. The completed Historic and Archaeological Report was submitted to the State Historic Preservation Officer (SHPO) for review in accordance with Section 106 of the Historic Preservation Act of 1966 (as amended) and 36 CFR Part 800. Properties within the APE are not eligible for listing in the NRHP due to their low level of integrity.



0 1/4 1/2 3/4 1 MILES

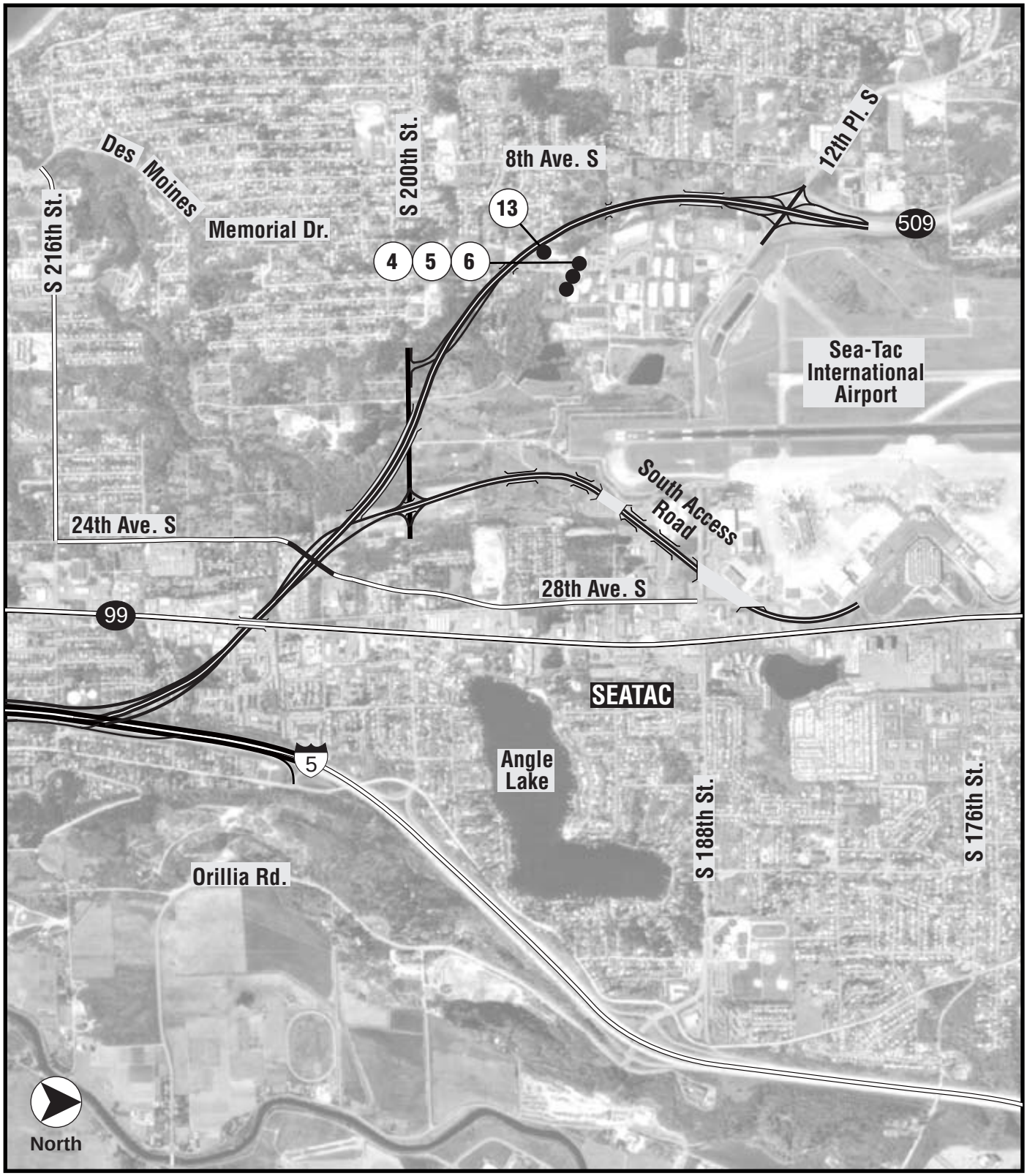
Legend

- SR 509/South Access Road Improvements
- Bridge
- 4 Location of Historic Properties e.g., 1829 South 222nd Street, Des Moines

FIGURE 3.12-1

Locations of Historic Properties – Alternative B

SR 509: Corridor Completion/I-5/South Access Road Environmental Impact Statement



0 1/4 1/2 3/4 1 MILES

Legend

SR 509/South Access Road Improvements

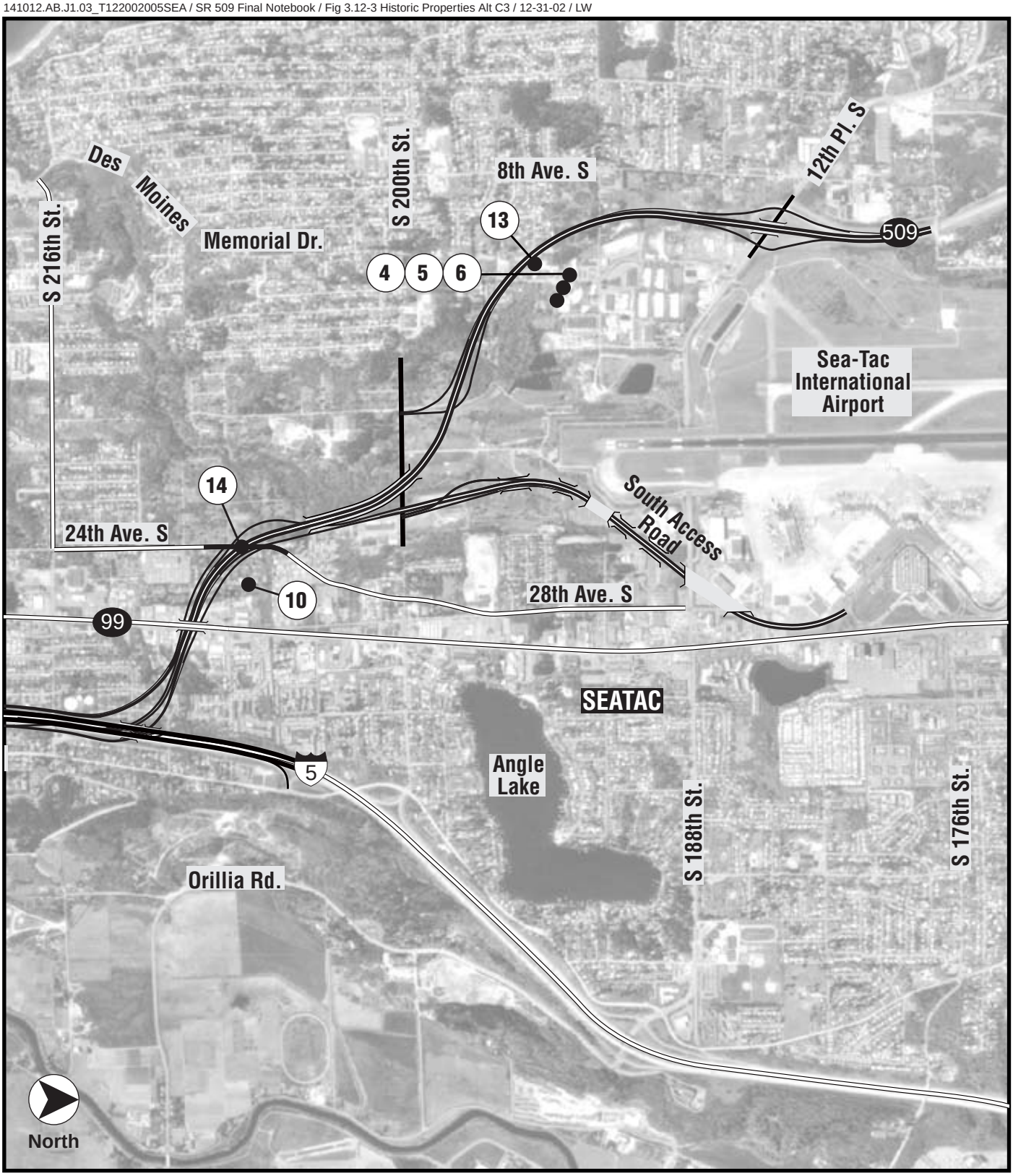
Bridge

4 Location of Historic Properties
e.g., 1829 South 222nd Street, Des Moines

FIGURE 3.12-2

Locations of Historic Properties – Alternative C2 (Preferred)

SR 509: Corridor Completion/I-5/South Access Road Environmental Impact Statement



0 1/4 1/2 3/4 1 MILES

Legend

- SR 509/South Access Road Improvements
- Bridge
- 4 Location of Historic Properties e.g., 1829 South 222nd Street, Des Moines

FIGURE 3.12-3

Locations of Historic Properties – Alternative C3

SR 509: Corridor Completion/I-5/South Access Road Environmental Impact Statement

Property No. 4—19422 Des Moines Way South, SeaTac, Washington (98148)

This one-story residence has a full basement and a wide beveled board siding (10 inch) that is common in the area. Windows are six-over-one double hung wood sashes except for an aluminum slider in the south elevation. All of the original windows are covered with aluminum storm windows. An exterior battered brick chimney is located on the south elevation. The low, front gable roof is covered with composition shingles and has brackets under the projecting eaves. A modern garage with a gable roof and plywood siding is located behind the residence. Although this building is a relatively intact example of a simple, front gable Craftsman house, it is a plain example of a common building type in the area. It has no architectural significance and no association with historically important people or events. It is unlikely to be eligible for listing on the NRHP.

Property No. 5—19434 Des Moines Way South, SeaTac, Washington (98148)

This one and one-half story, rectangular building was constructed in 1926. It has a full basement and beveled board siding. Windows are one-over-one double hung wood sashes in sets of two and three. The windows are covered with aluminum storm windows. A small solarium window was added to the south elevation. The front door in the west elevation was replaced and a wood railing added to the small front porch. A large aluminum window is located in the half-story in the north elevation. A shed roofed dormer is located in the front of the side-gable roof. Exposed purlins and knee braces are located at the eaves. Although this building is a relatively intact example of a simple, front gable Craftsman house, it is a plain example of a common building type in the area. It has no architectural significance and no association with historically important people or events. It is unlikely to be eligible for listing on the NRHP.

Property No. 6—1205 South 196th Street, SeaTac, Washington (98148)

This is a one and one-half story Tudor-style residence built in 1929. It has a rectangular floor plan and a full basement with concrete walls. The front facing cross gable has an oriel on the first floor and a small leaded glass window in the upper half-story, which is the only original window remaining. The rest were replaced with triple-glazed vinyl windows that simulate six-over-six double hung windows. The high-pitched roof with flush eaves is covered with composition shingles. A one and one-half story garage is located just east of the residence. The stucco building has a medium-pitched composition shingle roof. A leaded glass window is located in the west gable end in the upper half-story. This is a simple example of a Tudor-style residence with replacement windows. Preliminary analysis suggests this building is not eligible for listing on the NRHP.

Property No. 9—2604 208th Avenue South, SeaTac, Washington (98198)

This is a simple single-story vernacular residence with a basement. It has narrow beveled board siding. Windows are wood frame in a mixture of one-over-one double hung, fixed, and casement styles. An exterior red brick chimney is located on the west elevation. The gable roof has clipped corners and is covered with composition shingles. At the time of recordation, a project was underway to convert the attic to living space. A door had been cut into the west gable and an exterior wood stairway was under construction. This simple vernacular residence is not architecturally significant, has no association with historically important people or events, and is unlikely to be eligible for listing on the NRHP.

Property No. 10—2413 208th Avenue South, SeaTac, Washington (98148)

This is a rectangular 1½ story Craftsman-style residence. It has wide beveled board siding and one-over-one double hung wood sash windows, with the exception of the large, single pane front window, which is probably a modern replacement. A small porch with a gabled roof projects slightly from the front of the building. The front gable roof has composition shingles and knee braces under the eaves. This building was moved to its current location in 1955. This simple Craftsman-style residence is not architecturally significant, has no association with historically important people or events, and is unlikely to be eligible for listing on the NRHP.

Property No. 13—19405 Des Moines Drive South, Des Moines, Washington (98198)

This is a single-story residence constructed in 1937. The original exterior siding has been covered or replaced with asbestos shingles. The house has a gable roof with a small center gable forming the porch over the front door on the east elevation. The roof is covered with composition shingles. The front door has been replaced with a new metal door and the windows have been replaced with new vinyl windows. The simple vernacular residence has no architectural significance and no association with historically important people or events. It is unlikely to be eligible for listing in the NRHP.

Property No. 14—20704 24th Avenue South, SeaTac, Washington (98148)

This is a single-story residence on a concrete basement foundation. The house was constructed in 1940 and its exterior walls are covered with clapboard siding. All original windows have been replaced with aluminum windows. The house has a gable roof with a small porch gable extending over the door on the south-facing façade. The roof is covered with composition shingles. The eaves project only slightly with no exposed rafters or joists. The building has no architectural significance and the replacement windows

have compromised the structure's integrity. The property has no known association with important people or events. This property is unlikely to be eligible for listing in the NRHP.

3.12.3 Environmental Impacts

The Advisory Council on Historic Preservation's regulations implementing Section 106 of the NHPA create a process by which federally assisted undertakings are reviewed for their effect on properties listed on the NRHP or those determined to be eligible for listing.

The Criteria of Effect and Adverse Effect are applied to determine whether the proposed project could affect the property and whether those effects should be considered adverse. If the undertaking could change in any way the characteristics that qualify the property for inclusion in the NRHP, for better or for worse, it is considered to have an effect. If the undertaking could diminish the integrity of such characteristics, it is considered to have an adverse effect.

Alternative A (No Action)

No impacts would occur to known state or NRHP listed or eligible cultural resource sites.

Alternatives B, C2, and C3

Once constructed and operational, none of the build alternatives would produce any long-term impacts on known state or NRHP listed or eligible cultural resource sites. Impacts during project construction, and associated mitigation measures, are discussed in *Construction Activity Impacts and Mitigation,* Section 3.12.5.

3.12.4 Mitigation Measures

Because no long-term impacts on state or NRHP listed or eligible cultural resource sites are anticipated, no mitigation is proposed. Possible impacts associated with project construction and associated mitigation measures, are discussed in the *Construction Activity Impacts and Mitigation* section immediately following.

3.12.5 Construction Activity Impacts and Mitigation

Construction Impacts

As previously noted, there are no recorded archaeological sites in the APE that could be impacted by the proposed project. Because the APE has generally been drastically altered by urban development, the likelihood of

encountering unknown sites during construction is remote. The *Construction Mitigation Measures for Archaeological Sites* section below discusses the steps that would be taken if an unrecorded site were encountered during construction.

No historic buildings or buildings eligible for listing in the NPHP occur within the project APE. No construction activity impacts to historic properties would occur.

Construction Mitigation Measures for Archaeological Sites

Archaeological monitoring occurs when a qualified archaeologist observes/ inspects subsurface ground-disturbing construction operations. If the archaeological monitor observes what appear to be cultural deposits, construction would be temporarily halted in the "find" location until a preliminary analysis of the find could be made. Archaeological monitoring would be conducted where construction is scheduled in areas of high probability for containing archaeological sites (but which exhibit no outward indications that such sites are actually present). Archaeological monitoring is often conducted in areas where preconstruction subsurface testing is not feasible. If required, archaeological monitoring would be undertaken by an archaeologist who meets the Secretary of the Interior's standards and guidelines (36 CFR 61).

In the event that potentially significant archaeological remains are found during construction, the following typical late discovery procedures followed by WSDOT would be applied here.

WSDOT's Late Discovery Procedures

WSDOT has operational procedures to deal with inadvertent discoveries of cultural or historical resources during construction. The following generally describes WSDOT's procedures.

If a WSDOT field inspector is notified a discovery has been made, either from the project archaeologist monitoring construction in archaeologically sensitive areas or from the construction contractor's field staff, the matter would immediately be brought to the attention of designated WSDOT officials.

WSDOT might then issue a "Stop Work Order" in the immediate area until an assessment by the police and/or the project archaeologist could be made. Construction crews are often reassigned to other tasks in another area (typically at least 50 to 100 feet away). Pending arrival of knowledgeable personnel, WSDOT would preserve the discovery site to prevent further damage.

WSDOT field personnel would locate the excavation (such as by cross streets) in order to better direct other people to the site by phone. WSDOT office staff would be verbally briefed by field personnel as to the circumstances of the discovery. If bones were involved, especially on the surface or buried shallowly, then the police from the local jurisdiction would be called to the site by WSDOT to determine if it is a crime scene. If the bones seem to be of a human origin, the reporting officer would contact the Medical Examiner (usually the County Medical Examiner) to begin a possible criminal investigation.

If the project archaeologist is not already on-scene, WSDOT staff would contact the designated project archaeologist. In addition, designated WSDOT Region personnel would be advised of the situation and developments as they occur. The WSDOT Regional Environmental and Special Services office would serve as the hub of information. Telephone or e-mail contacts to and from the field would occur as each development occurs. The goal would be "full communication" to facilitate adjustment to possible changing conditions.

At the first indication of a possible link of the discovered remains to an Indian tribe, the SHPO would be called immediately and would decide ultimate disposition of cultural and human remains.

Traditional Cultural Properties

No TCPs have been identified in the project area. Should ongoing consultations with the Tribes result in the identification of TCPs in the project area, additional consultations with the Tribes, SHPO, and WSDOT would be required to determine NRHP eligibility and develop acceptable mitigation measures.

Construction Mitigation for Historic Properties (Buildings)

- No historic properties or properties eligible for listing in the NRHP occur within the project APE. Therefore, no mitigation is required.

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3.13 Hazardous Waste

3.13 Hazardous Waste

3.13.1 Studies and Coordination

This section summarizes information contained in the *SR 509/South Access Road EIS Discipline Report: Hazardous Waste* (WSDOT February 2000), *SR 509/South Access Road EIS: South Airport Link* (October 2001), *Update to the Existing SR 509 Supplement 5 Hazardous Waste Discipline Report* (IT Corporation October 2001), and *Draft SR 509/South Access Road EIS: I-5 Corridor Hazardous Waste Discipline Report* (IT Corporation November 2001). These reports are included in this FEIS by reference. For this analysis, the project area is defined as the area within one mile of the proposed build alternatives.

Environmental Data Resources, Inc. (EDR), conducted database searches of all available federal, state, and local environmental regulatory databases sites within 1.0 mile of the proposed project alternatives. Database searches for the proposed SR 509 freeway extension and South Access Road were conducted in April 1997 (EDR 1997). A review of U.S. EPA Region 10 Internet regulatory files was conducted in November 1998 and December 1999 did not reveal any changes from the listing provided by EDR. Washington State Department of Ecology (Ecology) files were reviewed in September 2001 to update the database information. Database searches were conducted for the South Airport Link design options in June 2000, and for the I-5 improvements in October 2001.

An historical review of the project area in the vicinity of the I-5 improvements was conducted in September 2001 using historical aerial photos, historical topographic maps, and Kroll maps. Information was also obtained from the *Real Estate Services/Environmental Affairs Office Potentially Contaminated Property Inventory Final Report* (WSDOT May 1997). This inventory report identifies properties that are currently owned by WSDOT and are under Real Estate Services management that have a potential for contamination. Further information was obtained from a Port of Seattle report completed in1996 that describes the underground storage tank (UST) status of properties purchased as part of the Sea-Tac Airport Noise Remedy Program.

Validation of the list of known or suspected contamination sites was conducted by review of Ecology enforcement and regulatory files and telephone interviews with representatives from Ecology, Port of Seattle, City of Des Moines, Des Moines Fire District, and the Masonic Church. In addition, site visits were conducted to areas of concern to confirm exact locations of properties and proximity to other sites.

3.13.2 Affected Environment

Land Use

Land use in the project corridor has generally remained the same for the last 50 to 60 years. Commercial properties tend to be located in the vicinity of interchanges along I-5 and along SR 99/Pacific Highway South, with residential properties located to the west and east of the commercial corridor.

One of the largest facilities in the area is Sea-Tac Airport, which is a focal point for construction because of its economic importance in the Pacific Northwest. The airport, which opened in 1944, includes passenger and cargo terminals, baggage conveyance, and aircraft maintenance and fueling facilities.

Physical Environment

Geology and soils in the project area are described in Section 3.4 of this FEIS. Three major aquifers underlie the project area. These include the Vashon advance outwash and two older outwash deposits. The main water table is usually encountered 60 to 90 feet bgs. Perched groundwater as shallow as 9.8 feet bgs has been encountered. Noncontinuous zones of perched groundwater have been encountered in the southeast portion of the airport property at a depth ranging from ground level to 50 feet bgs. Free-floating petroleum products have been measured in monitoring wells in the area of the airport. The amount of free-floating product has fluctuated over the multiple years of monitoring.

List of Sites with Known or Suspected Contamination

Based on the research described above, 45 sites of known or suspected contamination were identified in and along the alignment of the proposed project alternatives (Table 3.13-1). Sites in the vicinity of the proposed SR 509 freeway extension are identified with a number. Sites in the vicinity of the South Airport Link are identified with a number preceded by the letter "S," and those along the I-5 corridor are identified with a number preceded by the letter "I."

Table 3.13-1 List of Potential or Known Contaminated Sites			
Site No.	**Site**	**Address**	**Level of Contamination**
2	Battery Power Systems, Inc.	2367 South 200th Street	Substantially contaminated
6	Exxon #7-3287/BP #3124	2841 South. 188th St./18803 International Blvd.	Reasonably predictable
7	Foreman's Welding	18451 Des Moines Memorial Dr.	Reasonably predictable
8	Hertz Corp. Car Rental	18625 Des Moines Memorial Dr.	Reasonably predictable
14	Olympic Fuel Tank Farm	2600 Block of South 188th Street.	Reasonably predictable
18	S. 192nd Street Residential Property	1112 South 192nd Street	Reasonably predictable
21	Tech-Marine Enterprises	Near 19265 Des Moines Memorial. Dr.	Reasonably predictable
24	Alaska Airlines Gold Coast Center	20833 International Blvd.	Reasonably predictable
25	Helen's Auto Sales	20848 Pacific Highway South	Substantially contaminated
26	Pacific Auto Brake & Muffler	20856 Pacific Highway South	Substantially contaminated
27	Super Mechanics	21027 Pacific Highway South	Reasonably predictable
28	VIP Sports Bar & Restaurant	20842 Pacific Highway South	Reasonably predictable
29	Alamo Rent-A-Car	20636 Pacific Highway South	Reasonably predictable
30	Unocal #3964	20658 Pacific Highway South	Reasonably predictable
31	PAC Center	2407 South 200th Street	Reasonably predictable
32	Budget-Rent-A-Car of WA-OR	19030 28th Avenue South	Reasonably predictable
33	Sea Tac Gull #263	18812 Pacific Highway South	Reasonably predictable
S-1	Pan Am Fuel Farm	Sea-Tac Airport	Reasonably predictable
S-2	Northwest Airlines Tank Farm	18211 Air Cargo Rd.	Substantially contaminated
S-3	Air Cargo Road	Sea-Tac Airport	Substantially contaminated
S-4	Delta Fuel Farm	Sea-Tac Airport	Reasonably predictable
S-5	Former sewage treatment plant/Masterpark[a]	18220 International Boulevard	Reasonably predictable
S-6	My Place Tavern & Restaurant/West Coast Gateway Hotel[a]	18415 Pacific Highway South/ International Boulevard [b]	Reasonably predictable
S-7	Sharp's Roaster and Ale House	18427 Pacific Highway South/ International Boulevard[b]	Reasonably predictable
S-8	Shell Oil Service Station (also part of Budget Rent-A-Car of Washington)	18443 Pacific Highway South/ International Boulevard [b]	Reasonably predictable
S-9	Various car rental businesses/Budget Rent-A-Car of WA[a]	18445 Pacific Highway South/ International Boulevard [b]	Reasonably predictable

Table 3.13-1
List of Potential or Known Contaminated Sites

Site No.	Site	Address	Level of Contamination
S-11	Swept Wing Inn & Office Building/Airport Plaza Hotel & Mogul Garden Restaurant[a]	18601 Pacific Highway South/ International Boulevard [b]	Reasonably predictable
S-12	Liquor Store	18617 Pacific Highway South/ International Boulevard	Reasonably predictable
S-13	Mini-Mart	18615 Pacific Hwy South/ International Boulevard	Reasonably predictable
S-14	Budget Rent-A-Car of WA-OR	2806 South 188th Street	Reasonably predictable
I-4	Kent Highlands Landfill	Military Rd. and SR 516	Reasonably predictable
I-5	Kings Dry Cleaners	23416 Pacific Highway South	Reasonably predictable
I-6	Park of the Pines Church	23458 30th Avenue South	Reasonably predictable
I-7	Midway Auto Body	23454 30th Avenue South	Reasonably predictable
I-9	Murray's Collision Center	23608 30th Avenue South	Reasonably predictable
I-14	Highline Water District	23828 30th Avenue South	Reasonably predictable
I-15	Midway Sewer District	3030 South 240th Street	Reasonably predictable
I-16	King County Housing Authority	South 239th Street and Military Rd.	Reasonably predictable
I-17	City of Kent Pump Station 8	South 240th and 35th Avenue South	Reasonably predictable
I-22	Linda Heights Park Pump Station	3406 South 248th Street	Reasonably predictable
I-23	Gresham Transfer, Inc.	24300 Pacific Highway South	Reasonably predictable
I-27	Midway Landfill	24808 Pacific Highway South	Substantially contaminated
I-34	Circle K Gasoline Station	27121 Military Road S.	Reasonably predictable
I-41	76 Gasoline Station	2535 South 320th Street	Reasonably predictable
I-46	Puget Sound Church of God Holiness	22809 Military Road South	Reasonably predictable
	Residential Displacements	Varies by Alternative	Reasonably predictable

[a] *Property name provided in chronological order, beginning with the oldest available name and ending with the current property name.*
[b] *All known street names provided for the historic and current property addresses.*

Using *Guidelines for Preparing Hazardous Waste Discipline Reports* (WSDOT and FHWA 1997), sites on the list are defined as being reasonably predictable or substantially contaminated. Reasonably predictable means that the site is or is likely to be contaminated, but the cost estimates for cleanup using best engineering methods can be reasonably estimated without sampling. Substantially contaminated includes several categories or types of contamination: (1) the site might have a potential for being contaminated with known or unknown contamination, but further investigation, including limited sampling, needs to be completed before cost estimates can be established; (2) the site is, or potentially might be, so contaminated as to create a substantial cost liability for WSDOT in acquisition or construction. In this case, where sampling reports are not available, limited sampling is necessary to define the type and extent of contamination. Four situations typically fit this latter category of "substantially contaminated:"

- The site area is large.
- The chemical is expensive or difficult to treat.
- There is a long history of industrial usage.
- There is a high potential for impact on groundwater sources.

The six sites identified as "substantially contaminated" include Air Cargo Road at the Sea-Tac Airport (Site S-2); Northwest Airlines Inc. Tank Farm at 18211 Air Cargo Road (Site S-3); Battery Power Systems Inc. at 2367 South 200th Street (Site 2); Helen's Auto Sales at 20848 Pacific Highway South (Site 25); Pacific Auto Brake & Muffler at 20856 Pacific Highway South (Site 26); and Midway Landfill at 20848 Pacific Highway South (Site I-27). Details of these sites and those identified as "reasonably predictable" have been described in the various discipline reports identified in Section 3.13.1.

3.13.3 Environmental Impacts

Alternative A (No Action)

No sites of known or potential contamination would be affected by the No Action Alternative. Associated hazardous waste impacts would be limited to the potential for release of fuel or motor oils from equipment used during routine maintenance of existing roads. Increased future traffic congestion under the No Action Alternative could increase the potential for hazardous materials spills in the area.

Impacts Common to All Build Alternatives

The probability of encountering contamination would be high regardless of the build alternative. The level of involvement with hazardous materials depends on the alternative. Impacts fall into the categories of general construction impacts, impacts on public health, and operational impacts.

These impacts would be similar for all sites, regardless of the build alternative, and are discussed below.

Construction Impacts

General construction impacts would occur regardless of the build alternative. The general types of construction impacts as well as any specific impacts are discussed below.

Building Demolition Debris, Asbestos, and Lead-Based Paint

Each of the build alternatives would require the acquisition of additional commercial and residential properties. In addition to regular building debris from demolition, the acquisition of residential and commercial properties would pose the risk of also acquiring household hazardous waste such as pesticides, fertilizers, solvents, fuels, and leftover lead-based paint. This waste, along with the regular building demolition debris, would need to be removed, tested, and disposed of following state, federal, and local regulations.

The most likely source of asbestos-containing materials would be residences because of the age of the buildings and the common use of asbestos in pre-1978 construction. Materials that often contain asbestos in residential buildings include floor tiles, counter tops, and roofing materials. Commercial buildings can also contain a major level of asbestos contamination, often in association with insulation for the heating and cooling system or gaskets in boilers.

Lead-based paint is resistant to abrasion and commonly found in the paint on door and window jams of residences built prior to 1978. Many commercial buildings might contain lead-based paint, because it was popular for its longevity and resistance to abrasion.

Contaminated Soil

Each of the build alternatives could require acquisition of sites that contain contaminated soil or are adjacent to sites that contain contaminated soil that might have migrated into the proposed roadway right-of-way. Soil contamination in the vicinity of the proposed project could include gas, oil- and diesel-range petroleum hydrocarbon, solvents, and heavy metals (including lead) in the vicinity of automotive service and fueling stations and dry cleaners, as well as potential heating oil contamination at residential and commercial properties. Jet A fuel and possibly AvGas could be encountered in the vicinity of the airport. Municipal solid wastes could be encountered in the soil excavated from Midway Landfill as part of the I-5 improvements.

All of these contaminants require special handling, treatment, and disposal. Contaminated soil must be removed and tested before treatment or disposal at approved facilities.

Contaminated Groundwater

Contaminated groundwater that might be encountered during excavation or during dewatering would require special handling prior to proper disposal. Perched layers of groundwater are common for all the build alternatives. Exposing a perched groundwater layer might create a migratory route for contamination already in the groundwater or surrounding soil, as well as for any contamination that may be introduced into the exposed groundwater.

Worker Protection

Exposure of workers to hazardous wastes would be more likely than exposure to the public because of workers' proximity to hazardous materials and wastes during construction operations. The most common materials that a worker might be exposed to would be petroleum-based products such as fuels and hydraulic fluids. The common routes of exposure would be inhalation, ingestion, and skin contact. Petroleum products could cause damage to the eyes, exposed skin, or lungs. Use of regular personal protective equipment (PPE) and proper hygiene would reduce the risk of exposure. Conveyance pipes containing product (from gas stations, the airport, or other unknown sources) might still be buried along the alternative alignments, creating an exposure risk. Air quality (and associated health concerns) could be affected as a result of disturbing volatile substances during construction.

Encountering unanticipated contamination in both soil and groundwater could expose workers to potential hazardous conditions. Proper training in the use of spill prevention materials and standard operating procedures in the event of a spill from an unanticipated source would be necessary to protect worker health. The most likely source of unknown contamination for this proposed project would be petroleum-based materials and wastes.

Underground Storage Tanks

USTs would create the greatest risk when an unknown tank would be encountered during excavations because of the explosion hazard and the potential of creating a spill if the tank were ruptured. Vapors trapped within the tank might reach explosive limits and cause an explosion when ignited by a spark or some other incendiary device like a cigarette.

Air Quality

Construction activities might affect air quality. Common air contaminants would include dust, vapors, and fire. Dust contaminated with petroleum-based products or other contaminants and petroleum vapors might be released

during large excavations. Dust would create the most likely source of air quality problems for the build alternatives.

Vapors may occur within a confined space during construction of a tunnel or covered structure, depending on the manner of construction. An explosion hazard and a low oxygen hazard exist in these areas if contaminated soil, groundwater, or both are present. An open excavation can also create a hazard similar to a confined space if gases collect in the breathing zone.

Storm and Surface Water Contamination

The most likely risk for storm and surface water contamination would be from runoff from stockpiles and open excavation areas. Additional details are provided in Section 3.6, *Water Quality*.

Public Health Impacts

Public health concerns related to hazardous wastes would fall into two categories: (1) public perceptions of harm, and (2) actual impacts on human health resulting from construction activities. The public has a heightened awareness of potential impacts on health from contaminated sources. Summaries of public complaints contained in Ecology's Environmental Report Tracking System (ERTS) exemplify the public's concerns for health and well-being when real or perceived contamination is involved. A good public relations program is the best way to address this from a public health concern.

Public health impacts from construction would be related to exposure to a release of hazardous materials. A spill of materials brought onsite or encountered during construction, including dust, might expose the public to hazardous substances that pose a health risk. The most likely type of material that might be released would be a petroleum-based product, such as fuels and lubricants. The most likely route of exposure to the public would be through inhalation and direct contact with the skin. Jet A fuel is the most likely hazardous material that would be encountered during construction in the vicinity of Sea-Tac Airport. Jet A fuel is refined kerosene, a hydrocarbon solvent. An uncontrolled burn of petroleum-based products could cause short-term and long-term health effects, especially for people with respiratory and other health problems. Inhalation exposure symptoms range from nausea and loss of muscle coordination to kidney damage.

Another path of exposure would be encountering unknown contamination during construction. The most likely routes of exposure would be through the air and surface water. The greatest danger here would be due to the unknown nature of any contaminants that might be encountered. Spill prevention materials and careful work would be key to preventing a release that might endanger the public.

Operational Impacts

Construction of the proposed project would improve traffic flow in the project area. This would ultimately serve to reduce the risk of accidents, including those involving hazardous substances, thereby decreasing the amount of harmful substances that could enter soil and water resources.

Impacts of hazardous materials and waste from normal operations would primarily be associated with runoff of contaminants entrained in stormwater. Contaminants likely to be in stormwater runoff include fuel, lubricants, heavy metal compounds from tires, and automobile engine coolants such as ethylene glycol. Stormwater and water quality treatment facilities would be designed to collect and retain pollutants from traffic operations. Additional operational impacts might include herbicides used as part of a roadside vegetation management program. Operational impacts related to hazardous waste and water are primarily associated with stormwater quality, and are addressed in Section 3.4, *Water Quality*, of this FEIS.

Alternative B

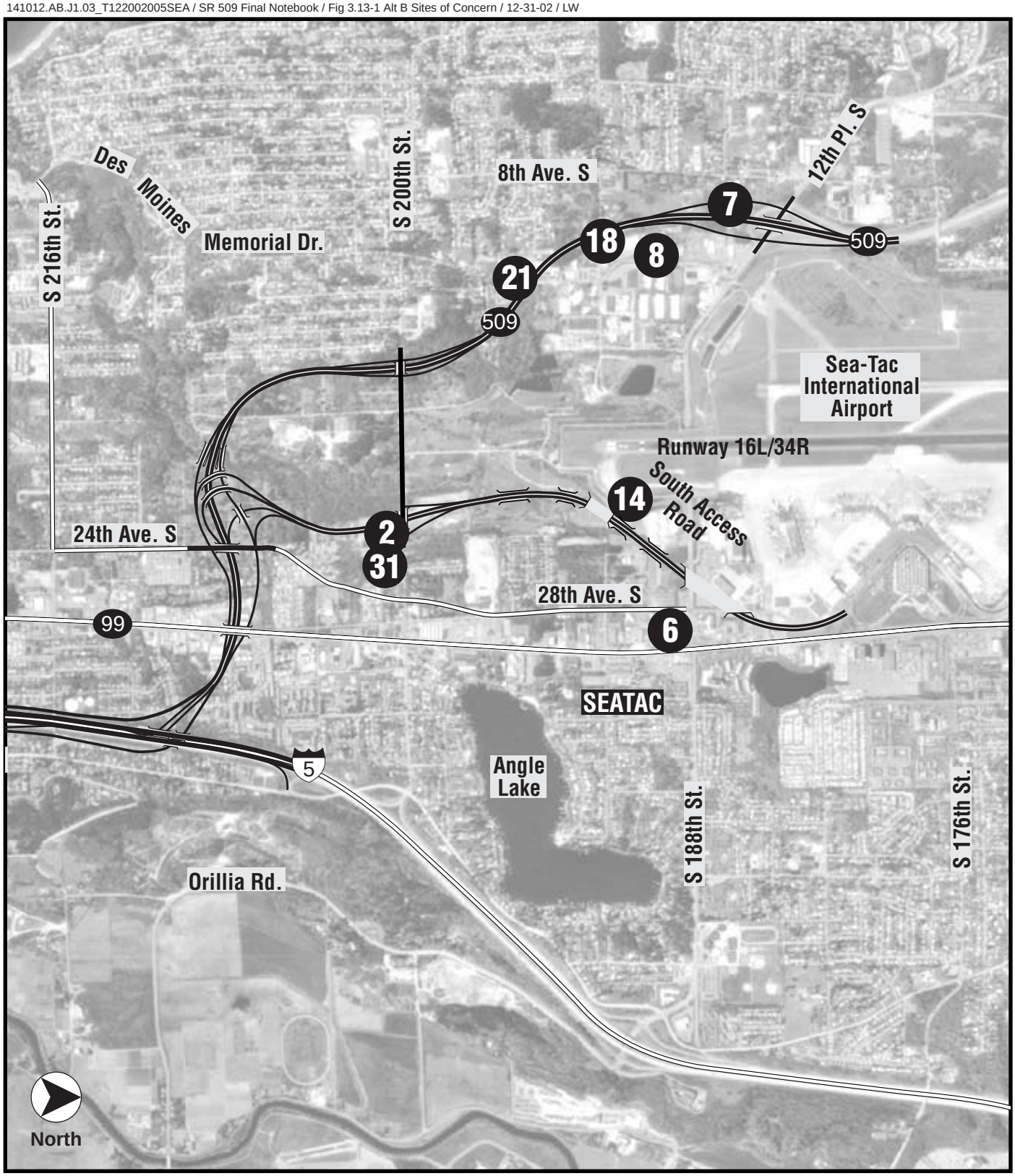
Under Alternative B, a total of 36 known or suspected contaminated sites could be affected by the proposed project. Of these, four sites are considered as substantially contaminated (Sites 2, S-2, S-3, and I-27).

One substantially contaminated site and seven reasonably predictable sites were identified in the vicinity of the SR 509 freeway extension and South Access Road west of South 188th Street. See Figure 3.13-1 for site locations and Table 3.13-1 for site identification. The substantially contaminated property is known as Battery Power System, Inc. (Site 2). This site is located within the proposed right-of-way, and the probability of encountering adverse environmental conditions during construction is high.

The building that formerly housed Battery Power System, Inc. (Site 2), could potentially create a construction liability because of the unknown potential or level of contamination that might exist. No record of soil or groundwater sampling was found to evaluate whether the former or current use is contaminating the area. Based on the site's historic use, contamination could include heavy metals, solvents, and grease and oil. This site would need further evaluation and sampling before construction.

Of the seven reasonably predictable sites, four (Sites 7, 18, 21, and 31) are located within the proposed right-of-way, and the remaining three are adjacent (Sites 6, 8, and 14).

Of the sites located within the proposed right-of-way, Foreman's Welding (Site 7) may be potentially contaminated with heavy metals, oil, grease, and glycol or antifreeze. The WSDOT-owned South 192nd Street property (Site 18) contains a tenant-owned residence. Trespassing and dumping has



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SR 509/South Access Road Improvements

Bridge

33 Potential Hazardous Waste Site

FIGURE 3.13-1

Sites of Concern – Alternative B

SR 509: Corridor Completion/I-5/South Access Road Environmental Impact Statement

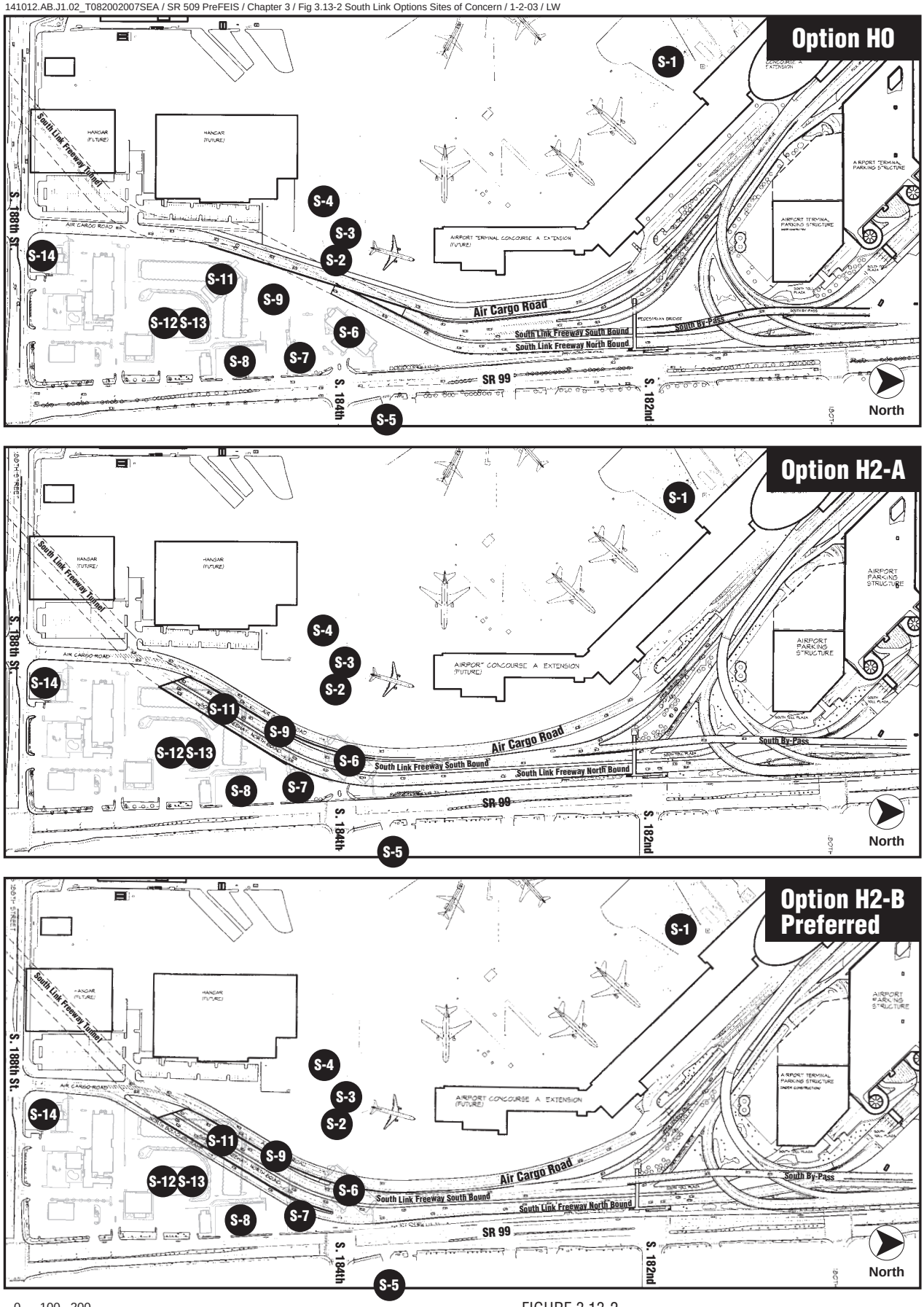
been documented along the northern portion of the property. The most common type of materials dumped on the property is household garbage; however, 55-gallon drums containing unknown materials have also been dumped. Tech-Marine Enterprises (Site 21), located near 19265 Des Moines Memorial Drive, is a machine shop that leases the adjoining WSDOT-owned property for parking. The large machinery parked at the site may have leaked fuels and lubricants. No information was available at Ecology for PAC Center (Site 31). PAC Center consists of an office and warehouse building.

Thirteen sites are located in the vicinity of the South Airport Link (Figure 3.13-2, Table 3.13-1). Two of the sites, known as Northwest Airlines Tank Farm (Site S-2) and Air Cargo Road (Site S-3), are considered substantially contaminated. The remaining 11 sites are considered reasonably predictable. The Northwest Airlines Tank Farm (Site S-2) is located in the proposed right-of-way for Design Option H-0. Air Cargo Road is located in the proposed right-of-way for Design Options H-0, H2-A, and H2-B. Five additional sites (Sites S-6, S-7, S-8, S-9, and S-11) are located in the proposed right-of-way of Design Options H2-A and H2-B.

Construction of the South Airport Link would require a major cut. This cut could potentially affect the Northwest Airlines Tank Farm (Site S-2) (Design Option H-0 only) and Air Cargo Road (S-3). The Northwest Airlines Tank Farm (Site S-2) has TPH contamination from Jet A fuel USTs. Free-floating product was observed in the perched layers of groundwater in the vicinity of the Northwest Airlines Tank Farm at approximately 30 feet bgs. This site is being cleaned up and cleanup might be finished before construction of the South Airport Link begins. Air Cargo Road (Site S-3), which encompasses the southeast corner of the Sea-Tac Airport, except for the area identified as the Northwest Airlines Tank Farm (Site S-2), is also contaminated with petroleum products including Jet A fuel and possibly Av Gas, as well as gas, oil-, and diesel-range petroleum, solvent contamination, and heavy metals (including lead). Extensive cleanups are in progress at this site. Large amounts of soil, both contaminated and uncontaminated would need to be segregated, removed, and disposed of appropriately if the cleanup at the Northwest Airlines Tank Farm and Air Cargo Road sites are not completed prior to construction of the South Airport Link.

The Shell Oil Service Station, also part of the Budget Rent–A-Car of WA-OR on International Boulevard (Site S-8) and the adjacent car rental businesses/Budget Rent-A-Car (Site S-9) reportedly had USTs, which creates a potential for total petroleum hydrocarbons (TPH) contamination.

The West Coast Gateway Hotel (Site S-6) and Airport Plaza Hotel (Site S-11) could have lead paint or asbestos. The West Coast Gateway Hotel (Site S-6) or the Sharp's Roaster and Ale House (Site S-7) could potentially have TPH soil and/or groundwater contamination, but the source would most likely be from offsite (RZA 1989).



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Approx. Scale in Feet

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S-14 Potential Hazardous Waste Site

FIGURE 3.13-2

Sites of Concern – South Airport Link

SR 509: Corridor Completion/I-5/South Access Road Environmental Impact Statement

The Pan Am Fuel Farm (Site S-1) site is the only one listed as having a potential air quality effect because of the methane concentrations found in the soil. This site is adjacent to the proposed project right-of-way, but construction could affect the movement and location of the methane pocket (Landau 1997). One additional site on Port of Seattle property associated with fuel farm contamination is the Delta Fuel Farm (Site S-4). This site is adjacent to the proposed project right-of-way and has extensive cleanups in progress. Sites 12, 13, and 14 are also adjacent to the project right-of-way but are not likely to be impacted by construction.

Construction of the I-5 improvements could require a cut adjacent to or through a portion of the Midway Landfill (Site I-27) (Figure 3.13-3, Table 3.13-1), which is a substantially contaminated site. The Midway Landfill was listed as a National Priority List (NPL) site in 1986 due to contaminated groundwater and air. The Midway Landfill, which operated from 1966 to 1983, was created primarily to accept demolition materials, wood waste, and other slowly decomposing materials, but other industrial wastes were also put in the landfill, including paint sludges, oily wastewater and sludges, alkaline wastes, and coolant. In 1985, combustible gas was detected in structures buried 3,000 feet down from the landfill. Contaminated groundwater was found beyond the landfill boundary.

Known groundwater contamination within the landfill included organic solvents, heavy metals, polychlorinated biphenyls (PCBs), and other organic and inorganic contaminants. In addition, there is potential contamination adjacent to the landfill. This might include contamination from migration of hazardous waste, contaminated groundwater, and/or off-gassing materials from the Midway Landfill into the proposed right-of-way for the I-5 improvements. In September 2000, EPA signed a Record of Decision (ROD) describing the final plan for long-term health and environmental protections at Midway Landfill. Under the ROD, the City of Seattle is required to continue to operate, maintain, and monitor existing environmental systems at the landfill. The City is required to sample groundwater from the site until groundwater cleanup standards have been met.

Because of the proximity of this property to I-5, the landfill's listing as an NPL site, and the potential for groundwater to flow towards I-5, potential impacts on the alignment are considered to be high. The primary problem presented by a cut in this area would be the volume of soil and municipal solid waste, both contaminated and uncontaminated, that would have to be excavated, segregated, removed, and disposed.

Fourteen reasonably predictable sites have been identified in the vicinity of the proposed I-5 corridor improvements. Of these, five sites (Sites I-4, I-5, I-9, I-23, and I-46) are of moderate concern because they are located close to the proposed project but have known impacts on the environment, primarily on groundwater. The remaining nine sites are of low concern because they

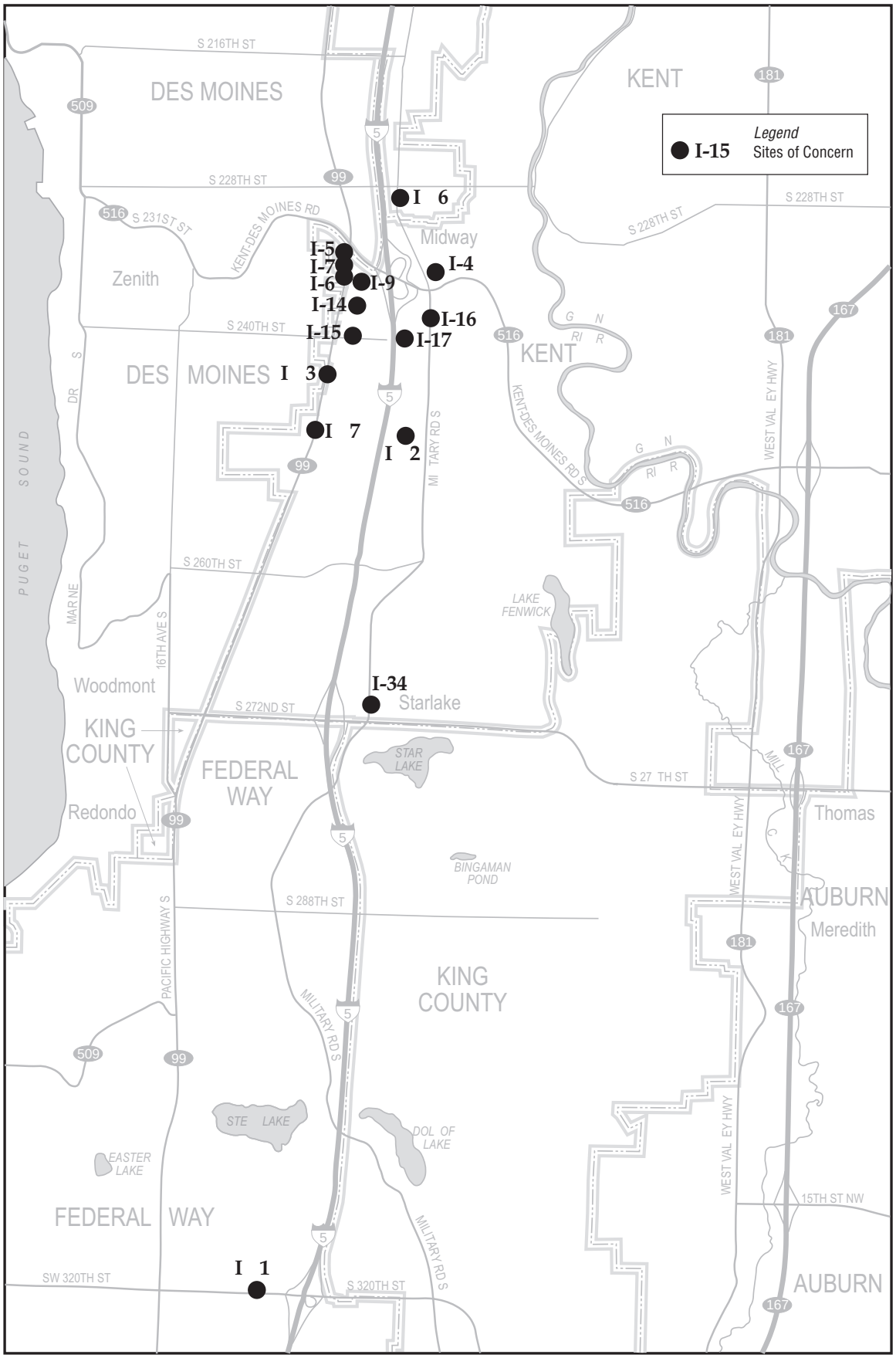

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FIGURE 3.13-3

Sites of Concern – I-5 Corridor

SR 509: Corridor Completion/I-5/South Access Road
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are located at a lower elevation than or downgradient from I-5 or are located at a considerable distance.

Sites that contain contaminated soil or are adjacent to sites that contain contaminated soil that have migrated into the proposed roadway right-of-way could include Kent Highlands Landfill (Site I-4), Kings Dry Cleaners (Site I-5), Midway Auto Body (Site I-7), Gresham Transfer, Inc. (Site I-23), Midway Landfill (Site I-27), and 76 Gasoline Station (Site I-41). Contaminated groundwater is known to be present at each of these sites. Contaminated soil and groundwater encountered during excavation or dewatering would require special handling prior to proper disposal.

USTs present risks should an unknown tank be encountered during excavations because of the explosive hazard and the potential of creating a spill if the tank is ruptured. Fuel storage tanks are known to exist at Midway Auto Body (Site I-7), Circle K Gasoline Station (Site I-34), and 76 Gasoline Station (Site I-41). Heating oil tanks are likely to exist at residential and commercial properties.

Alternative C2 (Preferred)

Under Alternative C2, a total of 40 known or suspected contamination sites could be affected by the proposed project. Of these, four sites are considered as substantially contaminated (Sites 2, S-2, S-3, and I-27). All of these are also affected by Alternative B.

Sites of concern potentially affected by construction of the SR 509 freeway extension and South Access Road (west of South 188th Street) include one substantially contaminated site and seven reasonably predictable sites identified for Alternative B, as well as four additional sites: Alamo Rent-A-Car (Site 29), Unocal #3964 (Site 30), Budget-Rent-A-Car of WA-OR (Site 32), and Gull Service Station #263 (Site 33) (Figure 3.13-4, Table 3.13-1). Each of these four sites is considered reasonably predictable and would likely be located within the proposed roadway right-of-way. These sites have the potential for soil and/or groundwater contamination from existing or previously removed fuel tanks.

Sites of concern that could be affected by construction of the proposed South Airport Link design options and I-5 corridor improvements are the same as described under Alternative B.

Alternative C3

Under Alternative C3, a total of 40 known or suspected contamination sites could be affected by the proposed project. Of these, six sites are considered as substantially contaminated (Sites 2, 25, 26, S-2, S-3, and I-27).

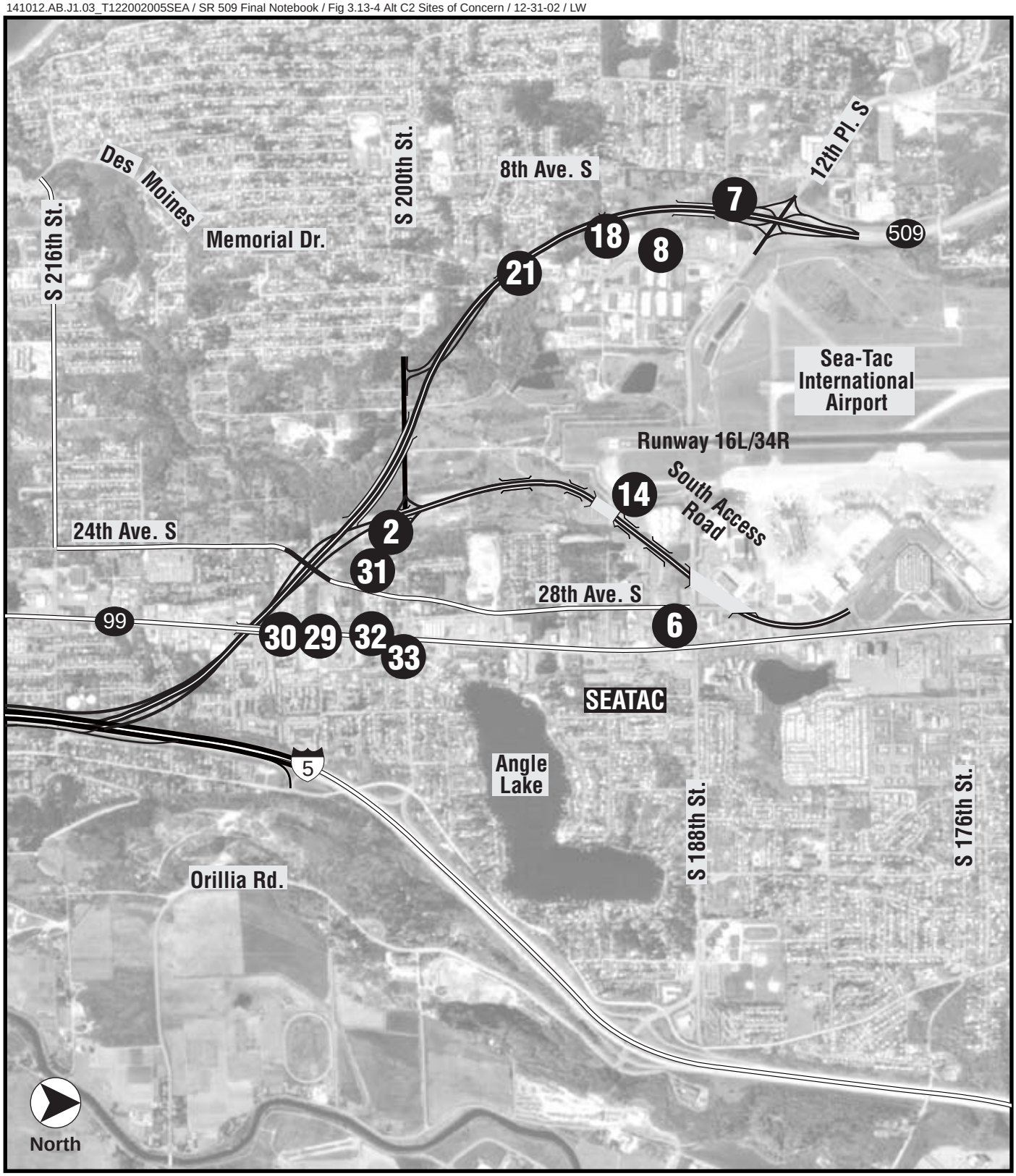


FIGURE 3.13-4

Sites of Concern – Alternative C2 (Preferred)

SR 509: Corridor Completion/I-5/South Access Road Environmental Impact Statement

Sites of concern potentially affected by construction of the SR 509 freeway extension and South Access Road include three substantially contaminated sites: Battery Power Systems, Inc. (Site 2), affected by Alternatives B and C2 as well as Helen's Auto Sales (Site 25) and Pacific Auto Brake and Muffler (Site 26) (Figure 3.13-5, Table 3.13-1). Both pose a risk of encountering unknown USTs and related piping. The three substantially contaminated sites are located within the proposed right-of-way, and the probability of encountering adverse environmental conditions during construction is high. Alternative C3 could affect nine reasonably predictable sites. Five sites (Sites 7, 18, 21, 24, and 28) are located within the proposed right-of-way, and the remaining four sites (Sites 6, 8, 14, and 27) are adjacent.

Sites of concern that could be affected by construction of the proposed the South Airport Link design options and I-5 corridor improvements are the same as described under Alternative B.

3.13.4 Mitigation Measures

By anticipating and carefully planning for potential hazardous waste issues during design and project planning phases, major liabilities can be prevented or minimized. Where avoidance of a site is not possible, mitigation of construction impacts would be implemented. Mitigation for long-term operation impacts, such as contaminants in roadway runoff and accidental spills, are described in Section 3.5, *Water Quality*.

General Mitigation

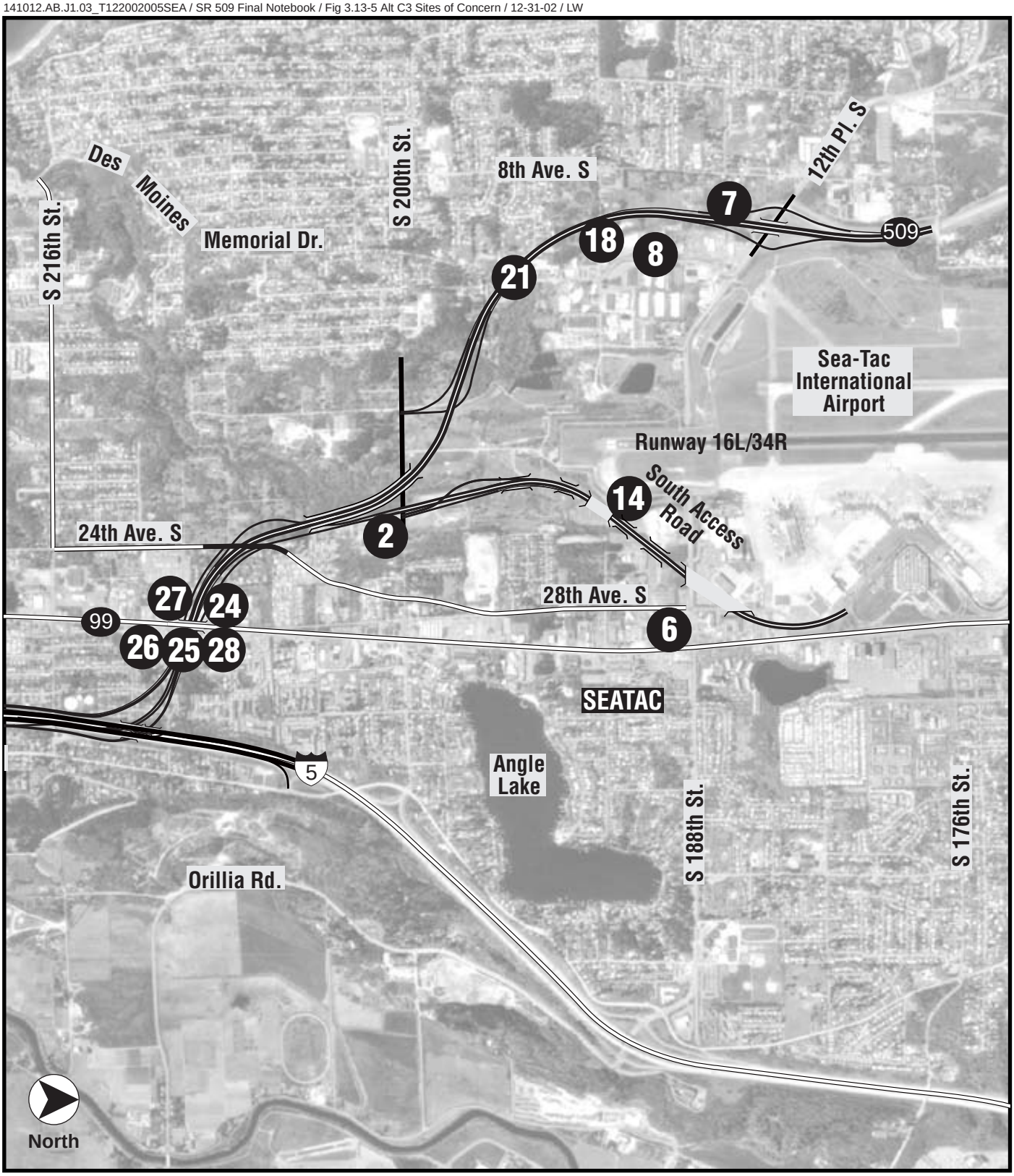
Many construction practices are general and occur whether contamination is present or not. These practices also are important for sites containing hazardous materials. Erosion control and spill prevention planning are two such measures.

Erosion Control

The Erosion Control Plan is an important tool for preventing the erosion of contaminated soil. The plan would be required to address stormwater diversion, use of stormwater conveyance, and covering hazardous waste stockpiles to control erosion of contaminated soils.

Spill Prevention, Containment, and Countermeasures Plan

WSDOT now requires the inclusion of a Spill Prevention, Containment, and Countermeasures (SPCC) Plan specification in all construction contracts. The contractor would use the plan to demonstrate its planning efforts for the prevention and response to spills and emergencies during construction.



0 1/4 1/2 3/4 1 MILES

Legend

SR 509/South Access Road Improvements

Bridge

33 Potential Hazardous Waste Site

FIGURE 3.13-5

Sites of Concern – Alternative C3

SR 509: Corridor Completion/I-5/South Access Road Environmental Impact Statement

The SPPC Plan would be prepared in accordance with WSDOT Standard Specification #1-07.15. The plan would identify staging, storage, maintenance, and refueling areas and their relationship to drainage pathways, waterways, and other sensitive areas. The plan would also address spill prevention and containment, spill response, standby, on-site material and equipment, reporting, program management, and preexisting contamination, if any.

Building Demolition, Asbestos, and Lead-Based Paint

Generation of building demolition debris, asbestos, and lead paint wastes might occur at some sites. Preconstruction investigation and testing would be needed to determine the location and quantity of asbestos and lead-based paint waste so that these wastes could be appropriately abated prior to demolition. In addition, buildings containing lead-based paint would be sampled to determine the appropriate characteristics of the debris for disposal purposes. Mitigation for asbestos containing materials would include removal and disposal of asbestos-containing material prior to demolition.

Underground Storage Tanks

USTs and associated abandoned fuel lines, potentially containing product, are known to exist at a number of sites in the project area. Home heating oil USTs also might exist at residential displacements. Preconstruction planning and surveys to determine the existence of USTs would be essential. Planning would include contracting contingencies for removal and disposal of USTs and any associated contaminated soil.

Contaminated Soil and/or Groundwater Cleanup

Contaminated soil is present at a number of sites in the project area. Mitigation of contaminated soil would include preconstruction planning to define the areas where contaminated soil would be encountered, designing road cuts to minimize the quantity of contaminated soil that must be managed, and implementing viable cleanup alternatives for contaminated soil.

Potential options for mitigation of contaminated soil would include capping to prevent contact, removal followed by disposal or treatment, and determining alternative cleanup levels using *Interim Total Petroleum Hydrocarbon Guidelines* (Ecology 1997).

Contaminated groundwater is known to be present at a number of sites in the project area. Groundwater impacts could occur if dewatering is a necessary part of construction and might create long-term liability associated with property acquisition. Construction activities such as large excavations can create a migratory pathway or change the movement of contamination in the groundwater by introducing new contaminants or changing the hydraulics of

the area. Mitigation of contaminated groundwater impacts could be accomplished by minimizing treatment and discharge for groundwater generated during dewatering activities. An effective way to do this would be to limit excavation activities to low water table seasons.

Worker Protection

Worker protection would be accomplished by proper training of workers in the recognition and handling of hazardous waste and the proper use of PPE and hygiene techniques. The selected contractor would evaluate what level of PPE is required prior to commencing construction activities in known and potentially contaminated areas. Work with contaminated materials might require that cleanup workers comply with Occupational Safety and Health Administration (OSHA) and Washington Industrial Safety and Health Act (WISHA) training regulations.

Air Quality

Potential air quality impacts associated with hazardous materials were identified for some sites in the project area. Preconstruction planning for potential air quality impacts would be essential. The planning would identify situations in which air quality impacts would be anticipated and develop measures to minimize or mitigate those impacts. Sites where contaminated dust could be generated would be monitored and dust suppression measures implemented. Venting with forced air, worker respiratory protection, and strict enforcement of no open flame regulations could be implemented to mitigate impacts from potential accumulations of dangerous or explosive vapors from contaminated soils and groundwater, as well as low oxygen atmospheres during confined space and tunneling activities.

Contamination of Stormwater Runoff

Preventing the contamination of stormwater runoff would be the most effective means of mitigation. At any of the sites where hazardous wastes are identified or anticipated, implementing a program to divert or prevent contact of stormwater with contaminated materials should be identified and implemented. A standard contract specification detailing the preventive actions that would be followed should be included as part of contract required submittals. Detailed descriptions of mitigation measures to prevent contamination of stormwater runoff are presented in Section 3.5, *Water Quality*.

Human Health

Public health and safety impacts would be a concern for all phases of the proposed project. Mitigation of human health impacts could be achieved through implementation of a public awareness program and public relations policies. Information would be provided to local citizen interest groups and

the media regarding programs implemented by WSDOT for hazardous waste protection.

Dust from excavation activities would be a concern because of traffic close to the project area. Access to the construction area would be restricted to construction workers. In addition, WSDOT now requires that the construction contract include a SPCC Plan specification to ensure that proper planning and handling procedures are followed to prevent and respond to a spill or fire. The SPCC would also lay out the planning coordination effort between WSDOT's contractor and the local fire departments, local emergency management, and any other concerned agencies.

Substantially Contaminated Sites

Air Cargo Road and Northwest Airlines Tank Farm

Construction would require a substantial cut through the Air Cargo Road site and Northwest Airlines Tank Farm area. The primary problem presented by these two sites would be the large amount of soil, both contaminated and uncontaminated, that would be segregated, removed, and disposed. Vertical walls would be constructed where feasible to reduce the amount of contaminated and uncontaminated material requiring excavation.

Construction would likely affect the bioremediation system installed at the former Northwest Airlines Tank Farm. Part of the preconstruction planning would include an update of the bioremediation progress to assess whether the contaminated soil adjacent to the site is cleaned up and how construction might affect the bioventing system in place. No further mitigation would be needed if Ecology considered the soil to be clean. However, removal or capping of contaminated soil would likely be the mitigation options available if the site does not bioremediate with the venting system currently in place.

WSDOT would coordinate with Northwest Airlines, the Port of Seattle, and possibly Ecology to ensure that stakeholders consider construction needs in the cleanup of Northwest Airlines USTs and Air Cargo Road. Coordination would be crucial to outline a plan for treatment, disposal, and construction timing to ensure that the independent cleanup of the Northwest Airlines Tank Farm is achieved.

Battery Power Systems, Inc., Building

The building that housed the former Battery Power Systems, Inc., business could potentially create a construction liability for WSDOT due to the unknown potential or level of contamination that may exist. No record of soil or groundwater sampling was found to evaluate whether former or current use is contaminating the area. This site would need further evaluation and sampling before construction.

Helen's Auto Sales and Pacific Auto Brake & Muffler

The properties operated by Helen's Auto Sales and Pacific Auto Brake & Muffler could create construction liability similar to that of the Battery Power Systems, Inc., building due to the unknown potential or level of contamination that might exist. The limited availability of historic information and current condition of the sites would require further investigation and possibly sampling of the properties if Alternative C3 is the chosen alternative.

Midway Landfill

Construction could require a cut through Midway Landfill or potentially contaminated soils adjacent to the landfill. The proposed I-5 improvements would extend 30 feet from the existing western edge of I-5 asphalt pavement. The current landfill cover system (comprised of layers of low permeability clayey silt/silty clay, a 50-mil synthetic membrane, a geonet drainage layer, one foot of sand and one foot of topsoil planted with shallow rooted grass), borders I-5 for approximately 2000 feet. The membrane liner is placed against the concrete barrier asphalt pavement. Refuse (municipal solid waste) is encountered approximately 15 feet from the edge of the membrane liner. As a result, large amount of soil, both contaminated and uncontaminated, would need to be excavated, segregated, removed, and disposed. The membrane liner would need to be repaired. The City of Seattle would be responsible for mitigation related to landfill impacts, including material excavation and disposal, repairs, and utility relocation. Proposed repairs would be approved by Ecology and King County prior to construction.

In addition, a gas extraction system consisting of a series of gas extraction wells (PD series) are located along the perimeter of the landfill cover system 3.5 to 5 feet away from the existing asphalt shoulder of I-5. The gas extraction wells would have to be reconfigured. Furthermore, in the northern portion of the landfill, two parallel 24-inch drainage lines are located less than 20 feet from the edge of the landfill cover. At least one of the drainage lines would need to be reconfigured.

In summary, potential mitigation activities of Midway Landfill resulting from construction activities that would need to be considered include:

- Geotechnical investigations and waste limit investigations
- Construction of a vertical retaining wall
- Odor control during excavation
- Repair of any damage to the existing geomembrane cover system
- Reconfiguration of the existing landfill gas collection system
- Reconfiguration of the existing drainage lines
- Proper disposal of municipal solid waste
- Proper disposal of hazardous waste

- Repair or replacement of any monitoring wells disturbed or removed during construction

Innovative approaches to cleanup and disposal could further reduce the amount of hazardous materials removal before and during construction. For instance, reconfiguration of the waste behind the retaining wall, but within the current footprint of the landfill, might eliminate the need for disposal of municipal solid waste.

sea3-13 haz waste.doc

3.14 Visual Quality

3.14 Visual Quality

3.14.1 Studies and Coordination

This section is based on the *SR 509/South Access Road EIS Discipline Report: Visual Quality* (CH2M HILL June 2000) and *SR 509/South Access Road EIS: I-5 Improvements Report* (CH2M HILL October 2001). Both of these reports are included in this FEIS by reference. This analysis follows the procedure outlined in Visual Impact Assessment for Highway Projects by the FHWA (FHWA 1981).

In brief, visual resource management (VRM) is a systematic approach for assessing visual resources in a project area and using the findings to assess project impacts. While VRM terminology is not uniform, there is general agreement on the broad elements of the major approaches. These approaches consider visual experience to be the product of both visual resources and viewer response. A project such as a highway causes visual resource change that can be measured objectively. Viewer response to this change, although subjective, usually displays broad patterns of consensus. Thus, visual impacts include both landscape change and viewer response to that change.

The visual environment was assessed through field studies, and the principal features were identified. Photographs were taken of views that might be affected by the proposed project. In addition, meetings and personal interviews were held with representatives of the following agencies: City of SeaTac, Department of Planning and Community Development and Public Works Department; City of Des Moines, Public Works Department and Community Development Department; Port of Seattle, Aviation Planning Department; and WSDOT's Northwest Region.

The starting point for visual assessment is to determine the limits of the visual environment (in other words, the project area), which includes considering the regional landscape, the geographical area from which the proposed project may be visible (its viewshed), as well as the specific views that the proposed project is likely to change or create.

3.14.2 Affected Environment

Regional Visual Characteristics

The terrain of the project area is a rolling plateau that extends north to south and is bordered by parallel valleys carved by glacial action and occupied by Puget Sound and the Green River. The plateau generally rises 100 to 300 feet

above the valley floors and the surface of Puget Sound. Most valley walls are moderately steep.

Land use patterns and associated structures relate to the underlying terrain. The flat crest of the plateau is occupied by Sea-Tac Airport. The associated airport terminal and support buildings range from one to four stories in height and are moderate to large in scale. Aviation-related office, hotel, warehouse/ distribution, and industrial uses cluster on the relatively flat ground immediately east and south of the airport and range from one to eight stories in height. The rolling terrain along Des Moines Creek and the gentler valley walls, such as along I-5, are occupied by single-family and multifamily residential uses. The buildings associated with these uses range from one to three stories in height, and their scale ranges from small to moderate. Many of the steeper valley walls support dense greenbelts of primarily deciduous native trees.

Within this regional landscape, scenic views are available from hilltops, plateau edges, valley walls, and shorelines to distant and midground features that include the Cascade Mountains, Mount Rainier, the Olympic Mountains, and Puget Sound and its islands. Local features associated with high-quality foreground views include rock exposures, steep slopes and bluffs, rivers and streams, stands of mature coniferous and deciduous trees, and parks.

Project Visibility

The visual environment that would be affected by a project is limited to the area from which the proposed project would be visible; this area is termed the project viewshed. The project viewshed is also the area that could be seen from the proposed project itself.

Visual Resources

The visual resources in the project area include the following:

- Creeks, sloped areas, wooded areas, and the Tyee Valley Golf Course
- Locations with scenic views to distant features that include Puget Sound, the Olympic Mountains, the Cascade Mountains, and Mount Rainier

Viewers

Identifying the viewers who would see a project and the aspects of the visual environment to which they are most likely to respond is the key to understanding and predicting viewer response to a project's effects on visual resources.

Within the project area, the following are the principal groups likely to view the proposed project and exhibit high viewer sensitivity:

- Persons engaged in recreation at existing sites, including the Tyee Valley Golf Course, Des Moines Creek Park, Angle Lake Park, Barnes Creek Nature Trail, Des Moines Sports Park, Linda Heights Park, and Midway Park

- Residents of predominantly single-family areas, including the existing Manhattan Hill (8th Avenue South/Des Moines Memorial Drive), Maywood (also known as City Center), North Hill, North Central, Grandview, Midway, and East Federal Way

- Residents of neighborhoods combining multifamily and single-family areas, including the existing Mansion Hill, Pacific Ridge, and South Des Moines, as well as an area in Federal Way west of I-5 (The difference from predominantly single-family areas is in viewing conditions: one-story vs. two- to four-story structures and the degree of view obstruction by trees and structures.)

- Parents, teachers, and children at existing schools and associated play-fields (generally located in residential areas and functioning as community parks when schools are out of session)

Viewer groups likely to exhibit moderate- or low-viewer sensitivity are located in other portions of the project area, listed in order of decreasing sensitivity:

- Travelers along the existing arterial streets, highways, and freeways that traverse the project area

- Employees and visitors in existing office and hotel centers along International Boulevard South, particularly in the SeaTac "International Gateway" area along International Boulevard South between South 176th and South 188th streets, and the SeaTac Angle Lake area along 28th Avenue South between South 192nd and South 200th streets

- Employees and visitors in existing commercial, distribution, transportation, and industrial business areas along International Boulevard South, South 188th Street, 12th Place South, and Des Moines Memorial Drive South between 12th Place South and South 194th Street

- Currently vacant areas, planned for future development as airport-related business centers, including the SeaTac Aviation Business Center

- The Port of Seattle is in the process of implementing the Noise Remedy Program for Sea-Tac Airport. As a result, areas along the east, west, and south sides of Des Moines Creek Park are currently vacant, although planning for their redevelopment for more compatible uses is underway. Much of the area west of 28th Avenue South between South 188th and

South 200th streets is also in low-intensity transitional use because the Port of Seattle has acquired it for the SASA.

Key Views of the Proposed Project

Key views have been selected to represent the range of views of the build alternatives within the project area, evaluate the existing visual quality of those views, and assess the visual impacts of these alternatives on the key views. The views generally represent locations at which major viewer groups could be expected to look toward the proposed project and would be likely to see its principal visual effects. The key view locations are listed in Table 3.14-1 and mapped in Figure 3.14-1. (Key view photographs are provided in the Visual Quality Discipline Report (CH2M HILL June 2000) and the *SR 509/South Access Road EIS: I-5 Improvements Report* (CH2M HILL October 2001).

Visual Quality

Evaluating the existing visual quality within the project area provides an indicator of the relative value of visual resources and the importance of potential changes to these resources. Three criteria are used to evaluate the quality of a visual resource: vividness, intactness, and unity. Vividness is the memorability of landscape components as they combine in striking and distinctive visual patterns. Intactness is the visual integrity of the natural and human landscape and its freedom from encroaching elements. Unity is the visual coherence and compositional harmony of the landscape considered as a whole (FHWA 1981). The usefulness of these evaluative criteria are that they can help to identify mitigation measures and assess their relative effectiveness.

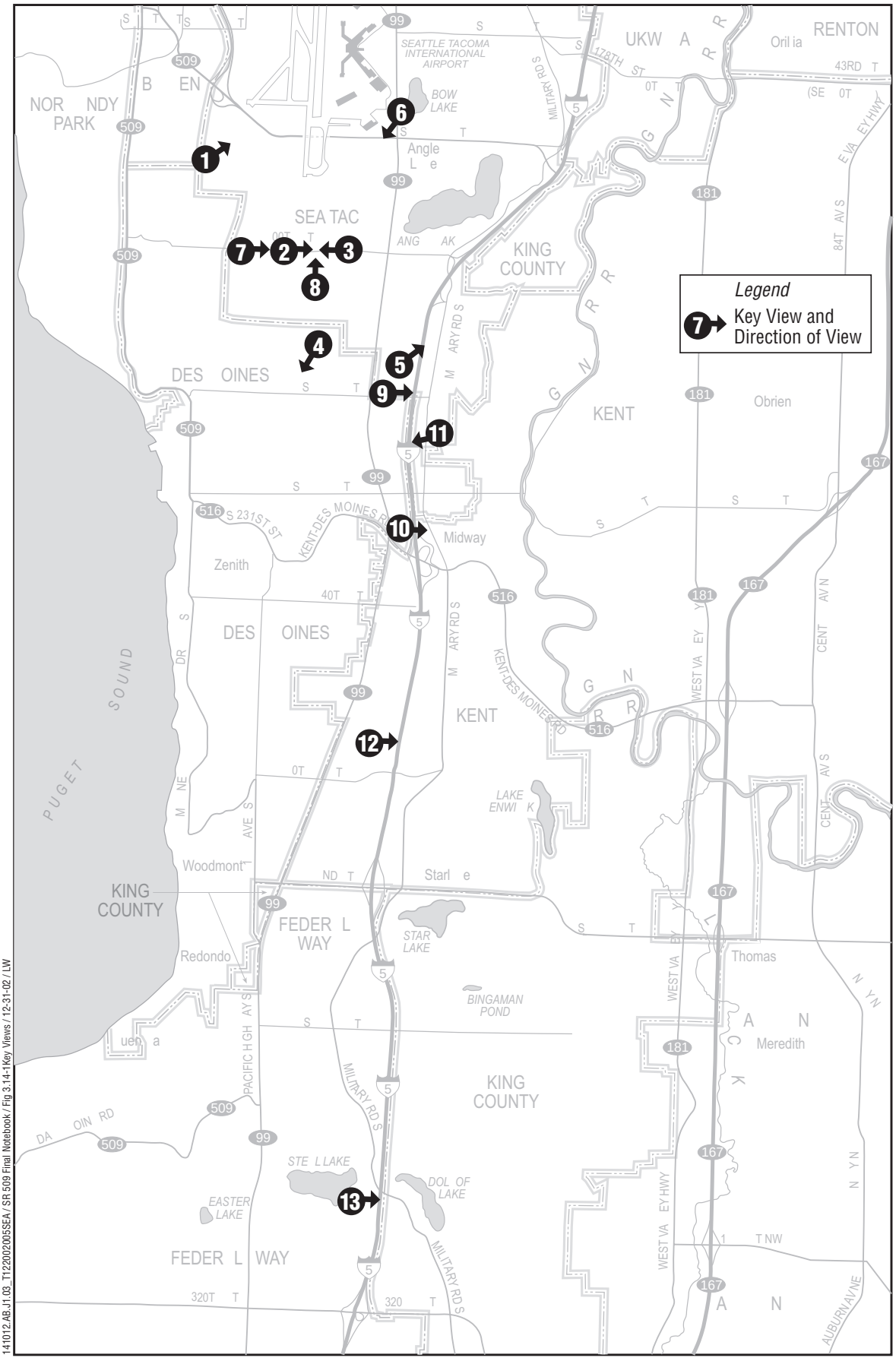
The visual quality rating for each key view is based on the evaluative criteria of vividness, intactness, and unity. The Visual Quality Discipline Report and the I-5 Improvements Report (CH2M HILL June 2000 and October 2001) document in detail those ratings.

Landscape Units

To facilitate the description and analysis of the visual environment likely to be affected by the proposed project alternatives, the foreground landscapes along the route alternatives have been grouped into landscape units having similar visual resource characteristics. These landscape units are described in Table 3.14-2 below and are shown in Figure 3.14-2.

Figure 3.14-2 also characterizes the landscape units in terms of the RCP adopted by WSDOT (WSDOT 1996). The following are the three roadside classifications that appear to coincide with the types of visual character that presently exist within the project area:

Table 3.14-1 Key Views of the Proposed Project			
Key View	**Location**	**Direction**	**Distance**
1	South 192nd Street at Prince of Peace Church parking lot	Northeast	Foreground, Middle ground, Background
2	South 200th Street at Hillgrove Cemetery	East	Foreground, Middle ground
3	South 200th Street and 26th Avenue South	West	Foreground, Middle ground
4	Des Moines Creek Trail	Northeast	Foreground
5	South 211th Street and 32nd Avenue South	Northeast	Foreground, Middle ground
6	South 182nd Street and International Boulevard South	Southwest	Foreground
7	South 200th Street and 14th Avenue South	East	Foreground, Middle ground
8	South 200th Street at Des Moines Creek Trailhead	North	Foreground, Middle ground
9	South 212th Street and 31st Avenue South	East	Foreground, Middle ground
10	Kent-Des Moines Road to South 216th Street	East	Foreground, Middle ground, Background
11	South 216th Street to South 228th Street	West	
12	South 260th Street to South 252nd Street	East	Foreground
13	South 310th Street to South 298th Street	East	Foreground, Middle ground



1410 12.AB.J1.03_T122002005SEA / SR 509 Final Notebook / Fig 3.14-1Key Views / 12-31-02 / LW

0 1900 3800
Scale in Feet

North

FIGURE 3.14-1

Key Views of the Proposed Project

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1

Table 3.14-2 Landscape Units			
Landscape Unit No.	**Name and Key View**	**Visual Resources**	**Viewers**
1	Manhattan Hill; Key View 1	East-facing hillside with intermittent views to Cascade Mountains; mature coniferous trees; established single-family residential neighborhood and airport-related industrial development on lower slopes; Des Moines Memorial Drive South (tree-lined historic route); existing visual quality is moderate	Low numbers of residential viewers with high viewer sensitivity, but exposure to east limited by dense tree cover
2	Maywood; Key View 7	Saddle along Des Moines Memorial Drive South, with internal views; mature coniferous trees; established single-family residential neighborhood and eastern portion acquired by Sea-Tac Airport Noise Remedy Program; existing visual quality is moderate	Moderate numbers of residential viewers with high viewer sensitivity, but exposure to mid-ground and distant views obstructed by terrain and dense tree cover
5	Upper Des Moines Creek; Key Views 2 and 8	Moderately broad stream valley with internal views; wooded slopes, bottomland meadows, and riparian trees; Tyee Valley Golf Course and Des Moines Creek Park and Trail; existing visual quality is moderately high to high	Moderate numbers of recreational users with high viewer sensitivity and high viewer exposure to foreground and midground views (trail development in the City of Des Moines with connection to Puget Sound will increase user numbers; City of SeaTac also proposes future extension of Trail to north, across South 200th Street and west of Sea-Tac Airport)
6	Lower Des Moines Creek; Key View 4	Narrow stream valley with internal views of steep wooded slopes and stream; Des Moines Creek Park and Trail; existing visual quality is high	Moderate numbers of recreational users with high viewer sensitivity and high viewer exposure to foreground and midground views (trail development in the City of Des Moines will increase numbers)
8	SeaTac Center; Key View 6	Gentle east-facing slope of Bow Lake basin with internal views; street trees and ornamental plantings along International Boulevard South (SR 99); massive airport terminal on west side of boulevard faced by large, multistory hotel and office structures, which are replacing remaining small commercial buildings; existing visual quality is moderate	High numbers of visitors and employees with moderate viewer sensitivity and high viewer exposure to foreground views

Table 3.14-2 Landscape Units			
Landscape Unit No.	**Name and Key View**	**Visual Resources**	**Viewers**
9	West Angle Lake; Key View 3	Gentle ridgetop with views east to Angle Lake basin and west to Des Moines Creek valley; street trees and ornamental plantings along International Boulevard South; remnant residential plantings within area acquired for the future SASA along west side of 28th Avenue South; large, multistory hotel and office structures (including the Federal Detention Center just to the left of the key view) are replacing remaining small commercial buildings along SR 99; one- to three-story multifamily residential buildings along I-5 buffered by strip of mature coniferous trees; existing visual quality ranges from moderate (most views) to moderately high (views from edge of plateau)	Moderate numbers of visitors and employees with moderate viewer sensitivity and viewer exposure limited to foreground views except along edge of plateau; moderate numbers of residential viewers with high viewer sensitivity in multifamily portion of unit, but exposure is limited to foreground views
10	South 208th Street Draw; Key View 5	Saddle that interrupts ridgetop and drains west to Des Moines Creek with internal views; mature coniferous and deciduous trees in undeveloped portion of unit east of SR 99 and along I-5; office and hotel structures appear to be replacing remaining small commercial and industrial buildings along SR 99; large mobile home community west of SR 99; existing visual quality is moderate (most views) to moderately low (views along older commercial sections of SR 99)	Moderate numbers of visitors and employees with moderate viewer sensitivity and viewer exposure limited to foreground views except along filled portion of SR 99 at center of draw; moderate numbers of residential viewers with high viewer sensitivity in mobile-home portion of unit, but exposure is limited to foreground views
11	Mansion Hill; Key Views 5 and 9	Gentle ridgetop with views on west slope over SR 99 to Olympic Mountains; mature trees in established single-family neighborhood between SR 99 and I-5 buffered by strip of mature coniferous trees; existing visual quality ranges from moderate (most views) to moderately high (distant views from western slope)	Moderate numbers of residential viewers with high viewer sensitivity in single-family portion of unit, but exposure is generally limited to foreground views
12	Midway Ridge; Key Views 5, 10, and 11	Gentle ridgetop with views on west slope over SR 99 to Olympic Mountains; commercial uses along SR 99; mixed multifamily and single-family neighborhood between SR 99 and I-5, buffered by mature trees from both roadways; existing visual quality ranges from moderate (most views) to moderately high (distant views from multifamily buildings on western slope)	Moderate numbers of residential viewers with high viewer sensitivity in mixed multifamily and single-family housing, but exposure to existing roadways is generally limited to foreground views

Table 3.14-2 Landscape Units			
Landscape Unit No.	**Name and Key View**	**Visual Resources**	**Viewers**
13	Des Moines Creek Terrace; no key view	Relatively level terrace along 24th Avenue South, above Des Moines Creek Park with internal views; western portion acquired by airport noise remedy program, fenced and currently vacant, with dense stands of deciduous trees; eastern portion contains mixed residential neighborhood; existing visual quality is moderate	Low numbers of residential viewers with high viewer sensitivity in residential portion of unit, but exposure is generally limited to foreground views by dense tree cover and closure of much of the area to the public
14	Midway Terrace; no key view	Relatively level terrace along 24th Avenue South, above Barnes Creek, with internal views; mature coniferous and deciduous trees; established single-and multifamily residential neighborhood with schools and playfields; existing visual quality is moderate	Moderate numbers of residential viewers with high viewer sensitivity, but exposure is generally limited to foreground views by terrain and tree cover
15	I-5 East Key Views 12 and 13	Rolling topography with few ridgetop views; mature coniferous and deciduous trees; established single- and multifamily residential neighborhoods with schools and playfields; existing visual quality is moderate	Moderate numbers of residential viewers with high viewer sensitivity, but exposure is generally limited to foreground views by terrain and tree cover

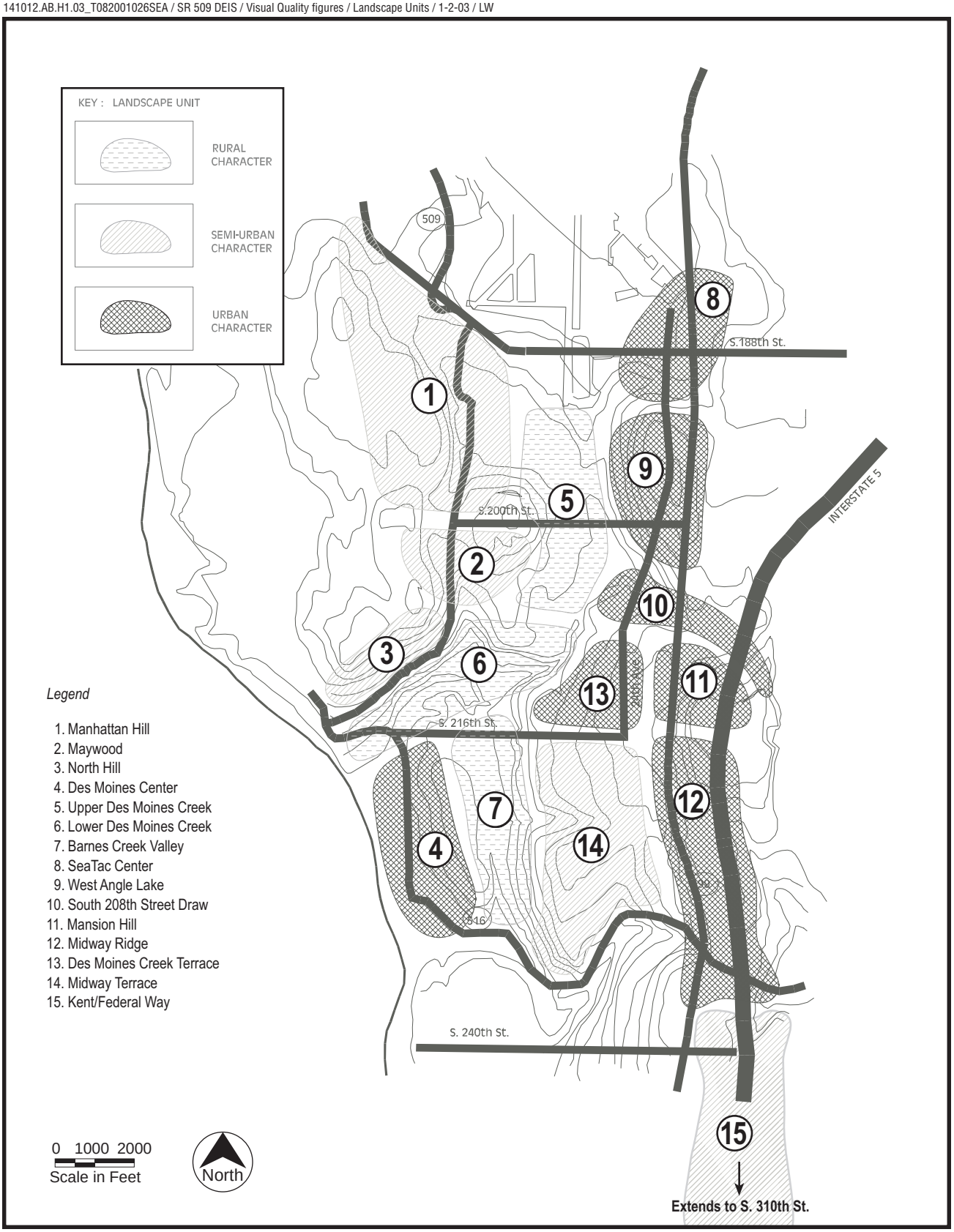

FIGURE 3.14-2

Landscape Units

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement

- Rural, characterized by natural-appearing landforms and vegetation that is predominantly native
- Semiurban landscapes that are transitional in character, with vegetation comprising a combination of native and nonnative species
- Urban, characterized by the predominance of buildings and other development and vegetation that is predominantly nonnative (ornamental) tree, shrubs, and ground cover, with remnants of native vegetation

Much of the project area appears rural and semiurban from the ground because of the amount of tree cover, although the amount of existing development revealed in aerial views could be considered urban.

3.14.3 Environmental Impacts

Project Features

The visibility and appearance of the proposed project build alternatives would be determined by the location and size of project facilities in relation to the adjoining topography, vegetation, and existing human development. Broadly speaking, the build alternatives have eight major visual components: (1) the cleared right-of-way in which the roadway and associated facilities are located, (2) the vertical roadway profile (elevated, surface, or depressed) in relation to existing topography, (3) grading, including cuts, fills, and surface drainage systems and basins, (4) bridges and major architectural elements such as retaining walls, (5) the extent of paved surface (travel lanes and shoulders), (6) roadside appurtenances such as noise walls, impact barriers and attenuators, and directional signs, (7) roadway lighting including standards (poles) and luminaires (light fixtures), and (8) roadside planting.

At the time of writing, preliminary engineering studies were underway, and a number of project design features had not yet been resolved. To complete the preliminary visual impact assessment, the preparers have made the following assumptions about project design:

- Right-of-way acquisition would sufficiently accommodate the grading of cuts and fills to finished slopes averaging 4:1 horizontal to vertical proportions, except where preliminary right-of-way limits indicate otherwise; retaining walls are assumed in these locations, with remaining slopes at 4:1.
- The typical project bridge design would be prefabricated girders supported on concrete bents and piers; retaining structures would be vertical concrete walls.

- The extent of paved surface would be limited to travel lanes and shoulders, with the widths described in the *Description of Project Alternatives* section of this FEIS (Chapter 2); improvements to South 200th Street, as a result of the project; and the bike path, under Alternative C2 and possibly Alternative C3, would be paved.

- Impact barriers would be provided along the outer edges of all elevated structures, and barriers or guardrails would be provided in areas of high, steep fills.

- Noise walls would be provided along portions of the alignment as determined by WSDOT.

- Roadway lighting would be provided only at proposed project intersections and interchanges.

- Roadside planting would be limited to seeding necessary for slope stabilization and erosion control, without permanent irrigation systems.

Alternative A (No Action)

The visual resources of the project area would not change under the No Action Alternative; therefore, there would be no impacts to the visual environment.

Impacts Common to All Build Alternatives

Existing visual resources could be affected at several levels. First, they might add, alter, or remove some of the visible features that compose the basic visual resources of the landscape. Second, the build alternatives may change the visual character of existing resources and the quality of the views these resources compose. Visual impacts associated with operation of the SR 509/South Access Road Project could also include views of moving traffic and headlight glare.

Alternative B

Visual Resource and Quality Change

Table 3.14-3 summarizes the visual resource change that would be caused by the proposed project in the key views from which Alternative B would be visible. The table also indicates whether the change in quality would be low, moderate, or high. Of the eleven views affected by Alternative B, two views would experience a low level of change, five a moderate level, and four a high level. The four key views with a high level of change are Key View 4

1

Table 3.14-3
Visual Resource and Level of Quality Change, Alternative B

Key View/Level of Quality Change	Modification of Landform	Removal of Vegetation	Introduction of Manmade Structures	View Obstruction	Light and Glare	Shading
1/Low (South 192nd Street at Prince of Peace Church parking lot)	SR 509: roadway berm (fill) and transition to cut between existing warehouses and office complex under construction on right (south) edge of immediate foreground South Access Road: most grading not visible (in valley behind and below main runway)	SR 509: removal of trees along Des Moines Way South, beyond office complex under construction on left (north) edge of immediate foreground South Access Road: removal of midground trees on hillside and skyline to east of Des Moines Creek valley (behind main runway)	SR 509: overpass bridge at 12th Place S; luminaires for intersection lighting; directional signs	SR 509: no scenic elements obstructed (project features all below midground skyline) South Access Road: same	SR 509: unlikely (top of luminaires below eye level) South Access Road: same	No shading of scenic resources or sensitive viewing areas is likely
2/Moderate (South 200th Street near 18th Avenue South)	South Access Road: midground cut on east side of Des Moines Creek valley South 200th Street: widen to 3 to 5 lanes (varies)	South Access Road: removal of midground trees on hillside and skyline on left side of South 200th Street South 200th Street: removal of foreground trees in valley for roadway widening	South Access Road: retaining walls likely below the SASA and Federal Detention Center South 200th Street: midground overpass, South Access Road ramps, widen to three to five lanes (varies), and luminaires	South Access Road: no scenic elements obstructed (project features all below midground skyline) South 200th Street: same	South Access Road: possible glare from luminaires at intersection with South 200th Street	No shading of scenic resources or sensitive viewing areas is likely

Table 3.14-3 Visual Resource and Level of Quality Change, Alternative B						
Key View/Level of Quality Change	**Modification of Landform**	**Removal of Vegetation**	**Introduction of Manmade Structures**	**View Obstruction**	**Light and Glare**	**Shading**
3/Moderate (South 200th Street & 26th Avenue South)	SR 509: screened by trees on intermediate ridge South Access Road: foreground cut on east side of Des Moines Creek valley South 200th Street: widen to three to five lanes (varies)	SR 509: screened by trees on intermediate ridge South Access Road: removal of foreground trees on both sides of downhill section of South 200th Street South 200th Street: remove trees in valley for roadway widening	SR 509: screened by trees on intermediate ridge South Access Road: removal of buildings in left foreground, retaining walls likely below the SASA and Federal Detention Center South 200th Street: overpass, northbound ramps to South Access Road, widening to five lanes, and luminaires	SR 509: no scenic elements obstructed South Access Road: no scenic elements obstructed (project features all below South 200th Street)	SR 509: screened by trees on intermediate ridge South Access Road: possible glare from luminaires at intersection with South 200th Street	No shading of scenic resources or sensitive viewing areas is likely
4/High (Des Moines Creek Trail)	SR 509: some grading or other disturbance of foreground valley walls for bridge abutments, piers and drainage South Access Road: not visible in this view	Possible removal of foreground trees during bridge construction; possible preclusion of regrowth due to rainfall interception	Two bridge structures for SR 509 and access ramps to 24th Avenue South	Partial obstruction of view of valley walls		Increased shading of trail and creek valley, rainfall interception

Table 3.14-3 Visual Resource and Level of Quality Change, Alternative B						
Key View/Level of Quality Change	**Modification of Landform**	**Removal of Vegetation**	**Introduction of Manmade Structures**	**View Obstruction**	**Light and Glare**	**Shading**
5/High (South 211th Street and 32nd Avenue South)	SR 509: cut for ramps to I-5	Removal of mature foreground trees (residential plantings and I-5 roadside buffer)	Possible removal of foreground house and other neighboring homes and multifamily residences; exposure of I-5, SR 509 ramps, and HOV flyover ramp; or noise walls	Exposure to unattractive views of I-5	Possible headlight glare from I-5 and SR 509 traffic No roadway lighting likely	No shading of scenic resources or sensitive viewing areas is likely
6/Low (18200 International Boulevard South)	South Access Road: highway berm steepened and closer to International Boulevard South	Possible removal of existing mature roadside trees	Possible introduction of retaining walls and overpass to North Access Road Future Light Rail Transit alignment may be added to view	No obstruction of scenic resources likely Future Light Rail Transit alignment may obstruct view of South Access Road	Incremental impact (if any roadway lighting added) due to existing lighting along International Boulevard South	No shading of scenic resources or sensitive viewing areas is likely
7/Moderate (South 200th Street and 14th Avenue South)	SR 509: landform modification not visible (beyond crest of South 200th Street) South 200th Street: widen to at least four lanes beyond foreground intersection	SR 509: removal of existing trees visible beyond crest of South 200th Street South 200th Street: removal of trees on left for roadway widening	No highway structures visible	No obstruction of scenic resources likely	SR 509: no additional lighting	No shading of scenic resources or sensitive viewing areas is likely
10/High (Kent-Des Moines Road to South 216th Street)	Cut for interchange off-ramps, collector/distributor lanes, and underpass	Removal of mature vegetation	Construction of additional lanes and underpass, and possible installation of a noise barrier*	No obstruction of scenic resources likely	Light and glare impacts unlikely (top of luminaires below eye level)	No shading of scenic resources or sensitive viewing areas is likely

Table 3.14-3
Visual Resource and Level of Quality Change, Alternative B

Key View/Level of Quality Change	Modification of Landform	Removal of Vegetation	Introduction of Manmade Structures	View Obstruction	Light and Glare	Shading
11/High (South 216th Street to South 228th Street)	Cut for ramps to I-5 and collector/distributor lanes	Removal of mature vegetation	Construction of additional lanes; removal of foreground residences; exposure of I-5; and possible installation of noise barrier*	No obstruction of scenic resources likely	Minor light and glare impacts possible	No shading of scenic resources or sensitive viewing areas is likely
12/Moderate (South 260th Street to South 252nd Street)	No modification to landforms identified	Removal of mature vegetation	Construction of additional lanes and possible installation of noise barrier*	No obstruction of scenic resources likely	Minor light and glare impacts possible	No shading of scenic resources or sensitive viewing areas is likely
13/Moderate (South 310th Street to South 298th Street)	No modification to landforms identified	Removal of some mature vegetation	Construction of additional lane and possible installation of noise barrier*	No obstruction of scenic resources likely	Minor light and glare impacts possible	No shading of scenic resources or sensitive viewing areas is likely

* *Noise barrier proposed as mitigation (*see Section 3.2, *Noise)*

(Des Moines Creek Trail), Key View 5 (South 211th Street and 32nd Avenue South), Key View 10 (Kent-Des Moines Road to South 216th Street), and Key View 11 (South 216th Street to South 228th Street).

Viewer Response

Table 3.14-4 indicates the likely degree of viewer response to adverse visual impacts on a scale ranging from high to low, based on viewer sensitivity and exposure. High-sensitivity viewer groups are considered likely to have a high response to visual alteration, whether their exposure is high or moderate. Viewer response would be high at Key Views 1, 4, 5, 10, and 11.

Visual Impacts (View of the Road)

The visual impacts of a project result from two phenomena: physical changes to the visual environment and viewer response to those changes. To determine the visual impact of a key view, the level of visual quality change and viewer response ratings were averaged. The results of this averaging are shown in Table 3.14-5. Alternative B would have high level of impact on Key Views 4, 5, 10, and 11.

In addition, Table 3.14-5 ranks the alternatives in terms of overall visual impacts on the view of the road by assigning 7 points to impacts rated as high, 5 to medium impacts, and 3 to low impacts, and then summing and averaging the ratings. The selection of the values 3, 5, and 7 to represent the ratings is arbitrary. The ratings could be 1, 2, and 3, and the resulting ranking would still be the same: Alternatives B would have slightly less visual impact than Alternative C2, which would have the greatest visual impact of all the alternatives.

Table 3.14-6 summarizes the visual impacts of Alternative B on the view of the road in terms of the landscape units from which each alternative would be visible. The visual impact ratings in Table 3.14-6 have been generalized from the visual impact ratings for the key views presented in Table 3.14-5 to the entire landscape units based on the degree to which affected visual resources and viewing conditions within the units are similar to those represented in the key views. In some instances where the landscape unit encompasses additional viewers with responses differing from those at the key view, the visual impact at the landscape unit may differ.

Visual Experience (View from the Road)

The relative quality of the visual experience afforded by the project build alternatives is an important consideration in project design. One of the project objectives is to "support local and regional comprehensive planning and development," and consistency with those efforts requires visual quality within the proposed project. For example, the Community Image Background Report included in the SeaTac Comprehensive Plan (City of SeaTac 1994 with 1999 updates) includes recommended actions to "work with Washington State Department of Transportation to preserve and enhance greenbelts

within the highway right-of-way" (Action 2B, page A6-10) and to "upgrade visual qualities" and "include visual enhancement in all road improvement projects, such as the SR 509 extension" (Action 3B, page A6-12).

Table 3.14-4
Viewer Response—Key Views

Key View	Alternative B	Alternative C2	Alternative C3
1 (South 192nd Street at Prince of Peace Church)	High	High	High
2 (South 200th Street at Hillgrove Cemetery)	Moderate	Moderate	Moderate
3 (South 200th Street and 26th Avenue South)	Moderate	Moderate	Moderate
4 (Des Moines Creek Trail)	High	None	None
5 (South 211th Street and 32nd Avenue South)	High	None	None
6 (South 182nd Street and International Blvd. South)	Moderate	Moderate	Moderate
7 (South 200th Street and 14th Avenue South)	Moderate	None	None
8 (South 200th Street at Des Moines Creek Trailhead)	None	High	High
9 (South 212th Street and 31st Avenue South)	None	High	High
10 (Kent-Des Moines Road to South 216th Street)	High	High	High
11 (South 216th Street to South 228th Street)	High	High	High
12 (South 260th Street to South 252nd Street)	Moderate	Moderate	Moderate
13 (South 310th Street to South 298th Street)	Low	Low	Low

Table 3.14-5
Visual Impact Rating* and Ranking—Key Views

Key View[b]	Alternative B		Alternative C2		Alternative C3	
1 (South 192nd Street at Prince of Peace Church)	Moderate	5	Moderate	5	Moderate	5
2 (South 200th Street at Hillgrove Cemetery)	Moderate	5	High	7	Moderate	5
3 (South 200th Street and 26th Avenue South)	Moderate	5	High	7	Moderate	5
4 (Des Moines Creek Trail)	High	7	None	0	None	0
5 (South 211th Street and 32nd Avenue South)	High	7	None	0	None	0
6 (South 182nd Street and International Blvd. South)	Low	3	Low	3	Low	3
7 (South 200th Street and 14th Avenue South)	Moderate	5	None	0	None	0
8 (South 200th Street at Des Moines Creek Trailhead)	None	0	High	7	High	7
9 (South 212th Street and 31st Avenue South)	None	0	High	7	Moderate	5
10 (Kent-Des Moines Road to South 216th Street)	High	7	High	7	High	7
11 (South 216th Street to South 228th Street)	High	7	High	7	High	7
12 (South 260th Street to South 252nd Street)	Moderate	5	Moderate	5	Moderate	5
13 (South 310th Street to South 298th Street)	Moderate	5	Moderate	5	Moderate	5
Average		5.55		6.0		5.4
Ranking		2		1		3

**The visual impact rating is an intersection of the visual quality change rating and the viewer response rating based on the following table:*

Visual Quality Change	Viewer Response H	M	L
H	H	H	M
M	H	M	L
L	M	L	L

Viewer response ratings are presented in Table 3.14-4 for all alternatives. Visual quality change ratings are presented n Tables 3.14-3, 3.14-7, and 3.14-9 for Alternatives B, C2, and C3, respectively.

Table 3.14-6 Visual Impacts, Alternative B: View of the Road			
Landscape Unit	**Representative View(s)**	**Generalized Visual Impact Rating***	**Visual Impacts**
1	Manhattan Hill; Key View 1	Moderate	Foreground views of SR 509 (including 12th Place South interchange) with associated cut slopes and tree clearing, seen by low numbers of residential viewers with high viewer sensitivity
2	Maywood; Key View 7	Moderate	Foreground views of widened South 200th Street at 14th Avenue South and SR 509 and associated cut slopes and tree clearing behind houses along 15th Avenue South, seen by moderate numbers of residential viewers with high viewer sensitivity
5	Upper Des Moines Creek; Key View 2	Moderate	Foreground views of widened South 200th Street at Des Moines Creek Park entry and trailhead parking lot, seen by moderate numbers of recreational users with high viewer sensitivity City of SeaTac proposes future extension of Des Moines Creek Trail to the north, across South 200th Street
6	Lower Des Moines Creek; Key View 4A	High	Foreground and overhead views of bridge structures for SR 509 and ramps, with associated grading, removal of trees, shading, and interruption of visual continuity of scenic narrow stream valley, seen by moderate numbers of recreational users with high viewer sensitivity
8	SeaTac Center; Key View 6	Low	Foreground views of widened South Access Road, with associated steeper slope, loss of existing trees and landscaping, and new overpass, seen by high numbers of visitors and employees with moderate viewer sensitivity; views of project may be partially obstructed by first phase of the Sound Transit Central Light Rail Transit project
9	West Angle Lake; Key View 3	Moderate	Foreground views of South Access Road with associated cut slopes, retaining walls and tree clearing, as well as widened South 200th Street with associated tree clearing in valley bottom and Des Moines Creek Park entry, seen by moderate numbers of visitors and employees with moderate viewer sensitivity Foreground views of noise walls along SR 509 and ramps between SR 99 and I-5, seen by moderate numbers of residential viewers with high viewer sensitivity in multifamily housing

Table 3.14-6 Visual Impacts, Alternative B: View of the Road			
Landscape Unit	**Representative View(s)**	**Generalized Visual Impact Rating***	**Visual Impacts**
10	South 208th Street Draw; Key View 5	High	Foreground views of noise walls along SR 509 and South Access Road west of SR 99, seen by high numbers of residential viewers with high viewer sensitivity in mobile home park (although much of the remaining mobile home park may be removed by the 28th/24th Avenue South project and/or the Port of Seattle Noise Remedy Program). Foreground views of tree clearing and noise walls along SR 509 and ramps between SR 99 and I-5, seen by moderate numbers of residential viewers with high viewer sensitivity in single-family housing
11	Mansion Hill; Key View 5 east side	High	Foreground views of tree clearing and noise walls along collector/distributor lanes on both sides of I-5, seen by moderate numbers of residential viewers with high viewer sensitivity in single-family housing
12	Midway Ridge; Key View 5 (similar, east side)	High	Foreground views of tree clearing and noise walls along collector/distributor lanes on both sides of I-5, seen by moderate numbers of residential viewers with high viewer sensitivity in single-family and multifamily housing
13	Des Moines Creek Terrace; no key view	Low	Foreground views of access roadways at intersection with 28th/24th Avenue South, seen by low numbers of residential viewers with high viewer sensitivity but very limited viewer exposure
15	Kent/Federal Way Key Views 10, 11, 12, and 13	High	Foreground views of tree clearing and noise walls along collector/distributor lanes on both sides of I-5, seen by moderate numbers of residential viewers with high viewer sensitivity in single-family and multifamily housing
**Generalized visual impact rating is derived from Table 3.14-5.*			

Alternative B would provide the most potential distant views (six) of all build alternatives. The highest quality of these views would encompass the Olympic Mountains and the Puget Sound. Other views would include Sea-Tac Airport and Des Moines Creek Park. Overall, the views provided by Alternative B from the roadway would be the most attractive of all the alternatives.

Alternative C2 (Preferred)

Visual Resource and Quality Change

Table 3.14-7 summarizes the visual resource change that would be caused by the proposed project in the key views from which Alternative C2 would be visible. Of the ten key views affected by Alternative C2, two views would experience a low level of change, three a moderate level, and five a high level. The five key views with a high level of change are Key View 2 (South 200th Street near 18th Avenue South), Key View 3 (South 200th Street and 26th Avenue South), Key View 8 (South 200th Street at Des Moines Creek Trailhead), Key View 10 (Kent-Des Moines Road to South 216th Street), and Key View 11 (South 216th Street to South 228th Street).

Viewer Response

Table 3.14-4 indicates the likely degree of viewer response to adverse visual impacts on a scale ranging from high to low, based on viewer sensitivity and exposure. Under Alternative C2, viewers would have a high response to changes at five Key Views 1, 8, 9, 10, and 11.

Visual Impacts (View of the Road)

Table 3.14-5 shows that Alternative C2 would have a high level of impact on Key Views 8, 9, 10, and 11; a moderate level on Key Views 1, 2, 3, 12, and 13; and a low level on Key View 6. Overall, Alternative C2 would have the highest level of impact resulting from views of the road.

The visual impacts by landscape unit for Alternative C2 are presented in Table 3.14-8.

Visual Experience (View From the Road)

Alternative C2 would provide three potential distant views. For the most part these views would be confined and would not be very scenic. Tree-covered hillsides would provide the most visual interest for these views. Overall, the views provided by Alternative C2 from the roadway would be the least attractive of all the alternatives.

1

Table 3.14-7
Visual Resource and Level of Quality Change, Alternative C2 (Preferred)

Key View/Level of Quality Change	Modification of Landform	Removal of Vegetation	Introduction of Manmade Structures	View Obstruction	Light and Glare	Shading
1/Low (South 192nd Street at Prince of Peace Church parking lot)	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B
2/High (South 200th Street near 18th Avenue South)	SR 509 and South Access Road: midground fill in valley bottom South 200th Street: widen to three to five lanes (varies); widen existing cut on north (left) side at 18th for northbound entrance to SR 509 and southbound exit	SR 509 and South Access Road: removal of midground trees in valley bottom on both sides of South 200th Street South 200th Street: removal of foreground trees for roadway widening and to widen 18th for northbound entrance to SR 509 and southbound exit	SR 509 and South Access Road: viaduct structures in midground for SR 509 across northeast corner of Des Moines Creek Park and park entry South 200th Street: widen to 3 to 5 lanes (varies), and luminaires; widen 18th to provide northbound entrance to SR 509 and southbound exit	South Access Road: no scenic elements obstructed (project features all below midground skyline) South 200th Street: same	SR 509 and South Access Road: possible glare from luminaires at intersection with South 200th Street	Some shading of northeast corner of Des Moines Creek Park, park entry, trailhead, and portion of creek is likely

Table 3.14-7 Visual Resource and Level of Quality Change, Alternative C2 (Preferred)						
Key View/Level of Quality Change	**Modification of Landform**	**Removal of Vegetation**	**Introduction of Manmade Structures**	**View Obstruction**	**Light and Glare**	**Shading**
3/High (South 200th Street and 26th Avenue South)	SR 509 and South Access Road: foreground fill in valley bottom, midground cut on east side of Des Moines Creek valley South 200th Street: widen to three to five lanes (varies)	SR 509 and South Access Road: removal of foreground trees in valley on both sides of South 200th Street South 200th Street: removal of midground trees along South 200th for roadway widening	SR 509 and South Access Road: viaduct structures in valley bottom for SR 509 across northeast corner of Des Moines Creek Park and park entry South 200th Street: widening to 3 to 5 lanes (varies) and luminaires; widen 18th to provide northbound entrance to SR 509 and southbound exit	SR 509 and South Access Road: no scenic elements obstructed (project features all below South 200th Street)	SR 509 and South Access Road: possible glare from luminaires at SR 509 intersection with South 200th Street	Some shading of northeast corner of Des Moines Creek Park, park entry, trailhead, and portion of creek is likely
6/Low (18200 International Boulevard South)	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B
8/High (South 200th Street at Des Moines Creek Trailhead)	SR 509: midground fill beyond South 200th Street	SR 509 and South 200th Street: removal of foreground trees on left side of trail and along South 200th Street to right (small number associated with widening)	SR 509 and South Access Road: South Access Road to right in foreground and middle ground; SR 509 viaduct structures cross over Des Moines Creek and Trail behind and left of viewer	South Access Road: Possible exposure to unattractive views to right (east)	SR 509 and South Access Road: possible glare from luminaires along 509 and South 200th Street/South Access Road interchange	Limited shading of northeast corner of Des Moines Creek Park, and portion of creek is possible (minimized by height of bridge)

Table 3.14-7
Visual Resource and Level of Quality Change, Alternative C2 (Preferred)

Key View/Level of Quality Change	Modification of Landform	Removal of Vegetation	Introduction of Manmade Structures	View Obstruction	Light and Glare	Shading
9/Moderate (South 212th Street and 31st Avenue South)	SR 509: cut for ramps to I-5	Removal of mature midground trees (residential plantings and I-5 roadside buffer)	Possible removal of midground house and other neighboring homes; exposure of I-5, southbound 509 ramp to I-5; or noise walls	Exposure to unattractive views of I-5	Possible headlight glare from I-5 and SR 509 traffic No roadway lighting likely	No shading of scenic resources or sensitive viewing areas is likely
10/High (Kent-Des Moines Road to South 216th Street)	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B
11/High (South 216th Street to South 228th Street)	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B
12/Moderate (South 260th Street to South 252nd Street)	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B
13/Moderate (South 310th Street to South 298th Street)	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B

Table 3.14-8 Visual Impacts, Alternative C2 (Preferred): View of the Road			
Landscape Unit	**Representative View(s)**	**Generalized Visual Impact Rating***	**Visual Impacts**
1	Manhattan Hill; Key View 1	Moderate	Similar to Alternative B but includes a bridge over a wetland
5	Upper Des Moines Creek; Key Views 2 and 8	High	Foreground views of SR 509 bridge and foreground and middle ground views of South Access Road seen by moderate numbers of recreational users with high viewer sensitivity City of SeaTac proposes future extension of Des Moines Creek Trail to the north, across South 200th Street
8	SeaTac Center; Key View 6	Low	Same as Alternative B
9	West Angle Lake; Key View 3	High	Foreground views of South Access Road with associated cut slopes, retaining walls, and tree clearing, as well as widened South 200th Street with associated tree clearing in valley bottom and Des Moines Creek Park entry, seen by moderate numbers of visitors and employees with moderate viewer sensitivity Foreground views of noise walls along SR 509 and ramps between SR 99 and I-5, seen by moderate numbers of residential viewers with high viewer sensitivity in multifamily housing
10	South 208th Street Draw; Key View 5 (similar)	High	Foreground views of tree clearing and noise walls along SR 509 and ramps between SR 99 and I-5, seen by moderate numbers of residential viewers with high viewer sensitivity in single-family housing (much or all of the mobile home park would be removed by Port of Seattle Noise Remedy Program and/or by the 28th/24th Avenue South project)
11	Mansion Hill; Key View 9 east side	High	Same as Alternative B
12	Midway Ridge; Key View 9 (similar, east side)	High	Same as Alternative B
15	Kent/Federal Way; Key Views 10, 11, 12, and 13	High	Same as Alternative B
**Generalized visual impact rating is derived from Table 3.14-5.*			

Alternative C3

Visual Resource and Quality Change

Table 3.14-9 summarizes the visual resource change that would be caused by the proposed project in the key views from which Alternative C3 would be visible. Of the ten key views affected by Alternative C3, one view would experience a low level of change, six a moderate level, and three a high level. The key views with a high level of change are Key View 8 (South 200th Street at Des Moines Creek Trailhead), Key View 10 (Kent-Des Moines Road to South 216th Street), and Key View 11 (South 216th Street to South 228th Street).

Viewer Response

Table 3.14-4 indicates the likely degree of viewer response to adverse visual impacts on a scale ranging from high to low, based on viewer sensitivity and exposure. Viewers under Alternative C3 would have a high response to changes to the same key views as Alternative C2: Key Views 1, 8, 9, 10, and 11.

Visual Impacts (View of the Road)

Table 3.14-5 shows that the SR 509 extension under Alternative C3 would not have a high level of impact on any key views; however, the I-5 improvements would have a high level of impact on Key Views 10 and 11. Alternative C3 would have a moderate level on Key Views 1, 2, 8, 9, 12, and 13, and a low level on Key Views 3 and 6. Overall, Alternative C3 would result in the least level of impact from views of the road for all build alternatives.

The visual impacts by landscape unit for Alternative C3 are presented in Table 3.14-10.

Visual Experience (View From the Road)

Alternative C3 would provide three potential distant views. Like Alternative C2, these views would mostly be confined and not very scenic. Tree-covered hillsides and Sea-Tac Airport would provide the visual interest for these views. Overall, the views provided by Alternative C3 from the roadway would be less attractive than Alternative B and more attractive than Alternative C2.

Table 3.14-9 Visual Resource and Level of Quality Change, Alternative C3						
Key View/Level of Quality Change	**Modification of Landform**	**Removal of Vegetation**	**Introduction of Manmade Structures**	**View Obstruction**	**Light and Glare**	**Shading**
1/Low (South 192nd Street at Prince of Peace Church parking lot)	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B
2/Moderate (South 200th Street near 18th Avenue South)	SR 509 and South Access Road: midground fill in valley bottom South 200th Street: widen to three to five lanes (varies); widen existing cut on north (left) side at 18th for northbound entrance to SR 509 and southbound exit	SR 509 and South Access Road: removal of midground trees in valley bottom on both sides of South 200th Street South 200th Street: removal of foreground trees for roadway widening and to widen 18th for northbound entrance to SR 509 and southbound exit	SR 509 and South Access Road: viaduct structure in midground for SR 509 across northeast corner of Des Moines Creek Park and park entry; overpass beyond for South Access Road mainline South 200th Street: widen to 3 to 5 lanes (varies), and luminaires; widen 18th to provide northbound entrance to SR 509 and southbound exit	South Access Road: no scenic elements obstructed (project features all below midground skyline) South 200th Street: same	SR 509 and South Access Road: possible glare from luminaires at intersection with South 200th Street	Some shading of northeast corner of Des Moines Creek Park, park entry, trailhead, and portion of creek is likely

Table 3.14-9 Visual Resource and Level of Quality Change, Alternative C3						
Key View/Level of Quality Change	**Modification of Landform**	**Removal of Vegetation**	**Introduction of Manmade Structures**	**View Obstruction**	**Light and Glare**	**Shading**
3/Moderate (South 200th Street and 26th Avenue South)	SR 509 and South Access Road: foreground fill in valley bottom, midground cut on east side of Des Moines Creek valley South 200th Street: widen to three to five lanes (varies)	SR 509 and South Access Road: removal of foreground trees in valley on both sides of South 200th Street South 200th Street: removal of midground trees along South 200th for roadway widening	SR 509 and South Access Road: foreground overpass for South Access Road mainlines, viaduct structure in valley bottom for SR 509 across northeast corner of Des Moines Creek Park and park entry South 200th Street: widening to three to five lanes (varies) and luminaires; widen 18th to provide northbound entrance to SR 509 and southbound exit	SR 509 and South Access Road: no scenic elements obstructed (project features all below South 200th Street)	SR 509 and South Access Road: possible glare from luminaires at 509 intersection with South 200th Street	Some shading of northeast corner of Des Moines Creek Park, park entry, trailhead, and portion of creek
6/Low (18200 International Boulevard South)	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B
8/High (South 200th Street at Des Moines Creek Trailhead)	SR 509: midground fill beyond South 200th Street	SR 509 and South Access Road: removal of foreground trees on right side of the trailhead and along South 200th	SR 509 and South Access Road: SR 509 mainline parallel to trail in immediate foreground; viaduct structure for SR 509 diagonally across Des Moines Creek, trail, and park entry	SR 509 and South Access Road: view north across South 200th to golf course obstructed by viaduct (golf course could be closed or reduced in size by other future actions)	SR 509 and South Access Road: roadway lighting along SR 509 viaduct is unlikely	Some shading of northeast corner of Des Moines Creek Park, park entry, trailhead, and portion of creek is likely

Table 3.14-9 Visual Resource and Level of Quality Change, Alternative C3						
Key View/Level of Quality Change	**Modification of Landform**	**Removal of Vegetation**	**Introduction of Manmade Structures**	**View Obstruction**	**Light and Glare**	**Shading**
9/Moderate (South 212th Street and 31st Avenue South	SR 509: cut for ramps to I-5	Removal of mature midground trees (residential plantings and I-5 roadside buffer)	Removal of midground house and (possibly) foreground homes; exposure of I-5, southbound SR 509 ramp to I-5; or noise walls	Exposure to unattractive views of I-5	Possible headlight glare from I-5 and SR 509 traffic No roadway lighting likely	No shading of scenic resources or sensitive viewing areas is likely
10/High (Kent-Des Moines Road to South 216th Street)	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B
11/High (South 216th Street to South 228th Street)	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B
12/Moderate (South 260th Street to South 252nd Street)	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B
13/Moderate (South 310th Street to South 298th Street)	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B	Same as Alternative B

Table 3.14-10 Visual Impacts, Alternative C3: View of the Road			
Landscape Unit	**Representative View(s)**	**Generalized Visual Impact Rating***	**Visual Impacts**
1	Manhattan Hill; Key View 1	Moderate	Same as Alternative B
5	Upper Des Moines Creek; Key Views 2 and 8	Moderate – High	Foreground views of SR 509 viaduct at entrance to Des Moines Creek Park and trail to south, seen by moderate numbers of recreational users with high viewer sensitivity City of SeaTac proposes future extension of Des Moines Creek Trail to the north, across South 200th Street
8	SeaTac Center; Key View 6	Low	Same as Alternative B
9	West Angle Lake; Key View 3	Moderate	Foreground views of South Access Road with associated cut slopes, retaining walls, tree clearing, and flyover ramp, as well as widened South 200th Street with associated tree clearing in valley bottom and Des Moines Creek Park entry, seen by moderate numbers of visitors and employees with moderate viewer sensitivity Foreground views of noise walls along SR 509 and ramps between SR 99 and I-5, seen by moderate numbers of residential viewers with high viewer sensitivity in multifamily housing
10	South 208th Street Draw; Key View 5 (similar)	High	Foreground views of tree clearing and noise walls along SR 509 and ramps between SR 99 and I-5, seen by moderate numbers of residential viewers with high viewer sensitivity in single-family housing (much or all of the mobile home park would be removed by Port of Seattle Noise Remedy Program and/or by the 28th/24th Avenue South project)
11	Mansion Hill; Key View 5 east side	High	Same as Alternative B
12	Midway Ridge; Key View 5 (similar, east side)	High	Same as Alternative B
13	Des Moines Creek Terrace (no key view)	Low	Foreground views of project with associated cut slopes, retaining walls, tree clearing, and flyover ramp; seen by low numbers of visitors with low viewer sensitivity inside Noise Remedy Program area (residences cleared by Port of Seattle)
15	Kent/Federal Way; Key Views 10-13	High	Same as Alternative B
**Generalized visual impact rating is derived from Table 3.14-5.*			

3.14.4 Mitigation Measures

A variety of mitigation measures could be employed to partially or fully mitigate the potential adverse visual impacts identified for the build alternatives, including the following:

- Use an interdisciplinary design team to incorporate aesthetic considerations in project design subsequent to the environmental review process.
- Minimize clearing for construction and preserving existing stands of mature trees and other attractive natural vegetation as practical.
- Plant appropriate vegetation within the project right-of-way to preserve the semiurban character of existing views; to screen views of the roadway, elevated structures, retaining walls, noise walls and other project features from areas with high viewer sensitivity; and to blend the project appearance with adjoining natural landscapes to the maximum feasible extent.
- Consider using long-span bridge crossings at trails, streams, and wetlands to minimize view obstruction and interruption of visual continuity.
- Employ the principles of architectural design to enhance the appearance of project features such as retaining walls and noise walls, including stepping and battering walls to reduce apparent height and scale; using the design vocabulary employed in the Sea-Tac Airport's North Access Road for the structures associated with the South Access Road; using surface texture on concrete surfaces to reduce apparent scale; and using concrete sealants to provide uniform color and help limit graffiti damage.
- Replace existing street trees and other trees (outside the minimum clear zone) to provide screening for sensitive visual resources and viewers (the minimum clear zone is defined in the WSDOT *Design Manual* [2000]).
- Investigate opportunities to acquire sufficient right-of-way to provide space for plantings near retaining and noise walls that adjoin areas with high viewer sensitivity. Retain remainder parcels that contain attractive natural vegetation that could contribute to the quality of view toward the proposed project or that could screen views from sensitive viewers.
- Design interchange intersections in conjunction with local jurisdictions and with care not to increase waterfowl attractance.

The level of mitigation measures are related to the level of visual impact indicated in the matrices for each landscape unit.

3.14.5 Construction Activity Impacts and Mitigation

Construction Activity Impacts

Temporary visual impacts during construction would include the presence of construction equipment, materials, signage, disturbed areas, and staging areas in the construction zone that would reduce the visual quality of the immediate area. In addition, temporary lighting may be necessary for nighttime construction of certain project elements or at certain locations. Examples may include nighttime construction along existing road or highway rights-of-way to minimize disruption of daytime traffic. This temporary lighting could impose impacts on residential areas by exposing residents to uncomfortable glare from unshielded light sources or by increasing ambient nighttime light levels.

Mitigation Measures

During construction, visual impacts could be reduced by locating material and equipment storage in areas that are not prominent. Light impacts could be minimized by shielding roadway lighting so that light sources (such as bulbs) are not directly visible from residential areas and local streets and to limit spillover ambient light in residential areas.

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3.15 The Relationship Between Local Short-Term Uses of the Environment and the Maintenance and Enhancement of Long-Term Productivity

3.15 The Relationship Between Local Short-Term Uses of the Environment and the Maintenance and Enhancement of Long-Term Productivity

With any development project, there are tradeoffs between impacts on the natural and man-made environments and the resulting project-related benefits. Each of the build alternatives considered in this FEIS has similar, albeit varying, impacts that are common for transportation improvement projects, including right-of-way acquisition and the resulting displacement and relocation of structures, residences, and business establishments; economic changes; increased traffic noise; changes in the visual environment; and loss of natural areas such as wetlands and wildlife habitat. These impacts, however, are not considered to outweigh the long-term benefits of the project, and, in general, can be mitigated. The proposed improvements are designed to meet future traffic needs of the local community and the larger region that have been identified as resulting from projected planned growth and development trends. The project is expected to result in a long-term improvement in public mobility, access, and safety. It can be concluded, therefore, that the local short-term impacts and use of resources by the proposed project are consistent with the maintenance and enhancement of long-term productivity for the Puget Sound community.

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3.16 Irreversible and Irretrievable Commitments of Resources That Would Be Involved in the Proposed Action

3.16 Irreversible and Irretrievable Commitments of Resources That Would Be Involved in the Proposed Action

Implementation of the proposed action would involve the commitment of a range of natural, physical, human, and fiscal resources. The acquisition and use of land for the proposed improvements is considered an irreversible commitment during the period of the time that the land is used for a transportation facility. If a greater need arises for use of the land or if the roadway facility is no longer needed, the land could be converted to another use. At present, there is no reason to believe such a conversion would ever be necessary or desirable.

Considerable amounts of materials, labor, and energy would be expended during construction. These resources are generally not retrievable. Some of the materials, however, could be salvaged in the future when the life of the facility is completed and/or the facility is demolished. The resources used in the construction of the proposed facility are not in particularly short supply, and their use would not have an adverse effect on the continued availability of these resources.

Construction would require a substantial expenditure of both state and federal funds, which are not retrievable. Operation and maintenance of the proposed facility would also commit energy, human, and fiscal resources over the life of the roadway. The commitment of these resources is considered irretrievable.

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3.17 Secondary and Cumulative Impacts

3.17 Secondary and Cumulative Impacts

3.17.1 Secondary Impacts

The CEQ defines secondary impacts as "those that are caused by an action and are later in time and farther removed in distance but still foreseeable." These impacts are induced by the initial action.

The SR 509: Corridor Completion/I-5/South Access Road Project is consistent with local and regional land use plans that have already addressed growth (*King County Comprehensive Plan: Final Supplemental Environmental Impact Statement*, 1994; *City of SeaTac Comprehensive Plan: Final Environmental Impact Statement*, 1994; *Greater Des Moines Comprehensive Plan: Final Environmental Impact Statement,* 1995; *Federal Way Comprehensive Plan: Final Environmental Impact Statement*, 1995; *City of Kent Comprehensive Plan: Final Environmental Impact Statement,* 1995). These documents are incorporated in this FEIS by reference. A similar level of projected growth is expected to occur in the project area with or without the project. Although the proposed project would support and facilitate planned growth, it would not induce growth. Additionally, there are no specific future development activities currently known that would be dependent on the project and would not proceed without the proposed project. Therefore, no secondary impacts are expected to result from the SR 509: Corridor Completion/I-5/South Access Road Project.

3.17.2 Cumulative Impacts

Cumulative impacts are those that have an "impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions" (40 CFR 1508.7). The cumulative impacts of an action may be undetectable, but can add to other disturbances and eventually lead to a measurable environmental change.

The cumulative impacts evaluation for this FEIS includes the transportation improvements shown on Figure 2.3-3 for the No Action Alternative in conjunction with the proposed project. These projects are assumed to be operational in the year 2020. The cumulative impacts discussion also includes the following projects:

- Sea-Tac Airport Master Plan development, including the third runway and SASA
- Sea-Tac Airport Noise Remedy Program
- Des Moines Creek Technology Campus

- City of Des Moines Pacific Ridge Neighborhood Improvement Project
- City of SeaTac CBD
- City of SeaTac Aviation Business Center
- City of SeaTac 24th/28th Avenue South Arterial
- Des Moines Creek Basin Plan

These projects have already been, or will be, subject to separate environmental reviews; analysis of their specific impacts is not included in this FEIS.

In a broad sense, all impacts on affected built and natural environment resources are cumulative. However, CEQ guidelines recommend a narrowing the focus of the cumulative impacts analysis to important issues of national, regional, or local significance so as to "count what counts." These issues of importance were identified through public and agency scoping, comments received during public meetings, coordination with local jurisdictions, resource agency participation in the project through the NEPA/SEPA/Section 404 Merger process, and comments received on the Revised DEIS.

For the SR 509: Corridor Completion/I-5/South Access Road Project, the cumulative impacts analysis focuses on surface water quality, fish and fish habitat, and wetlands because of their heightened importance in the Puget Sound region, and on residential displacements and relocations because of their importance on a local level, as identified through the public and agency involvement described above.

Several comments on the Revised DEIS pertained to the combined effects of airport and roadway noise. A detailed noise study was conducted for the preferred alternative, as required by FHWA (Appendix I of this FEIS). This study evaluated traffic noise exposure throughout the project corridor by utilizing forecasted 2030 traffic volumes with and without the project. Therefore, the cumulative effects of traffic noise were inherently taken into account by considering the effects of growth in traffic volumes with the proposed project in place. Additionally, the detailed noise study included 24-hour noise monitoring at locations along the proposed project alignment where current noise from aircraft flights at Sea-Tac Airport is significant. The cumulative effects of airport and traffic noise were considered by using the current background noise levels as the baseline and determining future noise levels by combining predicted future traffic noise levels from the proposed project with the measured airport noise levels. Therefore, cumulative noise is not addressed in this section of FEIS.

A number of comments on the Revised DEIS pertained to air quality. An air quality conformity analysis was conducted for the preferred alternative using the latest regional planning assumptions, including emission factors and an analysis year consistent with those used in PSRC's MTP adopted in 2001 (*Destination*

2030) and its subsequent revisions (Appendix H of this FEIS). PSRC's modeling demonstrates the proposed project would conform to the regional air quality maintenance plans. *Destination 2030* assumes substantial transit, freeway, and arterial improvements within the SR 509 project area. The analysis methodology inherently includes the cumulative effects of transportation emissions of planned transportation improvements. Therefore, cumulative air quality impacts are not addressed in this section of the FEIS.

Based on the public and agency communications described above, no other elements of the environment were identified as issues of national, regional, or local significance.

The geographic limits of the project area for the cumulative impacts evaluation for surface water quality, fish and fish habitat, and wetlands are the five stream basins in which the proposed project is located: Miller Creek, Des Moines Creek, Lower Puget Sound, Mill Creek, and Lower Green River. The project area for displacements and relocations is the Cities of SeaTac, Des Moines, and Kent.

Surface Water Quality

Rivers streams and lakes in the project area have been extensively altered by development during the past century. The riverbed of the Lower Green River has been lowered and channelized for flood control purposes. Early last century, the Green River lost a significant source of its water with the diversion of the Cedar River to the south end of Lake Washington to supply water for the ship canal and locks between the lake and Puget Sound, and diversion of the White River to the Puyallup River.

Streams within the project area have also undergone considerable change. Most of the development within the stream basins has occurred in the past 50 years. There have been some declines in the quality of the streams. These include the typical pollutants associated with urban development—nitrogen, phosphorus, oil and grease, coliform, bacteria, and detectable levels of some herbicides and pesticides. However, the more serious and pervasive effects upon streams have been physical. Direct stream impacts resulting from past development include bank armoring and widening for flood control. In the past, it was common practice to route a stream into an underground culvert for hundreds or even thousands of feet to pass under a highway or developed property.

Streams now typically experience higher peak flows than they historically did. As a result, channel scouring and widening are common. Channel scour and bank erosion often lead to heavy sedimentation in low-gradient and downstream sections, particularly at stream mouths.

By the 1970s, there was recognition among the state and local agencies that some form of stormwater controls for new development was needed. Since then,

several stormwater management plans, guidelines, and regulations have been issued, including the *Puget Sound Water Quality Management Plan*; the King County *Surface Water Design Manual*; and the Department of Ecology *Stormwater Management Manual for the Puget Sound Basin,* which has recently been revised. Implementation of these stormwater regulations and policies assures that the rate of hydrologic and water quality degradation in developing areas will be greatly reduced from those that historically occurred.

Because stormwater regulations will continue to evolve, future water resource conditions in the project area are difficult to predict. Even with implementation of stormwater treatment and detention measures for all new development, increases in pollutant loads and adverse changes in existing hydrology to streams within the project area are likely to occur in streams within the project area.

The proposed project is located in five drainage basins: Miller Creek, Des Moines Creek, North Lower Puget Sound subbasin, Mill Creek, and Lower Green River. Each of these basins and subbasins lie completely within the designated UGBs of one or more jurisdictions. Because UGBs entirely cover the basins, full development can be expected to occur in the future. According to Ecology's Section 303(d) list (1998), Des Moines Creek, Mill Creek, and some reaches of the Green River do not meet Washington State water quality standards for selected parameters. Des Moines Creek is listed as a 303(d) water because of high fecal coliform bacteria concentrations. Green River is listed as a 303(d) water because of exceedances of mercury, fecal coliform, chromium, and temperature. Mill Creek is listed as a 303(d) water because of exceedances of temperature, dissolved oxygen, and fecal coliform.

Des Moines Creek basin will have the greatest percentage of high-density land uses, as designated by applicable comprehensive land use maps; which suggests a higher cumulative impact for the Des Moines Creek basin than the other basins. Approximately 35 percent of the basin is currently covered with impervious surfaces that drain to the steam system, well above the 10 percent impervious area threshold at which streams in the region typically start to show obvious signs of serious degradation. At buildout, urban development is expected to increase the impervious surface area in the basin to over 47 percent, an increase of 12 percent (Des Moines Creek Basin Committee, 1997). However, implementation of the flow control projects identified in the Des Moines Creek Basin Plan will reduce peak flows in Des Moines Creek, compared to existing conditions.

Based on local comprehensive plans, the Mill Creek and Lower Green River basins will have the least high-density development in the future, thereby incurring the least cumulative impacts. Miller Creek Basin and North Lower Puget Sound Subbasin are quite similar with respect to future land use, and will have a moderate amount of high-density uses in the future, resulting in fewer

cumulative impacts than the Des Moines Creek Basin, but more than the Mill Creek and Lower Green River basins.

Two of the largest projects currently proposed in the area are the SR 509 Corridor Completion/I-5/South Access Road and Sea-Tac Airport Master Plan improvements, including the SASA and new third runway. Together, these projects would contribute approximately 4 percent to the expected increase in impervious surfaces in Des Moines Creek basin, and 2 percent in Mill Creek basin (CH2M HILL October 2001, FAA and the Port of Seattle, 1996).

Fish and Fish Habitat

The GMA requires all cities and counties in the state to conduct planning for growth and protection of sensitive areas, and has more extensive requirements for the largest and fastest-growing cities and counties in the state. By requiring definition of Urban Growth Areas, the GMA relieves development pressure on urban areas that generally contain the most viable fish habitat. King County and the Cities of SeaTac, Des Moines, Kent, and Federal Way have adopted sensitive areas ordinances that include the protection of wetlands and steams, with more stringent protection for streams that provide salmonid habitat. These ordinances establish restrictions on disturbance of aquatic habitat, including stream disturbance, wetland filling, and buffer encroachment.

The federal ESA established a legal framework to protect species considered to be in danger of extirpation. There are two classifications under which a species may be listed: Species determined to be in imminent danger of extinction throughout all of a significant portion of their range are listed as "endangered." Species determined likely to become endangered in the foreseeable future are listed as "threatened."

Two fish species occurring within the project area have been listed under the ESA: Puget Sound chinook salmon was listed as threatened in March 1999, and the Coastal-Puget Sound DPS of bull trout was listed as threatened in October 1999.

A year after the chinook salmon listing, Section 4D rules were published by the NMFS, which among other things, dictate control of stormwater and protection of streams and lakes that form habitat for wild chinook. This has had the short-term effect of expanding federal review over many types of development formerly subject only to local review. It is likely that over the long term, modifications to the 4D Rule and the development of habitat conservation plans will lead to a more streamlined approval process than is currently the case. It is clear that community land use plans and major development projects must specifically weigh potential impacts on streams and fish and be prepared to demonstrate adequate off-setting mitigation.

Agencies including the NMFS and WDFW have tracked population trends for anadromous salmonids. Although fish populations naturally fluctuate in response to factors such as climate variations, nearly all native salmonid populations in the region have undergone a severe declining trend since the human population began rapidly increasing over the past century.

Detailed information on the current state of fish populations and habitats is provided in Section 3.7 and the *Draft SR 509: Corridor Improvements/I-5/South Access Road Biological Assessment* (Shapiro & Associates, 2001).

Within the project area, the high rate of population and employment growth has driven the recent trend in adverse impacts on fish and fish habitat, primarily through habitat degradation. The effectiveness of regulatory protection for fish and fish habitat in counterbalancing the effects of projected growth in the project area cannot reliably be assumed. As discussed in the previous section, creating new impervious surfaces associated with development is a predictor of fish habitat degradation. Des Moines Creek Basin will have the greatest amount of high density development and Mill Creek and Lower Green River basins will have the least.

Capital improvement projects identified in the Des Moines Creek Basin Plan include fish passage improvement at Marine View Drive, which is the major fish barrier in the Des Moines Creek system, as well as fish passage improvements at the Midway Treatment Plant, and measures to stabilize the flow regime of Des Moines Creek. These improvements, together with planned stream restoration and riparian zone enhancement, would improve anadromous fish access and habitat within the Des Moines Creek system.

Wetlands

Wetlands have not been recognized historically for their ecological importance. Many of these areas were filled, dredged, or developed to make the land useful for housing, industry, and agriculture. Between 1780 and 1980, the state of Washington lost an estimated 31 percent of its wetlands. Since that time, wetlands have been identified as providing important economic and environmental functions, such as protecting floodwaters, filtering sediment and pollutants, and providing spawning areas for commercially important fish and habitat for many important species of plants and wildlife.

In 1989, Washington adopted state goals for no net loss of acreage or ecological function of wetlands. These goals reflect the Clean Water Act, federal legislation that prohibits the discharge of soil into waters of the United States unless authorized by a permit issued under Section 404 of the Act. The USACOE has authority over such actions and requires the permittee to restore, create, enhance, or preserve nearby wetlands as compensation for the damage. This means of compensatory mitigation is intended to comply with the general goals of the Clean Water Act and the specific goal of "no net loss" of wetlands.

Several regulations have been enacted on a federal and local level to achieve these goals. King County, and the Cities of SeaTac, Des Moines, Kent, and Federal Way have adopted sensitive areas ordinances that include the protection of wetlands and their associated buffers.

Urbanization is the primary cause of wetland loss within the central Puget Sound region and the project area. According to a 1998 WDNR publication, more than 90 percent of the wetlands in urban areas in Washington have been lost. Despite the goal of "no net loss," studies show that these goals are not being met. The magnitude of impacts on wetland functions is unknown. Primary wetland functions lost in the project area are due to an increase of impervious surfaces, which reduces aquifer recharge and alters wetland hydrology, and a decrease in overall wetland area and functional capability. These functions primarily include fish and wildlife habitat, stormwater retention, and sediment and toxics retention.

Future trends in wetland regulation are likely to focus on compensatory mitigation requirements. Regulatory agencies are expected to develop procedures to track the success and completion of mitigation efforts as this focus of mitigation efforts is moving towards emphasizing the replacement of wetland functions, rather than replacement of wetland area. In addition, research and publications show strong indication that mitigation banking is becoming a more favored means of mitigating wetland loss.

In evaluating cumulative impacts on wetland resources, there is a general correlation between increased urbanization and loss of wetland area and functions. As urban areas approach full build-out, there is not only direct loss of wetland area and function, but lack of suitable wetland mitigation sites. This lack results in a greater tendency toward out-of-basin and out-of-kind mitigation that does not replace the loss of wetland function within the watershed. Within the project area, this impact is greatest within the Miller Creek and Des Moines Creek basins because of the combined impacts of several large projects, most notably the Sea-Tac Airport Master Plan improvements, including the new third runway and SASA, which would have a combined wetland impact of approximately 18.4 acres (Parametrix 2001).

If cumulative impacts on large, high quality wetland systems were weighted most heavily, impacts would expected to be greatest in the Lower Green River Basin, which has the greatest number of high quality wetlands in the project area, and least in the Des Moines Creek basin.

Displacement and Relocation

Cumulative displacement and relocation impacts would be related to the additive effects of displacements related to this project and other area projects: the 28th/24th Avenue South Arterial construction, the Seattle-Tacoma International Airport Third Runway, and the Port of Seattle's Noise Remedy

Program. The Port of Seattle has already removed a number of single-family and multifamily residences within the Noise Remedy Program acquisition area, primarily in the City of SeaTac.

The *Final Environmental Impact Statement for Proposed Master Plan Update Development Actions at Seattle-Tacoma International Airport* (Port of Seattle 1996) has identified 391 single-family displacements, 260 multifamily displacements, and 117 business displacements associated with the Third Runway. Displacements resulting from the Third Runway project would occur mainly to the west of Sea-Tac Airport and would be caused by construction of the runway. Some businesses located south of South 188th Street and east of Des Moines Memorial Drive would be displaced because of their location within the future third runway's RPZ.

The *Final Environmental Impact Statement for the 28th/24th Avenue South Arterial* has two preferred alternatives listed—Alternative 3 and Alternative 5 (Ficklin 1993). The City of SeaTac has confirmed that a final design for 28th/24th Avenue South is not available at this time; the final design for later phases (farther south) will proceed following the final design of SR 509 so that City engineers can best determine how to connect the two projects (Gut pers. comm. 2000). According to the Final EIS, as many as 26 single-family residences could be displaced. Approximately half of these identified displacements are within the footprint of the proposed SR 509 alternatives.

The Port of Seattle, according to FAA noise mitigation policy (Part 150), has committed to relocating all of the mobile homes in the Homestead Park neighborhood as part of their current noise mitigation plan, with relocations occurring within the time frame concurrent with construction of the proposed project. Approximately half of these mobile homes would otherwise be in the footprint of the SR 509 project. The airport mitigation plan is independent of the proposed project and is based on current and future noise levels and the ability to mitigate certain types of residences from higher noise levels. The relocation of the mobile homes would represent a loss of generally affordable housing options.

4. Section 4(f) Evaluation

4. Section 4(f) Evaluation

4.1 Introduction

Federal law 23 U.S.C. Section 138, which is commonly known as Section 4(f) from its previous designation in the Department of Transportation Act of 1966 as 49 U.S.C. 1653(f), prohibits the Federal Highway Administration (FHWA) from approving a project that uses land from a publicly owned park, recreation area, wildlife or waterfowl refuge, or historic site except if (1) there is no feasible and prudent alternative to the use of the land and (2) if the project includes all possible planning to minimize harm to the property. If a feasible and prudent alternative that avoids such use is available, it must be selected. If such use is unavoidable, then measures must be identified that minimize and mitigate for direct and indirect harm to the property.

Section 4(f) provides a mandate to make special efforts to "preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites." The special efforts include a Section 4(f) Evaluation, which entails a detailed description of affected resources, discussion of direct (property acquisition) and indirect impacts on these resources from project alternatives, identification and evaluation of alternatives that avoid such impacts, and mitigation measures to minimize unavoidable adverse effects. Indirect impacts occur when the proposed project does not use land from a Section 4(f) property, but the project's proximity impacts (such as effects of noise or impacts on visual values of a park) are severe enough that the protected activities, features, or attributes that qualify a resource for protection under Section 4(f) are substantially impaired according to 23 CFR 771.135(p)(2). Indirect impacts of this nature are referred to as a "constructive use."

4.1.1 Purpose of and Need for the Proposed Action

The purpose of the SR 509: Corridor Completion/I-5/South Access Road Project is to improve regional highway connections with an extension of State Route (SR) 509 from its current terminus to Interstate 5 (I-5) to serve future transportation needs in southwest King County and to enhance southern access to Seattle-Tacoma International Airport (Sea-Tac Airport).

This project is needed to satisfy current and forecasted regional transportation demand, improve regional mobility and safety, and relieve local congestion. Improved southern access to the airport is needed to accommodate the increasing demands of passenger growth.

Chapter 1 of this Final Environmental Impact Statement (FEIS) provides a more detailed discussion of the purpose of and need for the project.

4.1.2 Description of the Action

The FHWA, the Washington State Department of Transportation (WSDOT), the Port of Seattle, King County, and the Cities of Des Moines and SeaTac propose to improve regional highway connections with an extension of SR 509 to serve future transportation needs in southwest King County and to enhance southern access to and from Seattle-Tacoma International Airport (Sea-Tac Airport) by means of a new South Access Road. (Figure 4.1-1 shows the location of the project area within the larger metropolitan area and Figure 4.1-2 shows the details of the project area.) To accommodate an interchange at I-5 and SR 509, improvements to I-5 between approximately South 210th Street and South 310th Street are also proposed.

Three build alternatives (Alternatives B, C2, and C3) and a No Action Alternative (Alternative A) are considered in this FEIS.

Alternative A (No Action)

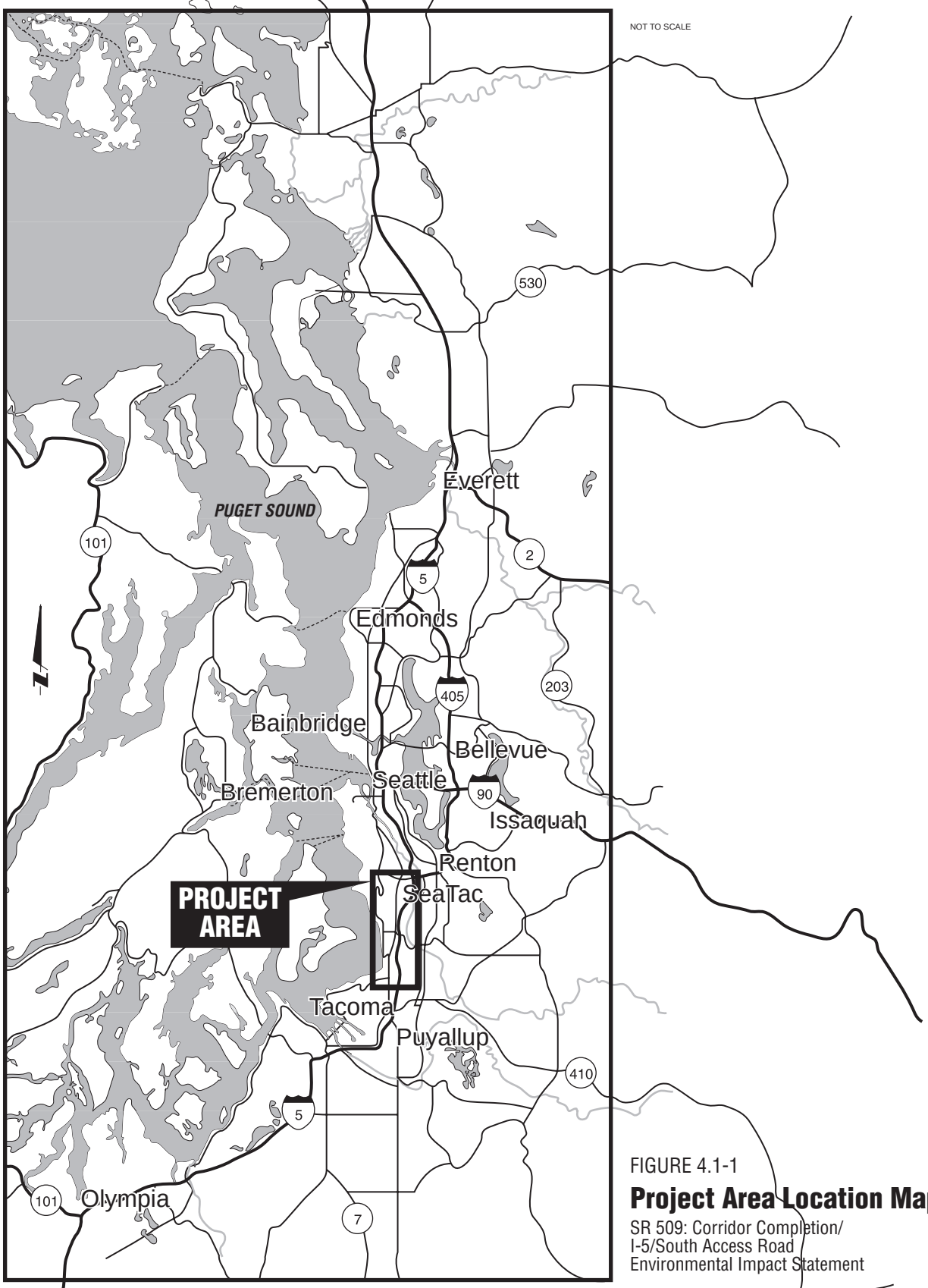
The No Action Alternative (Figure 4.1-3) represents the baseline conditions assumed to exist in the future regardless of whether the proposed project is constructed. Under the No Action Alternative, the SR 509 freeway extension, the South Access Road to Sea-Tac Airport, and the improvements to I-5 would not be built. This alternative, as well as the other alternatives, is defined in Chapter 2.

Features Common to All Build Alternatives

Each alternative for the SR 509 freeway extension would originate at approximately South 188th Street/12th Place South. The northern terminus of the South Access Road would be at the south end of the airport terminal drives. The southern terminus of the South Access Road would connect with the SR 509 freeway extension; the location and design of this connection would vary with each alternative. There would be interchanges at South 200th Street and 28th/24th Avenue South, but not at SR 99. Improvements to I-5 would be the same for all build alternatives.

SR 509 Mainline/South Access Road

The configuration of the SR 509 freeway extension would be six lanes: two general purpose travel lanes and an inside high-occupancy vehicle (HOV) lane in each direction. The South Access Road would consist of two general purpose lanes in each direction, for a total of four lanes. In general, right-of-way widths would be at least 200 feet for the SR 509 freeway extension and



141012.AB.H1.03_T082001026SEA / SR 509 DEIS / Section4(f) figures / ProjectAreaLocationMap / CJS / 1-2-03 / LW

FIGURE 4.1-1

Project Area Location Map

SR 509: Corridor Completion/
I-5/South Access Road
Environmental Impact Statement

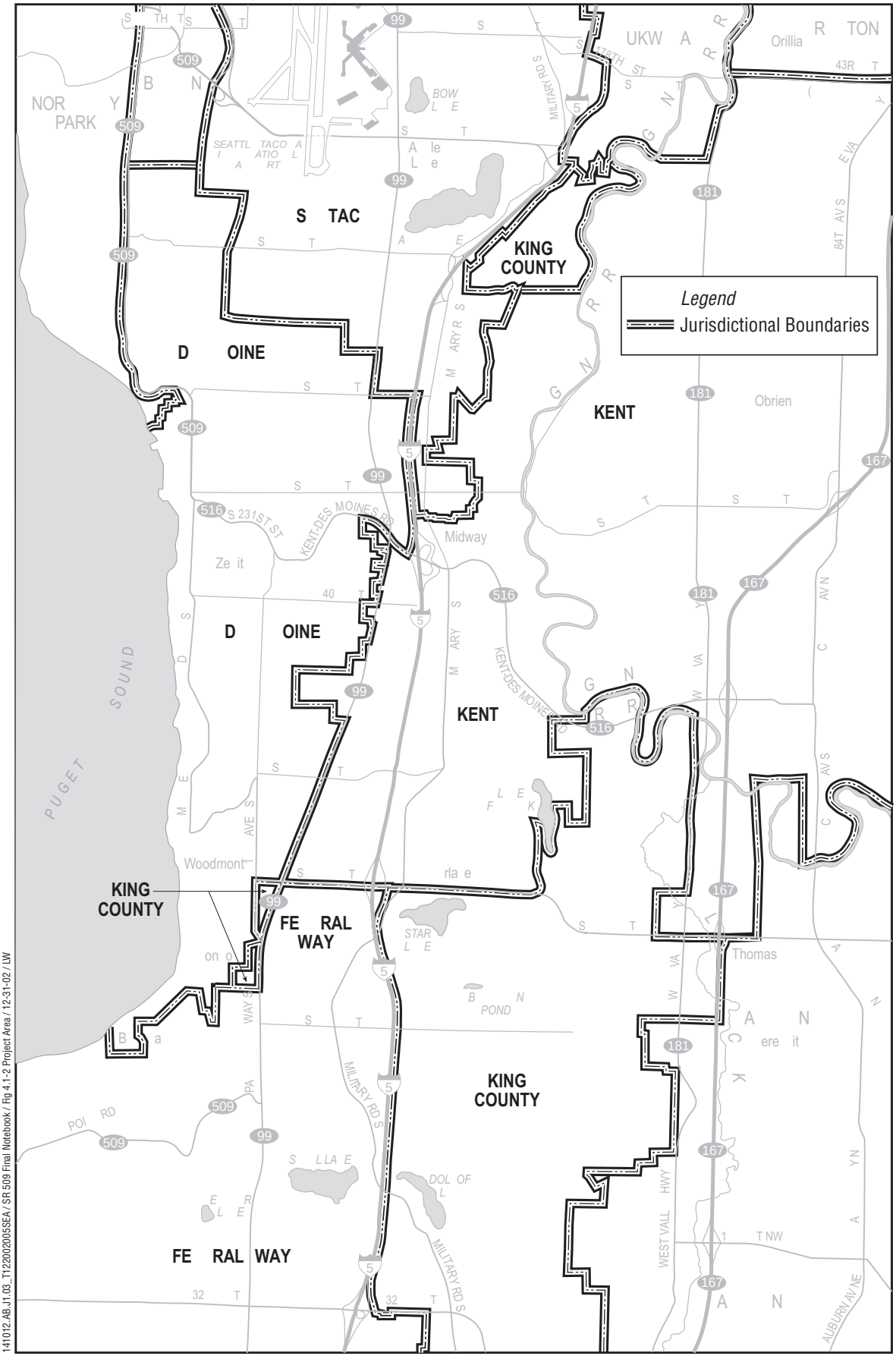


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FIGURE 4.1-2

Project Area

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement

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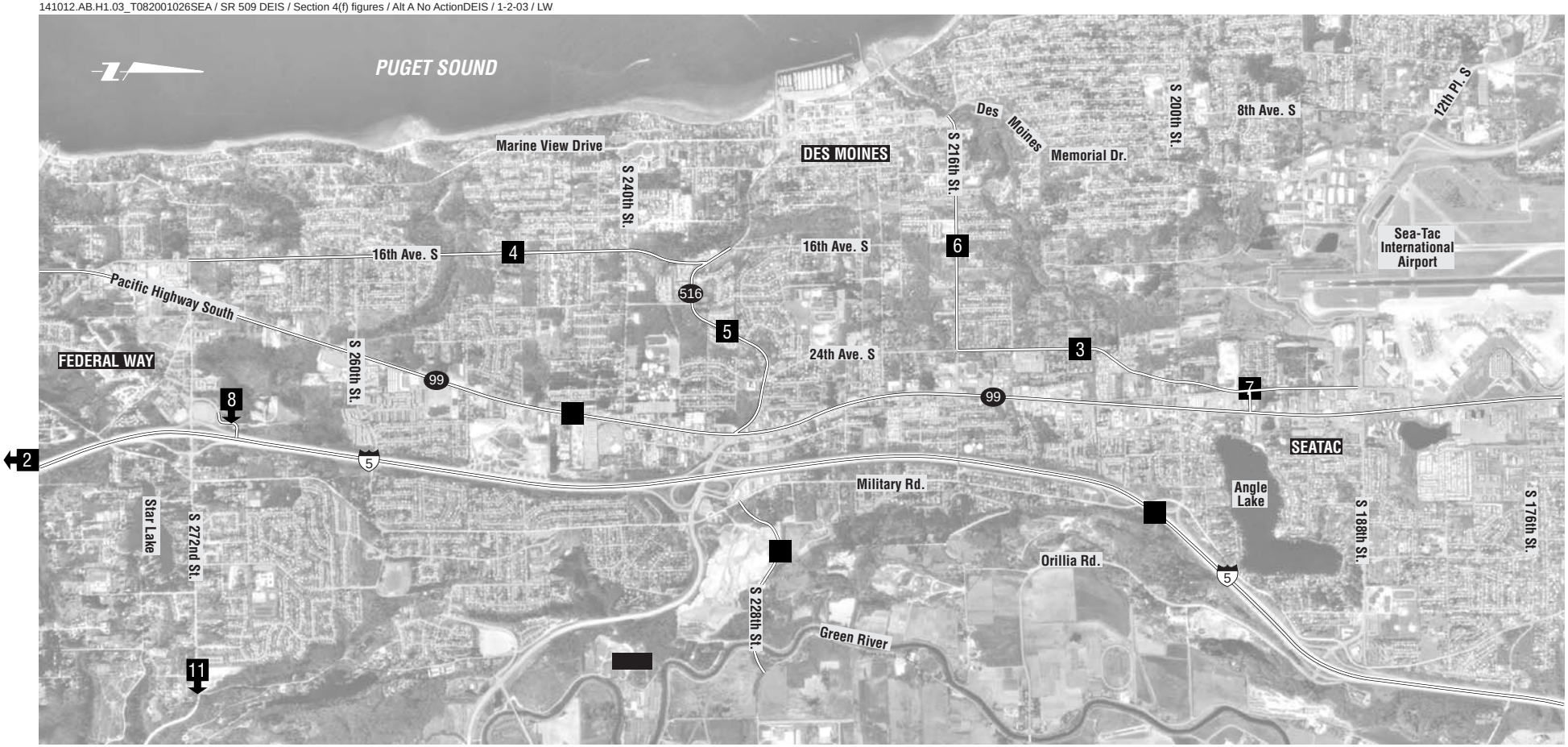


Legend

Baseline Projects by others

0 1/4 1/2 3/4 1 MILES

Baseline Projects Assumed for No Action Alternative.

1. I-5 HOV Lanes
2. I-5 @ S. 317th Street Direct Access Ramp
3. 28th/24th Avenue S. Arterial (Phase 1 completed – S. 188th to S. 204th Streets)
4. 16th Avenue S.
5. Kent-Des Moines (SR 516) Road
6. S. 216th Street
7. S. 195th Street
8. I-5 @ S. 272nd Street In-Line Station
9. Pacific Highway S./International Boulevard (SR 99) (Phases 1 and 2 completed – S. 170th to S. 200th Streets)
10. S. 228th Street
11. S. 272nd/S. 277th Street Corridor

FIGURE 4.1-3

Alternative A (No Action)

SR 509: Corridor Completion/I-5/South Access Road Environmental Impact Statement

at least 120 feet for the South Access Road. The SR 509 freeway extension would be designed to level of service (LOS) D and a speed of 70 miles per hour (mph). The South Access Road would be designed to LOS D and a speed of 35 to 45 mph.

South Airport Link

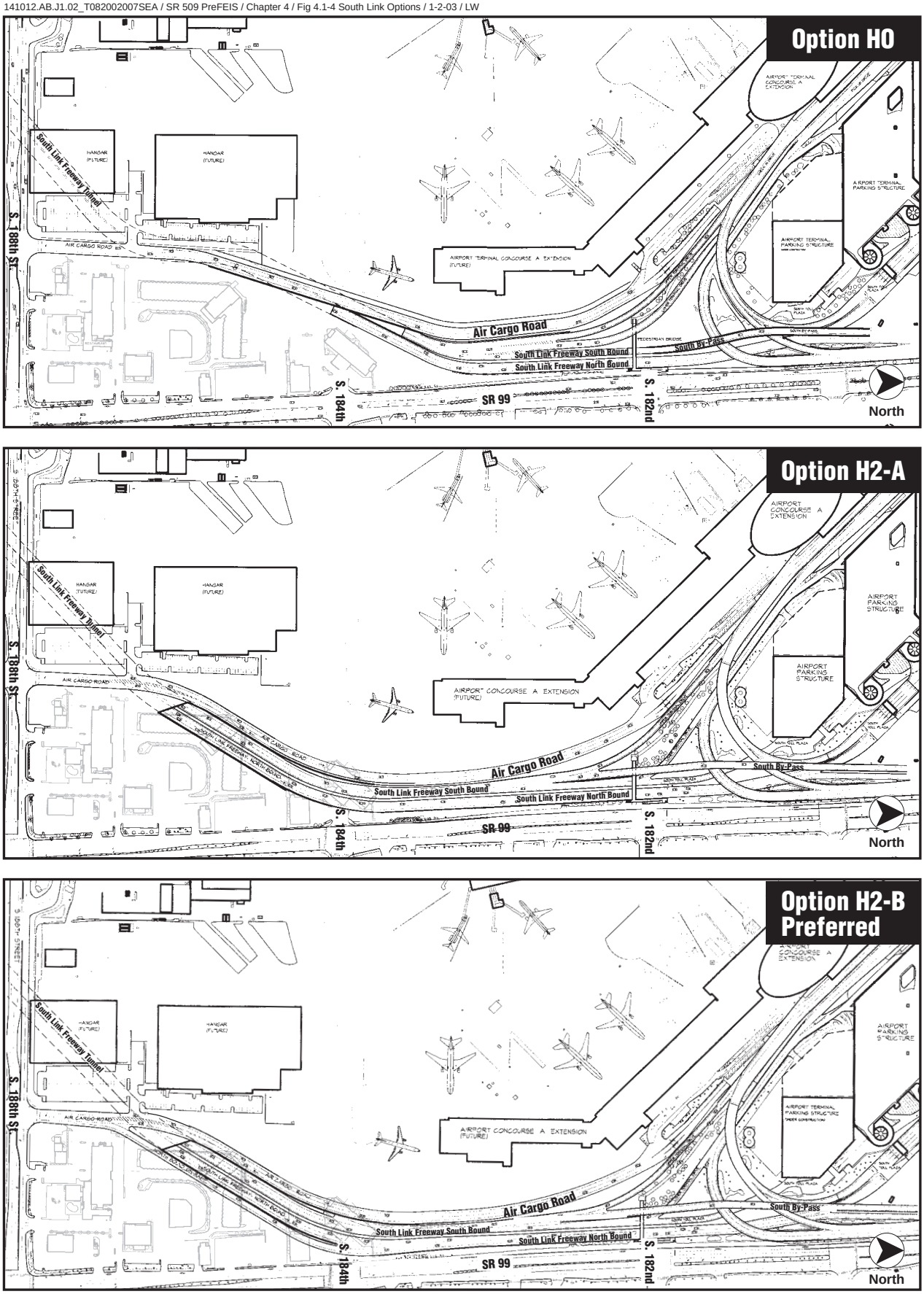
The South Airport Link, the northern 1,000 feet of the South Access Road that would connect to the existing Airport Terminal Drive system, has three design options. At the south end, each design option crosses beneath South 188th Street and the southeast corner of Sea-Tac Airport via a tunnel. At the north end, the design options would maintain both southbound and northbound connections from the upper and lower terminal drives. Under Design Option H0, Air Cargo Road and the South Access Road would be "stacked" via an extended “S”-curve tunnel structure (Figure 4.1-4). Under Design Option H2-A, Air Cargo Road and the South Access Road would generally parallel each other and would be separated by medians (Figure 4.1-4). Design option H2-B would be essentially the same as Design Option H2-A, except that it would provide local access routes for only northbound traffic from South 188th Street and 28th Avenue South (Figure 4.1-4). Design Option H2-B has been selected for inclusion in the preferred alternative.

Improvements to I-5

Southbound improvements to I-5 would include two new collector/distributor (C/D) lanes between the SR 509 convergence and SR 516, two new auxiliary lanes from SR 516 to South 272nd Street, and a new auxiliary lane from South 272nd Street to approximately South 310th Street, where the proposed project would match with an auxiliary lane to be constructed for the Sound Transit I-5 @ South 317th Street Direct Access Ramp project. On northbound I-5, a new auxiliary lane would extend between South 272nd Street and the SR 516 interchanges, and two new C/D lanes would start at the SR 516 interchange to serve I-5 traffic exiting to SR 509 and SR 516 traffic entering I-5. In addition, a South 228th Street extension and underpass would be constructed providing a direct connection to northbound I-5 from South 228th Street and from southbound I-5 to South 228th Street. Figure 4.1-5 presents a schematic of the I-5 improvements. These improvements would cover approximately 6.7 miles.

Alternative B

Under Alternative B, the SR 509 mainline would extend southward from its existing terminus at South 188th Street/12th Place South and intersect with I-5 in the vicinity of South 211th Street (Figure 4.1-6). The freeway extension and the South Access Road would generally parallel each other in a north-south orientation on the west and east sides of Des Moines Creek Park,



0 100 200
Approx.
Scale in Feet

FIGURE 4.1-4

South Airport Link Design Options

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement

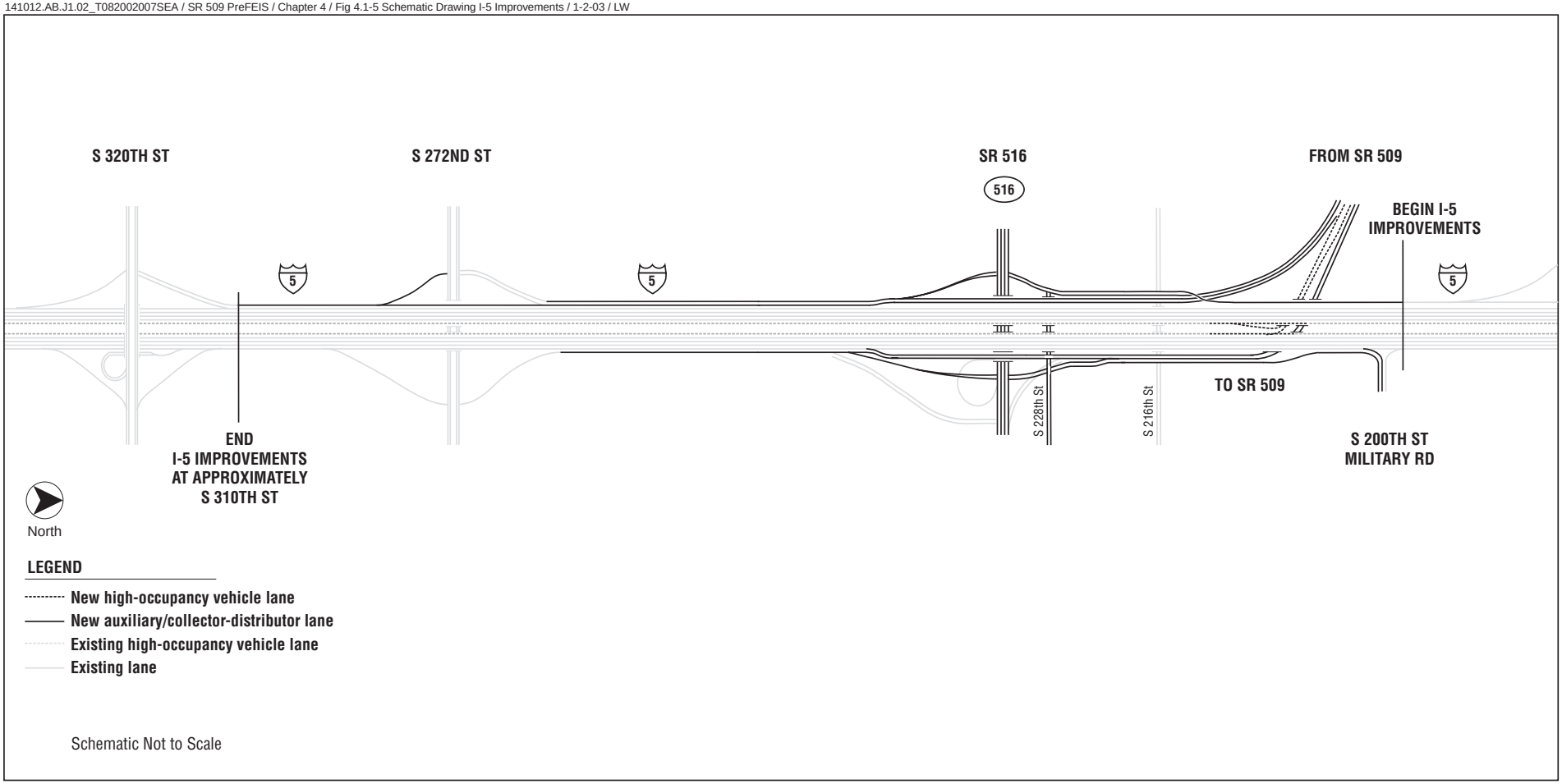
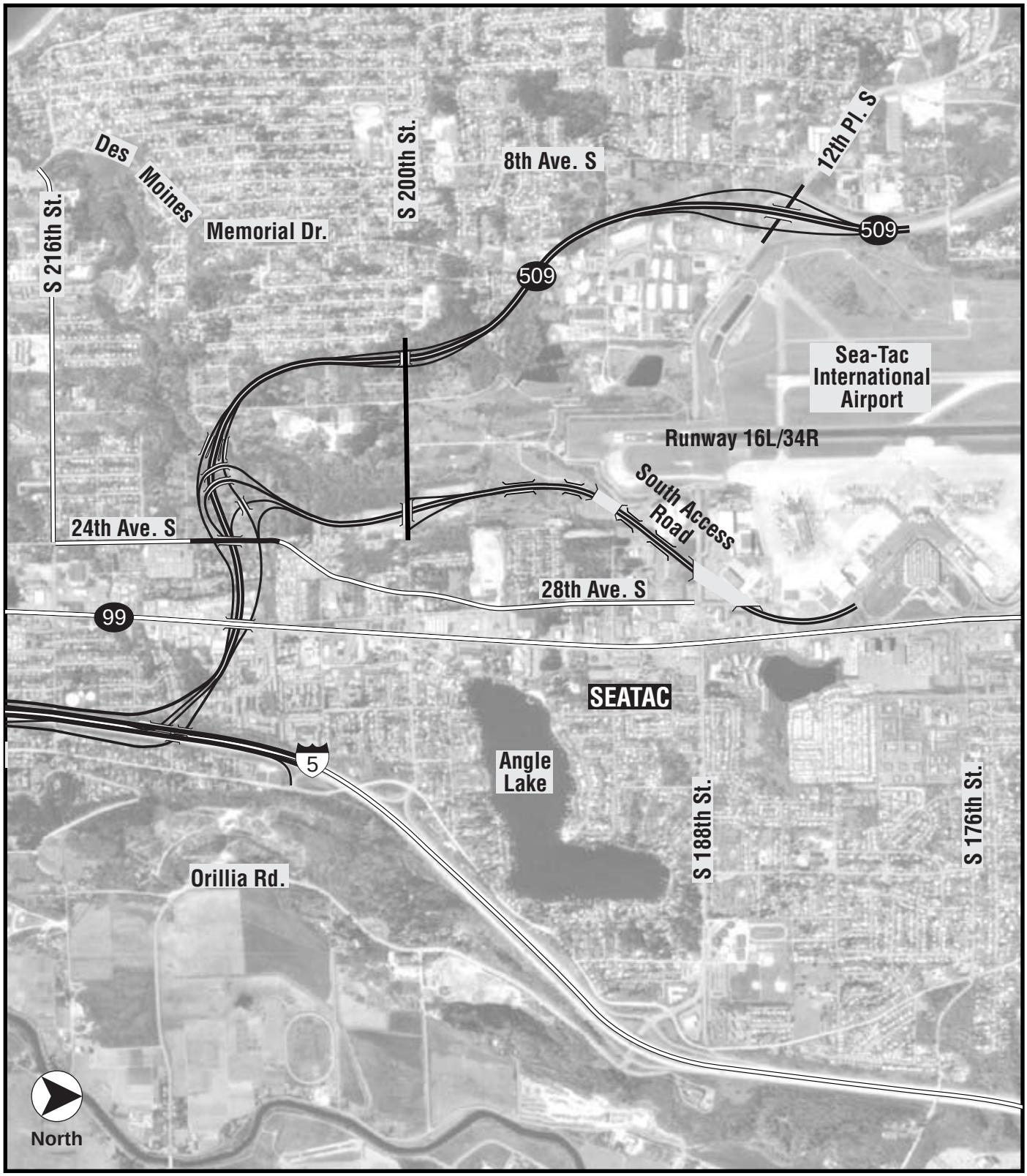


FIGURE 4.1-5

Schematic Drawing of I-5 Improvements

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement



0 1/4 1/2 3/4 1 MILES

Legend

SR 509/South Access Road Improvements

Bridge

FIGURE 4.1-6

Alternative B

SR 509: Corridor Completion/I-5/South Access Road Environmental Impact Statement

starting in the vicinity of South 208th Street and 24th Avenue South. The alignment would cross over Des Moines Creek and through Des Moines Creek Park at its narrowest point. The length of the SR 509 freeway extension, including the South Access Road, under Alternative B would be approximately 3.8 miles.

Alternative C2

Alternative C2 was identified as the preliminary preferred alternative in the Revised Draft Environmental Impact Statement (Revised DEIS). The National Environmental Policy Act (NEPA)/404 Merger Agreement Signatory Agency Committee (SAC) concurred with that decision prior to publication of the Revised DEIS in January 2002. The SAC includes representatives from U.S. Army Corps of Engineers (USACOE), National Marine Fisheries Service, U.S. Fish and Wildlife Service, U.S. Environmental Protection Agency, Washington State Department of Ecology (Ecology), and Washington State Department of Fish and Wildlife (WDFW). Roadway design associated with Alternative C2 within and adjacent to Des Moines Creek Park has been further refined based on comments received on the Revised DEIS from partnering agencies and the public.

The refinements include crossing the northeast corner of the park on two 60-foot-wide elevated structures separated by a distance of 30 to 40 feet in the park, rather than by a single 120-foot-wide elevated structure as proposed in the Revised DEIS. This refinement would further minimize impacts on Des Moines Creek Park because it would better integrate the roadway with the terrain, minimize the visual distraction to the park users, and reduce impacts on the wetland below the structures. The separate structures would reduce wetland shading anticipated with the single, wider structure and would allow light and precipitation to reach the underlying wetland vegetation.

The increased level of design detail is consistent with the intent of FHWA Technical Advisory T6640.8A (October 30, 1987), Section V (Environmental Impact Statement—Format and Content), Part E (Alternatives), which states:

> "Development of more detailed design … of one or more alternatives may be necessary … to address issues raised by other agencies or the public."

WSDOT selected Alternative C2 as the preferred alternative based on the benefits of these design refinements, agreement with the local officials with jurisdiction regarding the refinements (see Section 4.7, *Record of Coordination*), and concurrence from the SAC. Alternative C2 would provide the following benefits (when compared to the other build alternatives):

- It would cross the northeast corner of Des Moines Creek Park not currently used for recreation nor planned for future recreational development, leaving the rest of the park unaffected and contiguous.
- It would not significantly affect Des Moines Creek Park's continued recreation value, function, or use, although the recent design modifications would result in a larger roadway footprint than originally predicted in the Revised DEIS.
- It would minimize impacts on the underlying wetland.
- It would require the acquisition of the least amount of wetlands and would avoid all Category 1 wetlands.
- It would create the least amount of new impervious surface area.
- It would cause the fewest single-family residential displacements.
- It would avoid impacts on the Alaska Airlines Gold Coast Center.
- It would be the least expensive to build.

The design refinements discussed above are the only changes to Alternative C2 that would affect Des Moines Creek Park. Otherwise, and as noted in the Revised DEIS, Alternative C2 would begin at the existing SR 509 terminus at South 188th Street/12th Place South and intersect with I-5 in the vicinity of South 212th Street (see Figure 4.1-7). The South Access Road interchange with SR 509 would be in the vicinity of South 208th Street and 24th Avenue South. The length of the SR 509 freeway extension under Alternative C2, including the South Access Road, would be approximately 3.2 miles.

Alternative C3

Alternative C3 would begin at the existing SR 509 terminus at South 188th Street/12th Place South and intersect with I-5 in the vicinity of South 212th Street (Figure 4.1-8). Unlike Alternative C2, Alternative C3 (as well as Alternative B) has not been further refined since the publication of the Revised DEIS. Therefore, as envisioned in the Revised DEIS, Alternative C3 would cross the northeast corner and eastern edge of Des Moines Creek Park on a single 120-foot-wide elevated structure. If Alternative C3 were eventually selected as the preferred alternative, design refinements similar to those noted above for Alternative C2 would likely be implemented because of the benefits resulting from those refinements. The South Access Road interchange would occur in the vicinity of South 204th Street and 24th Avenue South. Under Alternative C3, the length of the SR 509 freeway extension (including the South Access Road) would be approximately 3.5 miles.

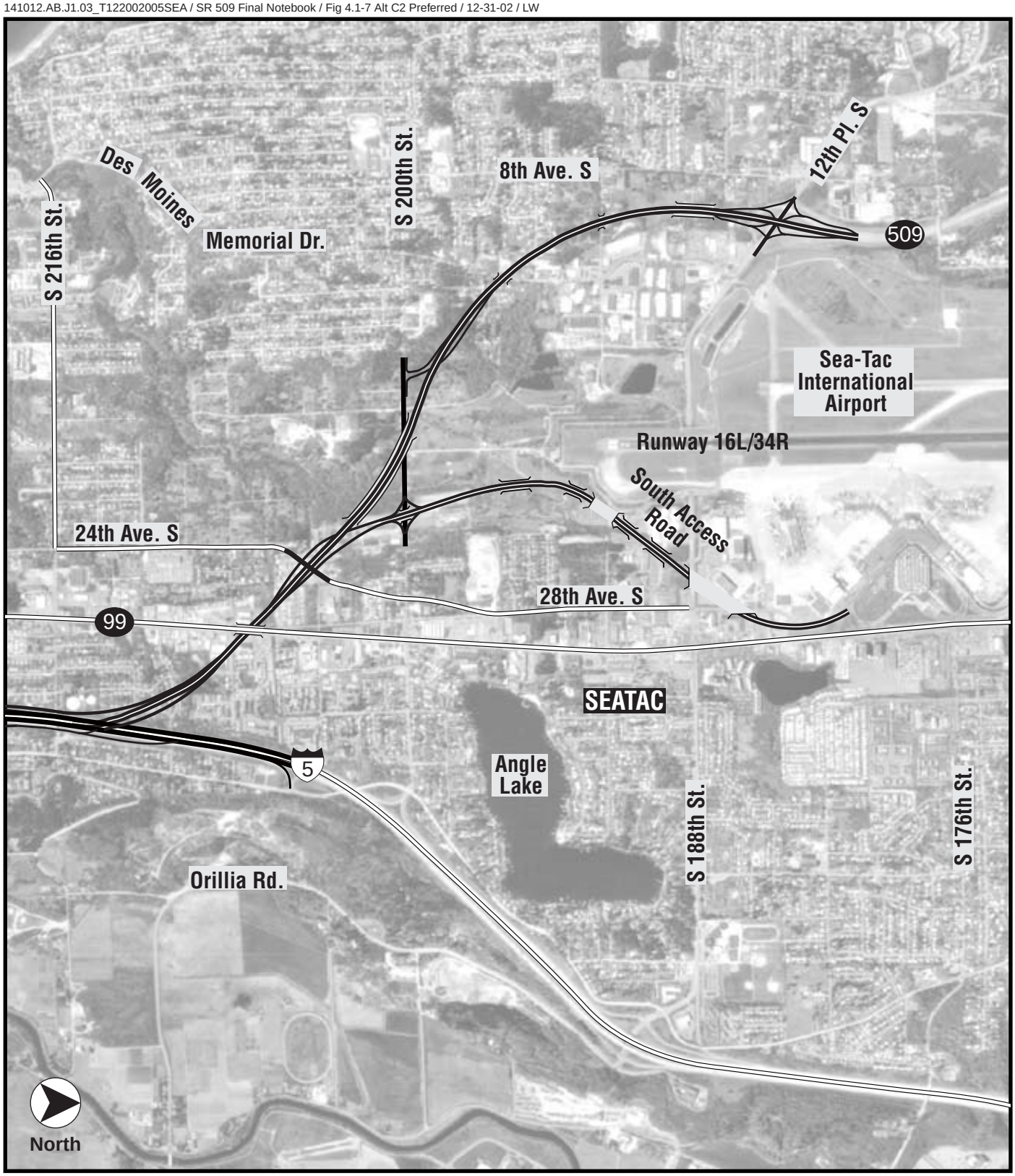


FIGURE 4.1-7

Alternative C2 (Preferred)

SR 509: Corridor Completion/I-5/South Access Road
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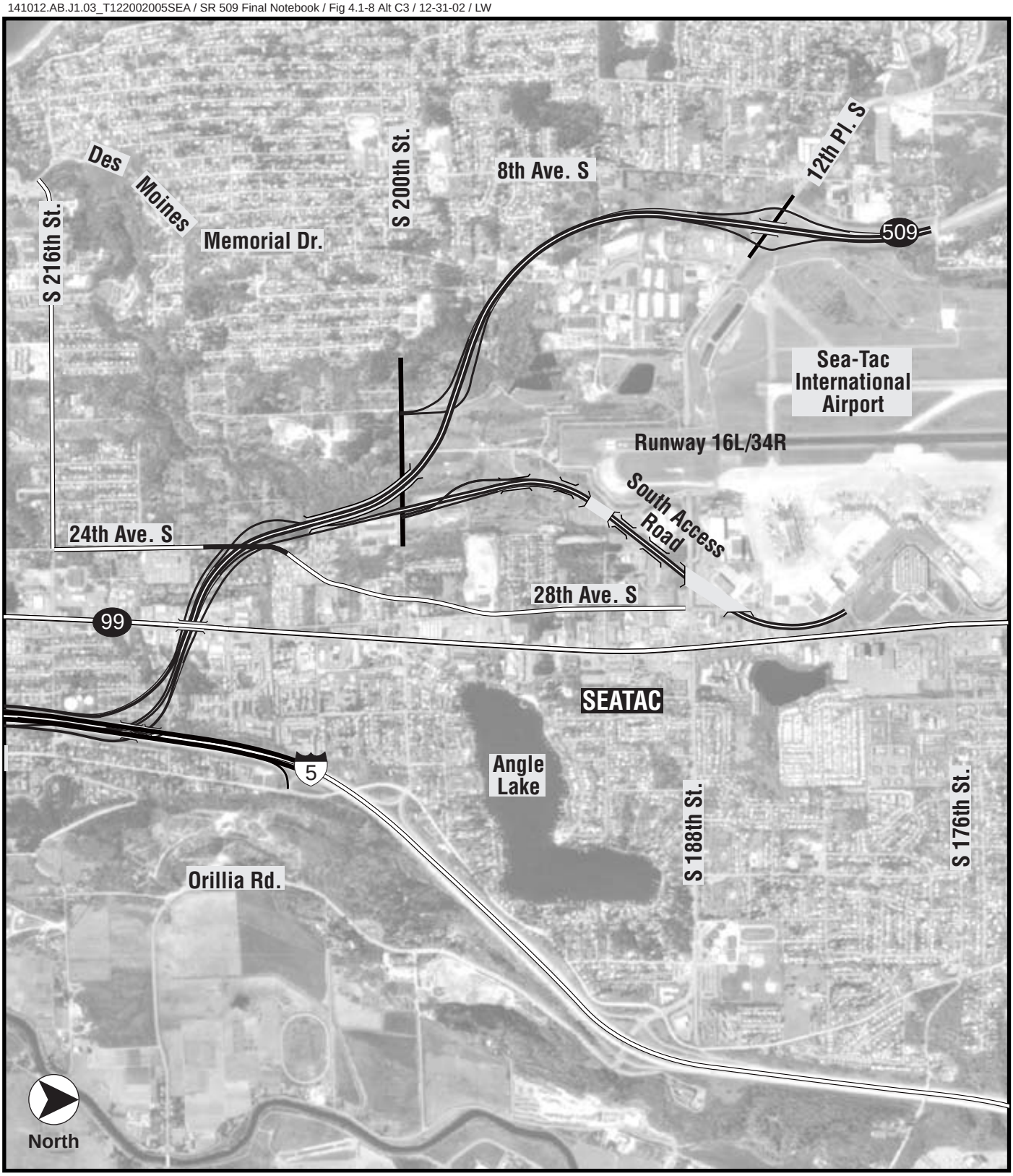

FIGURE 4.1-8

Alternative C3

SR 509: Corridor Completion/I-5/South Access Road
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4.2 Description of Section 4(f) Resources

During the course of conducting the impact analyses associated with this FEIS, it was determined that no currently recorded historic or archaeological properties in the project area that may be impacted by the project are on, or determined to be eligible for, the National Register of Historic Places (it has been a long-standing U.S. Department of Transportation/FHWA policy to apply Section 4(f) status only to historic or archaeological properties that meet that criteria). In addition, no designated wildlife or waterfowl refuges would be impacted by the project. As a result, this Section 4(f) Evaluation focuses exclusively on impacted publicly owned parks and specifically Des Moines Creek Park.

There are, however, other recreational facilities in the project area, as discussed in Section 3.10, *Social*, of this FEIS. There would be no direct impacts (property acquisition) on Midway Park, Linda Heights Park, or the Mark Twain Elementary School Playfield. Despite the proposed westward shift of I-5, because of construction of an earthen berm to accommodate the SR 509 to SR 516 southbound connector ramp, there would actually be a decrease in noise levels (between 1 and 5 A-weighted decibels [dBA] below existing levels in 2020) within Midway Park. Some trees immediately to the west of the existing I-5 right-of-way would be removed to accommodate the construction of the earthen berm. The loss of these trees, however, would not substantially impair the activities, features, or attributes of either the existing or proposed park area and thus would not constitute a constructive use as defined by Section 4(f).

Linda Heights Park and Mark Twain Elementary School Playfield would be expected to experience increases in noise levels of less than 1 dBA and 2 dBA, respectively. Increases at these levels would be unnoticeable to users of the two facilities and certainly would not substantially impair the activities, features, or attributes of these facilities. Removal of some trees immediately adjacent to I-5 to accommodate the proposed northbound auxiliary lane would not adversely affect views from Linda Heights Park. Native trees would be replanted either along the I-5 right-of-way or within the park limits. The existing berm between the Mark Twain Elementary School Playfield and the southbound on-ramp would be rebuilt slightly closer to the playfield, without affecting existing playfield use, and replanted with native vegetation. Eastward views from the playfield would be similar to current views. As a result, it is concluded that none of the potential proximity impacts would constitute a constructive use of either facility. As noted in Section 3.10, the Port of Seattle has the right to reduce the acreage or permanently close the Tyee Valley Golf Course, with a 30-day notice, to allow for its use by the Port or for other public projects. Based on currently known plans unrelated to the proposed project, it is likely that the course will be substantially reconfigured and likely closed prior to any construction for

the SR 509 project. As a result, the golf course is not considered protected under Section 4(f) and is not addressed in this Section 4(f) Evaluation.

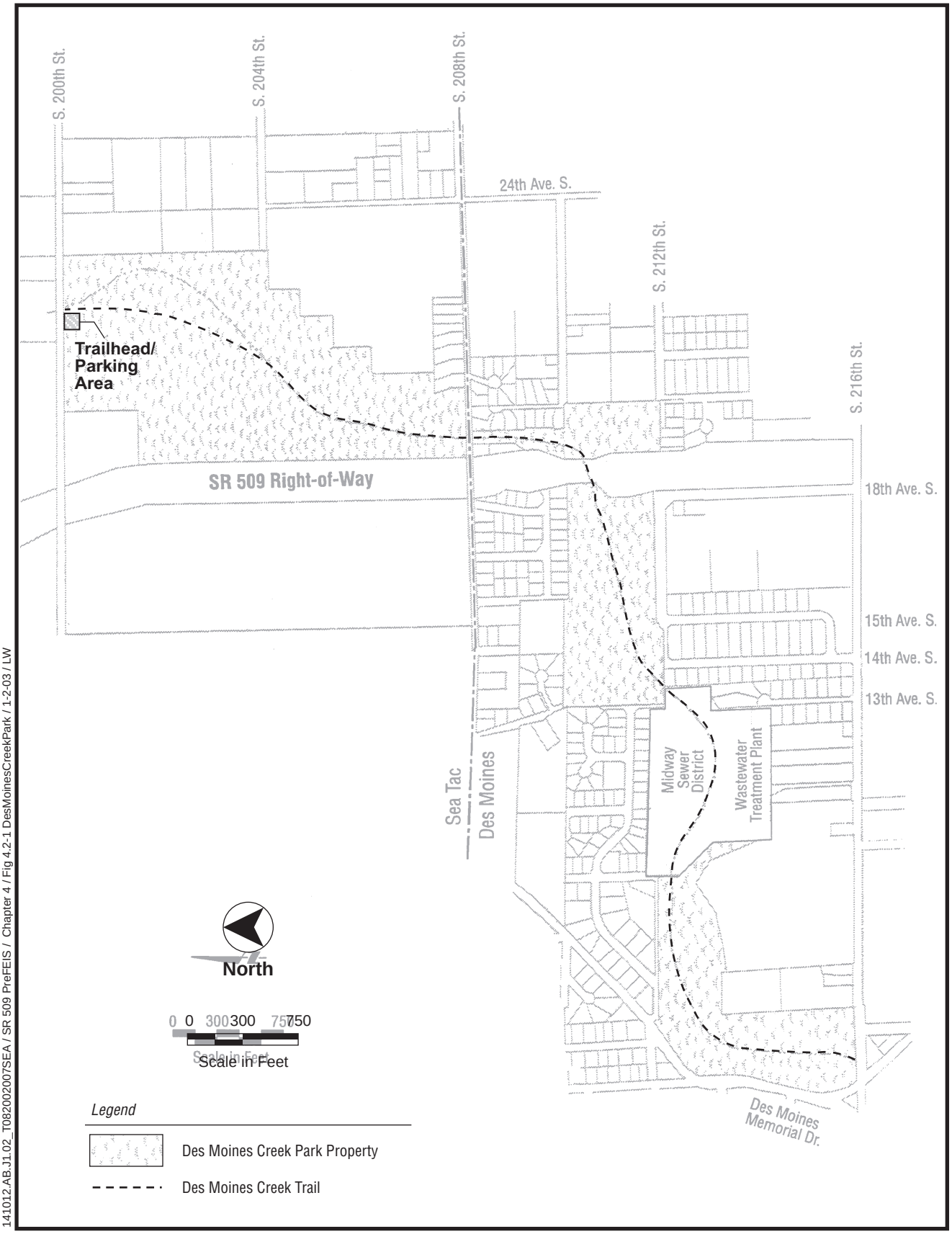
4.2.1 Des Moines Creek Park and Trail

Current Use and Values

Des Moines Creek Park encompasses the largest natural preserve of woodland environment within the SeaTac/Des Moines area. The park is composed of 95.8 undeveloped acres of forest and stream habitat (Figure 4.2-1). The park is located along a steep ravine that runs from northeast to southwest from South 200th Street in SeaTac to South 216th Street in Des Moines. Primary access to the park is via a parking and trailhead area at South 200th Street. Footpaths also access the park from adjacent residential areas at the north end of 15th Avenue South and the east end of South 211th Place. The park is characterized by a relatively secluded setting, enhanced by the fact that residential buildings in surrounding areas have been removed through the Sea-Tac Airport Noise Remedy Program. Despite its secluded setting, it should be noted that the park is substantially affected by aircraft noise; further discussion of that impact is provided below. The park boundaries are discontinuous, being divided by the existing SR 509 right-of-way and the Midway Sewer District Treatment Plant (see Section 1.2 for a further discussion of the existing WSDOT right-of-way). The park is considered an important element of the local, community, and regional park systems.

Approximately 51.9 acres of the park lie within the City of SeaTac. While the City actively manages its portion of the park, King County is the current owner of the land. King County and the City of SeaTac are currently negotiating for the legal transfer of the property from the County to the City. Des Moines Creek Park is classified by the City of SeaTac as a "Community-Wide Resource." The primary management objective for such parks is to maintain their natural environment while providing recreational uses that do not adversely affect the setting. Approximately 43.9 acres lie within Des Moines, which classifies the park as a “Conservancy” and “Community” facility. Conservancy parks are intended for the protection and management of the natural/cultural environment, with recreation use as a secondary objective. Community parks—defined as including large passive areas, like Des Moines Creek Park—are intended to be “accessible to larger community populations on a managed basis, thus protecting the values that make the park an asset to the public.”

Local planners and park administrators emphasize that the natural, undeveloped appearance is the primary characteristic that sets this park apart from other local parks in the vicinity, which makes the park very important to neighborhood, community, and regional populations. The park is seen by local planners, park administrators, and the public as a very important element to the future neighborhood, community, and regional park system in



141012.AB.J1.02_T082002007SEA / SR 509 PreFEIS / Chapter 4 / Fig 4.2-1 DesMoinesCreekPark / 1-2-03 / LW

FIGURE 4.2-1

Des Moines Creek Park

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the project vicinity (Thorell pers. comm. 1995). The primary value of the park is embodied in specific natural features, such as:

- An approximately 16-acre wetland located along Des Moines Creek in the northeast corner of the park, which corresponds to Wetland A (see Section 3.6, *Wetlands*)

- The riverine wetland and riparian areas along the entire creek, including Wetland 9 (see Section 3.6, *Wetlands*)

- The potential fisheries values of Des Moines Creek, which is classified as a King County Class 2 stream with salmonids

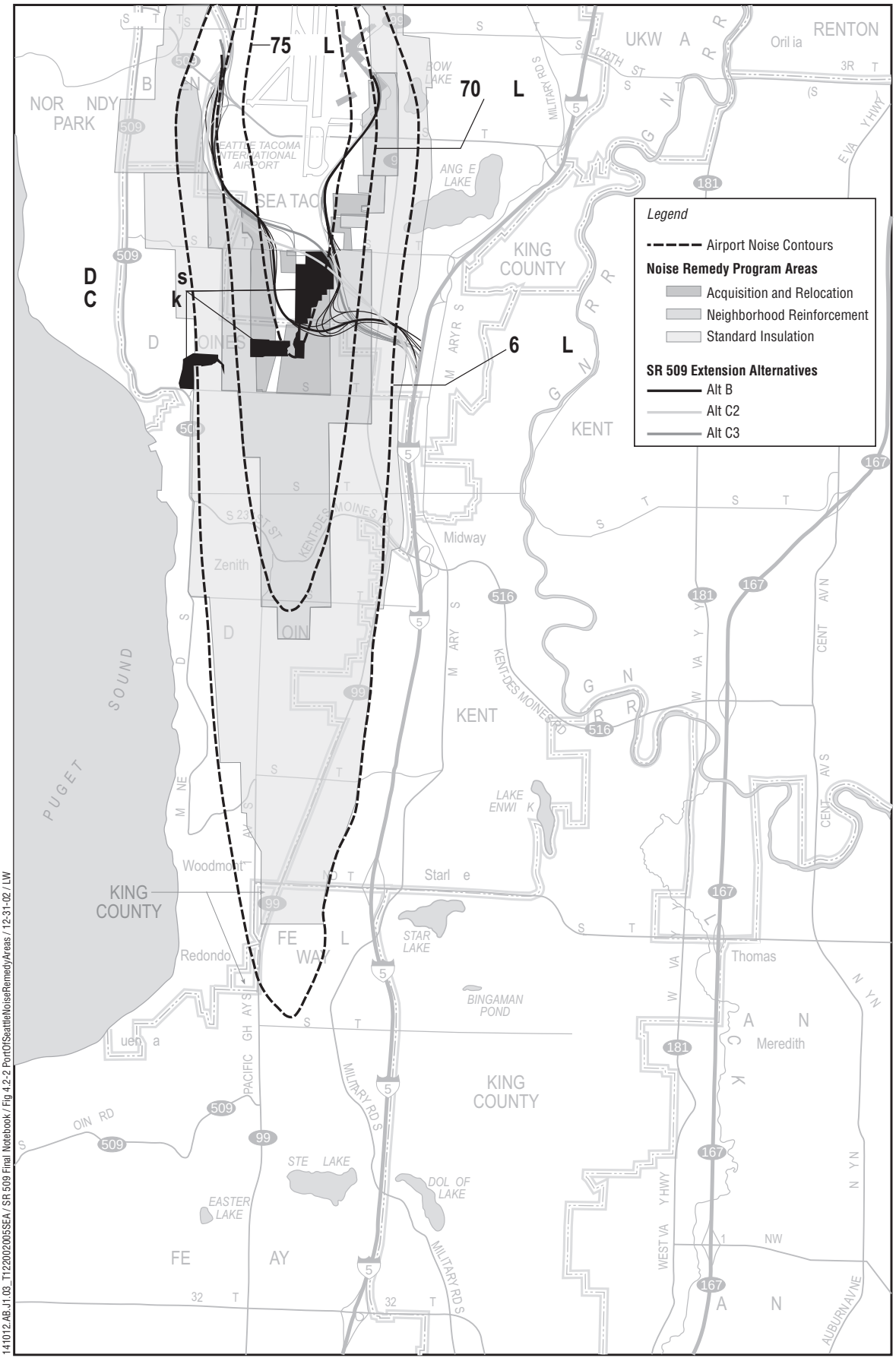
- The park's overall ecological importance as the largest linear block of relatively intact natural habitat remaining in the SeaTac and Des Moines area

The park is rare in the project vicinity with respect to these values.

The interior of Des Moines Creek Park is accessed primarily via the Des Moines Creek Trail at South 200th Street. In July 1998, the City of SeaTac completed construction of the trail from South 200th Street downstream along the creek to the Midway Sewer District Treatment Plant. Improvements to Des Moines Creek Trail between the treatment plant and Marine View Drive will be made by the City of Des Moines following the construction of a new bridge at Marine View Drive South that will allow the trail and creek to pass through an existing embankment. The City is also expected to coordinate future construction of the trail with plans by the Midway Sewer District to complete an outfall line currently being constructed along the unimproved access road through Des Moines Beach Park.

Consistent with the undeveloped nature of the park, except for the trail along Des Moines Creek and adjacent benches, there are no other facilities within the park.

Use of the Des Moines Creek Park and Trail is substantially affected by noise from aircraft departing from and approaching Sea-Tac Airport. All of the park in SeaTac and the northern portion in Des Moines are located within the Acquisition and Relocation area of the Sea-Tac Airport Noise Remedy Program (see Figure 4.2-2). The western portion of the park in Des Moines (west of the Midway Sewer District Treatment Plant) is located in the Standard Insulation area or is outside the Noise Remedy Program area. Noise levels at locations near the park but farther away from the aircraft approach/departure flight path exceed the 66 dBA noise abatement criteria (NAC) of both WSDOT and FHWA for Activity Category B land uses, which include picnic areas, recreation areas, and parks. Measured noise levels within the park show average levels of 71 to 75 dBA during periods when jet aircraft departures occur. In fact, based on the 1998 aircraft noise contours in the *Sea-Tac Airport Part 150 Study Update* (Port of Seattle 2000), aircraft noise



1410I2.AB.J1.03_T122002005SEA / SR 509 Final Notebook / Fig 4.2-2 Port0fSeattleNoiseRemedyAreas / 12-31-02 / LW

FIGURE 4.2-2

Port of Seattle Noise Remedy Program Areas

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exposure within the park is in the range of 70 dBA day-night average noise level (DNL). It should be noted, however, that passing airplanes are a distinct and episodic noise source. During times when aircraft are not passing overhead, noise in the park is quite low because of its secluded nature and the absence of constant background noise sources. During times when there are no flights, background noise levels are as low as near 50 dBA. This "silent period" is rare, however, especially in the peak summer air travel period (May through September), which coincides with highest park use. The *Noise* section of this FEIS provides further details.

Future Use and Values

Future use of Des Moines Creek Park and Trail is formally guided by the Parks, Recreation, and Open Space elements of the *City of SeaTac Comprehensive Plan* (SeaTac 1994 with 1999 updates) and by the *Des Moines Park and Recreation Master Plan* (Des Moines 1997). The value of the park is largely dependent on the goals, strategies, and schedules for future park use as defined in these plans.

The Park, Recreation, and Open Space element of the SeaTac Comprehensive Plan includes specific policies, supportive discussion, and anticipated development timelines that place a high (short-term) priority on the development of the Des Moines Creek Trail and maintenance of the natural habitat values of the park. Retaining the "rich array of wildlife, wildflowers and access to water environment . . . is important to the quality of this park experience." Policy 9.9F directs the City to preserve the Des Moines Creek area while preserving the character and wildlife habitat and allowing for interpretive opportunities and linkage to regional trails. Policy 9.9G emphasizes a prohibition of vehicular traffic from the open space area south of South 200th Street.

The City of SeaTac's Comprehensive Plan envisions the northward extension of the Des Moines Creek Trail through Port property north of South 200th Street. The extension would connect to a new trail along the west side of the proposed new third runway. As previously noted, the City of Des Moines intends to extend the existing Des Moines Creek Trail from the Midway Sewer District Treatment Plant to Marine View Drive in conjunction with the construction of a new bridge at Marine View Drive. The trail will eventually extend to Des Moines Beach Park on Puget Sound.

The Des Moines Creek Trail's purpose is to allow people to experience a primarily natural setting. Des Moines and SeaTac Park administrators and planners for SeaTac and Des Moines indicate that Des Moines Creek Trail will provide a north-south link in regional trail connections. The trail would provide pedestrian/bicycle (and possibly equestrian) linkage between Des Moines Beach Park, Saltwater State Park, and other recreational facilities in Federal Way (via the Barnes Creek Nature Trail or another route), and North

SeaTac Park. It would potentially also link to recreational facilities in the Green River Valley east of the project vicinity.

Although no use projections have been developed for Des Moines Creek Park, both SeaTac and Des Moines park administrators and planning staff assume that the park will be a critical element in their attempts to meet recreational demand in the area. Consequently, the future recreational value of the park is considered important.

4.3 Impacts on Section 4(f) Resources

4.3.1 Alternative A (No Action)

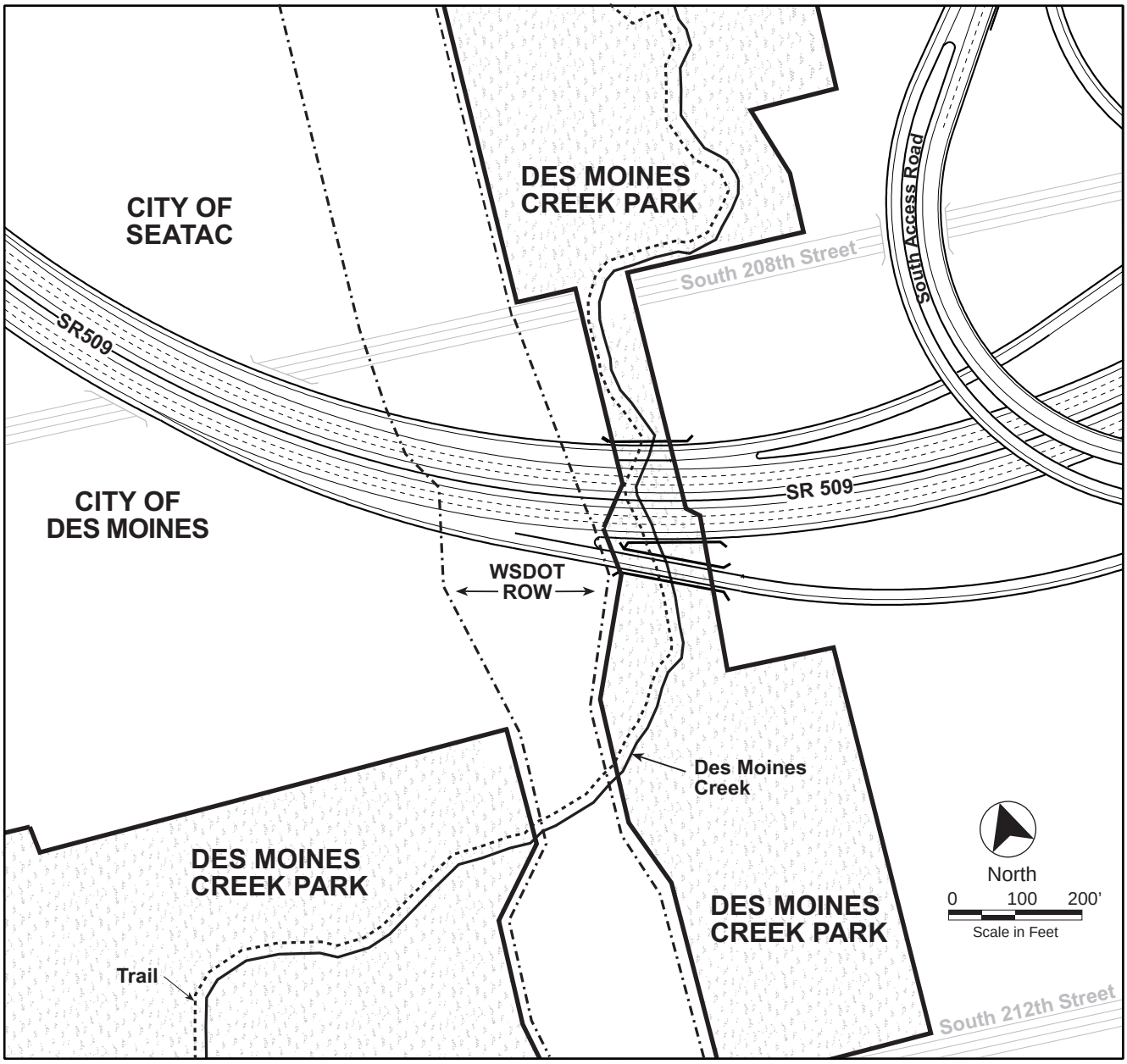
The No Action Alternative assumes that several planned transportation improvements that are not a part of the proposed project would occur. The extent of the impacts potentially occurring to Des Moines Creek Park and other parks resulting from each project cannot be determined at this time, but will be evaluated in required environmental review documents or permit applications prepared by their proponents when these projects are proposed.

4.3.2 Alternative B

Des Moines Creek Park and Trail

Under Alternative B, two proposed bridge structures would cross through Des Moines Creek Park and over Des Moines Creek and Trail (a larger bridge for the main line and northbound on-ramp and a second bridge for the southbound off-ramp; Figure 4.3-1). The footprint of the two bridges would be acquired, amounting to 0.5 acre of park property. Because of the length of the span for the bridges (less than 150 feet each), it is assumed the bridges could be built without support piers actually being placed within the park. The impacted area would constitute less than 1 percent of the total park area.

The amount of parkland required would be limited by the fact that the roadway alignment would cross over the park at its narrowest point. This location, however, is also one of the most isolated, secluded, and pristine areas of the park. Noise levels at this location (based on extrapolation of data from other nearby noise receptors) are roughly 5 dBA less than those experienced near the existing Des Moines Creek trailhead along South 200th Street (and the area that would be impacted by Alternatives C2 and C3). Background roadway traffic noise is virtually nonexistent. Without aircraft operations, daytime noise levels at this location are in the 45 to 50-dBA range. This location is approximately 3,000 feet farther south of the airport runways than the trailhead area. Aircraft are considerably higher over this location and thus aircraft noise is slightly less (up to 2 dBA) than that



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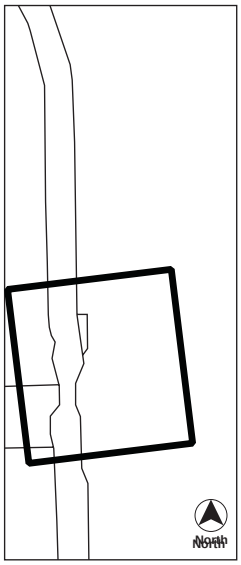

Legend

- Park
- Trail
- Des Moines Creek
- WSDOT Right-of-Way

FIGURE 4.3-1

Impacts on Des Moines Creek Park with Alternative B

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experienced at the trailhead. The project would introduce traffic noise into this relatively quieter area of the park and could have a substantial adverse impact on the use and enjoyment of the underlying Des Moines Creek Trail. At this location, the trail is situated in a narrow, woody ravine immediately adjacent to the creek.

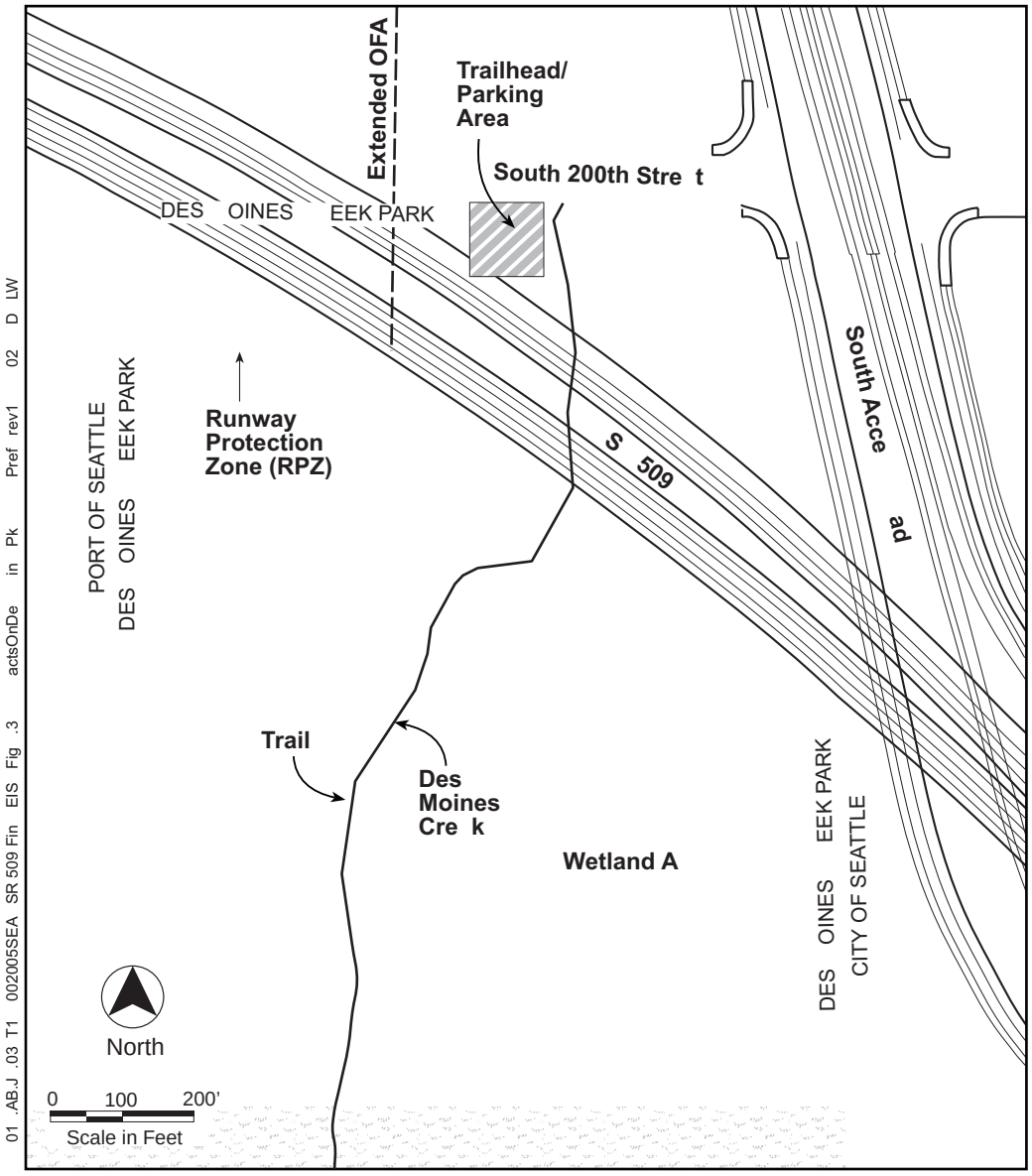
The sounds of the babbling creek are very evident. This location is a highlight of the trail experience. The noise of the relatively constant daytime traffic on the bridge overhead would substantially impact the natural setting and the enjoyment of this location.

In addition, numerous trees would be removed to accommodate the two bridge structures. Artificial shading would be created by the bridges. The bridge structures would dominate the trail user's view. The cumulative effect of these changes would be that the visual continuity of this natural stream valley would be interrupted and substantially impaired.

In discussion between WSDOT and the SeaTac and Des Moines park directors, the park directors have expressed concern about the character-changing effects of the proposed Alternative B crossing. This particular location is seen has having one of the highest values for recreational use within the park, worthy of protection. Given the choice, both directors were more supportive of Alternatives C2 and C3, in which impacts would occur where background noise is more prevalent and the recreational value is much less than Alternative B.

In conclusion, the proximity impacts caused by Alternative B—increased noise and visual effects—are considered a constructive use, as defined by Section 4(f), of Des Moines Creek Park. According to 23 CFR 771.135(p)(2), "Constructive use occurs when the transportation project does not incorporate land from a section 4(f) resource, but the project's proximity impacts are so severe that the protected activities, features, or attributes that qualify a resource for protection under section 4(f) are substantially impaired. Substantial impairment occurs only when the protected activities, features, or attributes of the resource are substantially diminished." Based on the impacts to one of the most pristine and highly valued locations within Des Moines Creek Park, as previously described, Alternative B would be considered a constructive use, since those impacts would substantially impair the features and attributes of the 4(f) resource.

Alternative B would also affect a portion of Wetland 9, the riparian wetland along Des Moines Creek. Approximately 0.04 acre of Wetland 9 would be filled under this alternative. This wetland provides habitat for wildlife and fish, and constitutes a valuable natural feature for future interpretive opportunities for park users.



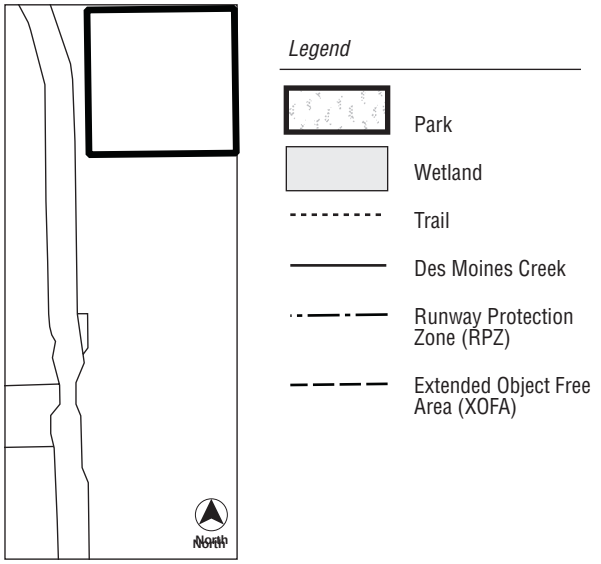


FIGURE 4.3-2

Impacts on Des Moines Creek Park with Alternative C2 (Preferred)

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement

4.3.3 Alternative C2 (Preferred)

Des Moines Creek Park and Trail

The SR 509 mainline would cross the northeast corner of Des Moines Creek Park (see Figure 4.3-2). This roadway would be on two separate 60-foot-wide elevated structures within the park that would be approximately 1,000 feet long. The footprint of the two elevated structures and the 30- to 40-foot space between the structures would be acquired, amounting to 4.2 acres of parkland. In addition, a southbound frontage road providing access from South 200th Street to SR 509 would encroach into the extreme northeast corner of the park, requiring acquisition of an additional 0.5 acre of parkland. In total, 4.7 acres of parkland would be acquired for highway use under Alternative C2. The impacted area would constitute approximately 5 percent of the total park area, and 9.1 percent of the portion of the park within the City of SeaTac. The existing trailhead parking area along South 200th Street would be immediately adjacent to the northbound roadway structure; a small portion of this area (roughly 500 square feet or 5 percent of the total parking area) would actually be situated under the roadway structure. The structure would be well above the parking area (a minimum of roughly 35 feet high), which would allow for continued use of the entire parking area after construction. The height of both structures would also accommodate the continued use of the trail itself, although the trail would be covered for approximately 75 feet by the northbound structure and an additional 75 feet by the southbound structure. During actual construction of the elevated structure, the trailhead parking area and the northernmost 275 feet of the trail between the trailhead and the southern edge of the southbound structure would likely need to be closed for safety reasons. The SR 509 mainline would separate a small 2.1-acre triangular area to the northeast (between the mainline and the frontage road) from the remainder of the park to the south. Except for the trailhead parking area, much of this separated northern area is wetland and wetland buffer and not currently used for recreation, nor planned for future recreational development. The project would not make this area any less usable than it currently is. The rest of the park would remain unaffected and contiguous (for this reason, the SeaTac and Des Moines parks directors prefer Alternative C2 and C3, as compared to Alternative B).

Alternative C2 would cross Wetland A within Des Moines Creek Park on a bridge structure. The bridge span over Wetland A would vary in height between 30 and 46 feet. The northbound and southbound roadway structures would each be approximately 60 feet wide, and would be separated by 30 to 40 feet. The height of the bridge over the wetland, accompanied with the separation of the northbound and southbound roadways, would help to ensure the preservation of wetland function and health beneath the structures: More light and precipitation would reach the underlying wetlands and vegetation than would be possible if northbound and southbound lanes were both on the same span. It is estimated that 0.01 acre of the wetland would be used for the

placement of the roadway structures support columns. Wetland A would also have 0.09 acre of fill within an east ditch extension of the wetland. This wetland provides important habitat for wildlife and fish, and constitutes a valuable natural feature for future interpretative opportunities for park users.

The presence of the roadway structures would cause a visual impact for park/ trail users. The structures would be a dominating visual feature for those who use the immediately adjacent trailhead parking area and the trail. This impact, however, would only be experienced at the northernmost 275 feet of the trail. In addition to the visual presence of the structures, a number of trees would need to be removed during construction and that portion of the trail actually under the structures (150 feet) would be shaded. The visual intrusion of the roadway structures could affect the enjoyment of the trail by some users.

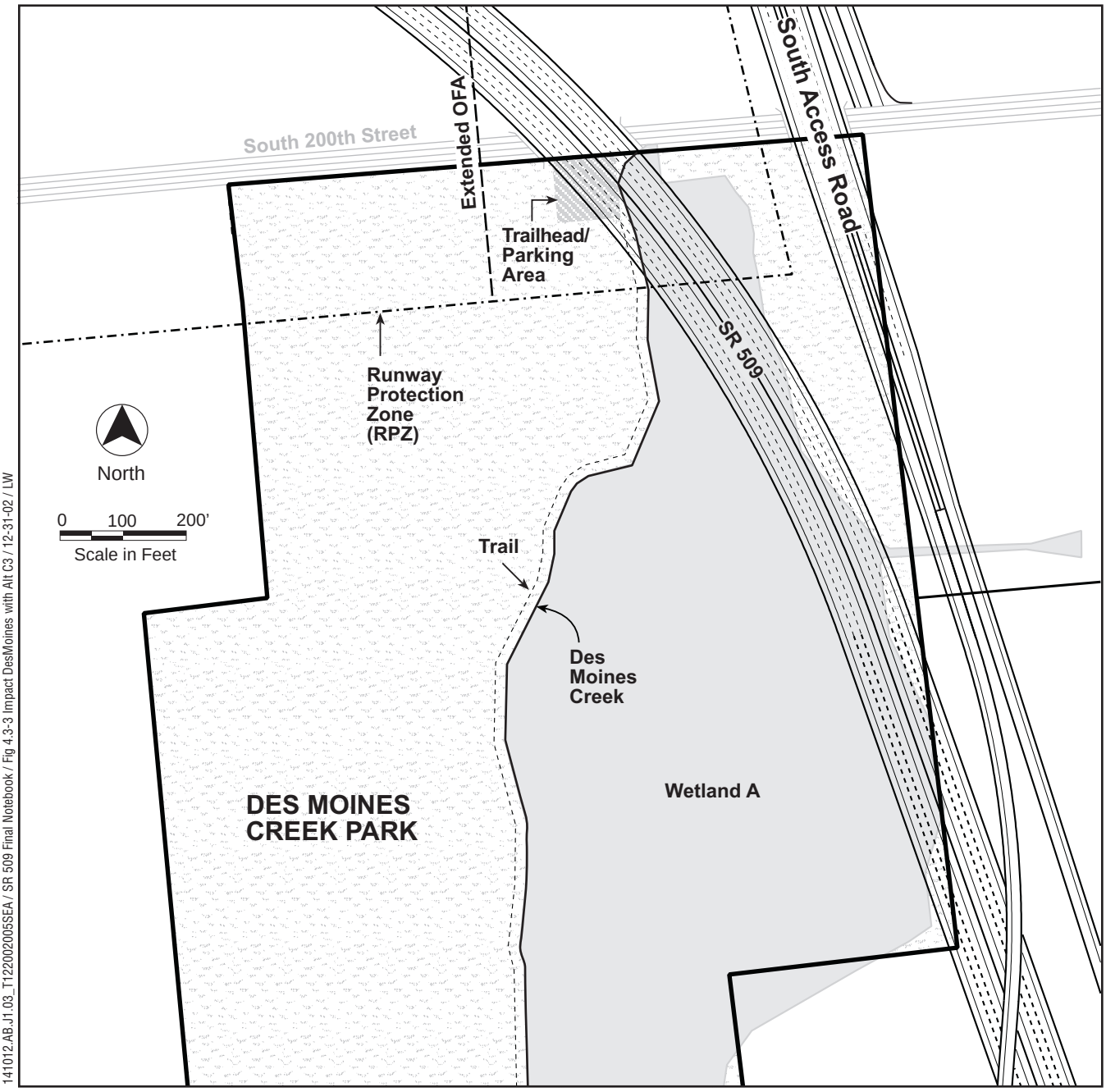
Noise levels in the vicinity of the impacted area are higher than elsewhere in the park, the result of being closer to the south end of the airport runways and the vehicular traffic along South 200th Street. Because of this current level of background aircraft and vehicular noise, project-related increases in hourly average noise levels are not predicted to be substantial. During periods when southerly departures are in effect, there would be an increase of no more than approximately 1 dBA within the park immediately adjacent to SR 509. If peak-hour traffic coincided with times when aircraft would approach from the south, traffic noise levels could increase by up to 5 dBA in hourly average noise levels, which is considered insubstantial. It should be further noted that increased noise levels in this localized area would be diminished somewhat due to the height of the roadway structures.

4.3.4 Alternative C3

Des Moines Creek Park and Trail

The following analysis of impacts related to Alternative C3 is based on the design details that were presented in the Revised DEIS. If the design refinements that have been incorporated into Alternative C2 were incorporated into Alternative C3 as well, similar changes in impacts as those described for Alternative C2 would be expected. In other words, Alternative C3 would result in a somewhat larger roadway footprint than what is reported in this Evaluation. Conversely, lesser shading impacts to the underlying wetland than reported in this section would also be expected.

The SR 509 mainline would cross the northeast corner of Des Moines Creek Park (see Figure 4.3-3). This roadway would be on a single 120-foot-wide elevated structure along the approximately 1,200-foot alignment within the park. The footprint of the proposed structure would require the acquisition of approximately 3.3 acres of parkland. The South Access Road would also encroach into the extreme northeast corner of the park; a retaining wall along the western edge of the roadway would limit the amount of additional



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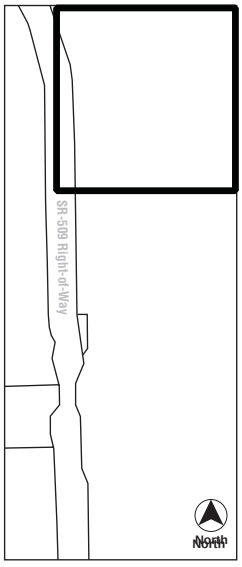


Legend

- Park
- Wetland
- Trail
- Des Moines Creek
- Runway Protection Zone (RPZ)
- Extended Object Free Area (XOFA)

FIGURE 4.3-3

Impacts on Des Moines Creek Park with Alternative C3

SR 509: Corridor Completion/I-5/South Access Road Environmental Impact Statement

parkland to be acquired to 0.6 acre. The total area impacted (3.9 acres) would constitute approximately 4 percent of the total park area and 7.5 percent of the portion of the park in the City of SeaTac. The roadway structure would cover roughly 75 percent of the existing trailhead parking area. The structure would be well above the parking area (a minimum of 35 feet high) to allow for continued use after construction. The height of the structure would also accommodate the continued use of the trail itself; only about 75 feet of the trail would actually be covered near its northern terminus. During construction of the elevated structure, the trailhead parking area and the northern end of the trail would likely need to be closed for safety reasons. A small area of the park would be isolated between the SR 509 mainline structure and the South Access Road. This area is mostly wetland and wetland buffer and not currently used for recreation nor planned for future recreational development. The project would not make this area any less usable than it currently is. The rest of the park would remain unaffected and contiguous (for this reason, the SeaTac and Des Moines parks directors prefer Alternatives C2 and C3, as compared to Alternative B).

Alternative C3 would cross Wetland A within Des Moines Creek Park. Approximately 3.3 acres of the wetland would be covered by the elevated SR 509 mainline structure and the South Access Road. Covering of the wetland by the single 120-foot-wide elevated structure would result in greater shading effects to the underlying vegetation than for Alternative C2. Without the relatively narrower structures and the space between them as proposed in Alternative C2, less light and precipitation would likely reach the ground. It is estimated that 0.01 acre of the wetland would be used for the placement of the roadway structure support columns. No other impacts on the wetland are anticipated. This wetland provides important habitat for wildlife and fish, and constitutes a valuable natural feature for future interpretative opportunities for park users.

The presence of the roadway structure would cause a visual impact for park/trail users. The structure would be a dominating visual feature for those who use the immediately adjacent trailhead parking area and the trail. This impact, however, would only be experienced at the northernmost 75 feet of the trail. In addition to the visual presence of the structure, a number of trees would need to be removed during construction and that portion of the trail under the structure (75 feet) would be shaded. The visual intrusion of the roadway structure could affect the enjoyment of the trail by some users.

Similar to Alternative C2, noise levels in the impacted area are higher than elsewhere in the park, the result of being close to the south end of the airport runways and the vehicular traffic along South 200th Street. Because of this current level of background aircraft and vehicular noise, project-related increases in hourly average noise levels are not predicted to be substantial. During periods when southerly departures are in effect, there would be an increase of no more than approximately 1 dBA within the park immediately

adjacent to SR 509. If peak-hour traffic coincided with times when aircraft would approach from the south, traffic noise levels could increase by up to 5 dBA in hourly average noise levels, which is considered insubstantial. It should be further noted that increased noise levels in this localized area would be diminished somewhat due to the height of the roadway structures.

4.4 Section 4(f) Resource Avoidance Alternatives

The current build alternatives analyzed in this FEIS and Section 4(f) Evaluation were the result of a lengthy and exhaustive alternative development, evaluation, screening, and refinement process described in detail in Chapter 2 of this FEIS. None of these build alternatives are avoidance alternatives in the context of Section 4(f). As previously described, each alternative would cause distinct direct impacts and minor indirect impacts to Des Moines Creek Park.

Section 4(f) requires that, if impacts to a Section 4(f) resource are anticipated, feasible and prudent avoidance alternatives need to be identified, evaluated, and if determined to be feasible and prudent, selected for implementation. Since 1991, over 70 alternatives have been developed, analyzed, and refined or discarded (see Figure 2.3-3, Chapter 2). Some of those alternatives did avoid Des Moines Creek Park but through the evaluation process, WSDOT concluded that while engineeringly feasible, they did not achieve the purpose of the project and/or caused social and economic impacts of an extraordinary magnitude and thus could not be considered prudent. The following discussion provides the rationale for that conclusion.

As part of the preparation of the corridor-level DEIS in 1995 (FAA et al. December 1995), a number of avoidance alternatives were identified (see the Draft Section 4(f) Evaluation in the 1995 DEIS, pages 5-24 to 5-42). All but one of the 12 avoidance alternatives were eventually rejected because they failed to improve traffic conditions, would have had a major effect on the long-term economic sustainability of the SeaTac community, precluded development of the South Aviation Support Area (SASA), removed valuable developable land from the Port of Seattle's land base, and caused serious community disruption by displacing hundreds of residences.

During its review of the 1995 DEIS, the U.S. Department of the Interior contended that Avoidance Alternative 3DW was a feasible and prudent alternative to impacts to Des Moines Creek Park caused by Alternative 3 and that Alternative 3DW should be selected as the preferred alternative. As discussed in Chapter 2 of this FEIS, Alternative 3A, developed in the early phase of the project-level analysis, was a refinement of Alternative 3DW. Alternative 3A was eventually redesignated Alternative D. Alternative D avoided impacts to Des Moines Creek Park by keeping the SR 509 roadway within the existing state right-of-way beyond the southern boundary of the park.

Alternative D continued to be considered a viable alternative for inclusion in the project-level FEIS until WSDOT concluded, in consultation with other project partners and local agencies and resource permitting agencies, that Alternative D had clear conflicts with other essential regional projects important to the environment and economy of the project area, including the use of Wetland F for the Des Moines Creek Basin Plan regional detention facility; would cause substantial environmental impacts, including impacts on a Class One wetland and creating the most impervious surface area of any of the alternatives; and would conflict with FAA design standards. See Section 2.2.2 for further details regarding the elimination of Alternative D. The analysis was presented in a WSDOT position paper entitled *Screening of Alternatives C1 and D* and dated June 21, 2001. With the concurrence of all relevant parties, WSDOT dropped Alternative D from further consideration in summer 2001.

In addition to the avoidance alternative of impacts caused by the 1995 DEIS Alternative 3, a number of other alternatives were also developed during the early phase of the project-level analysis that were avoidance alternatives to the DEIS Alternative 2. Many were subsequently rejected for a combination of reasons, including intrusions into the airport's RPZ, significant impacts to residential neighborhoods, wetlands impacts, impacts to SASA property, and poor traffic operations. The best alternatives were eventually designated Alternatives B and C. Alternative B minimizes impacts to Des Moines Creek Park by crossing the park at its narrowest point. Alternative C was a true avoidance alternative by traversing through the northern portion of the Runway Protection Zone (RPZ) and a portion of SASA north of the park.

Subsequently, however, FAA expressed concerns about Alternative C and indicated that a tunnel would be required due to the location of the roadway within the northern portion of the RPZ. The costs associated with such a tunnel (estimated at roughly $12 million) and the associated safety concerns for motorists possibly trapped in the tunnel during an accident raised issues of the prudence of Alternative C. The USACOE and the Washington State Department of Ecology did not support the more than 3 acres of impact of Alternative C on a class one wetland. This same wetland is an essential component of the Des Moines Creek Basin; impacting the wetland would reduce its capacity as a proposed regional detention pond and water quality treatment facility. In addition, the Port of Seattle argued that the alignment proposed by Alternative C would render SASA unusable for its intended use.

A WSDOT Value Engineering study concluded in February 1999 that it would be feasible and appropriate to relocate SR 509 farther south than proposed by Alternative C. Two alternatives to Alternative C were developed—C2 and C3—both of which avoided the need for the tunnel and impacts to SASA, as well as impacts to the class one wetland and its use as part of the Des Moines Creek Basin Plan, but directly impacted the northeast corner of Des Moines Creek Park.

In July and August 1999, WSDOT met with FHWA, the Port of Seattle, and the park planners from SeaTac and Des Moines to discuss the fact that while Alternative C1 (redesignated from C at the same time as the development of C2 and C3) avoided Des Moines Creek Park, it was probably no longer a prudent avoidance alternative in light of cost and safety issues (required a tunnel under the Extended Object Free Area); precluded development of SASA by cutting through a large portion of the area; conflicted with implementation of the Des Moines Creek Basin Plan by preventing the use of Wetland F for the proposed regional detention center and permitting difficulties related to Class One wetland impacts that had been raised by a number of agencies and concerned parties. See Section 2.2.2 for further details regarding the elimination of Alternative C1. FHWA concurred that even though Alternative C1 was a true avoidance alternative, it was not a prudent alternative and should not be carried forward in the project-level EIS process. FHWA and the local agencies also concurred that it was reasonable to include only non-avoidance alternatives—B, C2, and C3—in the FEIS, as long as acceptable mitigation measures and other design efforts to minimize impacts were committed to by WSDOT as part of the overall project (see the *Measures to Minimize Harm* section below).

Based on this lengthy and exhaustive process, WSDOT has reasonably concluded that there are no other feasible and prudent avoidance alternatives and that the three build alternatives analyzed in this FEIS reflect all possible planning to minimize harm to Des Moines Creek Park and are considered prudent because they do not cause extraordinary impacts and costs. Section 4(f) is clear that if there are no feasible and prudent avoidance alternatives, other alternatives that reflect all possible planning to minimize harm may be selected as the preferred alternative.

4.5 Measures to Minimize Harm

Highway design, engineering, and construction measures have been incorporated to the greatest extent possible to avoid or minimize right-of-way acquisition of the impacted park. For example, Alternative B would minimize the acreage impacts on Des Moines Creek Park by crossing the park at its narrowest point. Alternatives C2 and C3 would minimize impacts on Des Moines Creek Park by crossing a corner of the park not currently used for recreation and placing the SR 509 mainline on elevated structures that would minimize impacts to the continued use of the trail and parking area and impacts to the wetland. A retaining wall along the western edge of the South Access Road under Alternative C3 would minimize the amount of additional parkland that would need to be acquired. As noted in the analysis of impacts of Alternative C2 and C3 (Sections 4.3.3 and 4.3.4), the design refinements associated with Alternative C2 have resulted in a larger roadway footprint in the park (as a result of two elevated roadway structures) but less impact on the underlying wetland. The single elevated roadway structure with

Alternative C3 would result in a smaller footprint but greater impacts on the wetland (as a result of increased shading and precipitation blockage).

Where impacts are unavoidable, potential mitigation measures are listed below.

4.5.1 Des Moines Creek Park and Trail

- Based on an Interagency Letter of Understanding between WSDOT and the City of SeaTac (approved on November 19, 2002), WSDOT would replace the parkland acquired with an equal amount of acreage of reasonably equivalent or greater recreational utility within the existing SR 509 right-of-way north of South 208th Street and immediately adjacent to Des Moines Creek Park's western boundary or another mutually agreeable location. This land trade agreement will allow for the acquisition of needed public land at a reduced cost to the project.
- WSDOT is committed to financially assisting in the construction of the new Marine View Drive bridge over Des Moines Creek at the western edge of the park. This new bridge will include an underpass that will allow Des Moines Creek Trail users to reach the Puget Sound shoreline, thus expanding trail use opportunities. The new bridge is also one of five projects comprising the Des Moines Creek Basin Plan (to which WSDOT is a partner), and thus will help implement the water quality and fish habitat improvement goals of the plan which will, in turn, result in greater recreational value for the park.
- Depending upon the final design, both Alternatives C2 and C3 may require the relocation of the trailhead and associated parking area within Des Moines Creek Park. If so, as mitigation, a new trailhead/parking area and a connection to the existing trail would be developed slightly west of the existing trailhead.
- To ensure that natural values of the park are maintained, WSDOT is committed to the following specific measures:
    - where possible, snags, brush piles, and downed trees would be left in forested and wetland areas and along streambanks where they can provide for and sustain a variety of habitats
    - construction activities would be scheduled to take into account timing recommendations from WDFW and other agencies to avoid disturbing breeding wildlife in sensitive habitats or critical fish migratory, spawning, or rearing periods
    - all streams would be crossed with bridges to minimize impacts on streams and fish habitat

  - all Category 1 wetlands would be avoided and all Category 2 wetlands would be spanned by bridges

  - shading impacts at bridge crossings would be mitigated by planting native shade-tolerant species

  - appropriate construction best management practices (BMPs) would be selected to prevent or reduce potential impacts on surface water quality

  - outfalls from proposed stormwater facilities would be designed to dissipate the energy of the discharged water to prevent streambed scouring and, where practical, outfalls would be designed to improve fish habitat by including alcoves of low-velocity water

  - areas disturbed by construction would be restored by replanting with native trees and shrubs

- WSDOT and the SeaTac Parks Department director have agreed to integrate a northward extension of the Des Moines Creek Trail into the design of the SR 509 improvements should a build alternative be selected. As currently designed, the trail would cross South 200th Street near the entrance to Des Moines Creek Park and parallel South 200th Street westward along the north side of the arterial. The trail would turn in a northerly direction west of the South 200th Street/SR 509 intersection. The trail would continue northward along the western edge of the proposed SR 509 fill slopes. The trail would terminate at South 188th Street, with future linkages to the regional trail network to be completed by others. The trail extension has received concurrence from the SeaTac City Council.

- If the trailhead parking area and trail (under Alternatives C2 and C3) or the trail only (Alternative B) need to be closed during construction for safety reasons, alternate facilities would be provided to ensure continued use of the park.

Other more general mitigation measures would include:

- Coordination with local municipal parks and recreation planners on how to maintain park functions and values

- Landscaping to minimize visual and noise impacts

- Special signage to direct park users to park access points

- Provision of park and trail enhancements, such as interpretive signage and/ or viewing areas, consistent with local jurisdictions' plans for the facilities

4.6 Record of Coordination

The following discussion summarizes the coordination efforts between the WSDOT EIS team and local and federal agencies and jurisdictions related to this Section 4(f) Evaluation.

Tier 1 Draft EIS Efforts (1992-1995)

October 5, 1992—Memo from Cheryl Eastberg (SeaTac Planner), to Christina Olson (WSDOT). Information regarding status of Des Moines Creek Park ownership, park values and City plans for park, and maps showing trail interconnections.

June 10, 1994—Meeting between Robert Ruth (Des Moines Senior Planner) and Michael Gallagher (CH2M HILL). Discuss overall land use issues associated with project.

June 10, 1994—Meeting between Michael Booth (Senior Planner), Jack Dodge (Principal Planner), Stephen Butler (Principal Planner), Michael Knapp (Planning and Community Development Department Director) of SeaTac, and Michael Gallagher. Discuss overall land use issues associated with project, and existing and future uses of Des Moines Creek Park.

June 13, 1994—Memo from Cheryl Eastberg (SeaTac Parks Project Coordinator) to Christina Olson. Information regarding Des Moines Creek Park values and plans, including SeaTac's Draft Comprehensive Plan, Parks, Recreation, and Open Space Element.

June 15, 1994—Telephone call from Michael Gallagher to Geraldine Poor (Port of Seattle Planner) to discuss the Port's lease agreement with the Tyee Golf Course operator.

June 16, 1994—Meeting between Jose Miranda (FHWA), Christina Olson, Larry Ross (WSDOT), Brent Campbell (CH2M HILL), Bob Swope (CH2M HILL) to review and discuss potential Section 4(f) issues. Concurrence reached that Barnes Creek Trail and Tyee Golf Course properties were not subject to Section 4(f) evaluation requirements because of existing lease agreements that clearly identified recreational uses as being contingent upon the properties not being needed for transportation-related purposes.

June 27, 1994—Transmittal from Geraldine Poor (Port of Seattle) to Michael Gallagher including POS lease agreement with Tyee Golf Course operators.

July 6, 1994—Telephone conversation between Michael Gallagher and Cheryl Eastberg (City of SeaTac) to clarify location of the existing and proposed trail system associated with Des Moines Creek Park or that might

be affected by the proposed project. Also discussed overall existing uses, values and planned uses of the park.

Eastberg indicated that the highway and park might be able to coexist, but there might be substantial impairments to the park values resulting from noise and visual impacts to the natural setting. Providing trail crossings would help offset impacts.

July 13, 1994—Telephone conversation between Michael Gallagher to Jon Jainga (Des Moines, Assistant Parks and Recreation Director) to identify existing uses, values, and future plans for Des Moines Creek Park.

July 13, 1994—Telephone conversation between Michael Gallagher to Dale Shroeder (Des Moines Public Works Director), who is working with SeaTac on the Des Moines Creek Trail Project. The city has secured some funding in the CIP for the project. Provided information on Des Moines Creek Park size, and existing characteristics of the trail.

March 9, 1995—Meeting of the SR 509/South Access Road Steering Committee, to review the Section 4(f) Evaluation issues. Preliminary conceptual avoidance alignments reviewed and slightly modified for the evaluation by the Committee for each of the proposed build alternatives. Concept of screening (eliminating) some alternatives based on their relatively higher impacts than other similar alternatives, and choosing a representative alternative approved. Evaluation criteria to be used on a corridor level of analysis presented and approved.

March 10, 1995—Meeting between Michael Gallagher, Cheryl Eastberg, and Thomas Fus (SeaTac Assistant City Manager) to discuss the potential impacts of the proposed build alternatives, review avoidance alternatives, identify data needs for the evaluation, discuss significance of potential impacts, and identify minimization opportunities/limits. Conclusions included: Since public recreational opportunities are very limited in this portion of SeaTac, Des Moines Creek Park is quite important to neighborhood, community-wide, and even regional populations (due to trail's central function to regional trail system). The overall goals for the park focus on keeping the "pristine" nature of the park. Although airplane noise affects the park, constant highway noise could further impact park values.

March 10, 1995—Meeting between Michael Gallagher, Jon Jainga, and Corbett Loch (Des Moines Planning Manager) to discuss the potential impacts of the proposed build alternative, review avoidance alternatives, identify data needs for the evaluation, discuss significance of potential impacts, and identify minimization opportunities/limits.

March 15, 1995—Telephone conversation between Mike Gallagher to Geraldine Poor (Port of Seattle) to discuss the avoidance and minimization

options, particularly with respect to avoiding the Des Moines Creek Technology Campus site by moving the alignment as far west on the site as possible. Poor provided additional information about the airport safety clear zone expansion, and a (probable) large jurisdictional wetland located on POS and Des Moines Creek property. This call was followed by a facsimile transmittal from Poor to Gallagher, showing the probable wetland location.

March 17, 1995—Transmittal from Denis Staab (Des Moines City Clerk) to Mike Gallagher of city ordinances defining boundary of Des Moines Creek.

March 20, 1995—Transmittal from Denis Staab (City of Des Moines) of exhibit showing official Des Moines Creek Park boundary.

March 21, 1995—Telephone conversation between Mike Gallagher to Cheryl Eastberg (City of SeaTac) to obtain clarification on acreage of Des Moines Creek Park.

March 22, 1995—Telephone conversation between Mike Gallagher to Patrice Thorell (Des Moines Parks Director) to review the project. She expressed concern about potential impacts to Des Moines Creek Park resulting from the build alternatives, particularly impacts to the natural setting.

June 16, 1995—Copies of the preliminary Section 4(f) Evaluation furnished to the City of SeaTac and the City of Des Moines for review and comments.

November 20, 1995—Meeting of FHWA, WSDOT, and park officials of SeaTac and Des Moines to discuss the status of planning for the Des Moines Creek Trail.

December 1995—*SR 509/South Access Road Corridor Project, Draft Environmental Impact Statement and Section 4(f) Evaluation* (FAA et al. December 1995) issued for public review and comment.

Revised DEIS Efforts (1996 to Present)

March 18, 1996—Letter from Willie R. Taylor (Director, Office of Environmental Policy and Compliance, U.S. Department of the Interior [DOI]) to Gene Fong (Division Administrator, FHWA) with comments on the 1995 DEIS. The letter indicated that DOI considered Avoidance Alternative 3 DW to be the most feasible and prudent alternative because it avoided impacts on Des Moines Creek Park, SASA, and the proposed Airport Safety Zone Extension. The letter indicated that DOI had no objection to Section 4(f) approval if Alternative 3 DW was selected as the Preferred Alternative and that measures to minimize and mitigate for proximity impacts were coordinated with and approved by the Parks and Recreation Departments of both Des Moines and SeaTac.

September 29, 1998—Letter from Cayla Morgan (Airport Planner/ Environmental Specialist, Federal Aviation Administration [FAA]) to Susan Everett (WSDOT) outlining FAA's position regarding the alternative project alignments vis-à-vis designated RPZs in the vicinity of Sea-Tac International Airport. The letter strongly encouraged consideration of moving the alignments as far to the south end of the RPZ as feasibly possible; the FAA could accept such a proposal without requiring the construction of a roadway cover. The letter also indicated that FAA would likely discourage any alignment that may significantly impact SASA development.

July 19, 1999—Meeting between WSDOT, Port of Seattle, City of SeaTac and Des Moines parks departments, and FHWA representatives to discuss the effects of the build alternatives on Des Moines Creek Park. The consensus of this group was that despite the impacts to the park, Alternatives C2 and C3 appeared more feasible and prudent than the Avoidance Alternative C1. The City of SeaTac (within which most park impacts would occur) identified what it considered to be reasonable mitigation for the impacts, including replacing the impacted land with equivalent recreational land and extending the existing Des Moines Creek Trail north of South 200th Street. The meeting attendees also stated that they did not support Alternative B because the proposed alignment would bisect the park, in comparison to Alternatives C2 and C3, which would cross the relatively unused northeast corner of the park.

August 25, 1999—Voice mail message from Bryan Bowden (National Park Service) to Susan Everett (WSDOT). His message indicated that as long as the Section 4(f) Evaluation clearly demonstrates that other alternatives were considered but they are simply not viable or feasible and if there is adequate consultation with the local parks and recreation officials and they are satisfied with the review, conclusions, and proposed mitigation, the National Park Service will be satisfied.

August 26, 1999—Meeting between WSDOT and FHWA to review the build alternatives currently under consideration. FHWA concurred with the WSDOT conclusion that even though Alternative C1 was a true Section 4(f) avoidance alternative, it was probably not a prudent avoidance alternative and should not be carried forward in the EIS process. FHWA also concurred with the inclusion of the non-avoidance Alternatives C2 and C3 in the evaluation.

May 18, 2000—Letter from Cayla Morgan (Environmental Specialist, FAA) to Susan Everett (WSDOT) regarding FAA's position on the location of the proposed northern extension of Des Moines Creek Trail (part of the proposed Section 4(f) mitigation package). The letter indicated that FAA would support the trail alignment as long as it is located on the furthermost edge of the RPZ (along the west side of the SR 509 roadway).

June 15, 2000—Des Moines Trail Extension meeting attended by representatives from WSDOT, Port of Seattle, the Cities of SeaTac and Des

Moines, and FAA. In general, the proposed extension was acceptable to those present as mitigation for the impacts to Des Moines Creek Park. The City of SeaTac was concerned about how the trail would provide connectivity to the north. It was agreed that this was a coordination issue between SeaTac and the Port of Seattle, unrelated to the proposed SR 509 mitigation package.

June 29, 2000—Meeting between John White and Brian Roberts (WSDOT) and Tim Heydon and Corbett Loch (City of Des Moines) regarding possible impacts on the Pacific Ridge neighborhood and on Midway Park. The City staff indicated that the City might be willing to adjust the proposed eastern boundary of the park to avoid any direct impact on the future park boundary as a result of proposed improvements along I-5. In return, the City would seek assistance from WSDOT in enhancing the remaining park area.

November 16, 2000—Letter from Calvin Hoggard, City of SeaTac City Manager, to John White (WSDOT) indicating that the SeaTac City Council concurred with the proposed mitigation for impacts on the Des Moines Creek Park.

December 19, 2000—Letter from Connie Blumen, King County Park System, to Brian Roberts (WSDOT), indicating that because King County was negotiating with the City of SeaTac for the transfer of Des Moines Creek Park to the City of SeaTac, the City should have the primary role in determining adequate mitigation and compensation for impacts on the park.

May 5, 2001—Field visit of Midway Park by CH2M HILL staff.

May 30, 2001—Received faxes from Corbett Loch (City of Des Moines) with Midway Park master plan and relevant sections of the Pacific Ridge element of the Greater Des Moines Comprehensive Plan.

June 21, 2001—WSDOT prepared a position paper entitled *Screening of Alternatives C1 and D*. The purpose of the white paper was to describe the reasoning behind the decision to eliminate these alternatives from further consideration.

August 15, 2001—Field visit of Linda Heights Park by CH2M HILL staff.

September 11, 2001—Joan Broom (City of Kent Parks, Recreation, and Community Services) sent information to CH2M HILL on Linda Heights Park (master plan, written description, recent renovation).

October 14, 2001—Field visit of Des Moines Creek Park by CH2M HILL.

November 15, 2001—Meeting between Susan Everett (WSDOT) and Tim LaPorte and John Hodgson (City of Kent) regarding possible impacts to Linda Heights Park.

December 3, 2001—Letter from Bob Olander, City of Des Moines City Manager, to Susan Everett (WSDOT), concurring that the project would result in minor proximity impacts that would not affect the constructive use and enjoyment of Midway park.

December 5, 2001—Letter from Tim LaPorte, City of Kent Design Engineering Manager, to John White (WSDOT), with attached letter from John Hodgson, City of Kent Director of Parks, Recreation, and Community Services, indicating support of the project and recommending a combination of noise attenuating barriers and native plant buffers to mitigate for proximity impacts to Linda Heights Park.

January 15, 2002—Meeting between Susan Everett and John White (WSDOT) and Rod Leland, Federal Way School District, regarding the minor proximity impact to Mark Twain Elementary School Playfield.

October 4, 2002—Meeting between John White (WSDOT), Ron Leland (Federal Way School District), and Mark Rotheford (Principal, Mark Twain School) regarding design efforts to minimize impacts, final proximity impacts, general mitigation opportunities, and to formally request the concurrence of the two school representatives.

November 19, 2002—Interagency Letter of Understanding between WSDOT and City of SeaTac regarding replacement of parkland acquired for the project.

4.7 Section 4(f) Conclusion/Finding

Impacts on Des Moines Creek Park would include acquisition of parkland, covering of the Des Moines Creek Trail by the roadway structure(s), resulting visual intrusion and increased traffic noise, and covering or use of wetlands. The precise nature and level of impact would vary with each of the build alternatives considered.

As a result of a lengthy and exhaustive alternative development, evaluation, screening, and refinement process, WSDOT has concluded that there are no feasible and prudent alternatives that would avoid impacts on Des Moines Creek Park. It was found that the avoidance alternatives either did not achieve the purpose of the project and/or caused environmental, social, economic, and/or cost impacts of an extraordinary magnitude. Based on consultation with FHWA, the Port of Seattle, and local officials with jurisdiction regarding ownership and management of the park (the Cities of SeaTac and Des Moines), it was further concluded that while Alternatives B, C2, and C3 are not avoidance alternatives, it was reasonable to analyze these alternatives in the FEIS and Section 4(f) Evaluation.

As previously noted in this Evaluation, WSDOT has selected Alternative C2 as the preferred alternative. As part of Alternative C2, WSDOT has incorporated highway design, engineering, and construction measures to the greatest extent possible to minimize impacts on Des Moines Creek Park, including:

- Crossing a corner of the park not currently used for recreation and not planned for future recreational development

- Placing the SR 509 mainline on two elevated structures to minimize impacts on the wetland, the trail, and the trailhead parking area

In addition, WSDOT is committed to the following measures to mitigate for impacts:

- Replacing any lost parkland acreage with an equal amount of acreage, of reasonably equivalent or greater recreational utility, within the existing SR 509 right-of-way immediately adjacent to the park's western boundary or at another mutually agreeable location

- Financially assisting in the construction of the new Marine View Drive bridge over Des Moines Creek at the western edge of the park

- Maintaining the natural values of the park (Des Moines Creek and associated riparian and wetland resources and habitat) through a number of BMPs in coordination with the local officials

- If necessary, relocating the trailhead and associated parking area within the park

- Integrating the northward extension of the trail into the design of the SR 509 improvements

Based upon the above considerations, there is no feasible and prudent alternative to the use of land within Des Moines Creek Park and the proposed action (the preferred alternative, C2) includes all possible planning to minimize harm to the park resulting from such use.

Section 4(f) Appendix
Coordination Letters

RECEIVED
OCT 7 1992

DEPARTMENT OF PLANNING AND COMMUNITY DEVELOPMENT



MEMORANDUM

TO: CHRISTINA OLSON, WSDOT

FROM: CHERYL EASTBERG, PLANNER

DATE: OCTOBER 5, 1992

SUBJECT: DES MOINES CREEK PARK AND SR 509

This memo is in response to our telephone conversation Friday October 2, 1992. In researching your question of ownership of Des Moines Creek Park, I have ascertained that the transfer of Des Moines Creek park property from King County to City of SeaTac has not yet occurred. Apparently, this needs to be accomplished legislatively.

It is the intent of the City to follow through with the desired transfer, and to cooperate with the City of Des Moines in the construction and maintenance of a public recreation trail along Des Moines Creek from Puget Sound to S. 200th St. It would also be desirable to coordinate the public recreation use of this park with WSDOT and the planning for SR 509.

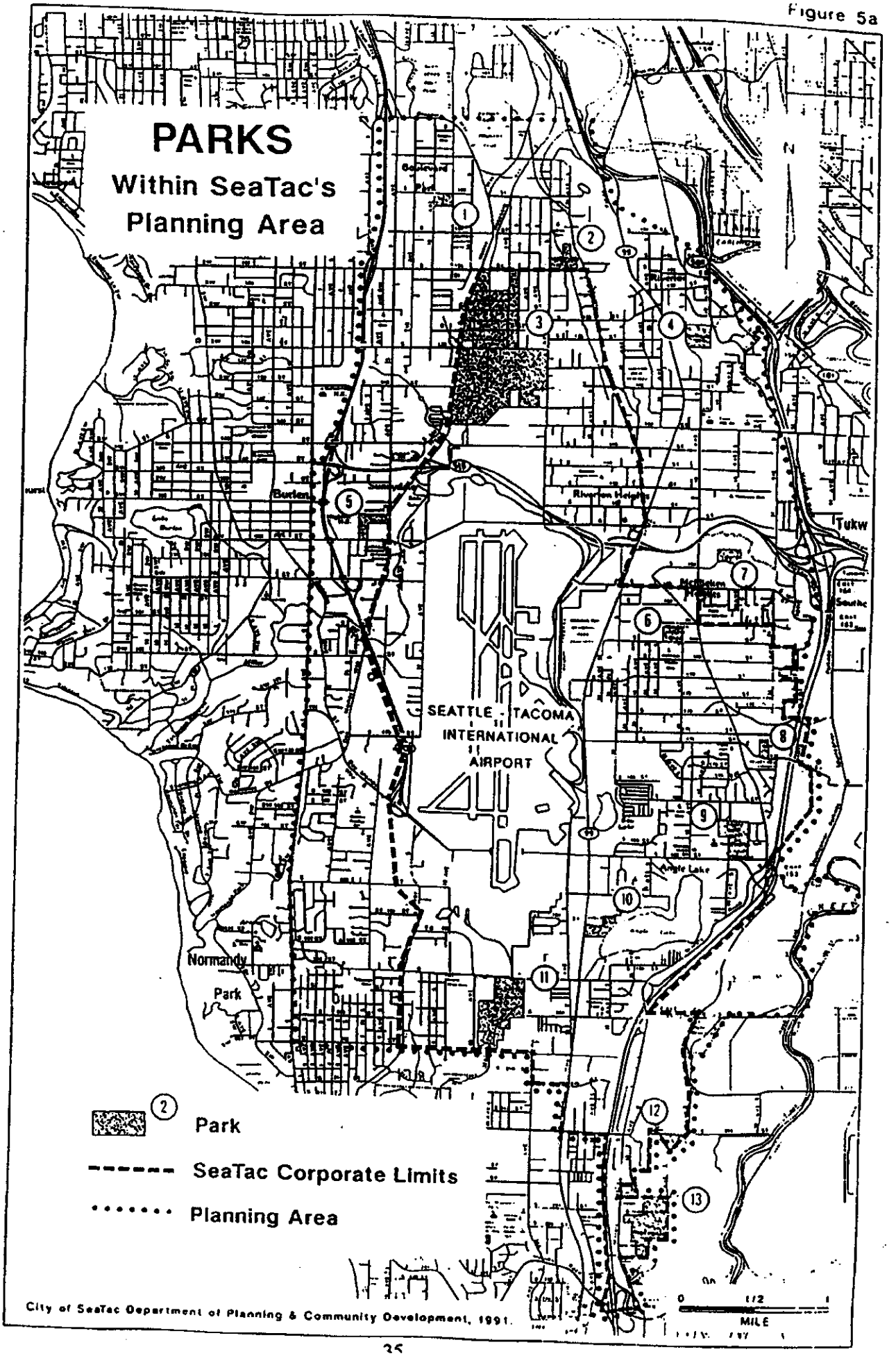
Enclosed please find copies from the Park and Recreation Comprehensive Plan Element for the City of SeaTac. The park matrix states that Des Moines Creek Park is from S. 200th to S. 216th. However, the City limit and therefore the management of park property south of 208th would not be handled by the City of SeaTac.

At this time, the park is best suited for passive recreation and wildlife enhancement through habitat preservation. It is difficult to notice you are in highly developed area when walking through the creek ravine. Housing is rarely visible, and typical dumping of trash in the ravine has been limited due to fencing.

The site is generally fenced from public access north of the sewer plant. Bootworn paths entering the creek corridor in this area show that public use exists. Along the entire length from S. 200th to Puget Sound, a gravel road follows the creek. This road is used to service the sewer line which also follows the creek. The road is open to foot traffic from Puget Sound inland to the sewer plant. At this time, circumnavigation of the sewer plant seems to be the missing link in the proposed paved path to be constructed by the City of Des Moines from Puget Sound to S. 200th. I believe this has been a point of discussion with utility management and Des Moines city staff.

Please let us know if we can be of further assistance.

Figure 5a


PARKS
Within SeaTac's
Planning Area
SEATTLE - TACOMA
INTERNATIONAL
AIRPORT
Normandy
Park
Park
SeaTac Corporate Limits
Planning Area
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1/2
1
MILE
City of SeaTac Department of Planning & Community Development, 1991.

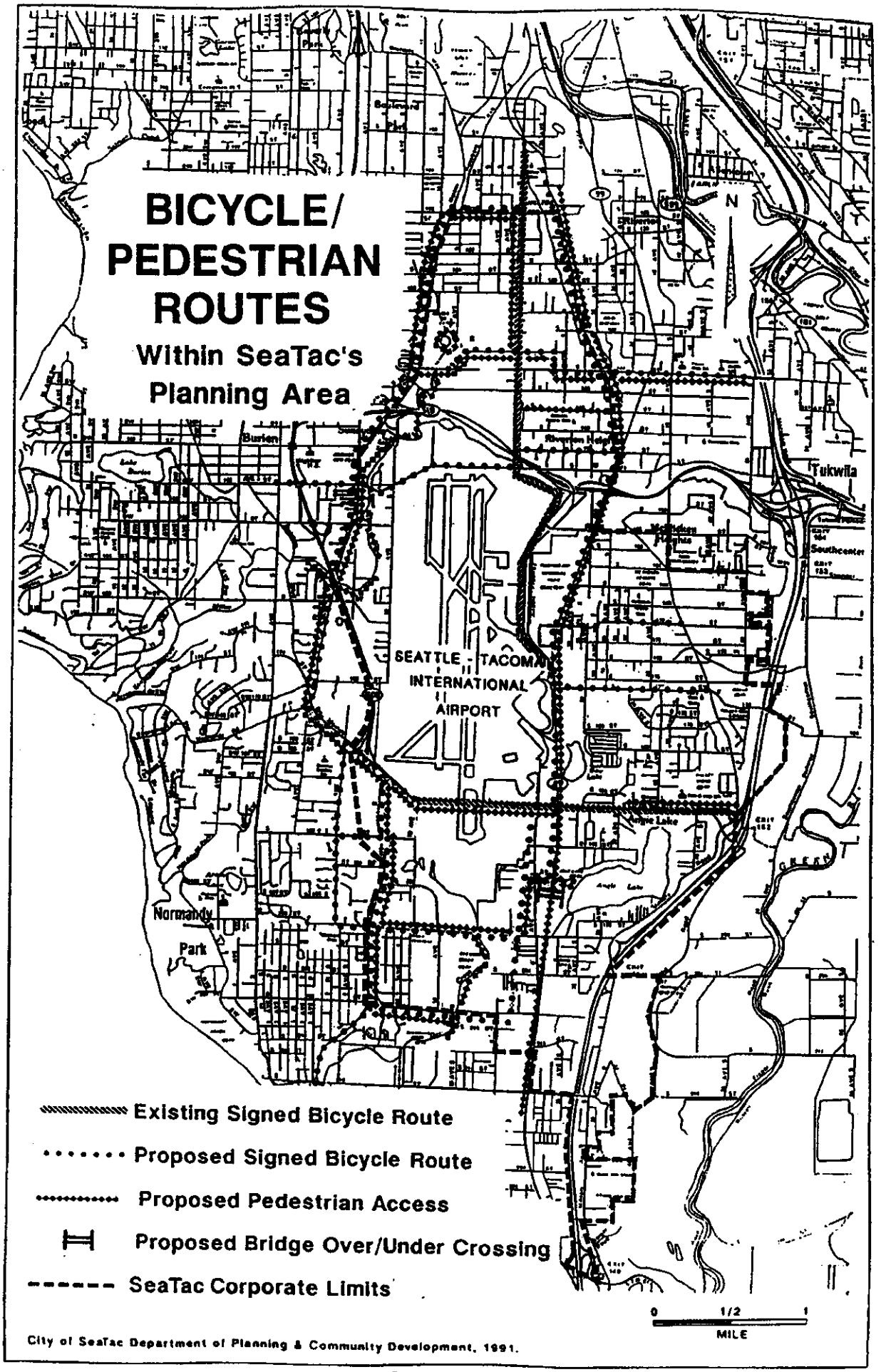
BICYCLE/
PEDESTRIAN
ROUTES
Within SeaTac's
Planning Area
N
Burien
Tukwila
Southcenter
SEATTLE-TACOMA
INTERNATIONAL
AIRPORT
Normandy
Park
Existing Signed Bicycle Route
Proposed Signed Bicycle Route
Proposed Pedestrian Access
Proposed Bridge Over/Under Crossing
SeaTac Corporate Limits
0 1/2 1
MILE
City of SeaTac Department of Planning & Community Development, 1991.

Figure 5b. ...ECREATION FACILITIES IN SEATAC PLANNING AREA PARKS

MAP REFERENCE	PARK NAME	ACREAGE	TYPE OF PARK	SOFTBALL FIELDS	BASEBALL FIELDS	FOOTBALL/ SOCCER FIELDS	SOCCER/ ALL-WEATHER FLDS	TENNIS COURTS	SWIM BEACH (SUMMER)	CONCESSIONS	FISHING	PICNIC TABLES	BARBEQUES	PLAY AREA	RESTROOMS	TRAILS	SPECIAL FEATURES	PICNIC SHELTER	EQUESTRIAN FACILITIES	BMX COURSE
1	Southern Heights Park S. 120th St. & 14th Ave. S.	3.3	NBR					2						1						
2	Hilltop Park S. 128th & 26th Ave. S.	6.9	NBR											1						
3	North SeaTac Park Sunset Playfield 13659 18th Ave. S.	200 18.2	COM	3	1	1	*1	2				2			1				1	1
4	Southgate Park 42nd Ave.S.&S.136th	5.7	NBR					2						1						
5	Mosher Park 430 S. 156th	15.17	COM	*3	*1	*2									1					
6	McMicken Heights Park 166th & 40th Ave. S.	2.42	NBR					2												
7	Crestview Park S.158th St.&51st Ave.S.	6	NBR									2		1						
8	Bow Lake Park S. 178th at 51st Ave. S	4	NBR																	
9	Valley Ridge Park 4644 S. 188th	27.8	COM	3	*1	1/ *1		3							1		A,I			
10	Angle Lake Park 19408 International Boulevard	10.5	COM						1	1	1	35	6	1	1		BL			
11	Des Moines Creek Park Along Des Moines Creek/200th to 216th	95.81	RSC																	
12	Earthworks Park 21600-37th Pl.	4	RSC														I			
13	Grandview Park S. 288th of Military Rd. S.	37.7	COM				*1 /1					3			1			1		1

KEY: Bolded parks indicate that they are within SeaTac City Limits, NBR=Neighborhood, COM=Community, RSC=Resource, * indicates lighted
Special features: A=Activity Center, I=Artwork, BL=Boat Launch

9B
6-12-95

M E M O R A N D U M

DATE: May 22, 1995

TO: Bob Olander

FROM: Patrice Thorell

RE: Significance of Des Moines Creek Park / Des Moines Creek Trail and Zenith Park

Des Moines Creek Park and Trail are significant to the Des Moines Parks, Recreation and Open Space System. It is an important connector linking the Des Moines Creek Trail from the City of SeaTac to the Puget Sound. The trail provides alternative transportation, and recreational opportunities (bicycling, walking, jogging, hiking, skating, picnicking, nature observance) and a natural buffer between two cities. The Des Moines Creek Park and Trail are a system made up of the creek, steep ravines, wetlands, mature trees and native vegetation that cannot be replaced or replicated elsewhere. The City of Des Moines has been developing a trail system following the creek over the past many years. This action was inspired by a 1986 petition from its citizens (503 signatures collected) as follows:

"We the undersigned request that the Des Moines City Council do everything in its power to preserve and protect Des Moines Creek, Massey Creek, Barnes Creek and Smith Creek. Furthermore, we urge that the City of Des Moines acquire land adjacent to these creeks as such land becomes available for purchase. The Creeks of Des Moines have been abused in the past and it is time that the City of Des Moines make this a Waterland Community the public can enjoy and be proud of."

The Trail is also a key component of the Des Moines Creek Basin Plan. Several public agencies (City of Des Moines, City of SeaTac, Port of Seattle, Midway Sewer District, Department of Fisheries, Washington State Department of Transportation) and Trout Unlimited are coordinating efforts to enhance the Creek's salmon and other natural habitats existing in this wildlife corridor.

The City of Des Moines places a high value on its urban wildlife habitat. The Comprehensive plan has numerous policies that reinforce the value of the Des Moines Creek (see attached Plan with highlighted elements). The Comp Plan states that Des Moines utilize a ratio of 8.5 acres of park land to 1,000 population. Des Moines currently has a park land deficit of 55 acres with few opportunities to acquire additional land due to land lock. Within the Des Moines planning area the land deficit is maintained at 32 acres.

The City of Des Moines currently manages and maintains Zenith Park (under contract with the Highline School District) for community recreation use. The cooperative relationship between the City and School District will continue when Zenith School is built so that existing recreational use continues.

Properties owned by the school district are increasingly important to the Des Moines open space inventory. They comprise 24% of the City's open space as identified in the Des Moines Comprehensive Plan.

The Greater Des Moines Comprehensive Plan policy states that recreational facilities of public schools be available for public use. Because the City of Des Moines currently has a sports field deficit, the loss of Zenith Park for community sports activities would have a severe impact on the community. Zenith Park is a prime practice field for Mt. Rainier High School soccer, football, and softball. The site is scheduled year round for community sports league play by the Little League, Youth Soccer Association, and community sports groups. The facility is used by the residents as a neighborhood park. Zenith field (a combined softball/soccer field) is one of only three total public sports fields available for the Des Moines community.

Because of the lack of available sports facilities, neighborhood parks and available land for future park development the park cannot be replaced elsewhere These factors make Zenith Park invaluable to the Des Moines Park System.

Approved: 6-5-95

Acting City Manager

RECD CH2M SEA

Mayor
Joe Brennan
Deputy Mayor
Terry Anderson
Councilmembers
Roger Anderson
Shirley Thompson
Frank Hansen
Kathy Gehring
Don DeHan



City Manager
D. Scott Rohlfs
Assistant
City Manager
Thomas J. Fus
City Attorney
Daniel B. Heid

City of SeaTac
17900 International Blvd., Suite 401 · SeaTac, Washington 98188-4236
City Hall: (206)241-9100 · Fax: (206)241-3999 · TDD: (206)241-0091

June 19, 1995

CH2M Hill
Attn: Wynlee Crist
777 108th Ave NE
Bellevue, WA 98004

RE: SR 509/SOUTH ACCESS ROAD SECTION 4F (Evaluation)

Dear Mr. Crist:

In response to Michael Gallagher's letter of approximately 1 May 1995, requesting the kinds of activities or functions within the Des Moines Creek Park and a determination of the significance of the park, the following comments are forwarded:

The Des Moines Creek Park, in the City of SeaTac, is comprised of a salmonids creek in a natural ravine with associated wetlands and uplands. The creek is parallelled by underground sewer and wastewater lines, upon which a gravel access road is built. A new trunk line is planned to be installed in the next one to two years. It will leave the existing trunk line route so as to avoid the approximate 10 acre wetland on either side of the creek south of S. 200th Street. These routes are designated to receive a paved recreation trail and boardwalks through wet areas in the next two years, as well as trailhead parking, interpretive signage and passive park development in the uplands off of S. 200th Street.

The current quality of the park is naturalistic with large fir, maple, alder, dogwood, and related plants forming a continuous greenbelt from Puget Sound up to the south airport area at S. 200th Street. The City of SeaTac's Comprehensive Plan supports the continuation of the trail along the SR 509 right-of-way north to North SeaTac Park, tying into the King County Regional Trail System. This park forms an important link in making the continuous connection from Puget Sound into and through the urban areas.

The naturalistic character of the park is rare in this highly urbanized area. Within this ravine, you can be visually unaware that the city surrounds you. The sound of urbanization is most obvious through aircraft traffic due to the proximity of the Seattle-Tacoma International Airport. The park lies within the flight path, and the silence is regularly broken by take-offs or landings, depending on the weather patterns. The sound level varies based on frequency and whether the planes are taking off or landing.

The greenbelt currently provides several miles of wildlife corridor which allows for bird and fish migration. The planned trail project will enhance the natural character through restoration of previously disturbed areas, directing public access, improving the stream channel for fish habitat, and creating a usable meadow for passive recreation and an equestrian rest area.

If you have any questions or wish to discuss this matter further, please advise.

Sincerely,

Bruce A. Rayburn

Bruce A. Rayburn, P.E.
Director of Public Works

cc: Correspondence File

REC'D CH2M SEA MAR 27 1996

RECEIVED
MAR 25 1996
WSDOT
Environmental & Special Services

United States Department of the Interior

OFFICE OF THE SECRETARY
Washington, D.C. 20240

ER-96/19

MAR 18 1996

Mr. Gene Fong
Division Administrator
Federal Highway Administration
711 South Capitol Way, Suite 501
Olympia, Washington 98133-9710

Dear Mr. Fong:

This is in response to the request for the Department of the Interior's comments on the Draft Environmental/Section 4(f) Evaluation for SR-509 South Access Road to Link with I-5, King County, Washington.

Section 4(f) Evaluation Comments

Avoidance Alternative 3DW appears to be the most feasible and prudent alternative because it will avoid impacts to both Des Moines Creek Park and Zenith Park. It will also avoid impacts to the South Aviation Support Area property and the proposed Airport Safety Zone Extension.

The Des Moines Creek Park, which is jointly owned and managed by Des Moines and SeaTac is classified as a "special use" and "conservancy" park and lies within the largest natural preserve of woodland environment. The future recreation value of the park is described as substantial for both Des Moines and SeaTac. Zenith Park, on the other hand, is invaluable to the Des Moines Park System because of the lack of available sports facilities, neighborhood parks and lands needed for future parks development.

As to measures to mitigate proximity impacts to the parks from Avoidance Alternative 3DW, we recommend that they be coordinated with, and approved by the Parks and Recreation Departments of both Des Moines and SeaTac. Evidence to that effect should be documented in the Final Section 4(f) Evaluation.

Environmental Statement Comments

The Environmental Statement adequately addresses other matters of concern to this Department, such as fish and wildlife resources.

Summary Comments

The Department of the Interior has no objection to Section 4(f) approval of this project by the Department of the Interior if Alternative 3DW is selected as the Preferred Alternative and measures to minimize proximity impacts to Des Moines Creek Park and Zenith Park are documented in the Final Section 4(f) Evaluation.

We appreciate the opportunity to provide these comments.

Sincerely,

Willie R. Taylor
Director, Office of Environmental
Policy and Compliance

cc: Mr. Ralph H. Nichols
Environmental Program Manager
Washington State Department
of Transportation
District 1
15700 Dayton Avenue North
Post Office Box 330310
Seattle, Washington 98133-9710

September 29, 1998

Ms. Susan Everett, P.E.
Project Engineer, Mailstop 135
Washington State Department of Transportation
P.O. Box 330310
Seattle, WA 98133-9710

State Route 509/South Access Road

Dear Ms. Everett:

This letter is written to outline the Federal Aviation Administration's (FAA) position relative to the road alignments that have been proposed in scoping for the Draft Supplemental Environmental Impact Statement (DSEIS) for the aforementioned project. We recognize the complexity surrounding the ultimate alignment and commend you in your efforts to reconcile the variety of issues. The FAA's primary concerns are relative to the impact any alignment may have on the safety of aircraft operations at Seattle-Tacoma International Airport as well as the people and property on the ground in the approach and departure paths of each of the runways.

As we have discussed in previous meetings, the FAA has designated several areas around the runways to be protected and kept clear of obstructions to ensure the safety of those in the aircraft as well as the people and property in the vicinity of the airport. These areas include the Runway Safety Area (RSA), Object Free Area (OFA) and the Runway Protection Zone (RPZ), which includes the Extended Object Free Area (XOFA) and the Controlled Activity Area (CAA). The dimensions and the amount of protection afforded to each of these areas are defined in FAA Advisory Circular (AC) 150-5300-13 "Airport Design" and Planning Guidance 98-19, "Roads in the RPZ". (see attached) For airport projects where Federal grant-in-aid assistance is utilized (such as the purchase of the RPZ land), the use of our design standards is mandatory.

The land for both the OFA and the RSA is owned by SeaTac Airport and was purchased with federal funds. Alternative D, in which the South Access Expressway travels through the OFA and the RSA, does not meet our design standards. We have not given this alternative any further review. With regard to Alternatives B and C, neither of the proposed roadway alignments have compromised these two areas, thus, we have focused our attention on the impact of any alignment on the RPZ and accordingly, the XOFA and CAA.

It is our understanding that there tends to be greater support for Alternative C which is called out as Alternative 2, Option 17 in the February, project newsletter. We may find

this to be an acceptable alternative with a few alterations. This support assumes that a roadway cover would be constructed through the extended OFA. The cover would be designed with structural integrity to protect the people under it from an errant landing of an aircraft in this location.

Although the road is effectively out of the XOFA by covering, it is also proposed to be constructed in the controlled activity area. While it is our preference that the road be kept entirely out of the RPZ, should you wish to pursue the alignment in the CAA, we will need documentation outlined in FAA Planning Guidance 98-19 (see attached) to justify the encroachment.

We strongly encourage consideration and further analysis to move the road as far to the south end of the RPZ as feasibly possible. If a new alignment could feasibly be constructed that would be out of the existing RPZ, or to the outer edges, we could accept such a proposal without requiring the construction of a roadway cover. We are also concerned with the south access alignment impacts to our Advisory Circular design standards, Federal Aviation Regulation, Part 77 and the viability of the proposed South Aviation Support Area (SASA). A balance between the use of the CAA and infringement on SASA is necessary. It is our understanding that there is a possible land exchange option with the City of SeaTac that may reduce the right-of-way need through the currently proposed SASA area. This may warrant further analysis, and require documentation for infringements into the CAA. It is important to note that the viability of the SASA development is important to us because it will support future aviation demand and make the airport more financially self-sustaining. Therefore, we will likely discourage any alignment that may significantly impact the SASA development.

Another alternative, worth considering may be alternative B. This alternative is clearly outside the RPZ. There are major concerns, however that this is a difficult option due to the 4(f) impacts, and greater costs to the Port of Seattle. Again, Port land holdings represent an opportunity to support future aviation demand. These are difficult issues in which we would like to continue to work closely with your agency and the Port of Seattle to find an alternative that balances all interests as equitably as possible.

Should you wish to discuss any of these matters further or have any questions, please do not hesitate to contact me at (425) 227-2653.

Sincerely,

Cayla D. Morgan
Airport Planner/Environmental Specialist

cc: Geri Poore, Port of Seattle
King Cushman, Puget Sound Regional Council

PLANNING GUIDANCE 98-19

SUBJECT: Roads in Runway Protection Zones (RPZs).

PURPOSE: This guidance is for use by Airports Division personnel who deal with RPZ planning issues and/or process airspace cases involving the RPZ. Its primary purpose is to help clarify how roads should be dealt with in the RPZ (the term "roads" used herein means surface roads and railroads).

BACKGROUND: Paragraph 212 of the Airport Design Advisory Circular (AC) 150-5300-13, through change 5, covers the RPZ. Paragraph 3 in the original cover page to this AC mentions that the airport design standards presented therein are recommended by Federal Aviation Administration (FAA) for use in the design of civil airports and that their use is mandatory for airport projects receiving Federal grant-in-aid assistance. These airport design standards, including those for RPZs, apply to airport projects under both the Airport Improvement Program (AIP) and the Passenger Facility Charge (PFC) Program. When dealing with roads as well as other land uses within the RPZs, it is important to fully understand the definition of certain terms that relate to the various airport design standards involving the RPZ (see attached Appendix 1).

DISCUSSION: Paragraph 212 of the Airport Design AC mentions that "The RPZ's function is to enhance the protection of people and property on the ground". However, this should be clarified in that the RPZs include the Runway Safety Area (RSA) and standard runway Object Free Area (OFA), and if applicable, OFA Extension and Obstacle Free Zone (OFZ) as well as any stopway, clearway, threshold obstacle clearance surface, or navaid critical area, where the function is to enhance the safety of aircraft operations. When dealing with land uses, including roads, within the RPZs, it is important to keep both of these functions in mind.

GUIDANCE: This guidance supplements the RPZ criteria presented in the Airport Design AC.

1. Proposed Roads in the Standard Runway Object Free Area (OFA): Proposed roads should not be permitted in the standard runway OFA within the RPZ, except proposed airport service roads found acceptable to FAA based on an aeronautical study.

2. Proposed Roads in the Permanent Object Free Area (OFA) Extension: Airport sponsors should be strongly encouraged by the Airports District Offices (ADOs) to establish a permanent OFA Extension to the maximum extent feasible to increase the safety of aircraft operations. To be realistic, such encouragement should take into account airport sponsor RPZ ownership and whether or not the area is clear of objects (or can be cleared of objects in a feasible and timely manner). Airport sponsors shall establish a permanent OFA Extension to the maximum extent feasible. Anything less than a full OFA Extension (i.e., from the end of the standard

runway OFA to the far end of the RPZ) requires documentation from the airport sponsor that is acceptable to the ADO. In this regard, nothing in this guidance is to be interpreted so as to discourage airport sponsor acquisition of the entire RPZ even when the establishment of any permanent OFA Extension may be infeasible. A permanent OFA Extension should be treated exactly like the standard runway OFA in terms of land use criteria and it should be shown on the approved airport layout plan (ALP). In short, proposed roads should not be permitted in an established permanent OFA Extension within the RPZ, except proposed airport service roads found acceptable to the FAA based on an aeronautical study.

3. Proposed Roads in the Controlled Activity Area: Every reasonable consideration should be given to clear the entire RPZ, including the Controlled Activity Area, of all objects per paragraph 212 and page 140 (paragraph 8 of Appendix 8) of the Airport Design AC. If an OFA Extension is not established on a permanent basis, then the area depicted as the OFA Extension in figure 2-3 of the Airport Design AC should be treated as part of the Controlled Activity Area except when specifically dealing with automobile parking facilities per paragraph 212a(2)(a) of the Airport Design AC. Proposed roads should not be permitted in the Controlled Activity Area (especially those that cross the runway centerline extended) unless the following conditions are met: (1) the proponent provides documentation to the ADO that shows it is not feasible to develop the proposed road entirely outside the Controlled Activity Area and further that all reasonable steps were taken to minimize the impact on the RPZ, (2) the proposed road is located entirely outside the standard runway OFA and any established permanent OFA Extension within the RPZ, and (3) the proposed road is found acceptable to the FAA based on an aeronautical study. Where it is determined to be impracticable for the airport sponsor to acquire and plan the land uses within the entire RPZ, the RPZ land use standards have recommendation status for that portion of the RPZ not controlled by the airport sponsor and this should be a consideration in the FAA aeronautical study, particularly if the proposed road involves only such portions of the RPZ.

4. Existing Roads in the RPZs: Whenever an airport master plan study (or ALP update study, if detailed) is undertaken, an evaluation of land uses in the RPZ should be a normal consideration of such studies, especially if there are existing objects in the RPZ, including roads. This evaluation should address pertinent RPZ issues, including the feasibility of removing existing roads from the RPZ and the development of a realistic removal plan of action in terms of priorities, costs, and funding considerations. If it is found that it is not feasible to remove an existing road in the RPZ, the study should clearly document this for the record.

5. Other Considerations on Roads in the RPZs: In applying the guidance herein, all other applicable requirements in paragraphs 211 (Object Clearing Criteria) and 212 (Runway Protection Zones) of the Airport Design AC and in Land Use Policy 97-02 should be followed. Also, any RPZ that was acquired under Federal grant-in-aid assistance programs should follow all applicable requirements and special conditions of these programs, including the clearing of objects per paragraph

602b(1) of FAA Order 5100.38A, Airport Improvement Program (AIP) Handbook. In addition, the term "proposed roads" used herein includes (1) proposed work that enhances or enlarges existing roads (but excludes normal road maintenance work) as well as (2) new roads (especially major ones) in the RPZ. Finally, road proposals that traverse the entire RPZ in a tunnel, where the cover or ground above on the surface is at the same grade as the surrounding terrain, are still subject to an aeronautical study by the FAA (e.g., to study items such as construction impacts and proposed tunnel cover strength versus weight of the critical aircraft using the runway in the event of an accident involving the RPZ).

REFERENCES:

FAA Airport Design Advisory Circular (AC) 150-5300-13, through change 5.
FAA Order 5100.38.A, Airport Improvement Program (AIP) Handbook.
Land Policy 97-02, FAA Northwest Mountain Region, Airports Division.

APPROVAL:

David A. Field
Manager, Planning, Programming,
and Capacity Branch
Northwest Mountain Region

6/17/98
Date

Attachment: Appendix 1, Definition and Clarification of Terms Involving the RPZ.

U.S. Department
of Transportation
**Federal Aviation
Administration**

Seattle Airports District Office
1601 Lind Avenue, S.W.
Renton, WA 98055-4056

May 18, 2000

RECEIVED
MAY 22 2000
SOUTH KING COUNTY
AREA ADMINISTRATION

Ms. Susan Everett, P.E.
Project Manager, Mailstop 250
Washington State Department of Transportation
P.O. Box 330310
Seattle, Washington 98133-4805

State Route 509/South Access Road Corridor EIS
North Extension of Des Moines Creek Trail

Dear Ms. Everett:

Pursuant to our discussion in the yesterday's Steering Committee meeting for SR 509/South Access Road, we would like to outline the Federal Aviation Administration's (FAA) position on the location of the North Extension of Des Moines Creek Trail.

Based upon recent discussions between Washington State Department of Transportation (WSDOT) and the Port of Seattle, it is our understanding that the new recommended alignment now places the trail in the SR 509 right-of-way on the Southwest side of the road. As we have indicated in previous discussions, we do not support trails on airport property or in the Runway Protection Zone (RPZ). Relative to this newly recommended alternative, we recognize that the trail is still within the RPZ, however, since the preferred alignment crosses the lower portion of the RPZ, we are comfortable with the trail doing the same as long as it is located on the furthermost edge of the RPZ. Therefore, we support the newly proposed alignment on the southwest side of State Route 509.

Should this not be the recommended alignment, there are other issues such as the receipt of Fair Market Value if the trail is on airport property, discussions about security, and possible lease agreements that would allow the property to be converted to airport use if needed in the future. Since these issues are moot if the alignment is in the southwest side of the road in the WSDOT right-of-way, we will not elaborate on such at this time.

Please feel free to contact me if you have any questions or comments at (425) 227-2653.

Sincerely,

Cayla D. Morgan
Environmental Specialist

Cc: Craig Smith, Port of Seattle

SR 509
25. Q

Mayor
Shirley Thompson

Deputy Mayor
Kathy Gehring

Councilmembers
Gene Fisher
Terry Anderson
Frank Hansen
Joe Brennan
Don DeHan



"The Hospitality City"

City Manager
Calvin P. Hoggard

Assistant City Manager
Jay Holman

City Attorney
Robert L. McAdams

City Clerk
Judith L. Cary

NOV 20 2000

November 16, 2000

Mr. John H. White, P.E.
Washington State Department of Transportation
Northwest Region
6431 Corson Avenue South
Seattle, WA 98108

Dear Mr. White:

At the November 14, 2000, City Council meeting the Mayor and City Council moved to give Washington State Department of Transportation written concurrence from the City regarding its 4(f) mitigation proposal for impacts to Des Moines Creek Park due to construction of the SR 509 extension. This letter serves as that written approval.

Washington State Department of Transportation has proposed to replace the lost acreage (approximately 7.5 acres) with equal acreage adjacent to the existing park and west of the Des Moines Creek. The exact location of the additional acreage will be determined through a coordinated land swap between the City and WSDOT. In addition, WSDOT will relocate the trailhead parking lot westward, then extend the existing trail parallel to the new freeway northward from 200th Street to the existing interchange at 12th Pl. S. (S. 188th St.).

City of SeaTac looks forward to working with the WSDOT staff to work out the final details of the mitigation on the SR 509 project.

Sincerely,

Calvin Hoggard
City Manager

cor: 074.00

17900 International Blvd., Suite 401 • SeaTac, Washington 98188-4236
City Hall: (206) 241-9100 • Fax: (206) 241-3999 • TDD: (206) 241-0091

KING COUNTY PARK SYSTEM

DEC 26 2000

Program Development and Land Management Section

December 19, 2000

Brian H. Roberts, Transportation Engineer
Washington State Department of Transportation
Northwest Region
6431 Corson Avenue South
Seattle, WA 98108

RE: SR 509 / South Access Road

Dear Mr. Roberts:

This letter is in response from the Washington State Department of Transportation (WSDOT) for a letter providing documentation that King County Park System (KCPS) agrees in concept with WSDOT's Section 4(f) Evaluation and recommended mitigation plan for the SR 509 / South Access Road Proposal. The proposed project would require the use of property (approximately 7.5 acres) from the northeast corner of Des Moines Creek Park, currently within the KCPS. Although Des Moines Creek Park is owned by KCPS, it is at present, being maintained by the City of Seatac. Therefore, WSDOT is seeking written concurrence from KCPS that the proposed land replacement and trail extension is acceptable and considered full mitigation for the loss of the northeast corner of Des Moines Creek Park.

As Susan Strandberg and I discussed with you and John White during our meeting on November 30, KCPS is in the process of officially transferring title to Des Moines Creek Park to the City of Seatac. We hope to complete this transfer by February or March of next year. Transfer of park property to cities requires approval of an interlocal agreement by both the King County Council and the Seatac City Council.

We understand from speaking with you and Kit Ledbetter, Parks and Recreation Director with the City of Seatac, that WSDOT and Seatac have discussed the proposed mitigation plan. WSDOT has proposed to mitigate this impact to Des Moines Creek Park property: by replacing the land that would be required for the project with equivalent land on the western border of the park; relocating the existing trailhead facilities; and extending the Des Moines Creek Trail approximately two miles to the north along the route of the proposed SR 509 extension.

Luther Burbank Park • 2040 84th Ave SE • Mercer Island, WA 98040 • Tel: 206-296-4232 Fax: 206-205-5385

Since the goal of both King County and the City of Seatac is to accomplish the transfer of Des Moines Creek Park to City of Seatac we agrees that the City of Seatac should have a major role in determining adequate mitigation and compensation. However, should Des Moines Creek Park still be under King County's ownership at the time the land transfer would need to occur, such concurrence would require approval by the King County Council.

Thank you for the opportunity to provide these comments. If you need further clarification about the position of King County Park System, or need any other information, please contact me at (206) 296-4252.

Sincerely,

Connie L Blumen

Connie L. Blumen
Program Manager
Program Management and Land Development

cc: John H. White, P.E., Washington State Department of Transportation
Northwest Region, Corson Avenue South, Seattle, WA 98108
Kit Ledbetter, Director, Parks and Recreation Department, City of Seatac, 17900 International Boulevard, Suite 400, Seatac, WA 98188-4236
Ann Martin, Principal Transportation Planner, Transportation Planning, King County Department of Transportation
Barbara Wright, Administrator, Program Management and Land Management, King County Park System (KCPS)
Connie Blumen, Program Manager, KCPS
Robert Nunnenkamp, Property Agent KCPS
Susan Strandberg, Program Manager, KCPS
Joe Wilson, Property Manager, KCPS

City of Des Moines

DEPARTMENT OF PUBLIC WORKS
21650 11TH AVENUE SOUTH
DES MOINES, WASHINGTON 98198-6317
(206) 870-6522 FAX: (206) 870-6596

RECEIVED
DEC 05 2001
SOUTH KING COUNTY
AREA ADMINISTRATION

December 3, 2001

Ms. Susan Everett, P. E.
South King Engineering Manager
Northwest Region WSDOT
6431 Corson Avenue South
NB82-MS250
Seattle WA 98108-3445

Dear Susan:

Re: SR509 Draft Section 4(f) Evaluation Corridor Completion/I-5/South Access Road Project

The City of Des Moines has reviewed the November 2001 Draft Section 4(f) Evaluation for the SR509 Corridor Completion/I-5/South Access Road project. We concur that the WSDOT project will result in minor proximity impacts that would not affect the constructive use and enjoyment of the Midway Park.

We support WSDOT's decision to consider a noise barrier that would be placed between I-5 and the park. We look forward to working with WSDOT staff on the future noise study and evaluations for this area.

Sincerely,

Bob Olander
City Manager

cc: Tim Heydon, Public Works Director
Patrice Thorell, Parks/Recreation Director

CITY OF KENT
NOV 20 2001
ENGINEERING DEPT

KENT
WASHINGTON

PARKS, RECREATION & COMMUNITY SERVICES
John Hodgson
Director

Phone: 253-856-5100
Fax: 253-856-6050

220 Fourth Ave. S.
Kent, WA 98032-5895

November 19, 2001

Tim LaPorte
City of Kent Public Works Department
400 West Gowe Street
Kent, WA 98032

RE: I-5/SR 509 Between 272nd and Kent-Des Moines Road

Dear Tim:

Thank you for inviting us to the meeting with WSDOT to review the scope of this widening project.

Our concern with this project is the visual and noise impacts on Linda Heights Park. The Park is located on the north side of SE 248th Street. We share a common boundary with the I-5 Right-of-Way. The City has a sanitary sewer lift station on this site, also.

We recommend that WSDOT include a combination of noise attenuating barriers where appropriate and native plant buffers, for noise attenuating and visual barriers. Our preferred method for Linda Heights Park is native plantings, for both noise and visual impacts due to the extreme elevation change (25-35 feet) along the I-5 frontage.

We look forward to working with you and WSDOT on this project. Please keep us advised of the public input process scheduled for March 2002.

Sincerely,

John M. Hodgson, Director
Parks, Recreation & Community Services

C: Lori Flemm, Superintendent
Parks Planning & Development

JMH/jb

KENT
WASHINGTON

December 5, 2001

PUBLIC WORKS
Don E. Wickstrom, P.E.
Director of Public Works

Phone: 253-856-5500
Fax: 253-856-6500

220 Fourth Ave. S.
Kent, WA 98032-5895

Mr. John White, Project Engineer
Northwest Region Design, South King Area
6431 Corson Avenue South, MS 61
Seattle, WA 98108

DEC 06 2001

Re: SR-509 Preliminary Revised Draft EIS

Dear Mr. White:

Thank you for the opportunity to comment on the *Preliminary Revised Draft Environmental Impact Statement and Draft Section 4(f) Evaluation* (PRDEIS) for the SR-509 project. As you know, the City supports the SR-509 project and looks forward to partnering with WSDOT on its completion.

The PRDEIS was given to the Planning Department and Parks Department for review. The Planning Department has no comments at this time. The Parks Department took part in a meeting with WSDOT to discuss the impacts of the proposed auxiliary lanes on I-5 to Linda Heights Park. We would like to thank Susan Everett and Susan Bagley for attending this meeting. The Parks Department submitted a letter regarding these impacts – see attached.

Public Works Department comments are limited to the traffic volumes shown on Figures 1.3-1 and 1.3-3. The southbound volumes on Military Road, north of SR-516 are considerably lower, as shown in the figures, than our existing traffic counts indicate. The PRDEIS shows 400 vehicles in 1998 and projects 390 vehicles in 2020. Our counts indicate there are closer to 1000 vehicles existing and modeling for the S. 228th Street Extension project 1150 vehicles in 2020. This is one of the key intersections within the Kent portion of the study area, and we want to make sure that traffic operations are studied consistently.

If you have further questions please contact me at (253) 856-5515 or Chad Bieren at (253) 856-5534.

Sincerely,

Tim LaPorte, P.E.
Design Engineering Manager

Cc: Don Wickstrom, Public Works Director
Chad Bieren, Project Engineer

NCB01024.doc
Project Number: 87-3007E

31405 18th Ave. So.
Federal Way, WA
98003-5433
Tel 253.945.2000
www.fwsd.wednet.edu

Federal Way Public Schools
Every Student, a Reader

November 4, 2002

NOV 06 2002

John H. White, P.E.
SR 509 Project Engineer
6431 Corson Avenue South
Seattle, WA 98108

Dear John,

Thank you for providing Mr. Doug Rutherford, Principal of Mark Twain, and me with information and drawings regarding the planned modifications to the I-5 on-ramp at South 272nd street. Since the revisions to the ramp will move freeway traffic closer to the Mark Twain Elementary property we do have an interest in how the project impacts the school. The information you supplied indicates that the berm that lies between the current on-ramp and the FWPS property will be modified, that the lane of traffic will move to the West, closer the school, and that the elevation of the on-ramp will be revised.

Additionally, you provided Mr. Rutherford and me with a document describing the positive impacts of "noise barriers". I have reviewed the information. Listed below are my comments regarding the information you supplied:

- Mark Twain Elementary is impacted negatively by two sources of external noise, aircraft in the SeaTac Airport flight-path and vehicles traveling on the I-5 roadway.
- The Mark Twain Playfield was negatively impacted by original construction of the Southbound on-ramp at S 272nd.
- Proposed modifications to the on-ramp at S 272nd must not increase the noise levels or negatively impact any other condition such as air quality, safety, storm water run-off, maintenance, or visual aesthetics within the Mark Twain Elementary site.
- The measures taken to mitigate the I-5 on-ramp noise on the Mark Twain site must be aesthetically pleasing for an elementary school setting and cause no additional maintenance effort on the part of the Federal Way Public School District to keep the mitigation measure in "like new" condition.
- If berm construction and landscaping will provide the conditions described above then that would be our preferred solution.
- If a combination of berm construction, landscaping and Noise Barriers are necessary to meet the conditions described above, then that is our preference.

We have little expertise in freeway impact mitigation resulting in our inability to be more specific about a choice of mitigation feature. We expect you to propose a specific set of mitigations that meets our needs and then we will seek professional assistance in evaluating your proposal.

Our bottom line is that there be no negative impact to the Mark Twain Elementary site resulting from the construction on the I-5 roadway.

Thank you for your consideration.

Sincerely,

Rod Leland

Rod Leland
Director of Facility Services
Federal Way Public Schools
1066 South 320th
Federal Way, WA 98003

C: Tom Murphy
Sally McLean
Doug Rutherford

INTERAGENCY LETTER OF UNDERSTANDING

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
and
CITY OF SEATAC

THIS LETTER OF UNDERSTANDING (LOU) is entered into by and between the Washington State Department of Transportation (WSDOT) and the City of SeaTac (CITY) and is effective upon execution by both parties.

Whereas, WSDOT has determined the need and proposes to extend SR 509 from South 188th Street within the City to Interstate 5 (PROJECT); and

Whereas, the CITY expects to receive from King County the lands that comprise Des Moines Creek Park in 2002 or early 2003; and

Whereas, the PROJECT will require WSDOT to acquire from the City property or property rights from property that qualifies as 4(f) property pursuant to Section 4(f) of the Department of Transportation Act of 1966 (Recodified as 49 USC 303); and

Whereas, WSDOT recognizes its obligations under Section 4(f) of the Act and related requirements to mitigate for impacts to public park lands; and

Whereas, WSDOT owns right-of-way in the City for an existing alignment that is not needed for the PROJECT and may be surplus to its needs; and

Whereas, WSDOT is required to pay just compensation for the property owned by the CITY that is needed for the PROJECT and to mitigate public park lands impacts pursuant to Section 4(f); and

Whereas, WSDOT and the City desire to exchange and consolidate ownerships of land within the vicinity of the PROJECT as a component of that just compensation and 4(f) mitigation; and

Whereas, WSDOT has the authority to exchange lands under RCW 47.12.063 and RCW 47.12.287 and the CITY has the authority to exchange lands under RCW 39.33.010 and RCW 47.12.040;

NOW THEREFORE, the parties agree to facilitate WSDOT's right-of-way needs should WSDOT decide by issuance of a Record of Decision (ROD) to proceed with its Preferred Alternative and obtain sufficient funding for the extension of SR 509 from South 188th Street to I-5 (the PROJECT) by exchanging and consolidating each agency's ownership of land, on the following terms and conditions;

1. WSDOT has identified the property needed for the Project.
2. WSDOT will identify WSDOT property that may be available for exchange and process disposal reviews immediately upon execution of this LOU.
3. The CITY agrees to convey to WSDOT approximately 4.6 acres of land in Des Moines Creek Park as shown in Exhibit A, attached to and hereby made a part of this LOU.

4. If acceptable to the FHWA, WSDOT agrees to convey to the City within six months of execution of the ROD by the FHWA approximately 4.6 acres of land adjacent to Des Moines Creek Park on its west side or at another mutually agreeable location as shown in Exhibit A as mitigation for the direct taking of Des Moines Creek Park 4(f) lands.
5. WSDOT may have an obligation to compensate the CITY for a parcel of land approximately 2.1 acres in size. After an appraisal is performed and the amount of damages, if any, is determined, WSDOT agrees to convey a parcel of similar value to the CITY as mitigation for indirect effects to Des Moines Creek Park 4(f) lands as shown in Exhibit 1. The parcel to be conveyed for this purpose will be located as shown in Exhibit 1 or at another mutually agreeable location.
6. This LOU may be terminated, amended, or extended by mutual written consent of both parties, or if either party fails to convey the land called for by this LOU within the time specified herein or any extension thereof.
7. No liability shall attach to WSDOT or the City by reason of entering into this LOU except as expressly provided herein.

This LOU can be amended only by mutual written consent of the parties

SIGNED AND ACCEPTED:

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

G Gallinger — Oct 28, 2002

Gerald L. Gallinger, Director, Real Estate Services — Date
PO Box 47338, 310 Maple Park Avenue; Olympia WA 98504-7338
(360) 705-7305

CITY OF SEATAC

By: Bruce Rayburn — 11/20/02

Bruce A. Rayburn, City Manager — Date
(Address)

APPROVED AS TO FORM

Robert L McAdams — 11/19/02

Robert McAdams, City Attorney — Date

5. Revised DEIS Comments and Responses

5. Revised DEIS Comments and Responses

This section contains all comments and responses made on the Revised DEIS received by WSDOT during the comment period. The comments and responses are grouped in the following order: federal and state agencies (A), local jurisdictions and representatives (L), comment forms (C), and public hearings (CRO, CRH).

Substantive comments requiring acknowledgement or a response have a comment number in the left margin that corresponds to the response number. The responses for each comment letter immediately follow the letter. The first comment in each letter is designated as 1.

Where similar comments are made in different letters, the reader is referred to preceding letters and responses by the comment number.

Comment No.	Commenter	Agency or Affiliation	Page
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A1	Willie R. Taylor	U.S. Department of the Interior, Office of Environmental Policy and Compliance	5-5
A2	Emily Teachout	U.S. Fish and Wildlife Service	5-11
A3	Judith Lechrone Lee	U.S. Environmental Protection Agency, Geographic Unit	5-17
A4	Sandra Manning	Washington State Department of Ecology	5-29
A5	Cynthia Pratt	Washington State Department of Fish and Wildlife	5-31
A6	King Cushman	Puget Sound Regional Council	5-33
A7	Thomas D. Keown, PE	Highline Water District	5-43

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L2	Wing Woo	Mayor, City of Burien	5-49
L3	Scott Greenberg	Community Development Director, City of Burien	5-53
L4	Don E. Wickstrom, PE	Public Works Director, City of Kent	5-61
P1	Kevin Shively	Transportation Choices Coalition	5-63
P2	Jacob Grob David W. Hoffman Steve Nuss Melvin Roberts James R. Hamilton William T. Miller		5-69
P3	Lorraine L. Dubuque	Heritage Court Condominium Association	5-97
P4	Pat Ashcraft		5-99
P5	Arlene Brown		5-101
P6	Debi DesMarais-Wagner		5-123
P7	Brett Fish		5-131
P8	Don Frey		5-135
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P10	Steven M. Nuss		5-139
P11	Paul Silvernale		5-141
P12	Tim and Teresa Still		5-143

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P14	Warren Yee		5-147
Comment Forms			
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C3	J. Jollimore		5-153
C4	David W. Hoffman		5-154
C5	Richard P. and Anne B. Kurtz		5-155
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C7	Dominick Macri		5-158
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C9	Melvin L. Roberts		5-160
C10	JoAnn Taft		5-161
C11	Juan Torres		5-162
C12	Robert and Lorna Toy		5-163
C13	Jean Varnum		5-164
C14	Michael R. Weidler		5-165
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CRO3	Howard F. Clark		5-171
CRO4	Robert Pond		5-173
CRO5	Brad Corner		5-174
CRH1	David H. Hoffman		5-179
CRH2	Cathea Stanley		5-181

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CRH4	Steve Nuss		5-186
CRH5	Claire Everett		5-187
CRH6	Becky Stanley		5-195
CRH7	Mel Roberts		5-197
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CRH12	Arlene Brown		5-214
CRH13	Bob Pond		5-219
CRH14	Gerald McGinnis		5-222
CRH15	Claire Everett		5-223

A1

United States Department of the Interior

OFFICE OF THE SECRETARY
Washington, D.C. 20240

ER-02/146

APR 25 2002

Mr. John White, P.E.
Project Engineer
6431 South Corson Avenue
Washington State Department
of Transportation, Mailstop 61
Seattle, Washington 98108

Dear Mr.White:

This letter provides the comments of the U.S. Department of the Interior (Department) on the Revised Draft Environmental Impact Statement (RDEIS) and Draft Section 4(f) Evaluation for the proposed SR 509 Corridor Completion/I-5/South Access Road. This project will complete a major north south corridor in a metropolitan area where the existing highway system is inadequate. The present configuration of roads, airport, and essential development and protection zones put significant constraints on locating new highways and appropriate interchanges, as do the natural features such as streams, wetlands, ravines, and the wildlife that inhabit this green space.

We believe that with sensitive project development, the essential natural and recreational values of this area can be sustained. While many environmentally sensitive design elements have already been incorporated into the planning for this project, we have serious concerns about the affected wetlands, watersheds and remaining fish and wildlife habitat in the project area; and we request that you address these concerns in the Final EIS. We would also like to see more information about mitigation measures to protect recreational values and allow the taking of parkland under Section 4(f).

GENERAL COMMENTS

A1-1 In general, the RDEIS does not place enough emphasis on watershed-based approaches for mitigating stormwater impacts. The project takes place in a highly urbanized setting with a number of complex environmental and regulatory constraints. We suggest a more proactive approach in the Final EIS, to creatively manage stormwater impacts. This approach will result in an ecological benefit for the species and their habitats, and can help the project meet the complex requirements of this particular situation. Although we do not anticipate major impacts to listed species from this project, we do have serious concerns about the continued degradation of the affected wetlands, watersheds, and remaining fish and wildlife habitat in the project area.

We request that you address the following three concerns with the rest of our comments in the final EIS for the proposed SR 509/South Access Road Project: (1) Approach mitigation of stormwater impacts from a watershed level, using non-engineered solutions as a starting point; (2) Clarify the extent to which each of the "build" alternatives might negatively impact base flows for each of the affected subwatersheds in the project area; and (3) Expand the analysis of potential impacts to anadromous fish and their habitat to include each of the subwatersheds affected by the "build" alternatives, and to areas where ongoing and future mitigation efforts will allow fish access in the future.

Response A1-1

A watershed approach for mitigating stormwater impacts was implemented for the project. A stormwater value engineering (VE) study was conducted in May 2002 to address stormwater issues for the SR 509 project. Based on this study, stormwater design has been integrated with proposed improvements identified in the Des Moines Creek Basin Plan to meet the goals of the plan. WSDOT, as a recent member of the basin planning team, will participate in funding Capital Improvement Projects identified in the plan if the project EIS is approved and construction is funded. The Des Moines Creek Basin Plan would meet the following goals: reduce peak flows for the 6-month to 10-year storm events, to a level that prevents flooding and stream bank erosion; increases dissolved oxygen levels; restores riparian vegetation to lower water temperatures and improves fish habitat; provides low-flow augmentation to maintain biodiversity and improves fish habitat; and removes the fish passage barrier at Marine View Drive. Implementation of the plan would slow degradation of wetlands and affected watersheds and would improve fish and wildlife habitats in the Des Moines Creek Basin.

Stormwater

The RDEIS discusses the best combination of conventional management practices and highly engineered facilities (i.e., large detention ponds and underground vaults) for meeting stormwater mitigation requirements. However, we suggest an approach using non-engineered solutions as a starting point that would prove more effective at restoring degraded hydrologic functions.

The RDEIS references a technical memorandum by the consulting firm CH2M Hill, entitled "Stormwater Treatment Technical Memorandum for SR 509/South Access Road" (August 2001). We were also provided with an earlier document, by the same firm entitled "SR 509 Stormwater Practicability and Environmental Decision Making, Preliminary Draft" (September 2000). This earlier document, discusses in some detail, ideas for "alternative watershed-based mitigation" drawn in part, from the 1997 Draft Des Moines Creek Basin Plan. These ideas include low flow augmentation and habitat restoration. We were disappointed to learn that the current memorandum (August 2001) does not include such emphasis on watershed-based approaches.

A1-2 The current technical memorandum (August 2001), cited in the RDEIS, states that current cost estimates for the project's stormwater treatment measures have reached at least $115 million. It would be helpful to see what watershed based mitigation opportunities are possible, and how those costs might compare with the cost of the proposed concepts.

A1-3 We are concerned that the RDEIS lacks an evaluation for the potential of watershed based stormwater mitigation alternatives, and we request a more thorough analysis of the possibilities and benefits of such an approach in the final EIS. We encourage the project proponents to fully investigate the use of non-engineered solutions that could result in protected water quality/quantity as well as habitat enhancement and creation. Tools that could be incorporated in such an approach include:

Use of low impact development methods such as soil amendment, mulching, etc., to help absorb stormwater and increase infiltration rather than increasing the amount of stormwater discharged directly to surface waters;

Permanent removal and restoration of existing impervious surfaces in order to reduce the total impervious area in a subwatershed;

Replacement of lost stormwater storage capacity with newly created or restored floodplain storage areas;

Augmentation of instream base flows through permanent acquisition of water rights;

Locating water quality treatment structures outside of riparian, shoreline, and wetland buffer areas;

Restoration of riparian buffers; and,

Permanent acquisition of wetlands, riparian areas, and upland areas for use as infiltration reserves that improve and/or protect hydrologic functions.

A1-4 We are concerned that the RDEIS does not contain enough information or analysis on potential impacts of the "build" alternatives concerning the base flows of affected subwatersheds. The emphasis is instead focused on potential increases in runoff rates and volumes. The September 2000 Memorandum from CH2M Hill points out base flows that have been reduced 21 percent from pre-development conditions. Please clarify how each of the "build" alternatives could alter base flows in each of the affected subwatersheds, in the Final EIS.

Response A1-2

Since publication of the August 2001 stormwater technical memorandum, the baseline cost estimate for stormwater design was revised to $102 million. The results of the watershed-based approach applied during the May 2002 stormwater VE study (see response to Comment A1-1) identified potential cost savings, as well as potential added costs. If the recommended cost savings and added costs are implemented, the revised total stormwater costs would be approximately $63 million, compared to a baseline cost of $102 million.

Response A1-3

The stormwater VE study conducted in May 2002 (see response to Comment A1-1) applied a watershed-based approach to stormwater mitigation and non-engineered solutions, including pollutant source control measures such as galvanized guard rails, poles, and fencing. In addition, WSDOT is a member of the Des Moines Creek Basin Plan committee and would fund some of the mitigation projects identified in the basin plan if the SR 509 project is built. These projects include low-flow augmentation, riparian habitat restoration, and maintenance and enhancement of natural flood storage.

Response A1-4

The proposed project would not reduce the base flow of Des Moines Creek. The transformation of pervious soils into impervious areas generally eliminates water infiltration into soils. Infiltration and subsequent discharge of water is one of the major components of the base flow in Des Moines Creek. As currently planned, the SR-509 project would collect stormwater runoff for every storm less than the 6-month storm event. Collected stormwater would be allowed to infiltrate via bioswales, infiltration vaults, and/or infiltration ponds wherever subsurface conditions allow. Where infiltration is not feasible, stormwater runoff would be released into stormwater treatment wetlands, or would receive enhanced treatment in most areas. If the proposed project is approved and funded, WSDOT would contribute to projects identified in the Des Moines Creek Basin Plan. These projects include a low-flow augmentation facility in the vicinity of South 200th Street, which would provide benefits to the aquatic environment during summer periods of stress caused by elevated temperatures and low flows.

Fish and Wildlife Habitat

A1-5 We understand that the project's proximity to the Seattle-Tacoma International Airport poses some significant design constraints, especially with regard to minimizing potential wildlife attractants that may pose a hazard to aircraft operation. We are concerned about the proposal to place netting over open water areas such as stormwater ponds to prevent bird use. Please include in your final EIS analysis, the potential effects that such netting may have on wildlife that is attracted to open water areas and perhaps, trapped in the netting. We encourage you to pursue other options, such as planting shrub vegetation to dissuade birds from landing on the water, instead of using potentially harmful netting.

A1-6 The project proposes to replace a culvert that is currently an anadromous fish barrier at Marine View Drive. The Marine View Drive project is a separate project that has already gone through some stages of environmental review. Therefore, the potential impacts of the "build" alternatives should be assessed with consideration to the increased anadromous fish access that the project will create.

A1-7 The RDEIS appears to focus on impacts to fish habitat in Des Moines Creek because it is "the only fish-bearing aquatic resource that would be crossed by the proposed project" (Page 3-134). However, the added impervious area that each of the "build" alternatives would add to the region will result in impacts to each of the affected subwatersheds, regardless of whether the road physically crosses the streams. Please include analysis of the impacts to each of the affected subwatersheds in the final EIS, and not just those that are physically crossed by the alternatives.

Wetlands

A1-8 Please evaluate how wetland impacts resulting from each of the "build" alternatives might impact base flows in Des Moines Creek in the final EIS.

SPECIFIC COMMENTS

A1-9 Table S-1, Page S-24: Under the description of Construction Impacts for Alternative C2, the RDEIS states, "Anadromous fish runs do not occur in the reaches of Des Moines Creek that will be affected." However, stormwater discharge and increased impervious surface in the Des Moines Creek watershed will occur with this alternative. These impacts could potentially affect the entirety of Des Moines Creek. Additionally, part of the proposed mitigation is to replace a fish-blocking culvert at Marine View Drive. This will allow anadromous access further upstream in Des Moines Creek, so the analysis should address potential impacts to anadromous fish upstream of Marine View Drive.

A1-10 Page 2-27, paragraph 4: "Alternative C3 would encroach into the northeast corner of Des Moines Creek Park by crossing through the park on an elevated structure." Figure 2.3-8 does not show the road crossing the park on a structure.

A1-11 Page 3-30, paragraph 3: This section discusses the use of noise barrier mitigation and states that areas for barrier mitigation were considered for each of the "build" alternatives. Please provide some additional discussion about the potential use of noise barriers in the vicinity of Des Moines Creek Park, and whether or not it is possible or worthwhile to use this type of mitigation to minimize noise impacts to wildlife species that inhabit the park.

Response A1-5

Waterfowl concentrations near airports are typically deterred to avoid collisions with aircraft. During the design phase of the project, WSDOT will coordinate with the FAA to develop appropriate methods to discourage waterfowl use of new stormwater facilities in areas where airport restrictions apply. This coordination will occur during the design phase of the project.

At this time, the FAA discourages the use of netting and prefers the use of floating or solid covers. WSDOT will pursue options other than netting to control waterfowl use, such as planting shrub vegetation or using floating covers. However, it is possible that nets will be used on some of the stormwater facilities if the FAA determines that nets are the best way to control waterfowl. If nets are used, birds caught in the nets could be harmed.

No federal- or state-listed sensitive, threatened, or endangered wildlife species regularly breed in, forage in, or occupy the project area of the build alternatives. Because of this, the waterfowl management method used near the airport will not affect threatened or endangered wildlife species.

Response A1-6

The Revised DEIS analysis of fish in Des Moines Creek was done assuming anadromous fish use up to RM 1.0, which is the extent to which King County and WDFW have determined anadromous fish to be present. This is upstream of the Marine View Drive project, which is located at RM 0.4.

Response A1-7

Section 3.7 of the EIS has been revised to include an analysis of the effects of adding impervious surfaces to each of the affected watersheds.

Response A1-8

The SR 509 project is not expected to impact Des Moines Creek base flows. Wetland impacts within the basin have been reduced to 0.3 acre. Wetland functions such as water detention and retention that could be affected would be mitigated within the basin, fully compensating for wetland functions that contribute base flow to Des Moines Creek. Additionally, stormwater would be infiltrated wherever subsurface conditions allow, which would help preserve base flow. See also response to Comment A1-4.

Response A1-9

The referenced text in Table S-1 pertains to construction activity impacts associated with bridge construction. The proposed bridges are located above the reach of documented anadromous fish use. Impacts associated with runoff from impervious surfaces are summarized under the Operational Impacts heading in Table S-1. This text has been revised to more clearly identify impacts associated with runoff.

Response A1-10

Figure 2.3-8 has been corrected to show the bridge crossing of Des Moines Creek Park.

Response A1-11

Your comment is noted. Noise impact criteria and analysis are based on processes and requirements for the human environment. Wildlife species hear sounds differently than humans and differently from one another. Currently, there are no approved methodologies or processes to accurately assess highway noise impacts on wildlife. Furthermore, existing aircraft flights over Des Moines Creek Park generate sound levels much higher in amplitude than those anticipated to result from SR 509. Also, the use of noise barriers for abating traffic noise within parks typically does not meet WSDOT's reasonableness criteria.

A1-12

Page 3-92, paragraph 5: This paragraph states, "opportunities to address stormwater issues using a watershed approach would be sought. This approach would focus on treating stormwater at the subwatershed level, emphasizing infiltration techniques and restoration of natural hydrological functions where practicable." We encourage you to utilize this approach as a starting point, rather than relying on opportunities to integrate into the plan for engineered solutions. Such an approach would not only benefit the watershed ecologically, but it could help reduce conflicts between engineered solutions such as large detention ponds and Federal Aviation Administration requirements.

If you have any questions about these RDEIS comments, please call Lynn Childers at the Western Washington Field Office, U.S. Fish and Wildlife Service, in Lacy, Washington, at (360) 753-5831.

DRAFT SECTION 4(f) EVALUATION

It appears that a diligent effort has been made to identify alternatives that would avoid the use of parkland, but no feasible and prudent alternative has been identified that would completely avoid impacts to parks. The preliminary preferred alternative would place an elevated highway across the northeast corner of Des Moines Creek Park. The highway crosses over a small portion of a 16-acre park wetland designated "Wetland A" in the document. The project would cause slight increases in noise at other area parks, but these increases are expected to be increments that would not be noticeable to park users. A private golf course developed on leased Port property is not deemed a Section 4(f) property.

Des Moines Creek Park, with 95.8 undeveloped acres of forest and stream habitat, is the largest natural preserve of woodland environment in the highly urbanized SeaTac/DesMoines area. The park includes a ravine, wetlands, streams and woodlands and a paved trail along Des Moines Creek. The tranquility of the setting is marred by the park's proximity to Sea-Tac International Airport, and the park is affected by frequent aircraft noise; nevertheless, the park is considered an important element of local, community and regional park systems. It will be critically important that the project is developed in a way that maintains or enhances the park's recreational value as a natural preserve for passive public enjoyment.

The affected parkland is owned by the King County Park System. It lies within the City of SeaTac and is also currently managed by the City. The County and the City of SeaTac are negotiating a possible transfer of ownership from the County to the City, but a mutually satisfactory agreement has not yet been reached.

The park, recreation and open space element of the SeaTac Comprehensive Plan places a high priority on the development of the Des Moines Creek Trail and maintenance of the natural habitat values of the park. Retaining the "rich array of wildlife, wildflowers and access to water environment is important to the quality of this park experience." (Page 4-17 of the Draft Section 4(f) Evaluation) Direct and indirect impacts to the natural environment could affect the desired opportunities for passive recreational enjoyment of the park, and these impacts must be minimized in order that a recommendation to proceed can be forthcoming.

Of the alternatives presented in the Revised DEIS, the preliminary preferred alternative appears to be the best approach to minimize harm to the park and also to cause the least harm to the area's wetland ecology and Des Moines Creek. Several mitigating measures have been proposed, including:

The highway would be an elevated structure along the entire alignment within the park. There is a stated goal to replace any lost park acreage with an equal amount of acreage adjacent to the park's boundary and of reasonably equivalent or greater recreational utility. The Washington State Department of Transportation (WSDOT) would provide an extension of Des Moines Creek Trail to the north of the existing park. The WSDOT proposes to move the trailhead and associated parking if necessary to provide continued access. The

Response A1-12

A watershed approach for mitigating stormwater impacts was utilized for the project. Please see response to Comment A1-2 above.

5

WSDOT is also committed to financially assisting in the construction of a new Marine View Drive bridge over Des Moines Creek at the western edge of the park. The new bridge design will include a trail underpass and will provide for fish passage.

A1-13

Construction of SR 509 on park property is viewed as a use that will cause substantial harm to the park, and these mitigating measures will help to reduce harmful impacts. While these proposals show good faith, the document does not yet demonstrate the adequacy of park mitigation measures. The Department remains concerned about possible harm to the stream, riparian and wetland resources of the park and about replacement property for acreage impacted by the project. Because replacement property has not been specifically identified, it is difficult to evaluate. The document states that the replacement property is to "be determined through a coordinated land swap between the WSDOT and the City of SeaTac." (page 4-31) While it is likely that adequate property will be offered, it is not demonstrated in the document. It is also not entirely clear who will own and manage the affected park acreage at the time the WSDOT needs to use it.

Before this Department concurs, under Section 4(f), that the project includes "all possible planning to minimize harm to the park property," we request that you provide in the final document more specific information about land replacement proposals as well as any other measures that would minimize harm to the park values affected by the project. Please feel free to contact Nancy Stromsem, in the Columbia Cascades Support Office of the National Park Service, in Seattle, at (206) 220-4015, if you have questions about this Section 4(f) review.

We appreciate the opportunity to provide these comments.

Sincerely,

Willie R. Taylor
Office of Environmental
Policy and Compliance

Response A1-13

Measures that minimize impacts on the natural values of Des Moines Creek Park—the stream, riparian, and wetland resources—are presented in the revised Measures to Minimize Harm section of the Section 4(f) Evaluation (Section 4.5). The measures presented are drawn from the Vegetation and Wildlife, Fish, and Threatened and Endangered Species; Water Quality; and Wetlands sections of the EIS.

An Interagency Letter of Understanding has been signed by the City of SeaTac and WSDOT regarding mitigation for direct impacts on Des Moines Creek Park (see Chapter 4 of this FEIS). WSDOT would provide a roughly 100-foot-wide strip of replacement land within the existing SR 509 right-of-way south of 200th Street and immediately adjacent to the park's western boundary. The land to be provided would be of equal size to that being acquired from the park and of reasonably equivalent recreational utility. The land would be transferred to either King County or the City of SeaTac, depending on which agency is owner of the park at the time of the transfer.

A2

United States Department of the Interior

FISH AND WILDLIFE SERVICE
911 NE 11th Avenue
Portland Oregon 97232-4181

AES/HC

To: Cascade Support Office, National Park Service
Seattle, Washington

From: Regional Director, U.S. Fish and Wildlife Service
Region 1, Portland, Oregon

Subject: Review of Revised DEIS and Section 4(f) Evaluation for Extension of SR-509: Corridor Completion/I-5/South Access Road, Cities of Des Moines and Sea Tac, King County, Washington (ER 02/0146)

We have reviewed the subject document and offer the following comments for inclusion in the Department of Interior's response to the Federal Highway Administration. We evaluated the proposed project alternatives for potential impacts to fish and wildlife resources and their habitat, with specific attention to proposed, listed and endangered species under our jurisdiction.

Attachment

Region 1 of the U.S. Fish and Wildlife Service has reviewed the Revised Draft Environmental Impact Statement (RDEIS) and Section 4(f) statement for the proposed SR 509 Corridor Completion/I-5/South Access Road, and presents comments for the response to the National Park Service. Our Western Washington Field Office is familiar with the proposed project, because of ongoing involvement through the NEPA/404 Merger Agreement. In general, the RDEIS does not place enough emphasis on watershed-based approaches for mitigating stormwater impacts. The project takes place in a highly urbanized setting with a number of complex environmental and regulatory constraints. We suggest a more proactive approach in the Final EIS, to creatively manage stormwater impacts. This approach will result in an ecological benefit for the species and their habitats, and can help the project meet the complex requirements of this particular situation. Although we do not anticipate major impacts to listed species from this project, we do have serious concerns about the continued degradation of the affected wetlands, watersheds, and remaining fish and wildlife habitat in the project area.

A2-1

We request you address the following three large concerns we have, along with the rest of our comments, in the final EIS, for the proposed SR 509/South Access Road Project: (1) Approach mitigation of stormwater impacts from a watershed level, using non-engineered solutions as a starting point; (2) Clarify the extent to which each of the "build" alternatives might negatively impact base flows for each of the affected subwatersheds in the project area; and (3) Expand the analysis of potential impacts to anadromous fish and their habitat to include each of the subwatersheds affected by the "build" alternatives, and to areas where ongoing and future mitigation efforts will allow fish access in the future.

GENERAL COMMENTS

Stormwater

The RDEIS discusses a combination of conventional best management practices and highly engineered facilities (i.e., large detention ponds and underground vaults) for meeting stormwater mitigation requirements. However, we suggest an approach using non-engineered solutions as a starting point would be more effective at restoring degraded hydrologic functions.

The RDEIS references a technical memorandum by the consulting firm CH2M Hill, entitled "Stormwater Treatment Technical Memorandum for SR 509/South Access Road" (August 2001). We were also provided with an earlier document, by the same firm entitled "SR 509 Stormwater Practicability and Environmental Decision Making, Preliminary Draft" (September 2000). The earlier document discusses, in some detail, ideas for "alternative watershed-based mitigation" drawn, in part, from the 1997 Draft Des Moines Creek Basin Plan. These ideas include low flow augmentation and habitat restoration. We were disappointed to learn that the current memorandum (August 2001) does not include such emphasis on watershed-based approaches.

A2-2

The current technical memorandum (August 2001), cited in the RDEIS, states that current cost estimates for the project's stormwater treatment measures have reached at least $115 million. It would be helpful to see what watershed-based mitigation opportunities are possible, and how those costs might compare with the cost of the proposed concepts.

Response A2-1

Please see response to Comment A1-1 from the U.S. Department of the Interior.

Response A2-2

Please see response to Comment A1-2 from the U.S. Department of the Interior.

We are concerned the RDEIS lacks an evaluation of the potential for watershed-based stormwater mitigation alternatives, and we request a more thorough analysis of the possibilities and benefits of such an approach in the final EIS. We encourage the project proponents to fully investigate the use of non-engineered solutions that could result in protected water quality/quantity as well as habitat enhancement and creation. Tools that could be incorporated in such an approach include:

A2-3

1. Use of "low impact development" methods such as soil amendment, mulching, etc., to help absorb stormwater and increase infiltration rather than increasing the amount of stormwater discharged directly to surface waters;
2. Permanent removal and restoration of existing impervious surfaces to reduce the total impervious area in a subwatershed;
3. Replacement of lost stormwater storage capacity with newly created or restored floodplain storage areas;
4. Augmentation of in stream base flows through permanent acquisition of water rights;
5. Locating water quality treatment structures outside of riparian, shoreline, and wetland buffer areas;
6. Restoration of riparian buffers; and,
7. Permanent acquisition of wetlands, riparian areas, and upland areas for use as "infiltration reserves" that improve and/or protect hydrologic functions.

A2-4

We are also concerned the RDEIS does not contain enough information or analysis on the potential impacts of the "build" alternatives on the base flows of the affected subwatersheds. Instead the emphasis is focused on potential increases in runoff rates and volumes. The September 2000 memorandum from CH2M Hill points out base flows in Des Moines Creek have been reduced 21 percent from pre-development conditions. Please clarify how each of the "build" alternatives could alter base flows in each of the affected subwatersheds, in the final EIS.

Fish and Wildlife Habitat

A2-5

- We understand the project's proximity to the Seattle-Tacoma International Airport poses some significant design constraints, especially with regard to minimizing potential wildlife attractants that may pose a hazard to aircraft operation. We are concerned, though, about the proposal to place netting over open water areas such as stormwater ponds to prevent bird use. Please include in your final EIS analysis, the potential effects that such netting might have on wildlife attracted to the open water areas that may be trapped in the netting. We encourage you to pursue other options, such as planting shrub

Response A2-3

Please see response to Comment A1-3 from the U.S. Department of the Interior regarding the watershed-based approach to stormwater management. Regarding the specified management tools:

1) Low-impact development methods were considered and analyzed as part of the stormwater VE. At this time there is no accepted way to document flow control benefits of soil amendments, nor have they been accepted as a method of providing enhanced treatment instead of more traditional stormwater facilities. If these conditions change, WSDOT will further investigate the use of soil amendments during the design phase of the project.

2) The redesigned SR 516 interchange would have less impervious surface than the existing interchange. Opportunities would be sought to remove existing pavement where not needed as a result of the proposed project design.

3 , 4, 6, and 7) Stormwater would be infiltrated wherever groundwater conditions allow to reduce loss of stormwater storage capacity and protect hydrologic functions. Additionally, if the proposed project is approved and funded, WSDOT would contribute to funding of Des Moines Creek Basin Plan improvements. These include expansion of the Northwest Ponds regional detention facility (which would increase infiltration), a low-flow augmentation facility in the vicinity of South 200th Street (to augment stream base flows), and restoration of riparian buffers. Purchase of infiltration reserves are beyond the scope of this project

5) Stormwater treatment facilities would be located outside riparian and wetland buffers, as currently defined, wherever feasible; there are no shorelines in the project area. Because of the topography of the area and proximity of the build alternatives to existing wetlands, however, some stormwater facilities may be located in riparian areas and wetland buffers.

Response A2-4

Please see response to Comment A1-4 from the U.S. Department of the Interior.

Response A2-5

Please see response to Comment A1-5 from the U.S. Department of the Interior.

vegetation to dissuade birds from landing on the water, instead of using potentially harmful netting.

A2-6
- The project proposes to replace a culvert that is currently an anadromous fish barrier at Marine View Drive. The Marine View Drive project is a separate project that is already through some stages of environmental review. Therefore, the potential impacts of the "build" alternatives should be assessed with consideration to the increased anadromous fish access that the project will create.

A2-7
- The RDEIS appears to focus on impacts to fish habitat in Des Moines Creek because it is "...the only fish-bearing aquatic resource that would be crossed by the proposed project..." (Page 3-134). However, the added impervious area that each of the "build" alternatives would add to the region will result in impacts to each of the affected subwatersheds, regardless of whether the road physically crosses the streams. Please include an analysis of the impacts to each of the affected subwatersheds in the final EIS, and not just those that are physically crossed by the alternatives.

A2-8

Wetlands

- Please evaluate how wetland impacts resulting from each of the "build" alternatives might impact base flows in Des Moines Creek in the final EIS.

SPECIFIC COMMENTS

A2-9

Table S-1, Page S-24: Under the description of Construction Impacts for Alternative C2, the RDEIS states, "Anadromous fish runs do not occur in the reaches of Des Moines Creek that will be affected." However, stormwater discharge and increased impervious surface in the Des Moines Creek watershed will occur with this alternative. These impacts could potentially affect the entirety of Des Moines Creek. Additionally, part of the proposed mitigation is to replace a fish-blocking culvert at Marine View Drive. This will allow anadromous access further upstream in Des Moines Creek, so the analysis should address potential impacts to anadromous fish upstream of Marine View Drive.

A2-10

Page 2-27, paragraph 4: "Alternative C3 would encroach into the northeast corner of Des Moines Creek Park by crossing through the park on an elevated structure..." Figure 2.3-8 does not show the road crossing the park on a structure.

A2-11

Page 3-30, paragraph 3: This section discusses the use of noise barrier mitigation and states that areas for barrier mitigation were considered for each of the "build" alternatives. Please provide some additional discussion about the potential use of noise barriers in the vicinity of Des Moines Creek Park, and whether or not it is possible or worthwhile to use this type of mitigation to minimize noise impacts, to wildlife species that inhabit the park.

A2-12

Page 3-92, paragraph 5: This paragraph states, "...opportunities to address stormwater issues using a watershed approach would be sought. This approach would focus on treating stormwater

Response A2-6

Please see response to Comment A1-6 from the U.S. Department of the Interior.

Response A2-7

Please see response to Comment A1-7 from the U.S. Department of the Interior.

Response A2-8

Please see response to Comment A1-8 from the U.S. Department of the Interior.

Response A2-9

Please see response to Comment A1-9 from the U.S. Department of the Interior.

Response A2-10

Please see response to Comment A1-10 from the U.S. Department of the Interior.

Response A2-11

Please see response to Comment A1-11 from the U.S. Department of the Interior.

Response A2-12

Please see response to Comment A1-12 from the U.S. Department of the Interior.

A2-12 (cont.)

at the subwatershed level, emphasizing infiltration techniques, and restoration of natural hydrological functions where practicable." We encourage you to utilize this approach as a starting point, rather than relying on opportunities to integrate into the plan for engineered solutions. Such an approach would not only benefit the watershed ecologically, but it could help reduce conflicts between engineered solutions such as large detention ponds and Federal Aviation Administration requirements.

Thank you for the opportunity to comment. If you have any questions, please call Lynn Childers at the Western Washington Field Office, in Lacy, Washington, at (360) 753-5831.

A3

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, WA 98101

May 1, 2002

MAY 08 2002

Reply To
Attn Of: ECO-088

Ref: 96-003-FHA

Elizabeth Healy
Area Engineer
Federal Highway Administration
711 S. Capitol Way
Suite 501
Olympia, WA 98501

Dear Ms. Healy:

We have completed our review of the Revised Draft Environmental Impact Statement (RDEIS) and Draft Section 4(f) Evaluation for the proposed **SR 509: Corridor/I-5/ South Access Road** project, pursuant to the Environmental Review Process, under section 309 of the Clean Air Act and section 102(2)(c) of the National Environmental Policy Act as amended. Section 309, independent of NEPA, directs EPA to review and comment in writing on the environmental impacts associated with all major federal actions. Thank you for the opportunity to allow us the opportunity to provide input on the Revised Draft Environmental Impact Statement at this time.

The RDEIS proposes an action plan to improve regional connections with an extension of SR-509 to serve future transportation needs in southwestern King County and to improve southern access for Seattle-Tacoma International Airport (Sea-Tac Airport). The lead agency (the Federal Highway Administration) in cooperation with the project proponents, the Washington Department of Transportation and local agencies, proposes to construct a SR-509 corridor extension. In addition, this proposed project will construct a south access road to skirt the southern edges of Sea-Tac Airport and add capacity improvements to I-5 between South 210th and South 310th Street.

EPA's main concerns are that the Final EIS needs to address issues surrounding aquatic resources, air quality, direct, indirect and cumulative effects, environmental justice, and Tribal consultation. Based on our review, we have assigned the Draft Supplement EIS a rating of EC-2 (Environmental Concerns - Insufficient Information). This rating and a summary of our comments will be published in the *Federal Register*. For your reference, we have enclosed a copy of the rating system we used in our evaluation of this RDEIS.

Enclosed please find our detailed comments, which elaborate further on these issues. We are interested in working with the interested agencies in the resolution of these issues. I encourage you to contact Tom Connor at (206) 553-4423 at your earliest convenience to discuss our comments and how they might best be addressed.

Thank you for the opportunity to review this Revised Draft EIS on the SR 509: Corridor/I-5/ South Access Road of King County.

Sincerely,

Judith Leckrone Lee, Manager
Geographic Unit

Enclosures

cc John White, P.E. (WSDOT)

EPA COMMENTS ON SR-509: CORRIDOR COMPLETION/I-5/SOUTH ACCESS ROAD
REVISED DRAFT ENVIRONMENTAL IMPACT STATEMENT
AND DRAFT SECTION 4(f) EVALUATION

AQUATIC RESOURCES

For background purposes, the project area is located within Water Resource Inventory Area (WRIA) 9, as designated by the State of Washington. Within the project area there are two waterbodies listed as impaired under Section 303(d) of the Clean Water Act (Section 303, Water Quality Standards and Implementation Plans), Des Moines Creek and Mill (Hill) Creek. Des Moines Creek flows directly into Puget Sound, while Mill Creek is a lowland tributary that flows into the lower Green River near river mile 23.9. Based on Department of Ecology's most current 303(d) list of 1998, Des Moines is listed for one parameter, fecal coliform bacteria. Mill Creek is listed for several parameters, which are temperature, dissolved oxygen, and fecal coliform bacteria. Related to beneficial uses and Endangered Species Act (ESA), Washington Department of Fish and Wildlife has identified Des Moines Creek as containing anadromous habitat. As an often quoted reference source, *A Catalog of Washington Streams for the Puget Sound Region* (1975) lists Des Moines Creek and Mill Creek as being utilized by coho salmon. Currently, Puget Sound/Straight of Georgia Evolutionary Significant Unit (ESU) coho salmon are candidate species under ESA. Furthermore, the RDEIS has indicated that the project area is within the critical habitat of Puget Sound ESU chinook salmon and that chinook presence could be near the project area (page 3-130).

FISHERIES

A3-1 The FEIS should confirm, according to best available information (e.g., information contained within *A Catalog of Washington Streams for the Puget Sound Region),* if coho salmon do utilize Mill Creek.

GROUNDWATER

1) The FEIS should provide improved disclosure on well ownership, usage, and existence of any specific water quality issues for these community wells where groundwater quality is of primary concern.

A3-2

Figure 3.5-2 (page 3-88) shows the location of four wells within the project area. Active groundwater contamination and the spread of this pollution is an on-going concern within the project area. For example, the RDEIS stated that "contaminated groundwater [near the Midway Landfill Superfund site] was found beyond the landfill boundary" (page 3-269).

A3-3 **2)** In reference to the community wells and in recognition of the importance of maintaining groundwater and drinking water quality, the Final Environmental Impact Statement (FEIS) should disclose if proposed project activities could impair the quality of the water associated with

Response A3-1

Section 3.7 of the EIS has been revised to include information regarding potential coho use of Mill Creek.

Response A3-2

The groundwater discussion in Section 3.5 has been expanded. Based on Department of Ecology well records, the area in question has the following wells:

Public wells – Highline Water District (several wells near Angle Lake and several wells at Des Moines Creek near South 200th Street); King County Water District 75 (well near Angle Lake and Des Moines well on Memorial Drive); King County Water District 54 (well on South 219th Street east of existing SR 509 roadway); andPort of Seattle (two wells near Tyee Pond).

Private wells – Washington Natural Gas water well (west of 24th Avenue South), a private well on South 188th Street and SR 99, and two private wells on Des Moines memorial Drive near South 192nd Street.

Response A3-3

Public wells that could potentially be impacted by the SR 509 project include Highline Water District wells, King County Water District No. 75 wells, King County Water District No. 54 wells, Washington Natural Gas well, and three private wells (see revised Figure 3.5-2 in EIS). Highline Water District wells (Well 1, Well 2M, and Tyee well) are the only wells close to the future roadway alignment of SR 509. During construction of the roadway, WSDOT would work with Highline Water District to ensure that existing water supply is not contaminated. Construction BMPs and water quality monitoring of the stormwater runoff from the construction site also would be implemented.

WSDOT would work with each well district/owner to ensure that infiltration from the SR 509 stormwater treatment facilities do not occur in the vicinity of these wells. This commitment assures compliance with restrictions within the Groundwater Management Protection Area (GWMA) of South King County (currently in development) and forthcoming BMPs from the Washington State Department of Health Source Water Assessment Program (SWAP) (expected in 2004). The protection of groundwater quality expected from these two programs will satisfy Chapter 173-200 WAC water quality requirements.

local wells in the project area. In general, the RDEIS is not clear how it evaluated groundwater impacts within the project area due to highway runoff.

A3-3 (cont.)

The RDEIS (Figure 3.5-2) has identified the presence of three community wells in the project area located within the Des Moines Creek watershed. On page 3-82, the RDEIS states that "infiltrated stormwater pollutants from new impervious surfaces could cause potential adverse impacts on groundwater quality." While the RDEIS states that adverse impacts "would be low if standard best management practices (BMPs) are implemented" (page 3-82), the FEIS should disclose if these anticipated low impacts could cause impairments to existing and future beneficial uses of the groundwater (Chapter 173-200 WAC, Water Quality Standards for Ground Waters of the State of Washington).

In support of the goal of Chapter 173-200, the FEIS should discuss how project related activities would "maintain the highest quality of the state's ground water quality...through the reduction or elimination of discharge of contaminants to the state's ground waters." Hydrologically, there are pathways and interfaces between surface waters and groundwaters. With this concept in mind, the FEIS should disclose if anticipated low impacts could cause groundwater quality standards to be exceeded.

SURFACE WATERS

1) The FEIS should disclose how the proposed project would restore beneficial uses and promote protection of 303(d) listed waterbodies within the project area.

We would like to acknowledge Washington Department of Transportation's (WSDOT) proposed mitigation and restoration efforts within the Des Moines basin. These efforts include replacement of an existing box culvert (river mile 0.4) which has been identified as the major fish barrier in the system, as well as proposed stream restoration and riparian enhancement in the vicinity of Marine View Drive (RDEIS, page 3-144). According to recent studies reflecting the best available science (Roni et. al.,2002[1]), culvert replacement and improvement are essential elements for stream restoration and habitat reconnection. Yet, we still have concerns that are presented below.

A3-4

A) Describe how the proposed project will be integrated with watershed cleanup activities that will be undertaken within the project area?

Washington State Department of Ecology (Ecology) is currently drafting a Near-Term Action Agenda for the Lower Green River watershed of which the Mill Creek system is an essential element. Ecology will be proposing water cleanup projects on the lower

[1]Roni P., Beechie, T. J., Bilby, R. E., Leonetti, F. E., Pollock, M. M., and Prees, G. R. (2002). *A Review of Stream Restoration Techniques and a Hierarchial Strategy for Prioritizing Restoration in Pacific Northwest Watersheds.* North American Journal of Fisheries Management 22:1-20.

Response A3-4

WSDOT will not be participating in the Near Term Action Agenda projects as mitigation for the SR 509 project.

Green River next fall which will be consistent with the Near-Term Action Agenda and sensitive to other inputs from basin stakeholders. At this time, there are twelve proposed WRIA-wide Near-Term Action Agenda projects, such as adoption of stormwater standards for protection of salmon habitat and water quality assessment projects to review conditions on the lower Green River and the Duwamish Waterway. In addition, proposed lower Green River projects would specifically target Mill Creek. Proposed site-specific projects on Mill Creek are a West Hill Creek spring channel improvement and a central conveyance storage and water quality improvement. As these proposed projects illustrate, Mill Creek would become a priority stream for Ecology as near-term assessment and clean-up activities in the Lower Green River watershed.

B) Describe how the proposed project will address potential additional water quality impairment of 303(d) listed waterbodies due to elevation of stormwater discharges.

A3-5 Based on proposed project actions, both Des Moines Creek and Mill Creek have a strong possibility of receiving and experiencing additional stormwater impacts as highlighted in the RDEIS (Tables 3.5-3 to 3.5-7). Also, the RDEIS (page 3-73) states that "total runoff volumes would most likely be higher compared with existing conditions, and the duration of flow for a given storm volume would be shorter." If additional stormwater impacts are anticipated, EPA is concerned that proposed stormwater quality management activities in the project could have a direct impact on beneficial uses related to cold water fisheries of these impaired waterbodies. For improved stormwater mitigation, we strongly recommend that the FEIS undertake a watershed-based approach.

C) The FEIS should disclose measures to retain beneficial uses and restore water quality that would be applied with project implementation.

A3-6 As geological studies (Figure 3.4-3, page 3-57) illustrate, hillslope and riparian sections of two independent salmon-bearing tributaries (Des Moines Creek and Massey Creek) do contain landslide and erosion hazard areas. Studies have documented that stormwater can increase peak flows and flow volumes (Booth and Jackson, 1994; May et al., 1996; and Booth and Jackson, 1997; Booth, 2000; and Beach, 2002). Furthermore, stormwater can cause an elevation of stream channel erosivity and channel width expansion (Robinson, 1976 and Kirkpatrick, 1990). We are concerned that elevated stormwater discharges to Des Moines Creek could decrease streambank stability in riparian areas that are susceptible to erosion.

D) To aid in understanding additional urbanization impacts within the project area, the

A3-7 FEIS should disclose the amount in acres (above existing levels) of impervious surfaces that would be created as a result of proposed actions related to SR-509 and South Access Road improvements. The RDEIS discusses the amount of impervious surfaces that would be generated due to I-5 improvements, but not for other improvements.

Response A3-5

A watershed approach for mitigating stormwater impacts was utilized for the project (please see response to Comment A1-2 from the U.S. Department of the Interior) that would be protective of water quality in 303(d) listed waters. The 303(d) listing cites Des Moines Creek for high fecal coliforms; the Green River for heavy metals and temperature; and Mill Creek for temperature, dissolved oxygen, and fecal coliform. Trees and shrubs would be planted along segments of Des Moines Creek and around treatment facilities to mitigate for potential increases in water temperature. Fecal coliform bacteria are usually not generated by highway runoff.

Heavy metals typically appear in the creeks during first fall flush storms. However, enhanced treatment provided by the proposed stormwater treatment system would prevent most metals from entering the creeks. All stormwater would be treated and infiltrated, or would be detained and then would receive enhanced treatment for removal of metals and other pollutants), except at stormwater subbasin D3, where stormwater would flow through a constructed filter strip of amended soils to a pond on Tyee Golf Course. Details of stormwater facilities and treatment are provided in Section 3.5. Storms with a return period higher than the design event could be released into the creeks and could bypass some facilities. However, pollutants of concern for 303(d) listing in runoff from these storms would be diluted and would not present a significant water quality issue.

Response A3-6

As a member of the Des Moines Creek Basin Plan committee, WSDOT will contribute funding to the Capital Improvements Projects identified in the plan. These projects include a high-flow bypass and expansion of the Northwest Ponds regional detention facility, which would reduce flows in the lower reaches of Des Moines Creek. Implementation of the proposed stormwater design for the SR 509 project, in conjunction with these Capital Improvement Projects, would reduce peak flows in Des Moines Creek by two to five times compared to peak flows under existing conditions (Olympic Associates Company 2002). Because stormwater releases to the existing creek would be significantly reduced, no increase in erosion potential to the existing stream banks is anticipated.

Response A3-7

The Revised DEIS reported that the total increase in impervious surfaces is 126.5 acres for Alternative B (89.5 acres for the SR 509 freeway extension and South Access Road, and 37 acres for the I-5 improvements);113 acres for Alternative C2 (76 acres for the SR 509 freeway extension and South Access Road, and 37 acres for the I-5 improvements); and 113.5 acres for Alternative C3 (76.5 acres for the SR 509 freeway extension and South Access Road, and 37 acres for the I-5 improvements).

WETLANDS

EPA appreciates the efforts towards developing a preferred alternative. From a wetland perspective, the preferred alternative appears to be the least environmentally damaging. It has fewer acres of direct impact, fewer acres of impacted buffer, and the lowest amount of cut and fill material. Yet, the following concerns and issues should be addressed in the FEIS.

1) The FEIS should clarify information contained within Table S-1.

A3-8

Information in Table S-1 appears to conflict with the text and downplays some of the impacts. Table S-1 states that there are no anadromous fish in Des Moines Creek. This information conflicts with page 3-98 and Figure 3.5-4, which indicate salmonid usage in this system.

A3-9

Table S-1 also indicates "potential" shade impacts to wetlands A, B, and D. Page 4-25 indicates effects are "expected to be minimal because of the height of the structure." These statements both seem to understate the impact of shading. The roads will be six lanes wide. They will not only shade vegetation below from direct sunlight, but they will also prevent rainfall on these areas. As we are not told the height of the structure, it is difficult to truly understand the impact.

2) The FEIS should discuss how impacts to Wetland D relate to the proposed mitigation activities at the site. Also, the FEIS should disclose further what BMPs will be implemented to maintain the existing functions of the Tyee Pond wetland complex

A3-10

Regarding Wetland D, the issue of shading is of particular concern in relation to Wetland D (Tyee Pond). The Tyee Pond is a mitigation site for the Seattle Tacoma International Airport's third runway project. The Tyee Pond complex was designed to contain hydrocarbon spills and prevent them from reaching Des Moines Creek (page 3-69). This 4.9 acre complex, is rated as a Class II wetland by the Ecology Rating system, and is hydrologically connected to Des Moines Creek (Table 3.6-1). The RDEIS states that the project proponent, Washington Department of Transportation (WSDOT), proposes to construct a bridge to arch over a portion of these wetlands. This new bridge will contribute to permanent shading over portions of the mitigation site. To mitigate for potential tree removal and permanent shading impacts from the proposed bridge site, WSDOT will transplant shade tolerant vegetation within the impacted area of Tyee Pond.

3) Causes of and rationale for temporary impacts should be described in the FEIS.

A3-11

The RDEIS has identified clearing, grading, excavation and filling as "temporary impacts" to wetlands and buffer. These activities may be temporary, but the impacts of these activities could destroy the wetland functions. Even if the fill is later removed and the area re-graded, the affected wetland will have to "start from scratch" and it is possible that functions will never totally recover in those areas.

Response A3-8

The text in Section 3.6, *Wetlands,* has been corrected to state that Des Moines Creek has been classified by King County as a Class 2 stream with salmonids to River Mile (RM) 1.0. Figure 3.5-4 is correct. According to the King County Sensitive Areas Map Folio, Des Moines Creek is a Class 2 stream up to Tyee Ponds. Anadromous fish use has not been documented by King County and WDFW biologists upstream of RM 1.0 (as is stated in the DEIS); however, King County and WDFW biologists consider the upstream limits of anadromous fish use to extend up to RM 1.0. The referenced text in Table S-1 pertains to construction activity impacts associated with bridge construction. The proposed bridges are located above RM 1.0. Table S-1 correctly states that anadromous fish runs do not occur in the stream reaches that would be crossed.

Response A3-9

The EIS text has been revised to describe shading impacts in terms of height and width of bridge structures, and separation between northbound and southbound lanes to allow light and precipitation to reach underlying vegetation.

Response A3-10

Tyee pond (Wetland D) is a spill containment facility, not a wetland mitigation site. The SR 509 project would span the pond with a bridge and would not interfere with the spill containment function of the pond.

Response A3-11

Construction activity in wetlands would be minimized as much as practicable. The selected bridge design would minimize construction activity impacts in wetlands, and would be limited to placing of bridge piers. Where unavoidable, access roads would be built to the minimum width, and best management practices would be implemented to avoid soil compaction. Areas disturbed during construction would be restored by replanting with native trees and shrubs upon completion of construction activity.

A3-12

4) It is not clear if "on-site" storage area is within a wetland or not and should be clarified in the FEIS.

Page 3-123 states: " wetland water quality could be adversely affected during construction as a result of on-site storage and use of fuel and lubricants for construction equipment." Every attempt should be made to ensure activity in wetlands and buffers is minimized to the maximum extent possible. Wetland and buffer areas should not be used for storage of materials of any kind, and use of equipment should also be restricted to the maximum extent possible in these areas. Wetlands should not be used as detention facilities of pollutants during construction. Fueling of equipment should not occur within or near wetlands, to avoid possible contamination.

A3-13

5) Clean Water Act Section 404 permit will, of course, be needed prior to work in any wetland areas.

AIR QUALITY

A3-14

1) The FEIS should disclose why ambient CO concentrations for South 200th Street and South Access Road for the preferred alternative would be will be significantly higher than calculated under the No Action Alternative.

On page 3-8, the RDEIS indicates that predicted 2020 ambient CO concentration for South 200th Street and South Access Road for the preferred alternative will be 92 percent higher than calculated under the No Action Alternative. This is significant, however, the RDEIS offers no explanation.

A3-15

2) EPA recommends that the FEIS should reflect revised dispersion modeling using receptors located according to CAL3QHC[2] user's guide.

For important air quality calculations CAL3QHC is a mobile source dispersion model recommended by EPA. Based on the statement expressed on page 3-11, it would appear that modeling receptors have been placed incorrectly. On page 3-11, the RDEIS states that a CO receptor is located 25 feet away from the travel-way and that 1-hour average concentrations were predicted at a maximum value of 4.1 parts per million. The CAL3QHC user guide (page 12) suggests that: "receptors should be located outside the "mixing zone" of the free flow links (i.e., total width of travel lanes plus 3 meters (10 feet) on each of the outside travel lanes)."

[2]EPA, User's Guide to CAL3QHC Version 2.0: A Modeling Methodology for Predicting Pollutant Concentrations Near Roadway Intersections, U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Technical Support Division; Research Triangle Park, NC.; EPA-454/R-92-006; November 1992.

Response A3-12

Fuel and equipment storage areas would not be located in wetlands or their buffers.

Response A3-13

Required permits and approvals for the SR 509 project, including a Section 404 permit, are listed in the Fact Sheet, the Summary, and Appendix A of the EIS.

Response A3-14

CO concentrations at the South Access Road ramps with South 200th Street would be higher under the Preferred Alternative than under the No Action Alternative because traffic would increase in this area due to the addition of ramps to and from the proposed South Access Road that would not exist under the No Action Alternative. Under the Preferred Alternative, CO concentrations at this location would be less than the NAAQS standards; therefore, they would not pose a risk to human health and welfare and would not result in a significant adverse impact.

Response A3-15

Receptor locations were placed according to EPA guidelines. For all signalized intersections, receptors were placed at mid-sidewalk distance in areas generally accessible to the public. At the specific location in question, the distance of 25 feet from the traveled lane was appropriate because the new roadway is a controlled access facility with no adjacent pedestrian access. The 25-foot distance is conservative; the closest public access would be more than 25 feet away.

3) The FEIS should disclose if FHWA has given its conformity approval for Puget Sound Regional Council's (PSRC) proposed Metropolitan Transportation Plan and Transportation Improvement Plan.

A3-16

On page 3-12, the RDEIS states that " PSRC Metropolitan Transportation Plan (MTP) and Transportation Improvement Plan (TIP) have been . . . accepted by EPA for the proposed SR 509." This statement is incorrect. EPA does not take action to approve or accept MTP and TIP conformity. MTP and TIP conformity approval is done by Federal Highway Administration (FHWA).

Response A3-16

On June 27, 2002, the PSRC Executive Board approved refinement of Destination 2030 (the Puget Sound Region Metropolitan Transportation Plan) to reflect the design of the Preferred Alternative for the proposed SR 509: Corridor Completion/I-5/South Access Road Project. The refinement to Destination 2030 has been submitted to FHWA for approval. Reference to approval by EPA has been removed from the EIS.

Response A3-17

Please see responses to Comment A1-7 from the U.S. Department of the Interior and Comment A3-1 and A3-6 above.

Response A3-18

The cumulative effects analysis was done in accordance Council of Environmental Quality guidelines. Resources of concern identified in the analysis are wetlands, surface water quality, and fish and fish habitat because of their heightened importance in the Puget Sound region, and on residential displacements and relocations because of their importance on a local level. Cumulative effects on wetlands, surface water quality, and fish and fish habitat were evaluated based on stream basin boundaries. Cumulative relocation effects were evaluated for the cities where the SR 509 project would be located. Impact numbers associated with the Sea-Tac Airport master plan improvements have been updated.

DIRECT, INDIRECT, AND CUMULATIVE EFFECTS

DIRECT EFFECTS

1) The FEIS should provide clear explanation of the immediate impact (or foot-print) of the proposed action.

A3-17

On page 3-128, the RDEIS states that "Des Moines Creek is the only fish-bearing aquatic resource located within 2,000 feet of the proposed build alternatives." This is misleading and confusing since Mill Creek (another local fish-bearing system) might also be impacted by the proposed project. In addition, stormwater impacts and associated influences on salmonid habitat are not restricted to arbitrary distances from the proposed build alternatives. For example, since elevated stormwater volumes will enter Des Moines Creek, the whole system, with an estimated length of approximately 3.5 river miles (*A Catalog of Washington Streams for the Puget Sound Region*), will have to adjust for these additional discharges.

SECONDARY AND CUMULATIVE EFFECTS

1) An improved Secondary and Cumulative Impacts Section should be provided within the FEIS.

A3-18

This section within the RDEIS states that many projects are ongoing in the project vicinity, yet does little to specifically analyze what this means, or how this project and other proximate proposed projects might contribute to the total impact within the basins. The RDEIS lists other large projects expected but then states "these projects ...are subject to separate environmental reviews; analysis of their specific impacts is not included in this revised DEIS." While an exhaustive analysis of other projects is not expected, a cumulative impacts section should provide some discussion of what associated project impacts are expected, and how this project will add to the suite of impacts. Impacts from this project are in the same watersheds as the SeaTac third runway project (which will have heavy impact on Des Moines and Miller Creeks). Yet the Sea Tac project is mentioned almost as an aside, and only as total wetland acres affected (the acreage is

incorrect and out of date) which does not reflect the actual impact of the SeaTac projects on the creeks' water quantity and quality. It is difficult to do a cumulative analysis, but given that the RDEIS identifies 8 large projects expected in this area, please attempt to discuss their anticipated cumulative impacts upon water quality, fish, and fish habitat seems warranted.

To address the secondary and cumulative impacts, we suggest five main points for review:

A3-18 (cont.)

- Identify resources of concern, for example, those that will be significantly impacted.
- Perform an in-depth cumulative impacts analysis only on those resources that are significantly impacted or those that contribute to a broader ecosystem effect.
- The analysis must include a baseline with an explanation as to why that baseline was selected.
- The outputs of the analysis must be interpreted in terms of impacts to affected resources.
- When cumulative impacts occur, and mitigation is proposed, clearly state the lead agency's mitigation responsibilities and the mitigation responsibilities of other agencies.

In addition, we stress that cumulative impacts analyses must be more than a list of planned development in the project study area, and we urge FHWA to use existing data sources to assess cumulative impacts.

SUPPLEMENTAL ROAD ALIGNMENTS AND EFFECTS OF ADDITIONAL CAPACITY

1) The RDEIS is not clear as to the purpose and intent of supplemental road alignments associated with the proposed project.

A3-19

A map (Figure 2.3-7, page 2-26) of proposed activities within the RDEIS shows a spur that extends south onto Military Road. The purpose of this spur is not clear in the RDEIS.

A3-20

The FEIS should disclose if the SR-516 Interchange and S. 228th St. Extension are being proposed as active elements for consideration within the proposed action plan. This extension has been proposed in previous draft designs and is currently referenced on WSDOT's website for this project. If the interchange and extension are active elements of the proposed project, what are its purposes?

A3-21

Also, the FEIS should address the secondary environmental effects of additional road capacity, especially for these supplemental alignments that provide additional capacity into the Green River Valley and associated communities (i.e., Kent).

Response A3-19

The segment of roadway is the northernmost segment of a collector/distributor lane along I-5. The I-5 collector/distributor lanes are described in Section 2.3.2, *Features Common to All Build Alternatives, I-5 Improvements*.

Response A3-20

SR 516 interchange improvements and connection to the South 228th Street extension are part of the Proposed Action and are described in Section 2.3.2, *Features Common to All Build Alternatives – I-5 Improvements*. Improvements would be made to the ramps at SR 516 to alleviate conflicts between merging and exiting traffic. The South 228th Street extension from Military Road and I-5 underpass would provide a direct connection to the northbound and southbound collector/distributors to South 228th Street. The extension of South 228th Street to Military Road is not included in the SR 509 project. It is a City of Kent project, evaluated in a separate SEPA document.

Response A3-21

The proposed improvements to the ramps at SR 516 and the connection to the South 228th Street extension would not provide additional capacity into the Green River Valley, although they would increase the efficiency of traffic operations. Please see response to Comment A3-20 for a description of these improvements.

STORMWATER

A3-22 1) The FEIS should disclose potential cumulative effects of stormwater discharges by multiple projects (i.e., proposed construction of the third runway, South Access Road, and the proposed SR-509 extensions) into the Des Moines Creek, a 303(d) listed waterbody

A3-23 2) The FEIS should disclose direct and indirect impacts to all waterbodies, especially impaired waterbodies, during construction.

Environmental Justice and Tribal Consultation

1) According to Executive Order 12898, the FEIS should disclose what efforts were initiated to ensure effective public participation, access the information, and what was the outcome. Also, it is EPA's position that the identification of potential impacts and mitigation measures, developed in consultation with the minority and/or low income populations, must be included in the EIS to meet the direction of Executive Order (EO) 12898 (*Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*) and the accompanying memorandum from President Clinton to the heads of all Departments and Agencies.

A3-24 While the RDEIS does have sections on relocation and social issues, it is not clear how the affected community is responding to the proposed project. The lead agency and project proponents should develop effective public participation strategies and assure meaningful community representation in the process. Therefore, the Environmental Justice analysis presented in the FEIS should include the following three major components:

Description (including maps) of all low income and people of color communities in the area that would be impacted by the proposed project

A3-25 This should include a description of the methodology and criteria utilized for identifying the low income and people of color communities, the sources of data utilized for these analyses, and references utilized for establishing the criteria. Note: If 1990 U.S. Census data is utilized, the FEIS needs to discuss any short falls that may result from utilizing this data set, and/or what steps were taken to assure the data is still appropriate for 2001 analyses.

Comprehensive accounting of all the impacts on low income and people of color

A3-26 The identification of impacts needs to include (and not limited to) cumulative and indirect impacts, exposure pathways unique to the impacted communities, historic exposures, and impacts to cultural, historic and protected resources. In addition, the FEIS needs to determine if the impacts on the low income and people of color communities will be

Response A3-22

Cumulative effects on Des Moines Creek are discussed in Section 3.17.2, *Cumulative Impacts – Surface Water Quality.*

Response A3-23

Direct and indirect impacts on waterbodies during construction are described in Section 3.5.5, *Water Quality - Construction Activity Impacts and Mitigation.*

Response A3-24

Please see the revised Outreach to Minority and Low-Income Populations section in Appendix F, *Environmental Justice,* for a summary of the public involvement activities to date and discussion of public response towards the project.

Response A3-25

Please see the Affected Environment section of Appendix F, *Environmental Justice,* for a description (including maps) of the distribution of minority and low-income populations in the study area.

Response A3-26

In response to Executive Order (EO) 12898, the U.S. Department of Transportation (DOT) drafted an Order to Address Environmental Justice in Minority Populations and Low-Income Populations (DOT Order 5610.2). FHWA issued a corresponding order (FHWA Order 6640.23) establishing policies and procedures for FHWA to use in complying with Executive Order 12898 and DOT Order 5610.2. The environmental justice analysis documented in the SR 509: Corridor Completion/I-5/South Access Road EIS was conducted in conformance with the requirements of FHWA Order 6640.23.

Since publication of the Revised DEIS, additional supplemental information has been incorporated to support the conclusion of the environmental justice analysis that there would be no high or adverse impacts falling disproportionately on minority and/or low-income populations. Please see Appendix F for the updated analysis.

A3-26 (cont.)

disproportionately higher those impacts on non-low income and non-people of color communities. For such a determination, the FEIS must identify a reference community and provide a justification for utilizing this reference community. This justification should include a discussion of the methodology for selecting the reference community.

A3-27

Identification of disproportionately high and adverse effects to the low income and people of color communities

The EIS must demonstrate that communities bearing disproportionately high and adverse effects have had meaningful input into the decisions being made about the project. The EIS needs to provide a discussion on what was done to receive input from the effected communities (notices, mailings, fact sheets, briefings, presentation, exhibits, tours, news releases, translations, newsletters, reports, community interviews, surveys, canvassing, telephone hotlines, question and answer sessions, stakeholder meetings, and on scene information), what the input was, and how that input was utilized to shape the final outcome of the project. This discussion should include what mitigation measures will be put in place to address the affected public's concerns.

A3-28

2) The FEIS should disclose final consultation efforts and their results with affected tribes for compliance with Executive Order 13175 since the RDEIS states that "consultations with Tribes has not yet resulted in the identification of traditional cultural properties."

For assistance, EPA Region 10 does have a defined Tribal Consultation Process which states that "consultation" means the process of seeking, discussing, and considering the views of federally recognized tribal governments at the earliest time in the decision-making process. Consultation generally means more than simply providing information about what the agency is planning to do and allowing comment. Rather, consultation means two-way communication that works toward a consensus reflecting the concerns of the affected federally recognized tribe(s).

Response A3-27

The environmental justice analysis concluded that this project would not result in high or adverse effects falling disproportionately on minority or low-income populations. Please see the revised Outreach to Minority and Low-Income Populations section in Appendix F, *Environmental Justice*, for a summary of the public involvement activities to date and a discussion of public response towards the project.

Response A3-28

Consultation efforts with affected tribes have been completed and are described in Section 3.12, *Historic and Archaeological Resources*, and Appendix G, *Section 106 Coordination and Consultation with Affected Tribes*.

U.S. Environmental Protection Agency Rating System for Draft Environmental Impact Statements Definitions and Follow-Up Action*

Environmental Impact of the Action

LO – Lack of Objections

The Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC – Environmental Concerns

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts.

EO – Environmental Objections

The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU – Environmentally Unsatisfactory

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1 – Adequate

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2 – Insufficient Information

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonaby available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the final EIS.

Category 3 – Inadequate

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the National Environmental Policy Act and or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

* From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment, February, 1987.

A4

STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY APR 22 2002

P.O. Box 47600 • Olympia, Washington 98504-7600
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April 12, 2002

Mr. John White
Washington State Department of Transportation
6431 Corson Avenue South, MS-61
Seattle, Washington 98108

Dear Mr. White:

Thank you for the opportunity to comment on the *"Revised Draft Environmental Impact Statement for the SR-509 Corridor Completion/I-5 South Access Project"* (RDEIS), and for extending the agency comment period to April 12th. We have the following comments on the RDEIS.

Wetlands:

A4-1 The Department of Ecology provided written comments on the preliminary RDEIS document in January. The concerns that were raised in the January memo have been addressed. We did comment in January that the mitigation measures section of the document (3.6-4) should provide additional information on the state guidance for using preservation as mitigation. However, in the RDEIS the reference to preservation has been removed. We want to make it clear to DOT that Ecology 's January comment did not suggest that preservation should not be allowed for this project. Ecology does allow preservation for mitigation in the right circumstances as is clearly defined in the February 2000 Alternative Mitigation Policy Guidance.

Water Quality:

A4-2 Ecology's remaining concern with the RDEIS is in the stormwater design and cost estimates reflected in the document. We have discussed our concerns with DOT in a meeting on March 15th where Ecology explained that the costs quoted in the RDEIS were significantly higher than what Ecology estimated in a quick calculation. It was explained to the stormwater engineers for this project that the design criteria used for this project went beyond the Ecology manual recommendations, therefore resulting in higher costs. The water quality information in the document does not provide enough detail for Ecology to determine if the stormwater treatment for this project will result in compliance with the Water Quality Standards as required by the pending 401 Water Quality Certification. It is important to note for permitting purposes that DOT can not discharge any parameter that is listed on the 303(d) list for waters in the project area.

A4-3 In order to address our remaining concerns with the RDEIS, Ecology has agreed to work with DOT on a Value Engineering study for the SR-509 project to prepare a refined stormwater management plan that meets Ecology's permitting requirements.

Response A4-1

Thank you for your comment.

Response A4-2

Please see response to Comment A1-2 from the U.S. Department of the Interior pertaining to stormwater design costs, and Comment A3-5 from EPA pertaining to protection of 303(d)-listed waters.

Response A4-3

We thank the Department of Ecology for their participation in the stormwater VE study.

If you have any comments or questions, please do not hesitate to let me know. You can reach me at 360.407.6912 or via e-mail at sman461@ecy.wa.gov.

Sincerely,

Sandra L. Manning

Sandra Manning
Ecology-Senior WSDOT Liaison

Cc: Ecology - Bill Moore, Sarah Suggs
WDFW – Cynthia Pratt
USFWS – Emily Teachout
NMFS – Barb Woods
Corps – Anne Robinson
EPA – Tom Connor

A5

State of Washington
DEPARTMENT OF FISH AND WILDLIFE
Mailing Address: 600 Capitol Way N - Olympia, Washington 98501-1091 - (360) 902-2200, TDD (360) 902-2207
Main Office location: Natural Resources Building - 1111 Washington Street SE - Olympia, WA

March 22, 2002

John White, P.E.
Washington Department of Transportation
6431 Corson Avenue South
Seattle, Washington 98108

MAR 26 2002

Dear Mr. White:

SR 509: Corridor Completion/I-5/South Access Road Revised Draft Environmental Impact Statement (RDEIS)

Thank you for allowing the Washington Department of Fish and Wildlife to comment on the SR 509 Corridor RDEIS. We have the following comments.

Our agency has been involved in the 404 Merger Agreement Process as a Signatory Agency Committee (SAC) representative. There have been substantial positive changes to the RDEIS and our agency is appreciative of the work the project leaders have made to address environmental issues.

General Comments

A5-1 WDFW supports the selection of alternative C2 as the preferred alternative, due primarily to its having considerably less wetland impacts and less impacts on the vegetative community.

Specific Comments

Specifically:

A5-2 1. Disagree with the second paragraph, last sentence on p. 3-142. The potential (and likely) adverse impacts on fish habitat have been substantially understated. Adverse impacts include those from both construction and operation on spawning and rearing habitat downstream of the project area in all drainage basins which will receive stormwater from the project. Stormwater discharges from the project area will adversely affect both water quantity and quality, unless there are appreciable levels of infiltration and retrofitting of existing roadway surfaces included in the project.

Response A5-1

Thank you for your comment.

Response A5-2

Since publication of the Revised DEIS, the stormwater design for the project has been revised to included infiltration wherever subsurface conditions allow. Where infiltration is not practical, stormwater runoff would receive enhanced treatment after detention, in most areas. Please see responses to Comments A1-4 from the U.S. Department of the Interior and Comment A3-5 from the Environmental Protection Agency. During construction, WSDOT will implement best management practices and monitor stream conditions to minimize impacts on water quality.

A5-3 2. Disagree with last paragraph, first sentence on p. 3-142. It is very optimistic to expect construction impacts on water quality to be negligible. From WDFW's experience, impacts of large roadway projects have been known to be severe even when the best control methods have been used.

A5-4 3. Any work "that will use, divert, obstruct, or change the natural flow or bed of any of the salt or fresh waters of the state" will require a Hydraulic Project Approval from the Washington Department of Fish and Wildlife. Please contact Mr. Larry Fisher, Area Habitat Biologist, in our Region 4 Office.

4. 3. If a Hydraulic Project Approval is required for any additional work not included in the EIS, additional mitigation for that work may be necessary.

Thank you for the opportunity to comment. If you have additional questions about our comments, or need more information, please contact Mr. Fisher at (425) 649-7042.

Sincerely,

Cynthia R. Pratt
SEPA/NEPA Coordinator
Regulatory Services Section
Habitat Program

cc: Larry Fisher, AHB, Reg. 4
Gayle Kreitman, Regulatory Services

Response A5-3

Although erosion and sedimentation controls would be implemented to protect water quality during construction, it is acknowledged that some temporary impacts would occur.

Response A5-4

Required permits and approvals for the project, including Hydraulic Project Approval, are listed in the Fact Sheet, Summary, and Appendix A of the EIS.

MAR 26 '02 10:08 FR PUGET SOUND REG CNCL 206 587 4825 TO 97685899 P.01/09

A6

Post-it® Fax Note 7671	Date 3/26	# of pages ▶ 9
To JOHN WHITE	From KING CUSHMAN	
Co./Dept. WSDOT	Co. PSRC	
Phone #	Phone # 206 464-6174	
Fax # 768-5895	Fax #	

Puget Sound Regional Council
PSRC

March 25, 2002

Mr. John White, P.E.
Project Engineer
Washington State Department of Transportation
6431 Corson Avenue South, MS 61
Seattle, WA 98108

Re: Comments on Revised Draft Environmental Impact Statement for SR 509 - Corridor Completion/I-5/South Access Road

Dear Mr. White:

The Puget Sound Regional Council appreciates the opportunity to comment on the Revised Draft Environmental Impact Statement (RDEIS) for the SR 509 Corridor Completion/I-5/South Access Road project. The lead agencies are to be commended for an enduring long-term commitment to this important regional project over the many years it has gone through its planning and environmental review process. The RDEIS does a good job of documenting both the extensive analysis of many alternatives and the involvement of an Executive Committee, a Steering Committee, and many public forums and coordinating meetings.

The following six comments relate to aspects of your RDEIS.

A6-1

1. **High Marks for HOV Components** - The region's adopted transportation plan, *Destination 2030*, places high priority on completing missing freeway links and key components of the regional high occupancy vehicle (HOV) system, both of which are part of the SR 509 project. In joining two critical existing HOV system links (I-5 and the northerly portion of SR 509), the SR 509 project offers effective and seamless HOV connectivity by its inclusion of the direct HOV freeway-to-freeway connection where SR 509 meets I-5. This vital facility connection will support essential future transit services in the SR 509 and I-5 corridors.

A6-2

2. **Note on Air Quality Maintenance Area** - Although it doesn't affect your findings, a statement in the current RDEIS has been false since 1993 and warrants correction in the final EIS:

   ". . . even though the build alternatives are outside the Puget Sound vehicle Inspection and Maintenance (I&M) Program area . . ." *(Chapter 3, page 3-7, second paragraph)*

   All portions of urbanized King County are in the designated air quality "maintenance" area and *are* subject to the air quality vehicle inspection program.

Response A6-1

Thank your for your comment.

Response A6-2

The text has been corrected to indicate the project is located in the designated air quality maintenance area.

A6-3

3. **Airport Statistics & Aviation Security** - We suggest that you include the latest airport activity statistics in the Final EIS. On page 1-5, wherein you cite figures for 1997 and 1998, you might also note that total passenger traffic for 2001 was 27,036,074.

A6-4

Relative to potential airport impacts, we feel it is appropriate to reiterate two points we know you are aware of and have addressed in the RDEIS, but which will deserve a final review once the project advances to final design. These are:

(1) Assuring that the selected project alternative minimizes encroachment on critical FAA safety areas *(Runway Protection Zone, Object Free Area, Extended Object Free Area, Controlled Activity Area, and Runway Safety Area)*; and

(2) Assuring the final project alignment minimizes impacts on future development of the proposed Port of Seattle's South Aviation Support Area (SASA).

A6-5

The FAA and the Port of Seattle raised these issues during your project planning and EIS process and it appears these were resolved in the way you balanced safety/security issues against other important project concerns in the corridor, such as impacts on Des Moines Creek, Des Moines Creek Park, related wetlands, and existing land uses. However, as the September 11th tragedy renewed many airport area safety concerns, the security issue of public rights of way (highway and trail) through Sea-Tac Airport's Runway Protection Zone (RPZ) may warrant a final review as the project's final design is prepared.

Your FEIS could better show how you have addressed the aviation safety issue by reflecting the physical relationships between the project alternatives and critical FAA safety zones in the Final EIS. An integrated overlay map would better show the how the final preferred project alternative relates to the FAA safety zones on a common map.

A6-6

4. **Improve Display of Impacts with Improved Maps** - The document could do a much better job of overlaying the alternatives with all of the "environmental factors" that are shown on page 2-6. The primary maps of the alternatives do not show these important factors. Figure 4.2-1 does show the alternatives on a map showing Des Moines Creek Park, but the scale of the map and the shades of gray used to differentiate the alternatives make the map difficult to read.

A6-7

5. **Note on Role of *Destination 2030*** - On page 3-173, paragraph 1 incorrectly states "*Destination 2030* does not replace Vision 2020 or the 1995 MTP...." Actually, *Destination 2030* did replace the 1995 MTP though not VISION 2020.

A6-8

6. **Regional Air Quality Conformity Testing and Revised Project Description Needed for Final Preferred Alternative in FEIS** – A last comment we offer is to share our most recent

Response A6-3

The text has been revised to indicate the number of passengers who traveled through Sea-Tac Airport during 2001.

Response A6-4

Thank you for your comment.

Response A6-5

The Port of Seattle is a cooperating agency on the project. Port representatives are members of the project Steering Committee and Executive Committee. Development and refinement of the project alternatives have been conducted in cooperation with the Port and FAA. Please refer to Chapter 2 for a discussion of coordination with FAA.

Alternatives C2 and C3 pass through the southern one-third of the extended object free area. There is no other encroachment on FAA safety zones. Alternative B is outside all FAA safety zones. FAA safety zones have been added to Figures 2.3-6, 2.3-7, and 2.3-8. Please refer to Chapter 2 for a description of the project alternatives.

Response A6-6

The scale of Figure 4.2-1 has been increased. Figures showing the relationship of each alternative to the various disciplines are provided in their respective sections—historical and archaeological resources are in Section 3.12; wetlands are in Section 3.6; streams are in Section 3.5; hazardous waste sites are in Section 3.13; and 4(f) properties (including Des Moines Creek Park) are in Chapter 4.

Response A6-7

The text of the EIS has been revised.

Response A6-8

The proposed project design was included as project WDOUM-6 in the Regional TIP and Metropolitan Transportation Plan as revised in June 2002. The inclusion in the plan and program, demonstration of conformity for the plan and program, and FHWA policy on inclusion in the plan and program are discussed in Section 3.1.4 of the EIS.

A6-8 (cont.)

understandings about guidance from the USDOT's Federal Highway Administration (FHWA) on the need to test final project refinements on major regional corridor projects for regional air quality conformity. The FHWA has indicated that they need to know that your final preferred alternative, as ultimately constituted with any potential refinements that might arise after your complete your review of all RDEIS comments, satisfactorily "conforms" to regional air quality testing as a project in our region's adopted plan. This means that, upon completion of your review of all RDEIS comments, and after making any final refinements to the preferred SR 509 project alternative to be recommended in the FEIS, you should request that the Regional Council (1) conduct a regional air quality conformity test of the final preferred alternative, and (2) modify the Candidate SR 509 corridor project description in *Destination 2030*.

You should be aware that some of the project's details now included in your RDEIS preferred alternative for SR 509 were uncertain at the time *Destination 2030* was finalized and adopted in May 2001. The key differences we've noted seem to be additional lanes proposed to be added on I-5 south to enable the transition and merge of traffic between SR 509 and I-5. Any such improvements that differ from the current general Candidate SR 509 project description in *Destination 2030* will have to be identified and submitted to the Regional Council for regional air quality conformity testing and to request a project description change in Appendix 9 of *Destination 2030*. Our Executive Board is authorized to make such revisions upon concluding that the preferred alternative meets air quality conformity requirements and is consistent with adopted regional policies.

Next Steps to Advance SR 509 to Approved Status in *Destination 2030*

The following discussion is not about comments on your RDEIS, but is offered as advisory notes to help you prepare to advance the SR 509 project to Approved status in *Destination 2030*. In May 2001, the Puget Sound Regional Council adopted a new regional transportation plan – *Destination 2030*. This plan included guidance for capacity investments that categorizes all regionally significant improvements as either Candidate or Approved (please refer to the enclosed Appendix 6 of *Destination 2030* for a more detailed explanation of these distinctions). The SR 509 project is included in *Destination 2030* as a Candidate project (listed as project #1613). A Candidate project must satisfactorily address Approved project criteria before being designated as Approved in *Destination 2030*. Approved status is required before the project is eligible for programming action in the Regional Transportation Improvement Program (TIP) for implementation (i.e., right-of-way acquisition and construction, including final design).

Destination 2030 includes a policy that enables the Executive Board to authorize a change in status of regionally significant projects from Candidate to Approved. Listed below is a summary of the Appendix 6 requirements for moving a project such as SR 509 from Candidate to Approved status.

1. Regional Council staff review and determine consistency of the project's final preferred alternative with *Destination 2030* policies

2. Sponsor provides documentation for completed benefit cost analysis
3. Environmental documentation is completed and submitted with sufficient detail as to the final nature, character, components or design of the given project or program to determine regional policy consistency
4. Sponsor satisfactorily addresses any other planning requirements which might have been specified by the Regional Council's Executive Board for a given project
5. Sponsor submits financial plan demonstrating project feasibility by showing how the entire corridor project or its individual project components are to be funded
6. The Regional Council must test and make a positive regional air quality finding if such project was not previously included and tested in the form of its final preferred alternative in the adopted regional plan's air quality conformity process

To be eligible for programming actions in the Regional TIP for construction and right-of-way phases, all regionally significant projects such as SR 509 need to satisfy the above requirements and be designated as Approved projects. When the Candidate project(s) included in this RDEIS have met the above requirements, the project sponsor(s) may request the Regional Council to change the project and associated supporting projects to Approved status.

If you have questions about any of our comments in this letter, please contact me at (206) 464-6174 or contact Kevin Murphy at (206) 464-6411. We thank you and your study team for the significant work done to continue to advance this very important regional project.

Sincerely,

King Cushman, Director
Transportation and Growth Planning

Enclosure: Appendix 6 of *Destination 2030*

cc: David Dye, Administrator, WSDOT Urban Corridors Office
Charlie Howard, Director, WSDOT Planning and Policy Office
Kevin Murphy, Program Manager, PSRC
Norman Abbott, SEPA Official, PSRC

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APPENDIX G

guidance for plan amendment and capacity investment decisions

Plan Amendment Process

Destination 2030 is a long-range, 30-year planning document. It is prepared in a dynamic environment involving continuing change in regional population, housing, employment, land-use, and technology. Change in any environment is inevitable. Revenue sources may become available or may be discontinued. Cost assumptions may need to be adjusted. Therefore, periodic amendments to *Destination 2030* will be necessary.

Destination 2030 is prepared in accordance with state and federal requirements. Federal statutes require that the plan be reviewed every three years for effectiveness and viability, and that a new plan be prepared or the existing plan be updated.

The Clean Air Act Amendments of 1990 require that regional transportation plans be prepared in conformity with the State Implementation Plan for air quality planning and monitoring purposes. A new conformity statement must be prepared whenever *Destination 2030* (the region's metropolitan transportation plan) or the short-range Transportation Improvement Program is amended. If amendments to the Plan or Program do not affect air quality, a new conformity statement may not be required. However, this is not clearly stated in federal statutes, and it may be necessary to prepare a conformity statement no matter how minor the amendment to the Plan or Program may be.

Recognizing the need for amendments, the Regional Council is committing to a major amendment of *Destination 2030* every three years to coincide with federal requirements, including preparation of a conformity statement. In addition, depending on the scope and magnitude of the major amendment, the Regional Council may conduct environmental review as required by the State Environmental Policy Act (SEPA), in the form of a new Environmental Impact Statement, an Amendment or Addendum to the original Environmental Impact Statement, or a Declaration of Non Significance (DNS).

Minor amendments that clearly have no impact on regional air quality will be processed on an as-needed basis if Executive Board review of the proposed amendment results in a Declaration of Non Significance under SEPA.

Washington State legislation for regional transportation planning organizations requires that RTPOs review their regional transportation plans every two years, and forward the adopted plan, along with documentation of the biennial review, to the Washington State Department of Transportation (Chapter 47.80, Revised Code of Washington). To address both federal and state requirements for reviewing and updating the region's metropolitan transportation plan, the Puget Sound Regional Council will report to WSDOT on *Destination 2030* every two years. This reporting will then provide the basis for identifying issues to be addressed in the three-year update of *Destination 2030* required by federal law.

Guidance for Major Capacity Investments

Major capacity investments are needed on a number of regional facilities. Reaching agreement upon the type, design, and implementation of significant capacity investments is a challenging and important process. Where regional capacity needs have been identified, but where specific project or program details are not yet determined, the following framework establishes guidance for final investment decisions.

A CORRIDOR APPROACH

Transportation facilities do not exist in isolation, but are part of larger regional and state systems. Just as these corridors do not sit in geographic isolation, they also constitute elements of many different regional transportation modal systems. Multimodal analysis of corridor level investments is an essential part of making sure the regional system needs are fully identified. The long-term performance of these facilities is also heavily dependant upon surrounding land uses. As a result, evaluating transportation investments within the context of an entire transportation corridor may lead to a more comprehensive approach to problem solving. The objective of corridor-based analysis is to identify an effective mix of strategies, selected from a full range of capacity and system management approaches, that can demonstrate measurable results and that are consistent with the objectives of local and regional growth plans.

IDENTIFYING, MINIMIZING, AND MITIGATING IMPACTS

Destination 2030 incorporates previous Regional Council policy commitment to pursue and help achieve reasonable mitigation of impacts on communities resulting from major transportation facility and service investments/improvements that are either regionally significant or of statewide significance. Such projects should seek reasonable mitigation for impacts upon local communities that may result from project development. Implementation strategies to achieve this objective may include, but may not be limited to, priority programming of transportation investments that could help mitigate such community impacts, and pursuing state or federal legislative support for funding to help mitigate such community impacts.

MAJOR PROJECT RECORDS OF AGREEMENTS

Corridor level records of agreement should be encouraged, where appropriate, for large major corridor projects, whether they be freeway, transit or ferry. Records of agreement would document actions that will help successfully implement the preferred alternative that resulted from the environmental and public review process. Such agreements should be prepared by project sponsor leads at the conclusion of environmental decisions on selected major corridor projects, and should be regionally coordinated to help assure effective follow-up in regional performance monitoring of plan implementation activity.

EVALUATING BENEFITS AND COSTS

Regional Transportation Planning Organizations are required (RCW 47.80.030) to apply least-cost planning analysis to alternative transportation investment strategies. Within the Washington Administrative Code (WAC 468-86-030 and WAC 468-86-080) least-cost planning is defined as "a process of comparing direct and indirect costs of demand and supply options to meet transportation goals and/or policies where the intent of the process is to identify the most cost-effective mix of options." Least-cost planning attempts to consider all of the reasonably identifiable resource costs associated with alternative investments, and to provide relevant information as input to regional transportation plan investment selection and prioritization.

Destination 2030 utilized least-cost planning analysis as input to regional decision processes. In addition, all major "Candidate" projects (defined further below) must conduct and document an enhanced benefit-cost analysis (appropriate to the scale and complexity of the study) that considers reasonable full public and private costs of transportation in its environmental analysis leading to a decision on a preferred alternative or option. In combination, regional least-cost analysis at the programmatic level, and project or corridor level benefit-cost analysis constitute a least cost planning methodology for regional plan refinement and development.

FINANCING PLAN

Major transportation projects need to demonstrate that they can be reasonably funded. Large projects often require funding that spans many years and multiple funding sources. A project level financing plan describes the manner by which the entire project may be completed, ensuring that initial funding will eventually result in a fully implemented project. Consistent with the recommendations from the Transportation Pricing Task Force major investments in new capacity should evaluate a self-financing approach. Understanding the viability of self-financing through user fees is a reasonable test of whether benefits from investments are on the same scale as costs, even if self-financing is not pursued for other policy reasons.

CANDIDATE/APPROVED PROJECT STATUS

Destination 2030 includes a process to classify regional projects and programs as either "Candidate" or "Approved." Candidate major investments are projects or program components occurring on regionally significance facilities (on the Metropolitan Transportation System), but which have one or more planning requirements that must be satisfactorily addressed before they are eligible to be formally approved in the region's metropolitan transportation plan for implementation. All of the projects contained in Appendix 9 (Projects on MTS Facilities) have satisfied the Candidate Project Criteria (see below). A Candidate project must satisfactorily address Approved Project Criteria before it can be redesignated as Approved in *Destination 2030*, which then enables a project to be eligible for implementation. Projects designated in *Destination 2030* as Approved are then eligible to be included in the regional Transportation Improvement Program (TIP) for full project action/implementation phases such as final design, right-of-way acquisition and construction. Reclassifying a Candidate project as Approved occurs as a result of a majority vote of the Regional Council's Executive Board.

The Regional Council will respect the many complex requirements and due public processes that local, regional and state agencies must go through to enable their project to achieve Approved project status in the adopted regional transportation plan. Therefore, the Regional Council will only revisit or reconsider Approved status if a major project sponsor finds that significant conditions have conclusively changed, and which cause the project sponsor to be incapable of continuing implementation in the general manner by which it was originally approved.



Candidate Projects: This category of projects/programs identifies those transportation investments being proposed to respond to some identified transportation problem or deficiency where the specific design character or nature of the project or program solution is yet to be resolved. The development of a final resolution of how a project or program will be developed is achieved through formal state or federal planning and environmental review processes. Projects included in *Destination 2030* Appendix 9, unless they are designated as Approved, are only eligible for TIP funding to conduct planning, environmental or preliminary engineering phases which lead towards resolution of how it will be proposed to be developed in a final public decision process.

Candidate Project Criteria

The following three criteria have been met by all projects or programs included in *Destination 2030* Appendix 9. Any new project proposals must satisfy these Candidate Project Criteria in order to be included in future amendments to *Destination 2030*, and included in Appendix 9:

1. The proposed project/program is part of the Metropolitan Transportation System and falls under the definition of a regionally significant project/program as noted in state law under RCW 47.80.030.
2. The proposed project/program has been endorsed by its sponsor and forwarded to the Regional Council for inclusion in the *Destination 2030*.
3. The proposed project/program has been derived from one of the following types of comprehensive planning processes:
   - An approved local comprehensive plan developed under the state Growth Management Act (where a city or county is the project/program sponsor).
   - An approved public transit short- or long-range plan (where a transit agency/operator is the project/program sponsor).
   - WSDOT's approved State Transportation System Plan (where the state is the project/program sponsor).
   - An approved capital improvement plan or program of another agency not noted above (e.g., where a port or special purpose transportation agency is the project/program sponsor).
   - A regional planning process conducted as part of the region's unified planning work program that supports implementation of the region's policies for transportation, development and/or economic strategies (where the Regional Council is the sponsor).

Approved Projects: This category of projects/programs identifies regionally significant transportation investment proposals that have met all of the above-noted criteria, have completed their formal planning, environmental review and decision process, and have been found consistent with *Destination 2030* and/or its policies.

Approved Project Criteria

For projects to be designated as Approved, all of the following applicable criteria must all be met:

- The sponsoring agency has documented completion of appropriate public and environmental review processes and has made a decision on the final nature, character, components or design of the given project or program.
- Any other additionally required planning process requirements or conditions have been completed by the sponsor to conclude its candidate status.
- The proposed project/program, if involving measurable air quality impacts, has been successfully tested in the region's transportation and air quality models for systemwide mobility and found to comply with state and federal air quality conformity requirements.

- The proposed project/program has been found to be consistent with the policies of VISION 2020 and *Destination 2030.*
- The project or program has conducted and documented an enhanced benefit-cost analysis (appropriate to the scale and complexity of the study) that considers reasonable full public and private costs.
- A specific funding source has been identified and proposed for the project or program (naming at least the specific type of revenue source(s) and whether such revenues are projected to be coming from local, regional, state, federal, or private sources).

The Regional Council will develop administrative procedures to evaluate the manner in which projects satisfy the above criteria.



A7

HIGHLINE WATER DISTRICT

Serving the Southwest Metropolitan Area since 1946

February 25, 2002

FEB 26 2002

Mr. John White, Project Engineer
Northwest Region Design, South King Area
6431 Corson Avenue S, MS 61
Seattle, WA 98108

Subject: SR 509 Revised Draft EIS Statement and Draft Section 4(f) Evaluation

Dear Mr. White:

Thank you for the opportunity to comment on the *Revised Draft Environmental Impact Statement and Draft Section 4(f) Evaluation* (RDEIS) for the SR-509 project. The District understands the need for this project and believes it will significantly improve the flow of traffic in our region.

A7-1 The District has several comments related to how this project will impact the quality and flow of groundwater during the construction and upon project completion. While the RDEIS states that water quality issues will be addressed through the use of applicable BMPs, there is no specific discussion on water quantity. The District is specifically concerned how the project may impact not only the water quality of our Angle Lake, Des Moines and Tyee Wells, but also how the removal of approximately 4 million cubic yards of material will impact the infiltration and flow of groundwater around the wells.

A7-2 The District is concerned about how WSDOT will address water quality and flow data as the project progresses. At the bottom of Page 3-63 it states "No water quality or flow data were collected" as part of this project. We would like to know more about what hydrogeological tests or studies will be undertaken as this project proceeds. We would also request that the District be involved in the process of discussing these results before any final decisions are made.

A7-3 Page 3-82 and Page 3-95 indicate there is "no aquifer protection plan for the Angle Lake Well, the protection plan of the wellhead area is in a 5-year development phase and is not yet finalized (Johnson pers. Comm. 2000)". The District would like to clarify that we do have an active wellhead protection program that has been designed in accordance with Department of Health standards. We are unaware of Mr. Johnson's efforts to complete a 5-year development phase, but the District would be more than willing to assist with this endeavor.

A7-4 The District also observed that the preferred alternative appears to be located adjacent to the Angle Lake Well and may require additional mitigation to ensure the well is not impacted. We would like to open a dialogue with all interested parties to ensure an agreeable solution is found so the project can be designed in an efficient manner and not impact the quality or quantity of potable water from the Angle Lake Well.

Response A7-1

The discussion of groundwater impacts in Section 3.5 has been expanded.

Response A7-2

No hydrogeologic testing is expected to be done for the SR 509 project. If such testing is done, WSDOT would coordinate with the Highline Water District regarding the results of the testing.

Response A7-3

The text has been revised to include a reference to the Angle Lake wellhead protection plan.

Response A7-4

The approximate distance of the proposed project and associated treatment facilities from the Angle Lake Well would be 250 feet. WSDOT would work with each of the well districts/owners to ensure that infiltration from the SR 509 stormwater treatment facility does not occur near these wells. This commitment assures compliance with restrictions in the Groundwater Management Protection Area (GWMA) of South King County (currently under development) and the forthcoming BMPs from the Washington State Department of Health Source Water Assessment Program (SWAP), expected in 2004. The protection of groundwater quality expected from these programs will satisfy Chapter 173-200 WAC water quality requirements.

There were also several minor text corrections the District observed when reviewing the RDEIS. They are included with this letter as an attachment.

Overall, the District would like to thank WSDOT for including the District in the SR-509 design and construction issues such as the value engineering (VE) study last year. WSDOT staff has also done an excellent job coordinating the potential relocation of the District's transmission and distribution piping.

If you have any questions or need additional information related to our RDEIS comments, please feel free to contact me at 206-824-0375, x102.

Sincerely,

Thomas D. Keown, P.E.
Construction Services Manager

TDK:maf
Enclosure

Cc: Peggy S. Bosley, General Manager
Mike Becker, Water Quality Coordinator

General Comments for SR-509 RDEIS

A7-5

1. Please refer to the District as the "Highline Water District". In several places (pg 3-63 and pg A-6 for example) the document refers to the District as a "Department" which is not correct.

A7-6

2. The District request the paragraph on "Groundwater" found on page 3-68 be replaced with the following:

   The largest municipal water user is the Highline Water District ~~Well Field~~, which draws approximately 1.5 million gallons per day of water from the deep aquifer via the Angle Lake and Des Moines production wells. A ~~new~~ well being refurbished, referred to as Tyee Well, is currently being rehabilitated ~~developed~~ for municipal use by the District on Port of Seattle (POS) property. Two additional wells are located on POS property: Well 2M, which is used for groundwater monitoring by the District, and Well 1, which is ~~not currently used for drinking water supply~~ owned by the POS

Response A7-5

The text has been corrected as suggested.

Response A7-6

The text has been corrected as suggested.

L1

-----Original Message-----
From: Schual-Berke, Rep. Shay [mailto:Schualbe_Sh@leg.wa.gov]
Sent: Monday, March 25, 2002 2:15 PM
To: 'whitejh@wsdot.wa.gov'
Cc: Schual-Berke, Rep. Shay
Subject: RE: SR509 comments due Monday to WSDOT

John White, P.E., Project Engineer
Washington State Dept. of Transportation (WSDOT) 6431 Corson Ave S., MS 61,
Seattle, WA, 98108

Subject: Comments Submitted March 24 on SR509 Corridor Completion/I-5/South Access Road Project to the Dept of Transportation

Dear Mr. White,

I am one of the Representatives who supported a transportation budget package that included funding for completion of the SR 509 corridor. I am writing however to stress my concerns regarding adequate environmental review and protections as required by state and federal law. I am most concerned given the history of how those protections and laws have been problematic as far as permitting for the third runway project has gone.

It will be critical to the community to know that as you assess environmental issues in this project, the cumulative impacts will be considered to this area. Both SR 509 and the potential third runway will be affecting the same wetlands, streams, salmon and people. My constituents have shared their thoughts in writing with you; I trust their questions will be taken seriously and addressed.

L1-1

People who live in proximity to SeaTac airport are aware that their environment has already been compromised. Their efforts to make certain that Federal and State environmental protections are adequately enforced has successfully delayed, to date, granting of essential permits for the third runway project. I understand that completion of the SR 509 corridor is an important piece in bringing our state transportation infrastructure into the 21st century, and that it will help mitigate the congestion that is strangling freight mobility and quality of life for people. But the cumulative effects of the two projects is such that if the project does not strictly enforce environmental protections it suspect that it may become entangled in the same legal quagmire as the third runway Thank you for your consideration.

Best regards,

Shay Schual-Berke, MD
State Representative, 33rd district
Washington State
JLOB 342
Olympia, WA 98504
360/786.7834

Response L1-1

Thank you for your comment on the SR 509: Corridor Completion/I-5/South Access Road Revised DEIS. This comment stresses compliance with all state and federal laws and the need for adequate assessment of the cumulative environmental impacts in the SR 509 project area. The cumulative impacts analysis was done in accordance with Council of Environmental Quality guidelines and includes impacts associated with development of the Sea-Tac Airport Master Plan. A cumulative environmental impacts evaluation is provided in Section 3.17 of the EIS.

L2

CITY OF BURIEN

415 Southwest 150th Street
Burien, Washington 98166-1973

Phone: (206) 241-4647
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Mayor
Sally Nelson

Deputy Mayor
David Wintermute

Councilmembers
Rose Clark
Kevin James
Stephen Lamphear
Georgette Valle
Wing Woo

February 27, 2002

John White
Project Engineer
Washington State Department of Transportation
6431 Corson Avenue South
Seattle, WA 98108

Subject: Environmental Hearing on SR 509 Corridor Completion

Dear Mr. White:

Burien is the "community with great connections". We are just 12 minutes from Seattle, five minutes from I-5 and seven minutes from SeaTac International Airport. The intersection of SR509 and SR518 serves as the main entrance to Burien. We expect the SR509 corridor extension to make our city more accessible and make it easier for people to come here to do business and to visit. Other benefits of this project are:

1. Extending this corridor will help reduce congestion in South King County by providing an alternate route to I-5 and increasing freight mobility between Seattle, King and Pierce County for marine and air cargo.

2. It will provide regional market access to Burien's commercial center and increase our ability to realize our goal for economic revitalization and downtown re-development.

3. The Washington State Department of Transportation will help us and our neighboring communities to work together to reduce impacts to our wetlands and parks, improving fish habitat, improving and expanding the off highway trails and bike paths connecting north to SeaTac, Burien, and the Duwamish bike facilities.

For these reasons, we support the SR509 extension project. With our support we ask that you consider how our community will be impacted. We also ask that the state expand its project impact to include other considerations. The overall success of the project's goals is to enhance mobility, safety and environmental conditions. To accomplish these goals we request that the project address the concerns discussed below:

L2-1

Response L2-1

Thank you for your comment.

L2-2

Future Traffic Impacts. The intersection of SR509 with SR518 is the primary entrance into our city. It is a very high accident location and operates now at Service Levels E and F—the highest rating levels for congestion. Extending the SR509 corridor will increase traffic even more and make this intersection in even greater need of improvements. We ask that you fund the design process that would implement improvements to this interchange as a phased set of improvements to be made as traffic loads increase due to the SR509 southern extension. Logic and public safety support this request. To build a freeway connection north into Burien, port, rail and Downtown Seattle and not design improvements at the SR509/SR518 interchange will be an expensive investment to improve freight mobility with marginal payback.

L2-3

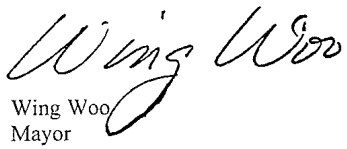
Gateway Improvements. The SR509/SR518 intersection is designated as a gateway in the City's comprehensive plan. With the extension of SR509 there will be significantly increased traffic and visibility for our city. As mitigation for the increased traffic we ask that signage, lighting and landscaping along the sides leading to the intersection, and landscaping at the intersection, be included in the budget and plans for the whole corridor. These improvements have been made on other state facilities in the region and should be made on the north end of the route extension. Burien and other nearby airport communities should be eligible for trees and additional landscaping that create a quality and inviting entrance to our cities. Burien wishes to be a partner in planning for these improvements.

L2-4

Traffic Noise Impacts on Neighborhoods. Finally, we ask that you consider the noise impacts extending this corridor will make. The corridor extension will impact our Manhattan neighborhood west of 8th Avenue South. Increased traffic, especially freight traffic, may cause much more substantial noise impacts to neighborhoods further north in the City. We request further analysis of the noise impacts to the adjacent neighborhoods both during construction and after the project is completed.

If you have questions, please call me or City Manager, Gary Long.

Thank you.



Wing Woo
Mayor

Response L2-2

Improvements to the SR 509/SR 518 interchange are included in the State Highway System Plan and are a part of Washington's Transportation Plan. Those improvements would be pursued according to the priorities established in the Highway System Plan and the funding available. Please refer to Section 2.4 of this FEIS for a discussion of future traffic in the vicinity of the SR 509/SR 518 interchange.

Response L2-3

Landscaping, signing, and other improvements to the SR 509/SR 518 interchange should be included in the SR 509/SR 518 interchange improvement project. WSDOT will continue to work with the City of Burien on the SR 509/SR 518 interchange improvement project and will include the City of Burien in the development of visual guidelines for the SR 509 corridor.

Response L2-4

WSDOT's Noise Policies and Procedures document was developed to provide fair and equitable coverage of noise issues from transportation sources statewide. This document was required by and has been approved by FHWA. WSDOT considers noise impacts and assesses mitigation within the project limits when there is (1) a new roadway, (2) a new through-lane on an existing roadway, or (3) a significant realignment of an existing roadway.

When any of these three scenarios occur, WSDOT conducts a noise study, assessing noise impacts and mitigation within the project limits. The areas to the north of the project and adjacent neighborhoods are beyond the project limits and will not be assessed with a full noise study. However, the department is concerned about severe noise impacts from our roadway projects. A severe impact is identified when there is a 10-decibel increase over existing noise levels for roadway operation. In order to obtain a 10-decibel increase, there must be 10 times as much traffic as the No Action Alternative. WSDOT has reviewed the traffic volumes associated with the proposed project for noise purposes and has not found an increase in traffic outside the project boundaries that would lead to such severe noise impacts.

For construction noise levels, WSDOT will follow all appropriate regulations for construction noise requirements. WSDOT will apply feasible and reasonable measures for reducing noise impacts to neighborhoods when possible, including proper placement of staging areas, time-of-day restrictions for specific construction activities, and appropriate shielding of noise sources as needed for night work.

Cc: Burien City Council
Gary Long, Burien City Manager
Scott Greenberg, Community Development Director, Burien
Steve Clark, Public Works Director, Burien
Judith Kilgore, Community Development Director, Des Moines
Mike D. Feldman, Director Aviation Facilities, Port of Seattle
Jim Leonard, Urban Transportation and Environmental Engineer, FHWA
Stephen Butler, Director of Planning, SeaTac
Paul Toliver, Director of Transportation, King County
Jerry Alb, Director of Environmental Services, WSDOT

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L3

City of Burien

FEB 28 2002

415 Southwest 150th Street • Burien, Washington 98166-1973
Phone: (206) 241-4647 • Fax: (206) 248-5539
www.ci.burien.wa.us

Mayor
Wing Woo

Deputy Mayor
Rose Clark

Councilmembers
Noel Gibb
Kevin James
Stephen Lamphear
Joan McGilton
Sally Nelson

February 25, 2002

Mr. John White, P.E.
WSDOT
6431 Corson Ave. South, MS 61
Seattle, WA 98108

Re: SR 509 Corridor Revised Draft EIS

Dear Mr. White:

L3-1 Thank you for the opportunity for review of the Revised Draft EIS on the SR 509 Corridor project. The City of Burien supports the extension of SR 509 for the economic benefits the improved access will bring to our city, especially our downtown.

L3-2 Although the extension of SR 509 is not physically located within Burien, it will be close to our city limits, particularly the Manhattan neighborhood west of 8th Ave. South between Des Moines Memorial Drive and So. 192nd St. **The analysis of noise impacts from the project should be revised to include additional data and discussion of noise impacts on the Manhattan neighborhood both during construction and full operation of the facility.**

L3-3 The SR-509/SR-518 interchange has been identified in our Comprehensive Plan as a gateway into Burien. Policy SC 1.11 states: "*The City should coordinate the development of a "gateway" into the City in the vicinity of 1st Avenue South and the intersection of State Routes 509 and 518 with WSDOT. Consideration should be given to the impact of WSDOT highway signage on the visual character of the community.*" This highly visible interchange serves as a symbol that defines Burien in the eyes of freeway users—many of whom are potential consumers of our goods and services. The proposed SR-509 extension will significantly increase the number of vehicles and people passing through the interchange. **As mitigation for the increased traffic along the freeways in Burien, we are requesting that the project budget include "gateway" landscaping and revised signing at the SR-509/SR-518 interchange.** I have enclosed several pages from our adopted "Burien Gateway Design Report" describing the concept for this landscaping and revised signing.

L3-4 The SR-509 extension project will substantially impact traffic at the SR-509/SR-518 intersection. **We request that the Department of Transportation study safety improvements to this intersection in conjunction with its plans to extend SR-509.** This interchange is the western terminus of SR-518, linking SR-518 with SR-509. The interchange is also the primary entrance to the City of Burien. Characterized as a partial diamond, the interchange provides limited freeway-to-freeway access, with most movements through signalized intersections. Currently, these intersections operate at Levels of Service E and F, and experience a high accident rate.

Response L3-1

Thank you for your comment.

Response L3-2

Please see response to Comment L2-4 from the City of Burien.

Response L3-3

Please see response to Comment L2-3 from the City of Burien.

Response L3-4

With the completion of the SR 509 corridor, the number of vehicles using SR 509 mainline near the SR 509/SR 518 interchange in the year 2020 would be more than the no build condition. However, slightly fewer vehicles would use the SR 509/SR 518 interchange to exit or enter the mainline if the preferred alternative is built than if SR 509 is not completed. Because of this, WSDOT has determined there is no impact on the SR 509/SR 518 interchange with the completion of the SR 509 corridor, and improvements to the interchange are not included in the proposed project.

Although its function as the primary gateway to Burien will remain, its function as a connection will change and become increasingly important as the south extension of the SR-509 corridor to I-5 is completed. Similarly, improvements being studied for the Alaskan Way Viaduct and East Marginal Way corridor could link the northern end of the SR-509 corridor (1st Avenue South Bridge) directly to downtown Seattle with a fully access-controlled freeway facility. These improved connections to the regional freeway system heighten the importance of the SR-509 corridor, and place added importance on the SR-518 corridor. As such, a freeway-to-freeway connection is needed at SR-509/SR-518.

L3-5

Finally as additional mitigation for increased traffic along SR-509, we are requesting additional landscaping along both sides of SR-509. Comprehensive Plan Policy SC 1.10 states: "*The City should work with the Washington State Department of Transportation (WSDOT) to develop a planting plan distinctive to Burien for the length of State Routes 509 and 518 corridor located within the City. The plan should utilize native drought tolerant plants, shrubs and trees.*" Landscaping along the freeway has helped cities such as Bellevue, Mercer Island and Olympia improve their visual image and achieve their aesthetic and economic development goals. We believe that landscaping along the length of SR-509 is one of the improvements needed to allow us to achieve our goal of a quality community.

Should you have any questions please call me at (206) 248-5510.

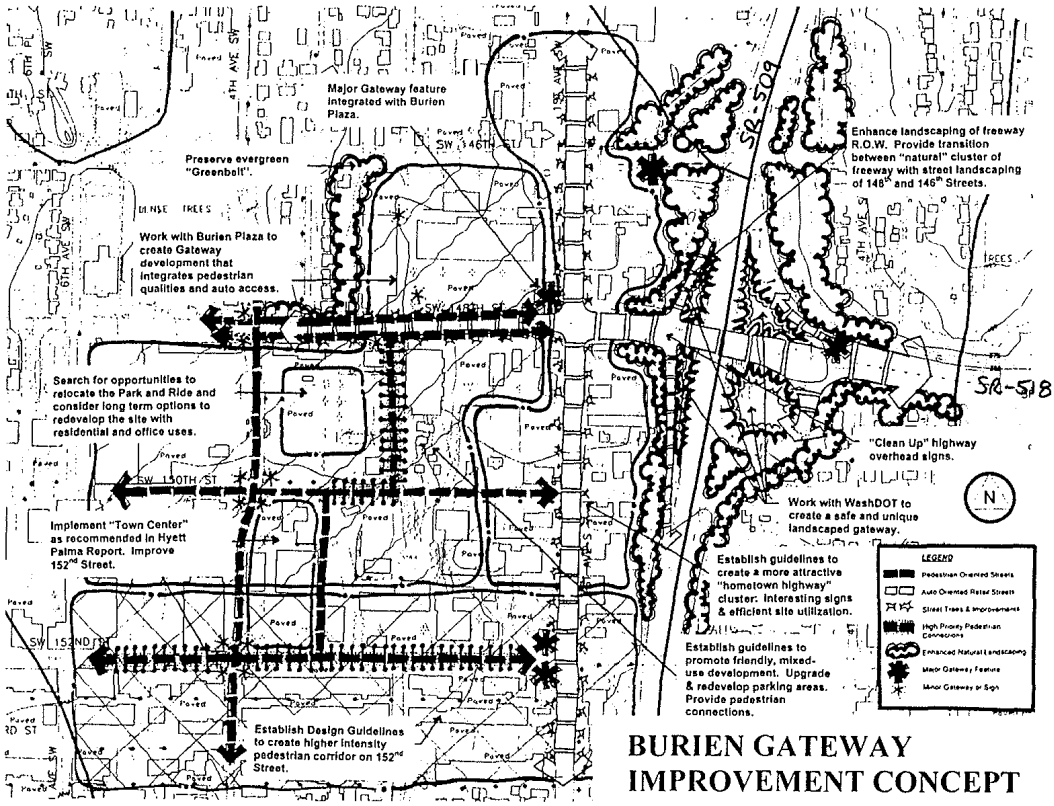
Sincerely,

Scott Greenberg, AICP
Community Development Director

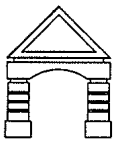
Cc: Mayor Woo and City Council
Gary Long, City Manager
Steve Clark, Public Works Director

Response L3-5

WSDOT will include the City of Burien in the development of visual guidelines for the SR 509 corridor. However, landscaping of the SR 509 corridor north of the South 188th Street interchange would not occur as part of the SR 509: Corridor Completion/I-5/South Access Road Project. Landscaping may occur when other major improvements are made to that section of SR 509 in the future.



BURIEN GATEWAY IMPROVEMENT CONCEPT



LANDSCAPE CONCEPT

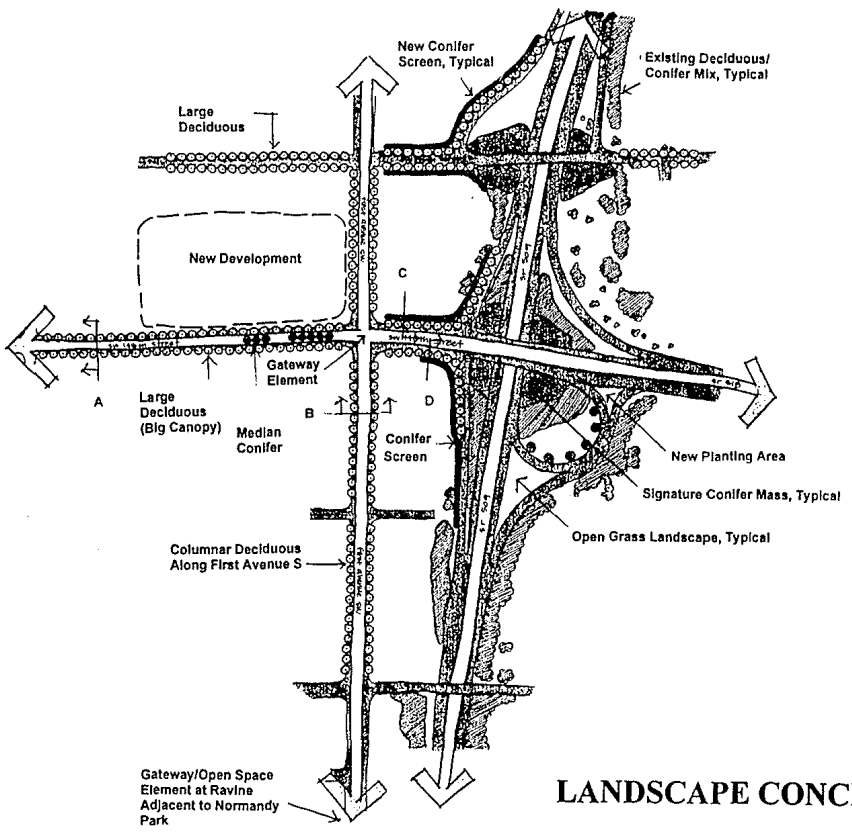
The overall Northeast Gateway landscape concept focuses on softening the environment through a simplistic design scheme that seeks to set a tone of continuity in a somewhat chaotic environment. Upon entering Burien, motorists will encounter a series of gateways progressing from naturalistic and informal features along the freeway to more formalized landscaping features along the streets. The design also seeks to provide consistent layers of colors and textures to stimulate interest, particularly involving the changing of the seasons. A major goal of developers, city officials, and property owners was to provide year-round greenery acknowledging Burien's location within the Puget Sound.

Highway landscaping beginning just to the east of the 509/518 interchange seeks to channel the motorist's view down the corridor while providing subtle clues as to the sense of arrival to a "place." This will be accomplished through masses of signature conifers on the four corners surrounding the interchange, providing a dramatic natural gateway. This design is repeated on a smaller scale at the 509/146th Street SW interchange. A consistent row of tall, narrow conifers is proposed beyond the street trees along the off ramps to screen the back side of the businesses along First Avenue from view.

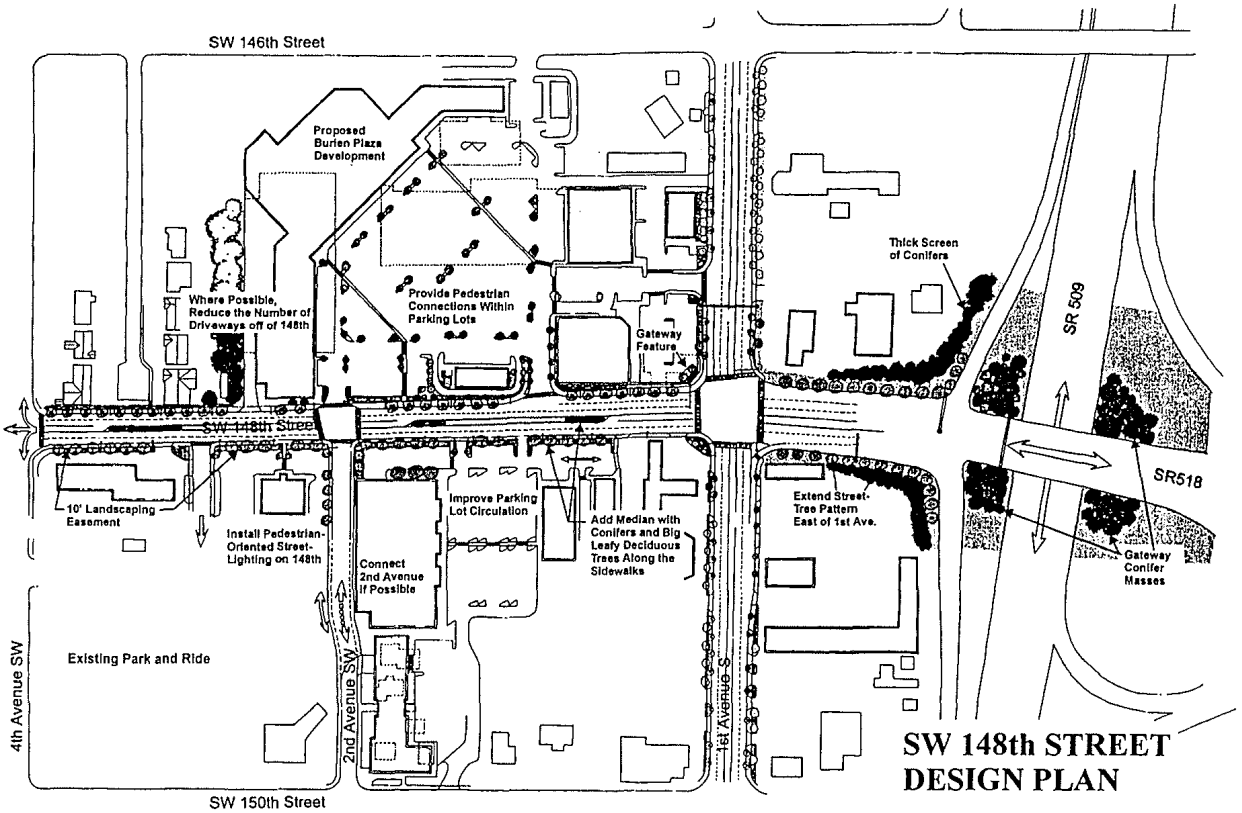
Formalization in the landscaping design begins at the approach toward 1st Avenue as street trees spill from 148th (and 146th) out onto the sides of the off ramps.

The plan for 148th Street includes a mixture of conifers and deciduous trees. The popularity of the existing large mass of conifers directly to the west of Burien Plaza provides the inspiration to use evergreens in the design of 148th Street's landscaping plan. Thus, the development of a street median with conifers plays an important role in making a powerful statement for the city while reducing the apparent width of the six-lane street. The plan calls for deciduous trees with large canopies along the sidewalks to channel the views down the corridor and provide continuity. More informal plantings are suggested on private property to allow for individual identity for the developments and add visual interest and a variety of color.

On First Avenue South, columnar deciduous trees are recommended along the sidewalks. The intent is to soften the streetscape while allowing for the visibility of businesses and signage along the avenue. Columnar trees are more appropriate given the location of power lines inside of the sidewalk. Similar to 148th Street, the plan suggested more informal street trees inside of the sidewalks. The power poles, however, will limit the vertical size of any trees to be planted on the development side of the sidewalks.



LANDSCAPE CONCEPT

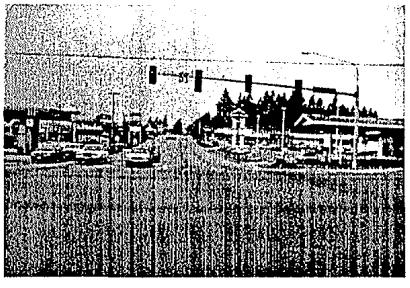

SW 146th Street
Proposed Burien Plaza Development
Where Possible, Reduce the Number of Driveways off of 148th
Provide Pedestrian Connections Within Parking Lots
Gateway Feature
Thick Screen of Conifers
SR 509
SW 148th Street
SR518
10' Landscaping Easement
Install Pedestrian-Oriented Street-Lighting on 148th
Improve Parking Lot Circulation
Add Median with Conifers and Big Leafy Deciduous Trees Along the Sidewalks
Extend Street-Tree Pattern East of 1st Ave.
Gateway Conifer Masses
Connect 2nd Avenue if Possible
Existing Park and Ride
4th Avenue SW
2nd Avenue SW
1st Avenue S
SW 150th Street
SW 148th STREET DESIGN PLAN

GATEWAY ENTRY FEATURES

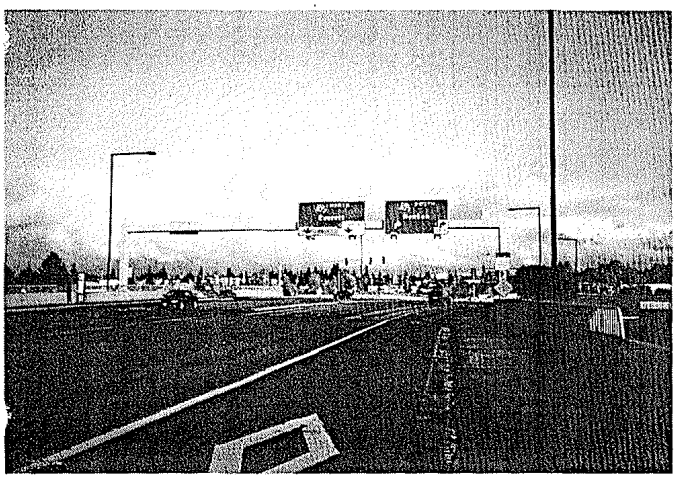
Some of the first things people see as they enter Burien from Highway 518 are a series of large and intrusive overhead lattice highway signs, an expansive asphalt intersection, and an abandoned gas station. The gas station site on the northwest corner of Southwest 148th Street and 1st Avenue South is particularly visible since most motorist's are required to stop at the stoplight and look in its general direction. With the approaching redevelopment of this gas station site and Burien Plaza, the opportunity exists to provide a welcoming entryway feature at this site.

The proposed feature includes borrowed elements such as the triangle used in the city's logo and an arch similar to Lake Burien School's arch.

The plan also recommends the replacement of the highway lattice signs with monotube poles, which are much less intrusive.



Existing Conditions: Looking west down SW 148th Street from 1st Avenue S.



Replace existing lattice highway signs with the less obtrusive monopole sign, such as this one in Bellevue.

L4

RECEIVED
MAR 19 2002
URBAN CORRIDORS OFFICE

KENT
WASHINGTON

PUBLIC WORKS
Don E. Wickstrom, P.E.
Director of Public Works

Phone: 253-856-5500
Fax: 253-856-6500

220 Fourth Ave. S.
Kent, WA 98032-5895

March 14, 2002

Ms. Susan Everett, P.E.
South King Engineering Manager
Washington State Department of Transportation
15700 Dayton Avenue North
MS 250
P.O. Box 330310
Seattle, WA 98133

RE: SR 509 Freeway Extension

Dear Ms. Everett:

This is a letter of support from the City of Kent Public Works Department for the proposed SR 509 Extension and related improvements. The SR 509 Extension represents a vital improvement to the South King County transportation system and would complete a much needed link in the regional freeway system.

Access to the Kent valley has become increasingly difficult for our residents and businesses due to traffic on I-5 and SR 167. The SR 509 Extension would reduce congestion on I-5 and may positively affect operations on SR 167 as well. In addition, connecting the S. 228th Street Extension with SR 509 via the proposed SR 516/I-5 interchange improvements would enhance the utility of both projects by significantly increasing capacity through the interchange.

L4-1

We hope to coordinate with WSDOT staff on the design and implementation of improvements within the City of Kent, especially those connecting SR 509 with the recently approved S. 228th Street Extension. These two projects will provide residents and businesses in Kent, Des Moines, and SeaTac with a substantial improvement over existing and forecast traffic operations. Again, we fully support the SR 509 project and look forward to its completion.

Sincerely,

Don E. Wickstrom, P.E.
Public Works Director

Cc: Gary Gill, City Engineer
Tim LaPorte, Design Engineering Manager

Response L4-1

Thank you for your comment.

P1

March 25, 2002

Mr. John White
Project Engineer,
Urban Corridors Office
WSDOT
6431 Corson Avenue South, MS-61
Seattle, WA 98108

Dear Mr. White:

Since 1990, WSDOT, FHWA, the Port of Seattle, King County, and the Cities of Des Moines and Sea-Tac have conducted extensive alternatives analysis and environmental review for the SR-509 Corridor Completion project. The revised Draft Environmental Impact Statement (RDEIS) outlines the impacts of each of several alternatives proposed for *creation of a new limited-access freeway* linking SR-509 with Interstate 5 in Southwest King County.

The Transportation Choices Coalition would like to acknowledge the substantial work that has been completed to date and thank WSDOT for the opportunity to provide comment on the revised DEIS.

The comments included within this report fall generally within the following categories:

a) The scope of proposed actions in each of the 'build' alternatives, and
b) The need for further evaluation of strategies to maximize capacity on the existing highway and arterial network through trip reduction, transit expansion and travel demand management.

Scope of proposed "build" alternatives

"The purpose of the proposed action is to improve regional highway connections with an extension of State Route (SR) 509 to serve future transportation needs in southwest King County and to enhance southern access to Seattle-Tacoma International (Sea-Tac) Airport." (SR509-DEIS, pg 69)

The "build" alternatives for the SR-509 Corridor Completion/I-5/South Access Road project all propose to achieve these ends with three linked highway projects, including:

1) Extension of SR-509 south from its terminus at S. 188th Street to a new interchange with Interstate-5 near S. 212th St.;
2) Construction of a new direct southern access road to Sea-Tac International Airport, and;
3) Widening of Interstate-5 by two to four new general purpose lanes between S. 210th Street in Sea-Tac and S. 310th Street in Federal Way.

P1-1 While the SR509 Extension and Sea-Tac South Access Road improvements both appear directly related to the stated purpose and need for the project, the significant expansion of general-purpose lane capacity on Interstate 5 included in all build alternatives is un-justified. Such wholesale widening of I-5 for several miles in Southwest King County may well be viewed as necessary to minimize congestion where I-5 meets a new SR509 extension. However, extending the scope of the project to address congestion "hot spots" created by filling in a "missing link" in the regional highway network would necessitate major widening of SR-99 through Seattle and expansion of regional connections to West Seattle and I-5 via the Spokane Street Viaduct/West Seattle Freeway.

If the proposed projects cause greater congestion on I-5 South of S. 212th, and on SR-99 south of the Spokane Street Viaduct/ West Seattle Freeway, it will be precisely because the SR-509 Extension project has met its stated objective to shift trips off of local arterials and I-5 South of the I-405/SR-518 interchange by "improving regional highway connections."

As WSDOT moves forward with implementation of the SR-509 Extension and South Access Road improvements, the scope of the project should be refined to include only minimal construction of exit and entrance ramps connecting the new freeway link and Airport Access Road with I-5.

Further analysis
Prior to permitting construction of the SR509 to I-5 freeway connection, South Airport Access Road or general widening of I-5, the cities of Des Moines, SeaTac, Burien, Kent, WSDOT, the Port of Seattle and other lead agencies should commission further analysis to more adequately capture the impacts of each proposed alternative, and to incorporate a full-range of strategies such as those identified below, for achieving project objectives.

1. Evaluate TDM, road pricing and 'Smart Growth' land-use policies

P1-2 Hire a known expert such as Sam Seskin of Parsons Brinkerhoff to craft an aggressive and innovative package of trip reduction and demand management strategies including:

Response P1-1

Improvements to I-5 are intended to address FHWA requirements (FR 63, No. 28, February 11, 1998). FHWA policy states "it is in the national interest to maintain the Interstate System to provide the highest level of service in terms of safety and mobility." Before approving the proposed project, FHWA requires WSDOT to demonstrate that the SR 509/South Access Road interchange would not degrade traffic operations or safety on I-5. As discussed in Chapter 2 of the EIS, the scope of the proposed I-5 improvements was the result of a value engineering review, which determined that these improvements would improve traffic operations, minimize social and economic impacts in the I-5 corridor, and ensure that the City of Kent's plans for the South 228th Street Corridor extension are not precluded. These improvements are necessary to ensure FHWA approval of the SR 509 project and prevent degradation of I-5 traffic operations and safety. The Access Decision Point Report (CH2M HILL 2002) demonstrates WSDOT's compliance with FHWA requirements.

Response P1-2

A TSM/TDM alternative, which included trip reduction measures and transit incentives, was evaluated and two tollway alternatives, which included congestion pricing, were included in the May 1995 Major Investment Study conducted for the project. Based on this analysis, these alternatives would not meet the project purpose and need and, therefore, were rejected for further evaluation in the EIS. Please refer to Chapter 1 of this EIS for a discussion of alternatives considered but rejected.

P1-2 (cont.)

- o Expansion of existing trip reduction programs such as the City of Seattle's Trip Reduction Initiative (TRI), and the State Commute Trip Reduction (CTR) program.
- o Creation of an entrepreneurial trip reduction grant program that reduces traffic and preserves road capacity in the project area for high value trips.
- o Evaluation of the potential impact of Smart Growth policies, including incentives for transit-oriented design (TOD) in SeaTac, Des Moines, Burien and Kent, as well as in other common origins and destinations of trips through the project area.
- o Analysis of the effectiveness of variable tolls, or "congestion pricing" on the SR509 Connector and on other regional "highways of statewide significance." Pricing should be evaluated (using the newest PSRC travel models) as both a potential revenue source and transportation demand management strategy for the SR509 and I-5 Corridors.

Evaluate the variable effectiveness of the recommended transportation demand management strategies under each alternative and design an appropriate package of trip reduction measures for each (the effectiveness of demand management programs is expected to vary as assumptions about congestion, general purpose lane capacity, transit speed and capacity, vehicle occupancy requirements, and road pricing vary between alternatives).

2. Evaluate a transit-based alternative to meet project objectives

While the calculations of future travel demand in the project area assume completion of the Central Link Light Rail project and other committed Metro and Sound Transit projects, none of the project alternatives evaluate the potential for further transit improvements in the project area and larger region to meet the stated objectives of the SR-509 Corridor Completion/I-5/South Airport Access Road project. The RDEIS is incomplete and inadequate without alternatives to the No-Action and three freeway-based build options.

P1-3

Before proceeding to implementation, WSDOT and the co-lead cities and agencies must complete a supplemental environmental analysis of a transit-based alternative that might include:

a. Extension of the Central Link Light Rail line from Sea-Tac Airport to Tacoma, to complete a missing link in the regional High Capacity Transit system, improve southern access to Sea-Tac International Airport and relieve congestion on I-5, SR-99, SR509 and major north-south arterials in the project area.
b. Extension of the proposed Seattle Monorail south to Sea-Tac International Airport via White Center and Burien (West Seattle Line), or via SODO, Georgetown and South Park (along an alignment identified by the Elevated Transportation Company (ETC) as a possible "city-wide corridor").

Response P1-3

Transit-only alternatives, including a bus transit alternative, an expanded bus transit alternative, and an expanded rail and bus transit alternative, were evaluated in the May 1995 Major Investment Study conducted for the project. Analysis of these alternatives included the following: completion of the commuter rail and high-capacity transit elements of the proposed regional rail transit system; the proposed Sea-Tac People Mover system; expanded local bus service; and freight use of HOV facilities. Because extension of the monorail to Sea-Tac Airport was not included in any regional or local transportation plan, it was not included in the analysis. Based on evaluation on the Major Investment Study, these alternatives would not meet the project purpose and need and, therefore, were rejected for further evaluation in the EIS. Please refer to Chapter 1 of this EIS for a discussion of alternatives considered but rejected.

P1-3 (cont.)

c. New local shuttle bus service throughout the project area to improve neighborhood connections and expand the service area of existing and planned regional bus and rail service.
d. Further investment (above and beyond currently planned improvements) in freight rail facilities between Seattle and Tacoma via the Kent Valley, including grade-separation and new right of way where possible to improve rail freight mobility and ease congestion on area highways.

3. Evaluate indirect regional land-use and transportation impacts

"Although the proposed project would support and facilitate planned growth, it would not induce growth… Therefore, no secondary impacts are expected to result from the SR 509 Corridor Completion/ I-5/ South Access Road Project." (DEIS, pg. 497)

P1-4

This statement, justifying the lack of substantial analysis of secondary and cumulative impacts of each alternative in the revised SR509 DEIS, defies experience in this region, which has shown a strong connection between transportation infrastructure investments and subsequent land-use and development patterns. General-purpose capacity expansion on major urban freeways is known to generate low-density, automobile-oriented land development in areas that benefit from improved regional auto accessibility.

Because the Action and No-Action alternatives considered in the DEIS allow different general-purpose traffic volumes on SR-509, I-5, and the local arterial network, they can be expected to have different impacts on regional land markets, particularly in the demand for low density, auto-centered commercial and residential development. This type of development has a whole range of environmental impacts, from increased runoff of pollutants into salmon-bearing creeks and streams, to higher region-wide vehicle miles traveled (VMT) and consequent air pollution. The extent of indirect environmental impacts of the various alternatives should be measured using the best available methods.

P1-5

To more accurately capture the feedback between transportation system investments and land development patterns, the options for the SR-509/South Access Road should be re-evaluated using the Puget Sound Regional Council's newest travel forecasting model. The model to be "validated" in October of 2002 is a significant improvement over the version used to model SR-509 alternatives, in that it includes home-based shopping and "other" trips, car-pools of varying occupancies and non-motorized trips (walk and bike trips that have been inexplicably left out of regional travel forecasting to date).

If the old PSRC travel and land-use models must be used for a reassessment of the SR509 Connection/South Access Road project and other regional 'mega-projects,' PSRC and WSDOT should take the following steps to ensure accurate evaluation of secondary impacts:

Response P1-4

The proposed SR 509 project is incorporated in the comprehensive plans of local jurisdictions within the project area. These comprehensive plans were subject to environmental review, which included impacts on transportation and land use.

The cumulative effects analysis was done in accordance with Council of Environmental Quality guidelines. Please refer to Section 3.17.2, *Cumulative Impacts*.

Response P1-5

Two land use scenarios were developed—one for the No Action Alternative and the other for the build alternatives. Using this approach, various development scenarios with or without construction of the SR 509 project can be compared to ensure compliance with transportation service standards and growth management regulations. As described in Chapter 2 of the EIS, land use data for the traffic model were based on regional forecasts by PSRC; however, these forecasts were further modified at a TAZ level to reflect local land use plans and information from meetings with local staff. In addition, the PSRC model included the latest Sea-Tac Airport Master Plan information.

The PSRC model included assumptions for improved transit and nonmotorized mode choices; transportation demand management strategies were also included and quantified for model calibration.

P1-5 (cont.)

a. *Do not assume that land development patterns from 2002 to 2022 will be identical for all alternatives.* Growth and land-development patterns can fairly be expected to vary under different transportation system improvement scenarios.
b. *Project land use changes at the local level* (transportation district or zone) for each alternative. The DEIS aggregates land-use impacts to the County level, obscuring significant changes at the local level and preventing analysis of local impacts to the environment and transportation networks.
c. *Feed projected local land-use changes into the travel model* to project, as best possible, travel demand induced by expanded capacity on Interstate 5 and a new limited access freeway connection between I-5 and SR-509.

P1-6

New freeway capacity is also known to increase traffic volumes both on the expanded facility and on connecting arterials and expressways through induced demand. The performance of connecting routes and particularly key interchanges can degrade as they are overburdened by new traffic accessing the expanded corridor. Further analysis should focus on the relative impact of each alternative on congestion levels on connecting freeways and arterials.

P1-7

3. Improve cost-benefit analysis of each alternative
The DEIS should include more detailed analysis of construction related impacts. Construction related delays to auto, freight, transit, bicycle and pedestrian users are a significant cost that should be quantified for each major element of each alternative and weighed against expected project benefits.

The cost-benefit analysis must also appropriately value transit riders' time spent in transit. An hour commute by bus or train is less costly to many individuals than a comparable one-hour commute by car because transit users have the freedom to work, read or "relax" on the way. WSDOT and transit agencies should attempt to measure this relative 'benefit' of time spent in transit by conducting surveys of transit users and incorporating the results into the cost-benefit evaluation of transit and roadway investments in the SR509 project area.

P1-8

4. Commission an independent Expert Review Panel to review the revised SR-509 DEIS document and public process to ensure their fairness and adequacy. The SR-509 Connector is a controversial project. An independent Expert Review Panel consisting of local and national transportation professionals should objectively review and make substantive comments on the SR-509 Corridor Completion/I-5/South Access Road project DEIS for adequacy and quality of product. A fair resolution must go beyond addressing local interests to convincingly show how a Preferred Alternative will produce long-term regional transportation and land use benefits.

Thank you for your consideration. If you have any questions or comments, please contact Kevin Shively, TCC Regional Project Manager at 206-329-2336.

Response P1-6

As described in Chapter 2 of the EIS, the existing SR 509 freeway is underutilized. The traffic study shows that the project would increase traffic on the existing SR 509 freeway. As a result, WSDOT has proposed to mitigate impacts on the existing freeway by increasing the number of lanes to six, including two HOV lanes, which is consistent with WSDOT's 20-year plan.

Per FHWA requirements, WSDOT has prepared an Access Decision Point Report (CH2M HILL 2002), which evaluates the effect of the new SR 509/I-5 interchange on highway operations. From this report, portions of I-5 south of the proposed SR 509 connection would also incur additional traffic. This is addressed by the I-5 improvements proposed as part of the project.

The Access Decision Point Report also showed that the proposed project would not worsen traffic operations at the interchanges, rather it would improve operations by diverting traffic from I-5 to SR 509. Traffic using local interchanges because of poor south airport access is also expected to continue on the freeway system, thereby improving local arterial operations.

Response P1-7

A benefit/cost analysis was conducted for the project in January 2002. The analysis was based on an approach developed by FHWA in a benefit-cost software package called STEAM (Surface Transportation Efficiency Analysis Model) that considers benefits and disbenefits of transportation improvements, including travel time savings for HOV, transit, and commercial vehicles. The resultant benefit cost ratio was 8.3, which is unusually high for a project of this type. This result occurs mainly because the SR 509 project would result in both travel-time savings (higher average speeds) and shorter trip lengths because of the more direct routing afforded by the new roadway.

Response P1-8

The Revised DEIS was reviewed in accordance with SEPA and NEPA regulations. Preliminary Revised DEIS reviewers included representatives from local jurisdictions and the Steering Committee. The Revised DEIS was circulated to the public and resource agencies for review.

Peter Hurley
Executive Director

Kevin Shively
Regional Project Manager

P2

19 March 2002

John White, P.E.
Project Engineer
Urban Corridors Office
Washington State Department of Transportation
6431 Corson Avenue South, MS 61
Seattle, WA 98108

Dear Mr. White,

Comments herein are submitted in response to the *Project Newsletter*, Number 9, January 2002, which states that WSDOT seeks public comment on the revised draft EIS for the SR-509 Corridor by 25 March 2002.

The revised EIS of January, 2002 is silent concerning the effects on (and accomodation of) bicyclists moving between Des Moines, Seatac, and Kent through the intersection of SR-516 and I-5/SR-509, known locally as Midway Interchange. Conceptual designs displayed by WSDOT at the 27 February 2002 SR-509 Openhouse did not show enough for observers to judge consistency with Paragraph 3.10.3 *Pedestrian and Bicycle Facilities* in the RDEIS. Consequently, citizen comments in graphical format are attached to this letter as diagrams showing explicitly what bicyclists need for safe efficient access through Midway Interchange. The final EIS and conceptual designs should contain the concepts described in the attachments.

P2-1 Midway Interchange is important to bicyclists because it is one of few widely spaced locations for crossing I-5. The next nearest crossings are over a mile away to the north and over 2 miles to the south of Midway Interchange. These are significant distances for the non-motorized transport modes of walking and cycling.

All three modes of transport (walking, cycling, and motoring) are in common use along SR-516 through Midway Interchange today. Cycling in particular would be better served by explicitly marking corridors of passage for this mode. The conceptual designs displayed on 27 February show no markings or even space for bicyclists in the post-SR-509 version of Midway Interchange. The diagrams attached to this letter describe a recommended channelization that accomodates all three modes of transport.

P2-2 The channelization recommended in the attachments improves the functionality of the SR-509 version of Midway Interchange for bicyclists. Channelization reduces conflicts between motoring and bicycling modes by enabling each user to know where the other users are supposed to be and where they are going. This knowledge enables all users of the intersections to reliably predict future movements of people using the other modes. Coordination of motoring and cycling traffic through the Midway Interchange area is substantially improved.

The attached drawings consider 8 intersections in the vicinity of the SR-509 version of Midway Interchange as a single integrated entity. The 8 intersections are shown in the chart titled

Response P2-1

Specific details of bicycle facility improvements are not a part of this EIS, but will be addressed at a later stage of the project design. Bicycle lanes will be provided to allow safe access through the SR 516 interchange at either the SR 516 overcrossing or the South 228th Street overcrossing, but not both. Preliminary improvements under consideration include bike lanes under I-5 at the proposed South 228th Street overcrossing with connections to SR 516 and the city of Kent's South 228th Street extension project. Additional bike lanes along SR 516 under I-5 are currently being analyzed, but existing bridge columns under I-5 create limitations. Relocating the columns would require relocating the bridge at a significant cost.

WSDOT has noted and understands the bicycle community's preference for a bike lane at the SR 516 undercrossing, and additional design options are being looked at for this location based on safety, constructability, and cost. Text in Section 3.10 of the EIS has been updated to describe the planned improvements.

Response P2-2

Specific details of bicycle facility improvements are not a part of this EIS, but will be addressed at a later stage of the detailed project design. Your suggested bike lane channelization will be considered during this next phase of design, as described in the response to Comment P2-1 above.

"OVERVIEW." Note that the two intersections of SR-516 with SR-99 and Military Road South are included. As portals to this important crossing of I-5, these two intersections are considered as parts of the integrated picture. Channelization markings recommended in this comment are consistent and continuous through all the intersections shown in OVERVIEW.

The chart titled "INDEX" depicts the relative locations of detailed diagrams that show particular features of each of the 8 intersections affected by the SR-509 rework of Midway Interchange.

P2-3

A summary of expected bicyclists' usage of the SR-509 version of Midway Interchange is presented in the chart titled "THROUGH CYCLISTS ANALYSIS." More detailed analyses of through, left-turning, and right-turning cyclists accompany each intersection chart. Explanatory notes are placed on the chart for each analysis. All cycling routes shown in the charts are consistent with Washington State traffic laws.

All diagrams in this comment show final configurations after completion of three related projects: SR-509, the redevelopment of Pacific Highway South by Kent and Des Moines, and the redevelopment of Military Road South by Kent.

Kent, Des Moines, and King County have done excellent work by designing their recent road improvements to be compatible with bicycle transport, much to the appreciation of people using the new facilities. The new designs have produced attractive roadways, smoother traffic flows, dramatic safety improvements for cyclists, and improved public perception of competency of the road designers and their managers.

Midway Interchange is an integral part of the bicycling picture in Kent, Des Moines, and Seatac. The SR-509 Project has a wonderful opportunity to make Midway Interchange a far more compatible piece of the overall bicycling picture than it is today.

Thank you for the opportunity to comment. Questions and comments can be directed to the undersigned.

Respectfully submitted,

David W. Hoffman
25334 45th Avenue South
Kent WA 98032

Steve Nuss
26220 42nd Avenue South
Kent WA 98032

Melvin Roberts
9421 South 241st Street
~~xxxxxxxxxxxxx~~
KENT, WA 98031

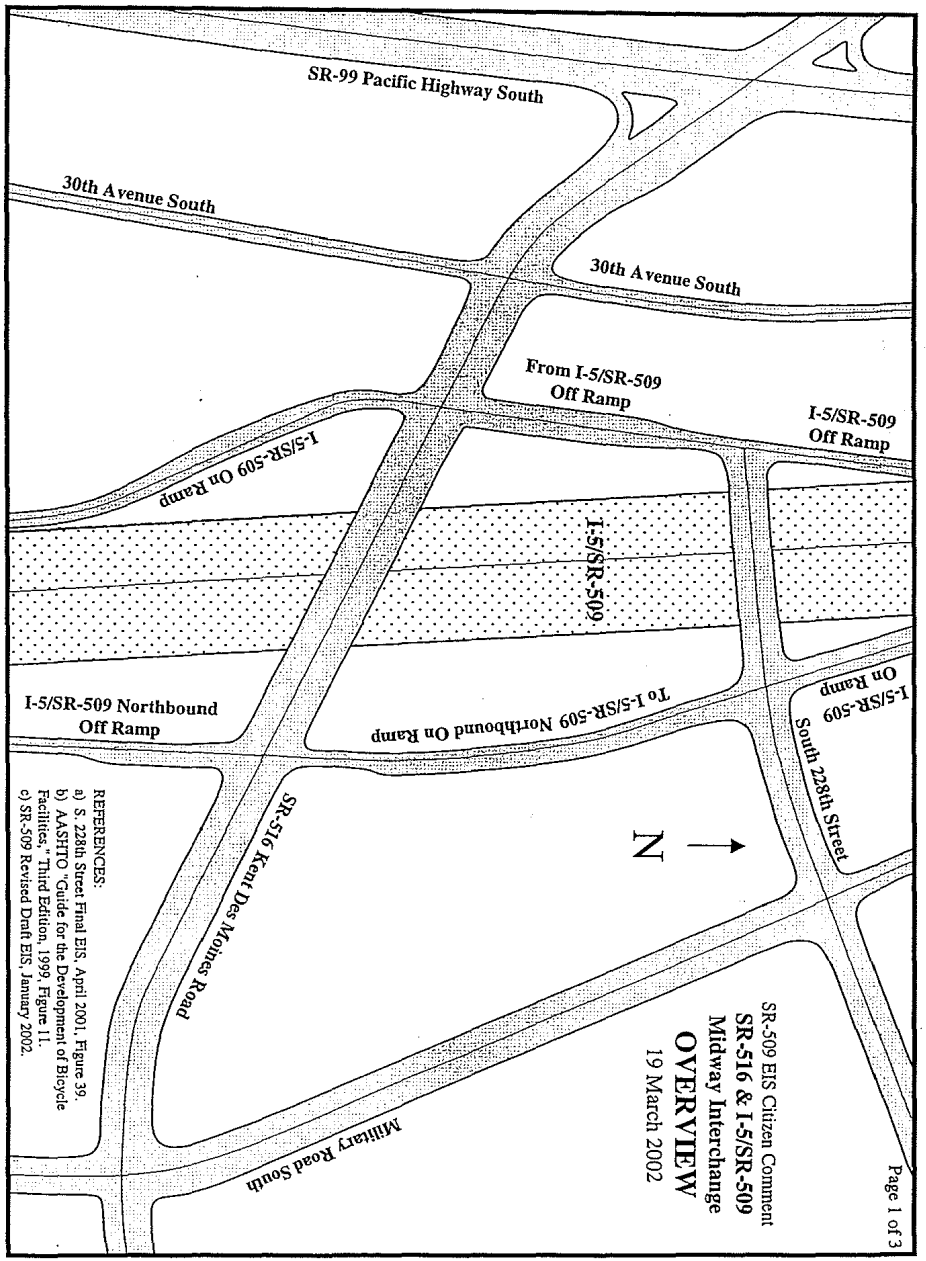
Jacob Grob
5408 South 236th Street
Kent WA 98032-3389

James R. Hamilton 3/19/02
1123 Southwest 335th Street
Federal Way WA 98023

William T. Miller
WILLIAM T. MILLER
827 W. VALLEY HIGHWAY #95
KENT, WA 98032

Response P2-3

Thank you for the time and effort in providing detailed suggestions for bicycle intersection improvements. Improvements to some of the eight intersection identified in your comments are not part of the proposed project. Your suggested intersection improvements have been forwarded to the Cities of Kent and Des Moines. We will continue to work with the bicycle community as we develop the preliminary design of the facilities associated with the proposed project, and will make those designs available for review when they are sufficiently complete.


SR-99 Pacific Highway South
30th Avenue South
30th Avenue South
From I-5/SR-509
Off Ramp
I-5/SR-509
Off Ramp
I-5/SR-509 On Ramp
I-5/SR-509
I-5/SR-509 Northbound
Off Ramp
To I-5/SR-509 Northbound On Ramp
I-5/SR-509
On Ramp
South 228th Street
SR-516 Kent Des Moines Road
Military Road South
N
REFERENCES:
a) S. 228th Street Final EIS, April 2001, Figure 39.
b) AASHTO "Guide for the Development of Bicycle Facilities," Third Edition, 1999, Figure 1.1.
c) SR-509 Revised Draft EIS, January 2002.
SR-509 EIS Citizen Comment
SR-516 & I-5/SR-509
Midway Interchange
OVERVIEW
19 March 2002
Page 1 of 3

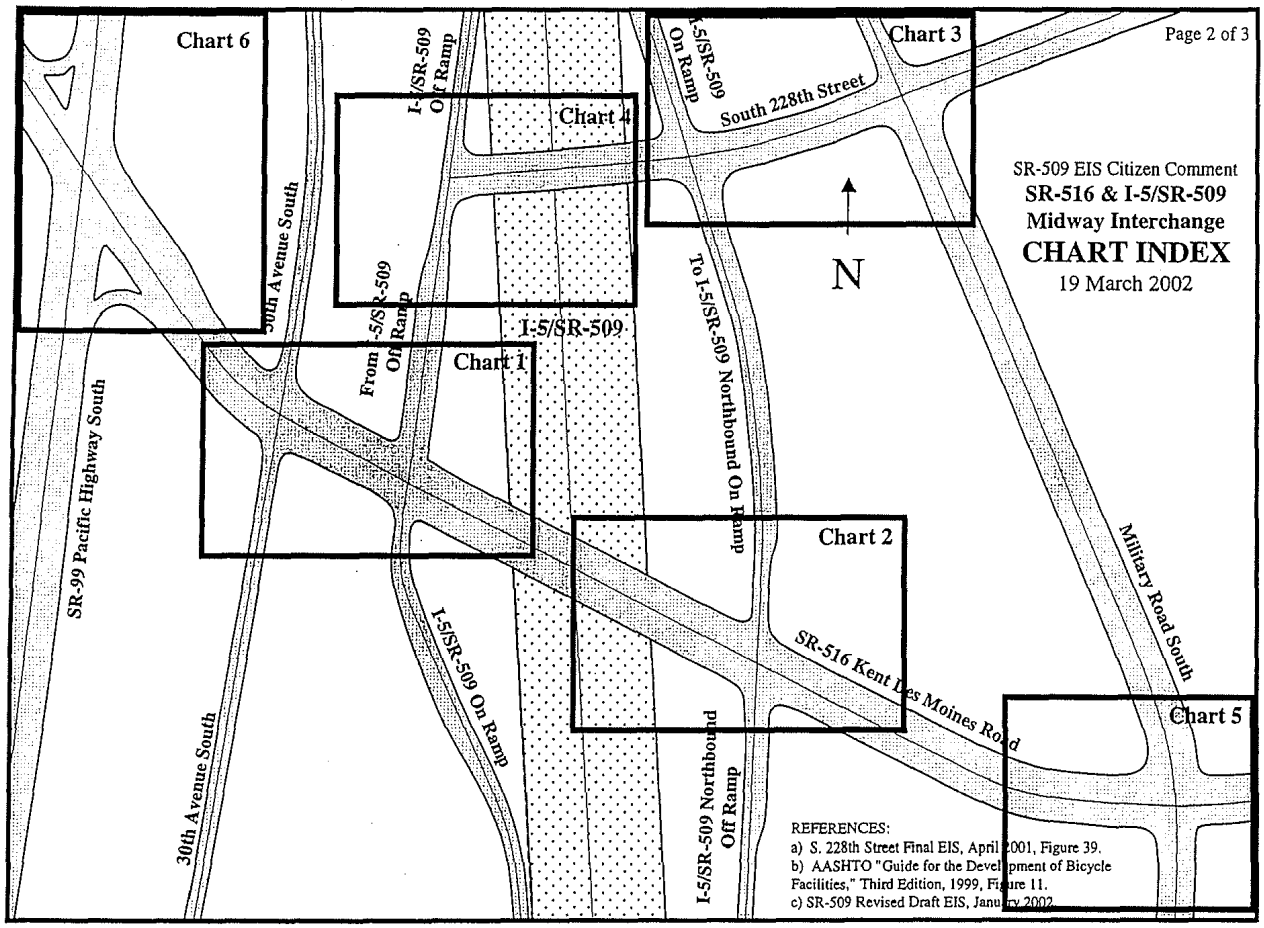


Chart 6
Chart 4
Chart 3
Chart 1
Chart 2
Chart 5
Page 2 of 3
SR-509 EIS Citizen Comment
SR-516 & I-5/SR-509
Midway Interchange
CHART INDEX
19 March 2002
N
I-5/SR-509
South 228th Street
30th Avenue South
SR-99 Pacific Highway South
I-5/SR-509 On Ramp
I-5/SR-509 Off Ramp
To I-5/SR-509 Northbound On Ramp
From I-5/SR-509 Off Ramp
SR-516 Kent Des Moines Road
Military Road South
I-5/SR-509 Northbound Off Ramp
REFERENCES:
a) S. 228th Street Final EIS, April 2001, Figure 39.
b) AASHTO "Guide for the Development of Bicycle Facilities," Third Edition, 1999, Figure 11.
c) SR-509 Revised Draft EIS, January 2002.

Page 3 of 3
SR-509 EIS Citizen Comment
SR-509 & I-5/SR-509
Midway Interchange
THROUGH
CYCLISTS
ANALYSIS
19 March 2002
= Path of Through Cyclists
N
Common turn (right and left)
Left only
Right only
Least likely or no turn
I-5/SR-509
South 228th Street
I-5/SR-509 Off Ramp
I-5/SR-509 On Ramp
From I-5/SR-509 Off Ramp
To I-5/SR-509 Northbound On Ramp
30th Avenue South
SR-99 Pacific Highway South
SR-516 Kent Des Moines Road
Military Road South
I-5/SR-509 On Ramp
Transit
I-5/SR-509 Northbound Off Ramp
REFERENCES:
a) S. 228th Street Final EIS, April 2001, Figure 39.
b) AASHTO "Guide for the Development of Bicycle Facilities," Third Edition, 1999, Figure 11.
c) SR-509 Revised Draft EIS, January 2002.

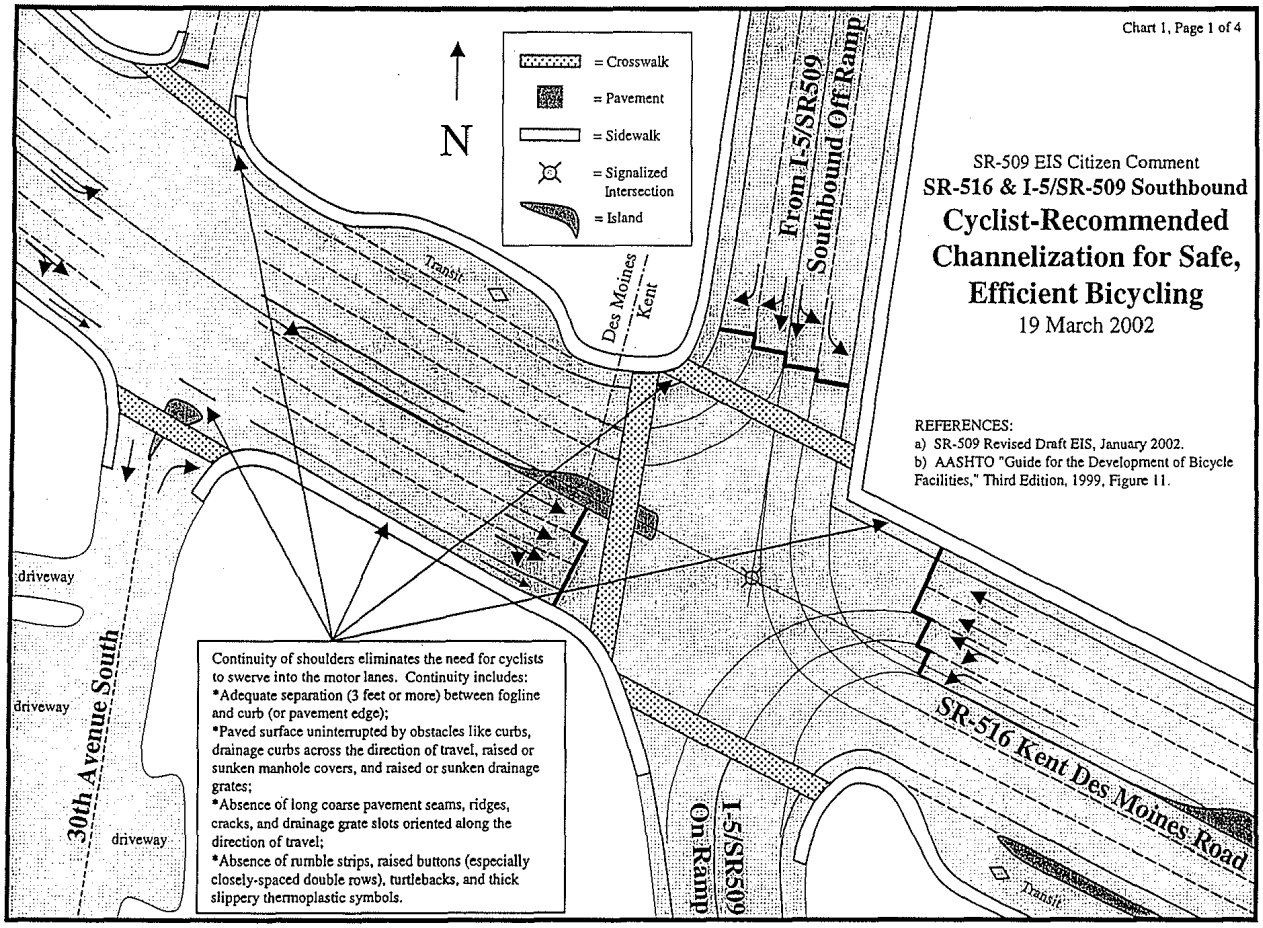


Chart 1, Page 1 of 4
N
= Crosswalk
= Pavement
= Sidewalk
= Signalized Intersection
= Island
SR-509 EIS Citizen Comment
SR-516 & I-5/SR-509 Southbound
Cyclist-Recommended Channelization for Safe, Efficient Bicycling
19 March 2002
REFERENCES:
a) SR-509 Revised Draft EIS, January 2002.
b) AASHTO "Guide for the Development of Bicycle Facilities," Third Edition, 1999, Figure 11.
From I-5/SR509 Southbound Off Ramp
Des Moines Kent
Transit
driveway
driveway
driveway
30th Avenue South
SR-516 Kent Des Moines Road
I-5/SR509 On Ramp
Transit
Continuity of shoulders eliminates the need for cyclists to swerve into the motor lanes. Continuity includes:
*Adequate separation (3 feet or more) between fogline and curb (or pavement edge);
*Paved surface uninterrupted by obstacles like curbs, drainage curbs across the direction of travel, raised or sunken manhole covers, and raised or sunken drainage grates;
*Absence of long coarse pavement seams, ridges, cracks, and drainage grate slots oriented along the direction of travel;
*Absence of rumble strips, raised buttons (especially closely-spaced double rows), turtlebacks, and thick slippery thermoplastic symbols.

Chart 1, Page 2 of 4
N
= Crosswalk
= Pavement
= Sidewalk
= Signalized Intersection
= Island
SR-509 EIS Citizen Comment
SR-516 & I-5/SR-509 Southbound
Through Cyclists Analysis
19 March 2002
= Path of Through Cyclists
REFERENCES:
a) SR-509 Revised Draft EIS, January 2002.
b) AASHTO "Guide for the Development of Bicycle Facilities," Third Edition, 1999, Figure 11.
Transit
Des Moines
Kent
From I-5/SR509
Southbound Off Ramp
driveway
driveway
driveway
30th Avenue South
SR-516 Kent Des Moines Road
I-5/SR509
On Ramp
Transit
Cyclists traveling between Kent and Des Moines use these routes. The next nearest crossing of I-5 to the north is South 216th Street, over a mile away. The next nearest crossing to the south is Reith Road, about 2 1/2 miles away. Both alternative crossings require significant energy expenditures to traverse the hills between here and there. For a cyclist with origin and destination on opposite sides of I-5 near Midway Interchange, accessing one of the other two crossings instead of Midway is very expensive from energy and time points of view.

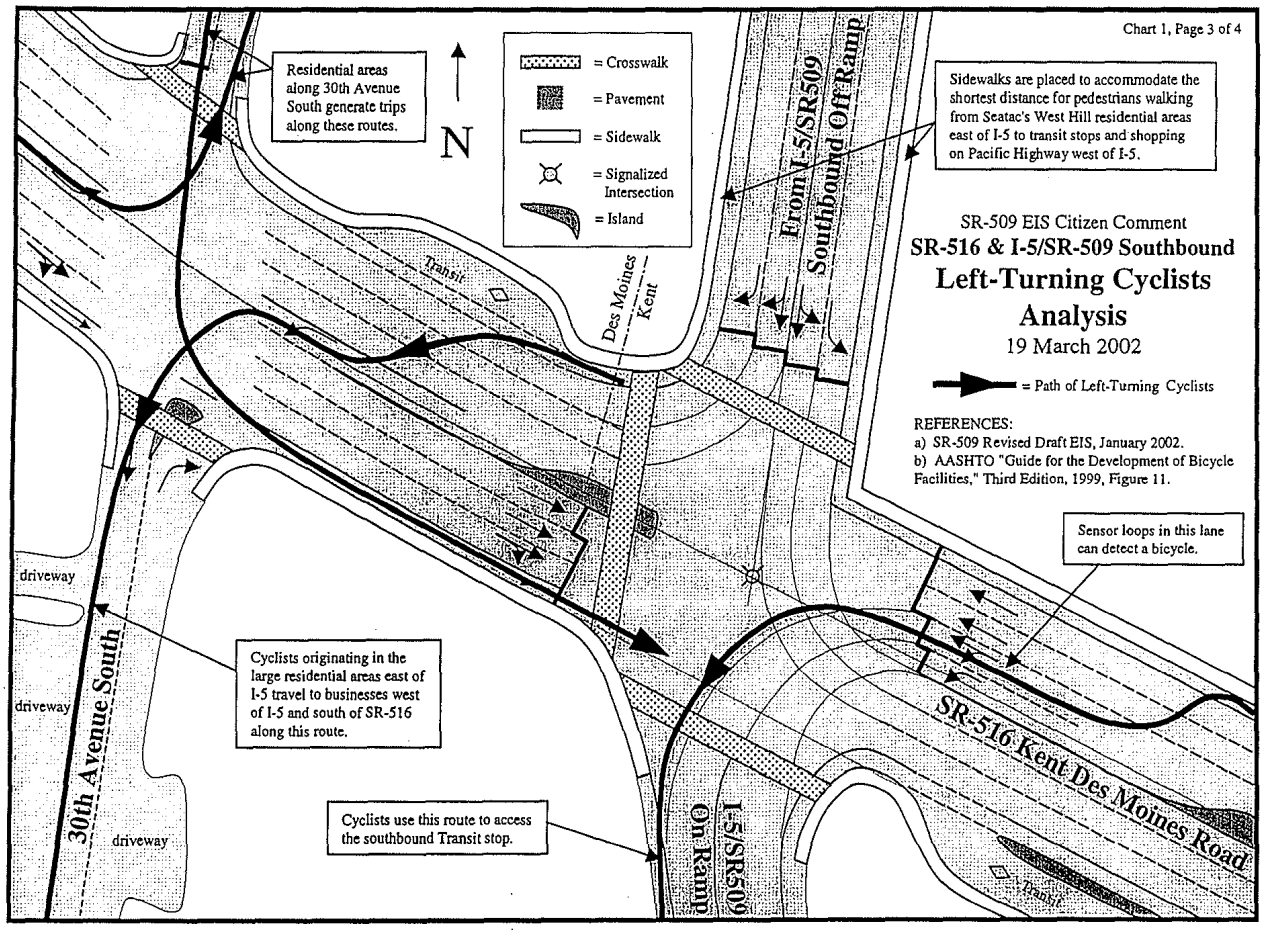


Chart 1, Page 3 of 4
Residential areas along 30th Avenue South generate trips along these routes.
N
= Crosswalk
= Pavement
= Sidewalk
= Signalized Intersection
= Island
Sidewalks are placed to accommodate the shortest distance for pedestrians walking from Seatac's West Hill residential areas east of I-5 to transit stops and shopping on Pacific Highway west of I-5.
From I-5/SR509 Southbound Off Ramp
Transit
Des Moines
Kent
SR-509 EIS Citizen Comment
SR-516 & I-5/SR-509 Southbound
Left-Turning Cyclists Analysis
19 March 2002
= Path of Left-Turning Cyclists
REFERENCES:
a) SR-509 Revised Draft EIS, January 2002.
b) AASHTO "Guide for the Development of Bicycle Facilities," Third Edition, 1999, Figure 11.
Sensor loops in this lane can detect a bicycle.
driveway
driveway
driveway
30th Avenue South
Cyclists originating in the large residential areas east of I-5 travel to businesses west of I-5 and south of SR-516 along this route.
Cyclists use this route to access the southbound Transit stop.
I-5/SR509 On Ramp
SR-516 Kent Des Moines Road
Transit

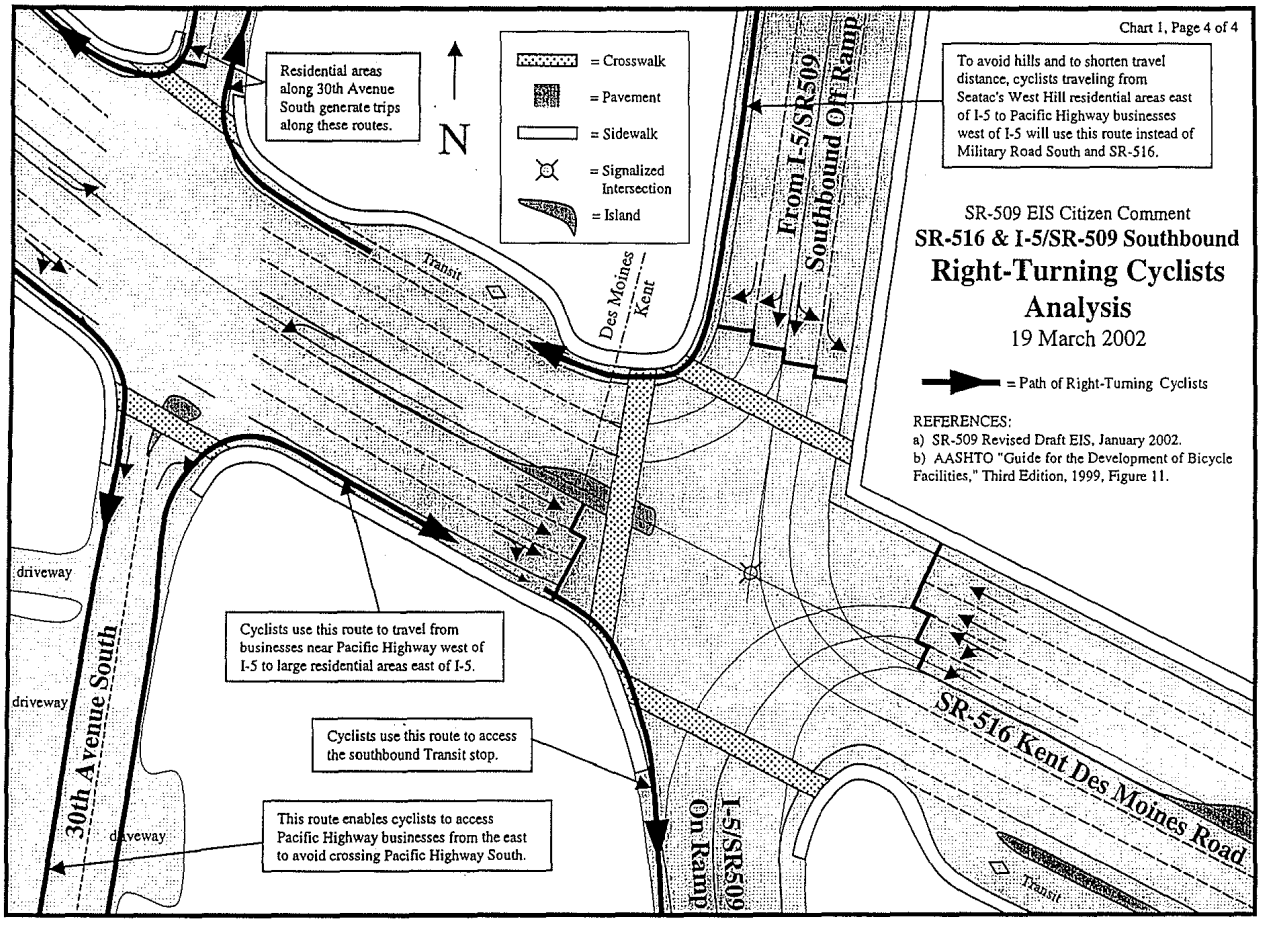


Chart 1, Page 4 of 4
Residential areas along 30th Avenue South generate trips along these routes.
N
= Crosswalk
= Pavement
= Sidewalk
= Signalized Intersection
= Island
To avoid hills and to shorten travel distance, cyclists traveling from Seatac's West Hill residential areas east of I-5 to Pacific Highway businesses west of I-5 will use this route instead of Military Road South and SR-516.
From I-5/SR509 Southbound Off Ramp
SR-509 EIS Citizen Comment
SR-516 & I-5/SR-509 Southbound
Right-Turning Cyclists Analysis
19 March 2002
= Path of Right-Turning Cyclists
REFERENCES:
a) SR-509 Revised Draft EIS, January 2002.
b) AASHTO "Guide for the Development of Bicycle Facilities," Third Edition, 1999, Figure 11.
Transit
Des Moines Kent
driveway
driveway
30th Avenue South
driveway
Cyclists use this route to travel from businesses near Pacific Highway west of I-5 to large residential areas east of I-5.
Cyclists use this route to access the southbound Transit stop.
This route enables cyclists to access Pacific Highway businesses from the east to avoid crossing Pacific Highway South.
I-5/SR509 On Ramp
SR-516 Kent Des Moines Road
Transit

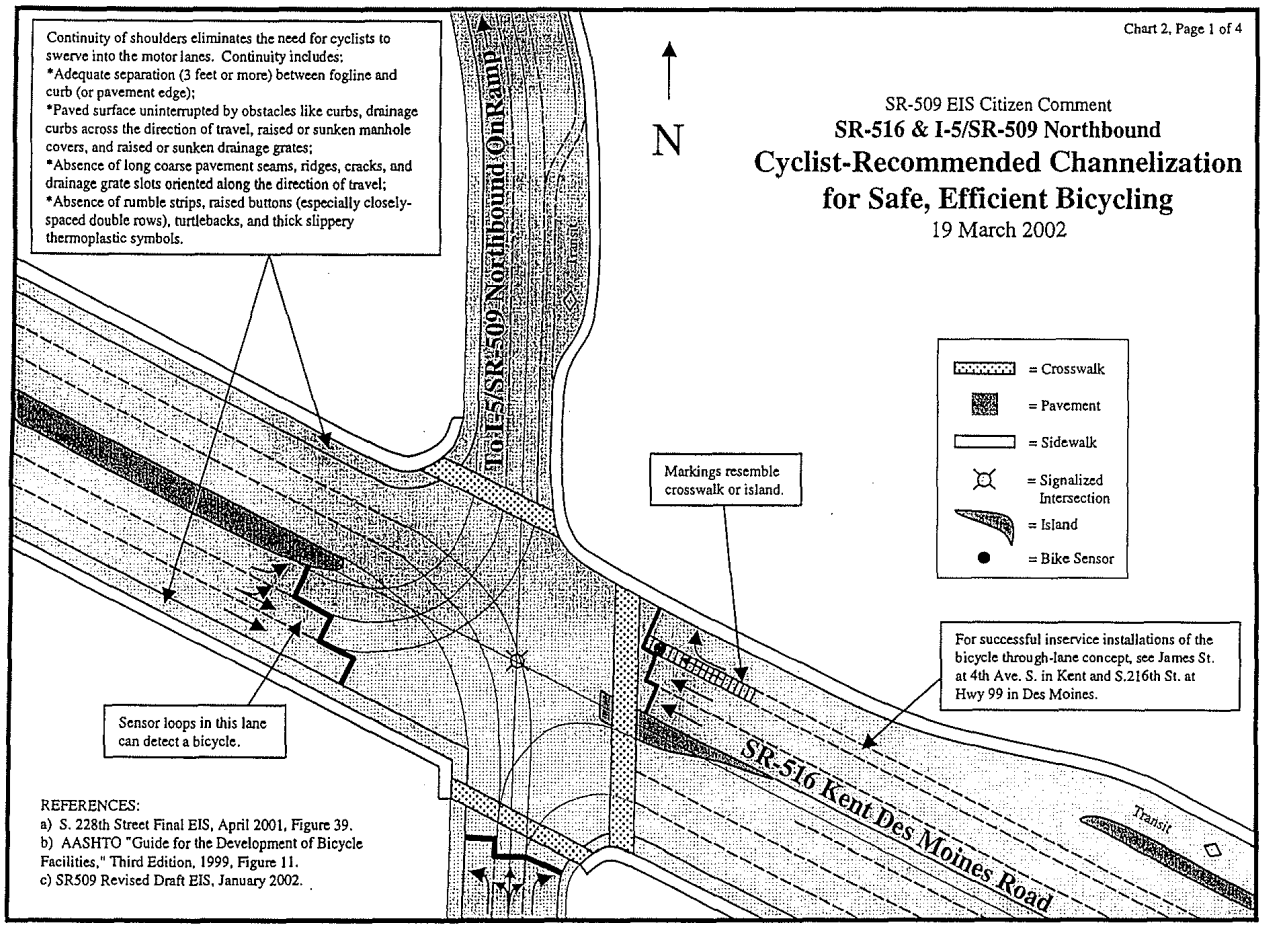


Chart 2, Page 1 of 4
SR-509 EIS Citizen Comment
SR-516 & I-5/SR-509 Northbound
Cyclist-Recommended Channelization
for Safe, Efficient Bicycling
19 March 2002
N
Continuity of shoulders eliminates the need for cyclists to swerve into the motor lanes. Continuity includes:
*Adequate separation (3 feet or more) between fogline and curb (or pavement edge);
*Paved surface uninterrupted by obstacles like curbs, drainage curbs across the direction of travel, raised or sunken manhole covers, and raised or sunken drainage grates;
*Absence of long coarse pavement seams, ridges, cracks, and drainage grate slots oriented along the direction of travel;
*Absence of rumble strips, raised buttons (especially closely-spaced double rows), turtlebacks, and thick slippery thermoplastic symbols.
To I-5/SR-509 Northbound On Ramp
Transit
= Crosswalk
= Pavement
= Sidewalk
= Signalized Intersection
= Island
= Bike Sensor
Markings resemble crosswalk or island.
For successful inservice installations of the bicycle through-lane concept, see James St. at 4th Ave. S. in Kent and S.216th St. at Hwy 99 in Des Moines.
Sensor loops in this lane can detect a bicycle.
SR-516 Kent Des Moines Road
Transit
REFERENCES:
a) S. 228th Street Final EIS, April 2001, Figure 39.
b) AASHTO "Guide for the Development of Bicycle Facilities," Third Edition, 1999, Figure 11.
c) SR509 Revised Draft EIS, January 2002.

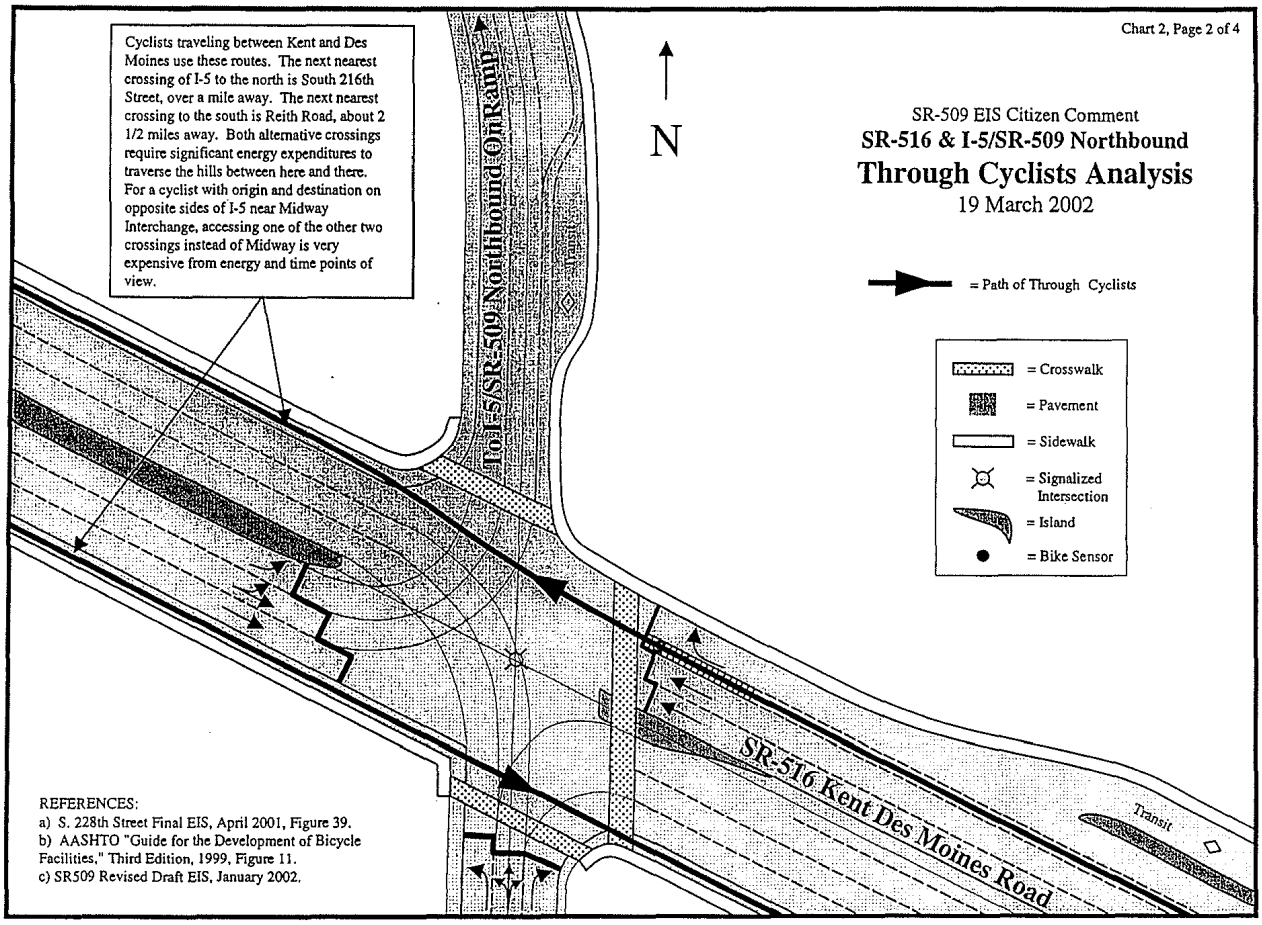


Chart 2, Page 2 of 4
Cyclists traveling between Kent and Des Moines use these routes. The next nearest crossing of I-5 to the north is South 216th Street, over a mile away. The next nearest crossing to the south is Reith Road, about 2 1/2 miles away. Both alternative crossings require significant energy expenditures to traverse the hills between here and there. For a cyclist with origin and destination on opposite sides of I-5 near Midway Interchange, accessing one of the other two crossings instead of Midway is very expensive from energy and time points of view.
To I-5/SR-509 Northbound On Ramp
N
SR-509 EIS Citizen Comment
SR-516 & I-5/SR-509 Northbound
Through Cyclists Analysis
19 March 2002
= Path of Through Cyclists
= Crosswalk
= Pavement
= Sidewalk
= Signalized Intersection
= Island
= Bike Sensor
SR-516 Kent Des Moines Road
Transit
REFERENCES:
a) S. 228th Street Final EIS, April 2001, Figure 39.
b) AASHTO "Guide for the Development of Bicycle Facilities," Third Edition, 1999, Figure 11.
c) SR509 Revised Draft EIS, January 2002.

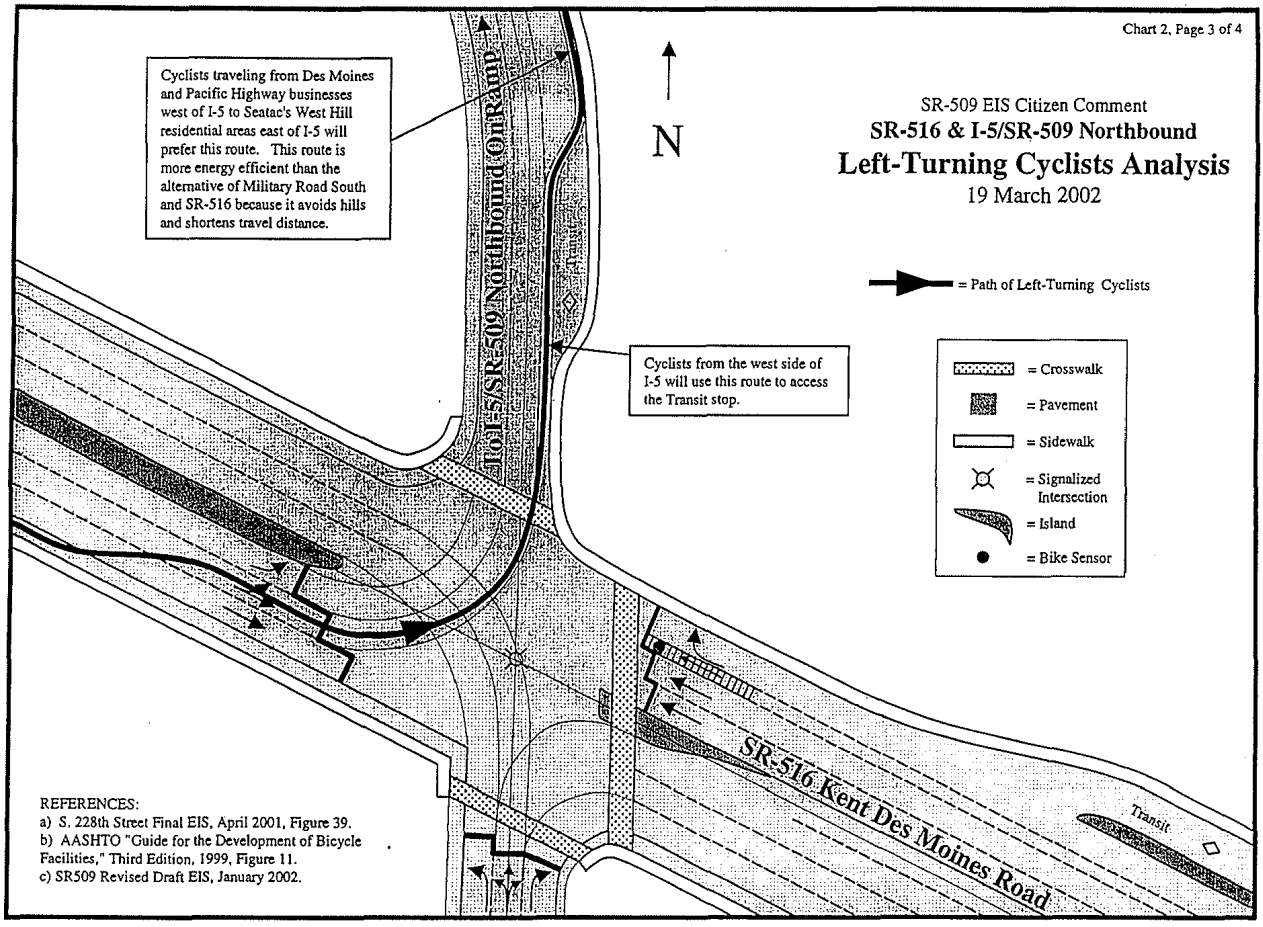


Chart 2, Page 3 of 4
Cyclists traveling from Des Moines and Pacific Highway businesses west of I-5 to Seatac's West Hill residential areas east of I-5 will prefer this route. This route is more energy efficient than the alternative of Military Road South and SR-516 because it avoids hills and shortens travel distance.
N
SR-509 EIS Citizen Comment
SR-516 & I-5/SR-509 Northbound
Left-Turning Cyclists Analysis
19 March 2002
= Path of Left-Turning Cyclists
To I-5/SR-509 Northbound On Ramp
Cyclists from the west side of I-5 will use this route to access the Transit stop.
= Crosswalk
= Pavement
= Sidewalk
= Signalized Intersection
= Island
= Bike Sensor
SR-516 Kent Des Moines Road
Transit
REFERENCES:
a) S. 228th Street Final EIS, April 2001, Figure 39.
b) AASHTO "Guide for the Development of Bicycle Facilities," Third Edition, 1999, Figure 11.
c) SR509 Revised Draft EIS, January 2002.

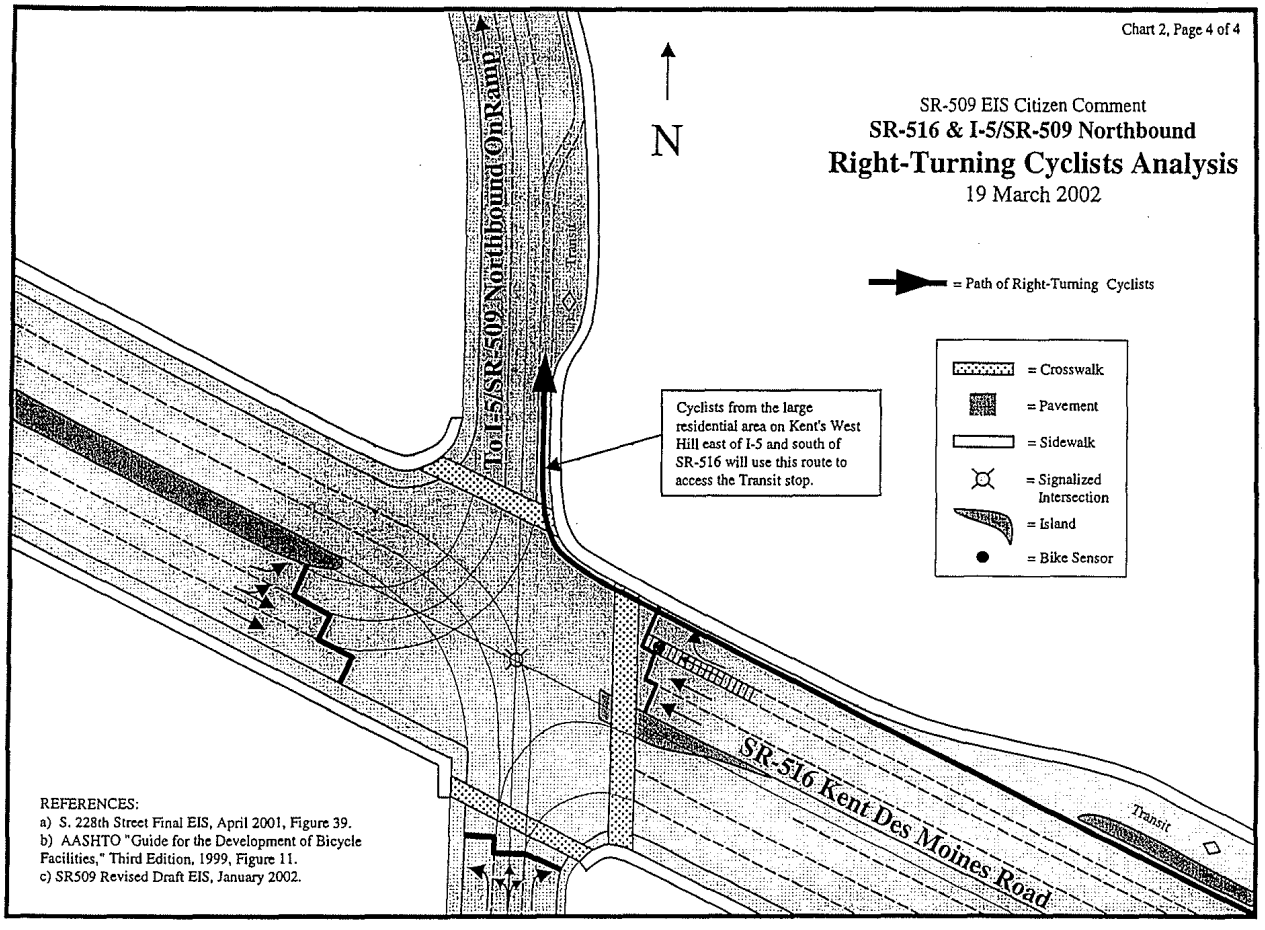
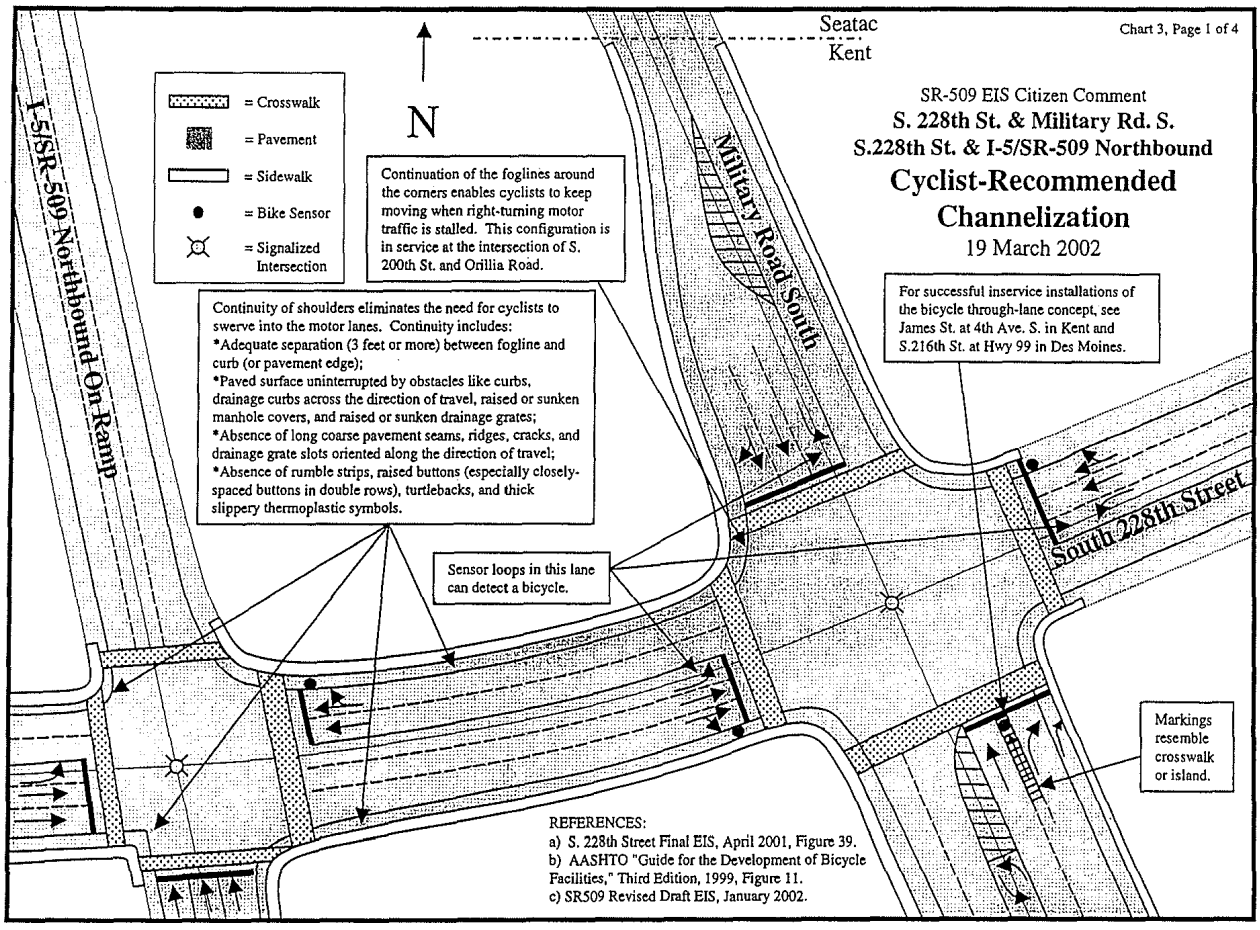


Chart 2, Page 4 of 4
N
SR-509 EIS Citizen Comment
SR-516 & I-5/SR-509 Northbound
Right-Turning Cyclists Analysis
19 March 2002
= Path of Right-Turning Cyclists
= Crosswalk
= Pavement
= Sidewalk
= Signalized Intersection
= Island
= Bike Sensor
To I-5/SR-509 Northbound On-Ramp
Cyclists from the large residential area on Kent's West Hill east of I-5 and south of SR-516 will use this route to access the Transit stop.
SR-516 Kent Des Moines Road
Transit
REFERENCES:
a) S. 228th Street Final EIS, April 2001, Figure 39.
b) AASHTO "Guide for the Development of Bicycle Facilities," Third Edition, 1999, Figure 11.
c) SR509 Revised Draft EIS, January 2002.


Seatac
Kent
Chart 3, Page 1 of 4
SR-509 EIS Citizen Comment
S. 228th St. & Military Rd. S.
S.228th St. & I-5/SR-509 Northbound
Cyclist-Recommended Channelization
19 March 2002
N
= Crosswalk
= Pavement
= Sidewalk
= Bike Sensor
= Signalized Intersection
I-5/SR-509 Northbound On Ramp
Military Road South
South 228th Street
Continuation of the foglines around the corners enables cyclists to keep moving when right-turning motor traffic is stalled. This configuration is in service at the intersection of S. 200th St. and Orillia Road.
Continuity of shoulders eliminates the need for cyclists to swerve into the motor lanes. Continuity includes:
*Adequate separation (3 feet or more) between fogline and curb (or pavement edge);
*Paved surface uninterrupted by obstacles like curbs, drainage curbs across the direction of travel, raised or sunken manhole covers, and raised or sunken drainage grates;
*Absence of long coarse pavement seams, ridges, cracks, and drainage grate slots oriented along the direction of travel;
*Absence of rumble strips, raised buttons (especially closely-spaced buttons in double rows), turtlebacks, and thick slippery thermoplastic symbols.
For successful inservice installations of the bicycle through-lane concept, see James St. at 4th Ave. S. in Kent and S.216th St. at Hwy 99 in Des Moines.
Sensor loops in this lane can detect a bicycle.
Markings resemble crosswalk or island.
REFERENCES:
a) S. 228th Street Final EIS, April 2001, Figure 39.
b) AASHTO "Guide for the Development of Bicycle Facilities," Third Edition, 1999, Figure 11.
c) SR509 Revised Draft EIS, January 2002.

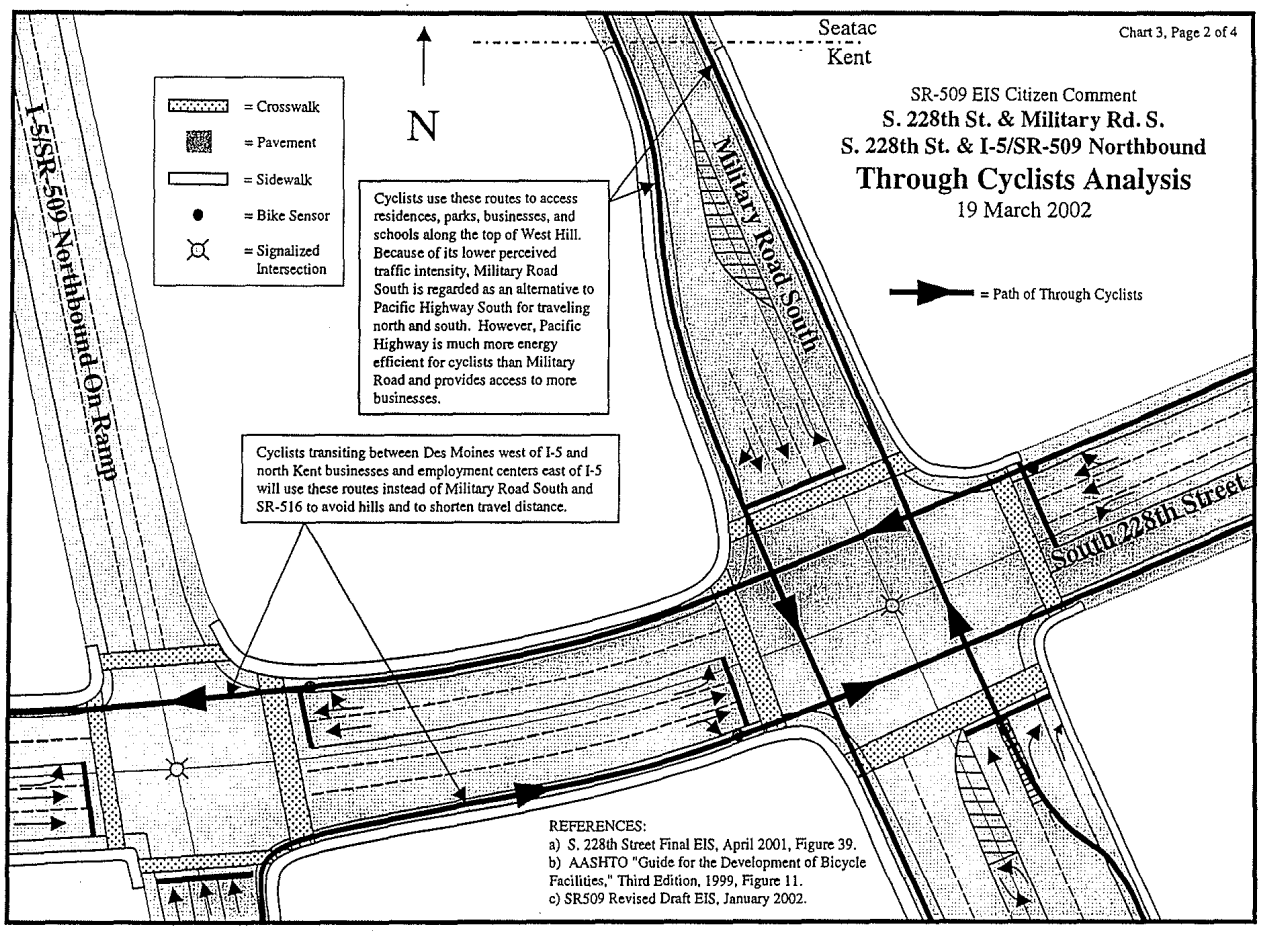
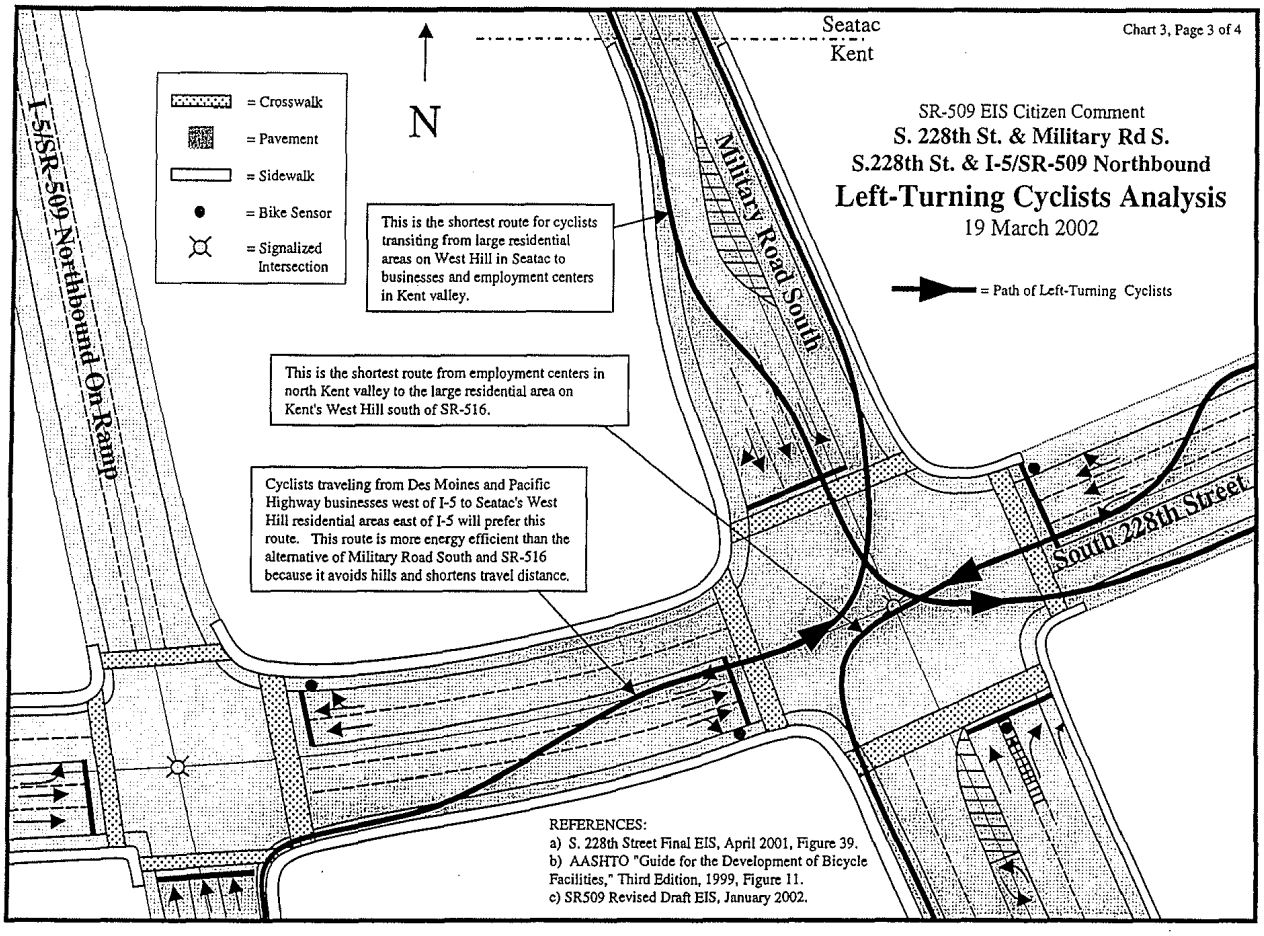


Chart 3, Page 2 of 4
SR-509 EIS Citizen Comment
S. 228th St. & Military Rd. S.
S. 228th St. & I-5/SR-509 Northbound
Through Cyclists Analysis
19 March 2002
Seatac
Kent
N
= Crosswalk
= Pavement
= Sidewalk
= Bike Sensor
= Signalized Intersection
= Path of Through Cyclists
I-5/SR-509 Northbound On Ramp
Military Road South
South 228th Street
Cyclists use these routes to access residences, parks, businesses, and schools along the top of West Hill. Because of its lower perceived traffic intensity, Military Road South is regarded as an alternative to Pacific Highway South for traveling north and south. However, Pacific Highway is much more energy efficient for cyclists than Military Road and provides access to more businesses.
Cyclists transiting between Des Moines west of I-5 and north Kent businesses and employment centers east of I-5 will use these routes instead of Military Road South and SR-516 to avoid hills and to shorten travel distance.
REFERENCES:
a) S. 228th Street Final EIS, April 2001, Figure 39.
b) AASHTO "Guide for the Development of Bicycle Facilities," Third Edition, 1999, Figure 11.
c) SR509 Revised Draft EIS, January 2002.


Seatac
Kent
Chart 3, Page 3 of 4
N
= Crosswalk
= Pavement
= Sidewalk
= Bike Sensor
= Signalized Intersection
SR-509 EIS Citizen Comment
S. 228th St. & Military Rd S.
S.228th St. & I-5/SR-509 Northbound
Left-Turning Cyclists Analysis
19 March 2002
= Path of Left-Turning Cyclists
This is the shortest route for cyclists transiting from large residential areas on West Hill in Seatac to businesses and employment centers in Kent valley.
This is the shortest route from employment centers in north Kent valley to the large residential area on Kent's West Hill south of SR-516.
Cyclists traveling from Des Moines and Pacific Highway businesses west of I-5 to Seatac's West Hill residential areas east of I-5 will prefer this route. This route is more energy efficient than the alternative of Military Road South and SR-516 because it avoids hills and shortens travel distance.
I-5/SR-509 Northbound On Ramp
Military Road South
South 228th Street
REFERENCES:
a) S. 228th Street Final EIS, April 2001, Figure 39.
b) AASHTO "Guide for the Development of Bicycle Facilities," Third Edition, 1999, Figure 11.
c) SR509 Revised Draft EIS, January 2002.

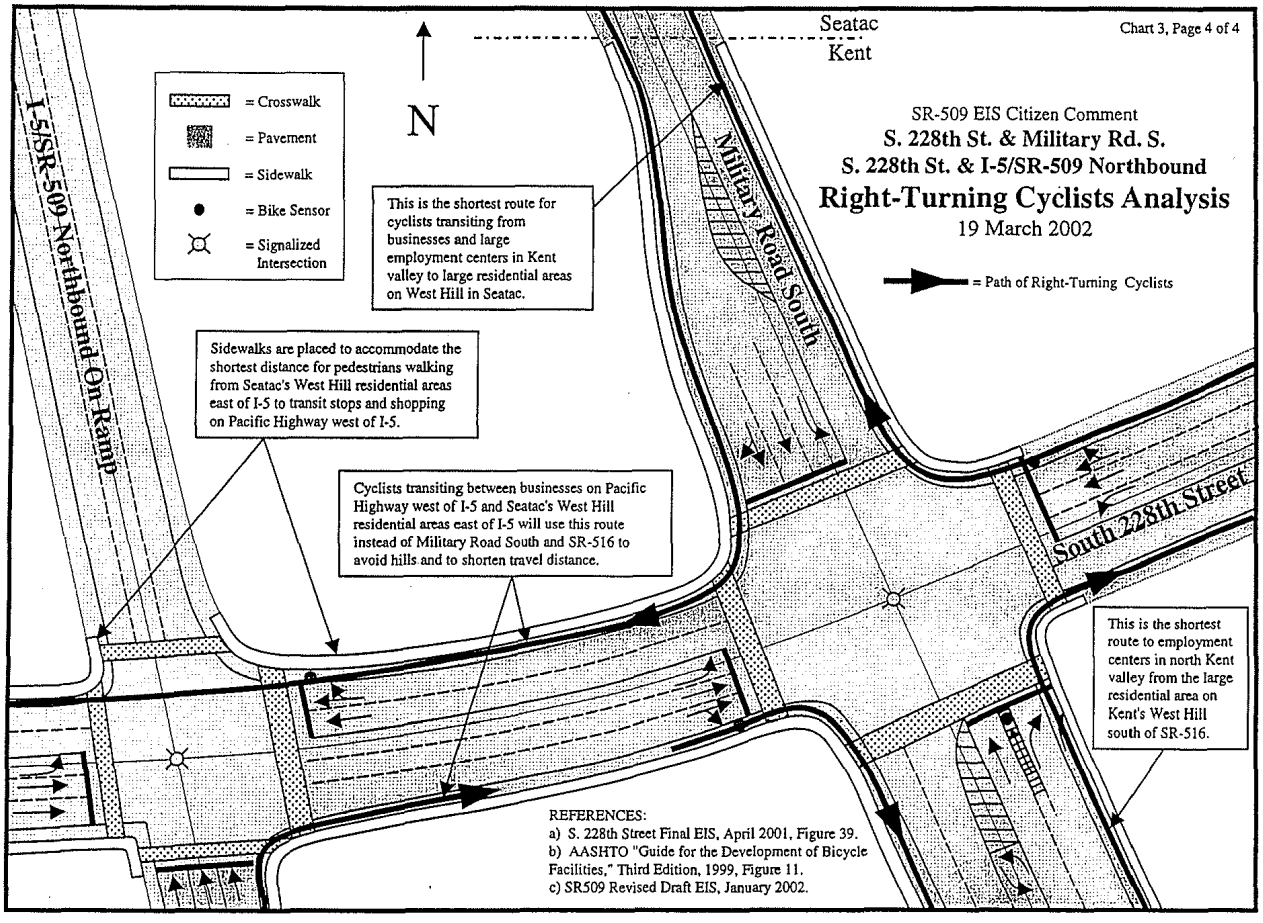
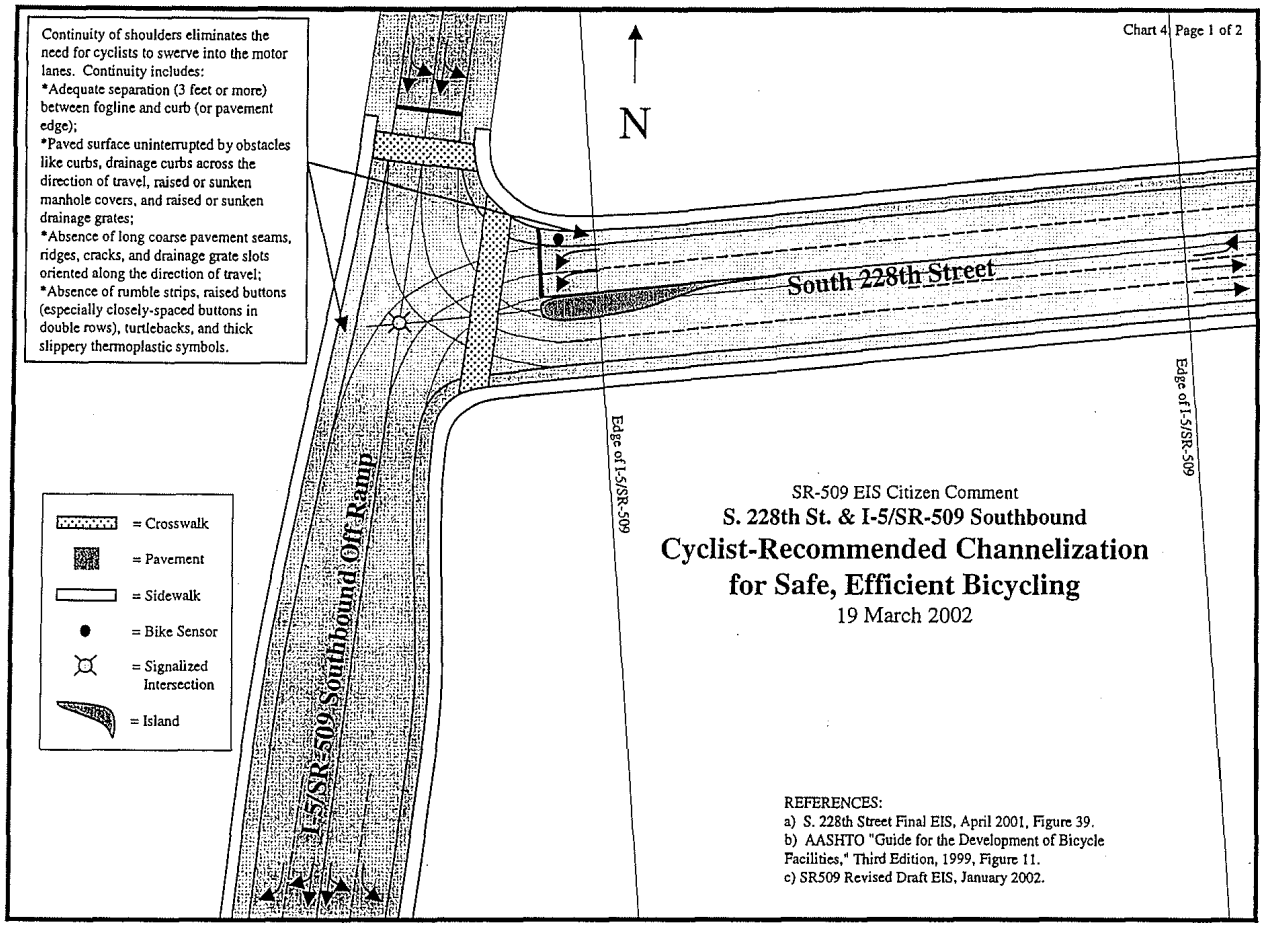


Chart 3, Page 4 of 4
Seatac
Kent
N
= Crosswalk
= Pavement
= Sidewalk
= Bike Sensor
= Signalized Intersection
SR-509 EIS Citizen Comment
S. 228th St. & Military Rd. S.
S. 228th St. & I-5/SR-509 Northbound
Right-Turning Cyclists Analysis
19 March 2002
= Path of Right-Turning Cyclists
I-5/SR-509 Northbound On Ramp
Military Road South
South 228th Street
This is the shortest route for cyclists transiting from businesses and large employment centers in Kent valley to large residential areas on West Hill in Seatac.
Sidewalks are placed to accommodate the shortest distance for pedestrians walking from Seatac's West Hill residential areas east of I-5 to transit stops and shopping on Pacific Highway west of I-5.
Cyclists transiting between businesses on Pacific Highway west of I-5 and Seatac's West Hill residential areas east of I-5 will use this route instead of Military Road South and SR-516 to avoid hills and to shorten travel distance.
This is the shortest route to employment centers in north Kent valley from the large residential area on Kent's West Hill south of SR-516.
REFERENCES:
a) S. 228th Street Final EIS, April 2001, Figure 39.
b) AASHTO "Guide for the Development of Bicycle Facilities," Third Edition, 1999, Figure 11.
c) SR509 Revised Draft EIS, January 2002.


Continuity of shoulders eliminates the need for cyclists to swerve into the motor lanes. Continuity includes:
*Adequate separation (3 feet or more) between fogline and curb (or pavement edge);
*Paved surface uninterrupted by obstacles like curbs, drainage curbs across the direction of travel, raised or sunken manhole covers, and raised or sunken drainage grates;
*Absence of long coarse pavement seams, ridges, cracks, and drainage grate slots oriented along the direction of travel;
*Absence of rumble strips, raised buttons (especially closely-spaced buttons in double rows), turtlebacks, and thick slippery thermoplastic symbols.
Chart 4 Page 1 of 2
N
South 228th Street
Edge of I-5/SR-509
Edge of I-5/SR-509
I-5/SR-509 Southbound Off Ramp
= Crosswalk
= Pavement
= Sidewalk
= Bike Sensor
= Signalized Intersection
= Island
SR-509 EIS Citizen Comment
S. 228th St. & I-5/SR-509 Southbound
Cyclist-Recommended Channelization for Safe, Efficient Bicycling
19 March 2002
REFERENCES:
a) S. 228th Street Final EIS, April 2001, Figure 39.
b) AASHTO "Guide for the Development of Bicycle Facilities," Third Edition, 1999, Figure 11.
c) SR509 Revised Draft EIS, January 2002.

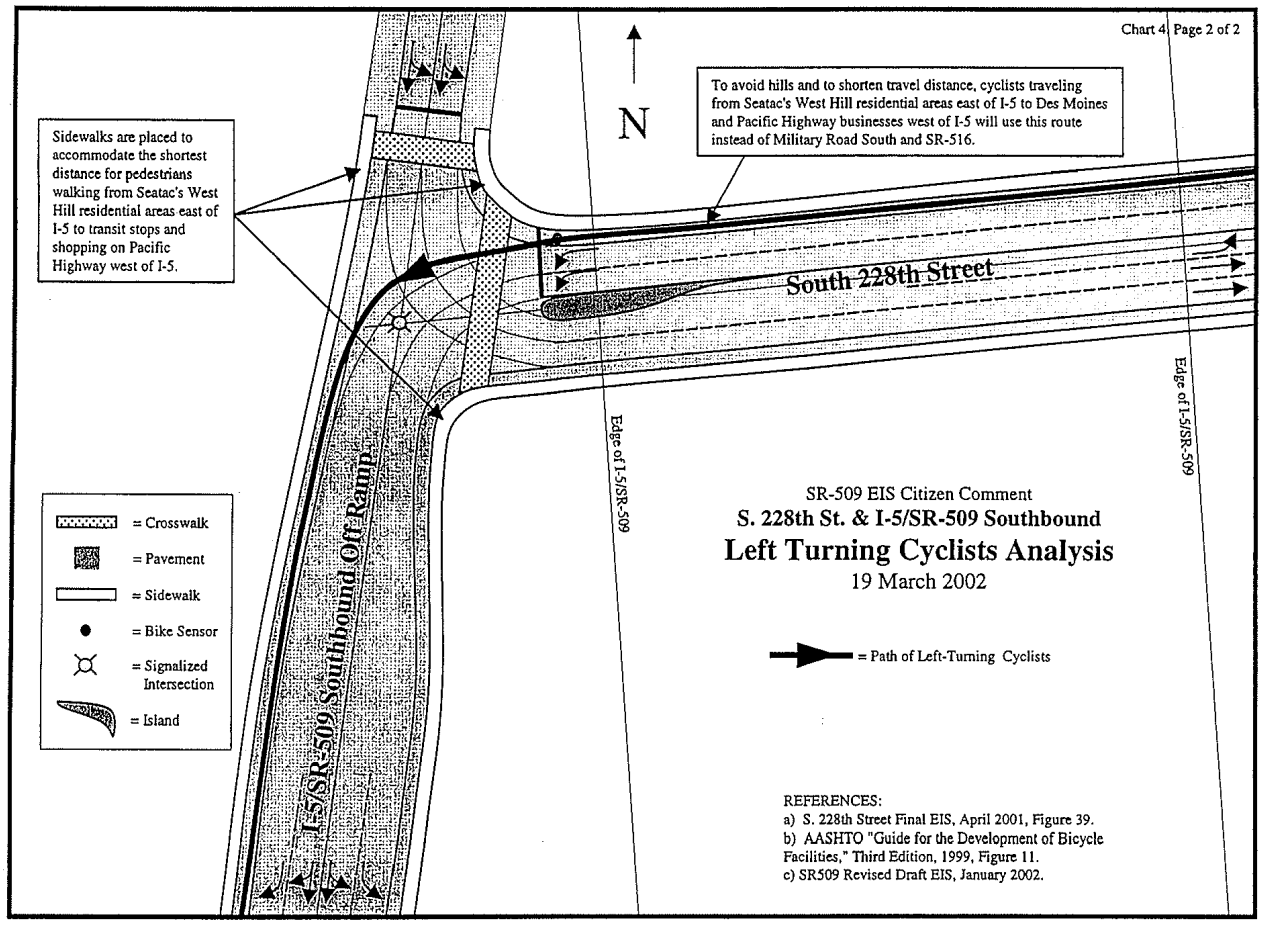


Chart 4 Page 2 of 2
N
To avoid hills and to shorten travel distance, cyclists traveling from Seatac's West Hill residential areas east of I-5 to Des Moines and Pacific Highway businesses west of I-5 will use this route instead of Military Road South and SR-516.
Sidewalks are placed to accommodate the shortest distance for pedestrians walking from Seatac's West Hill residential areas east of I-5 to transit stops and shopping on Pacific Highway west of I-5.
South 228th Street
Edge of I-5/SR-509
Edge of I-5/SR-509
I-5/SR-509 Southbound Off Ramp
= Crosswalk
= Pavement
= Sidewalk
= Bike Sensor
= Signalized Intersection
= Island
SR-509 EIS Citizen Comment
S. 228th St. & I-5/SR-509 Southbound
Left Turning Cyclists Analysis
19 March 2002
= Path of Left-Turning Cyclists
REFERENCES:
a) S. 228th Street Final EIS, April 2001, Figure 39.
b) AASHTO "Guide for the Development of Bicycle Facilities," Third Edition, 1999, Figure 11.
c) SR509 Revised Draft EIS, January 2002.

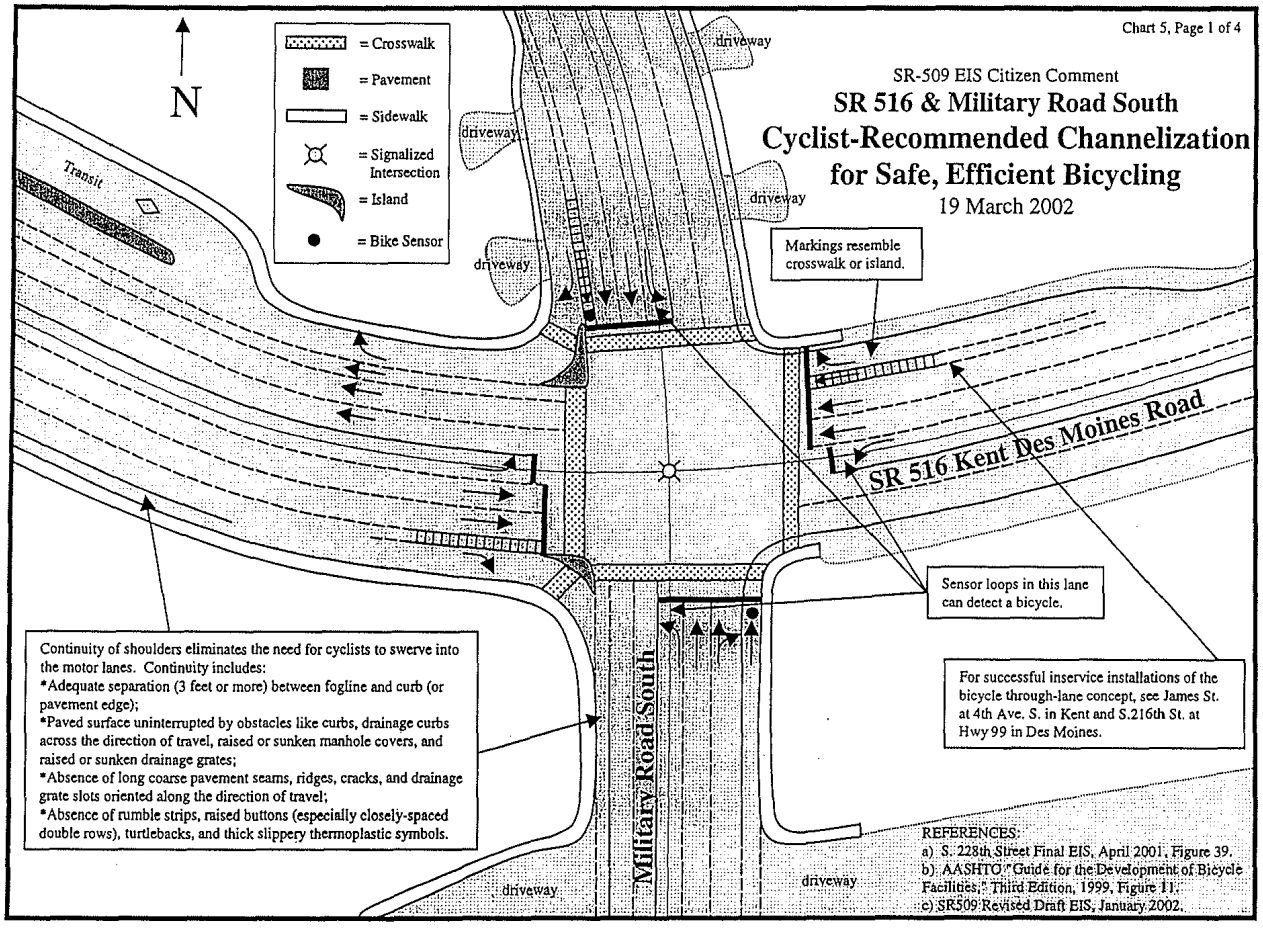


Chart 5, Page 1 of 4
SR-509 EIS Citizen Comment
SR 516 & Military Road South
Cyclist-Recommended Channelization
for Safe, Efficient Bicycling
19 March 2002
N
= Crosswalk
= Pavement
= Sidewalk
= Signalized Intersection
= Island
= Bike Sensor
Transit
driveway
driveway
driveway
driveway
driveway
driveway
Markings resemble crosswalk or island.
SR 516 Kent Des Moines Road
Sensor loops in this lane can detect a bicycle.
For successful inservice installations of the bicycle through-lane concept, see James St. at 4th Ave. S. in Kent and S.216th St. at Hwy 99 in Des Moines.
Continuity of shoulders eliminates the need for cyclists to swerve into the motor lanes. Continuity includes:
*Adequate separation (3 feet or more) between fogline and curb (or pavement edge);
*Paved surface uninterrupted by obstacles like curbs, drainage curbs across the direction of travel, raised or sunken manhole covers, and raised or sunken drainage grates;
*Absence of long coarse pavement seams, ridges, cracks, and drainage grate slots oriented along the direction of travel;
*Absence of rumble strips, raised buttons (especially closely-spaced double rows), turtlebacks, and thick slippery thermoplastic symbols.
Military Road South
REFERENCES:
a) S. 228th Street Final EIS, April 2001, Figure 39.
b) AASHTO "Guide for the Development of Bicycle Facilities," Third Edition, 1999, Figure 11.
c) SR509 Revised Draft EIS, January 2002.

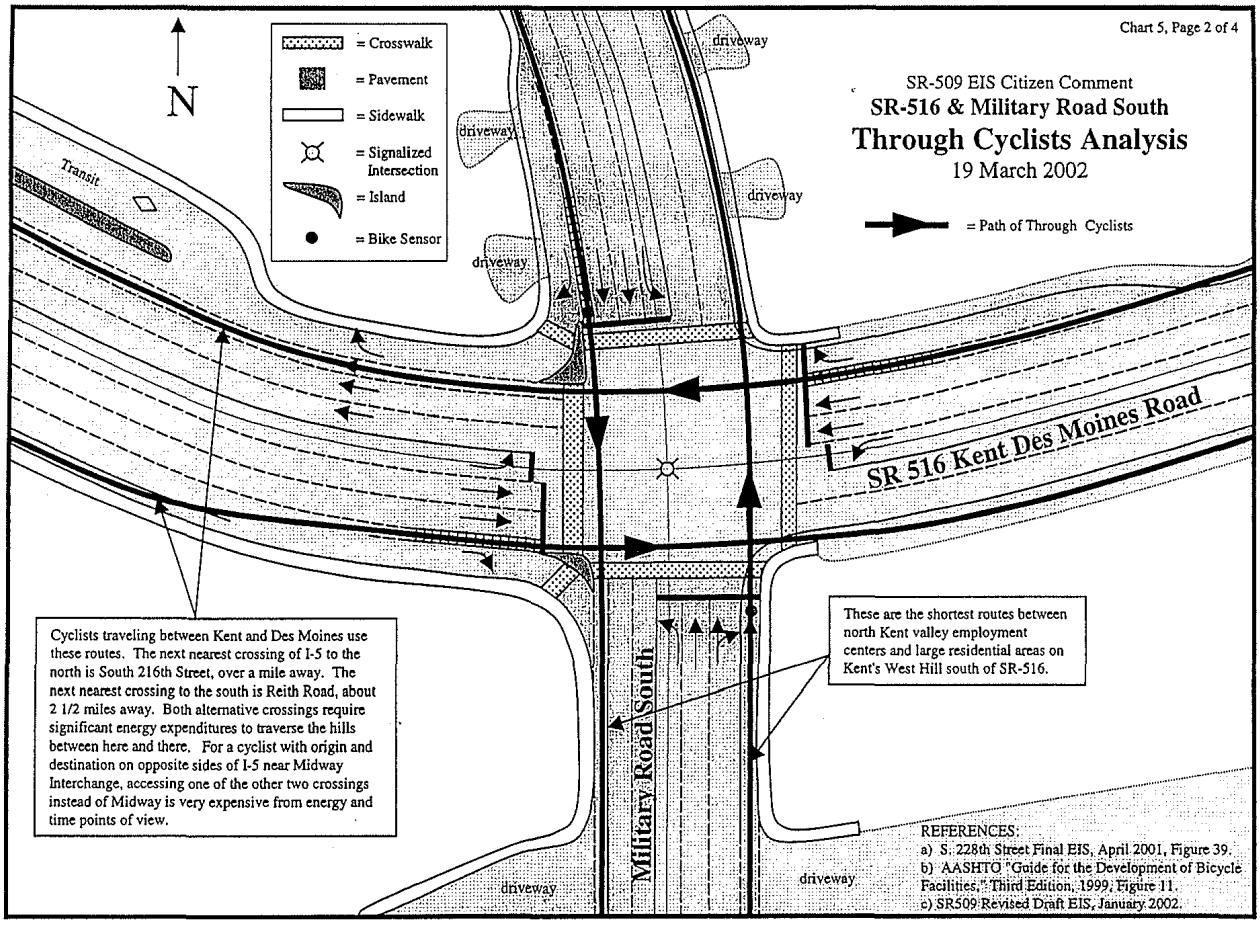


Chart 5, Page 2 of 4
SR-509 EIS Citizen Comment
SR-516 & Military Road South
Through Cyclists Analysis
19 March 2002
= Path of Through Cyclists
N
= Crosswalk
= Pavement
= Sidewalk
= Signalized Intersection
= Island
= Bike Sensor
Transit
driveway
driveway
driveway
driveway
driveway
driveway
SR 516 Kent Des Moines Road
Military Road South
Cyclists traveling between Kent and Des Moines use these routes. The next nearest crossing of I-5 to the north is South 216th Street, over a mile away. The next nearest crossing to the south is Reith Road, about 2 1/2 miles away. Both alternative crossings require significant energy expenditures to traverse the hills between here and there. For a cyclist with origin and destination on opposite sides of I-5 near Midway Interchange, accessing one of the other two crossings instead of Midway is very expensive from energy and time points of view.
These are the shortest routes between north Kent valley employment centers and large residential areas on Kent's West Hill south of SR-516.
REFERENCES:
a) S. 228th Street Final EIS, April 2001, Figure 39.
b) AASHTO "Guide for the Development of Bicycle Facilities," Third Edition, 1999, Figure 11.
c) SR509 Revised Draft EIS, January 2002.

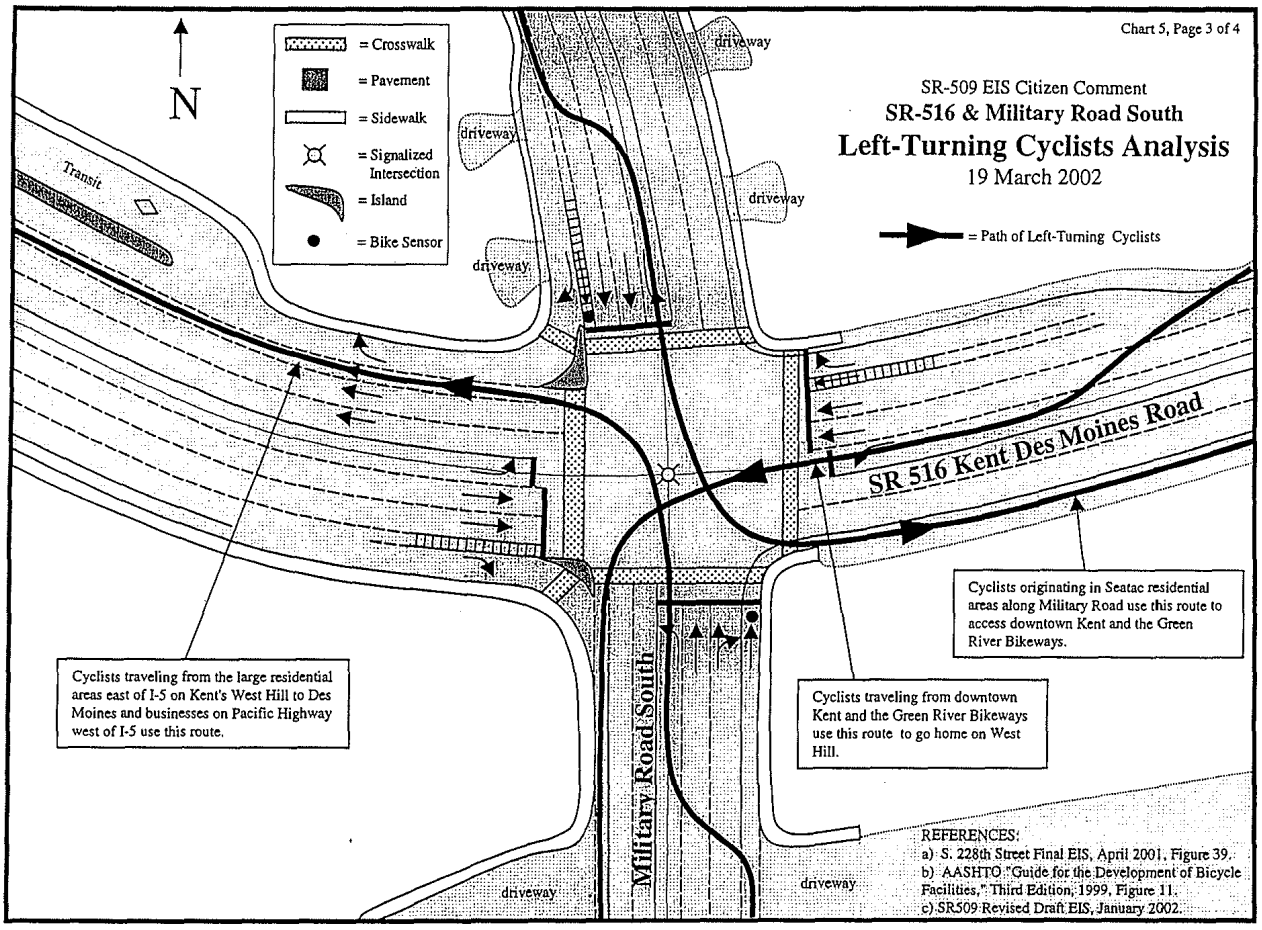


Chart 5, Page 3 of 4
SR-509 EIS Citizen Comment
SR-516 & Military Road South
Left-Turning Cyclists Analysis
19 March 2002
N
= Crosswalk
= Pavement
= Sidewalk
= Signalized Intersection
= Island
= Bike Sensor
= Path of Left-Turning Cyclists
Transit
driveway
driveway
driveway
driveway
driveway
driveway
SR 516 Kent Des Moines Road
Military Road South
Cyclists traveling from the large residential areas east of I-5 on Kent's West Hill to Des Moines and businesses on Pacific Highway west of I-5 use this route.
Cyclists originating in Seatac residential areas along Military Road use this route to access downtown Kent and the Green River Bikeways.
Cyclists traveling from downtown Kent and the Green River Bikeways use this route to go home on West Hill.
REFERENCES:
a) S. 228th Street Final EIS, April 2001, Figure 39.
b) AASHTO "Guide for the Development of Bicycle Facilities," Third Edition, 1999, Figure 11.
c) SR509 Revised Draft EIS, January 2002.

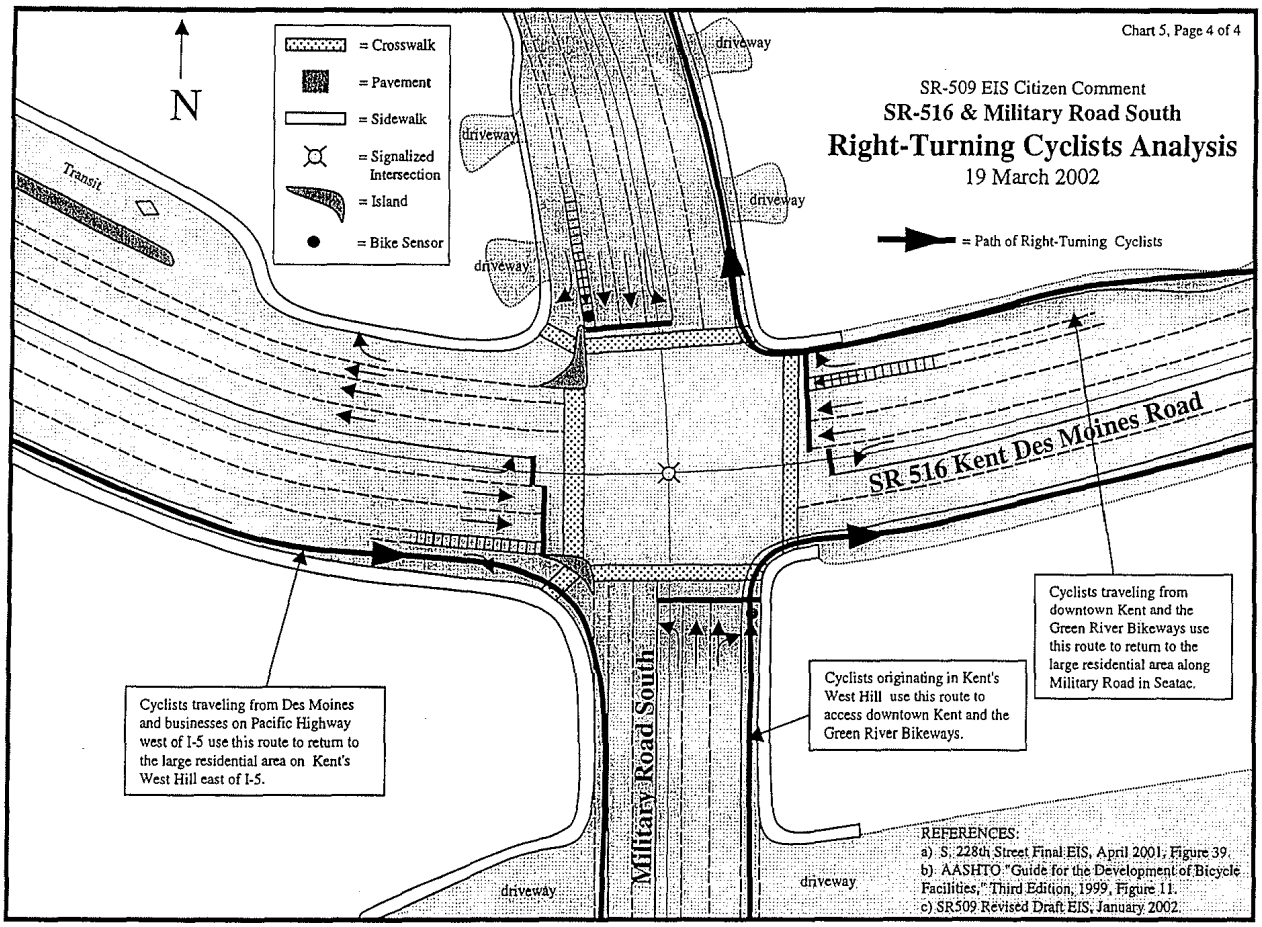


Chart 5, Page 4 of 4
SR-509 EIS Citizen Comment
SR-516 & Military Road South
Right-Turning Cyclists Analysis
19 March 2002
N
= Crosswalk
= Pavement
= Sidewalk
= Signalized Intersection
= Island
= Bike Sensor
= Path of Right-Turning Cyclists
Transit
driveway
driveway
driveway
driveway
driveway
driveway
SR 516 Kent Des Moines Road
Military Road South
Cyclists traveling from Des Moines and businesses on Pacific Highway west of I-5 use this route to return to the large residential area on Kent's West Hill east of I-5.
Cyclists originating in Kent's West Hill use this route to access downtown Kent and the Green River Bikeways.
Cyclists traveling from downtown Kent and the Green River Bikeways use this route to return to the large residential area along Military Road in Seatac.
REFERENCES:
a) S. 228th Street Final EIS, April 2001, Figure 39.
b) AASHTO "Guide for the Development of Bicycle Facilities," Third Edition, 1999, Figure 11.
c) SR509 Revised Draft EIS, January 2002.

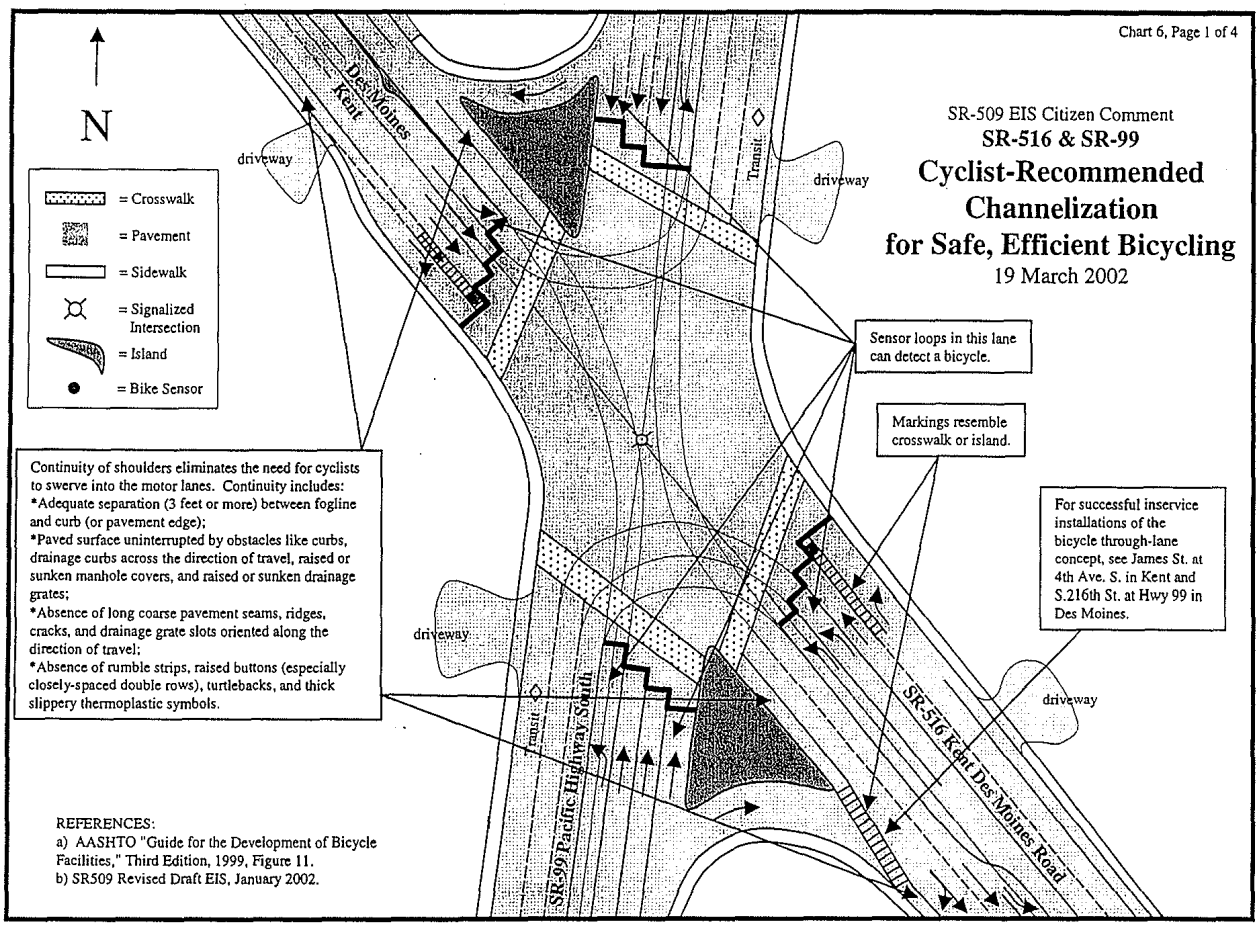


Chart 6, Page 1 of 4
N
= Crosswalk
= Pavement
= Sidewalk
= Signalized Intersection
= Island
= Bike Sensor
SR-509 EIS Citizen Comment
SR-516 & SR-99
Cyclist-Recommended Channelization for Safe, Efficient Bicycling
19 March 2002
Sensor loops in this lane can detect a bicycle.
Markings resemble crosswalk or island.
For successful inservice installations of the bicycle through-lane concept, see James St. at 4th Ave. S. in Kent and S.216th St. at Hwy 99 in Des Moines.
Continuity of shoulders eliminates the need for cyclists to swerve into the motor lanes. Continuity includes:
*Adequate separation (3 feet or more) between fogline and curb (or pavement edge);
*Paved surface uninterrupted by obstacles like curbs, drainage curbs across the direction of travel, raised or sunken manhole covers, and raised or sunken drainage grates;
*Absence of long coarse pavement seams, ridges, cracks, and drainage grate slots oriented along the direction of travel;
*Absence of rumble strips, raised buttons (especially closely-spaced double rows), turtlebacks, and thick slippery thermoplastic symbols.
REFERENCES:
a) AASHTO "Guide for the Development of Bicycle Facilities," Third Edition, 1999, Figure 11.
b) SR509 Revised Draft EIS, January 2002.
Des Moines
Kent
driveway
Transit
SR-99 Pacific Highway South
SR-516 Kent Des Moines Road

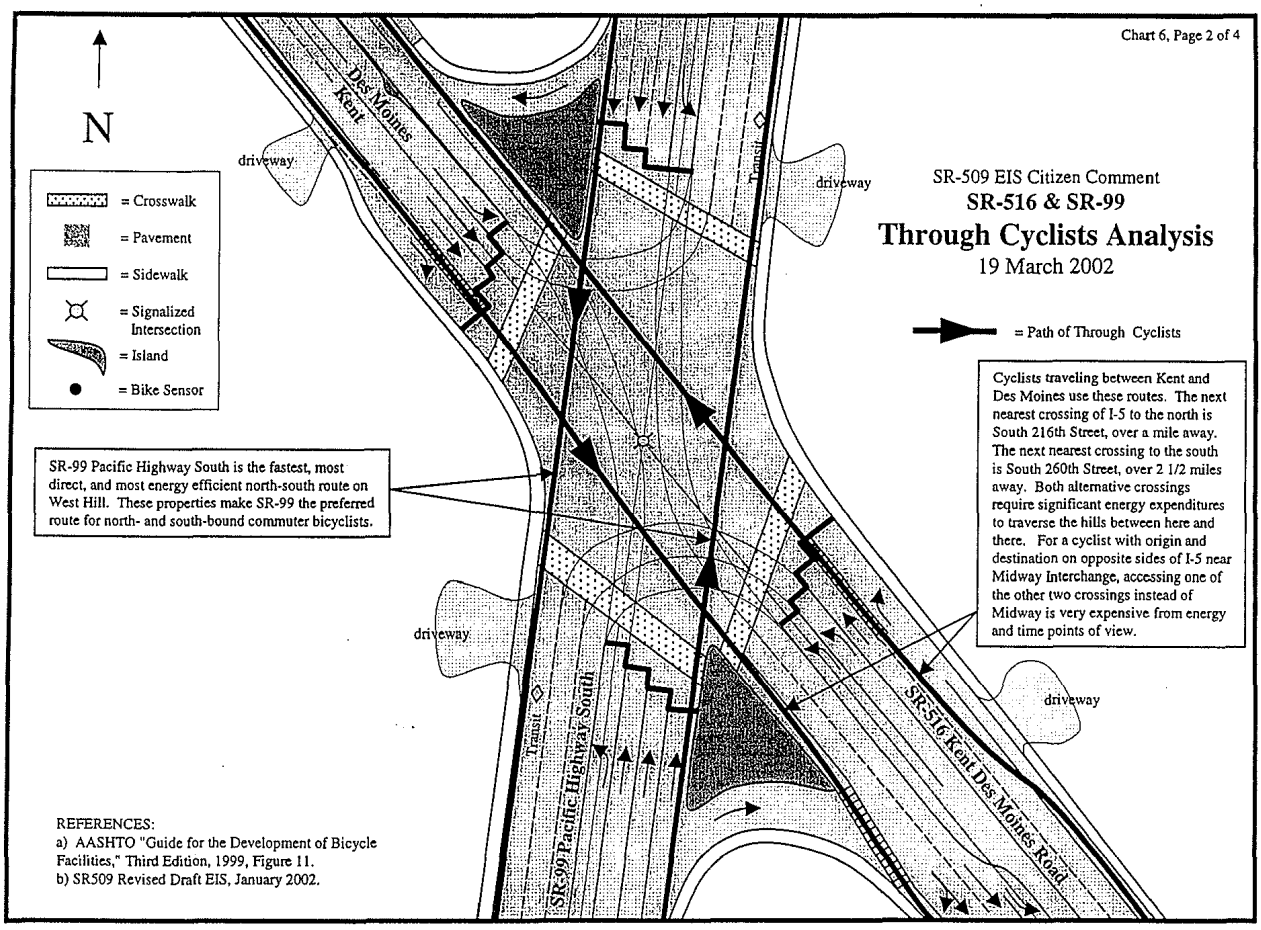


Chart 6, Page 2 of 4
N
= Crosswalk
= Pavement
= Sidewalk
= Signalized Intersection
= Island
= Bike Sensor
SR-509 EIS Citizen Comment
SR-516 & SR-99
Through Cyclists Analysis
19 March 2002
= Path of Through Cyclists
Cyclists traveling between Kent and Des Moines use these routes. The next nearest crossing of I-5 to the north is South 216th Street, over a mile away. The next nearest crossing to the south is South 260th Street, over 2 1/2 miles away. Both alternative crossings require significant energy expenditures to traverse the hills between here and there. For a cyclist with origin and destination on opposite sides of I-5 near Midway Interchange, accessing one of the other two crossings instead of Midway is very expensive from energy and time points of view.
SR-99 Pacific Highway South is the fastest, most direct, and most energy efficient north-south route on West Hill. These properties make SR-99 the preferred route for north- and south-bound commuter bicyclists.
Des Moines
Kent
driveway
driveway
driveway
driveway
Transit
Transit
SR-99 Pacific Highway South
SR-516 Kent-Des Moines Road
REFERENCES:
a) AASHTO "Guide for the Development of Bicycle Facilities," Third Edition, 1999, Figure 11.
b) SR509 Revised Draft EIS, January 2002.

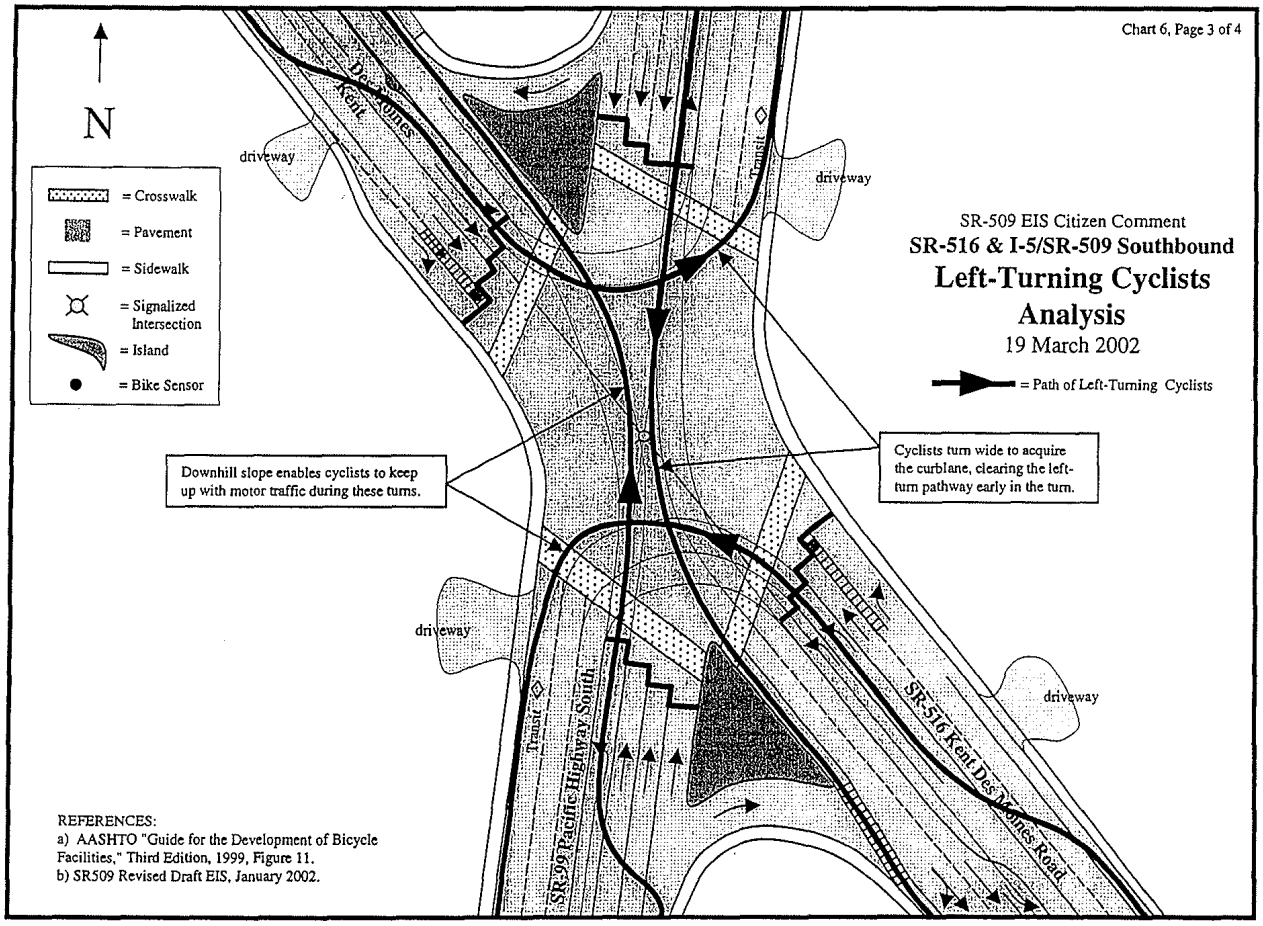


Chart 6, Page 3 of 4
N
= Crosswalk
= Pavement
= Sidewalk
= Signalized Intersection
= Island
= Bike Sensor
SR-509 EIS Citizen Comment
SR-516 & I-5/SR-509 Southbound
Left-Turning Cyclists Analysis
19 March 2002
= Path of Left-Turning Cyclists
Downhill slope enables cyclists to keep up with motor traffic during these turns.
Cyclists turn wide to acquire the curblane, clearing the left-turn pathway early in the turn.
driveway
driveway
driveway
driveway
Transit
Transit
SR-516 Kent Des Moines Road
SR-99 Pacific Highway South
REFERENCES:
a) AASHTO "Guide for the Development of Bicycle Facilities," Third Edition, 1999, Figure 11.
b) SR509 Revised Draft EIS, January 2002.

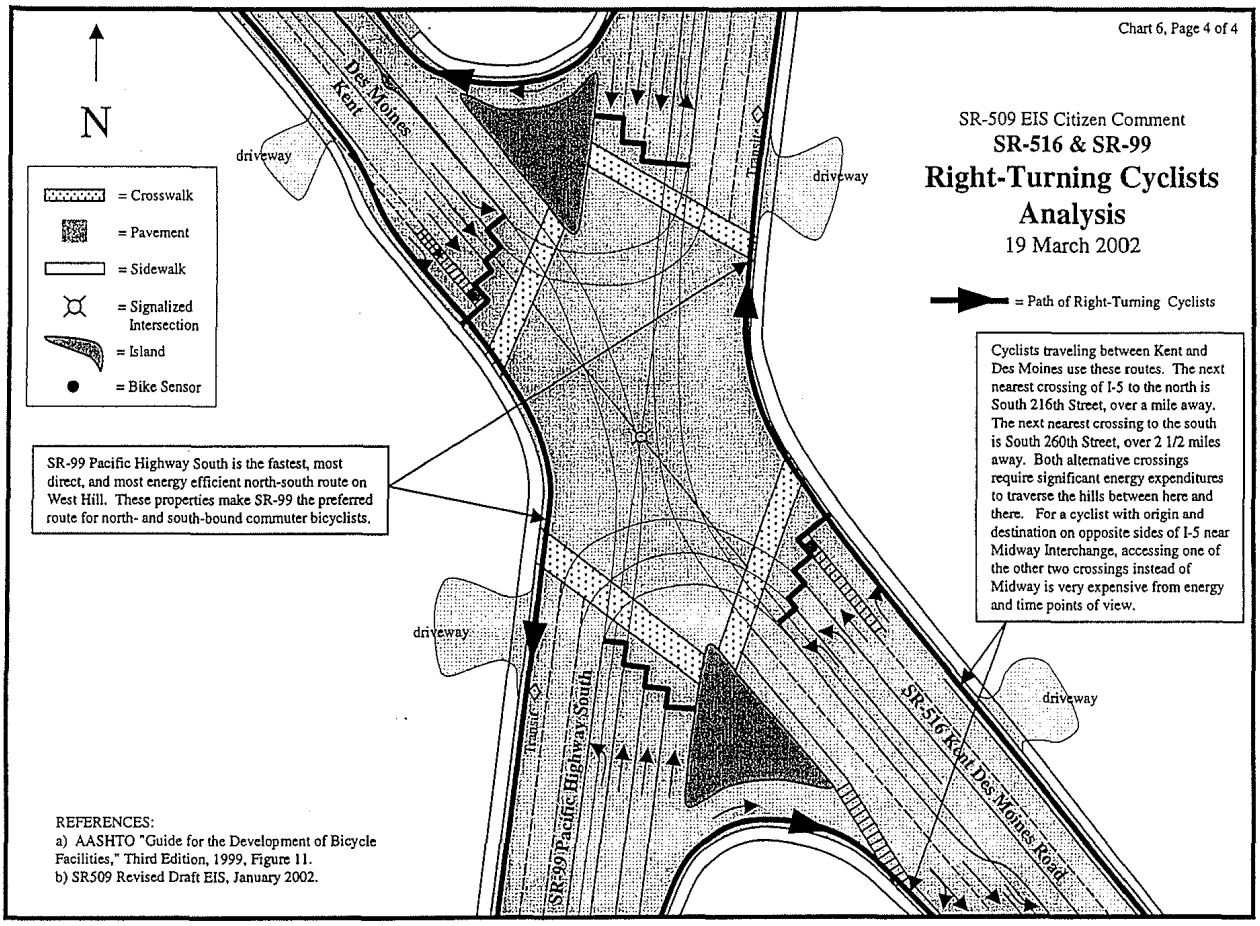


Chart 6, Page 4 of 4
N
= Crosswalk
= Pavement
= Sidewalk
= Signalized Intersection
= Island
= Bike Sensor
SR-509 EIS Citizen Comment
SR-516 & SR-99
Right-Turning Cyclists Analysis
19 March 2002
= Path of Right-Turning Cyclists
Cyclists traveling between Kent and Des Moines use these routes. The next nearest crossing of I-5 to the north is South 216th Street, over a mile away. The next nearest crossing to the south is South 260th Street, over 2 1/2 miles away. Both alternative crossings require significant energy expenditures to traverse the hills between here and there. For a cyclist with origin and destination on opposite sides of I-5 near Midway Interchange, accessing one of the other two crossings instead of Midway is very expensive from energy and time points of view.
SR-99 Pacific Highway South is the fastest, most direct, and most energy efficient north-south route on West Hill. These properties make SR-99 the preferred route for north- and south-bound commuter bicyclists.
Des Moines
Kent
driveway
driveway
driveway
driveway
SR-99 Pacific Highway South
SR-516 Kent Des Moines Road
REFERENCES:
a) AASHTO "Guide for the Development of Bicycle Facilities," Third Edition, 1999, Figure 11.
b) SR509 Revised Draft EIS, January 2002.

P3

The condo association comment, in case you do not have it already - John -----
Original Message-----
From: LORRAINE L DUBUQUE
Sent: Sunday, March 24, 2002 6:56 PM
To: whitejh@wsdot.wa.gov; everetts@wsdot.wa.gov; bagley@wsdot.wa.gov
Subject: SR509 and I-5 Corridor Project

Cc: Bob & Bev; Derrick; Marlette; Stacey
Sent: Sunday, March 24, 2002 6:52 PM
Subject: SR509 and I-5 Corridor Project

The cc:s and myself are a Condominium Association Board of Directors for Heritage Court Condominiums located at 22810 - 30th Ave So, Des Moines, WA. I know that several of us have been talking with various persons regarding the above subject. We have an appointment with Susan Everett to come to our May meeting and answer questions for us. We want to verify that this meeting is still going to take place in plenty of time so that we may send out an announcement to our Unit Owners. If you need to get a hold of me by phone, my number is 253-773-5788 - work or 206-870-4686 - home.

Just a little comment about our situation. Our property consists of 39 one- two- and three-bedroom units. Our buildings (3 in total) consist of three stories. It has a cabana that includes things like an indoor pool, a Jacuzzi, a handball court, 2 rest rooms, a storage room, a meeting room, a Ping-Pong table and a kitchenette for parties. We have garages, undercover and open parking spaces. It appears that we are the only condominium in the area. The rest of the neighborhood consists of apartments and single dwelling homes. We bought in this area because of the location (easy access to I-5, the airport, and Kent or Des Moines communities), the indoor pool and the rambler-like style of our units as well as having a fully functional cabana and indoor pool. We are a community that takes care of our property, our neighborhood and ourselves. We are law-abiding people who consider ourselves a very close-knit family.

P3-1

When plans started developing to improve the Des Moines Pacific Ridge area, we were ecstatic. We knew that our neighborhood was definitely going to improve. When the plans were being finalized, we discovered that we are in direct line to have a major portion of our condominiums effected with the SR509/I5 Corridor expansion. The expansion as planned, has a direct impact to all the units. It cuts through our garages; cabana (indoor pool) and one corner the Building C. On our property we have a runoff water catch for all surface waters. We have joint hookup of water and electricity. It takes
away some of the limited parking available. Last but not least, It will definitely reduce the value of our condominiums to have these things demonolished.

We are not asking you to stop the project and we applaud the efforts to connecting the Airport, SR509 and I5 as a unit and improve on the traffic congestion. What we are asking for is that a representative attend one of our condominium meetings in May to discuss the effects that will take place when this expansion gets underway. As it stands now, we are too close to the freeway and

Response P3-1

WSDOT staff attended the Heritage Court Condominium meeting on April 17, 2002, to answer questions about the project and acquisition process.

P3-1 (cont.)

the pollution and sound is tremendous. When you get even closer, it will be definitely intolerable. We want to be sure that when the time comes that we are given consideration for relocation assistance to find a suitable and comparable site or a fair market value for the property. We would like to find out what our options are and what the timing is. We have several questions and concerns that affect us as a group.

P4

COMMENT FORM

The Steering Committee wants your comments on the adequacy and completeness of the Revised Draft EIS. Please return this tonight or send your comments by **March 25, 2002** by mail, fax or email:

- John White, P.E., Project Engineer, Urban Corridors Office, WSDOT, 6431 Corson Avenue South, MS 61, Seattle WA, 98108
- Fax: (206) 768-5899
- Email: whitejh@wsdot.wa.gov.

Please include your name, address, and phone number in case we need clarification on your comment. We will respond to comments in the Final EIS.

SEE ATTACHED

Name PAT ASHCRAFT
Address 2848 S. 211th ST
City SEA TAC State WA Zip Code 98198
Phone: 206-878-8077 E-mail

For more information, visit www.wsdot.wa.gov/regions/northwest/SouthKing/Projects/SR509

Thanks for your comments.

3/21/2002

TO: John White. P.E.
WSDOT MS 61
6431 Corson Avenue S.
Seattle, WA 98108

RE: Adequacy and Completeness of RDIES SR509/I-5 Road Project

P4-1 With present day computer capabilities, a map showing detailed-labeled major highways and all cross streets involved should be possible.

P4-2 The actual joining of SR509 to I-5 has been written in the vicinity of S 210th, S 211th and S 212th. Vicinty of, in my opinion, is not adequate nor definitive.

The fact that increased capacity on I-5 has been more adequately addressed is a positive. Over the years it has been planned to just divert traffic to a virtual parking lot. Extending capacity to S 310th is a much better plan.

P4-3 There seems to be minimal differences between any of the alternatives (except no build) as 32 major environmental impacts state "SAME AS ALT. B."

P4-4 I find it hard to believe that NO long term air quality impacts are noted on any of the alternatives in the summary of enviromental impacts. The bottom bullet on Pg. 2 of the Project Newsletter clearly states - the SR509 extension alleviates congestion and AIR POLLUTION on Southcenter Hill
and various arterial streets in SeaTac, Burien, Des Moines and Normandy Park. Seems to me if pollution is being alleviated (moved) from so many sources there is bound to be a concentrated increase on the extension. This pollution will waft up to the Mansion Hill community, especially from truck traffic.

I am elated that as of this latest configuration our home, yard,the Angle Lake Well and holding pond will not be bulldozed. We will be impacted by noise and fumes but as this stage of life we spend less time outside. I do have empathy for those who will lose their homes, including those who have purchased in the last few years and were unaware of the road plan.

While realizing my imput is not relevant nor will be seriouslyconsidered, I would rather have Alt. B. be the build design.It offers a little longer road and is much farther from MansionHill. The latter is a selfish reason but after seventeen years of limbo, meetings, worry and hoop jumping I feel I am entitled.
Pat Ashcraft 2848 S. 211th SeaTac, WA 98198 206-878-8077

Pat Ashcraft

Response P4-1

Major highways and arterial streets are labeled on the figures. Secondary cross streets are not labeled to minimize clutter on the figures.

Response P4-2

The location of the proposed SR 509/I-5 interchange varies among the alternatives, and is not associated with specific intersections. The proposed interchange locations are shown in Figure 2.3-6, 2.3-7, and 2.3-8.

Response P4-3

Several of the proposed improvements and their associated impacts are similar for each of the alternatives. Differences among the alternatives are summarized in Table S-1 and described in detail for each element of the environment in Chapter 3.

Response P4-4

The SR 509 project would not result in any significant long-term air quality impacts. The project would shift the location of some pollutant emissions, but would not result in pollutant levels exceeding the standards; therefore, there would not be any significant adverse impacts.

P5

March 24, 2002

To: John White, P.E., Project Engineer
Washington State Dept. of Transportation (WSDOT)
6431 Corson Ave S., MS 61,
Seattle, WA, 98108
whitejh@wsdot.wa.gov

Subject: Comments Submitted March 24 on SR509 Corridor Completion/I-5/South Access Road Project to the Dept of Transportation

Please contact me if you have any questions or require substantiating data. This submittal includes four electronic files in case size limitations on email are an issue.

arleneSR509commentsMar25.doc
arleneAtt C airhealth2001.ppt
arleneAtt D Corps Nov99.doc
arleneAtt E 3rdtry POSpermit.doc

Thank you for this opportunity to comment. I just hope this effort wasn't a waste of my time or your time. Politics in Seattle seems to ignore physics, economics, engineering, topography and any regulation they don't like.

Submitted by Arlene Brown
239 SW 189 PL
Seattle WA 98166
Home (206) 431-8693
For your address book, use my permanent e-mail arlene@mail.alum.rpi.edu - forwards to my current ISP.

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Summary

Section 3.17, "Secondary and Cumulative Impacts" so understates the situation, it borders on fraud. The omissions and inaccuracies I do not believe are intentional on the part of the DOT but rather due to insufficient information being provided by the Port of Seattle and their representatives. Steps need to be taken to avoid Clean Air Act violations and premature death from excessive noise and air pollution.

If regulations are enforced and best management practices implemented, it will be cost prohibitive for the SR 509 extension/South Access Road project and the Sea-Tac third runway project to co-exist. The cumulative impacts on the wetlands, creeks, aquifer, noise, air pollution, salmon, Puget Sound resident orca pod, bald eagles and people are so great they are unimaginable. These impacts result in more flooding, more earthquake damage, more illness, more deaths and less drinking water. Ultimately, it will lead to Clean Air Act non-compliance whose costs will fall on King County's business community.

Site Seismicity beginning on RDEIS Chapter 3, Page 3-55 needs a major overhaul to include the data collected since 1985 such as the February 2001 quake information and the SHIPS program data (see Attachment A). A geological survey is needed that specifically looks for soft soils. In addition, the interaction of the 3rd runway's record-breaking wall with soft soil,s and the amount of damage that will cause to SR509 overpasses and roads in an earthquake, needs to be calculated.

Ignoring the intent of the FAA's Runway Protection Zone rules is questionable. However, the clear violation of the FAA's Object Free Area rules is so serious that the project should not proceed without written permission from the FAA that is accompanied by a risk analysis. The State's lawyers may also want to review the rules to determine legal liability in the even of a lawsuit.

Even in the absence of the third runway, the mitigation for this project needs to more than normal because the area is already so unhealthy due to the airport and has unique

characteristics such as high ongoing vibration exposure. A much larger buy-out area, more noise barriers, more gradual slopes, and a plan to ensure a steady supply of uncontaminated drinking water, etc. is needed.

It is obvious reading through this document that it has not had the level of engineering scrutiny this would have had if the Cities or any major citizens groups were against this project. Although I too support the concept of extending the "highway to nowhere" for the sake of King County, as currently written it underestimates hazards, provides inadequate mitigation and does not offer reasonable assurance of compliance with environmental or FAA regulations. It's UNSAFE.

Violates FAA Object Free Area (OFA) Rules

FAA Advisory Circulars are considered mandatory in order to be eligible for Federal funding. Paragraph 307 of FAA Advisory Circular Airport Design AC150/ 5300-13 states "Objects non-essential for air navigation or aircraft ground maneuvering purposes are not to be placed in the OFA. This includes parked airplanes and agricultural operations. Tables 3-1, 3-2 and 3-3 specify the standard dimensions of the runway OFA. Extension of the OFA beyond the standard length to the maximum extent feasible is encouraged. See Figure 2-3." (electronic page 33 of web http://www.faa.gov/arp/pdf/5300-131.pdf version). Para 212 a (2) expressly forbids automobile parking lots in the OFA.

P5-1

For the long runway at Sea-Tac, the Object Free Area (OFA) extends 1000 feet from the runway end and is 800 feet wide (It's a rectangle within the trapezoidal RPZ). The highway goes right through the object free area for this runway. Is the plan to discontinue flying large jets out of Sea-Tac so the OFA will be shorter or have you arranged for the FAA to ignore their own safety rules? If it's unsafe for parked aircraft, potatoes, or parked cars, why is it safe for commuters in vehicles that contain fuel? Has this exception to the rules been approved by the FAA? If an accident occurs will the victims sue Washington State and the FAA for damages?

Response P5-1

The proposed project alternatives do not cross the airport object free area (OFA). Alternatives C2 and C3 cross through the southern one-third of the extended object free area (XOFA), which is part of the runway protection zone. Although FAA guidelines recommend location of proposed roads outside the XOFA, it is not prohibited. The FAA and the Port of Seattle have determined that the proposed alignment within the XOFA is acceptable provided it is located as close to the southern extent of the XOFA as possible. Please refer to Chapter 2 for a discussion of coordination with FAA in developing the project alternatives.

Will de-icer that rots the stomach of fish when present in only parts per billion fall onto moving vehicles and be spread further than it is already? (De-icer has very deadly proprietary ingredients in it. It is not just harmless glycol as some assume.)

P5-2

Will the frozen contaminated toilet chemical crystals that fall from leaky aircraft toilets land on vehicles and spread their germs even farther than currently? They contain viruses that our sewer treatment plants are not strong enough to treat.

Encroaches on Runway Protection Zones

FAA Advisory Circular (AC) for Airport Design, AC150/ 5300-13, Change 4, Table 2-4, Figure 2-3 and Figure 2-4 defines the Runway Protection zone dimensions (http://www.faa.gov/arp/pdf/5300-131.pdf). The AC defines the Runway Protection Zone (RPZ) as "An area off the runway end to enhance the protection of people and property on the ground" (page 15 of pdf version). Section 212 provides more information such as expressly forbidding a church, mall or a golf club house but does permit a golf course.

P5-3

There can be a little more latitude with the area of the RPZ's that is outside the OFA area when the airport does not own the property and is unable to buy the property. However, in this situation it would be difficult to justify the exception. particularly since fuel storage facilities are strictly forbidden in the RPZ. Busy highways are a continuous conveyor belt of fuel.

Violates FAA's Object Clearing Criteria

Item 8 of Para 211, Object Clearing Criteria of AC150/ 5300 states:

"Other objects which require clearing are those that generally can have an adverse effect on the airport. These include objects in the inner part of the approach (coinciding with the RPZ) such as fuel handling and storage facilities, smoke and dust generating activities, misleading lights, and those which may create glare or attract wildlife." (page 25 of pdf file).

P5-4

Will the highway traffic lights interfere with landing and take-offs?

Response P5-2

This comment pertains to operations of aircraft near Sea-Tac Airport. WSDOT and FHWA do not have authority over airport operations. Please address comments and concerns about airport and aircraft operations to FAA and the Port of Seattle.

Response P5-3

FAA and the Port of Seattle have determined that locating the proposed roadway in the southern one-third of the runway protection zone is permissible under FAA regulations. Please see response to Comment P5-1 above. FAA Advisory Circular 150/5300-13 restrictions regarding fuel storage facilities pertain to aboveground and underground single storage tanks, and do not include motor vehicles.

Response P5-4

Please see responses to Comment P5-1 and P5-3 above.

Highway lighting would be designed to minimize light pollution and would be in accordance with FAA guidelines.

2 to 1 slopes Ignore airplane vibration induced damage

P5-5

3 to 1 slopes are recommended for wetlands areas and are also part of the FAA building codes for reasons unrelated to wetlands. 3 to 1 slopes, or perhaps even less steep, are needed because the close proximity to the runway ends greatly increases the amount of vibration the construction, and then later the actual roads, will be subjected to. Close proximity is an understatement since the plan is to build where it's expressly forbidden to build by FAA AC 150/5300.

To make matters even worse, we have a very active underwater ground water system that moves the earth: We are the highest portion of the large aquifer system and we have a large number of small earthquakes. These movements combined with the aircraft vibration all make this an unusually complex build site. Since aircraft at the airport vibrate the earth all the way into the heart of Normandy Park, can you imagine the amount of vibration the earth will feel in the Object Free Area! Flight paths have even been moved temporarily away from Magnolia during heavy rainstorms to avoid landslides.

One of the reasons the Port now faces building a record-breaking wall is because the EIS called for 2 to 1 slopes that the Army Corps of Engineering objected to. (I refer to it as a record- breaking wall since it's only four tiers when you would expect it to be at least seven to even remotely resemble the few other tall MSE walls. More of Miller Creek would need to be moved and soft soils excavated over a large area if they wanted to build a safe MSE wall.)

Inability to protect airport with highway in runway protection zone

P5-6

The road going through the runway protection zones is inconsistent with FAA building criteria. It will be very easy to shoot at an aircraft and speed away on the highway.

Grossly underestimated secondary and cumulative Impacts

P5-7

The SR509/South Access Road plan **induces** growth contrary to the assumption in 3.17.1. It will induce so much air traffic and airport related ground traffic growth that ozone exceedences will occur unless measures are taken to cap pollution.

Response P5-5

Most slopes for the new roadway would be 3:1 or shallower. Slopes adjacent to the RPZ will be no more than 6:1. All slopes would be designed to be stable in accordance with WSDOT design standards, which take into account local environmental conditions that could affect stability.

Response P5-6

Please see responses to Comment P5-1 and P5-3 above.

Response P5-7

The SR 509: Corridor Completion/I-5/South Access Road Project is consistent with local and regional land use plans, which have already addressed growth. Although the proposed project would support and facilitate planned growth within designated urban growth boundaries, it would not induce growth.

The PSRC models conformity to ozone standards. The proposed SR 509: Corridor Completion/I-5/South Access Road Project is included on the 2001 to 2004 project list of the Regional Transportation Improvement Plan (TIP) that has been determined to conform to the State Implementation Plan (SIP). Please refer to Section 3.1, Air Quality, for a detailed discussion regarding ozone.

P5-8 A cumulative pollution analysis of the proposed third runway and SR509 is essential to the SR509 project. So essential, that if done with sound engineering judgment, you will realize the **two projects are completely and totally incompatible**. Combined they simply create too much impervious surface, too much air pollution, too much ground water pollution, it's too hard to control flooding, too much noise and greatly reduces the health and life expectancy of the residents. Since the Sea-Tac Master Plan Update never even did an environmental analysis on the impact of 1,500,000 haul trucks on Puget Sound region and did not have a record-breaking wall that would reflect noise, you can hardly think they would have really adequately addressed the SR 509 extension. They said the analysis would be done as part of THIS plan.

P5-9 The RDEIS plan also makes the "highway to nowhere" a preferred route for many commuters that completely bypass Burien currently. Other than an increase in airport haul truck traffic, there has not been a dramatic change in traffic on SR509 since 1979 when I first started using it regularly for the sections south of SW 128 St in Burien. SR 509 will forever dramatically alter Normandy Park and Burien.

P5-10 **Identify fill quantity, source and cost**

The SR509 EIS does not appear to identify the quantity of source of any fill needed for this project. The proposed Sea-Tac third runway will use up most of, if not all of western Washington's supply of permitted fill making a huge fill shortage. Any fill needs must be addressed in the EIS.

You should not make the same mistake as the third runway that hoped they would be able to use a significant amount of the existing dirt. Contamination, peat bogs, wetlands, drinking water aquifer, federally protected wellhead and creek concerns make it difficult to use fill in the area.

Also available western Washington fill is likely to be toxic. The DOE is attempting to set the fill contamination criteria for the third runway to be equal to the state's toxic clean up level, presumably due to the difficulties of finding clean fill. For instance, the third

Response P5-8

The proposed SR 509: Corridor Completion/I-5/South Access Road Project has been analyzed in conjunction with other planned and programmed regional transportation projects as part of Destination 2030 (the Puget Sound Region Metropolitan Transportation Plan). The analysis demonstrates that transportation air quality emissions within the Puget Sound region would be within the region's emissions budget in 2020 and 2030. The regional emission budget is established to ensure that the region remains in attainment for the National Ambient Air Quality Standards, which are established to be protective of human health and welfare. Please refer to Section 3.1 for a detailed description of the PSRC conformity analysis.

The stormwater treatment for the SR 509 project and proposed mitigation would reduce flows in Des Moines Creek Basin and, therefore, the potential for flooding. Please see response to Comment A3-6 from the Environmental Protection Agency.

The proposed stormwater treatment for the SR 509 project would be designed to protect groundwater quality. Please see response to Comment P5-12 below.

Additional noise analysis has been conducted for the SR 509 project and has taken airport noise into account at noise-sensitive areas within the project study limits. Please see Appendix I of this EIS.

Response P5-9

The purpose of the proposed project is to connect the existing SR 509 freeway with the regional transportation network and relieve congestion. The existing SR 509 freeway is currently underutilized because it lacks a connection to and from the south, contributing to congestion on local streets and major roadways in the area that are already at capacity. Please refer to Chapter 1, Purpose and Need for Action.

Response P5-10

For each of the proposed alternatives, the quantity of material generated during excavation would exceed the required fill. Therefore, there would be a net export of fill material.

runway Clean Water permit that has had a "stay " against it since fourth quarter 2001 allows lead at more than 10 times background level, arsenic at more than three times background level as well as toxic man-made chemicals not found naturally.

Toxic Soil Handling and Mitigation required for Workers & Neighborhood

Before disturbing any soil, contamination tests need to be run because it is on top of an aquifer with fractured till and contamination is likely due to ASARCO and airport activities. Special handling techniques will be needed to address worker safety issues, public health issues as well as air pollution issues.

P5-11

Recent DOE studies in conjunction with Seattle- King County Dept of Health have revealed unusually high metal contaminants in soils in Normandy Park and the surrounding area. For example, they had a lead reading of 490 compared to the clean up level of 250. Some of the toxics are attributed to ASARCO. The DOE only tested enough chemicals (arsenic, lead, antimony, bismuth and a couple of others) to confirm the area was in Asarco's path, and did not identify the full extent of ASARCO chemicals that have polluted the area.

It is also known that there is contaminated soil on airport property from airport activities and that contamination was left behind when the Port of Seattle bought out properties.

Topography and winds are obviously a big factor so more tests are needed to determine the extent of pollution prior to construction so the proper mitigation measures can be taken.

Admit to total Destruction of Des Moines Creek

P5-12

The new South Access road to the airport is so close to the Des Moines Creek that it means either a slow or fast death to the creek and contamination of the aquifer that is only about 2 feet from the surface of the ground in that location. The plume of sediment toxics that surround highways are well known by the toxic sediment community. The creek will have to deal with pollution from the Highway plus the new airport road plus the airport. What other projects will impact that area? What happened to SASA?

Response P5-11

Soils in the SR 509 project area could be contaminated with arsenic from ASARCO. Soils in areas that would be cleared, grubbed, and excavated would be tested to determine the level of contamination in relation to Washington State cleanup levels. Any materials that exceed cleanup levels would be treated or disposed of in accordance with state and federal regulations.

Response P5-12

The proposed stormwater treatment would protect both groundwater and surfaces water draining to Des Moines Creek. Stormwater generated from the highway in the Des Moines Creek Basin would be infiltrated where subsurface conditions are favorable. Groundwater is shallow in some locations within the project area, but is more than 2 feet below the surface. The infiltration facilities would be constructed only at the locations where groundwater is sufficiently deep so infiltration from the bottom of the infiltration facilities would not be impeded by a high groundwater table. At all these locations, water would be treated before being released to the infiltration facilities and before reaching the groundwater. Infiltration into the soil would not occur near the known public wells. Where infiltration is not feasible, stormwater would be treated and detained, after which it would receive enhanced treatment in constructed wetlands to remove metals and other pollutants.

A toxic plume of sediment in the creek would not occur. Analysis of pollutant concentrations for the runoff exiting stormwater treatment facilities indicates that the concentration of total suspended solids (TSS) in the runoff would be lower than the existing TSS background concentration in the creeks. This is true at all stormwater facilities, except at stormwater treatment wetlands where treatment efficiency would depend on wetland design and wetland maintenance.

Please refer to Section 3-17, Secondary and Cumulative Impacts, regarding cumulative impacts of other projects in the area, including SASA and Sea-Tac airport projects.

Neglects to mention it reduces available drinking water forever

P5-13 DREIS section 3.5 on Groundwater is totally inadequate. The project permanently reduces the recharge to the aquifer and virtually guarantees the eventual contamination of the aquifer. This reduction in drinking water is even more painful when you realize the third runway also permanently reduces the recharge and increases contamination risks. There is already DOE documented jet fuel contamination in the aquifer so don't respond to this comment with the Port's song and dance that the aquifer layers aren't connected.

P5-14 What will we drink sixty years from now when the City of Seattle refuses to renew the current water agreement making the Highline aquifer a sole source aquifer instead of just supplying a portion of our water? A water shortage is being forecast even for rainy Seattle and it is expected to become our most precious resource in this century. A program should be set up by the state to pay the Highline Water District, the current going rate of water, in perpetuity, for the loss of the water from the combined projects regardless of whether it's from reduced recharge or contamination or both. To ask us to give up our water for both a 3rd runway and a highway extension when we have already given up water for the existing airport and highway is just too much, particularly when a portions of the project virtually guarantees contamination.

This proposal is somewhat similar to Seattle Water Dept's request during the airport's SEIS Master Plan Update process. However, when Borrow site 5 by the wellhead was eliminated as a fill source, they backed off on their request to indemnify the water.

Clean Air Act Analysis Assumptions Based on Ancient Inaccurate Analysis

P5-15 A complete air conformity analysis is needed to assess the pollution situation and identify mitigation measures.
A short description below indicates why the analysis needs to start from scratch rather than building on obsolete ones from the last century.

Start - Airport Master Plan Update Supplementary EIS 1997 –
Sea-Tac airport is **"surface transportation limited"**,

Response P5-13

The discussion of groundwater impacts in Section 3.5 has been expanded). The recharge area for groundwater within the area of the roadway would not be reduced, as the majority of stormwater generated over the new impervious surfaces would be infiltrated into the ground. Please see responses to Comments A3-5 and A5-2 for a more detailed discussion.

Response P5-14

Thank you for your comment. Please see responses to Comments P5-12 and P5-13 above.

Response P5-15

An air quality conformity analysis for the SR 509: Corridor Completion/I-5/ South Access Road project is included in Appendix H of this EIS.

P5-15 (cont.)

Clean Air Act calculations therefore ASSUME NO additional aircraft with third runway or from other improvements. In other words, airport couldn't really grow - it was the assumption that helped them avoid triggering the Clean Air Act de minimus limit that would have required a formal air conformity analysis.

Add - new road to airport and SR 509 extension - all part of the current proposal so airport no longer surface transportation limited

Consequences (planned and unplanned depending on who you are)

- Additional 200,000 aircraft plus the additional surface transportation and ground equipment that goes with it
- Mixing of airport chemicals with the highway chemicals (highway to go through airport safety zone - (great place to shoot aircraft down by the way) making more hazardous combination of chemicals and turning things into ozone faster
- Abnormally high health risk for highway construction workers
- Abnormally high health risk for highway commuters if highway gridlocks like I-5

P5-16

Net result

- The pollution they save with SR 509 is less than the NEW POLLUTION they get by actually being able to really increase Sea-Tac growth - OZONE Exceedences you can bet on from aircraft NOx that mixes with other chemicals and changes into ozone. SR 509 Project ADDS NOx and Ozone by increasing airport ground and surface traffic!!!!! The increased airport activity will create more than 300 tons of additional NOx per year.
- Impaired health of construction workers as a result of third runway construction pollution combined with airport activities
- Huge health risk for anyone sitting in traffic under the flight path

Response P5-16

Air quality impacts associated with the Sea-Tac Airport improvements are included in the airport master plan update and supporting environmental documentation. WSDOT and FHWA do not have authority over airport operations.

Near term Action

Perform cumulative air analysis. However, they really bizarre assumptions in the Sea-Tac Master Plan Update need to be corrected rather than incorporated into the analysis. Although some at the EPA suspected at the time the assumptions were invalid, there has now been enough data has been collected since that time to prove they were bizarre. Issues that need to be corrected include:

- Construction schedule, designed specifically to avoid triggering limit, is no longer valid
- Applied pollution offsets from public road improvements and parking lot only to the third runway alternative even though the improvements would occur with either alternative
- Used bogus taxi times for third runway
- Used bogus delay savings that even airlines such as United subsequently objected to in writing to FAA referencing their own analyses showing a maximum savings of less than 30 seconds per aircraft.
- Fleet mix assumptions
- Emission parameters
- Overestimated third runway operations and underestimated third runway operations
- Did not account for additional operations technology such as gate software that eliminates gate monopolies allows.

Solution

- **Kill 3rd runway so not as close to maximum airport chemicals.** Bonus - the record wall on soft soils won't take out the highway in a quake
- Perform full up Clean Air Act conformity analyses using cumulative impacts including maximum airport growth. Ways to mitigate the problems analysis will reveal include:

- Place **permanent air monitoring station at airport** - limit operations as needed (so we won't get as bad as Europe when they have had to shut down entire airport for a day things got so bad)

- **Limit number of operations at airport to avoid ozone exceedences down wind of airport** (note the CO we save from the SR 509 is not our County's problem. It's NOx !!!!!)

- Post highway signs saying to keep windows closed when under the flight path near the runway ends when in heavy traffic (you can really smell unburned jet fuel when near the tunnel on the south end of the airport now but the traffic moves there so you aren't subject to it very long)

- **Conduct health risk analyses and make a larger buy-out zone since the combined pollution** of highway plus 3rd runway construction or 3rd runway operation creates a much higher risk - it **is more than the sum of the parts**. Note buy-out area is larger with third runway than without the third runway. But, even without the third runway, as long as they are on what should be airport property, I suspect the health analysis will indicate a larger buy-out area than planned. An expert one time referred to the airport area as a "toxic stew". His description really says it all.

- Make workers sign waivers recognizing the dangers so they can't sue. Set minimum health standards for workers - no high heart attack risks or major asthma problems or major cancer risks. Anyone being treated for cancer already should not be allowed to work under flight path for more than two days.

P5-17

Please note the published DOE reports available on the web in recent years have some errors regarding ozone exceedences. Someone at DOE was nice enough to point this out to me. There are now some EPA databases on the web that I think are more accurate. However, I don't think they report the stations that do not operate 12 months a year that also had exceedences. Ozone is a real problem. The Port of Seattle likes to talk about CO since road improvements and parking lots have really cut that down around the airport. The Sea-Tac3rd runway analysis took credit for the public roads and new parking lot only

Response P5-17

Thank you for your comment.

in the 3rd runway scenario and so was able to avoid triggering the Clean Air Act diminimus limit that compares pollution levels (pretended 24 St would only exist if the third runway did).

Even dirty Texas is monitoring NOx at a major airport so my suggestions are not as "wishful thinking", as they may first seem. Europe wouldn't have closed airports on bad air days if airport pollution wasn't a real concern. We need to learn from Europe's mistakes and from California's solutions (stricter environmental laws than Federal because mountains trap pollutants). Boston is pursuing charging fees based on how much an aircraft pollutes like some places in Europe already do- a potential funding source for the air monitor?

Base Buy-out Area on Life Expectancy Reduction Calculations

P5-18

Considering recent high level court decisions, it is no longer enough to just focus on the pollutants that are monitored by the Clean Air Act (NOx, ozone, CO, etc), government is being forced to recognize and mitigate activities that expose people to pollutants that are known to impair health (Reference Hogue, Cheryl, Clean Air Act Faces Off Against Disabilities Act, Chemical & Engineering News, 11 September 2000. Page 6). Literally hundreds of reports in recent years have been released linking health problems to airport and surface traffic pollution. Since this proposal goes through runway protection zones, it mixes **maximum** airport pollutants with highway pollutants creating one of the worst environments known to man. A much larger buy-out area is needed than is customary for highways, particularly if the third runway wetlands permit are granted. If we had a 53 square mile buffer zone like the new Denver airport this might not be an issue but we have a postage stamp for an airport.

Mitigation should include health monitoring and new play fields

The Washington Dept of Health studies done in conjunction with the Seattle-King County Health Dept already have identified a number of illnesses, some fatal, that are higher around the Sea-Tac. They tend to be those associated with pollutants. The three reports are at http://www.metrokc.gov/health/phnr/eapd/reports/cancer/. Since I was a Community Health representatives for this project, I have continued to read the new

Response P5-18

Since publication of the Revised DEIS, a regional conformity analysis was completed for the proposed project and is included in Appendix H of this EIS. The proposed project meets the requirements of 40 CFR Part 93 and WAC 173-420 and conforms to the Puget Sound Air Quality Maintenance Plans. Please see response to Comment P5-8. By law, WSDOT can only purchase properties where it is deemed there is a justifiable public need related to the project. The land where the roadway passes the runway protection zones is almost entirely publicly owned, and thus there are very few relocations in the vicinity of the runway protection zones or immediately adjacent to Sea-Tac Airport.

literature on the subject as it becomes available. It would take months to just summarize all of them. It turns out respiratory illness (asthma, cardiopulmonary disease etc) may be an even bigger issue than cancer. It's a complex situation since King County is a sick county already so using it as a baseline is questionable.

Attachments C, D and E contain some additional information on this but its not even a drop in the bucket compared to what's available on the web (or even on my computer's hard drive for that matter). It's really scary stuff. You can hide behind the problems with small population statistics only for so long.

P5-19

A database needs to be set up to monitor the health of businesses and homes subjected to airport and highway pollution since this **plan greatly increases the pollution for both.** Highline School district should be required to monitor absences at the district level to identify trends to determine when airport operations need to be capped to compensate for the additional highway traffic. Lung capacity measurements should be added to the eye and ear exams. Asthma in children is a huge problem related to pollutants.

P5-20

The SR509 extension/South Road access plan will greatly increase both the ground and air pollution at play fields near SR509. To make matters even worse, the third runway record-breaking wall will help trap pollution rather than absorb it like the mini-forest did. New fields, further away from the SR509 extension are needed for fields such as the North Elementary school field and Moshier field.

Need cumulative noise impacts from airport and increased highway traffic

P5-21

Airport populations, whose health is already impaired by airport pollution and sleep deprived from airport noise, are disturbed more readily by other noises such as increased highway noise. More highway noise mitigation is needed for highways built in close proximity to airport flight paths. Airport noise models do NOT take into account the effect of reflective surfaces and therefore vastly underestimate noise disturbances from increased impervious surface. A cumulative analysis is needed that includes impacts from reflecting surfaces that replace sound absorbing shrubs and trees. Health studies have

Response P5-19

As documented in the EIS, no significant adverse air quality impacts are anticipated as a result of the proposed SR 509: Corridor Completion/I-5/ South Access Road Project. As a result, the measures proposed in the letter would not be necessary.

Response P5-20

The proposed SR 509 project will be within the National Ambient Air Quality Standards for the Puget Sound region; these standards are protective of human health and welfare. Please refer to Section 3.1, *Air Quality*, of this FEIS. The only playfields adjacent to the proposed improvements are located along the I-5 corridor, and all have been determined to have only minor proximity impacts associated with the proposed improvements, for which mitigation will be provided.

Response P5-21

WSDOT has conducted a detailed study of noise impacts from the proposed SR 509 project. The analysis has taken airport noise into account at noise-sensitive areas within the project study limits. The Traffic Noise Model (TNM) used to determine noise impacts also takes various surface types into account in relation to traffic noise. The SR 509 project has identified highway traffic noise impacts and recommended noise barriers for abating highway noise where such measures are determined to be feasible and reasonable to construct.

shown too much noise can literally turn serious illnesses into terminal illnesses (the straw that broke the camels back).

Construct noise barrier for S 196th Manmade Noise Amplifier Canyon

Recent destruction of mini-forests and the replacement of them with giant warehouse complexes and fenced housing developments have created a manmade cavern that seems to amplify airplane noise as it travels west towards the sound along S196 St. Homes that never heard airplanes prior to the construction of the manmade canyon, are now subjected to noise in at least the 70 db Level. The proposed highway cuts across this street in such as way that it will add to the already unbearable noise. The manmade canyon directs pollutants to the west subjecting residents to additional air pollution. The mixing of hazardous airport pollutants with hazardous highway pollutants will make it one of the most hazardous places in King County to live.

P5-22

Eliminate or mitigate the 150 foot plus high Giant Noise reflector

If a 150 high hard surface wall with 20 feet of fill on top of it is placed along the west side of SR 509 near S160 St to hold back the enormous quantities of third runway fill, it will be a giant noise reflector. The highway currently is underutilized so noise is more an issue if the SR509 extension is built which will greatly increase traffic. The wall did not exist during the Sea-Tac Master Plan Update EIS time frame. At that time it was to be a sloped hill that would have not have been like a giant reflector. The newer wall on the north end of the airport noticeably increased noise when it was built and the record-breaking wall will be much worse.

P5-23

The great wall will reflect the additional highway noise into the communities to the west of the highway will be cost prohibitive to mitigate. Therefore, thhe third runway needs to be killed in order for the highway changes to proceed. The bare hill that has replaced the min-forest already reflects highway noise into the heart of Normandy Park, as well as Burien, where there was no noise before the 3rd runway construction started. A RDEIS section 3.17 assumption that environmental analyses would, or have been done, was incorrect.

Response P5-22

Your comment is noted. WSDOT has conducted a noise study to evaluate highway traffic noise for outdoor use areas for all sensitive receivers along the proposed SR 509 to determine noise impacts. Traffic noise mitigation, in the form of noise barriers, is considered for all impacted areas and recommended for areas where such measures are found to be feasible and reasonable per WSDOT's noise policy and procedures. The presence of warehouse complexes and other structures is a preexisting condition is taken into account as appropriate when conducting the traffic noise analysis.

Response P5-23

Existing structures, terrain features, and ground types within the proposed SR 509 project area have been taken into account in the evaluation of noise impacts from the proposed project. Areas near South 160th Street are outside the project area (see response to Comment L2-4 for an explanation of WSDOT policy).

The third runway proposal actually now has more than just the one record-breaking MSE wall so noise impacts from all the walls should be assessed.

Attached Public Hearing Comments address more issues

Attachment A contains comments on a variety of subjects including more information on topics preceding this section as well as, but not limited to:

New earthquake hazard information

First Ave road failure when 3 to 1 slope not used

Best Management Practices already shown to be insufficient for this location

Archeological information not included in SR509 EIS

Procedural and Administrative Comments

The soft soil maps need to be improved.
It's too hard to identify proximity of creeks.

The web based RDEIS was greatly appreciated especially since the libraries that supposedly had a hard copy either didn't (or if they did, they don't know it). The maps were easy to use on the web. The CD was also appreciated since it was easier to use than the online version for reading text.

Most people do not know about the South Access Road part of this proposal. Neither the newspaper meeting notices or the news coverage made it clear that there was a new road. If it weren't for the great map in the newsletter sent out this year, I would not have realized it.

Last year's Tyee public meeting was held at the busiest time of the year for public meetings related to the expansion of Sea-Tac Airport (Army Corps and Noise hearings

with submittal of public comment all within few weeks of each other). Likewise, this year it fell in the same time frame as a noise hearing and the two weeks of Pollution Control Board meetings. It feels as if the government agencies are ganging up on us and putting all the meetings within a one-month period so we have to pick and chose what meetings to attend. I suspect, just like last year, when we look back next year at the time period of your 2002 meetings and comment period, February thru March will correspond with the peak anti-runway meeting time frame for the entire year.

Closing

Unfortunately, due to time constraints I cannot address all issues or identify all my specific references in the text so I have enclosed a partial reference list. I made an effort to bold the most relevant. The references starting at 117 from the Journal of Geotechnical and Geoenvironmental Engineering are particularly relevant to the 3rd runway wall and its impact on SR509 in an earthquake.

Feel free to contact me if you want me to identify the source(s) of information that was provided verbally at the Feb 27 hearing or herein.

Attachment A: Incomplete copy submitted at Public Hearing
Feb 27, 2002 (does not include soft soil and earthquake fault maps etc)

To:
John White, P.E., Project Engineer,
WSDOT, 6431 Corson Ave S., MS 61, Seattle, WA, 98108
whitejh@wsdot.wa.gov.

Subject: Comments Dept of Transportation Project: SR509 Corridor Completion/I-5/South Access Road Project (due March 25)

Pulled together quickly but at least will provide some references to support public comment on Feb 27. Hope to add to these comments with more professional comments for March 25.

Thank you,

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Attached comments plus select pages from referenced web sites

Initial set of Comments for the Record

1) 509 extension Incompatible with Sea-Tac third runway - Kill the third runway since the region needs ground traffic improvement more than it needs a deadly short part time runway (FEIS admits increases aircraft ground incursions)

a) too close to unsafe MSE wall that is placing excessive load on area with soft soils. (see map with wall location at www.nothirdrunway.homestead.com/quake.html). MSE wall failure could result in slide as far as highway. Soft soil reaction to earthquake can cause movement of highway overpasses for up to an hour after quake causing structural failure such as occurred in California (this is not just hypothetical!!). P5-24

b) destroys more wetlands - third runway already destroying too many- too many flooding problems already. Normandy Park homes on hills with no water in sight are getting flooded from underground stream movement. P5-25

c) reduces FOREVER the aquifer recharge and therefore available water, combined with the aquifer recharge loss from the third runway wetlands. We are losing too much water - terrorism threat less for underground water sources. 60 years from now when the contract with Seattle Water Dept runs out may be sole source drinking water aquifer. Could not find any concern from drinking water loss in your draft. Why? P5-26

d) too much construction traffic already from third runway. Already reduces traffic speeds by more than 15 miles per hour when trucks present. P5-27

e) too close to third runway safety area – toxic chemical hazard and falling airplane part hazards (Ask the children traumatized forever from airplane part falling in Mount Raineir school yard if you don't believe this is a problem) P5-28

f) too noisy with increased highway noise plus increased runway noise - less trees to absorb noise. MSE wall will reflect noise into Burien and Normandy Park. Recent tree P5-29

Response P5-24

All structures for the SR 509 project would be designed to meet current earthquake standards.

Response P5-25

Avoidance and minimization measures have been implemented to reduce wetland impacts associated with the preferred alternative to the greatest practicable extent and has been coordinated with the Signatory Agency Committee through the NEPA/SEPA/Section 404 Merger Process. Avoidance and minimization measures included modification to the roadway alignment, retaining walls, and bridges. As result wetland impacts have been reduced from 8.5 to 0.32 acre, and the preferred alternative avoids all Class 1 wetlands and spans all Class 2 wetlands with bridges.

Response P5-26

Groundwater impacts are addressed in Section 3.5, *Water Quality*. The discussion of groundwater has been expanded in this EIS.

Response P5-27

Truck traffic in the project area would increase during construction of the proposed project.

Response P5-28

Please see response to Comment P5-1 above.

Response P5-29

Existing structures, terrain features, and ground types within the proposed SR 509 project study area have been taken into account in the evaluation of noise impacts from the proposed project. Areas near South 160th Street are outside the project study area (see response to comment L2-4 for explanation of WSDOT policy).

cutting and construction have already changed the noise in the area. You can already hear

P5-29 (cont.) Highway 509 in the heart of Normandy Park due to changes in noise absorption over last few years.

P5-30 g) Watershed can't handle the additional construction sediment and other pollutants

P5-31 h) air can't handle the additional construction particulates and additional construction pollutants

P5-32 **2) South access road unacceptable.**

a) too near wetlands and Des Moines . Aquifer may be within 2 feet of surface .

P5-33 b) increases capacity of airport. Therefore triggers Clean Air Act diminimus limit (more than 100 tons of NOX) and a full up Clean Air Act conformity is REQUIRED. SEIS for third runway admitted Sea-Tac is " SURFACE TRANSPORTATION LIMITED ", (NOT runway space limited as Port propaganda machine portrays it). Additional 300 tons of NOx exceeds the 100 tons (80 tons?) NOX deminimus limit

c) NOx at airport contributes to Puget Sound ozone problems due to wind patterns and mountains. Need impact on ozone from additional airport related pollution the road will allow (ground traffic, air traffic, ground equipment).

P5-34 d) too near runway protection zone (runway closest to terminal)so hazard from chemical pollutants, falling debri and ability to protect from terrorists

3) Comments applicable to all project

P5-35 a) 2 to 1 slopes unacceptable based on civil engineering best practices, FAA building advisory or regulation (and you are in the safety areas), 1998 King County Wetlands mitigation report, 1.2 million dollar repair of First Ave in Normandy Park (Miller Creek underneath didn't have the 3 to 1 slope), etc

Response P5-30

The mitigation measures described in Section 3.5.5 would be implemented to minimize potential sedimentation and pollutants in streams during construction.

Response P5-31

Construction-related air pollutant emissions would be temporary and spatially limited to the vicinity of construction activities, and would be within the air quality standards prescribed for the Puget Sound region. The mitigation measures outlined in Section 3.1.5 of this FEIS would be implemented to reduce emissions and meet air quality standards.

Response P5-32

Please see response to Comment P5-5 above.

Response P5-33

The proposed SR 509: Corridor Completion/I-5/South Access Road Project is independent of the Seattle-Tacoma International Airport Third Runway Project. The additional access provided by the South Access Road to Sea-Tac Airport is included in the airport master plan update and supporting environmental documentation. WSDOT and FHWA do not have authority over airport operations. Please address comments and concerns about airport operations to the Port of Seattle.

Response P5-34

Please see responses to Comments P5-1 and P5-33 above.

Response P5-35

Slopes of 2:1 can be acceptable, based on civil engineering best practices and depending on soil, groundwater, and other local conditions. Reinforced earth slopes of 1:1 can be used under specific conditions. The proposed project will used slopes of 3:1 or flatter at most locations. Please see response to Comment P5-5 above.

P5-36

b) Proposed mitigation such as covered trucks or trucks that only put as much fill in them that is legal to avoid dripping onto roads is NOT enforced and useless. See current third runway trucks for proof. Cheaper for them to pay the fines and haul maximum. Limited durations also ignored.

P5-37

c) Port of Seattle went on record that BMPs inadequate for North Employee parking lot project (significant amount of fill) at north end of airport (pollution fines for sediments in salmon bearing streams from what was first believed to be a water main break that turned out to be a spring popping out of nowhere– also got water on highway). The complexity of building on this water shed that has springs literally popping put of nowhere is well beyond BMP's.

d) Boring records are inconsistent.

e) Port tests for soft soils used the wrong type of drill so not valid

f) We have fractured till which needs to be considered when calculating contaminate transport speeds

P5-38

g) Where will the fill come from? How will it get there? How contaminated will it be? Reminder huge clean fill shortage due to proposed third runway and other Master Plan projects.

P5-39

h) Benzene levels around airport already significantly exceed the goal under Clean Air act with regard to 1 in million cancer risk (Contact Seattle-King County Dept of Health that has used the special 2001 EPA monitoring results at airport to calculate cancer risk). Benzene in combination with other chemicals makes the other chemicals more toxic. Proposal adds more benzene to an already toxic stew. Need risk analysis to determine illness and reduced life expectancy. Using this analysis need to determine a buy-out zone which is much greater than currently

Response P5-36

WSDOT contractors are required to follow all state laws regarding transport of cut-and-fill material.

Response P5-37

Please see response to Comment P5-12 above regarding groundwater. Please refer to Section 3.5.5 for a discussion of construction water quality best management practices (BMPs) for the proposed project. WSDOT will conduct geotechnical borings to supplement borings previously conducted in the area in accordance with best civil engineering practices.

Response P5-38

Please see response to Comment P5-10 above.

Response P5-39

Benzene is one of the four air toxins of greatest concern in King County, according to the Puget Sound Clean Air Agency. At this time, EPA has not established a process to evaluate the air toxic risk from individual roadway transportation projects; therefore, it is not possible at this time to quantify the small effect that the proposed SR 509: Corridor Completion/I-5/South Access Road Project would have on air toxins in the area.

anticipated. Also to set maximum allowed pollution from airport since I assume you do not want to limit amount of highway traffic.

P5-40 i) Air analysis focused on CO. It is airport activity NOx converting to ozone that is the real issue for Puget Sound (map of pollution concerns at http://www.ecy.wa.gov/pubs/0001003/fig-11.htm). http://www.ecy.wa.gov/pubs/0001003/fig-09.htm shows that trend in people being exposed to unhealthy ozone levels is not necessarily going down. There was a huge spike in 1998 due to weather (almost 5 million people exposed to air not meeting federal health standards.) Full report at http://www.ecy.wa.gov/pubs/0001003/index.html. EPA air trends web site gives specifics on exceedences.

P5-41 j) Earthquake analysis needs to consider the recent SHIPS work See faults at http://geohazards.cr.usgs.gov/pacnw/ships/brocher01/index.html. Note the dashed line running north and south in parallel to the Highway 509!!!! Width of Seattle fault at http://geohazards.cr.usgs.gov/pacnw/actflts/sfzfig2a.html Also note the velocity of the movement during the Feb 28,2001 earthquake at the airport was higher than anticipated and they are still trying to figure out why.

P5-42 k) Both roads too close to airport runways and stored fuel. Too difficult to secure airport from terrorist activities

P5-43 l) Giant sloth in Univ of WA museum found near airport not mentioned in your draft. But what you did cover was fascinating. Appreciate the effort.

Response P5-40

Please see response to Comment P5-8 above.

Response P5-41

The discussion of seismic activity in the project area has been updated and includes information from USGS Seismic Hazards Investigations in Puget Sound (SHIPS). Please refer to Section 3.4.1 in this EIS. The map showing north-south trending of the Coast Range Boundary in the project area identifies it as a fault of uncertain location.

Response P5-42

The Port of Seattle is a cooperating agency on the project, and Port representatives are members of the project Steering and Executive Committees. Development and refinement of the project alternatives has been conducted in cooperation with FAA and the Port to ensure compliance with FAA regulations and to address airport security issues. SR 509 and the South Access Road will be limited-access facilities and will be fenced with controlled access points.

Response P5-43

The giant sloth remains found at the north end of the airport were outside the Area of Potential Effect delineated for the SR 509 historic and archaeological resources analysis; therefore, this topic was not addressed in this EIS.

P6

March 21, 2002

Washington State Department of Transportation
John White, P.E., Project Engineer
6431 Corson Avenue South
WSDOT MS 61
Seattle WA 98108

ATTENTION: Public Affairs VIA E-Mail

The following are my comments on the 509/South Access Revised Draft Environmental Impact Statement. I am supplementing my comments with two attachments which I believe are relevant. One is titled Army Corps…and the second is Air Quality Conformity. I will also be faxing my comments that I sent to WSDOT in 1996 on the first draft environmental impact statement on this project. These 1996 comments have a lot of information that I do not wish to duplicate here. Thank you for your time and consideration of the issues I have brought up here.

3.1 Air Quality

P6-1

You know, I don't know how you can say this project conforms. How can it conform when it is sitting next to an airport project that didn't conform? I don't understand how PSRC failed to point that out to you since they were directly involved in the process and must know about the re-writing of the EIS EPA required because the airport project did not conform. And although, in the end, it appears the airport project conformity was approved, this was a temporary conditional approval that has several unfinished elements. Any addition of traffic impacts to the area, and as the revised draft 509 EIS indicates a 30% increase in emissions over the do-nothing, would put the de-minimis levels of tons per year criteria pollutants over the allowable limit.

This air quality section refers to the PSRC's conforming TIP, but it says nothing about the general conformity rule required for federal project support/funding and approval. The EPA ***conditionally*** approved the general conformity of the Sea-Tac Airport expansion program on specific criteria that have not all been met. EPA did this because the annual inventory of tons per year of air pollution generated by airport operations in the future was predicted to exceed the conformity rule for CO and O3. They did this also because there were predicted violations of the federal NAAQS for CO and NO2. An air quality study was to be performed, the final analysis of the particulate nephelometer monitoring has not been received. NO2 levels measured at Sea-Tac North constitute the highest regional reference monitored rates in two decades. And even though below the federal standard, this ozone precursor's inventory in the airport model is higher than all sources for Snohomish County and may be the regional source for numerous ozone violations at Enumclaw.

Response P6-1

As discussed in Section 3.1.4 of the EIS, the proposed SR 509: Corridor Completion/I-5/South Access Road Project has been analyzed in conjunction with other planned and programmed regional transportation projects as part of Destination 2030 (the Puget Sound Region Metropolitan Transportation Plan). The analysis demonstrates that transportation air quality emissions within the Puget Sound region would be within the region's emissions budget in 2020 and 2030. The regional emissions budget is established to ensure that the region remains in attainment for the National Ambient Air Quality Standards (NAAQS), which have been established to protect human health and welfare.

The EIS discusses localized increases in pollution levels near the locations most likely to be adversely affected by the proposed project. These results cannot be generalized to consider total pollutant emissions in the area because there are other locations where pollutant levels would decrease as a result of the project. In all locations, the modeling results show future pollutant concentrations to be within the NAAQS.

Basically, it is simple math. 509/South Access will add to pollution levels of CO and NOx in the area already overburdened by these emissions and in maintenance. If you increase emissions by 30% or more, as the narrative of this section admits, there will be a problem in the airshed. At 93 tons per year of NOx increase (de-minimus) the airport has already used up available tons per year and there isn't any room for 509's 30% addition to emissions over time. There was no inventory for SASA's emissions so this is unknown but will also increase emissions in this same area as the two joining freeways. Now the law is really stretched.

The airport's conformity analysis is about to expire in June. As far as I know, within the agreement for conformity, the Port and FAA are required to write a new EIS and issue another draft conformity analysis for the North Unit Terminal project. Within this scope of work, they should include the airport hotel, additional parking required for SASA and the hotel and the maintenance and idling emissions to and from SASA. There never was an emission inventory published for SASA. The Port and FAA said at the time they were unable to generate data because a specific carrier had not been chosen. This is now not a valid reason and an emission inventory for the separate operations at this facility should be prepared and presented to the public. This new document can now include 509/South Access (the Port and FAA did not add in the emissions for 509 during their EIS process because an inventory had not yet been prepared by WSDOT/FHWA, but is now available. This new document could also include construction emissions.

I thought it would be helpful if I made a list of suggestions:

1) Require a cumulative document for the public to review which includes:
   a) A map showing where SASA and 509 and South Access, the runway extension and RSA, and Wescott's projects will be located in relation to each other.
   b) Require an emission inventory for SASA
   c) Require FAA to add the third runway emission inventory to the hotel, SASA, 509/South Access and any other major project inventory in the area that is reasonably foreseeable now or in the future.
   d) Require that tons per year of emission inventories are prepared for all years where construction vehicles will be operating and include those vehicles in the inventory along with additional cars, trucks, planes and busses for parking lots
   e) Require that FAA input particulate data into their aircraft model so we have an honest analysis and that this time they not be allowed to adjust the jets to light aircraft to show reduced NOx in the future although aircraft numbers go up
   f) Require that someone with some knowledge can quality control this effort, check the figures, look at the input and be willing to dispute the results

P6-2

I understand that WSDOT believes all these projects have separate utility and therefore, can be analyzed in separate documents. The public does not see it that way. I don't see it that way. In my opinion, these all are closely enough related to be considered part of the overall development. Development is the key. If the airport were not being developed, the south access road would not be needed. SASA wouldn't be needed. The

P6-3

Response P6-2

Parts b, c, and e of this comment pertain to operations of Sea-Tac Airport. WSDOT and FHWA do not have authority over airport operations. Please address comments and concerns about airport operations to the Port of Seattle.

Locations of airport protections areas have been added to Figures 2.3-6, 2.3-7, and 2.3-8.

The proposed SR 509 project will be within the National Ambient Air Quality Standards for the Puget Sound region; these standards are protective of human health and welfare. Please refer to Section 3.1, *Air Quality*, of this EIS.

Quality control checks are performed on all project data by qualified personnel.

Response P6-3

NEPA requires that to be considered separate actions, each action should have "independent utility." This means that each action should be usable and a reasonable expenditure even if no additional transportation improvements in the area are made. The SR 509/South Access Road project would be usable and a reasonable expenditure whether or not the airport improvements occur. Please refer to Chapter 1 for a discussion of current and projected airport-generated traffic demand.

P6-3 (cont.) North Unit Terminal which will displace another entry into the airport would necessitate the South Access. And although I already argued with someone at WSDOT about this issue, to me, it is a matter of perception. I perceive these projects to all be related. The above listed projects are being built in the same air and watershed. They are all somewhat dependent upon one another. And they are all additive to an area previously

P6-4 predicted to violate the Clean Air Act. They must be added together for an overall picture of what the nearby public is being exposed to. The public has a right to know what they are being exposed to.

P6-5 I cannot see any references to my comments that I made in 1996 on the original draft. Isn't WSDOT/FHWA required to respond to those comments? I know they were received on 1/25/96 because they were sent certified and I have a signature card in my file. For your reference I am enclosing a copy and I consider these to still be relevant. And although you have considered other projects in the area in your cumulative section, the impacts don't seem to be added together. I am also e-mailing a copy of my comments to the Army Corps on the wetland 404 application for the airport project. These explain the history of the conformity process. I am also e-mailing a separate paper on conformity and how the airport project sponsors, I believe, used false data input and assumptions to derive a net less than zero increase in emissions over time.

P6-6 I do not consider a list of other projects to be a cumulative impact analysis. A listing and totals of those project impacts when added together is a cumulative analysis. For example, the Port/FAA proposes to fill 18.75 acres of wetlands for the third runway project. In the same basins that are affected by the third runway, SASA proposes to fill 2 acres and maybe relocate 18 (no mention of relocating Tyee Pond but appears to be necessary). WSDOT proposes to fill .2 and affect ____? Total acreage to be filled _____, total acreage to be affected _____, total acreage to be temporarily affected by construction _____? Runway extension and RSA affects _____?

P6-7 Wescott will temporarily affect _____? Total tons per year inventory of NOx 93 tons for airport and construction plus SASA plus light rail, Wescott and WSDOT construction years 2003 _____, 2004 _____, 2005, 6, 7 to 2010 etc. Is it over de-minimus? Is it predicted to worsen an existing violation? Is it predicted to delay attainment? Are there more PM10 violations? Where? How can they be reduced? Who is responsible for reducing these emissions?

3.2 Noise

WSDOT 509

P6-8 "Current noise-sensitive areas within the Sea-Tac Airport Noise Remedy Program areas were not included in the counts because the homes within the areas covered by this program would either be relocated or acquired by the airport in the future."

Absurd! Completely false and misleading statement. Nowhere in the Port's EIS is there a commitment to relocate or acquire additional homes in the flight path exposed to additional noise from the third runway. FAA arbitrarily determined that the noise from

Response P6-4

The localized analysis for the proposed SR 509: Corridor Completion/I-5/South Access Road Project includes a background concentration that includes the effects of other regional sources. Please see response to Comment P6-1.

Response P6-5

A summary of comments on the 1996 Corridor-Level Draft EIS for the SR 509 project and responses to those comments are included in Appendix A of this EIS.

Response P6-6

The cumulative effects analysis was done in accordance with Council of Environmental Quality guidelines. Please see response to Comment A3-18 from EPA. Tyee Pond will not be relocated as a result of the proposed project; a portion of the pond will spanned by a bridge. Wetland impacts associated with the SR 509 project, including direct, indirect, and temporary impacts, are described in Section 3.6, *Wetlands*.

Response P6-7

See response to Comment P6-4 above.

Response P6-8

The Port of Seattle, according to FAA noise mitigation policy, has committed to relocating all of the mobile homes in the Homestead Park neighborhood as part of its current noise mitigation plan (Sea-Tac Airport Part 150 Study Update, 1998). The airport mitigation plan is independent of the proposed SR 509 project and is based on current and future noise levels and the ability to mitigate certain types of residences from higher noise levels. Questions pertaining to the airport noise mitigation policy should be directed to the Port of Seattle.

the third runway would be less than 1.5 db over existing noise. FAA's own guidelines do not require them to redesignate for non-compatible use any residential areas unless noise increases above 1.5 db over existing. Noise levels in this area though already exceed EPA standards. FAA's 1990 noise map lists the areas from the south ends of the runways out past 216th south in the 70 and above LDN.

The draft EIS for the third runway project had one little sentence tucked inside 5,000 pages which said something to the effect; 'if the Port and FAA heard from people who desired to be bought out from the third runway flight path, they would consider allocating funding toward that end.' The final EIS said essentially that they didn't hear from anyone so no one would be bought out. (They heard from me but never acknowledged my comments on this subject). The Supplemental EIS said they would consider buy-outs during the upcoming FAR 150 process. The FAR 150 process is now over and as far as I know, does not include any funding or commitment to buy out people in the 3rd runway flightpath.

P6-8 (cont.)

There is no firm commitment from the airport to acquire homes that would be impacted by the third runway. There is no firm commitment from the airport to acquire any more homes in the future from what has already been acquired to date. The airport EIS did not admit to more noise than present noise with a new runway. WSDOT'S 509 project is going to add cumulative additional noise impacts to an area already suffering from an existing noise condition that exceeds federal health and safety standards for residential land uses. WSDOT has a duty and obligation to work with the other federal agencies engaged in projects in the area to develop a document which considers all impacts together and then work with that other agency to develop appropriate mitigation.

WSDOT has a duty to the public welfare to agree to acquire and/or relocate people living in areas where noise levels are expected to exceed those which are set to protect public health and welfare. Surely, freeway noise added to SASA and airport noise will far exceed federal and local standards when considered cumulatively.

Wetland Concerns

P6-9

What I thought was an 18 acre pond in the SASA EIS looks like wetlands F and G totaling more than 36 acres in the WSDOT EIS. Am I mistaken about the SASA EIS or the Ponds as opposed to wetlands? Could WSDOT research this discrepancy and explain it in the final EIS? It also looks different on the Port map that I am sending with my old comments via fax.

P6-10

I also do not know if you are aware that the area to the north of the airport was planned for warehouses and parking, but the Port of Seattle withdrew their proposal, I believe, because the wetland acreage to be filled (18 acres) was too large for a permit. I am not absolutely sure of the area they have just taken back from the North Sea-Tac Park but believe it may be wetland area also that may house the future north

Response P6-9

The Northwest Ponds are part of Wetland F, as shown in the SR 509: Corridor Completion/I-5 Improvements/South Access Road Revised DEIS. Open water and vegetated areas of Wetland F, including the Northwest Ponds, are regulated as wetlands by the U.S. Army Corps of Engineers and the Washington State Department of Ecology. Wetland G is associated with Des Moines Creek within the Tyee Golf Course.

Response P6-10

Please see response to Comment A3-18 from EPA and Section 3.17.2, *Cumulative Impacts*, of this FEIS.

warehouse/parking development. These all need to be added together to WSDOT's plans for this same watershed whatever plans the Port might have, which I do not know.

I thought it would be helpful if I made a few suggestions of questions that I would like posed and situations analyzed:

1) Add all wetland impacts together which include all of the following:
   a) 509/South Access
   b) Wescott plans
   c) SASA
   d) Runway Extension
   e) RSA extensions at the north and south ends of the airport
   f) SASA parking
   g) Airport hotel and parking
   h) Dozens of warehouse and cargo facility projects planned or ongoing at both the north and south ends of the airport
   i) 28th Avenue arterial project
   j) Tyee pond relocation?
   k) Third runway project
2) Past project impacts that have not yet been considered cumulative including RSA extension of the east runway which filled .2 acres of wetland, filling a Evergreen lake in 1973 and creating the current retention facilities as mitigation for that project.
3) Future projects which might or will fill or affect wetlands in either the Miller or Des Moines Creek basins that will have a cumulative effect

P6-10 (cont.)

3.17 Secondary and Cumulative Impacts

In your cumulative impacts section, does the 47% impervious surface area in the Des Moines Creek Basin represent WSDOT's plans only or does it also include the SASA? Does the SASA include the parking lot that was in their original plans or has it been dropped in subsequent plans that the public doesn't yet know about. Keep in mind that SASA promised thousands of jobs and all these people have to park their cars somewhere.

P6-11

I did not see a mention of the first runway extension in the list of cumulative impacts. This extension will also add to the impervious surface area of the basin. Was it added into the 47% figure above? Does any addition that you may have or will consider for the first runway extension include a 500 or more foot runway safety area (RSA). The 500 foot RSA is an FAA requirement as a prerequisite for grant funding and approval of a project. In 1992, during the SASA EIS process, the requirement was only a 250 foot area so I just want to make sure you are using the right figures. Eleven hundred total feet of extended runway impervious surface area as well as the slope that will also add to water retention and possibly flooding problems in Des Moines Creek and basin should be mentioned. You should also include a discussion of what percentage constitutes a total stream destruction and whether any federal or local laws forbid this kind of cumulative impacts on waters of these type(s).

P6-12

Response P6-11

The value of 47 percent estimated future impervious surface area in Des Moines Creek Basin was obtained from page E-IV of the 1997 Des Moines Creek Basin Plan:

> Urban development in the basin at build out is expected to increase the amount of impervious surface in the area that drains to the creek within the basin from the current 35% to over 40%. Most of this increase will result from development within the cities. The remainder will be split equally between three big projects currently proposed within the basin. These projects are the State Route 509 extension, the South Aviation Support Area, and the 3rd Runway Expansion.

Of this 47 percent future impervious surface area in Des Moines Creek Basin, the SR 509 project would contribute less than 4 percent.

Response P6-12

The effects of urbanization on streams depend on many variables and cannot be evaluated solely in terms of total impervious surface within the basin. Des Moines Creek Basin would have the greatest percentage of high-density land uses, as designated by applicable comprehensive land use maps; which suggests a higher cumulative impact for the Des Moines Creek Basin than for other basins.

The proposed SR 509 project is being integrated with proposed improvements identified in the Des Moines Creek Basin Plan. As a result, the proposed stormwater design for the project, together with the basin plan improvements, would result in reduced peak flows to a level that prevents flooding and stream bank erosion; increased dissolved oxygen levels; riparian vegetation restoration; low-flow augmentation and lower water temperatures; improved fish habitat; and removal of a fish passage barrier at Marine View Drive. Please see response to Comment A1-1 to the U.S. Department of the Interior.

P6-13

SASA proposes a land bridge over 188th somewhere for planes to taxi to and from SASA. Is there now a need for some other kind of bridge or tunnel for the South Access Road? Does either land bridge require rechannelization of Des Moines Creek? Is either an exception to any new FAA guidelines on avoiding land bridges over roadways or tunnels under runways? How will either of these items interplay with the first runway extension and a possible conflict of runway/roadways at 208th? 216th?

P6-14

Any discussion of existing problems in Des Moines Creek that does not include a thorough research paper on the decades of destruction and poisoning of these waters the Port is responsible for is inappropriate. Please refer to two clean water act lawsuits filed by CASE against the Port for 100 plus violations of their NPDES permit/Clean Water Act.

P6-15

Where will WSDOT mitigate the water retention problems created by the new freeway extension? Everything to the west is downslope toward the Puget Sound. Doesn't this create a problem for retention ponds? Who will be responsible for the new flooding problems that may wash out parts of roads that have already been affected since the RSA was extended on the first runway at the south end? Parts of the city of Des Moines already routinely flood when there is a big rain storm. What kind of mitigation plan does WSDOT have in mind to reduce this problem once all the additional impervious surfaces are added to this watershed upstream and uphill from these flooding problems?

P6-16

You know, I really don't think it matters who says what anymore. Ten thousand rocket scientists could tell the airport that the third runway is a bad idea and they would build it anyway. And although 509 extension would make my life easier and more convenient, it will also help the airport continue to build out their expansion and do what they want. I don't want the airport to grow. It is already too big. Jet airports are not compatible with the residential land uses around them. And although the airport blames urban development too close to their fence, they are actually the perpetrator of the problem because they refuse to let other airports take the business and profit away, they refuse to buy out enough of the sensitive land uses (it would be too expensive anyway).

P6-17

They are making so many peoples lives unbearable and they don't care. I think it is criminal that people are living within blocks of an emission inventory of 10 thousand tons per year of criteria and toxic air pollution. These same people are also being exposed to 70 DNL noise levels every day, every night. They are sick from the fumes, they are tired from the noise and they are broke from fighting. Their homes are not salable so they are stuck. Where are those agencies who should champion their cause? Where is environmental protection when you mostly need it? Who is watching out for these helpless victims who are suffering? Think of the children living and going to school here. What will be their fate as they grow up? And although I believe the 509 extension is a good idea and I want it, it will worsen everything that is already bad because it will draw in tons of traffic that is not here now.

Response P6-13

The South Access Road would pass beneath the SASA in a tunnel and is in compliance with FAA guidelines. Construction of the South Access Road, including the tunnel beneath the SASA, would not require rechannelization of Des Moines Creek.

Information pertaining to SASA and other airport improvements are included in the airport master plan update and supporting environmental documentation. WSDOT and FHWA do not have authority over airport operations. Please address comments and concerns about airport improvements to the Port of Seattle.

Response P6-14

The water quality analysis in the EIS was conducted in compliance with NEPA and SEPA, and in accordance as FHWA and WSDOT guidelines.

Response P6-15

A value engineering study was conducted in May 2002 to address stormwater issues for the proposed SR 509 project. The SR 509 stormwater design strategy, together with implementation of the Des Moines Creek Basin Plan projects, would result in reduced peak flows in Des Moines Creek and a reduction in flooding incidents. Information pertaining to the value engineering study is contained in Chapter 1 of this EIS; an updated description of the proposed stormwater treatment is available in Section 3.5 and in the Biological Assessment.

Response P6-16

Thank you for your comment.

Sincerely,

Debi DesMarais-Wagner
16247 8th Ave SW
Burien, WA 98166

P7

-----Original Message-----
From: Leonard, Ellie
Sent: Monday, March 11, 2002 5:37 PM
To: Patterson, Kynan; White, John (NW); Williams, David T.
Subject: FW: Public Comments SR509

Washington State Department of Transportation March 11, 2002

John White, Project Engineer
Urban Corridors Office
6431 Corson Avenue South, MS 61
Seattle, Washington 98108

Subject: SR509 Corridor Completion/I-5/South Access Road Project

Dear Mr. White,

Please accept the following as my public comments, concerns and questions on issues related to the SR509 extension:

Born and raised in the area, I am a naturally a volunteer stream steward for Miller, Walker and Des Moines Creeks and do video/still photography of the streams, habitat, fish, storm events and basically document as many impacts and influences as time and money will permit me to do.

It has become painfully obvious that our salmonids, primarily coho, chum, steelhead, and cutthroat trout are suffering from chemicals and stormwater runoff. For a visual understanding, I have video available of salmon during spawning season gasping for oxygen, trying to clear their gills as if something sticky was covering their tissues. They get disoriented often trying to leap out of the water beaching themselves. One coho was filmed nearly standing upright near the mouth of Des Moines Creek in the most recent spawning season. At the beginning of the season, most die pre-spawned. A Department of Fish and Wildlife officer uttered the "chemicals" word on seeing the video in 1999.

Chemical tests have been done on these salmon gill tissues to see what killed them. One test showed 26mg/l of copper. The maximum allowed under average hardness conditions (50) is 30mg/l . Obviously the maximum allowable is too much as the fish are dead. Copper primarily comes from brake linings of automobiles and airplanes.

Regardless of what the Port says about treating their industrial waste water, they do NOT remove metals in any significant amount. Freeway and street runoff add to the already heavy loads (MDL's) already present from the airport.

The second issue is stormwater runoff. Sea-Tac Airport and the City of SeaTac contribute such already unacceptable quantities of uncontrolled stormwater that frequent debilitating scourings take place in Des Moines Creek. The stream bugs that feed the fish need habitat too. Recent bug tests (Sept. 2000) by Salmon Web show the IBI (Invertebrate Biotic Index) as low as 10-12 (possible 40 scale) for Des Moines Creek. On a regular basis, Des Moines Creek is severely flooded with "bi-annual" 100 year storms. How can this be? Storms normally erode a little bit of the banks depositing new spawning gravel into the bed. However, these 1-2 year storms are so powerful they wash most of the gravel out to Puget Sound leaving only boulders and large rocks too big for salmon to dig redds (nests) into. This loss of habitat guarantees an exceptionally poor spawning thus ultimately causing a domino effect throughout Puget Sound. (video available depicting salmon attempting to dig a redd for 3.5 hours without moving a single rock!)

The most recent 2 year storm (November/December) flooded the Senior Center and gutted parts of Des Moines Beach exposing thousands of gooey ducks. (photos available) Severe runoff like a fire hose washed the beach away at the low-low minus tides. These mature clams were the State's Natural Resource and property destroyed, and now lost.

When the building "specs" call for a mere two year storm water detention level, in essence, what is being said is that it is OK to wash away all the restoration efforts every two years.

Just 6 months ago, members of Friends of Des Moines Creek and myself planted several native species such as ferns, salmon berry and indian plum along and near the stream banks to provide erosion control and shade. Now, they are all washed away.

This is very disheartening to say the least and really unacceptable.

The Port is building a 42" overflow pipe in their industrial waste water Lagoon 3, "just in case". 42 inch"??? That is huge and obviously states that the facility is being severely under built to save money and, read in, built to "minimums".

A contractor pointed out that these rain levels basically happen all the time as the two year designation implies and that DOT can insist on better detention.

The Department of Transportation has an opportunity with King County to take the lead here and throughout the region to establish new standards that actually work.

P7-1 **Question: What treatments will the Department call for on metals, copper primarily, lead and zinc? Clearly, the Port's bio-swales are not effective at treating metals. They simply accumulate during the dry season. When the rainy season begins, most of the metals are wash/flushed down the streams killing hundreds of 20"-30" salmon every year.**

P7-2 **Storm water and its content is without a doubt, the biggest killer of salmon and streams throughout the region. Will the Department planners see the wisdom of raising the bar from the current two year level to a much higher level such as 25 year storms? It isn't just freeway runoff that is a problem, it is an accumulation of parking lot, runway, freeway, roof and other impermeable surfaces. Des Moines Creek is clearly "broken" and hurting. Hopefully the Department will not run over its body.**

What will the Department do to solve these problems?

Brett Fish
801 S.W. 168th
Normandy Park, WA 98166
206.878.0807/206.242.5785

"Man did not weave the web of life, he is merely a strand in it. Whatever he does to the web he does to himself."Chief Sealth, 1854 <http://www.geocities.com/bzdiving/GreatWallofSeaTac.html> "Great Wall of SeaTac" Miller Creek <http://www.geocities.com/bzdiving/index.html> History

Response P7-1

Des Moines Creek is not identified on Ecology's 303(d) list for metals contamination. Stormwater treatment for the proposed project includes enhanced treatment to capture metals. Please see response to Comment A3-5 from EPA.

Response P7-2

WSDOT water quality treatment facilities would be designed in accordance with the standards recommended in the Des Moines Creek Basin Plan, which were developed for the protection of Des Moines Creek. The facilities would be designed to capture and treat a typical water quality treatment storm, which is defined as a 24-hour storm with a 6-month return frequency. The lower return frequency storm is usually used for water quality design because the concentration of pollutants is much lower in a storm with a greater return frequency (i.e., a 25-year storm). Bigger storms carry significantly more water; therefore, pollutants in that stormwater are usually diluted.

P8

Mr. John White, P.E.

P8-1

I work for Puget Sound Truck Lines, Inc. in Seattle at 3720 Airport Way South. We provide over 300 family wage jobs with the operation and administration of about 250 trucks in the greater Puget Sound area.

In our truckload business time is money. Anything we can do to improve the flow of traffic in this region will certainly improve our profitability.

The corridor that this project will improve is critical to our operation. We have a terminal in Tacoma and one in Seattle. Our trucks are moving up and down the I-5 corridor 24 hours per day. Most days we experience heavy congestion for about 15 hours per day.

Please accept our support for this worthy project and our compliments to all of you who have worked so hard to clear the way for approval of the SR 509 Corridor Completion/I-5 South Access Road Project.

Best regards,

Don Frey
Vice President
General Freight
Puget Sound Truck Lines, Inc.
206-654-7316
fred43@msn.com

Response P8-1

Thank you for your comment.

P9

-----Original Message-----
From: Barbara McMichael
Sent: Saturday, March 23, 2002 12:11 PM
To: whitejh@wsdot.wa.gov
Subject: 509 extension

March 23, 2002

Mr. John White, P.E.
Project Engineer, Urban Corridors Office
WSDOT
6431 Corson Avenue South, MS 61
Seattle, WA 98108

Dear Mr. White:

I live in Des Moines. I've attended a number of meetings regarding the 509 extension over the years, and I have to tell you that I've changed my mind over its necessity.

I think Boeing has already made up its mind about its involvement in (or abandonment of) the Puget Sound region, so I don't think we should kowtow to them.

More important, I think, is our responsibility to the people who live here. I acknowledge that traffic is terrible, but I am not convinced that allowing another freeway to slice through another south end neighborhood will do anything to improve our quality of life.

P9-1

For one thing, it fits into the Port of Seattle's plans to expand SeaTac Airport -- and there are thousands of us who object strenuously to that.

For another thing, building another freeway encourages sprawl at the expense of already-established communities. It isn't fair, and frankly I'm tired of having the south end be subjected to yet another costly and disruptive project that will bring my family and my community (the folks who live here, not the ones who try to make a buck off of us) no discernible benefit.

Sincerely,

Barbara Lloyd McMichael
bkmonger@nwlink.com

Response P9-1

The SR 509 project is consistent with local and regional land use plans that have already addressed growth. A similar level of projected growth is expected to occur in the project area with or without the project. Although the proposed project would support and facilitate planned growth, it would not induce growth. In general, the SR 509 project would result in both travel-time savings (higher average speeds) and shorter trip lengths because of the more direct routing afforded by the new roadway. Please see response to Comment P1-7 from the Transportation Choices Coalition regarding the project benefit/cost analysis. Traffic benefits of the proposed project are described in Chapter 2 of this EIS.

P10

-----Original Message-----
From: Nuss, Steve
Sent: Monday, March 18, 2002 10:17 AM
To: John White (E-mail)
Subject: SR-509 RDEIS

To John White,
Project Engineer, WSDOT

Thank you for the opportunity to comment on the SR-509 RDEIS, SR-509 completion / I-5 improvement project. Since I am a resident of Kent and work in Tukwila, this project will have a direct impact on me. I am a bicycle commuter and also use my bicycle as transportation to run errands (utilitarian). While it is important to provide recreational facilities for cyclists, I am more concerned with utilitarian facilities. These facilities should provide cyclists the same access (to businesses, residences, schools, etc) that motor vehicles are provided. Please design these facilities to be safe, energy efficient and convenient for cyclists. For example,

P10-1
* at road grade bike lanes (no elevated sidewalks for bikes)
* in-bike-lane traffic light sensors, spaced from intersection for a bike (20 MPH downhill, 15 MPH level, 5 MPH uphill).
* bike lanes delineated through right turn only motor vehicle lanes
* smooth pavement (lack of drain grates, manhole covers)
* etc.

P10-2
I would like to point out that there are only three places to pass under I-5 in Kent. Additionally, two of these three roads will be used to access park-and-ride locations. These facts make it very important to consider bicyclists in all of these locations. Please provide the necessary facilities to give bicyclists free access to either side of I-5.

P10-3
These same considerations should be given to all major surface streets that will be impacted by this project. I was quite alarmed to hear that the planned Marine View Drive bridge/wetland mitigation does not have bicycle lanes on it. It will be a mistake to build a bridge without bicycle lanes that will most likely be in use for the next forty years. This is especially irresponsible when you consider that Marine View Drive is the only North / South route accessing north Des Moines between Puget Sound and 24th Ave. So. which is far up the valley ridge (approximately 1-½ miles and a 340-foot elevation gain). A 14-foot wide lane does not provide the same protection that a designated bike lane provides. A lack of a bike lane will discourage some cyclists from using this facility. Some will still use this bridge but at lowered levels of safety. Still others will ride on the sidewalk, endangering themselves and pedestrians. I would like to see detailed preliminary drawings showing motor vehicle and bicycle channelization of the following areas when they are available for comment, before design freeze.

P10-4
* SR-516 / Pac. Hwy. / I-5 / Military Rd.
* So. 228th St. / Military Rd. / I-5
* I-5 / So. 259th St.
* I-5 / So. 272nd St.
* Marine View Dr. / So. 216th St. / Des Moines Way

Thank you,

Response P10-1

Bicycle facilities for this project would be designed using the WSDOT Design Standards Chapter 1020 and *Guide for the Development of Bicycle Facilities* (1999) prepared by the American Association of State Highway and Transportation Officials (AASHTO). Design standards would vary within the project depending on the class of bike facility being designed.

Response P10-2

Bicycle lanes will be provided to allow safe access through the SR 516 interchange at either the SR 516 overcrossing or the South 228th Street overcrossing. Please see response to Comment P2-1 from Jacob Grob et al.

Response P10-3

WSDOT's commitment to contribute to the Marine View Drive replacement project is related to WSDOT's partnership in the Des Moines Creek Basin Plan. The contribution is for partial construction funds only, and is for mitigation credit for the removal of the impassable fish barrier.

The bridge project was designed by the City of Des Moines and is consistent with the City's comprehensive plan requirements regarding bicycle routes and corridors.

Response P10-4

Plans may be obtained when preliminary design of bicycle facilities is more complete. Improvements to the I-5/South 259th Street crossing and Marine View Drive are not included in the proposed project.

Steven M. Nuss
stevenuss@reddotcorp.com <mailto:stevenuss@reddotcorp.com>
26220 42nd Ave. So.
Kent, WA 98032
253-854-7561

P11

-----Original Message-----
From: PAUL A SILVERNALE
Sent: Saturday, February 23, 2002 10:28 AM
To: John H. White
Subject: Comment On SR509

John White, P.E. Project Engineer WSDOT

I am concerned about maintaining the security along the west boundaries of our properties.

Our properties are west of Military Rd S between S 216th St and S 218th St.

P11-1

As shown in option C2 the "right of way boundary" will be moved to the east a significant amount. Currently we are buffered by private property from pedestrians accessing 32nd PL S from S 216th St.

How will the WSDOT maintain the existing level of security for the properties along Military Rd S from S 216th St to 32nd PL. S adjacent this new boundary line?

Paul & Kristi Silvernale
21629 Military Rd S
SeaTac, WA 98198

Response P11-1

All highway right-of-way would be protected by a 6-foot chain-link fence. No connection would be made between 32nd Place South and South 216th Street

P12

2/12/02

Dear WSDOT,

The I.5 - 509 project directly impacts our property and our investment @ 3014 So 259th Ct. The noise from I.5 has been a problem for many years. Back in 1993-1994 the DOT surveyed the problem. They agreed at that time that there was a noise problem. However, they felt that the number of residence impacted was not enough to fix the noise concern. Since the new project started there has been more noise and new problems. The freeway is moving 24ft closer to our home. This not only has compounded the problem but has made it less desirable to live at the property and will have a impact on the resale value of our property. We, in fact have over the last month tried to rent this home out. We had several complaints about the freeway being to noisy and because of this they were not interested. One of your engineers was interested in renting our home. This person said they lived over 38 miles from their office. That the house was nice and that the location was great. That the house was 5.1 miles from the office. They said that if it wasn't for the noise from the freeway and the project that they would have rented it. This directly comes from personnel in your office. Since the project started you have cleared vegetation from the fence that divides our property and the freeway. This has opened the view and has increased the noise from the freeway. Since then we have had transients jumping the fence into the yard. Your office says they have no plans to plant new vegetation. The freeway is going to be 24ft closer and the sign your putting up is about 10-15ft from the property line. This should have to work for all parties involved. Unfortunately, it is only working for WSDOT. This is only a short version of what we have to say. I would like this submitted into the comments and concerns. We need to know what else we need to do to be heard and addressed.

P12-1

P12-2

Thank You,

Tim & Teresa Still

3014 So 259th Ct
Kent, WA 98032

Mailing Address
24803 42nd Ave SO
Kent, WA 98032

Response P12-1

WSDOT has conducted additional noise evaluation of the project area. Noise mitigation has been recommended for locations with noise impacts where mitigation is both reasonable and feasible. A noise barrier has preliminarily been recommended to reduce noise from I-5 within the area of concern (including 3014 South 259th Court). If the proposed mitigation remains feasible to build a barrier based on final design information, this barrier will be constructed between this area and the highway.

The project referred to in the comment is the I-5: Pierce County Line to Tukwila, HOV – Stage 3 project, not the proposed SR 509 project.

Response P12-2

Upon completion of the project, WSDOT would plant vegetation (including trees) on all disturbed slopes. In many locations, this vegetation would include trees and shrubs, and would take several years to mature and visually screen the highway.

The project referred to in the comment is the I-5: Pierce County Line to Tukwila, HOV – Stage 3 project, not the proposed SR 509 project.

P13

-----Original Message-----
From: Daniel Wend [mailto:dan@wendart.com]
Sent: Monday, March 25, 2002 5:04 PM
To: whitejh@wsdot.wa.gov
Subject: 509 extension

Dear Mr. White,

P13-1 I strongly recommend that the Revised Draft EIS for the 509 extension be rejected. I believe the true goals of completing 509 are in fact politically driven and not based on sound transit needs or consideration of the true environmental impact of its further development. The impact statement as is does not consider the impact of 5000 trucks daily using the road for airport fill, nor the degradation of air quality, runoff and ground water contamination, or the expense of necessary noise mitigation. Please reject it. Thank you.

Sincerely,

Daniel Wend
22810 Thunderbird Drive
Des Moines, WA 98198
206.878.6912

Response P13-1

Thank you for your comment. Impacts associated with construction of projects included in the Seattle-Tacoma International Airport Master Plan are not part of the SR 509: Corridor Completion/I-5 Improvements/ South Access Road Project and are not evaluated in this FEIS. Air quality (Section 3.1), surface and groundwater (Section 3.5) , and noise impacts and mitigation (Section 3.2) for the SR 509 project were evaluated in the Revised DEIS in accordance with NEPA and SEPA.

Since publication of the Revised DEIS, an air quality conformity analysis was conducted for the project and is contained in Appendix H of this FEIS; the project meets all regional air quality standards. A detailed noise analysis was conducted to further evaluate the potential noise barrier locations (Appendix I).

P14

5912 23rd Avenue South
Seattle, WA 98108-2944
206.723.0259
wye@earthlink.net
February 27, 2002

John White, PE
Project Manager, SR-509 extension
Urban Corridors Office
WSDOT
6431 Corson Avenue South
Seattle, WA 98108

Dear Mr. White:

Here are my comments regarding the REIS on the SR-509 corridor completion/I-5/South Access Road Project.

SOUTH ACCESS (AIRPORT LINK) PROJECT:

P14-1
- Option H2A should be taken out from further consideration. It seems to have the same impacts (land takes) as Option H2B, but does not provide for a local access ramp as provided in Option H2B.
- Keep Option H0 for further study, like the stacked tunnel approach. Will it be cheaper than a traditional side by side roadway tunnel? (Option H2B)

P14-2
- Has there been any thought of putting the local access on the south side of S. 188th St, instead of the north side. There seems to be more open space there, and fewer problems with merging/mixing of traffic from the airport drives. S. 200th St is too far away southward for local access.

P14-3
- Eliminating the existing S. 182nd St airport entrance from International Blvd. with no local access nearby (like Option H2A) could play havoc with existing transit services (especially Metro Transit's Route 174). Does the Port of Seattle plan to speed up the process of building the new Intermodal Transfer Facility (with the extension of the existing north-south people mover system) on the existing Radisson Hotel property at S. 170 St and International Blvd to help alleviate this problem?

P14-4
- Will the South Access roadway be 1 or 2 lanes in each direction? And will jersey barriers physically divide the opposing lanes or will it be simply a painted line with a wide in the median.

Response P14-1

Option H2-B has been selected for inclusion in the preferred alternative for the project. This design option includes a South 188th Street to northbound South Access Road ramp, but does not include a southbound South Access Road to South 188th Street ramp. Refer to Section 2.3.2 of this FEIS for a detailed description of the South Airport Link Design Options.

Response P14-2

Option H2-B has been selected for inclusion in the preferred alternative for the project. Ramps on the south side of South 188th Street were not considered because of airport security and operations concerns.

Response P14-3

Option H2-B has been selected for inclusion in the preferred alternative for the project. Transit could enter the airport drive system at South 170th Street and South 188th Street under Option H2-B. The Port of Seattle is working with local transit providers, including King County Metro and Sound Transit, to ensure adequate transit access to and from the airport.

Response P14-4

The South Access Road would have two general purpose lanes in each direction. The current study has not yet addressed the design details; however, traffic safety features would be considered for this project, including barriers.

SR-509 EXTENSION:

P14-5
- At. S. 200th St, for the northbound onramp and southbound offramp, around 18th Avenue South. Why did WSDOT not use the existing 18th Avenue South roadway for the entrance/exit to/from the north? It seems to be less costly, instead of building brand new ramps extending all the way down to S. 200th St (this is for the preferred alternative C2 - or is 18th Ave South in the FAA XOFA area??)

P14-6
- In the REIS, (alternative C2) there is mention of a S. 200th St Southbound on-ramp and a northbound off ramp to SR-509, but does not show on any maps (chapter 2, 2-27). Is this ramp actually part of the south link access road instead on S. 200th?

SR-509/SOUTH ACCESS INTERCHANGE:

P14-7
- I assume that this interchange between SR-509 and the South Access interchange are totally grade separated. It seemed from your interactive map on the web, that for someone headed to/from the South Access Road from SR-509, had to go through the 24th/28th Avenue interchange first with a stop light. I assume that this is not true?

SR-509/I-5 INTERCHANGE and I-5 itself:

P14-8
- Though not in Sound Transit or King County Metro Transit plans, there needs to be space available in the median for a FUTURE in-line bus stop at the SR-516/S. 228th interchange, in the event that Sound Transit is foiled from building LINK light rail. Without this station, the HOV system falls apart, as buses serving the Kent Des Moines flyer stop would have to leave the HOV lanes to serve it.

P14-9
- I like to know why WSDOT did not consider even building a direct HOV lane access ramp to the I-5 left hand HOV lanes from the NB I-5 to NB SR-509 CD lanes? (using the underpass with a combination tunnel. This means, HOV traffic would still have to do the 5 lane change, but just further north (past S. 200th) where northbound traffic begins to bog down further. I figured that this HOV ramp would be too expensive to install as a separate project, but since WSDOT is building the overpass at S.210th St for the SR-509 connection, it should not be as expensive to build.

P14-10
- On the SB CD lanes, suggest that the second lane end before crossing over SR-516. This would allow traffic from the SR-516 entrance to SB I-5 to have the second lane free and no merging required. The second lane would still end in at S. 272nd St.

P14-11
- It is not clear in the figures, but I assume that a vehicle from SB SR-509 could get off at SR-516??

P14-12
- How will the S. 200th NB off ramp traffic be handled? I assume that the new NB CD lanes will handle that function.

Response P14-5

The ramps at South 200th Street were designed to match existing topography, facilitate traffic movement at the interchange, and avoid Hillgrove Cemetery. Eighteenth Avenue South is not at the proper vertical alignment to tie into the new SR509 freeway extension.

Response P14-6

Under Alternative C2, the South Access Road interchange would include a northbound SR 509 off-ramp to South 200th Street and a southbound SR 509 on-ramp from South 200th Street. The text in Chapter 2 has been revised to clarify this.

Response P14-7

Motorists on the South Access Road traveling to and from SR 509 would not have to stop at 28th/24th Avenue South. Both the South Access Road and SR 509 would be grade-separated from 28th/24th Avenue South.

Response P14-8

HOV direct access improvements or an in-line station at the SR 516 or South 228th interchange are not being considered because they are not part of the regional transportation plan.

Response P14-9

Direct access ramps at the I-5/South 200th Street interchange were not considered because they are not part of the regional transportation plan. Direct access improvements are not currently under consideration at SR 516.

Response P14-10

Two southbound collector/distributor (C/D) lanes would be necessary at the SR 516 interchange because one lane would not be able to accommodate all of the traffic forecasted for that roadway segment. The project traffic model predicts that 3,000 vehicles would use these two lanes. If only one lane was provided, significant congestion would occur.

Response P14-11

Yes, southbound SR 509 traffic could exit at SR 516 and would not have to merge with I-5 traffic.

Response P14-12

The northbound C/D lanes would become part of mainline I-5 traffic before the South 200th exit. To exit I-5 at South 200th Street, northbound traffic would continue to use the existing exit lane, or would be able to use a new added outside drop lane.

SR-509 (Out of study area):

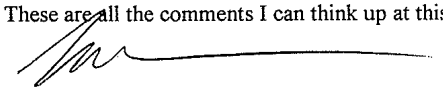
P14-13 Though this is out of the study area, has there been any determination on how much traffic will actually divert from I-5/SR-599 to SR-509 instead? I curious on the impacts on the existing SR-509 freeway, especially southbound, due to the long uphill, after the Olson Way interchange that with additional trucks and buses (both slow moving), that could impede freeway traffic (even with the existing third lane today).

P14-14 This third lane actually needs to be extended a little further to become the S. 128th St exit only lane. (I drive a metro bus southbound on SR-509, and I'm not even to speeds when that third lane ends past Glendale Way S. This extension would give slow moving vehicle a little more accelerating space before moving back to the two lanes at decent freeway speeds.

28th/24th AVE South:

P14-15 If Des Moines wants this road to be a parallel road to SR-99, it needs to improve the road further south (beyond S. 208th) and pedestrian friendly (with full sidewalks). It is pretty much a neighborhood street south of S. 216th St. I feel that with the new 24th/28th overpass, this is what is going to happen to this street - a bypass to SR-99.

These are all the comments I can think up at this time. Thanks for your time



Warren Yee

Response P14-13

The transportation study area for this project did not extend as far north as the I-5/SR 599 interchange, so this specific interchange was not evaluated. The traffic study did examine the level of service (LOS) on I-5 north of the SR 518 interchange. With the proposed project, LOS on I-5 in this area would improve from LOS E to LOS D. So, it is likely that some of the traffic that currently uses the I-5/SR 599 interchange would use SR 509 instead.

Response P14-14

The Washington State Highway System Plan: 2003-2022 prepared by WSDOT identifies improvements to SR 509 between Des Moines-Memorial Drive South and the 1st Avenue South Bridge. Specifically, this highway segment would provide two general purpose lanes and one HOV lane in each direction.

Response P14-15

Your comment has been forwarded to the City of Des Moines. Currently, the only planned improvements related to the 24th/28th Ave corridor are within the City of SeaTac.

C1

SR509 Corridor Completion / I-5 /South Access Road Project

COMMENT FORM

The Steering Committee wants your comments on the adequacy and completeness of the Revised Draft EIS. Please return this tonight or send your comments by **March 25, 2002** by mail, fax or email:

- John White, P.E., Project Engineer, Urban Corridors Office, WSDOT, 6431 Corson Avenue South, MS 61, Seattle WA, 98108
- Fax: (206) 768-5899
- Email: whitejh@wsdot.wa.gov.

Please include your name, address, and phone number in case we need clarification on your comment. We will respond to comments in the Final EIS.

PRELIMINARY PREFERRED ALTERNATIVE IS GOOD. I WOULD LIKE TO SEE AT LEAST SOME THINKING TOWARD EXTENDING SR509 ALL THE WAY TO TACOMA. ALSO, I AM NOT SURE I-5 CAN HANDLE ALL OF THE SR509 MERGE. PLEASE CONSIDER SR509 TO TACOMA

C1-1

ANOTHER ISSUE: ROUTING SIGNS FOR STATE HIGHWAYS THRU CITIES IS VERY LACKING. PLENTY OF SIGNS FROM SIDE STREETS BUT DIFFICULT TO FOLLOW ROUTES. NEED SIGNS INDICATING WHAT ROUTE YOU ARE ON. EXAMPLE FROM CURRENT SR509 EXTENSION FROM FREEWAY TO 1ST AVE SO. & CONTINUING. THERE ARE NO SIGNS FROM 1ST AVE AT EXTENSION TO PACIFIC HIGHWAY & RO BY SACAJAWEA J.H.S.

C1-2

Name HOWARD CLARK
Address 17837-1ST AVE SO. #526
City NORMANDY PARK State WA Zip Code 98148
Phone: 206-824-6780 E-mail

For more information, visit www.wsdot.wa.gov/regions/northwest/SouthKing/Projects/SR509

Thanks for your comments.

Response C1-1

The Access Decision Point Report (CH2M HILL 2002) describes in detail the effect of the proposed project on I-5 traffic operations from SR 18 in Federal Way to I-405 in Tukwila. (This report, which was prepared for FHWA by WSDOT, must be approved by FHWA before construction of the new SR 509/I-5 interchange system can begin.) The report indicates that the preferred alternative (Alternative C2) would relieve congestion and improve traffic safety along I-5. With the proposed project, traffic congestion on I-5 would lessen during the morning and evening rush hours even though I-5 would be carrying more vehicles. In addition, the amount of time it takes to travel I-5 could decrease by 12 percent. Similarly, the speed at which traffic flows would increase. Please refer to Section 2.4.7 of this EIS for a discussion of the added access analysis.

Response C1-2

A signing plan will be developed as part of the preliminary and final design efforts for the proposed project. Your comment will be taken into account during development of the signing plan.

C2

SR509 Corridor Completion / I-5 /South Access Road Project

COMMENT FORM

The Steering Committee wants your comments on the adequacy and completeness of the Revised Draft EIS. Please return this tonight or send your comments by **March 25, 2002** by mail, fax or email:

- John White, P.E., Project Engineer, Urban Corridors Office, WSDOT, 6431 Corson Avenue South, MS 61, Seattle WA, 98108
- Fax: (206) 768-5899
- Email: whitejh@wsdot.wa.gov.

Please include your name, address, and phone number in case we need clarification on your comment. We will respond to comments in the Final EIS.

We own property abutting I-5 (to the West) between S. 249th & S. 220th St. up to & including vacated 31st Ave. S. (Gem Addn. Block 4)

Because we are currently in the midst of planning for construction of a 300-unit high-rise project (Pacific Ridge neighborhood) the extent of possible taking of our land is extremely important.

C2-1

The ongoing expense of pursuing vesting & construction of our project leads us to wonder if the alternative of "early acquisition" of the entire parcel might make more economic sense...

Please contact us with plans, thoughts, etc. ASAP!

Name Greta Creswell / Leo Gaday
Address 12035 Juanita Dr. NE
City Kirkland State WA Zip Code 98034
Phone: 425-823-8700 E-mail ww-realty@worldnet.att.net

For more information, visit www.wsdot.wa.gov/regions/northwest/SouthKing/Projects/SR509

Thanks for your comments.

Response C2-1

WSDOT has developed a list of property owners who have requested an early buy-out. As funding becomes available, WSDOT would be purchasing as many of these properties as possible.

C3

FEB 19 2002

SR509 Corridor Completion / I-5 /South Access Road Project

COMMENT FORM

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- John White, P.E., Project Engineer, Urban Corridors Office, WSDOT, 6431 Corson Avenue South, MS 61, Seattle WA, 98108
- Fax: (206) 768-5899
- Email: whitejh@wsdot.wa.gov.

Please include your name, address, and phone number in case we need clarification on your comment. We will respond to comments in the Final EIS.

HELLO WSDOT, / JOHN WHITE: ENGINEER,
OVERALL THIS PROJECT (ALT C2)
LOOKS WORTHWHILE AND FEASIBLE.
GOOD DESIGN!

C3-1 I DO HAVE A REQUEST — AT SOUTH 194TH ST., APPROX. 10TH/11TH AVE S., PLEASE PROVIDE OVER/UNDERPASS TO ALLOW TRAFFIC FLOW ON 194TH ST.
REASON: 8TH AVE SO. HAS BECOME VERY UTILIZED DUE TO SCHOOLS AT APPROX 200TH ST. AND COMMERCIAL USES FROM 192ND ST. & NORTH.

C3-2 ALSO, IN THE SAME AREA (194TH ST/10TH-11TH AVE) A SLIGHT RE-ALIGNMENT, MOVING 509 TO THE WEST WOULD RETAIN A SMALL MANUFACTURING BUSINESS THAT EMPLOYS ABOUT 12 PEOPLE WITH LIVING WAGE JOBS. THANKS!

Name MR. J. JOLLIMORE
Address 22806 13TH AVE S.
City DES MOINES State WA Zip Code 98198
Phone (206) 878-8520 E-mail

For more information, visit www.wsdot.wa.gov/regions/northwest/SouthKing/Projects/SR509
Thanks for your comments.

Response C3-1

Improvements to South 194th Street are not included in the proposed SR 509 project. This comment will be forwarded to the appropriate agencies for consideration and implementation.

Response C3-2

The alignments of the proposed project alternatives have been designed to minimize the number of residential, business, and environmental displacements. SR 509 was not shifted further west in the vicinity of 194th Street and 10th/11th Avenues to avoid wetland impacts.

C4

SR509 Corridor Completion / I-5 /South Access Road Project

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- Email: whitejh@wsdot.wa.gov.

Please include your name, address, and phone number in case we need clarification on your comment. We will respond to comments in the Final EIS.

THIS PROJECT SHOULD PUT BICYCLE LANES ON ALL "SURFACE" STREETS IN THE MIDWAY INTERCHANGE AREA AND ON SR516. SIDEWALKS AND 14-FOOT CURB LANES ARE NOT APPROPRIATE IN THE MIDWAY INTERCHANGE. ~~THIS~~ THE INTERCHANGE IS A PORTAL FOR CROSSING I-5, AND IT HAS BECOME HOSTILE

C4-1 TO NON-MOTORIZED TRANSPORT. MARKED IN-STREET BICYCLE LANES OR BICYCLE-COMPATIBLE SHOULDERS SHOULD BE A PART OF ~~THIS~~ THE REWORK OF MIDWAY INTERCHANGE TO ENABLE BIKES TO SAFELY TRANSIT ACROSS I-5 IN THE EAST-WEST DIRECTION ALONG SR516 AND ALONG S. 228th St. 14-FOOT CURB LANES ARE NOT WIDE ENOUGH FOR BUSES AND TRUCKS TO ~~SAFELY~~ SAFELY PASS BICYCLISTS. 16-FOOT CURB LANES ALONG SR509 ARE BETTER.

C4-2 ALL AFFECTED SIDESTREETS SHOULD GET IN-STREET BICYCLE LANES AND SIDEWALKS, NOT JUST "MOTOR LANE/CURB/GUTTER/SIDEWALK."

LEFT-SIDE ON AND OFF RAMPS THAT ARE ADDED TO I-5 BY THIS

C4-3 PROJECT PERVERT THE STANDARD RIGHT-SIDE ACCESS CHARACTERISTICS OF INTERSTATE HIGHWAYS. ~~THIS~~ LEFT-SIDE ACCESS IS A WRONG-HEADED DESIGN.

HOW DOES A DRIVER GET FROM ~~THE NORTH~~ SOUTHBOUND SOUTH ACCESS ROAD SOUTHBOUND TO SR 509 NORTHBOUND? HOW DOES A DRIVER GET FROM SOUTHBOUND SR 509 TO SOUTH ACCESS ROAD NORTHBOUND?

Name DAVID W. HOFFMAN

Address 25334 45th AVE. S.

City KENT State WA Zip Code 98032

Phone: 253 852 4683 E-mail

For more information, visit www.wsdot.wa.gov/regions/northwest/SouthKing/Projects/SR509

Thanks for your comments.

Response C4-1

Location of bicycle facilities on this project would be based on AASHTO standards. See responses to Comment P2-1 from Jacob Grob et al. and Comment P10-1 from Steve Nuss.

Response C4-2

The proposed SR 509 freeway extension will match into local arterials only at the points of limited access. At those locations, the improvements will match into the cross-sections existing or planned by the local agencies and will include, where appropriate, matching sidewalks and bike lanes. Your comment has been forwarded to the Cities of SeaTac and Des Moines.

Response C4-3

Most side streets are not a part of this project; bicycle facilities will be located based on AASHTO standards. The only on- and off-ramps on the left side of I-5 are HOV direct accesses; this configuration prevents weaving of HOV users. The location of on- and off-ramps at the I-5/SR 516 interchange has been designed to optimize traffic circulation, reduce safety risks. and is consistent with department standards.

A driver going southbound on the South Access Road can go northbound on SR 509 by exiting the South Access Road at South 200th, driving west approximately 2,000 feet, and then turning right onto the northbound SR 509 on-ramp. A driver on southbound SR 509 going to the northbound South Access Road would exit SR 509 at South 200th, drive east approximately 2,000 feet, and then turn left to enter the northbound South Access Road.

C5

MAR 22 2002

SR509 Corridor Completion / I-5 /South Access Road Project

COMMENT FORM

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- John White, P.E., Project Engineer, Urban Corridors Office, WSDOT, 6431 Corson Avenue South, MS 61, Seattle WA, 98108
- Fax: (206) 768-5899
- Email: whitejh@wsdot.wa.gov.

Please include your name, address, and phone number in case we need clarification on your comment. We will respond to comments in the Final EIS.

We live at 21224-32nd Ave So, Sea-Tac, WA. 98198-4212, we have lived here for 45 years, moved in as newlyweds in 1957 when the house was brand new. In 1963 the state of WA. appropriated the East half of our property, as I-5 was being built, and they said they needed our property. As we were not on a sewer system at the time, we needed room for the drain field for our septic tank, so we were forced to buy the remaining property left from the house moved out right to us (on the South side of our property). It eventually worked out as we were able to build a 2 car garage with shop space, and have a garden area, plus plenty of parking space on this added property. Now, with the extension of SR 509 to I-5, according to your C2 plan, we will lose all of our property. We are in our early to middle 70's and thought we would live here comfortably for many years yet. Now we are being forced to move by WA. state. I have talked on the phone with John White regarding this situation, and he assured me that (1) we would →

Name RICHARD P. & ANNE B. KURTZ

Address 21224-32ND AVE. So.

City SEA-TAC State WA Zip Code 98198-4212

Phone: (206) 878-8223 E-mail

For more information, visit www.wsdot.wa.gov/regions/northwest/SouthKing/Projects/SR509

Thanks for your comments.

receive fair market value for our home and property, and ② we would be offered another place comparable to what we have here. But - because of the proposed extension of SR 509 through this area, prices attained for homes that have been sold in this neighborhood have plummeted, and most have become rental properties, which sad to say, has further deteriorated the market. If this proposed extension of SR 509 were not coming through here, we were told we could easily get well over $ 200,000.00 for our property. Will we be offered this much now ? We spent a good share of last Summer looking at homes for sale, and anything under $ 2000,000.00 was usually unacceptable and in less than desireable neighborhoods. We would prefer to stay in this area, this is where our friends and family are, and our Church, and the Shops, etc., that we are used to.

C5-1

This will be a very difficult move for us, mostly because of our age, but also because it is not our decision to make. If this is indeed inevitable, we would like to be considered for an early as possible buy-out. We are in pretty good health right now, but if this drags on for another 4 or 5 years, who knows what condition we will be in.

C5-2

We respectfully ask for your consideration regarding our situation as outlined above.

Response C5-1

Any acquisition appraisal for a public works project must ignore any effect the pending project has on market value. This means that if the sale price of your home dropped after the announcement of the project, our appraisers would look at other unaffected neighborhoods or at previous sales in the same neighborhood to determine the market value. In addition, the relocation program provides assistance to you in your search for a new home that would meet your needs. This program would search for comparable housing for your consideration, and would provide an allowance for replacement housing if no comparable houses are available within the value range of your home, a mortgage differential if your new mortgage is at a higher rate than your current mortgage, and the cost to move your belongings to your new home. Our brochure entitled Residential Relocation Assistance Program more fully explains the benefits that are available.

Response C5-2

We understand the stress that this acquisition places on your life and will do everything possible to help you through the process. We have developed a list of property owners who have requested an early buy-out. As funding becomes available, we would purchase as many of these properties as possible.

C6

SR509 Corridor Completion / I-5 /South Access Road Project

COMMENT FORM

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- John White, P.E., Project Engineer, Urban Corridors Office, WSDOT, 6431 Corson Avenue South, MS 61, Seattle WA, 98108
- Fax: (206) 768-5899
- Email: whitejh@wsdot.wa.gov.

Please include your name, address, and phone number in case we need clarification on your comment. We will respond to comments in the Final EIS.

C6-1

My WIFE AND I ARE IN OUR 70'S WE CANNOT WAIT TOO MUCH LONGER FOR THE BUYOUT. OUR [redacted] NEIGHBOR'S ARE IN THE SAME SITUATION, WE ARE TWO TIME LOOSERS. IN 1963 WE LOST OUR BACKYARD AND LIVED WITH THE DUST FUMES ETC SINCE THEN. I'LL SAY NO MORE I THINK YOU KNOW HOW WE FEEL ABOUT THIS PROJECT.

Name ANNE & RICHARD KURTZ
Address 21224-32ND AVE S.
City SEATAC State WA Zip Code 98198
Phone (206)878-8223 E-mail

For more information, visit www.wsdot.wa.gov/regions/northwest/SouthKing/Projects/SR509
Thanks for your comments.

Response C6-1

We understand the stress that this acquisition places on your life and will do everything possible to help you through the process. We have developed a list of property owners who have requested an early buyout. As funding becomes available, we would purchase as many of these properties as possible.

C7

SR509 Corridor Completion / I-5 /South Access Road Project

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- Fax: (206) 768-5899
- Email: whitejh@wsdot.wa.gov.

Please include your name, address, and phone number in case we need clarification on your comment. We will respond to comments in the Final EIS.

Dominick Macri' 3137 So 211 ST, SeaTac, WA 98198
H (206)824-0390 (C)(206) 793-9820
Willing seller, as soon as possible!!!
Been waiting many years, we are ready
C7-1 to get going, Think the project is
much needed, Think it improve area
very much.

Name Dominick Macri'
Address 3137 So 211 ST
City SeaTac State WA Zip Code 98198
Phone: 2068240390 E-mail believethevoice@att.net

For more information, visit www.wsdot.wa.gov/regions/northwest/SouthKing/Projects/SR509
Thanks for your comments.

Response C7-1

A list has been developed of property owners who have requested an early buyout. As funding becomes available, we would purchase as many of these properties as possible.

C8

SR509 Corridor Completion / I-5 /South Access Road Project

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- Fax: (206) 768-5899
- Email: whitejh@wsdot.wa.gov.

Please include your name, address, and phone number in case we need clarification on your comment. We will respond to comments in the Final EIS.

C8-1

I AM A BUSINESS OWNER CONCERNED WITH THE $10,000 - RELOCATION FUNDS. IT WOULD BE IMPOSSIBLE TO RELOCATE OUR BUSINESS FOR THIS AMOUNT - I ALSO OWN THE BUILDING AND AM CONCERNED ABOUT SOME OF THE HIDDEN COSTS WHICH OCCUR DURING CONSTRUCTION OF A BUILDING. I HOPE ALL OF THESE CONCERNS WILL BE ADDRESSED DURING APPRAISAL PROCESS.

I BELIEVE THE STATE SHOULD CONSIDER RAISING THE $10,000 - AMOUNT TO THE ACTUAL COSTS OF RELOCATION -

GARY OHLE
PRESIDENT / PAC STAINLESS LTD

Name GARY OHLE / NORPATSU
Address 2467 SO 200 TH
City SEATTLE State WA Zip Code 98198
Phone: 206 824 7780 E-mail GARY@PACSTAINLESS.COM

For more information, visit www.wsdot.wa.gov/regions/northwest/SouthKing/Projects/SR509

Thanks for your comments.

Response C8-1

The State only acquires the real property, not the business entity, so the appraisal would address the value of the real property only. Through relocation, businesses have several benefits available to them. The $10,000 that you mentioned is for reestablishment expenses, including advertising costs for your new location, remodeling the replacement site, increased costs of operations, installation of onsite utilities, some licenses, and general costs associated with preparing the replacement site for business. WSDOT introduced legislation to increase this benefit last year, but it did not pass.

WSDOT also pays for actual costs to relocate and reconnect your inventory and personal property to your new location, costs to replace stationery and printed materials, limited site search costs, and some other related expenses. Some businesses choose to receive a payment, based on income, in lieu of having to document actual relocation costs. It is important for our relocation specialists to work closely with you to ascertain your needs in a new location, as well as assure a smooth transition to your new location.

The WSDOT brochure entitled Business/Farm/NPO Relocation Assistance Program more fully explains the benefits that are available.

C9

SR509 Corridor Completion / I-5 /South Access Road Project

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- Fax: (206) 768-5899
- Email: whitejh@wsdot.wa.gov.

Please include your name, address, and phone number in case we need clarification on your comment. We will respond to comments in the Final EIS.

C9-1 I'm a serious recreational and commuter cyclist. As such I'm concerned that this road project provide access for cyclists across I5 & SR509. ALL the under passes & over passes need to have either a wide shoulder or a "at grade" Bike Lane for bike riders to use.

C9-2 these bike lanes should be provided in both directions (1 on each side of the roadway). Where right turn lanes are provided for cars a thru "Bike Lane" should exist on the left side of the right turn lane. Islands should have space between the curbs on the island & the lag lane that a bike rider can cycle thru.

Name Melvin L. Roberts
Address 9421 S. 241 street
City Kent State WA Zip Code 98031
Phone: 253-854-0952 E-mail melvm.L.Roberts@Boeing.com

For more information, visit www.wsdot.wa.gov/regions/northwest/SouthKing/Projects/SR509
Thanks for your comments.

Response C9-1

Please see response to Comment P2-1 from Jacob Grob et al.

Response C9-2

Please see responses to Comment P2-1 from Jacob Grob et al. and Comment P10-1 from Steve Nuss.

C10

SR509 Corridor Completion / I-5 /South Access Road Project

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- Fax: (206) 768-5899
- Email: whitejh@wsdot.wa.gov.

Please include your name, address, and phone number in case we need clarification on your comment. We will respond to comments in the Final EIS.

C10-1 My concern is if the port of Seattle will be buying each mobile home in the parks, that are involved in the 509 project. There are about 100 Mobile Home in the park I'm in. the houses are about 20yrs old and more. If they try to move them they'll fall apart. I hope that we can get at least some money so we can move to another location

Name JoAnn Taft
Address 20531 25th Lane So #79
City Des Moines State WA. Zip Code 98198
Phone 206-878-2897 E-mail

For more information, visit www.wsdot.wa.gov/regions/northwest/SouthKing/Projects/SR509

Thanks for your comments.

Response C10-1

WSDOT is coordinating with the Port of Seattle to develop a program for relocation of the mobile home residents. The WSDOT brochures entitled *Transportation Property Needs and you*, *Residential Relocation Assistance Program*, and *Residential Relocation Assistance Program* fully explain the benefits available.

C11

SR509 Corridor Completion / I-5 /South Access Road Project

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- Fax: (206) 768-5899
- Email: whitejh@wsdot.wa.gov.

Please include your name, address, and phone number in case we need clarification on your comment. We will respond to comments in the Final EIS.

Juan Torres - 206 824 0047 home | 206 914 3922 cel
20421 25th Ln S., SeaTac 98188

I think this is a great project, traffic is a problem at in the area

I would like to be informed because I do live in a mobil-home and I feel like I will be affected. I would like to be up to date in detail about this project.

Thank you.

Name Juan Torres
Address 20421 25th Ln S.
City SeaTac State WA Zip Code 98188
Phone: 206 824 0047 E-mail lizethavilora@hotmail.com
206 914 3922 cel.

For more information, visit www.wsdot.wa.gov/regions/northwest/SouthKing/Projects/SR509

Thanks for your comments.

C11-1

Response C11-1

WSDOT is coordinating with the Port of Seattle to develop a program for relocation of the mobile home residents. Your name will be added to the mailing list.

C12

FEB 19 2002

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- Fax: (206) 768-5899
- Email: whitejh@wsdot.wa.gov.

Please include your name, address, and phone number in case we need clarification on your comment. We will respond to comments in the Final EIS.

C12-1

We feel there should be consideration taken towards the Overall Noise and fumes from the following:
3rd runway if built, 509 extention, Sea Tac's Industry 3 oned
East of 8th ave. So. Burien's 3 oned industry from ~~8th~~ 8th and
West of Des Moines Way So. to Normandy Road.
Port of Seattle is building a new bomb blast pad plus
a new Hardstand for parking and repairing jets.
This is a low area and fumes are lead now, when jets
and trucks, take off and leave, not to mention the noise.
This is asking a lot for a residential and school area
to have to put up with in one area!

C12-2

Please protect the wetlands and Des Moines Creek.
You were very busy at the meeting on the 12th and
didn't get to talk to you in person. Wanted to thank
you for sending a map before.

Name ROBERT and WORNA TOY
Address 18616 7th ave South
City Burien State Wn. Zip Code 98148-2024
Phone: 206-243-6397 E-mail

For more information, visit www.wsdot.wa.gov/regions/northwest/SouthKing/Projects/SR509

Thanks for your comments.

Response C12-1

Please see responses to Comments P5-8 and P5-21 from Arlene Brown pertaining to air quality and noise.

Response C12-2

WSDOT has been working in cooperation with resource agencies and the Des Moines Creek Basin Planning Committee to protect streams and wetlands in the project area. Through avoidance and minimization measures, wetland impacts for the Preferred Alternative have been reduced to 0.3 acre, and WSDOT has committed to avoiding all Class 1 (high quality) wetlands and to span all Class 2 wetlands with bridges. Additionally, WSDOT has become a member of the Des Moines Creek Basin Planning Committee and would contribute funding for the Capital Improvement Projects identified in the basin plan.

C13

SR509 Corridor Completion / I-5 /South Access Road Project

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- Fax: (206) 768-5899
- Email: whitejh@wsdot.wa.gov.

Please include your name, address, and phone number in case we need clarification on your comment. We will respond to comments in the Final EIS.

C13-1 [illegible]

Name [illegible]

Address [illegible]

City [illegible] State _____ Zip Code _____

Phone: [illegible] E-mail _____

For more information, visit www.wsdot.wa.gov/regions/northwest/SouthKing/Projects/SR509

Thanks for your comments.

Response C13-1

Thank you for your comment.

C14

SR509 Corridor Completion / I-5 /South Access Road Project

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- Email: whitejh@wsdot.wa.gov.

Please include your name, address, and phone number in case we need clarification on your comment. We will respond to comments in the Final EIS.

C14-1

I am impressed with project. I had some concerns regarding traffic impacts on I-5, but the drawings at the open house and a long conversation with John White alevented my concerns. I think this project is way overdue. It will be a major assest to area.

I am a transit activist and am generally like warm regarding new/more roads. This project is definitely a winner!

Name Michael R Weidler
Address 1916 Pike Place #12-111
City Seattle State WA Zip Code 98101
Phone: 888/737-3518 E-mail pstransit2yahoo.com

For more information, visit www.wsdot.wa.gov/regions/northwest/SouthKing/Projects/SR509
Thanks for your comments.

Response C14-1

Thank you for your comment

C15

APR 1 / 2002

COMMENT FORM

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- Fax: (206) 768-5899
- Email: whitejh@wsdot.wa.gov.

Please include your name, address, and phone number in case we need clarification on your comment. We will respond to comments in the Final EIS.

Dear mr. White:
My comments are a little late. I have lived at 21234 33rd so. for 38 yrs. Raised two children and lost my wife. I was in the process of rebuilding my house. when I received your first notice of the 509 freeway. At the meeting I was told my house would be bought by the state, I stopped work on my house at that time. Seem's like a waste of money & time I purchased a motor home and some property and started thinking of moving at the 2000 2 meeting the person showed us a map and told we were being moved. and referred us to reala state person. Last week I learned you were buying the house up to my house and blocking 33rd to the south. It's time to

Name FRED BUTLER
Address 21234-33rd AVE SO
City SEATAC State WA Zip Code 98198
Phone: 206-824-6267 E-mail

For more information, visit www.wsdot.wa.gov/regions/northwest/SouthKing/Projects/SR509

Thanks for your comments.

start telling the truth. Please tell me what you plan to do, so I can go on with my life am 71 years old! thanks Fred Butler

Response C15-1

WSDOT has made every effort to inform residents who may be affected by the project. As the project design effort progressed, some shifts on the proposed alignments have occurred to accommodate design constraints or minimize impacts. Consequently, residents potentially affected have changed. We understand the stress that this places on residents who wish to make home improvements or move. WSDOT will continue to provide residents who may be affected with the most current information that will allow you to make the best personal decisions.

Our most current design indicates you would not be relocated. However, because your property is immediately adjacent to properties requiring acquisition, a small design change at your specific location could require acquisition of your property. This determination may not be available until additional design work has been completed. We will continue to keep you informed through public meetings or correspondence as the project design progresses.

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

OPEN HOUSE AND ENVIRONMENTAL HEARING

REVISED DEIS AND DRAFT SECTION 4(f) EVALUATION

SR 509 CORRIDOR COMPLETION/INTERSTATE 5/

SOUTH ACCESS ROAD PROJECT

TRANSCRIPT OF ONE-ON-ONE TESTIMONY

February 12, 2002

4:00 p.m.

Highline Community College

South 240th & Pacific Highway South

Des Moines, Washington

COPY

Catherine A. Decker, C.C.R.

Court Reporter

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Robert Pond 23116 30th Ave. So. Des Moines, WA 98198	6
Brad Corner 2621 2nd Ave. #1001 Seattle, WA 98121	8

HAROLD CRICHTON

Harold Crichton, C-r-i-c-h-t-o-n. What I would like for the committee to do is to consider on the HOV lanes to have them free to the public at certain hours. For instance, other cities have it where, say, the rush hours, that they have strictly for the car pool, and then after hours, that they would just let the public be able to use the HOV lanes.

And so, like, my thinking is, maybe from 6:00 to 9:00, that would be HOV occupancy only; and then from then let the public use it, and then from 3:00 or 2:30 to 6:30 or 7:00 go back to HOV lanes. That's something that I think we would be able to utilize our lanes more and the public would feel good about the lanes being used. We're not getting full use of our lanes. That's all.

SHAWN DEORNELLIS

Shawn DeOrnellis, D-e, capital O, r-n-e-l-l-i-s. I'm with the Puget Sound Church of God Holiness, pastor. And one of the concerns that I have, obviously, is ripping our church out of the community and having to

CRO1-1

Response CRO1-1

Thank you for your comment. The Statewide HOV operation policy is established by recommendation of the State Transportation Commission. The SR 509 project will follow the HOV operation policies of the State of Washington. Currently, the policy is to limit HOV lanes to 2+ HOVs 24 hours a day.

move.

Another concern -- my understanding is that there is a mid-1960's law on the books that capped the relocation expenses at $10,000; and if that, in fact, is accurate, I don't see how we're going to be able to relocate the church. Our parsonage is also on the property, so now we're not only going to be moving a business, but we are going to be having to move a residence. So that's one of the concerns I would really like to have more information on. That may not be accurate information, but if it is, I think our people in the legislature need to give us more money on that relocation. So that would be one of my concerns.

Obviously, the whole aspect of moving our church out of the community, if it's got to be done, we understand that. But the whole environmental impact of that relocating, that whole situation -- I would like to hear some more about that and how that's going to all fall together.

We've got a lot of things in place here from the standpoint that -- my understanding is there's one set of rules that deal with residential relocation, another set of rules that deal with business or commercial relocation. In our case, we're going to have both because you've got a residence and a business.

CRO2-1

CRO2-2

Response CRO2-1

The State only acquires the real property, not the business or nonprofit entity, so the appraisal would only address the real property. Through relocation, businesses and nonprofits have several benefits available to them. See response to Comment C8-1 from Gary Ohrt.

Response CRO2-2

The relocation program would assist you in your search for a replacement parsonage that would meet your needs. This program would search for comparable housing for your consideration and would provide an allowance for replacement housing if comparable housing is not available within the value range of your home, a mortgage differential if your new mortgage is at a higher rate than your current mortgage, and the cost to move your belongings to your new home. The cell tower lease would be considered in the appraisal of the property, but we would have to remove the tower from our right of way. It would be up to the tower owner and occupants to find a replacement site based on their business needs.

We also have a cell tower on our property that's leased to AT&T on a thirty-year lease. There's a significant amount of revenue that we'll be looking at possible loss; and so all of that we're going to be very concerned about when we finally get to talk to somebody about that whole package. But I would really be interested in finding out more about this relocation and what the money is there.

CRO2-2 (cont.)

HOWARD F. CLARK

Howard F. Clark. I've been with this project as a spectator from the beginning. My first choice, way back when this first started, was to extend 509 to Tacoma. I still feel that's what we should do. Nothing wrong with the current plan we have. The preliminary preferred alternative is good.

The concerns I have about it are the traffic congestion it's going to put on I-5. It's going to move it from South Center Hill, probably, to the area that it merges -- to Federal Way and probably through Federal Way. The real -- and that's fine for the short term, and short term is a long term. But eventually we are going to have to have a highway to Tacoma other than 167

CRO3-1

Response CRO3-1

Please see response to Comment C1-1 from Howard Clark.

and I-5; they're just not going to be able to carry the load. At least that's how I feel.

CRO3-1

I have one more comment, if I can put it in, that's unrelated, and that is the signing of the state highways. Poor. I've driven in all 50 states, and as an example, the current 509, from the time it comes off the freeway and merges onto First Avenue South, there is not one sign stating that that is Highway 509 until you get to Sacajawea Junior High School off of Pacific Highway.

CRO3-2

The side streets are full of signs telling you that if you're on a side street and you get onto 509, you can go right or left and it tells you that. But once you're on the highway, there's no way to tell. You're passing many, many intersections, major intersections, including Midway, and there's not one sign telling you where 509 goes. And that's only an example. That's true -- many, many of the state highway signs. That's it.

ROBERT POND

Robert Pond, P-o-n-d. My concern is that the sound wall and well past my property -- I live on 231st -- and that would be about where the access road comes up, in

Response CRO3-2

Thank you for your comment.

other words, it's right at that junction. And my property kind of angles in where the off-ramp would be. And a lot of times they end the sound barrier too short. I want to make sure that it goes as far as it possibly can to make sure that that sound barrier gives me some relief from the freeway that's coming a lot closer.

CRO4-1

And my second concern is that during this project, which has been ongoing for quite some time now, they seem to care far more for the commuters being upset or bothered, whereas they are doing their construction all night long with this huge equipment, which some nights is unbearable. And I actually have a phone number of the guy to call the next day when it goes beyond the line -- when it gets to be too much.

CRO4-2

I've called him before at eight o'clock in the morning as he's got off shift, when they were pounding and it sounded like a 747 going over your house, 24/7. I realize that they want to have the least amount of impact on the fewest number of citizens, but I think the people up on 30th are already impacted from all directions. I don't think they care about us much up there, from the City of Des Moines, DOT, the police, pretty much they just sell us short because that's the Pacific Ridge development on the other side of that line. And I'm not going to be victimized during this

Response CRO4-1

The current detailed noise study has evaluated noise barriers to identify their appropriate heights and lengths for effectively reducing noise levels. For areas where noise barriers are deemed reasonable to build, such barriers will be designed to meet a minimum level of noise reduction. Typically, where possible, noise barriers are designed to extend beyond an end receiver in order to provide the needed noise reduction. In the case of the noise barrier recommended for properties located at the northwest corner of the I-5/SR 516 interchange, the barrier would extend as far south as not to intrude on the roadway clear zone for safety purposes.

Response CRO4-2

For construction noise levels, WSDOT will follow all appropriate regulations for construction noise requirements. WSDOT will apply feasible and reasonable measures for reducing noise impacts on neighborhoods when possible, including proper placement of staging areas, time-of-day restrictions for specific construction activities, and appropriate shielding of noise sources as needed for night work.

Nighttime construction noise levels are regulated through State Administrative Code and through local ordinance (as applicable). WSDOT works to abide by all state and local rules for construction noise impacts. Nighttime noise variances will be obtained for construction period activities, if needed, and the conditions of the variances should be sensitive to nearby residential areas.

whole process.

BRAD CORNER

Brad Corner, C-o-r-n-e-r. My testimony is to say that in general I support the project on behalf of my partners that own property. The property is located at approximately 23000 Military Road South. There are three tax lots on the south side of Military Road. We have approximately 700 feet of frontage on Military Road South, with two rental houses. The approximate acreage of those three tax lots is approximately six acres, according to county records.

The south border of our property is commonly known as Bolger Road and is part of the 509 project in terms of its location. It would be southeast of where the underpass, the extension of 228th, would be located. So Bolger, then, would be the road coming up from the valley floor, known as the full extension of 228th Street.

My reason for mentioning those two properties, along with our support, is that in the event the project goes forward, we wanted to make sure that we were on record that currently the property is available for sale

CRO5-1

Response CRO5-1

Thank you for your comment. WSDOT has developed a list of property owners who have indicated they are willing sellers. As funding becomes available, WSDOT would be purchasing as many of these properties as possible.

CRO5-1 (cont.)

for either dislocated businesses or dislocated portions of the project itself where the public needs additional land. And I am the contact person. My office address is 10900 Northeast 8th Street, Suite 900, Bellevue, Washington 98004; (425)462-0077 is the phone, and the ownerships are under the names Kent Highway Commercial, a Washington general partnership, and Military Road Highway Commercial, a Washington general partnership.

Again, we support the efforts both of the City of Kent and all the other jurisdictions, WSDOT, Sea Tac, Des Moines, and the Port, in getting this project under way.

C E R T I F I C A T E

STATE OF WASHINGTON)
) ss.
COUNTY OF KING)

I, Catherine A. Decker, a Notary Public in and for the State of Washington, do hereby certify:

That the foregoing testimony was taken before me at the time and place therein set forth;

That the testimony was recorded stenographically by me, and thereafter transcribed under my direction;

That the foregoing transcript is a true record of the testimony given at the time, to the best of my ability.

I further certify that I am in no way related to any party to this matter, nor do I have any interest in the matter.

Witness my hand and seal this 14th day of February, 2002.

Catherine A. Decker

CATHERINE A. DECKER, Notary Public in and for the State of Washington, residing at Medina.
Commission expires June 29, 2005.
WA CSR No. DE-CK-EC-A502J5

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

ENVIRONMENTAL HEARING

SR 509: CORRIDOR COMPLETION/I-5/SOUTH ACCESS

TRANSCRIPT OF PROCEEDINGS

FEBRUARY 27, 2002

4:00 p.m.

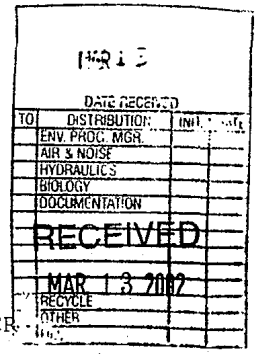
HIGHLINE COMMUNITY COLLEGE

SOUTH 240TH & PACIFIC HIGHWAY SOUTH

BUILDING 2

DES MOINES, WASHINGTON 98198

COPY



Jacqueline L. Bellows, CCR

Court Reporter

APPEARANCE

On Behalf of WSDOT: Osama Sabboubeh
Transportation Engineer
Northwest Region
6431 Corson Avenue South
Seattle, Washington 98108

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STATEMENT OF DAVID W. HOFFMAN

DAVID W. HOFFMAN: My concern is with regard to the Midway interchange. I'm concerned that the Midway interchange is biased too much towards motor traffic. Although the interchange provides a way to cross I-5 to get between the east and west sides, it is still extremely intimidating for people who are practitioners of nonmotorized transportation. In particular, I mean, bicyclists and pedestrians.

And even more than pedestrians, I'm concerned about bicyclists. This plan appears to not have any provisions being made to allow bicyclists to transit between Military Road South and Pacific Highway. And I would like to see this project do a better job of addressing the transit of bicycles in the east and west direction along SR 516 through the Midway interchange area.

CRH1-1

The Midway interchange is important because there are only three ways in the city of Kent to get back and forth across I-5. Midway is one of them. Reith Road is another

Response CRH1-1

Please see response to Comment P2-1 from Jacob Grob et al.

CRH1-1 (cont.)

and South 272nd is the third one. And these portals are more than a mile apart. That's a lot of distance for somebody who is involved with nonmotorized transit.

I would not need to use a car nearly as often if it was easier for me to use a bike, which I do. I am an adult commuter bicyclist. I use Pacific Highway South when I work at a location near Boeing field. And I have, in the past, have had to transit the Midway interchange every morning and every evening during rush-hour conditions. So also I've my credentials that I've been a commuter bicyclist year in, year out, all weather, day, night, for the last 36 years. And I know bad conditions when I see it.

The Midway interchange as it exists today is bad. This plan without bike lanes on it also is bad. That ends my statement.

STATEMENT OF CATHEA STANLEY

CATHEA STANLEY: So what do I do? Just say how I feel? Should I give my address? Right.

Now, my address is 20120 15th Avenue South, just off of 200th. And I just -- my comment is that we are already maxed out noisewise; and this freeway's going to go, like, three blocks below me on 18th and then come across the golf course. When they decide to take out the trees for the barrow pit for the airport, then our noise is going to be even worse.

I have my business in my home. I feel I'm already at my maximum for noise. And I'm at my wit's end what to do. I'm a single person trying fight the big system. I just want to make the comment that I don't see how our neighborhood can handle any more noise. We have 24-hour-a-day noise with the airport. **CRH2-1**

And we already have airport noise. We have airport pollution. Now we are going to have freeway noise and pollution added on to an almost unbearable situation.

Response CRH2-1

Noise propagation from highway traffic is different from airport noise is several ways. First, aircraft fly overhead and as such, noise from them is not absorbed by ground features; whereas freeway noise travels along the ground and is therefore subject to added absorption from the ground. Second, airport noise consists of intermittent single noise events, whereas highway traffic noise is more constant, thus it is perceived differently.

WSDOT has analyzed highway traffic noise along the entire SR 509 project area and will recommend noise barriers where they are reasonable and feasible. For locations farther from the roadway, highway noise levels generally decrease at about 3 or 4.5 decibels per doubling of distance from the roadway. The property at 20120 15th Avenue South appears to be located three blocks from the proposed roadway. At such distances, highway traffic noise exposure is not expected to be substantial or problematic.

Thank you.

STATEMENT OF BECKY STANLEY

BECKY STANLEY: Okay. I want to talk about what Cathea Stanley was talking about. On the map of displacement by type alternative and neighborhoods under the social section in the EIS, table 3.9-2 -- the map is on page -- it doesn't say what page. The map figure 3.1-1. And my mother's neighborhood is south of the 200th Street, east of the North Hill neighborhood, north, central and north central neighborhoods and west of the Homestead Park. And the SR 509 is going to be within three blocks of my mother's house.

CRH3-1

This neighborhood, it's not listed as a neighborhood on this figure 3.10-1. And I looked on the assessor's tax data and my mother's address said that her district was Seelye to, S-E-E-L-Y-E, to Des Moines, according to the tax assessors.

I'm just concerned because this, because this neighborhood is going to be impacted and it's not even a neighborhood in the EIS study area.

CATHEA STANLEY: What about the barrow

Response CRH3-1

Figure 3.10-1 has been updated to show your neighborhood.

pit?

BECKY STANLEY: That's right. Right behind that neighborhood -- my mom lives at 15th, and her backyard is part of the noise abatement property that the Port of Seattle originally had to buy homes for.

CATHEA STANLEY: It's right next to it.

BECKY STANLEY: There's a word for that. Okay. And back there is the barrow pit area and logging zone. Currently it's a forested area and the trees are helping to mitigate for some of the noise that she's experienced in her neighborhood. Those trees have been permitted to cut; and for the third runway, they are going to be digging several large barrow pits back there within 50 feet of her backyard.

Again, this is a neighborhood not even on your EIS report.

CATHEA STANLEY: So we want to know why, please.

OSAMA SABBOUBEH: We'll answer these comments.

CRH3-2 CATHEA STANLEY: I'm a 61-year-old single lady, and I have my own business in my home. I need to be bought out with enough money that I

Response CRH3-2

Any acquisition appraisal for a public works project must ignore any effect the pending project has on market value. See response to Comment C5-1 from Richard and Anne Kurtz for more information about relocation packages. WSDOT would also include the move of your business in the relocation package. Please work closely with our relocation specialist to assure that we fully understand the needs of your business and can assist you with your new location.

The WSDOT brochures entitled Business/Farm/NPO and Residential Relocation Assistance Program more fully explain the benefits that are available to you.

CRH3-2 (cont.)

can be relocated to some place of equal size, a house of equal size, because it's being devaluated so bad by the airport and now the 509. So ...

STATEMENT OF STEVE NUSS

STEVE NUSS: I just want to make sure bicycle facilities are included in all of the surface-street improvements that are being considered for this project, especially the 228th and 516 interchange. **CRH4-1**

There's three -- currently there's only three places to get through or under I-5 for a cyclist. 516 is very unfriendly to cyclists right now. We need to try to improve that access. That's it.

One other thing, I recommend bicycle facilities on Marine View Drive Bridge as well. That's a geographical choke point for all travelers right now. And to not put a bike lane on a bridge that will probably be there for the next 50 years is irresponsible. **CRH4-2**

Response CRH4-1

Please see response to Comment P2-1 from Jacob Grob et al.

Response CRH4-2

Please see response to Comment P10-3 from Steve Nuss.

STATEMENT OF CLAIRE EVERETT

CLAIRE EVERETT: Okay. My first quarrel is with Julia Patterson. I have always supported her. She's even come to my house. She has been totally against the -- they had the runway issue, and I believe in what she's been doing. But I think this -- I'm sorry. I think she has sold her soul to the Port of Seattle.

I live in Normandy Park. I live off of 192nd Street, near to First Avenue. Our home values have not gone up -- they've gone up but not as much as they would have because of the third runway issue.

And now, to benefit the Port of Seattle, the movement of huge semis on our freeways, to benefit the people who take I-5 and have trouble with the traffic on Southcenter, she is going along with this, this idea to build, you know, the 509 extension to I-5.

CRH5-1

If you do that, it's going to create such a traffic mess because -- and I know from experience, because even though 509 is perfect now, the way it is, especially since they built

Response CRH5-1

The table below shows the traffic volumes projected for the 1st Avenue South Bridge and East Marginal Way (north of 1st Avenue South and south of Michigan Street) in 2020 under the No Action Alternative and Alternative C2 (the preferred alternative). Traffic volumes on the Alaskan Way Viaduct were not calculated, but the volumes on East Marginal Way north of 1st Avenue South provide an indication of what could be expected. The traffic volumes for both alternatives are similar. The very minor differences (no more than 2 percent) indicate that the level of service, a measure of traffic congestion, would not worsen as result of the proposed project.

	2020 No Action		2020 Preferred Alternative	
Street Segment	**Northbound**	**Southbound**	**Northbound**	**Southbound**
1st Avenue South Bridge	3,190	5,015	3,230	5,050
East Marginal Way (north of 1st Avenue South)	2,605	3,015	2,605	3,045
East Marginal Way (south of Michigan Street)	510	515	510	525

CRH5-1 (cont.)

the First Avenue South bridge. I work in downtown Seattle. When there is a traffic problem on I-5 southbound, everyone moves over to take 509. This is understandable. It not only clogs 509, it clogs the viaduct. It clogs East Marginal Way, the First Avenue bridge, 509 all way down into Des Moines. Everything is clogged if we get extra traffic.

I can envision it happening, maybe not that bad, but happening on a daily basis. It's going to ruin the quality of life of the people who live here. I have no problems with 509 being connected, I mean going down into Des Moines to service those poor people who put up with the traffic problems in the area. I do have a problem with connecting to I-5 just for the sake of business, big business.

I can envision if you don't take care of East Marginal Way and the viaduct at the very same time, you're going to have nothing but a big headache. It's going to ruin our quality of life. It's going to keep my home price from going up. That's my retirement funds.

That's my statement. I'm against it. Okay. Thank you very much.

C E R T I F I C A T E

STATE OF WASHINGTON)
) SS
COUNTY OF King)

I, Jacqueline L. Bellows, a Notary Public in and for the State of Washington, do hereby certify:

That the foregoing hearing was taken before me at the time and place therein set forth;

That the statements of the witnesses and all remarks made at the time of the hearing were recorded stenographically by me, and thereafter transcribed under my direction;

That the foregoing transcript is a true record of the statements given by the witnesses and of all remarks made at the time of the hearing, to the best of my ability.

Witness my hand and seal this 12th day of March, 2002.

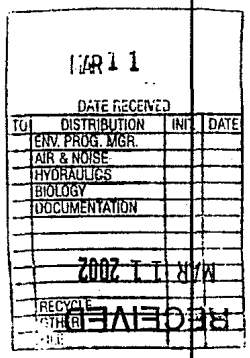
Jacqueline L. Bellows, Notary Public in and for the State of Washington, residing at Arlington. Commission expires October 17, 2002.

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

ENVIRONMENTAL HEARING

SR 509: CORRIDOR COMPLETION/I-5/SOUTH ACCESS

TRANSCRIPT OF PROCEEDINGS



FEBRUARY 27, 2002

6:30 P.M.

HIGHLINE COMMUNITY COLLEGE

SOUTH 240TH & PACIFIC HIGHWAY SOUTH

BUILDING 2

DES MOINES, WASHINGTON 98198

COPY

Catherine A. Decker, C.C.R.

Court Reporter

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A P P E A R A N C E S

CRAIG STONE
WSDOT Project Director

GEOFF BAILLIE
Independent consultant, Baillie and Associates

JOHN H. WHITE
WSDOT Project Engineer

SUSAN EVERETT
WSDOT Project Manager

Pages 4 through 26 of the Transcript of Proceedings intentionally omitted. These pages contain an introduction to the SR 509 project by Craig Stone of WSDOT.

BECKY STANLEY

Hi. My name is Becky Stanley. I live at 4108 48th Avenue South in Seattle. I'm here tonight to speak about concerns I have for my mother's neighborhood in the city of SeaTac. I looked at this CD-ROM, and I noticed on figure 3.10-1, it's a map called The General Location Project Area Neighborhood Map, and it doesn't include my mother's neighborhood.

CRH6-1

Her neighborhood is -- does anybody want to look at this while I -- her neighborhood is south of 200th, east of the North Hill neighborhood, west of the Homestead Park neighborhood, and north of Central and North Central neighborhoods. Her neighborhood is surrounded by the neighborhoods in your report but not included in your report. And the neighbors are wondering why.

This neighborhood borders the runway protection zone on its side to the east, and that's also part of a noise mitigation area owned by the Port of Seattle. And this area is on the south side of 200th, across the street from Tyee Golf Course.

The green space behind my mother's house is a

Response CRH6-1

Please see response to Comment CRH-3 from Becky Stanley

forest right now. The trees are helping with noise and pollution, although the noise is still pretty bad. However, the Port of Seattle has a permit to log it, and it's in the process of obtaining permits to construct borrow pits and obtain soil for the third runway, and then they are going to develop it. So the trees are not going to be there for very long, helping with the noise. They are offering only a 50-foot buffer behind the houses in my mother's neighborhood.

All this means is that with SR-509, logging, soil mining, subsequent development plans in the neighborhood I'm speaking about will be severely impacted by noise, as if it's not already unacceptably noisy. CRH6-2

Okay. So I just wanted to say it's not in the report. I don't understand why it's not in your report. There are lots of houses over there, and the neighbors are wondering how the Department of Transportation plans to mitigate for the additional noise pollution and inevitable decrease in the value of their homes when SR-509 goes in. Thank you. CRH6-3

MR. BAILLIE: Thank you. Next is Mel Roberts, followed by David Hoffman and Robert Backs.

Response CRH6-2

Noise comment: response to be provided

Response CRH6-3

Noise comment: response to be provided

MEL ROBERTS

Hi. My name is Mel Roberts. I'm an avid bicycle rider and occasional commuter.

One of the things that I realized when you put an item like Interstate 5 and SR-509 is that you create a barrier to any kind of commuter bicycle traffic. And one of the things that I think is real important is that at the intersections, the interchanges, the underpasses, the overpasses that cross I-5 and 509, that you provide either a bicycle-rideable shoulder or bicycle lane that can be used for bicyclists. It's a safety item.

CRH7-1

There is a lot of contention with cars, because you funnel all the cars through this narrow bottleneck as well, and if we've got a way to get through there bicycling safely, without too much conflict between cars, it would help immensely. There's probably a few places where there are dedicated right-turn lanes, and if you can have a bicycle lane going between that dedicated lane so the bicycle rider can go through and have a little safety island there, as well, while he waits for the light to turn, it helps immensely in being able to go through there.

CRH7-2

Response CRH7-1

Please see responses to Comments C4-1 from David Hoffman and P2-1 from Jacob Grob et al.

Response CRH7-2

Please see response to Comment P10-1 from Steve Nuss.

That's a safety feature that's needed in these areas, and this stretches from both the SeaTac-end of the project at 188th clear down to the south end at 227nd, all of the various places where you go over or under that road. Thank you.

MR. BAILLIE: Thank you, sir. Next is David Hoffman, followed by Robert Back and Rose Clark.

DAVID HOFFMAN

My name is Dave Hoffman, 25334 45th Avenue South in Kent. That's on the West Hill of Kent just south of Midway intersection.

I believe that the SR-509 project is overlooking an important part or important component of the transportation picture on West Hill in Kent. That's as Mr. Roberts suggested - cycling.

I'm a long-term commuter bicyclist, 36 years on the road, and I've used Midway intersection on a regular basis. With the increase in traffic and some of the engineering improvements that have happened there, I'm finding my access being made more dangerous and more inhibitive. I strongly recommend that your project include in-street bicycle lanes to transect the Midway intersection between Military Road South and Pacific Highway.

CRH8-1

That intersection is vitally important to people who live on West Hill and especially for non-motorized transportation practitioners like myself because there are only three ways to get across I-5 on West Hill in Kent. One of them is Midway interchange, which is virtually unusable for

Response CRH8-1

Please see response to Comment P2-1 from Jacob Grob et al.

most people, the other one is Reef Road, and the other one is South 272nd. Those intersections are a mile or more apart.

Now, part of your benefits, as stated earlier, was to save two-and-a-half miles of motor traffic getting between Tacoma and SeaTac Airport. But if I can't get through Midway interchange, I have to go at least two miles out of my way to find a place where I can cross I-5. And that costs me a lot more than it costs somebody in a car. I believe that in-street bicycle lanes will improve the functionality of Midway interchange over, above, and beyond what you stated in your earlier presentations today. That ends my statement. Thank you.

MR. BAILLIE: Thank you. Next is Robert Back, followed by Rose Clark and Steven Richmond.

ROBERT BACK

Hi. Robert Back, 23840 16th Lane South here in Des Moines.

When the original 509 freeway was bring constructed, the plan was to bring this freeway to the Kent-Des Moines Road. There were some complications within the City of Des Moines, and the State Department of Transportation decided to stop this project at South 188th Street. To this day, the State still owns right of way from approximately 188th to Kent-Des Moines Road which comes out right near the Barnes Creek Trail, close to 16th Avenue South. I would like to see that this unused right of way be given back to the city.

I'd also like to read from the City of Des Moines 2002 intergovernmental relations and policies and positions with the state of Washington. "The City of Des Moines also supports legislation returning to Des Moines at no cost and with no conditions any portions of the SR-509 right of way that will not be used for traffic improvements."

CRH9-1

So I believe that by the time this project starts -- and I realize the state is short of money

Response CRH9-1

The unconstructed SR 509 right-of-way was purchased with Motor Vehicle Funds (the gas tax); these funds can only be spent on highway projects. If property that was acquired with these funds becomes surplus, state law requires the department to receive fair market value, even from other government agencies.

at this time -- that land should be given back to the City of Des Moines at no cost. Thank you.

MR. BAILLIE: Thank you. Next is Rose Clark, followed by Steven Richmond and Arlene Brown.

ROSE CLARK

I am Rose Clark, deputy mayor of the City of Burien. I want to make sure that I am allotted time to read the official statement from Burien and make some comments of my own. Thank you.

This is a letter that I have given a copy of to one of your folks to enter into the record, signed by our mayor, Wing Woo.

"Burien is a community with great connections. We are just 12 minutes from Seattle, 5 minutes from I-5, and 7 minutes from SeaTac International Airport. The intersection of 509 and 518 serves as the main entrance to the City of Burien. We expect the SR-509 corridor extension to make our city more accessible and make it easier for people to come here to do business and to visit.

CRH10-1

Other benefits of this project are extending this corridor will help reduce congestion in south King County by providing an alternate route to I-5 and increasing freight mobility between Seattle, King, and Pierce County for marine and air cargo.

It will provide regional market access to Burien's commercial center and increase our ability to realize our goal of economic revitalization and

Response CRH10-1

Thank you for your comment.

downtown redevelopment.

The Washington State Department of Transportation will help us and our neighboring communities to work together to reduce impacts to our wetlands and parks, improving fish habitats, improving and expanding the off-highway trails and bike paths connecting north to SeaTac, Burien, and the Duwamish bike facility. For these reasons, we support the SR-509 extension project.

CRH10-1

With our support, we ask that you consider how our community will be impacted. We also ask that the state expand its project impact to include other considerations. The overall success of the project's goal is to enhance mobility, safety, and environmental conditions. To accomplish these goals, we request that the project address the concerns listed here.

Future traffic impacts. The intersection of SR-509 and SR-518 is the primary entrance into our city. It is a very high-accident location and operates now at a service level E and F, the highest rating for congestion. Extending the SR-509 corridor will increase traffic even more and make this intersection in even greater need of improvements. We ask that you fund the design

CRH10-2

Response CRH10-2

Please see response to Comment L2-2 from the City of Burien.

process that would implement improvements to this interchange as a set of improvements to be made as traffic loads increase due to the SR-509 southern extension.

CRH10-2 (cont.)

Logic and public safety support this request. To build a freeway connection north into Burien and downtown Seattle and not design improvements at the SR-509/SR-518 interchange will be an expensive investment to improve freight mobility with marginal payback.

Our gateway improvements in Burien. The SR-509/518 intersection is designed as a gateway in the City's comprehensive plan. With the extension of SR-509, there will be significantly increased traffic and visibility for our city. As mitigation for the increased traffic, we ask that signaling, lighting, and landscaping along the sides leading to the intersection, and landscaping at the intersection be included in the budget and plans for the whole corridor. These improvements have been made on other state facilities in the region and should be made on the north end of the route extension.

CRH10-3

Burien and other nearby airport communities should be eligible for trees and additional

Response CRH10-3

Please see response to Comment L2-3 from the City of Burien.

landscaping that create a quality and inviting entrance to our cities. Burien wishes to be a partner planning for these improvements. And traffic noise impacts on neighborhoods.

Finally, we ask that you consider the noise impacts extending this corridor will make. The corridor extension will impact our Manhattan neighborhood west of 8th Avenue South. Increased

CRH10-4

traffic, especially freight traffic, may cause much more substantial noise impact to neighborhoods further north in the city. We request further analysis of the noise impacts to the adjacent neighbors, both during construction and after the project is completed.

If you have any questions, please call our city manager, Gary Long." And that's signed Mayor Wing Woo.

Personally, I also support the project. I have lived in Burien for 37 years. There are many aspects of the project that I favor, and one is relieving traffic congestion on I-5. A few years ago, there was a very bad accident on I-5, and when that happened -- happens, period, not just in the past tense -- all of the traffic congestion bounces down on our surface streets.

Response CRH10-4

Please see response to Comment L2-4 from the City of Burien.

When that major accident happened, a child in Des Moines was killed. It took me probably about 45 minutes to go less than two miles, the congestion was that bad. And it was in congestion like that this community lost a child. So for that reason, alone, I support this project.

Trying to move in traffic from I-5 to SR-509 should help with that. Regional access to Burien, SeaTac, and Des Moines is welcomed. Connecting with light rail and the airport is a plus, and building a bypass from Des Moines to Burien is near and dear to my heart. I would like to see it go all the way up to the Duwamish so we can connect regionally.

But all of these things are wonderful, as long as we remember 518 and 509. And I want to give you a little visual in case you haven't been there. This is the area that our comp plan does identify as the gateway to our city. When you are on 509, it doesn't matter if you are going north or south. If you're going to enter 518 going east or west, you have to come to a stop at major traffic stops. In order to exit 518 onto First Avenue South, you have three traffic lights in an area that is like one-and-a-half to two blocks long. So it is a

CRH10-5

Response CRH10-5

Please see response to Comment L3-4 from the City of Burien.

major -- traffic backs up in a very major fashion there, all along 509 and 518. So, again, along with our mayor, I'm really hoping that you'll take a look at that.

CRH10-5 (cont.)

A few months ago I was talking to someone from DOT about this, and the person -- and I don't remember who the person was -- indicated that 518, the interchange there, is only going to be temporary, we would look at it in about 20 years or so. That was the plan at the time. And I was struck by the fact that in the next 20 years, those people that are killed in accidents there are not temporarily dead, they're really permanently dead. The people that are injured are also permanently injured.

So, again, I hope that we will work on 518/509. It's a very exciting project. Thank you very much.

MR. BAILLIE: Thank you. Next is Steven Richmond, followed by Arlene Brown. Arlene is the last of the people who have signed up to speak.

STEVEN RICHMOND

My name is Steven Richmond. I live at 6502 18th Avenue Southwest.

Fifteen years ago I worked as a news photographer in Burien and Des Moines for a period of about four years. I came to recognize the pattern of crime, tragedy, and neighborhood decay that appeared to happen in roughly straight lines, along routes that would make logical extensions to our freeway system.

One of the first new freeways I suspected based on crime rates was in SeaTac. And without any knowledge of DOT plans, I went to South 211th between Pacific Highway and I-5 and started knocking on doors. And I found out that, yes, SR-509 would probably go through or under the neighborhood to extend 509 to I-5. On further research, I recognized that 90 percent of the major crimes in the vicinity that I was aware of as a news photographer matched a DOT alternative route proposal like a fingerprint. This is the proposal, the EIS Statement. It's alternatives that could be considered.

What this means is when DOT makes public

proposals for different routes, this is an announcement to land speculators that land values may change and that there is potential for profit along these corridors if they can pressure out long-time land owners.

Now, so far, based on crime rates, I have guessed the path of four future freeways or arterials that transportation experts have confirmed have been proposed or are in the works.

One that is of interest is that the Michigan Street connection from I-5 to 509 is inadequate for freight, and there is a pattern of crime that goes through George Town and South Park and suggests to me that it will need an arterial connection to 509 so freight traffic can avoid the congestion at South Center.

Given that the pressures of international trade are focused on the Puget Sound region, because of our 24-hour time advantage, being closer to Pacific Rim exporters, and given that there is a closing window of opportunity to open transportation bottlenecks before trade interests go to other ports, given this pressure, the pressure to clear roadblocks is immense.

When you consider the rights of property

owners who are in the way of these freeways, and that historically property owners and neighborhoods have delayed and in some cases stopped freeway construction, it's not hard to imagine that this inherent conflict between private property rights and growth might lead to unprincipled methods of land acquisition on the part of interests who lose millions of dollars stuck in traffic.

Our freeway system is of strategic importance to international economies, and a small number of property owners can have a huge effect on the economies of entire countries.

I am not suggesting that the DOT is conspiring against property owners, because the focus of engineers is limited in time and scope and without knowledge of long-term history of land ownership. But from my perspective, it appears that death rates are higher for property owners and next-generation owners who are in probable paths of freeway improvements.

I am suggesting that organized crime is removing private property obstacles decades in advance in order to create options for DOT and to reduce obstacles to these freeway improvements. The improbability of these crime patterns being in

linear paths is compelling enough to warrant further study to either confirm or refute my assertion.

I am asking that the government compile health, crime, and traffic statistics according to the criterion of whether a tragedy expedited the transfer of land ownership. The Department of Health already has a map of cancer problems in the SeaTac area, and I'm suggesting they overlap this with other statistics. Given the value of land and the future international business in the Puget Sound region, it would be willfully ignorant not to recognize the potential for wrongdoing in land procurement, just as it would be naive not to expect insider trading on the stock exchange.

CRH11-1

Government has a responsibility for public safety, and I am suggesting we need government and citizen oversight regarding the fairness of land dealings. I am asking that government proactively address this issue for the sake of all concerned. I have been handing out my argument -- which is in written form and it is available tonight -- handing out my argument to neighborhoods that I believe are in harm's way. And if I am right in my projections, there is the risk that public opinion

Response CRH11-1

Thank you for your comment. This information is not a requirement of a NEPA/SEPA evaluation and is therefore beyond the scope of this EIS.

CRH11-1 (cont.)

will be polarized against freeway improvements when people realize the reasons behind their misfortunes.

I'm asking that you carefully consider my observations and that property owners who think they may have been affected by this problem also carefully consider my arguments. Thank you.

MR. BAILLIE: Thank you. Arlene Brown?

ARLENE BROWN

Arlene Brown, 239 Southwest 189th Place, Normandy Park 98166.

I read through the on-line version and I appreciate your taking the effort to do that, because I never quite made it to the library because I had pneumonia.

CRH12-1

So there are several issues as I read through that -- for instance, the earthquake analysis you reference back to Gower (phonetic). If you go to the ship stuff, and I'll hand this in, as well as stuff that they learned from the last earthquake, you'll find they're now projecting that there is a fault line that's running north/south right where we're talking about, and that needs to be considered in any of the analysis and design. And that intersects with the Seattle fault, which actually is quite wide, which kind of extends down here as well. So we have the two faults to worry about.

It's compounded by the fact that the record-breaking mechanical stabilized wall that's recommended for the third runway is only about half as thick as it should be, and their earthquake

Response CRH12-1

Please see response to Comment P5-42 from Arlene Brown.

analysis doesn't even predict one of the major earthquakes out of the last three. In other words, it's going to fail in an earthquake because it's too expensive for them to design it properly. And if you go into the ACC's various experts' analyses that were submitted to the Corp of Engineers, they have slide projections which indicate it will go over to the highway.

There's other problems, such as in California with soft soils -- all this red area is soft soils. When they did this study -- you mentioned some of their studies. Well, unfortunately, they used the wrong drilling equipment, so it wouldn't identify soft soil. So the soils actually is probably much more than what's actually mapped. And the problem, for instance in California, is when you have heavily loaded soft soils, they continue to move for up to an hour after the earthquake, so your overpasses sustain more damage and fail. So that's a real good reason to not allow the third runway, if you want to go and put money into improving the highway.

CRH12-2 The other problem with the MSE wall is that it will reflect noise incredibly. Just that truck construction thing has changed the noise so that

Response CRH12-2

See responses to Comments L2-4 and P5-24.

six blocks west and about eight blocks south you can hear noise of Highway 509 because they've cut down some trees, plus you added that overpass, and all that combined. So any noise analysis and noise mitigation needs to go far beyond what's in the present proposal, because you have to do the cumulative noise of airport plus this.

CRH12-2 (cont.)

And if you need precedent, you can look at, for instance, the noise mitigation at major airports. I believe it's, like, the Minneapolis one where they literally close the road if they're using a runway and vice versa. So there is precedent for this. You really need to look at all of it.

The other area is with regard to the air analysis where you spend a lot of time on carbon monoxide -- and I will enclose this. This shows you the ozone, and you can see this huge ozone spike for 1998 that had to do with our hot weather. And, actually, the real problem in Puget Sound -- and I also give a link to a map, and that is actually ozone, and we create nox at the airport, and then the wind will blow it. And then just like in California -- which is why California has more strict regulations than the federal regulations --

the mountains trap it. So you can be under the nox limit at the airport and cause an ozone exceedence downwind of it because the nox converts and gets trapped by the mountains.

For this reason, you need to go in and do an air conformity analysis, because you're going to actually create more than 300 tons of nox and add about a hundred tons of nox if you're ever required to do a full up clean air conformity analysis. The reason that you have to do that is because the supplementary EIS for the master plan update for the third runway clearly stated that the airport is actually surface-transportation limited. It says the runway really wasn't going to do much of anything. It said it couldn't do much because the real problem is surface transportation. Third runway is just a construction boondoggle. It brings in a million and a half double hull trucks, keeps them busy.

CRH12-3

And there are all kinds of aerospace experts that have testified that, if anything, a third runway is actually going to increase delays.

However, this project really will increase the airport capacity, and once you increase the airport capacity, that's more traffic to the airport so you

Response CRH12-3

Ozone precursor emissions from the proposed SR 509: Corridor Completion/I-5/South Access Road Project are included in the latest regional analysis of the Metropolitan Transportation Plan (Destination 2030) as refined in June 2002 by the Puget Sound Regional Council. This analysis demonstrates that regional NOx and VOC emissions from transportation sources would be below the regional emissions budget for 2020 and 2030. Air pollutant emissions from Sea-Tac Airport would occur independently of the proposed SR 509: Corridor Completion/I-5/South Access Road Project and are addressed separately by the Port of Seattle.

CRH12-3 (cont.)

have more traffic because of the highway and more traffic because of the airport, and you have ground and air traffic. And that's why you're going to trigger it.

CRH12-4

And I realize the models are conservative, but the models will predict over 300 tons of nox, so the real number is at least a hundred tons of nox, which you can measure with a monitor. And thank you very much. My time is up. Go do a safety analysis for people, too, because it will reduce lives.

MR. BAILLIE: Thank you. That completes the people who have signed up prior to the start of the hearing. Would anyone else like to speak? If so, raise your hand.

State your name and address, please.

Response CRH12-4

Regional transportation-related NOx emissions for 2020 and 2030 for the Puget Sound region, including the proposed SR 509: Corridor Completion/ I-5/South Access Road Project, have been predicted by the Puget Sound Regional Council to be less than the regional transportation emissions budget. The regional emissions budget is established to ensure that the region remains in attainment for the National Ambient Air Quality Standards (NAAQS), which have been established to be protective of human health and welfare.

BOB POND

My name is Bob Pond, and I've lived at 23116 30th Avenue South for 12 years.

I have observed the flow of traffic for quite some time. I've been retired. My concern is on 30th and Kent-Des Moines Road. It's a death trap. If you take a left to go to the freeway, and you're going to add another intersection to that area, which would make it even more of a bird's nest, I'm not really sure how to solve it. On the Kent side they did a right turn only. That would kind of close us off if they did it on the other side. They say it's too close of an area to put multiple lights. I don't know. I think that that intersection should be analyzed even though it's just outside of your targeted area.

CRH13-1

I'm all in favor of the 509. It's 20 years too late. I think they should do Highway 18 also. It would solve the whole south-end problem. My biggest concern is being a resident there and it's going to be coming within 50 feet of my property. Last summer the noise was unbearable. I don't know how to describe it. It's like a 747 sitting over the top of your house, staying there. It just

CRH13-2

Response CRH13-1

The proposed project would provide some relief to the congestion at the SR 516 interchange and along SR 516 by providing an I-5/South 228th Street connection as well as reconfiguring the existing SR 516 ramps to improve operational efficiency. Some of the traffic that currently uses SR 516 will use South 228th Street, thereby reducing traffic volumes on SR 516. Other improvements at SR 516 include a collector/distributor system from I-5 to SR 516. For a complete list of improvements on I-5 at the SR 516 interchange, please refer to Section 2.3.2 of this FEIS.

Response CRH13-2

Thank you for your comment.

Transcript of Proceedings

doesn't move. I spoke to people, they were somewhat, kind of, if you were in-their-face mentality, they will listen to you. I didn't like the response. I hope this next summer it can be better. If not, my neighbors are going to get together and we're going to do something about it, and I have many options. In other words, I am not going to be the sacrificial lamb to your freeway project of noise.

CRH13-3

My recommendation is that you build the sound wall first. That might help. I've been told that that's how it's done, you divvy it out and then you put the wall up and then you build from the wall back. Anything. Once your windows are open in the summertime, it's unbearable. You can't sleep. You have to experience it. And the DOT was not very receptive. I just don't want another repeat of last summer, and you guys have been working right in front of my -- within a hundred and fifty feet of my property.

So I guess that's really all. My concern is the noise that will be ongoing for years building this; hopefully -- I mean, quickly, they will get it done. And the environmental study on that intersection of 30th and Kent-Des Moines Road.

Response CRH13-3

WSDOT has conducted a thorough study of noise impacts on residential areas within the SR 509 project. WSDOT is committed to providing noise mitigation through barrier construction in all locations where it is reasonable and feasible to do so. A noise barrier has preliminarily been recommended to reduce future I-5 noise within the area of concern. A noise barrier will be constructed between this area and the highway if, based on final design information, the barrier remains reasonable to build.

In order to reduce construction noise impacts, where possible, WSDOT will make every effort to plan for construction of noise barriers prior to other roadway construction elements.

That's about it. Thank you very much.

MR. BAILLIE: Thank you. Anyone else?

GERALD MCGINNIS

My name is Gerald McGinnis 419 Southwest 182nd, Normandy Park.

I use 509 daily from South 188th to my place of business which is in South Park, and I'm very concerned about the impact of the traffic flow over the First Avenue South Bridge. It seems very shortsighted to me that everybody says to improve traffic flow in the south end when you have a traffic light at the end of the freeway and you're putting everybody on to surface streets. The bridge, since it's been rebuilt, the additional lanes added, it's been great for traffic. We cross that bridge probably 20 times a day during the course of business. If the freeway runs into the First Avenue South Bridge, I would like to see that there is some plan to mitigate the impact of thousands of more cars a day at that intersection of East Marginal Way and the First Avenue South Bridge. Thanks.

MR. BAILLIE: Thank you. Anyone else?

CRH14-1

Response CRH14-1

Please see response to Comment CRH-5 from Claire Everett.

55

CLAIRE EVERETT

Claire Everett. I'm at 163 Southwest 192nd Street, Normandy Park. I've made my comments to the court reporter and won't go into that, my strong feelings about this project.

I do see that it's going to be done -- I have the feeling it will be done no matter what we say or do. However, I have attended hearings in connection with the third runway and the acquisition of homes. And during those hearings, these people who were going to have their homes bought by the Port of Seattle for the third runway were told, We will give you fair market value. And these poor people who had these homes for many, many years believed they were getting a good deal. They didn't know that because of the threat of the third runway, their fair market value had plummeted.

CRH15-1

And I'm just hoping that you give these people a fair chance as to what fair market value would be prior to the threat of the 509 extension.

MR. BAILLIE: Thank you. Anyone else?

Thank you all very much for your comments. The open house portion of the meeting will

Response CRH15-1

Any acquisition appraisal for a public works project must ignore any effect the pending project has on market value. This means that if the sale price of your home dropped after the announcement of the project, our appraisers would look at other unaffected neighborhoods or at previous sales in the same neighborhood to determine the market value.

continue. Staff will be here, displays are set up here and over across the way. If you still have questions or you want to make comments, the court reporter is still here. You, of course, can comment in writing or by e-mail on the addresses shown. The deadline for comments is March 25th.

MR. STONE: Everybody is getting up here. I just wanted to do a little closing comment, if I might.

I do want to thank you for your time, and having worked this for 24 years in my career, we really do appreciate and take your comments. I've seen many projects that have changed, have been modified, have been better, based on the public input and public comment. So I guess I'm asking for a little bit of trust along those lines.

I heard specifically noise, noise impacts, construction noise, what we have been doing on I-5 now. One of the things we are talking about is early environmental investment, so some of the storm water, wetlands, the noise wall questions, those are things we need to look at as an approach, and I appreciate that.

I heard the comments on cycling, cycle safety. Some of the interchanges we have are not

bicycle-friendly. We do have some good aspects of the bike trails. I think we need to look at the surface and work with the cities, also, as to their bike plans.

The existing right of way on 509 that we had down to 516. It is true. In the early 70s we purchased the 516; in fact, the plan was to go to Commencement Bay area and tie in 509 there. That's as far as they went at that point. There's been a lot of alternatives. And this study even looked at going all the way to that point but found it to be infeasible. One of the key objectives is for us to make a determination of what to do with that right of way. Is it truly dedicated, or should some of it be used for some of the wetland mitigation or other components that might be out there? There's also some discussion should there may be a two-lane arterial built, maybe in the SeaTac portion and not the Des Moines portion, or continuing all the way down and tying into 16 and making an arterial. So those are some of the discussions we have been having with SeaTac and Des Moines. Those are things we will continue to look at.

The 509/518 interchange clearly is a part of this. I will mention, just as informational, the

Department of Transportation has been leading a study of 518 from South Center up to Burien. Very much we're working with Burien and Burien staff, as well as Tukwila and the Port, which identified the concept at the 518/509 interchange; and we have been in discussions with staff from the city as to what the next steps might be. We have identified ability to actually not put a ramp up and over 516. It's kind of interesting -- it actually goes down between 509 and 518 and allows you to come around, but it gets rid of that one right-angle intersection there that we do have a lot of problems with.

Landscaping, noise impacts, again. Question here of kind of the social -- and what happens with right of way when facilities come through. I will take a look at that. That is a big question. That is not something that I have seen data or professional opinion on, but we will take that into consideration.

The fault line, earthquakes, what's happening north/south. Obviously the anniversary is tomorrow; is that right? But, yes, we will look at that. And I heard, also, the reflection of the build environment if the third runway -- if that

major wall is there, what happens with the reflection on the noise analysis coming back through there.

Air analysis, air conformity. I will note that the analysis that we do do also includes a regional quality analysis, air conformity, under the Clean Air Act through the complete Puget Sound region. But we will look at that. We will look at the inadequacy of that.

Noise, again. The First Avenue South Bridge. Last night, at Burien, we had an Alaska Way Viaduct open house there, with other open houses going on this week with the Alaska Way Viaduct. It kind of ties back to the earthquake. My peer, Maureen Sullivan, right now is doing an EIS, looking at the Alaska Way Viaduct. I talked with her about that. Basically, we come together as corridors at East Marginal. And what we're looking at is doing a transportation study, looking at that and looking incrementally when to do it and what improvements need to be made.

The First Avenue South Bridge now is eight lanes crossing the Duwamish river. It's really more of the intersections at First and East Marginal that are really some of the key -- but

we'll look at that. There have been a lot of concepts and discussions, and the department recognizes the linkages of those facilities.

And fair market value of the homes. That is always a very important part of this. We are definitely -- this is here, processes are put in place to protect the property owners in what we do and determining fair market value. And if fair market value is not agreed upon, basically we also have a process through court and other systems to define fair market value. But it is definitely our intent to make sure that peoples' homes, properties, are made whole. That is a very difficult part of the business and the work that we do in trying to balance the public needs versus individual properties that we have.

We have quite a few relocations with the project. Some of it is areas that's Port property, land south of the airport now that is not being used. We also have some other places where we do have single family and multi-family, and there is quite a bit of impact and we recognize that. We want to be as sensitive as we possibly can. I also have real estate staff here that can really talk with you one on one. They would be more than happy

C E R T I F I C A T E

STATE OF WASHINGTON)
) ss.
COUNTY OF KING)

I, Catherine A. Decker, a Notary Public in and for the State of Washington, do hereby certify:

That the foregoing testimony was taken before me at the time and place therein set forth;

That the testimony was recorded stenographically by me, and thereafter transcribed under my direction;

That the foregoing transcript is a true record of the testimony given at the time, to the best of my ability.

I further certify that I am in no way related to any party to this matter, nor do I have any interest in the matter.

Witness my hand and seal this 8th day of March, 2002.

Catherine A. Decker

CATHERINE A. DECKER, Notary Public in and for the State of Washington, residing at Medina.
Commission expires June 29, 2005.
WA CSR No. DE-CK-EC-A502J5

Appendix A
Public and Agency Coordination

APPENDIX A

Public and Agency Coordination

Early Coordination Process

Steering and Executive Committees

The SR 509: Corridor Completion/I-5/South Access Road Project (SR 509 project) is guided by a Steering Committee and an Executive Committee composed of representatives from affected agencies and jurisdiction. The Steering Committee advises the project team and the Executive Committee. During the development of this project, the membership of these two committees has evolved. Current membership is as follows:

- Executive Committee
  - Washington State Department of Transportation (WSDOT)
  - Port of Seattle
  - City of SeaTac
  - City of Des Moines
  - City of Kent
  - Metropolitan King County
- Steering Committee
  - Washington State Department of Transportation (WSDOT)
  - Port of Seattle
  - City of SeaTac
  - City of Des Moines
  - City of Kent
  - City of Federal Way
  - City of Burien
  - City of Normandy Park
  - Metropolitan King County
  - Sound Transit
  - Federal Highway Administration
  - Federal Aviation Administration
  - Citizen(s)

These committees provided review and guidance for all major decisions as noted elsewhere in this document.

Agency Involvement

A number of federal, state, regional, and local agencies and tribes have been involved in the development of the SR 509 project and the preparation of this Environmental Impact Statement (EIS).

Pre-EIS-Phase Agency Meeting

On May 7, 1992, a pre-EIS-phase agency meeting was held at SeaTac City Hall. The purpose of the meeting was for agency and jurisdiction representatives to ask questions and identify concerns related to the corridor alternatives identified for evaluation during preliminary screening. Representatives of the following agencies attended this meeting:

- Washington State Patrol
- Washington State Parks
- City of Des Moines
- City of Federal Way
- City of Normandy Park
- City of SeaTac
- Transportation Improvement Board
- Water District No. 54

EIS Agency Scoping and Coordination Meetings

The original Draft EIS (DEIS) for the SR 509 project was a Tier 1, or corridor-level, document. An EIS Agency Scoping Meeting on the original DEIS was held on October 1, 1992, at SeaTac City Hall. Representatives from the Port of Seattle, City of SeaTac, Highline School District, and the Transportation Improvement Board were present.

Resource agencies having permitting authority or other jurisdiction over environmentally sensitive resources in the project area participated in a special resource agency coordination meeting on April 25, 1994. The purpose of this meeting was to reach agreement on the level of detail needed for a "corridor-level" EIS that would satisfy the various agencies' needs. Representatives from U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), and Washington Department of Fish and Wildlife (WDFW) attended.

A scoping meeting was not held to address the project-level alignments to be evaluated in a Revised DEIS (RDEIS) for a number of reasons. As noted above, agencies had already participated in scoping or coordination meetings for the corridor-level DEIS. In addition, the decision to prepare an RDEIS addressing project-level alignments was in response to agency comments on the original, corridor-level DEIS and the sense that their environmental concerns could be best addressed in a project-level EIS. Furthermore, it was

felt that the agencies would have adequate opportunity to express their concerns during their participation in the NEPA/404 Merger Agreement process or through the Steering and Executive Committees.

Table A-1 lists contacts made with public agencies, jurisdictions, and organizations during preparation of the RDEIS.

Table A-1
Agency Contacts

Element of the Environment/ Environmental Review Process	Contact	Agency/Jurisdiction/Organization
Economics	Corr, C.	Kidder, Mathews, and Segner
	Craig, C.	City of Kent Finance Department
	Harris, S.	Northwest Corporate Real Estate Inc.
	McCarty, M.	City of SeaTac Finance Department
	Rabinovitz, E.	King County Department of Assessments
	Stoll, B.	Re/Max Realty West
Environmental Justice	Lamison-White, L.	U.S. Bureau of Census
	Ledbetter, K.	City of SeaTac, Parks and Recreation Department
	Spear, B.	U.S. Department of Transportation, Statistical Services Section
	Thorell, P.	City of Des Moines, Parks and Recreation Department
Hazardous Waste	Agid, P.	Port of Seattle
	Bahnick, Kathy	Port of Seattle
	Blasingame, J.	Manager Pizza Hut SubCo, Inc.
	Diggs, Don	Pacific Auto Brake & Muffler Service
	Duff, Ethel	Park of the Pines Church Conference Center
	Ellis, Doug	South Shore Fellowship
	Goodall G.	City of SeaTac Fire Department
	Heydon, Tim	City of Des Moines Public Works
	Nye, Roger	Department of Ecology
	Parmar, N.	Airport Plaza Hotel, SeaTac, WA
	Polhamus, Jim	Des Moines Fire Protection District No. 26
	Poor, Geri	Port of Seattle
	Riley, Benjamin A.	Des Moines Masonic Lodge No. 245.

Table A-1
Agency Contacts

Element of the Environment/ Environmental Review Process	Contact	Agency/Jurisdiction/Organization
NEPA/SEPA/404 Merger Process	Berg, Ken	U.S. Fish and Wildlife Service
	Brennan-Dubbs, Nancy	U.S. Fish and Wildlife Service
	Brower, Mike	Federal Highway Administration
	Burke, Dan	Port of Seattle
	Darm, Donna	National Marine Fisheries
	Childers, Lynn	U.S. Fish and Wildlife Service
	Christian, James	Federal Highway Administration
	Conner, Tom	U.S. Environmental Protection Agency
	Crouse, Michael	National Marine Fisheries
	Frederick, David	U.S. Fish and Wildlife Service
	Gibbons, Tom	National Marine Fisheries
	Hirsh, David	National Marine Fisheries
	Jackson, Jerry	U.S. Fish and Wildlife Service
	Kennedy, Jack	U.S. Army Corps of Engineers
	Landino, Steve	National Marine Fisheries
	Leonard, Jim	Federal Highway Administration
	Love, Sharon	Federal Highway Administration
	Lee, Judith Leckrone	U.S. Environmental Protection Agency
	Manning, Sandra	Washington Department of Ecology
	Parkin, Rick	U.S. Environmental Protection Agency
	Pratt, Cynthia	Washington Department of Fish and Wildlife Service
	Romano, Olivia	U.S. Army Corps of Engineers
	Randall, Loree	Washington Department of Ecology
	Robinson, Anne	U.S. Army Corps of Engineers
	Ryan, Bill	U.S. Environmental Protection Agency
	Sommers, Elaine	U.S. Environmental Protection Agency
	Suggs, Sarah	Washington Department of Ecology
	Swanson, Terry	Washington Department of Ecology
	Tonnes, Dan	National Marine Fisheries
	Teachout, Emily	U.S. Fish and Wildlife Service
	Thompson, Janet	Washington Department of Ecology
	Uhrich, Ann	U.S. Army Corps of Engineers
	Wood, Barb	National Marine Fisheries
Noise	Wells, Bob	Port of Seattle

Table A-1
Agency Contacts

Element of the Environment/ Environmental Review Process	Contact	Agency/Jurisdiction/Organization
Relocation	Chambers, Paula	Caldwell Banker Bain Associates
	Gut, Tom	City of SeaTac
	Hartson, Arthur (Ron)	Owner, Town and County Estates Mobile Home Park
	Korsgaard, Gary	John L. Scott Real Estate
	Mann, Sharon	Re/Max Real Estate
	Osborn, William	City of Kent
	Ramsaver, Teri	Washington State Office of Manufactured Housing
	Thornton, Tom	Owner, Tyee Valley Mobile Home Park
	Varacalli, Vincent	Varacalli Real Estate Co.
	Wietz, Dave	Manager, Town and Country Estates Mobile Home Park
Social	Atkin, Carol	Federal Highway Administration
	Booth, Michael	City of SeaTac
	Bowman, John	Lakehaven Utility District
	Carr, Mary	Highline School District
	Catton, Bonnie	Kent School District Transportation Service
	Calhoon, Carolyn	Federal Way School District
	Hall, Chris	Lakehaven Utility District
	Kase, Ken	Midway Sewer District
	Keown, T.	Highline Water District
	Petersen, Jodi	Federal Highway Administration
	Yurovchak, Anita	Puget Sound Energy
Section 4(f)	Blumen, Connie	King County Park System
	Bowden, Bryan	National Park Service
	Broom, Joan	City of Kent, Parks and Recreation Department
	Eastberg, Cheryl	City of SeaTac, Department of Planning and Community Development
	Heydon, Tim	City of Des Moines
	Hodgson, John	City of Kent Parks Director
	Hoggard, Calvin	City of SeaTac City Manager
	Ledbetter, Kit	City of SeaTac Parks and Recreation Department
	Loch, Corbett	City of Des Moines
	Monaghan, Don	City of SeaTac
	Morgan, Cayla	Federal Aviation Administration
	Poor, Geri	Port of Seattle
	Rayburn, Bruce	City of SeaTac Public Works Department
	Taylor, Willie	U.S. Department of Interior
	Thorell, Patrice	City of Des Moines Parks and Recreation Department

Table A-1
Agency Contacts

Element of the Environment/ Environmental Review Process	Contact	Agency/Jurisdiction/Organization
Vegetation, Fish, and Wildlife	Berg, Ken	U.S. Fish and Wildlife Service
	Gloman, Nancy	U.S. Fish and Wildlife Service
	Grettenberger, John	U.S. Fish and Wildlife Service
	Guggenmos, Lori	Washington Department of Fish and Wildlife
	Kirkpatrick, Deeann	National Marine Fisheries Service
	Masters, Dave	King County Water and Land Resources
	Moody, Sandy S.	Washington Natural Heritage Program
	Murramatsu, John	Des Moines Chapter of Trout Unlimited
	Negri, Steve	Washington Department of Fish and Wildlife
	Nelson, Kitty	National Marine Fisheries Service
	Phillips, Chuck	Washington Department of Fish and Wildlife
	Schnieder, Phil	Washington Department of Fish and Wildlife
Visual Quality	Heydon, Tim	City of Des Moines Public Works
	Kilgore, Judith	City of Des Moines Community Development
	Monaghan, Donald	City of SeaTac Public Works
	Poor, Geri	Port of Seattle, Aviation Planning Department.
	Scarey, Michael	City of SeaTac Planning and Community Development
	Ward, Craig	City of SeaTac Planning and Community Development
Water Quality	Althauser, Don	King County Department of Natural Resources
	Bartlett, C.	Highline Water Department
	Bosley, Peggy	Highline Water District
	Davis, M.	Highline Water Department
	Gibson, J.	Highline Water Department
	Johnson, K.	King County Department of Natural Resources
	Kara, Wendy	King County Department of Natural Resources
	Keown, Thomas	Highline Water District
	Linnell, Mike	Department of Agriculture
	Mactutis, Mike	City of Kent
	Matthews, Wayne	City of Des Moines
	Moore, Bill	Department of Ecology

Table A-1 Agency Contacts		
Element of the Environment/ Environmental Review Process	**Contact**	**Agency/Jurisdiction/Organization**
Wetlands	Clarke, Steve	City of Burien
	Dodge, Jack	City of SeaTac
	Fendt, Kathy	Port of Seattle
	Harris, Keith	Highline Water District
	Heydon, Tim	City of Des Moines
	Hubbard, Tom	Port of Seattle
	Leavitt, Elizabeth	Port of Seattle
	Ledbetter, Kit	City of SeaTac
	Masters, David	King County Department of Natural Resources
	Monahan, Don	City of SeaTac
	Rayburn, Bruce	City of SeaTac
	Reinhold, Loren	City of Des Moines
	Thorell, Patrice	City of Des Moines
	Wells, Robert	Port of Seattle

Interagency Working Agreement (NEPA/SEPA/404 Merger Agreement)

Discharges of dredged or fill material in waters of the United States, including wetlands, require permitting under Section 404 of the Clean Water Act. In June 1995, the Interagency Working Agreement to Integrate Special Aquatic Resources (Section 404 of the Clean Water Act) Permit Requirements into the National Environmental Policy Act (NEPA) and the State Environmental Policy Act (SEPA) in the State of Washington was signed. This agreement integrates the Section 404 permit processes and other related permitting and certification procedures into the NEPA and SEPA processes early in the project programming and project development stages.

The signatory agencies to this agreement are the Federal Highway Administration (FHWA), NMFS, U.S. Army Corps of Engineers (USACOE), U.S. Environmental Protection Agency (EPA), USFWS, Washington State Department of Ecology (Ecology), WDFW, and WSDOT. These agencies comprise the Signatory Agency Committee (SAC).

During April 1997, WSDOT requested the signatory agencies' response to Concurrence Point 1. This concurrence point relates to the project's purpose and need, the criteria for alternative selection, and the role of all agencies. All signatory agencies, except NMFS, responded to the request for Concurrence Point 1. USACOE and WDFW concurred with no additional comments. USFWS, USEPA, and Ecology concurred with comments. Concurrence Point 2 addresses two items: (1) identification of alternatives to evaluate in the DEIS and (2) identification of the preliminary preferred alternative. WSDOT sent a letter during September 1999 requesting the signatory agencies' input on the alternatives to evaluate in the DEIS. NMFS and USFWS chose to waive the opportunity to provide comments on the alternatives. WDFW and EPA concurred with the alternatives without comment, and Ecology concurred with comments. During September 2001, the SAC agreed with WSDOT to eliminate Alternatives C1 and D from evaluation in the RDEIS.

During August 2001, WSDOT sent a letter to the signatory agencies requesting their concurrence on the preliminary preferred alternative. USFWS, NMFS, and USACOE concurred without comment. WDFW, Ecology, and EPA concurred with comments.

Concurrence Point 3 addresses three items: (1) the Conceptual Wetland Mitigation Plan; (2) USACOE, USFWS, EPA, and NMFS concurrence on the Preferred Alternative/Apparent Section 404 Least Environmentally Damaging Practicable Alternative; and (3) Ecology and WDFW concurrence on the NEPA/SEPA Preferred Alternative. On September 12, 2002, WSDOT sent a letter to the SAC requesting concurrence on Concurrence Point 3. The USACOE and USFWS concurred without comment. EPA, NMFS, Ecology, and WDFW concurred with additional comments.

The concurrence forms and accompanying comments, if any, for Concurrence Points 1, 2, and 3 are presented in Attachment A1 to this appendix.

Section 7 Consultation

In accordance with Section 7 of the Endangered Species Act (ESA), a Biological Assessment (BA) was prepared to provide a detailed evaluation for all listed, proposed, and candidate species and species of concern identified by the USFWS and NMFS as potentially occurring in the project area. Consultation with the USFWS and NMFS resulted in an agreement for preparation of a BA and associated Section 7 coordination on the preferred alternative (Alternative C2). The BA was submitted to the services in October 2002. Letters were sent by the USFWS on December 31, 2002, and by the NMFS on December 6, 2002, concurring with the BA determinations of "may affect/not likely to adversely affect" bald eagle, bull trout, and Puget Sound chinook salmon; "no effect" on marbled murrelet; and "not likely to significantly impact" populations, individuals, or suitable habitat of the Puget Sound-Strait of Georgia ESU of coho salmon. Section 7 consultation has been completed. Concurrence letters from the services are in Attachment A-1 of this appendix.

Tribal Consultations

In addition to these meetings with interested agencies, a number of tribes were periodically contacted directly by letter or telephone for input on issues of concern. The tribes included:

- Muckleshoot Tribe
- Puyallup Tribe
- Duwamish Tribe
- Suquamish Tribe
- Lummi Nation
- Yakama Nation

Community Involvement

Community involvement with the SR 509 project has been ongoing since May 1992. Five public meetings were held regarding the previous, corridor-level EIS. The type, date, and purpose of those meetings are as follows:

Meeting	Date	Purpose
Open house/scoping	May 6, 1992	Give citizens an opportunity to identify issues associated with the proposed project that should be considered in the DEIS
Public meeting	June 1, 1992	Report results of first level screening
Open house/scoping	September 30, 1992	Identify alternatives
Open house	February 2, 1994	Receive comments on alternatives
DEIS public hearing	January 10, 1996	Receive comments on DEIS

Prior to the public meetings, a newsletter was sent out announcing the meetings and providing background information about the topics to be addressed at the meetings. A total of four newsletters were prepared regarding the corridor-level EIS. The newsletters were dated April 1992, September 1992, January 1994, and December 1995. In addition, advertisements were placed in regional and local newspapers announcing the meetings and their purpose. Comments on the 1995 Corridor-Level DEIS and responses to those comments are summarized in Attachment A2 to this appendix.

Following receipt of public and agency comments on the DEIS, the Steering Committee, WSDOT, and FHWA concluded that the comments could be more fully addressed if details about the alternatives were developed. Once concurrence was given on the preferred corridor alignment, a decision was made to prepare a RDEIS that addressed specific project-level alignments.

The project-level EIS phase was initiated with a formal Public Scoping Meeting in February 1998. The intent of the federally mandated meeting was to solicit comments from the public on the proposed project, the specific EIS alternatives, and those issues that should be addressed in the EIS. Attendees were urged to provide comments on preprinted comment forms. The following summarizes the written and verbal issues raised at the hearing:

- Degree of land acquisition required, particularly residential land
- Infringement on Des Moines Creek Park
- Wetlands
- Des Moines Creek Drainage Basin
- Maintaining access for emergency service vehicles throughout the area
- Bicycle and pedestrian facilities
- Noise impacts and mitigation
- Access to residential areas
- Traffic operations
- Airport and aircraft safety

Public meetings have been held throughout the development of the alternatives. The following table lists the formal public meetings that have been held regarding the project during the development of the project-level EIS.

Meeting	Date	Purpose
Open house/scoping	February 26, 1998	Give citizens an opportunity to identify issues associated with the proposed project that should be considered in the DEIS
Open house	June 4, 1998	Provide project update, present of project-level alternatives, and inform residents of upcoming fieldwork
Open house	October 27, 1999	Provide results of value analysis and introduce new alternatives
Open house	January 10, 2001	Provide project update, present alternatives analysis, and introduce preliminary preferred alternative
Open house	February 12, 2002	Receive comments on the RDEIS
Revised DEIS public hearing	February 27, 2002	Receive comments on the RDEIS
Design hearing	October 17, 2002	Receive comments on preliminary design of the alternatives

In general, the majority of the comments at these public meetings have centered around preferences for a particular build alternative or more general comments about the alternatives being considered. The comments indicated a slight preference for Alternative C2, which was followed in order of preference by Alternatives D, C3, B, and C1 (with B and C1 having about the same level of preference). All of the people who preferred Alternative D were impacted by the other alternatives. A couple of comments also stated a preference to build nothing (Alternative A). Overall, opposition to the project or the preferred alternative represented a small minority of the comments received. People expressed concern about the amount of time project development was taking, particularly residents whose property might be affected by right-of-way acquisition. Concerns about project effects on traffic operations on local arterials and I-5 were also expressed. There were also some comments on noise, particularly the desire for noise barriers, and the need to minimize impacts to wetlands and to provide impact mitigation in the affected basins. The following summarizes the types of issues raised at the public meetings:

- Alternative selection and preferred alternative
- Timing of project construction and property acquisition
- Traffic operations
- Requests for maps, graphics and additional information
- Park impacts
- Cumulative impacts
- Relocation and property issues
- Noise
- Wetland impacts

- Impacts to water supply wells
- Cost
- Construction impacts to air quality

A public hearing on the RDEIS was held on February 2002. The purpose of the hearing was to solicit comments from the public on the proposed project, the specific EIS alternatives, and impacts of the project on the built and natural environment. Attendees were asked to provide comments on preprinted comment forms or give oral comments to a court reporter. Comments on the RDEIS are included in their entirety in Chapter 5 of this FEIS, along with written responses to those comments.

A design hearing was held in October 2002 to present design work completed to date and solicit comments on the proposed design for the preferred alternative and other alternatives under consideration. Information presented included basic roadway alignment design; grading limits; stormwater facilities design; locations and sizes of bridges, retaining walls, and drainage structures; locations of proposed noise mitigation; preliminary right-of-way acquisition limits; cost estimates (including details from the Construction Estimate Validation Process, which WSDOT based on the latest cost estimating methods from around the country and elsewhere in the world). The following summarizes comments and issues raised by the public related to the design of the preferred alternative:

- Support for the project and the preferred alternative
- Timing of funding, property acquisition, and construction
- Local access revisions at South 208th Street in the Madrona neighborhood
- Noise barrier locations and timing of construction
- Current operations and future improvements at South 272nd Street
- Potential contaminated fill due to ASARCO operations
- Air quality analysis and Clean Air Act conformity
- Noise and pollutants related to increased truck traffic
- Pedestrian routes for children at the Madrona Elementary School
- Property acquisition and relocation due to drainage facilities location

Prior to the public meetings, newsletters were distributed to inform the public about upcoming meetings and project activities. These newsletters focused on

the topics addressed at the public meetings. The newsletters were dated February 1998, May 1998, October 1999, and November 2000, and January and October 2002. Another newsletter was also sent out in February 1999 describing the benefits of the project and anticipated funding requirements; this newsletter did not precede a public meeting. In addition, advertisements were placed in regional and local newspapers announcing the meetings and their purpose.

Meetings have also been held with interested groups and individuals, such as individual city councils, business owners and managers, and neighborhood groups.

Permits, Licenses, and Other Required Actions or Approvals

- Federal Highway Administration
  - Interstate Access Approval
- U.S. Army Corps of Engineers
  - Section 404 of the Clean Water Act Permit
- Washington State Department of Ecology (Ecology)
  - Water Quality Certification, Section 401 of the Clean Water Act
  - National Pollutant Discharge Elimination System (NPDES) Stormwater Permit
  - NPDES Stormwater Site Plan—Individual
  - Coastal Zone Management Permit
- Washington Department of Natural Resources
  - Forest Practices Permit
- Washington State Department of Fish and Wildlife (WDFW)
  - Hydraulic Project Approval
- Cities of SeaTac, Des Moines, Federal Way, and Kent, and King County
  - Noise Variance
  - Clearing Permit
  - Critical Area Determination
  - SeaTac Essential Public Facilities Permit
- King County
  - Landfill Disturbance Permit (to be obtained by others)
- Federal Aviation Administration
  - Airport Highway Clearance

In addition to specific permits, other likely actions or approvals include:

- Section 4(f) Approval (related to impacts to parks and recreational land, wildlife refuges, and historic sites)—FHWA, U.S. Department of the Interior, and the Cities of Des Moines and Kent.

- Section 7 Consultation (related to impacts to threatened or endangered plant and animal species)—USFWS and NMFS

- Section 106 Review (related to impacts on historic properties)—Washington State Office of Archaeology and Historic Preservation (OAHP) and the Advisory Council on Historic Preservation

app a coordination.DOC

ATTACHMENT A1

Concurrence Forms and Letters

Concurrence Point 1:
Project Purpose and Need and Criteria for Alternative Selection

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Mail Stop PV-11 • Olympia, Washington 98504-8711 • (206) 459-6000

February 5, 1996

Dale Morimoto, M.S.
Northwest Region Environmental
Dept. of Transportation
PO Box 330310
Seattle, WA 98133-9710

RE: Comments on DEIS, SR 509 Extension

Dear Mr. Morimoto:

Ecology has reviewed the Draft Environmental Impact Statement (DEIS), *SR 509 Extension/South Access Road Corridor Project,* received by Ecology in December, 1995. The proposed project will extend SR 509 to include two general-purpose travel lanes and a center high-occupancy vehicle lane in each direction, and to provide southern access to SeaTac Airport. The preferred alternative (Alternative 2) would impact 4.0 acres of wetlands, and cross several creeks and seismic hazard areas, and has the potential for crossing hazardous wastes and substances sites through the industrial sections of the proposed right of way. However, of the 3 build alternatives presented, Alternative 2 had the least amount of impact on the resources of the State.

Per the merger agreement, we have reviewed this document and provide the following comments. In general, we accept the purpose and need as stated in the DEIS, however we are concerned with the loss of wetlands and fish and wildlife habitat that would occur from this project as proposed. DOT should make every effort to avoid impacts to the wetlands and streams in the project area, especially for the category I and II wetlands, and Des Moines Creek.

For all unavoidable impacts, a detailed mitigation plan that is approved by Ecology will be required prior to permitting of the project. We would like to encourage DOT to consider a mitigation bank to compensate for the unavoidable impacts. DOT should combine impacts expected from this expansion with additional expected impacts from the future projects outlined on page S-4 in order to create a large bank for this and future projects. The use of a bank may allow for improved habitat and wetlands functions and values for the watershed. Please contact Ecology for information or assistance in the development of a mitigation bank proposal.

Specific comments to the plan are addressed below:

1. Proposed Alternative: DOT has selected Alternative 2 as their preferred alternative based on the lower cost and decreased environmental impacts of this alternative. Ecology supports this decision but recommends DOT consider additional avoidance or minimization on the impacts to the functions and values of the wetlands and streams to be crossed. If possible, Des Moines Creek and it's buffer should be bridged or avoided in some other way.

2. The final EIS should describe how the Category levels were assigned to each of the wetlands, and should define how the functions and values associated with each wetlands and creek will be replaced by the proposed mitigation.

3. The stormwater detention and treatment systems required for treating the additional runoff should be designed to include treatment of current road runoff. The systems should be located outside of wetland areas.

4. DOT should consult Ecology Hazardous Waste Section about cleanup requirements in the industrial areas prior to completion of the final EIS. The site should be tested and a cleanup plan prepared and presented in the EIS.

5. Table S-1: Under the Water Quality column of this table, information should be included about monitoring and maintenance requirements should be listed as part of the erosion control under mitigation.

6. Table S-1: Under the Wetlands column of this table, information should be included about erosion control around wetlands and wetland buffers as part of mitigation. Silt fences and other measures should be used to isolate the construction site from the mitigation site. Monitoring and maintenance requirements of the erosion control structures should also be included.

7. The information (second sentence) provided under Coastal Zone on page 4-30 and 31 is misleading. The exemption of the Shoreline management permit is only one criteria for meeting consistency requirements of the Coastal Zone Management (CZM) Act. This sentence should be removed or re-written to clearly state that it is only one criteria, and not "generally the State considers the project is in compliance" due to the shoreline exemption.

Mitigation:

8. Additional work needed to complete the goals of the *Des Moines Creek Restoration Project* (Herrara and Hall, 1989) as stated on page 3-18, may provide an opportunity for some of the project mitigation requirements.

9. Page 4-55 should include some information about the requirements of the DOT and Ecology Implementation Agreement for Wetland Mitigation.

10. Mitigation for the functions and values lost during bridging of creeks and wetlands should be included in the overall mitigation ratios and requirements.

If you have any questions please contact me at (206) 407-6912.

Sincerely,

Sandra L. Manning

Sandra L. Manning
DOT Liaison and Permit Reviewer
Environmental Review and Sediments

cc: DOT - Sandy Stephens
WDFW - Randy Carmon
Ecology - Ann Boeholdt, Bob Fritzen, Roger Nye
EPA - Richard Clark
Corps - Jack Kennedy

REC'D CH_2M SEA JUN 30 1997

U.S. Department of Transportation
Federal Aviation Administration

for EIS
(FHWA didn't send the orginal
This should be good enough C.

Seattle Airports District Office
1601 Lind Avenue, S.W.
Renton, WA 98055-4056

May 27, 1997

Mr. Gene K. Fong
Division Administrator
U.S. Department of Transportation
Federal Highway Administration Suite 501, Evergreen Plaza
711 South Capitol Way
Olympia, Washington 98501-1284

Dear Mr. Fong:

We have received your May 13, 1997 letter to Mr. Frederick Isaac requesting Federal Aviation Administration (FAA) participation as a Cooperating Agency on the Supplemental Draft Environmental Impact Statement (SDEIS) for the State Route 509 Extension/South Access Road project. We would like to reconfirm our participation in the cooperating agency role. We understand that our involvement will be limited to those areas under the FAA jurisdiction or special expertise as was the case in the corridor level Draft EIS for the project that was completed in December of 1995.

We look forward to working with you on the SDEIS. Should you have any questions, please contact Cayla Morgan at (206) 227-2653.

Sincerely,

J. Wade Bryant

J. Wade Bryant
Manager,
Seattle Airports District Office

REC'D CH_2M SEA JUN 17 1997

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
P.O. Box 47600 • Olympia, Washington 98504-7600
(360) 407-6000 • TDD Only (Hearing Impaired) (360) 407-6

JUN 16 '97
DATE RECEIVED

TO	DISTRIBUTION	INIT.	DATE
	ENV. PROG. MGR.		
	AIR & NOISE		
	HYDRAULICS		
	BIOLOGY		
	DOCUMENTATION		
	RECYCLE		
	OTHER		
	FILE		

June 10, 1997

Dale Morimoto, M.S.
Northwest Region Environmental
Dept. of Transportation
PO Box 330310
Seattle, WA 98133-9710

RE: Request for Cooperating Agency Status, SR 509 Extension
Concurrence Point #1 per Merger Agreement

Dear Mr. Morimoto:

I have reviewed your April 25th letter requesting Ecology act as a cooperating agency in development of environmental documentation for the SR 509 Extension/South Access Road Corridor Project. The proposed project will extend SR 509 to include two general-purpose travel lanes and a center high-occupancy vehicle lane in each direction, and to provide southern access to SeaTac Airport. We decline your offer to act as a cooperating agency for this project.

In Ecology's February 5th, 1996 comment letter on the Draft Environmental Impact Statement (DEIS), Ecology provided concurrence per the Merger Agreement on concurrence point number 1. Please accept this letter as confirmation that we agree with the stated purpose and need, but recommend that the criteria for improving regional mobility and safety should be included in the purpose and need statement. We also agree with the criteria for selecting the range of alternatives as presented in DOT's April 25th summary letter.

If the Supplemental DEIS has the same purpose and need (along with safety), and the criteria for selection that are stated in the April 25th summary, then Ecology will consider this letter the approval for concurrence point number 1, unless additional information is provided that warrants comments.

As stated in Ecology's February letter, we are still concerned with the loss of wetlands and fish and wildlife habitat that would occur from this project as proposed. DOT should make every effort to avoid impacts to the wetlands and streams in the project area, especially for the category I and II wetlands, and Des Moines Creek. All other comments as stated in the February letter (attached) should be addressed in the SDEIS.

If you have any questions please contact me at (360) 407-6912.

Sincerely,

Sandra L. Manning

Sandra L. Manning
DOT Liaison and Permit Reviewer
Environmental Review and Sediments

cc: DOT - Sandy Stephens
WDFW - Randy Carmon
NMFS - Dennis Carlson
USFWS - Nancy Brennan-Dubbs
EPA - Richard Clark
Corps - Jack Kennedy

RECD CH2M SEA JUN 24 1997

State of Washington
DEPARTMENT OF FISH AND WILDLIFE

Mailing Address: 600 Capitol Way N • Olympia, WA 98501-1091 • (360) 902-2200, TDD (360) 902-2207
Main Office Location: Natural Resources Building • 1111 Washington Street SE • Olympia, WA

June 16, 1997

Mr. Dale Morimoto
Northwest Region Environmental
Department of Transportation
P.O. Box 330310
Seattle, Washington 98133-9710

Subject: SR 509 Extension/South Access Rd. Request for Cooperating Agency Status.

Dear Mr. Morimoto:

I have reviewed the information that accompanied the April 25, 1997 letter and have no comments and concur with the projects purpose and need and with the range of alternatives to be discussed in the supplemental DEIS. The alternatives that were chosen seem to have the least impacts to fish and wildlife habitat. Habitat loss and impacts that result from this project will need to be mitigated.

I will be reviewing the Hydraulic Project Application for this project and would also like to be kept informed on fish and wildlife issues, wetlands, and stomwater issues. I will also be available as time permits to provide input on these issues.

If you have any questions please call me at (425) 391-4365.

I would like to thank you for your cooperation in our effort to protect and perpetuate our state's fish and wildlife resources.

Sincerely,

Philip Schneider
Habitat Biologist

cc Jane Banyard
Ted Muller

JUN 19 '97
DATE RECEIVED

TO	DISTRIBUTION	INIT.	DATE
	ENV. PROJ. MGR.		
	AIR & NOISE		
	HYDRAULICS		
	BIOLOGY		
✓	DOCUMENTATION		
	RECYCLE		
	OTHER		
	FILE		

Merger Agreement
Concurrence Form

Project Title	SR#	Region	County
SR 509/South Access Road	509	Northwest	King

DEC 31 '97

WRIA: 0377 / 0380

Environmental Document Classification: Joint NEPA/SEPA EIS

Date Concurrence Point Reached:

DATE RECEIVED
DIST. ENGR. | DIST. ENGR.
ASST. DIST. ENGR.
PROJECT DEV.
PROJECT ENGR.
DESIGN
CONSTRUCTION
RIGHT OF WAY
RECYCLE
FILE

- [x] Project purpose & need
- [x] Criteria for alternatives selection
- [x] Role of all agencies
- [ ] Project alternatives to be evaluated in DEIS
- [ ] Preferred alternative or least environmentally damaging alternative
- [ ] Detailed mitigation plan
- [ ] Preliminary preferred alternative when known

WSDOT Contact Person: Dean Torkko

Environmental Summary

The proposed project would improve regional travel by extending the existing State Route 509 from its current terminus with a City of SeaTac arterial (S. 188th St.) southward to a connection with Interstate 5 and improve southerly access to and from Seattle/Tacoma International Airport by means of a new South Access Road which would connect the airport drive system with the new SR 509 extended roadway.

Concurrence Request

Having discussed the above concurrence point(s), the agency representative, by his/her signature to this document, signifies one of the following:

- [ ] Concurrence as presented [1]
- [ ] Nonconcurrence [2]
- [x] Concurrence with comments [3]
- [ ] Waived [4]

Comments/Reasons for Nonconcurrence: Although we concur with the above points, we request the removal of the last part of the last sentence of the purpose & need statement, which says, "... by means of a new South Access Road which would connect the airport drive system with the new SR509 extended roadway."

Additional Information Needed:

Agency:	Title:	Signature:	Date:
EPA	NEPA Team Leader	John Brenner	12/24/97

[1] Definition of Concurrence - "Written determination by the agency that information to date is adequate for this stage, and the project may proceed to the next stage without modification."

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
North Pacific Coast Ecoregion
Western Washington Office
510 Desmond Drive SE, Suite 102
Lacey, Washington 98503
Phone: (360) 753-9440 Fax: (360) 753-9008

RECEIVED
JUN 29 1997
ENVIRONMENTAL AFFAIRS

June 19, 1997

Gene Fong
Washington Division
Washington State Department of Transportation
711 South Capitol Way
Suite 501 Evergreen Plaza
Olympia, Washington 98501-1284

Subject: SR 509 Extension/South Access Road, NEPA/404 Merger and Request for Cooperating Agency Status

Dear Mr. Fong:

The U. S. Fish and Wildlife Service (Service) is responding to the above document regarding Concurrence Point Number 1 as part of the Merger Agreement, as well as the request for our agency to act as a cooperator. We decline your offer to act as a cooperating agency for this proposed project. Please find enclosed the signed Merger Agreement Concurrence Form. The Service has the following comments regarding the purpose and need, and range of alternatives to be addressed in the Supplemental Draft Environmental Impact Statement (SDEIS).

1. The SDEIS should address the need for the project if the proposed third runway expansion for SeaTac Airport does not go forward.

2. Alternative selection and screening criteria included assessing impacts to threatened and endangered species, and loss of wetlands due to filling and vegetation removal. Impacts to other wildlife species and wetland impacts due to shading, fragmentation, and changes in hydrology (i.e., decreasing flows) need to also be considered in the assessment of alternatives.

Please contact Nancy Brennan-Dubbs, of my staff, at (360) 753-5835 or at the above address in the future regarding this project.

Sincerely,

for David C. Frederick
Supervisor

nbd/jmc
Enclosure
WSDOT/SR509/King
c: EPA, Seattle (Roy)
EPA, Lacey (Clark)
NMFS, Lacey (Carlson)
COE, Seattle (Kennedy)
WDE, Lacey (Manning)
WDFW, Region 4
WSDOT, Olympia (Stephens)

wdot/sr509p13

Merger Agreement Concurrence Form

Project Title	SR#	Region	County
SR 509	509	Olympic	King

WRIA	Environmental Document Classification	Date Concurrence Due
WR IA	SDEIS	6-28-97

- [x] Project purpose & need
- [x] Criteria for alternatives selection
- [ ] Role of all agencies
- [ ] Project alternatives to be evaluated in DEIS
- [ ] Preferred alternative/Least environmentally damaging alternative
- [ ] Detailed mitigation plan
- [ ] Preliminary preferred alternative when known

WSDOT Contact Person José Miranda

Environmental Summary

Concurrence Request

Having discussed the above concurrence point(s), the agency representative, by his/her signature to this document, signifies one of the following:

- [ ] Concurrence as presented[1]
- [x] Concurrence with comments[3]
- [ ] Nonconcurrence[2]
- [ ] Waived[4]

Comments/Reasons for Nonconcurrence	See attached cover letter
Additional Information Needed	

Agency:	Title:	Signature:	Date:
US FWS	Acting Supervisor	[signature]	6/20/97

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6/11/97

DEPARTMENT OF THE ARMY
SEATTLE DISTRICT, CORPS OF ENGINEERS
P.O. BOX 3755
SEATTLE, WASHINGTON 98124-2255

REPLY TO ATTENTION OF
Regulatory Branch

JUL 30 1997

To: Christina Olson

Gene Fong
Division Administrator
Federal Highway Administration
711 South Capitol Way, #501
Olympia, Washington 98501

Reference: SR 509 EIS

Dear Mr. Fong:

The Seattle District, U.S. Army Corps of Engineers, concurs with your agency's decision to proceed to project-level documentation for extension of State Route 509, from its current terminus south of Seattle Tacoma International Airport near South 188th Street, eastward to Interstate 5. As we understand it, the documentation is to be a Supplemental Draft Environmental Impact Statement. It would supplement the corridor-level Draft Environmental Impact Statement Impact Statement entitled *SR 509/South Access Road Corridor Project and Draft Environmental Impact Statement and Section 4(f) Evaluation*. We accept your offer to be a cooperating agency in the preparation of the Environmental Impact Statement (EIS) pursuant to the NEPA/SEPA/Section 404 Merger Agreement.

In our February 29, 1996 letter on this project, we concurred with the Draft EIS Purpose and Need statement. We still do. We also concur with your selection of alternatives to be forwarded for further consideration. The concerns and other observations expressed in that February 1996 letter remain current.

Jack Kennedy remains the Corps staff contact person for this project. If you have any questions, please contact him at (206) 764-6907.

Sincerely,

Ann R. Uhrich

Ann R. Uhrich
Chief, Environmental and
Processing Section

Concurrence Point 2
Project Alternatives

Merger Agreement Concurrence Form

Project Title	SR#	Region	County
Extension and South Access Road	509	Northwest	King

WRIA	Environmental Document Classification	Date Concurrence Due
WRIA 09 Streams 0377 & 0380	Joint NEPA/SEPA EIS	11/15/99

- P Project purpose & need
- 1 Criteria for alternatives selection
- 1 Role of all agencies
- X 1 Project alternatives to be evaluated in DEIS
- 1 Preferred alternative/Least environmentally damaging alternative
- 1 Detailed mitigation plan
- 1 Preliminary preferred alternative when known

WSDOT Contact Person Susan Powell

Environmental Summary

The purpose of the proposed action is to improve regional highway connections with an extension of SR 509 to serve future transportation needs in southwest King County and to enhance southern access to Seattle-Tacoma International Airport.

Concurrence Request

Having discussed the above concurrence point(s), the agency representative, by his/her signature to this document, signifies one of the following:

- 1 Concurrence as presented [1]
- 1 Nonconcurrence [2]
- 1 Concurrence with comments [3]
- X 1 Waived [4]

Comments/Reasons for Nonconcurrence

Additional Information Needed

NMFS — Agency: | Fishery Biologist — Title: | Dan Guy — Signature: | 12/29/99 — Date:

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STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
P.O. Box 47600 • Olympia, Washington 98504-7600
(360) 407-6000 • TDD Only (Hearing Impaired) (360) 407-6006

March 30, 2000

Susan Powell
Northwest Region Environmental
Dept. of Transportation
PO Box 330310
Seattle, WA 98133-9710

RE: SR 509 Extension - Concurrence Point #2 per Merger Agreement, Project Alternatives to be Evaluated

Dear Ms. Powell:

I have reviewed your November 15th letter requesting Ecology's concurrence for the alternatives identified by DOT to be evaluated in the environmental documentation for the SR 509 Extension/South Access Road Corridor Project. The proposed project will extend SR 509 to include two general-purpose travel lanes and a center high-occupancy vehicle lane in each direction, and to provide southern access to SeaTac Airport.

In the attached form, we have stated our decision to be concurrence with comments. We have the following comments on the alternatives:

1) All of the alternatives proposed have significant aquatic impacts in an area where mitigation opportunities are limited. We continue to be concerned with the loss of wetlands and fish and wildlife habitat that would occur from this project as proposed. DOT should make every effort to avoid impacts to the wetlands and streams in the project area, especially for the category I and II wetlands, and Des Moines Creek. We recommend DOT form a technical committee with the resource agencies and the FAA to assist in determining additional avoidance requirements early on, and potential mitigation sites that will be needed for project mitigation. It is essential that these areas are identified early, and agreed on by all the permitting agencies because of the limited mitigation areas, many of which are being proposed for mitigation by the SeaTac third runway expansion needs.

2) It is essential for DOT to continue to work with SeaTac to make certain that areas proposed for expansion on SR 509 do not impact the Port's proposed mitigation areas. Also, the two project's documents should be coordinated so that if there is an area that DOT is avoiding, but will be filled by the Port (or visa versa), it should not be presented as avoidance in the EISs. The areas that will eventually be filled by either project should be documented in the EIS, so that the Port or DOT are not getting credit for avoidance measures in their EIS document, or in the mitigation sequencing requirements of the 401/404 Clean Water Act review.

3) DOT should consider combining mitigation efforts and requirements with the Port, in order to obtain a better mitigation strategy for the area.

4) The impacts that will occur to the East Fork of Des Moines Creek, between Bow Lake and the Tyee Golf Course, and approximately 5 acres of associated wetland adjacent to the Creek are unclear. The maps provided by DOT show impacts different from the maps in the Corps public notice for the SeaTac expansion #96-4-02325R and in the EIS for the SeaTac expansion. It would be very helpful to have a single map showing the impacts that 509 will have to this area, and how the runway expansion has been coordinated with DOT for the creek and wetlands located under the proposed bridge that the Port of Seattle is building for the SeaTac expansion.

If you have any questions please contact me at (360) 407-6912.

Sincerely,

Sandra L. Manning

Sandra L. Manning
DOT Liaison and Permit Reviewer
Environmental Review and Assistance

cc:

WDFW –	Cynthia Pratt
NMFS -	Dennis Carlson
USFWS -	Nancy Brennan-Dubbs
EPA -	Richard Clark
Corps -	Jack Kennedy
Ecology –	Sarah Suggs, Janet Thompson, Tom Luster, Erik Stockdale, Sandra Lange

Merger Agreement Concurrence Form

Project Title	SR#	Region	County
Extension and South Access Road	509	Northwest	King

WRIA
WRIA 09
Streams 0377 & 0380

Environmental Document Classification
Joint NEPA/SEPA EIS

Date Concurrence Due
~~11/15/99~~ 2/22/00 info. received by Ecology on 1/6/00 SM

- P **Project purpose & need**
- 1 **Criteria for alternatives selection**
- 1 **Role of all agencies**
- X 1 **Project alternatives to be evaluated in DEIS**
- 1 **Preferred alternative/Least environmentally damaging alternative**
- 1 **Detailed mitigation plan**
- 1 **Preliminary preferred alternative when known**

WSDOT Contact Person Susan Powell, fax 440-4805

Environmental Summary

The purpose of the proposed action is to improve regional highway connections with an extension of SR 509 to serve future transportation needs in southwest King County and to enhance southern access to Seattle-Tacoma International Airport.

Concurrence Request

Having discussed the above concurrence point(s), the agency representative, by his/her signature to this document, signifies one of the following:

- 1 **Concurrence as presented** [1]
- X 1 **Concurrence with comments** [3]
- 1 **Nonconcurrence** [2]
- 1 **Waived** [4]

Comments/Reasons for Nonconcurrence: see attached

Additional Information Needed:

Ecology — **Agency:** | DOT Liaison — **Title:** | Sandra L. Manning — **Signature:** | 3/30/00 — **Date:**

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Concurrence Form

Project Title	SR#	Region	County
Extension and South Access Road	509	Northwest	King

WRIA	Environmental Document Classification	Date Concurrence Due
0377/0380	Joint NEPA/SEPA EIS	11/15/99

- Project purpose & need
- Criteria for alternatives selection
- Role of all agencies
- X Project alternatives to be evaluated in DEIS
- Preferred alternative/Least environmentally damaging alternative
- Detailed mitigation plan
- Preliminary preferred alternative when known

WSDOT Contact Person Susan Powell

Environmental Summary

The proposed project would improve regional travel by extending the existing SR 509 from its current terminus with a city arterial southward to a connection with Interstate 5 and improve southerly access to and from Seattle-Tacoma International Airport by means of a new South Access Road which connect the airport drive system with the new SR 509 extended roadway.

Concurrence Request

Having discussed the above concurrence point(s), the agency representative, by his/her signature to this document, signifies one of the following:

- X Concurrence as presented [1]
- Nonconcurrence [2]
- Concurrence with comments [3]
- Waived [4]

Comments/Reasons for Nonconcurrence

Additional Information Needed

Agency: Corps of Engineers Title: Regulatory Project Manager Signature: Jack Kennedy Date: 12/21/99

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Merger Agreement Concurrence Form

Project Title	SR#	Region	County
Extension and South Access Road	509	Northwest	King

RECEIVED
NOV 19 1999
SOUTH KING COUNTY AREA ADMINISTRATION

WRIA	Environmental Document Classification	Date Concurrence Due
WRIA 09 Streams 0377 & 0380	Joint NEPA/SEPA EIS	11/15/99

- P Project purpose & need
- 1 Criteria for alternatives selection
- 1 Role of all agencies
- X 1 Project alternatives to be evaluated in DEIS
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WSDOT Contact Person Susan Powell

Environmental Summary

The purpose of the proposed action is to improve regional highway connections with an extension of SR 509 to serve future transportation needs in southwest King County and to enhance southern access to Seattle-Tacoma International Airport.

Concurrence Request

Having discussed the above concurrence point(s), the agency representative, by his/her signature to this document, signifies one of the following:

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Comments/Reasons for Nonconcurrence

Additional Information Needed

Agency:	Title:	Signature:	Date:
WDFW	NEPA/SEPA Coordinator	Cynthia R. Pratt	11/12/99

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
North Pacific Coast Ecoregion
Western Washington Office
510 Desmond Drive SE, Suite 102
Lacey, Washington 98503
Phone: (360) 753-9440 Fax: (360) 753-9008

DEC 3 1999

Susan Powell
Northwest Region Environmental
Washington Department of Transportation
PO Box 330310
Seattle, Washington 98133-9710

Re: SR 509 Extension and South Access Road, Concurrence Point 2

Dear Ms. Powell:

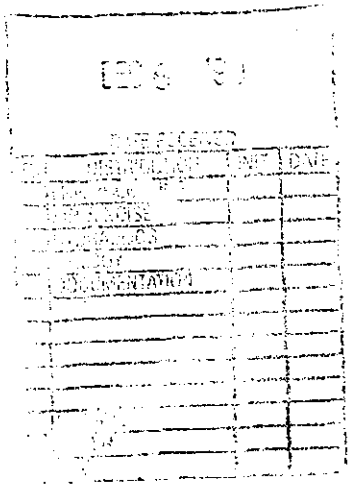
We have received your request for concurrence on the project alternatives to be evaluated in the Draft Environmental Impact Statement (Concurrence Point 2 of the NEPA/404 Merger Process) for the above proposed project. Due to staffing constraints, we are waiving our concurrence on this point.

Should you have any comments, please contact Nancy Brennan-Dubbs, of my staff, at (360)753-5835 or at the above letterhead address.

Sincerely,

Gerry A. Jackson, Manager
Western Washington Office

nbd/jk
c: EPA, Seattle (Roy)
DOE, Lacey (Manning)
WDFW, Region 4 (Schneider)
Corps, Seattle (Kennedy)



Concurrence Point 2:
Preliminary Preferred Alternative

State of Washington
DEPARTMENT OF FISH AND WILDLIFE
Mailing Address: 600 Capitol Way N - Olympia, Washington 98501-1091 - (360) 902-2200, TDD (360) 902-2207
Main Office location: Natural Resources Building - 1111 Washington Street SE - Olympia, WA

August 24, 2001

Washington State
Department of Transportation
Northwest Region
Attention: Ms. Susan Powell
P.O. box 330310
Seattle, Washington 98133-9710

Dear ~~Ms. Powell~~ *Susan*:

SUBJECT: SR 509, South Access Road, 404 Merger Concurrence Point #2, Preliminary Preferred Alternative, Des Moines Creek, WRIA 09.377, and Massey Creek, WRIA 09.0380

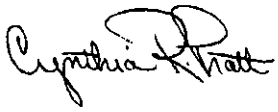
Washington Department of Fish and Wildlife (WDFW) has reviewed the SR 509 South Access Road project and the request for concurrence with the Preliminary Preferred Alternative (Concurrence Point #2). We have the following comments.

We concur with the C2 alternative and believe this is the best choice overall to balance fish and wildlife impacts with 4(f) impacts. Our agency still would like to see cumulative impacts of the closely related projects in this area viewed together, if possible. This analysis could then be analyzed for amount of mitigation needed to overcome overall impacts, which may be severe.

We want to iterate that there are chum and coho salmon, steelhead and cutthroat trout in Des Moines Creek. We understand that there might be a tributary to Des Moines Creek which enters the large wetland at the upper end of the project. No mention of this stream is found on your maps or in the discussion. This would be another good opportunity for enhancement of this stream reach, which has been straightened to flow again the road, and at times flows through a culvert.

Thank you for the opportunity to participate in this project. If you have any questions about this letter, please call me at (360) 902-2575. If you have specific questions concerning the area, please call Deborah Cornett, the Regional Habitat Program Manager, at (425) 775-1131, Extension 114, for the Area Habitat Biologist for the SR 509 South Access project.

Sincerely,



Cynthia R. Pratt
SEPA/NEPA Coordinator
Regulatory Services Section
Environmental Services Division
Habitat Program

cc: Stephen Kalinowski, Reg. Services
Gayle Kreitman, RSSM
Deborah Cornett, RHPM, Reg. 4

Merger Agreement Concurrence Form

Project Title	SR#	Region	County
Extension and South	509	Northwest	King

WRIA	Environmental Document Classification	Date Concurrence Due
WRIA 09 Streams 0377 and 0380	Joint NEPA/SEPA EIS	9/24/2001

- ☐ Project purpose & need
- ☐ Criteria for alternatives selection
- ☐ Role of all agencies
- ☐ Project alternatives to be evaluated in DEIS
- ☐ Preferred alternative/Least environmentally damaging alternative
- ☐ Detailed mitigation plan
- ☒ **Preliminary Preferred Alternative**

WSDOT Contact Person **Susan Powell**

Environmental Summary

The purpose of the proposed action is to improve regional highway connections with an extension of SR 509 to serve future transportation needs in southwest King County and to enhance southern access to Seattle-Tacoma International Airport.

Concurrence Request

Having discussed the above concurrence point(s), the agency representative, by his/her signature to this document, signifies one of the following:

- ☐ Concurrence as presented [1]
- ☒ Concurrence with comments [3]
- ☐ Nonconcurrence [2]
- ☐ Waived [4]

Comments/Reasons for Nonconcurrence

Additional Information Needed

Agency:	Title:	Signature:	Date:
WDFW	SEPA/NEPA Coordinator	Cynthia R. Pratt	8/24/01

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Western Washington Office
510 Desmond Drive SE, Suite 102
Lacey, Washington 98503
Phone: (360) 753-9440 Fax: (360) 753-9008

SEP 24 '01

SEP 18 2001

Susan Powell, Environmental Specialist
Washington State Department of Transportation
MS 138
Post Office Box 330310
Seattle, Washington 98133-9710

Reference: SR509 South Access Road: 404 Merger Concurrence Point 2 (Preliminary Preferred Alternative)

Dear Ms. Powell:

Our office received a letter and concurrence package from your agency dated August 9, 2001, requesting our concurrence on "C2" as the "preliminary preferred alternative" for the SR 509 Extension and South Access Road project; and our consent to proceed with the Supplemental Draft Environmental Impact Statement presenting "C2" as the preliminary preferred alternative according to the NEPA/SEPA/Section 404 Merger Agreement.

As you know, our agency could not concur with the above request in the past because of concerns regarding potential conflicts with proposed mitigation sites, and potential impacts to riparian and wetland habitat.

However, the concurrence package mentioned above, and a recent presentation by your project staff at the August 29, 2001 Signatory Agency Committee meeting, provided the necessary additional information, and demonstrated that our previous concerns have been adequately addressed for this stage of the process. As such, we are able to provide our concurrence with your request at this time.

If you have any questions please contact Emily Teachout at (360) 753-9583.

Sincerely,

for Ken S. Berg, Manager
Western Washington Office

Enclosure

cc: COE (A. Robinson)
EPA (T. Conner)
NMFS (T. Gibbons)
WDOE (T. Swanson)
WDFW (C. Pratt)
WDOT (B. Brown)

Merger Agreement Concurrence Form

Project Title	SR#	Region	County
Extension and South	509	Northwest	King

WRIA	Environmental Document Classification	Date Concurrence Due
WRIA 09 Streams 0377 and 0380	Joint NEPA/SEPA EIS	9/24/2001

- [ ] Project purpose & need
- [ ] Criteria for alternatives selection
- [ ] Role of all agencies
- [ ] Project alternatives to be evaluated in DEIS
- [ ] Preferred alternative/Least environmentally damaging alternative
- [ ] Detailed mitigation plan
- [x] Preliminary Preferred Alternative

WSDOT Contact Person **Susan Powell**

Environmental Summary

The purpose of the proposed action is to improve regional highway connections with an extension of SR 509 to serve future transportation needs in southwest King County and to enhance southern access to Seattle-Tacoma International Airport.

Concurrence Request

Having discussed the above concurrence point(s), the agency representative, by his/her signature to this document, signifies one of the following:

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- [ ] Concurrence with comments [3]
- [ ] Nonconcurrence [2]
- [ ] Waived [4]

Comments/Reasons for Nonconcurrence

Additional Information Needed

Agency:	Title:	Signature:	Date:
US Fish and Wildlife Service	Division Manager	Lynn A. Childers	9/6/01

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Merger Agreement Concurrence Form

Project Title	SR#	Region	County
Extension and South	509	Northwest	King

WRIA	Environmental Document Classification	Date Concurrence Due
WRIA 09 Streams 0377 and 0380	Joint NEPA/SEPA EIS	9/24/2001

- ☐ Project purpose & need
- ☐ Criteria for alternatives selection
- ☐ Role of all agencies
- ☐ Project alternatives to be evaluated in DEIS
- ☐ Preferred alternative/Least environmentally damaging alternative
- ☐ Detailed mitigation plan
- ☒ **Preliminary Preferred Alternative**

WSDOT Contact Person **Susan Powell**

Environmental Summary

The purpose of the proposed action is to improve regional highway connections with an extension of SR 509 to serve future transportation needs in southwest King County and to enhance southern access to Seattle-Tacoma International Airport.

Concurrence Request

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- ☐ Concurrence with comments [3]
- ☐ Nonconcurrence [2]
- ☐ Waived [4]

Comments/Reasons for Nonconcurrence

Additional Information Needed

Corps of Engineers — Agency: | DOT Liaison - Project Mgr — Title: | Renee M. Robinson — Signature: | 9/21/01 — Date:

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Merger Agreement Concurrence Form

Project Title	SR#	Region	County
Extension and South	509	Northwest	King

WRIA	Environmental Document Classification	Date Concurrence Due
WRIA 09 Streams 0377 and 0380	Joint NEPA/SEPA EIS	9/24/2001

- ☐ Project purpose & need
- ☐ Criteria for alternatives selection
- ☐ Role of all agencies
- ☐ Project alternatives to be evaluated in DEIS
- ☐ Preferred alternative/Least environmentally damaging alternative
- ☐ Detailed mitigation plan
- ☒ Preliminary Preferred Alternative

WSDOT Contact Person **Susan Powell**

Environmental Summary

The purpose of the proposed action is to improve regional highway connections with an extension of SR 509 to serve future transportation needs in southwest King County and to enhance southern access to Seattle-Tacoma International Airport.

Concurrence Request

Having discussed the above concurrence point(s), the agency representative, by his/her signature to this document, signifies one of the following:

- ☒ Concurrence as presented [1]
- ☐ Nonconcurrence [2]
- ☐ Concurrence with comments [3]
- ☐ Waived [4]

Comments/Reasons for Nonconcurrence

Additional Information Needed

Agency:	Title:	Signature:	Date:
NMFS	Habitat Biologist	Barb Ward	9/28/01

[1] Definition of Concurrence - "Written determination by the agency that information to date is adequate for this stage, and the project may proceed to the next stage without modification."

[2] Definition of Nonconcurrence - "Written determination by the agency that information to date is not adequate for this stage, or the potential adverse impacts of the project are so substantial that permits would probably be denied, or the project should be modified to reduce the impacts."

[3] Definition of Concurrence with Comments - "Written determination by the agency that the project can advance to the next stage and comments will be addressed in the next submittal."

[4] Definition of Waiver - "Written determination by the agency that they voluntarily give up their opportunity to provide comment on that pricular concurrence point(s). Agencies which waive agree not to revisit that concurrence point."

8/8/2001

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, WA 98101

Reply To
Attn Of: ECO-088

SEP 24 2001

Ref: 96-003-FHA

Susan Powell
Washington State Department of Transportation
P.O. Box 330310, MS 138
Seattle, Washington 98133-9710

Dear Ms. Powell:

We have completed our review of the concurrence package for the proposed **SR 509, Extension and South Access Road** project, pursuant to the provisions of the NEPA/SEPA/404 Merger Agreement.

Based on the information reviewed, EPA concurs with the desire of the Washington State Department of Transportation (WSDOT) to include a preliminary preferred alternative in the Supplemental Draft Environmental Impact Statement (SDEIS) for the proposed project. In concurring with the inclusion of Alternative C2 as the preliminary preferred alternative in the SDEIS, we are agreeing that it is appropriate for WSDOT to identify the alternative that is presently favored by your agency, based on the work you have conducted to date. We believe that identifying a preliminary preferred alternative in the SDEIS, as part of the larger NEPA process, will provide an appropriate focus for the public review of the document/project.

Our concurrence does not, however, represent an endorsement of Alternative C2 as the alternative that we believe best addresses all of the issues related to the proposed project. At this point in time, we do not believe that we have a sufficient understanding of the analyses that have been conducted to make such a determination. EPA still has concerns surrounding aquatic and fisheries resources, environmental justice, especially for members of the community that reside within mobile homes or rental units, and the indirect and cumulative impacts from neighboring or related projects within or adjacent to the proposed project. We expect that information presented in the SDEIS and any subsequent analyses will allow us to make a determination of the preferred alternative that we would endorse prior to publication of the final EIS.

With this concurrence, we agree with WSDOT's request to proceed with the publication and release of the SDEIS for public review. We have enclosed a completed version of the Concurrence Form that was included in your concurrence package. Should you have any questions, please contact Tom Connor of my staff at (206) 553-4423.

Sincerely,

Judith Leckrone Lee, Manager
Geographic Implementation Unit

Enclosure

cc: Carrie Berry - Ecology; Tom Gibbons - NMFS; Anne Robinson - Corps of Engineers; Cynthia Pratt - WDFW; Emily Teachout - USFWS; Sharon Love - FHWA

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Merger Agreement
Concurrence Form

Project Title	SR#	Region	County
Extension and South	509	Northwest	King

WRIA	Environmental Document Classification	Date Concurrence Due
WRIA 09 Streams 0377 and 0380	Joint NEPA/SEPA EIS	9/24/2001

- [ ] Project purpose & need
- [ ] Criteria for alternatives selection
- [ ] Role of all agencies
- [ ] Project alternatives to be evaluated in DEIS
- [ ] Preferred alternative/Least environmentally damaging alternative
- [ ] Detailed mitigation plan
- [x] **Preliminary Preferred Alternative**

WSDOT Contact Person **Susan Powell**

Environmental Summary

The purpose of the proposed action is to improve regional highway connections with an extension of SR 509 to serve future transportation needs in southwest King County and to enhance southern access to Seattle-Tacoma International Airport.

Concurrence Request

Having discussed the above concurrence point(s), the agency representative, by his/her signature to this document, signifies one of the following:

- [ ] Concurrence as presented [1]
- [x] Concurrence with comments [3]
- [ ] Nonconcurrence [2]
- [ ] Waived [4]

Comments/Reasons for Nonconcurrence

Additional Information Needed

Agency:	Title:	Signature:	Date:
USEPA, Region 10	Manager, Geographic Unit	Judith Leckwee	9-24-01

[1] Definition of Concurrence - "Written determination by the agency that information to date is adequate for this stage, and the project may proceed to the next stage without modification."

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4 Definition of Waiver - "Written determination by the agency that they voluntarily give up their opportunity to provide comment on that prticular concurrence point(s). Agencies which waive agree not to revisit that concurrence point."

STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

P.O. Box 47600 • Olympia, Washington 98504-7600
(360) 407-6000 • TDD Only (Hearing Impaired) (360) 407-6006

September, 24, 2001

Ms. Susan Powell, Environmental Specialist
Washington State Department of Transportation
P.O. Box 330310 MS – 138
Seattle, WA 98133-9710

Dear Ms Powell:

Re: SR-509 South Access Road 404 Merger Concurrence Point #2 Preliminary Preferred Alternative

The Department of Ecology has reviewed the SR-509 South Access Road project and the request for concurrence with the Preliminary Preferred Alternative (Concurrence Point #2). We concur with the Preliminary Preferred Alternative, "Alternative C-2" because it appears preliminarily to be the least environmentally damaging alternative for the SR-509 Extension and South Access Road project. With our concurrence, we consent to the Department of Transportation's moving forward with the Supplemental Draft Environmental Impact Statement (SDEIS) in accordance with the NEPA/SEPA/Section 404 Merger Agreement.

Ecology remains concerned with the wetland and stream impacts. For example, while the conflict between Alternative C-2's spanning of Tyee Pond and the Port of Seattle's Third Runway permit application has been resolved, it remains crucial to make every effort to minimize the span coverage to Tyee Pond and avoid any permanent excavation or fill impacts to the Pond. Additionally, the Department of Ecology will work with you to develop solutions aimed at avoiding direct impacts to other wetlands in the area (e.g. spanning).

Towards that end, we recognize that WSDOT will be proposing wetland mitigation and selective stream restoration and enhancement in the upland as part of the mitigation package. We look forward to reviewing and commenting on that package.

Thank you for the opportunity to participate in this project. If you have any questions, please contact me at 360.407.6789 or tswa461@ecy.wa.gov.

Sincerely,

Therese Swanson
Ecology-WSDOT Liaison

Cynthia Pratt, WDFW
Sarah Suggs, Ecology NWR
Ann Kenny, Ecology NWR
Ann Robinson, ASACE
Emily Teachout, USFWS

Merger Agreement Concurrence Form

Project Title	SR#	Region	County
Extension and South	509	Northwest	King

WRIA	Environmental Document Classification	Date Concurrence Due
WRIA 09 Streams 0377 and 0380	Joint NEPA/SEPA EIS	9/24/2001

- [ ] Project purpose & need
- [ ] Criteria for alternatives selection
- [ ] Role of all agencies
- [ ] Project alternatives to be evaluated in DEIS
- [ ] Preferred alternative/Least environmentally damaging alternative
- [ ] Detailed mitigation plan
- [X] Preliminary Preferred Alternative

WSDOT Contact Person: Susan Powell

Environmental Summary

The purpose of the proposed action is to improve regional highway connections with an extension of SR 509 to serve future transportation needs in southwest King County and to enhance southern access to Seattle-Tacoma International Airport.

Concurrence Request

Having discussed the above concurrence point(s), the agency representative, by his/her signature to this document, signifies one of the following:

- [ ] Concurrence as presented [1]
- [X] Concurrence with comments [3]
- [ ] Nonconcurrence [2]
- [ ] Waived [4]

Comments/Reasons for Nonconcurrence

Additional Information Needed

Agency:	Title:	Signature:	Date:
Ecology	Ecology-DOT Liaison	Theresa Swanson	09-24-01

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Concurrence Point 3:
Preferred Alternative and Apparent Section 404 Least Environmentally Damaging Alternative

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SAC Agreement Concurrence Form

Project Title: SR 509: Corridor Completion/I-5/South Access Road

State Route #: 509 **County:** King **Date Due:** 28 Oct 02

Concurrence Point # and Description

☐	#1 Project Purpose and Need (limited to transportation issues)	■	#3 Detailed Mitigation Plan
☐	#1 Screening Criteria for Selection of Alternatives	■	#3 For COE, USFWS, EPA, and NMFS: NEPA/SEPA Preferred Alternative/Apparent Section 404 LEDPA
☐	#2 Project Alternatives to be evaluated in the DEIS	■	#3 For Ecology and WDFW: NEPA/SEPA Preferred Alternative

WSDOT Project Contact Person: David T. Williams

Phone: 206-440-4524 **Fax:** 206-440-4805 **E-mail:** Willidt@WSDOT.wa.gov

Address: Washington State Department of Transportation
Northwest Region – Environmental Services
15700 Dayton Avenue North, NB82-138
PO Box 330310,
Seattle, WA 98133-9710

Brief Description of Project Status and Issues Relevant to Concurrence Points Checked Above:

The SR 509 project will be submitting the Preliminary Final EIS for agency, partner and internal review the week of September 16th – 20th, 2002. With SAC concurrence on Point #3, the project office expects to issue the Final EIS with the preferred alternative C2 in November of 2002 and will work toward receiving a Record of Decision in Early March of 2003. The Conceptual Wetland Mitigation Plan has been completed and has been included in the Pre-Concurrence Packet for Merger point #3. A Biological Assessment is being finalized and will be sent to the services for concurrence.

Agency Decision:
(see end of form for definitions)

- [x] Concurrence
- [ ] Non-concurrence (provide reasons on next page)
- [ ] Waived

Summary of Reasons for Non-concurrence

Please include a detailed explanation of the reasons for non-concurrence. Also please identify the statutory or regulatory authority upon which this non-concurrence is based. (Attach detailed comments if needed)

Advisory Comments

Comments are advisory only, and will not trigger the issue resolution process. The project proponent will have 45 calendar days to respond to resource agency comments.

Agency: Corps of Engineers

Name: Jack Kennedy

Signature: Jack Kennedy

Title: Transportation Team Leader

Date: September 17, 2002

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SAC Agreement Concurrence Form

Project Title:	SR 509 Corridor Completion/I-5/South Access Road				
State Route #:	509	**County:**	King	**Date Due:**	28 Oct. 02

Concurrence Point # and Description

- ☐ **#1a** Project Purpose and Need (non-concurrence limited to transportation issues)
- ☒ **#3a** Detailed Mitigation Plan
- ☐ **#1b** Screening Criteria for Selection of Alternatives
- ☒ **#3b1** For COE, USFWS, EPA, and NMFS: NEPA/SEPA Preferred Alternative/Apparent Section 404 LEDPA
- ☐ **#2** Project Alternatives to be evaluated in the DEIS
- ☒ **#3b2** For Ecology and WDFW: NEPA/SEPA Preferred Alternative

WSDOT Project Contact Person: David T. Williams

Phone: (206) 440-4524 **Fax:** (206)-440-4805 **E-mail:** Willidt@WSDOT.wa.gov

Address: Washington State Department of Transportation
Northwest Region – Environmental Services
15700 Dayton Avenue North, NB82-138
PO Box 330310
Seattle, WA 98133-9710

Brief Description of Project Status and Issues Relevant to Concurrence Points Checked Above:

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Agency Decision:
(see end of form for definitions)

☒ Concurrence

☐ Non-concurrence (provide reasons on next page)

☐ Waived

Summary of Reasons for Non-concurrence
Please include a detailed explanation of the reasons for non-concurrence. Also please identify the statutory or regulatory authority upon which this non-concurrence is based. (Attach detailed comments if needed)

Advisory Comments
Comments are advisory only, and will not trigger the issue resolution process. The project proponent will have 45 calendar days to respond to resource agency comments.

Please note that Concurrence Point 3 requires submittal of a "Detailed Mitigation Plan". We have been provided with a "conceptual" mitigation plan. However, in this case the conceptual plan is adequate for evaluating the proposed mitigation in order to provide concurrence on this point.

Agency: US Fish and Wildlife Service

Signer's Name: Lynn Childers

Signature: Lynn P. Childers

Title: Division Manager, Federal Activities

Date: October 24, 2002

Technical Point of Contact: Emily Teachout

Each agency submitting a concurrence response is also responsible for mailing a final signed hard-copy of the form to all SAC agency members (Corps, Ecology, EPA, FHWA, NMFS, USFWS, WDFW, WSDOT).

Concurrence is a written determination that
1. The information is adequate for this stage, and
2. The project may proceed to the next stage without modification, and
3. The agency's concurrence is consistent with its statutes and regulations (given available information).
4. And, if applicable, concerns were adequately addressed by the project proponent following a non-concurrence.

Non-concurrence is written determination that
1. The information is inadequate for this stage, or
2. The concurrence submittal is inconsistent with the agency's statutory or regulatory authority (cite regulation or statute).
3. The issue resolution process will commence and the project will not proceed to the next concurrence point until each issue is resolved.

Waiver

A waiver is written determination by an agency that it voluntarily gives up its opportunity to provide concurrence or non-concurrence. Agencies that decide to waive agree not to revisit that concurrence point. An agency may elect to waive its concurrence opportunity at the beginning of the SAC process for a project or at a specific concurrence point. At a concurrence point, an agency may waive the opportunity to concur or non-concur on the entire concurrence point or an individual element of that point (for instance **1a** or **1b**).

Advisory Comments

Advisory comments provided in addition to the agency's concurrence or non-concurrence are informational only. Concurrence with conditional comments is not permitted. Advisory comments provided with a concurrence will not trigger the issue resolution process, but the project proponent must respond to these comments in writing within 45 calendar days. or identify when the response to comments will be provided if it is not possible to respond within 45 days.

Revised September 12, 2002

SAC Agreement Concurrence Form

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Project Title: SR 509: Corridor Completion/I-5/South Access Road

State Route #: 509 **County:** King **Date Due:** 28 Oct 02

Concurrence Point # and Description

☐	#1 Project Purpose and Need (limited to transportation issues)	☒	#3 Detailed Mitigation Plan
☐	#1 Screening Criteria for Selection of Alternatives	☒	#3 For COE, USFWS, EPA, and NMFS: NEPA/SEPA Preferred Alternative/Apparent Section 404 LEDPA
☐	#2 Project Alternatives to be evaluated in the DEIS	☒	#3 For Ecology and WDFW: NEPA/SEPA Preferred Alternative

WSDOT Project Contact Person: David T. Williams

Phone: 206-440-4524 **Fax:** 206-440-4805 **E-mail:** Willidt@WSDOT.wa.gov

Address: Washington State Department of Transportation

Northwest Region – Environmental Services

15700 Dayton Avenue North, NB82-138

PO Box 330310,

Seattle, WA 98133-9710

Brief Description of Project Status and Issues Relevant to Concurrence Points Checked Above:

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Agency Decision:
(see end of form for definitions)

- ☒ Concurrence
- ☐ Non-concurrence (provide reasons on next page)
- ☐ Waived

Summary of Reasons for Non-concurrence
Please include a detailed explanation of the reasons for non-concurrence. Also please identify the statutory or regulatory authority upon which this non-concurrence is based. (Attach detailed comments if needed)

Advisory Comments
Comments are advisory only, and will not trigger the issue resolution process. The project proponent will have 45 calendar days to respond to resource agency comments.

Please see attached letter.

Agency: USEPA, Region 10

Name: Judith Leckrone Lee

Signature: Judith Leckrone Lee

Title: Manager, Geographic Unit

Date: October 28, 2002

NOTE: Agencies submitting a concurrence response must send a signed hard copy of their response to all SAC agency representatives..

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2. The issue resolution process will commence and the project will not proceed to the next concurrence point until each issue is resolved.

Waiver

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Advisory Comments

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Revised August 15, 2002

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, Washington 98101

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Reply To
Attn Of: ECO-088

OCT 28 2002

Dave Williams, EIS Coordinator
Washington State Department of Transportation (WSDOT)
Northwest Region - Environmental Services
15700 Dayton Avenue North, NB82-138
PO Box 330310
Seattle, Washington 98133-9710

Dear Mr. Williams:

As a member of the Signatory Advisory Coordination committee, the U.S. Environmental Protection Agency (EPA) is responding to **Concurrence Point #3, LEDPA/Preferred Alternative and Conceptual Mitigation Plan**, to Washington State Department of Transportation (WSDOT) for the SR 509/South Access Road Project. The EPA concurs with comments.

WSDOT's Preferred Alternative, Alternative C-2, seems to be the best alternative from a wetland mitigation perspective. There has been a good attempt made to reduce environmental impacts. Our comments are presented below, and we strongly recommend that they be incorporated into the FEIS.

Indirect and Cumulative Impacts due to Spanning Structures

The direct and cumulative impact of spanning bridges on the underlying wetlands, buffer areas and associated upland areas has not been well articulated in the Conceptual Wetland Mitigation Plan. As presented in the concurrence package, proposed bridge spanning and roadway separation over Des Moines Creek and project area wetlands will reduce total direct impacts to wetlands A, B, and D. Proposed spanning roadway structures will be 60 to 65 feet wide for each travel direction with a proposed roadway separation of between 30 to 40 feet (page 6 of 13). Therefore, the proposed hardened roadway canopies will extend over more than 120 feet within the mitigation areas. While potential shading impacts are presented, long-term shading impacts are not adequately discussed. The Conceptual Wetland Mitigation Plan package states that "some of the spans...could cause concern related to the introduction of shading" (page 6 of 13). Permanent shading occurrences and consequences within affected wetland areas should be more adequately disclosed.

Also, associated permanent rainfall interception and interruption by spanning roadways has not been adequately discussed. We acknowledge that the design team efforts in investigating "the feasibility of separating the northbound and southbound roadway alignments...and determined that separation could be incorporated"(page 6 of 13) into the proposed project. While

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bridges' physical footprint are preferable to fill and proposed roadway separation will improve passage of light and rainfall, vegetation areas below these structures will not only be shaded, but will receive little or no precipitation that would normally cleanse leaves and insure that the upper soil layer is occasionally moistened. Shallow-rooted vegetation may or may not receive sufficient water during critical times of lowered water table. Bridge height and lane separation will help reduce bridge impact to wetlands and associated buffers, but it is quite likely that vegetation directly below the bridges will still be of poorer quality than comparable areas out in the open. The stretches of barren ground currently found beneath many existing bridges testify to the impact spanning structures can have on vegetation below. It would be desirable to understand what the bridge's total environmental effects actually are.

Since elevated structures created for proposed highway projects remains a viable option to minimize wetland impacts, hard data on the impacts of elevated highway spans would prove useful in other transportation projects as well as this one. Later in the process, mitigation monitoring plans should specifically include an assessment of vegetation under the spans and comparison to vegetation conditions outside of the spanned areas. To the extent possible, wetland mitigation data should also relate vegetation survival success (standards of success) to road span width and height; and this information should be included in the monitoring reports. If, after monitoring, vegetation appears to have been visibly affected, consideration should be given to perhaps using the under-bridge areas to enhance diversity by creating other habitat structures (brush piles, rock piles, etc).

Quantification of Wetland Impacts

1) The quantification of wetland impacts as addressed in the Conceptual Wetland Mitigation Plan is confusing due to inconsistencies and differences.

   (a) The Revised DEIS states that proposed total wetland impacts would be 0.2 ac, yet the Concurrence package refers to 0.3 ac of total wetland impacts (see below).

   (b) Regarding Alternative C2 at Merger Point 2, Part 2, the Alternative C2 Summary of Impacts Analysis Matrix (Matrix) shows 8.5 ac of total direct wetland impacts, where as the Conceptual Wetland Mitigation Plan describes 8.6 ac of total direct wetland Impacts.

DOCUMENT OR ARTICLE	ELEMENTS	WETLAND ACREAGE	
Revised DEIS (Table S-1and Table 3.6-4)	Total direct wetland Impacts	0.2 ac	
	Wetland Buffer Impacts	13.9 ac	
		Alt. C2 at Merger Pt.2 Part 2	Alt C2 with impact minimization of FEIS
Alternative C2 Summary of Impacts Analysis Matrix (page 10)	Total direct wetland Impacts	8.5 ac	0.32 ac
	Wetland Buffer Impacts	13.9 ac	7.04 ac
Conceptual Wetland Mitigation Plan (page 22)	Total direct wetland Impacts	8.6 ac	0.3 ac

(c) Regarding Alternative C2 with impact minimization of FEIS, the Matrix describes 0.32 ac of total direct wetland impacts, whereas the Conceptual Wetland Mitigation Plan describes 0.3 ac of total direct wetland impacts.

(2) To reduce confusion and improve clarity, we suggest that all descriptions of wetland impacts be quantified to hundredths of acres.

(a) Keeping discussions of wetland spanning impacts to hundredths of acres especially becomes meaningful when there are disclosures that proposed reduced impacts to Wetland B are from approximately 2.1 ac to 0.01 ac or Wetland A from 3.9 ac to 0.01 ac.

Figures 8, 9 and 10 (Conceptual Wetland Mitigation Plan) for the IAC parcel.

It is hard to understand what is going to occur in the IAC parcel. This is important because the IAC property is the chosen mitigation site.

(1) Figure 8 should be titled "Proposed Wetland mitigation Site, IAC Property" since this mitigation is for the proposed project.

(2) There are inconsistencies between Figures 9 and 10, and within Figure 10.

Figure 9 show a logical eastward progression of areas starting at the western most end of cross section A-A from existing uplands, to existing wetland areas, to proposed wetland enhancement areas, then to proposed wetland restoration area, and ending at wetland buffer areas. Yet the view of the cross-section A-A starting west to east in Figure 10 goes from upland, to existing wetland, to buffer, then to wetland restoration, and ends at the

proposed wetland enhancement area. The easterly progression along cross-section A-A is inconsistent between two Figures. Also, the plane view insert within Figure 10 inaccurately documents proposed wetland mitigations. Again, this only increases the confusion for the reviewer.

We would be open to cooperating with the WSDOT's Northwest Region in drafting a revisions either for Concurrence Point #3 or for inclusion within a FEIS. Thank you for the opportunity to comment on these Concurrence Points. I encourage you to contact Tom Connor, of my staff at (206) 553-4423, or Joan Cabreza, of our Aquatic Resources Unit at (206) 553-7359, at your earliest convenience to discuss our comments, how they might best be addressed, and if we can provide any assistance.

Sincerely,

Judith Leckrone Lee,
Geographic Unit Manager

Enclosures

cc Cynthia Pratt, WDFW
Jack Kennedy, USACOE
Sharon Love, FHWA
Barb Wood, NMFS
Sandra Manning, WDOE
Emily Teachout, USFWS

SAC Agreement
Concurrence Form

Project Title: SR 509: Corridor Completion/I-5/South Access Road

State Route #: 509 **County:** King **Date Due:** 28 Oct 02

Concurrence Point # and Description

☐	#1 Project Purpose and Need (limited to transportation issues)	☒	#3 Detailed Mitigation Plan
☐	#1 Screening Criteria for Selection of Alternatives	☒	#3 For COE, USFWS, EPA, and NMFS: NEPA/SEPA Preferred Alternative/Apparent Section 404 LEDPA
☐	#2 Project Alternatives to be evaluated in the DEIS	☒	#3 For Ecology and WDFW: NEPA/SEPA Preferred Alternative

WSDOT Project Contact Person: David T. Williams

Phone: 206-440-4524 **Fax:** 206-440-4805 **E-mail:** Willidt@WSDOT.wa.gov

Address: Washington State Department of Transportation

Northwest Region – Environmental Services

15700 Dayton Avenue North, NB82-138

PO Box 330310,

Seattle, WA 98133-9710

Brief Description of Project Status and Issues Relevant to Concurrence Points Checked Above:

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in the Pre-Concurrence Packet for Merger point #3. A Biological Assessment is being finalized and will be sent to the services for concurrence.

Agency Decision:
(see end of form for definitions)

- [x] Concurrence
- [ ] Non-concurrence (provide reasons on next page)
- [ ] Waived

Summary of Reasons for Non-concurrence
Please include a detailed explanation of the reasons for non-concurrence. Also please identify the statutory or regulatory authority upon which this non-concurrence is based. (Attach detailed comments if needed)

Advisory Comments
Comments are advisory only, and will not trigger the issue resolution process. The project proponent will have 45 calendar days to respond to resource agency comments.

See attached letter.

Agency: NOAA Fisheries

Name: Barbara Wood

Signature: Barbara Wood

Title: Habitat Biologist

Date: 10/28/02

NOTE: Agencies submitting a concurrence response must send a signed hard copy of their response to all SAC agency representatives..

Concurrence is a written determination that
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3. The agency's concurrence is consistent with its statutes and regulations (given available information).
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Waiver

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Revised August 15, 2002

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
WASHINGTON HABITAT BRANCH OFFICE
510 Desmond Drive SE/Suite 103
LACEY, WASHINGTON 98503

October 30, 2002

RECEIVED
NOV 5 2002
ENVIRONMENTAL

David T. Williams
Washington State Department of Transportation
15700 Dayton Avenue North, NB82-138
PO Box 330310
Seattle, Washington 98133-9710

Re: SAC Interagency Working Agreement Concurrence Point #3, SR 509/I 5/South Access Road Project

Dear Mr. Williams:

The National Marine Fisheries Service (NOAA Fisheries) is a signatory agency committee member with statutory, regulatory, and policy responsibilities under the Endangered Species Act, Magnuson-Stevens Fisheries Conservation and Management Act, and the Fish and Wildlife Coordination Act. NOAA Fisheries received your request for concurrence under the revised Interagency Working Agreement. NOAA Fisheries appreciates the opportunity to review and comment on this concurrence point.

We understand that for this concurrence point, NOAA Fisheries can concur, not concur, or waive. Whether concurring or not, NOAA Fisheries can comment on the proposal for this concurrence point. Furthermore, participating in this concurrence point does not in any way prejudice or alter NOAA Fisheries's statutory responsibilities under the above-named authorities.

NOAA Fisheries concurs with Concurrence Point #3, identification of the LEDPA/Preferred Alternative and Conceptual Mitigation Plan. NOAA Fisheries' concurrence is based on the selection of Alternative C2 and the implementation of the Des Moines Creek Basin Plan as part of the stormwater mitigation for the SR 509 Project. NOAA Fisheries participated in the Value Engineering (VE) study in April 2002 to review the project's stormwater design efforts. This was a very productive study that resulted in the inclusion of the Des Moines Creek Basin Plan to address water quality and quantity issues within the basin. The stormwater design changes include implementation of infiltration facilities where feasible, as well as a proposal for increased partnership with the Des Moines Creek Basin Plan to ensure successful implementation in conjunction with the construction of SR 509. The Basin Plan, along with SR 509 constructed facilities, will significantly reduce peak flows in Des Moines Creek and reduce the impacts of erosion, and increase the success rate of planned habitat restoration.

Thank you for the opportunity to review this concurrence point. If you have any questions or comments, please do not hesitate to contact Barbara Wood, of my staff at (360) 534-9307.

Sincerely,

Steven W. Landino
Washington Habitat Branch Chief

cc: Cynthia Pratt, WDFW,
Jennifer Quan, USFWS
Elaine Somers EPA
Anne Robinson COE
Sarah Suggs, WDOE

SAC Agreement
Concurrence Form

Project Title: SR 509: Corridor Completion/I-5/South Access Road

State Route #: 509 **County:** King **Date Due:** 28 Oct 02

Concurrence Point # and Description

☐	#1 Project Purpose and Need (limited to transportation issues)	☒	#3 Detailed Mitigation Plan
☐	#1 Screening Criteria for Selection of Alternatives	☒	#3 For COE, USFWS, EPA, and NMFS: NEPA/SEPA Preferred Alternative/Apparent Section 404 LEDPA
☐	#2 Project Alternatives to be evaluated in the DEIS	☒	#3 For Ecology and WDFW: NEPA/SEPA Preferred Alternative

WSDOT Project Contact Person: David T. Williams

Phone: 206-440-4524 **Fax:** 206-440-4805 **E-mail:** Willidt@WSDOT.wa.gov

Address: Washington State Department of Transportation

Northwest Region – Environmental Services

15700 Dayton Avenue North, NB82-138

PO Box 330310,

Seattle, WA 98133-9710

Brief Description of Project Status and Issues Relevant to Concurrence Points Checked Above:

The SR 509 project will be submitting the Preliminary Final EIS for agency, partner and internal review the week of September 16th – 20th, 2002. With SAC concurrence on Point #3, the project office expects to issue the Final EIS with the preferred alternative C2 in November of 2002 and will work toward receiving a Record of Decision in Early March of 2003. The Conceptual Wetland Mitigation Plan has been completed and has been included

in the Pre-Concurrence Packet for Merger point #3. A Biological Assessment is being finalized and will be sent to the services for concurrence.

Agency Decision:
(see end of form for definitions)

- [x] Concurrence
- [ ] Non-concurrence (provide reasons on next page)
- [ ] Waived

Summary of Reasons for Non-concurrence
Please include a detailed explanation of the reasons for non-concurrence. Also please identify the statutory or regulatory authority upon which this non-concurrence is based. (Attach detailed comments if needed)

Advisory Comments
Comments are advisory only, and will not trigger the issue resolution process. The project proponent will have 45 calendar days to respond to resource agency comments.

See attached comments

Agency: Ecology

Name: Sandra Manning & Sarah Suggs

Signature: Sandra L. Manning

Title: DOT Senior Liaison

Date: 10/9/02

NOTE: Agencies submitting a concurrence response must send a signed hard copy of their response to all SAC agency representatives..

Concurrence is a written determination that
1. The information is adequate for this stage, and
2. The project may proceed to the next stage without modification, and
3. The agency's concurrence is consistent with its statutes and regulations (given available information).
4. And, if applicable, concerns were adequately addressed by the project proponent following a nonconcurrence.

Nonconcurrence is written determination that
1. One or more of the concurrence definition points, described in "C" above, is not being met, and
2. The issue resolution process will commence and the project will not proceed to the next concurrence point until each issue is resolved.

Waiver

A waive is written determination by an agency that it voluntarily gives up its opportunity to provide concurrence or nonconcurrence. Agencies that decide to waive agree not to revisit that concurrence point. An agency may elect to waive its concurrence opportunity at the beginning of the SAC process for a project or at a specific concurrence point. At a concurrence point, an agency may waive the opportunity to concur or nonconcur on the entire concurrence point or an individual element of that point.

Advisory Comments

Comments provided in addition to the agency's concurrence or nonconcurrence based on its statutory or regulatory authority. Concurrence with conditional comments is not permitted. Advisory comments provided with a concurrence will not trigger the issue resolution process, but the project proponent must respond to these comments in writing within 45 calendar days.

Revised August 15, 2002

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
P.O. Box 47600 • Olympia, Washington 98504-7600
(360) 407-6000 • TDD Only (Hearing Impaired) (360) 407-6006

OCT 15 2002

October 9, 2002

John White and Kynan Patterson
Northwest Washington Division
Dept. of Transportation
Urban Corridors Office
6431 Corson Avenue South
Seattle, WA 98108

RE: SR 509 South Access Road - Concurrence of Point #3 per Merger Agreement, Preferred Alternative and Conceptual Mitigation

Dear Mr. Patterson and Mr. White:

Ecology has reviewed Department of Transportation's (DOT's) request for concurrence to proceed with the Final EIS, and concurrence of the "modified C2"as the preferred alternative identified by DOT for the SR 509 Extension/South Access Road Corridor Project. We have also reviewed the *Conceptual Wetland Mitigation Plan (Plan)*, dated August 2002. We are very pleased that WSDOT has chosen to bridge significant wetland resources, thereby reducing wetland impacts to 0.3 acres.

In the attached form, we have stated our decision to be concurrence, and consider the *Plan* to be acceptable overall, although Ecology has a few comments mostly regarding the performance standards that we would like to have addressed. These comments are as follows:

1. The performance standard for vegetation coverage at the end of the proposed monitoring period includes planted and native colonizing plants that are, "covering 30 percent of more of this area." Does this performance standard measure canopy cover? Please note that 30 percent canopy cover for either a scrub-shrub or forested wetland is the minimum percent areal coverage to qualify as one of these communities (Cowardin et al., 1979). Ecology recommends that the performance standards relating to percent areal coverage of canopy should be revised to reach for a higher coverage of scrub-shrub and forested vegetation. This should assist with attaining wildlife management goals as well.

2. Since the goal of the mitigation is to restore forested and scrub-shrub wetlands, the maintenance and monitoring period should be at least 8 years. Your draft Phase 2 study entitled, "Establishing Appropriate Benchmarks for Site Development by Documenting Successional Characteristics", found that it takes approximately 8 years for native woody vegetation to reach 80% coverage. Although the *Plan* proposes a lower percent coverage for scrub-shrub and forested communities (as noted above), Ecology recommends that this performance standard be revised to include a higher coverage.

vegetation to reach 80% coverage. Although the *Plan* proposes a lower percent coverage for scrub-shrub and forested communities (as noted above), Ecology recommends that this performance standard be revised to include a higher coverage.

3. Ecology concurs with your 10% coverage limit for non-native invasive species at the mitigation site, but would ask that this performance standard be clarified so that this limit applies to each monitoring event, and to both the wetland and buffer areas.

4. The *Plan* does not include the hydrologic data for the mitigation site; however, Ecology would like to review this data. It should be included in the final mitigation plan.

5. During previous meetings for this project, there has been concern over the scope of an adaptive management plan. Ecology is pleased with the language in the *Plan* that states, "implementation of management activities not identified in the mitigation plan requires review and approval by regulatory agencies," which alleviates this concern.

6. The proposed upland seed mix contains all non-native vegetation. Is there an alternate seed mix which incorporates native species that could be utilized?

Thank you for the opportunity to comment on your *Plan*. If you have any questions please contact me at (360) 407-6912 or Ecology's Northwest Region wetland specialist who has provided review and the above comments on this project, Sarah Suggs at (425) 649-7124.

Sincerely,

Sandra L. Manning

Sandra L. Manning
Liaison Manager
Environmental Review and Assistance

cc:

WDFW –	Cynthia Pratt
NMFS -	David Hirsh
USFWS -	Nancy Brennan-Dubbs, Jennifer Quan
EPA -	Elaine Summers
Corps -	Gail Terzi, Jack Kennedy, Anne Robinson
Ecology –	Sarah Suggs, Ann Kenny, Sandra Lange, File

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SAC Agreement Concurrence Form

Project Title: SR 509: Corridor Completion/I-5/South Access Road

State Route #: 509 **County:** King **Date Due:** 28 Oct. 02

Concurrence Point # and Description

- [ ] **#1a** Project Purpose and Need (non-concurrence limited to transportation issues)
- [ ] **#1b** Screening Criteria for Selection of Alternatives
- [ ] **#2** Project Alternatives to be evaluated in the DEIS
- [X] **#3a** Detailed Mitigation Plan
- [X] **#3b1** For COE, USFWS, EPA, and NMFS: NEPA/SEPA Preferred Alternative/Apparent Section 404 LEDPA
- [X] **#3b2** For Ecology and WDFW: NEPA/SEPA Preferred Alternative

WSDOT Project Contact Person: David T. Williams

Phone: 206-440-4524 **Fax:** 206-440-4805 **E-mail:** Willidt@WSDOT.wa.gov

Address: Washington State Department of Transportation
Northwest Region – Environmental Services
15700 Dayton Avenue North, NB82-138
PO Box 330310
Seattle, Washington 98133-9710

Brief Description of Project Status and Issues Relevant to Concurrence Points Checked Above:

The SR 509 project will be submitting the Preliminary Final EIS for agency, partner and internal review the week of September 16th - 20th, 2002. With SAC concurrence on Point #3, the project office expects to issue the Final EIS with the preferred alternative C2 in November of 2002 and will work toward receiving a Record of Decision in Early March of 2003. The Conceptual Wetland Mitigation Plan has been completed and has been included in the Pre-Concurrence Packet for Merger Point #3. A Biological Assessment is being finalized and will be sent to the services for concurrence.

Agency Decision:
(see end of form for definitions)

[X] Concurrence

[ ] Non-concurrence (provide reasons on next page)

[ ] Waived

Summary of Reasons for Non-concurrence
Please include a detailed explanation of the reasons for non-concurrence. Also please identify the statutory or regulatory authority upon which this non-concurrence is based. (Attach detailed comments if needed)

Advisory Comments
Comments are advisory only, and will not trigger the issue resolution process. The project proponent will have 45 calendar days to respond to resource agency comments.

We may have additional advisory comments forthcoming. Our concerns center around the Des Moines Creek mitigation site. It is hoped that the mitigation will be done in advance of the proposed project. Our permit requires mitigation for any work that can't be conditioned for the protection of fish life in our permit. If for some reason the mitigation project is not completed early, we will need to be notified.

Agency: WDFW

Signer's Name: Cynthia R. Pratt

Signature: Cynthia R Pratt

Title: SEPA/NEPA Coordinator

Date: 10/29/02

Technical Point of Contact: Kurt Buchanan/Cynthia Pratt

Each agency submitting a concurrence response is also responsible for mailing a final signed hard-copy of the form to all SAC agency members (Corps, Ecology, EPA, FHWA, NMFS, USFWS, WDFW, WSDOT).

Concurrence is a written determination that
1. The information is adequate for this stage, and
2. The project may proceed to the next stage without modification, and
3. The agency's concurrence is consistent with its statutes and regulations (given available information).
4. And, if applicable, concerns were adequately addressed by the project proponent following a non-concurrence.

Non-concurrence is written determination that
1. The information is inadequate for this stage, or
2. The concurrence submittal is inconsistent with the agency's statutory or regulatory authority (cite regulation or statute).
3. The issue resolution process will commence and the project will not proceed to the next concurrence point until each issue is resolved.

Waiver

A waiver is written determination by an agency that it voluntarily gives up its opportunity to provide concurrence or non-concurrence. Agencies that decide to waive agree not to revisit that concurrence point. An agency may elect to waive its concurrence opportunity at the beginning of the SAC process for a project or at a specific concurrence point. At a concurrence point, an agency may waive the opportunity to concur or non-concur on the entire concurrence point or an individual element of that point (for instance **1a** or **1b**).

Advisory Comments

Advisory comments provided in addition to the agency's concurrence or non-concurrence are informational only. Concurrence with conditional comments is not permitted. Advisory comments provided with a concurrence will not trigger the issue resolution process, but the project proponent must respond to these comments in writing within 45 calendar days. or identify when the response to comments will be provided if it is not possible to respond within 45 days.

Revised September 12, 2002

State of Washington
DEPARTMENT OF FISH AND WILDLIFE
Mailing Address: 600 Capitol Way N • Olympia, WA 98501-1091 • (360) 902-2200, TDD (360) 902-2207
Main Office Location: Natural Resources Building • 1111 Washington Street SE • Olympia, WA

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HABITAT PROGRAM
ENVIRONMENTAL SERVICES DIVISION

November 5, 2002

TO: David Williams, WSDOT, and SAC Members

FROM: Cynthia Pratt, SAC Representative

SUBJECT: SR 509 Corridor Completion/I-5/South Access Road, Concurrence Point 2 Preliminary Final EIS

I am sending out another letter. I was trying to do so many things when I returned, I "copied" when I should have "cut" on this letter. My apologies for the confusion! Anyway, I do want all of you to have the corrected version.

CP:cp

cc: Kurt Buchanan, Transportation Liaison

State of Washington
DEPARTMENT OF FISH AND WILDLIFE

Mailing Address: 600 Capitol Way N • Olympia, WA 98501-1091 • (360) 902-2200, TDD (360) 902-2207
Main Office Location: Natural Resources Building • 1111 Washington Street SE • Olympia, WA

November 5, 2002

Washington Department of Transportation
Northwest Region - Environmental Services
Attention: David Williams
PO Box 330310
Seattle, WA 98133-9710

Dear Mr. Williams:

RE: SR 509 Corridor Completion/ I-5/ South Access Road, Concurrence Point 2
Preliminary Final EIS

Enclosed are additional comments to be included with our signed SAC Agreement concurrence form for Concurrence Point 3. We concur, with the following comments:

- We agree with you, it appears that Alternative C2 leads to least impact to fish, wildlife, and wetlands resources compared to other built alternatives. Impacts, both during construction, and long-term will not be inconsequential, just less than the other choices.

- Conceptual Mitigation Plans - The mitigation proposed at this phase of the EIS process should be a "Detailed Mitigation Plan" (per Concurrence Point #3), rather than Conceptual. There should be a commitment to more specific project work, rather than stating willingness to participate in un-specified work consistent with a Basin Plan. Both Wetlands, and Vegetation-Wildlife-Fish mitigation should be more specific than they are. Since things are still at the conceptual stage, the following suggestions should be considered:

  1) Wetlands previously filled might be un-filled and rehabilitated. On the Golf Course, or adjacent to Wetlands B and F, there are likely formerly filled wetlands that serve no immediate development purpose and may be restored. There may also be sites south of S. 200th St., adjacent to the large Wetland A and the SR 509 or South Access Road R/W which could also be un-filled. There may be former wetlands at the Midway Sewer District Treatment Plant that could be rehabilitated, and potentially form an enhanced riparian corridor through the plant site.

  2) For stream channel habitat work, large trees are a benefit. The contract should be written so that all 18 inch and larger conifers cleared from the right-of way or staging

areas are the property of the DOT, not the contractor. Trees should be left either as full length, or 30 feet long as a minimum. Rootwads should remain attached. Trees saved should be transported to a secure stockpile location near Des Moines Creek.

3) Stream channel work is needed in many sections of Des Moines Creek. Concentrating work downstream of the existing old SR 509 right-of-way would provide improved habitat as far away from the airport wildlife exclusion zone as possible. Access is easy, either from paved footpath, or gravel roadway. The old fish passage structures at the sewer plant are not up to today's standards for fish passage, and should be replaced. The rocked channel section just downstream of the last concrete weir provides a significant barrier to chum migration, when those fish finally have access up this far. This channel section should be re-worked at the time the weirs are worked on. At this point, the public has little access to the gravel road between the sewer plant and Des Moines Way. Working on this section would not involve disruption to public use of the area. The area downstream of Des Moines Way is a public park which currently has spawning salmonids. It is largely devoid of in-stream habitat, and fish would immediately use it if it were available. If work was concentrated in this lowest section, the Des Moines Senior Center should be removed from the stream. The building was built over the stream, and the basement channel can no longer contain the stream during winter high flow. The stream, and fish wash out onto the surrounding grounds. The building-stream combination is novel, and provides shade, but is not fish habitat. 2) For stream channel habitat work, large trees are a benefit. The contract should be written so that all 18 inch and larger conifers cleared from the right-of way or staging areas are the property of the DOT, not the contractor. Trees should be left either as full length, or 30 feet long as a minimum. Rootwads should remain attached. Trees saved should be transported to a secure stockpile location near Des Moines Creek.

- It appears that there is likely to be greater wetland, stream, and runoff impacts due to the construction of the South Access Road, rather than from SR 509 itself. Des Moines Creek was once known as Bow Lake Creek, forming that eastern tributary as the outlet stream of Bow Lake. This stream no longer exists, being buried in pipes until it reappears in much degraded condition near the "Tyee Pond" site at the Golf Course. The South Access Road runs encroaches very close to this stream/wetland complex, crossing it four times, according to the EIS. Elevated temperatures are a serious problem in the stream. A major stream restoration project is planned for the Golf Course part of this stream. Heavy plantings of willow, red-ossier dogwood, and cottonwood poles arching over the new channel would provide rapid shading of the stream, and will minimize waterfowl and raptor access to the open water channel.

- A Hydraulic Project Approval (HPA) will be required by WDFW for elements of this project, including stream crossings, in-stream work, and work in wetlands adjacent to and tributary to the stream systems. We require consultation on the stormwater design unless there is an NPDES permit already in place, as the discharge of stormwater to streams and wetlands negatively impacts fish and wildlife. We applaud your attempts to infiltrate portions of the stormwater, and to allow rain to fall between lanes of the

elevated, separated roadway, rather than on a solid impervious embankment. We expect that the stormwater design utilizes the standards in the most current version of the DOT Runoff Manual, or the DOE Stormwater Management Manual for Western Washington, whichever provides the greatest protection to water quality.

- Fish Passage - RCW 77.55.060 provides legal requirements for owners of barriers to fish migration. The fish passage barrier at Des Moines Way (actually SR 506) referenced in the EIS as a fish mitigation project, is actually owned by DOT. As the owner of the barrier, DOT has been required, for years, to replace this aged box culvert. An HPA has been issued for its removal, and it was anticipated that the structure would have been replaced this past summer. It does not seem reasonable to claim as mitigation replacing this barrier culvert that was their previous legal obligation to replace.

- For replacements of passage barriers, WDFW requires that the design meets or exceeds the WDFW fish passage design criteria current at the time of the design. An MOA between our Departments requires that WDFW be given opportunity to review fish passage designs at an early date, certainly prior to going out for bid. While not actually stated in the PDEIS but as an associated project, improvements to (South 200th Street as an arterial connection to the South Access Road), the Des Moines Creek culvert will need replacing. There appears to be agreement between some parties that this culvert should remain as a barrier to prevent anadromous fish from continuing upstream into what is now Tyee Golf Course. The wildlife exclusion zone imposed by FAA overlaps the stream through the golf course, and there is a concern that salmon carcasses will attract bird scavengers which will endanger aircraft. WDFW SSHEAR staff, DOT project staff, and FAA should meet soon to discuss priorities and designs/cost for the S. 200th culvert work.

Thank you for considering our comments on your proposal. We appreciate your continued cooperation in our efforts to protect and manage the fish and wildlife resources of the state of Washington. If you have any questions, please contact me at (360) 902-2575, or Kurt Buchanan, the WDFW/DOT Liaison for this project, at (360) 466-4345 x 256.

Sincerely,

Cynthia R. Pratt

Cynthia R. Pratt
SAC Agreement Representative
SEPA/NEPA Coordinator
Habitat Progarm

cc: Sandra Manning, Ecology
Emily Teachout, USFWS
Jack Kennedy, USCOE
Dick Clark, EPA
Tom Connors EPA
Sharon Love, FHWA
Phil KauzLoric, WSDOT
Kurt Buchanan, WDFW

Biological Assessment Concurrence

RECEIVED
DEC 13 2002
URBAN CORRIDORS OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

December 6, 2002

Gary Davis
Northwest Region
Washington State Department of Transportation
15700 Dayton Avenue North
P.O. Box 330310
Seattle, Washington 98133-9710

Re: Endangered Species Act Section 7 Informal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the SR509: Corridor Completion/I-5/South Access Road (NOAA Fisheries No. 2002-01284)

Dear Mr. Davis:

This correspondence is in response to your request for consultation under the Endangered Species Act (ESA). Additionally, this letter serves to meet the requirements for consultation under the Magnuson-Stevens Fishery Conservation and Management Act (MSA).

Endangered Species Act

The National Marine Fisheries Service (NOAA Fisheries) has reviewed the above referenced Biological Assessment (BA) dated October 2002. According to the BA, Washington State Department of Transportation (WSDOT) is proposing to improve approximately 9.9 miles of highway, including SR 509, I-5, and South Access Road. Construction activities include 204 acres of land clearing (this includes removal of existing structures to create right of way), the addition of 130 acres new impervious, 0.3 acre fill of wetland, 7.1 acres of wetland buffer impacts, five improved crossings over Des Moines Creek, and implementation of specific elements in the Des Moines Creek Basin Plan (DMCBP), as it relates to stormwater treatment. The corridor project area includes the Des Moines Creek, Mill Creek, and the Lower Green basins. Des Moines Creek and Mill Creek drain directly into the Puget Sound. The Lower Green (WRIA 9) also drains into the lower Puget Sound. The WSDOT concluded the project effect determination of "may affect, not likely to adversely affect" to Puget Sound (PS) chinook (*Oncorhynchus tshawytscha*), which is ESA listed as threatened. PS chinoook inhabit the Green River and Puget Sound waters that Des Moines Creek is a tributary to.

During consultation, WSDOT identified the following measures that will be taken to avoid and minimize the potential effects of the project:

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1) WSDOT will implement specific water quality and quantity treatment to be consistent with the DMCBP which has identified a combination of watershed improvements in the Des Moines Creek basin. Water quantity and quality treatment at high levels will make progress toward attainment of properly functioning habitat conditions in the action area.

2) WSDOT will span all five crossing of Des Moines Creek (and Class 1 and 2 wetlands) with bridges. All work within the Ordinary High Water Mark will be conducted within the work window specified in the Washington State Department of Wildlife (WDFW) Hydraulic Permit Approval (HPA). The proposed projects will be constructed during the dry season when delivery of disturbed soils from wet weather will be minimized. In addition, WSDOT contributed $1.8 million toward construction of a replacement bridge across Marine View Drive that was constructed by the City of Des Moines (NOAA No. WSB 01-319).

3) WSDOT will offset for the 0.3 acre wetland fill with 0.8 acre wetland restoration.

4) A Temporary Erosion and Sedimentation Control (TESC) plan is proposed and includes Best Management Practices (BMPs). These measures will include minimizing soil disturbance, and all disturbed areas will be mulched and re-seeded with native grasses/shrubs/trees immediately after construction.

5) A Spill Prevention Control and Countermeasures (SPCC) plan will be used to avoid the delivery of chemical contaminants from equipment to surface water bodies.

Since the proposed action incorporates avoidance and minimization measures into this project (# 1 through # 5 listed directly above), NOAA Fisheries can expect the potential effects of the action to be discountable or insignificant. Therefore, NOAA Fisheries concurs with your effect determination of "may affect, but not likely to adversely affect" for PS chinook salmon.

The regulations (50 C.F.R. 402.08) implementing Section 7 of the Endangered Species Act of 1973, as amended (ESA), allow a Federal Agency to designate a non-federal representative to conduct informal consultations or prepare biological assessments by giving written notice to the Director of such designation. The Service has received the letter written May 10, 1999 from Federal Highways Administration, Gene Fong, Division Administrator, so designating Washington State Department of Transportation as their non-federal representative. The ultimate responsibility for compliance with Section 7 remains with the Federal agency.

This concludes informal consultation on these actions in accordance with 50 C.F.R. 402.14(b)(1). The Federal Highway Administration must re-analyze this ESA consultation: (1) if new information reveals effects of the action that may affect listed species in a way not previously considered;

(2) if the action is modified in a manner that causes an effect to the listed species that was not previously considered; or (3) if a new species is listed or critical habitat designated that may be affected by the identified actions.

Magnuson-Stevens Fishery Conservation and Management Act

Federal agencies are required, under §305(b)(2) of the MSA and its implementing regulations (50 C.F.R. 600 Subpart K), to consult with NOAA Fisheries regarding actions that are authorized, funded, or undertaken by that agency that may adversely affect Essential Fish Habitat (EFH). The MSA (§3) defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." If an action would adversely affect EFH, NOAA Fisheries is required to provide the Federal action agency with EFH conservation recommendations (MSA §305(b)(4)(A)). This consultation is based, in part, on information provided by the Federal action agency and descriptions of EFH for Pacific salmon contained in Appendix A to Amendment 14 to the Pacific Coast Salmon Plan (August 1999) developed by the Pacific Fishery Management Council and approved by the Secretary of Commerce (September 27, 2000).

The proposed action and action area are described in the BA submitted by WSDOT. The project area includes habitat which has been designated as EFH for various life stages of: chinook and coho (*O. kisutch*).

Because the habitat requirements (*i.e.*, EFH) for the MSA-managed species in the project area are similar to that of the ESA-listed species, and because the conservation measures that the FHWA/WSDOT included as part of the proposed action to address ESA concerns are also adequate to avoid, minimize, or otherwise offset potential adverse effects to designated EFH, conservation recommendations pursuant to MSA (§305(b)(4)(A)) are not necessary. Since NOAA Fisheries is not providing conservation recommendations at this time, no 30-day response from the FHWA/WSDOT is required (MSA §305(b)(4)(B)).

This concludes consultation under the MSA. If the proposed action is modified in a manner that may adversely affect EFH, or if new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations, the FHWA/WSDOT will need to reinitiate EFH consultation with NOAA Fisheries in accordance with NOAA Fisheries implementing regulations for EFH at 50 C.F.R. 600.920(k).

Thank you for your efforts to protect threatened chinook salmon. If you have any questions, please contact Barbara Wood of the Washington Habitat Branch Office at (360) 534-9307.

Sincerely,

D. Robert Lohn
Regional Administrator

cc: Paul Wagner, WSDOT

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Western Washington Fish and Wildlife Office
510 Desmond Drive SE, Suite 102
Lacey, Washington 98503
Phone: (360) 753-9440 Fax: (360) 753-9008

In Reply Refer To:
1-3-03-I-0232

DEC 3 1 2002

Gary Davis
Washington State Department of Transportation
Northwest Region
Environmental Services
P.O. Box 330310 MS 138
Seattle, Washington 98133-9710

Dear Mr. Davis:

This is in response to your letter dated October 30, 2002, and enclosed Biological Assessment (BA). The letter and BA for the SR 509 Corridor Completion I-5 South Access Road project were received in our office on October 31, 2002. Your letter requests our concurrence with your finding that the project may affect, but is not likely to adversely affect, the bald eagle (*Haliaeetus leucocephalus*), or the bull trout (*Salvelinus confluentus*). This request is being submitted in accordance with section 7 of the Endangered Species Act of 1973, as amended.

Our concurrence would be based on information in the BA and implementation of the conservation measures described in the BA. The U.S. Fish and Wildlife Service believes that sufficient information on effects of project activities has been provided for the lead federal agency to conclude a determination of effect for listed species.

In order to expedite the environmental review process, if the Federal Highway Administration concurs with the effect determinations for listed species, then you may consider this action to be in compliance with requirements of 50 CFR 402.13, thereby concluding the consultation process. The project should be reanalyzed if new information reveals effects of the action that may affect listed species or critical habitat in a manner, or to an extent, not considered in this consultation. The project should also be reanalyzed if the action is subsequently modified in a manner that causes an effect to a listed species or critical habitat that was not considered in this consultation, and/or a new species is listed or critical habitat is designated that may be affected by this project.

If you have any questions, please contact Emily Teachout at (360) 753-9583.

Sincerely,

for

Ken S. Berg, Manager
Western Washington Fish and Wildlife Office

FHWA (J. Leonard)
WDFW Region 4

ATTACHMENT A2

1995 DEIS Comments and Responses

Comments on the December 1995 Corridor-Level DEIS

Comments on the December 1995 DEIS were received from 60 agencies and individuals. These comments are summarized below.

Level of Detail

Several commenters requested a greater level of detail in the evaluation of environmental impacts.

Response—A tiered environmental documentation process was used for the SR 509/South Access Road project. According to FHWA regulations, a Tier I EIS is intended to focus on broad issues such as general location, mode choice, and areawide air quality and land use implications of major alternatives. A Tier II EIS addresses site-specific details on project impacts, costs, and mitigation measures.

The 1995 DEIS was a Tier I corridor-level EIS, which evaluated potential locations for the SR 509 corridor based upon all of the factors normally evaluated during the NEPA process, but at a lower level of detail. The Tier I EIS was used to identify corridor alternatives to be further evaluated in the Tier II project-level EIS.

The January 2002 RDEIS is a Tier II EIS. More detailed analysis was conducted for each element of the environment in accordance with the WSDOT *Environmental Procedures Manual* and FHWA guidelines.

Project Purpose and Need

The USACOE commented that the 1995 DEIS lacked adequate discussion of the ability of each alternative to carry out the project purpose.

Response—Discussion of the project purpose and need was updated in Chapter 1 of the RDEIS. Additionally, formal concurrence on the project purpose and need and alternatives to be evaluated was obtained from the Signatory Agency Committee, which includes the USACOE. Resource agency coordination and concurrence are described in this appendix and in Chapter 2 of this FEIS.

Independent Utility

Some comments pertained to the relationship between the Sea-Tac Airport Master Plan improvements and the SR 509 project, and whether or not the projects were independent.

Response—NEPA requires that to be considered separate actions, each action should have "independent utility." This means each action should be usable and a reasonable expenditure even if no additional transportation improvements in the area are made. The SR 509/South Access Road project would be usable and a reasonable expenditure, whether or not the airport master plan improvements occur. Please refer to Chapter 1 of this FEIS for a discussion of current and projected airport-generated and nonairport-generated traffic demand.

Project Cost and Agency Contribution

Some commenters wanted to know the cost of the proposed alternatives and the funding sources.

Response—The cost of the proposed alternatives is provided in the Summary and Chapter 2 of this FEIS. Design of the SR 509 freeway extension and I-5 improvements would be funded by WSDOT and FHWA. Design and construction of the South Access Road would be funded by the Port of Seattle.

Development and Selection of Alternatives

Numerous comments pertained to the support, lack of support, or suggested modifications for alternatives evaluated in the 1995 DEIS.

Response—Development and selection of the proposed alternatives, including selection of the Preferred Alternative, is provided in Chapter 2 of this FEIS.

Transit-Only Alternatives

Some comments requested rail or other mass transit be provided to relieve congestion rather than construction of the SR 509/South Access Road project.

Response—Transit-only alternatives, including a bus transit alternative, an expanded bus transit alternative, and an expanded rail and bus transit alternative, were evaluated in the May 1995 Major Investment Study conducted for the project. Based on this analysis, these alternatives were rejected for further evaluation in the EIS because they would not meet the project purpose and need.

Stream and Wetland Avoidance and Mitigation

Several comments noted the need to avoid and minimize impacts on streams and wetlands, integrate measures identified in the Des Moines Creek Basin Plan into the project, and provide more specific stream and wetland mitigation information.

Response—Since publication of the 1995 DEIS, design of the project alternatives has been refined to avoid Class 1 wetlands, bridge Class 2 wetlands, and reduce the number of stream crossings. WSDOT has become a member of the Des Moines Creek Basin Committee and has committed to fund a portion of the Capital Improvement Projects identified in the basin plan, if the SR 509 project is approved and funded for construction. A Conceptual Wetland Mitigation Plan was prepared for the project in August 2002. This information is described in more detail in Sections 3.5, 3.6, and 3.7 of this FEIS.

Detailed Traffic Analysis

Many comments pertained to a need for more detailed traffic information and analysis.

Response—A *Transportation Discipline Report* for the project was completed in January 2002 in accordance with FHWA and WSDOT guidelines. The traffic analysis is summarized in Chapter 2 of this FEIS.

Potential Impacts on I-5

Some comments expressed concern that congestion on I-5 would increase as a result of the SR 509 freeway extension.

Response—Since publication of the 1995 DEIS, the project has been expanded to include improvements along I-5, such as collector/distributor lanes and auxiliary lanes, to accommodate traffic to and from the SR 509 freeway extension. An *Access Point Decision Report* for the project was completed in August 2002, which describes in detail the effect of the proposed project on I-5 traffic operations from SR 18 in Federal Way to I-405 in Tukwila. This report, which was prepared for FHWA by WSDOT, must be approved by FHWA before construction of the new SR 509/I-5 interchange system can begin. The report indicates that the preferred alternative (Alternative C2) would relieve congestion and improve traffic safety along I-5.

High-Occupancy Vehicle (HOV) Lanes

Several comments requested evaluation and inclusion of HOV lanes in the proposed project.

Response—HOV lanes along the SR 509 freeway extension and connections to the I-5 HOV lanes have been included in the proposed project.

List of Commenters

Federal Agencies

U.S. Department of the Army, Corps of Engineers
U.S. Department of the Interior
U.S. Environmental Protection Agency

State Agencies

Department of Ecology

Regional Agencies

Puget Sound Regional Council
Metro
Port of Tacoma

Local Agencies

City of Burien
City of Federal Way

Schools

Federal Way Public Schools

Highline School District 401

Utilities

Midway Sewer District

Organizations

King County Labor Council
Southwest King County Chamber of Commerce
SeaTac Economic Partnership

Businesses

Greenbrier Logistics
Alaska Airlines

Individuals (letters and comment forms)

David & Helen Clayton
Heather Clayton & Natalie

Darlene & Russ Curley
Debi DesMarais
Peter Fleury
Madge Hanson
Karen Hendrickson
Jessie Knopp
Steve Lardy
Marian Mackenzie
Donna Metz
Donald Riecks
Stan Scarvie
Schreibe/Matta Household
Bob & Ruth Sisley
Henry Towne
Julia Vincent
Bill & Norma Wattum
James & Betty Weir
Daniel Wend

Public Hearing Testimony

Pat Aschcraft
Pete Babington
Kenneth Carlton
Rose Clark
Chris Clifford
Tom Dantzler
Clark Dodge
Claire Drosdick
Ken Durkee
Neeley Durkee
Al Furney
Elbert Hill
Richard Jordan
Steve Lardy
Bruce McMichael
Matt Pina
Warren Pugh
Donald Riecks
Jerry Rippy
Becky Stanley
Cathea Stanley
Don Wasson
David Zehnder

Appendix B
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APPENDIX B

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Appendix C
List of Preparers

APPENDIX C

List of Preparers

Preparer/Role	Education	Years of Experience	Technical Expertise
Federal Highway Administration			
James Christian, P.E. Northwest Region Team Leader	B.S., Civil Engineering	7	Transportation Engineering
Jim Leonard, P.E. Area Engineer	M.B.A., Business Administration B.S., Civil Engineering B.A., Environmental Engineering	41	Highway and Transportation Engineering
Michelle Ramos Geology and Soils	M.S., Geological Sciences B.S., Geologic Engineering	5	Geology and Soils
Washington State Department of Transportation			
Susan Everett, P.E. Review and Guidance	B.S., Civil Engineering	15	Project Management and Highway Design
Kynan Patterson Review and Guidance	B.S., Physics	12	Transportation Engineering
Susan Powell Review and Guidance		30	EIS Coordination
Lawrence Spurgeon Air Quality	M.S., Electrical Engineering	9	Environmental Engineering
Dean Torkko Review and Guidance	B.S., Civil Engineering	33	EIS Coordination
John H. White, P.E. Review and Guidance, Environmental Justice	M.S., Civil Engineering B.S., Civil Engineering	11	Transportation Engineering
David T. Williams Review and Guidance, Environmental Justice	Business Management Certificate M.P.A., Environmental Policy and Natural Resources Management B.A., Environmental Policy and Technology	3.5	EIS Coordination
Jennifer Wilson Hazardous Materials	M.S., Environmental Science	4	Hazardous Materials
CH2M HILL			
James C. Bard/SOPA/ Cultural Resources	Ph.D., Anthropology M.A., Anthropology B.A., Anthropology	19	Archaeology
Mike Behn Social, Relocation, and Land Use	B.A., Planning, Public Policy, and Management	4	Land Use Planning

Preparer/Role	Education	Years of Experience	Technical Expertise
Lisa Fall Transportation and Visual Resources	B.A., American Studies	10	Environmental Planner
Sharon Feldman Geology and Soils, Hazardous Materials and EIS Task Manager	M.S., Soils Science B.S., Soils Science	12	Environmental Documentation, Natural Resource Sciences
Farshad Farhang Noise	M.A., Business Administration B.S., Electrical Engineering	13	Noise
Craig Grandstrom Transportation	B.S., Civil Engineering	3	Transportation Planning
Kurt Playstead Economics	B.S., Economics and Statistics	7	Economics
Bob Swope Section 4(f) and EIS Task Manager	M.S., Urban Planning B.A., Political Science	27	Environmental Planning
Kobayashi & Associates			
Bill Blair Visual Quality	M.L.A., Landscape Architecture B.A., Architecture	24	Visual Resources
Koyichi Kobayashi Visual Quality	M.L.A., Landscape Architecture	30	Visual Resources
Shapiro & Associates, Inc.			
Calvin Douglas Vegetation, Fish, and Wildlife	B.S., Wildlife Biology	4	Biology
Jack Gouge Energy	M.S., Biological Sciences and Residential Development B.S., Geology and Cultural Anthropology	30	Regulatory Compliance
Felix Kristanovich, P.E. Water Quality	Ph.D., Civil Engineering M.S., Civil Engineering B.S., Civil Engineering	15	Hydrology
Rick Pratt Wetlands	M.S., Oceanography and Coastal Science B.S., Ecology	7	Ecology

Appendix D
Distribution List

APPENDIX D

Distribution List

Federal Agencies

U.S. Department of Defense
- Army Corps of Engineers

U.S. Environmental Protection Agency

U.S. Department of Interior
- Office of Environmental Policy and Compliance
- Fish and Wildlife Service
- Bureau of Indian Affairs
- National Park Service

U.S. Department of Commerce, National Oceanic and Atmospheric Administration
- National Marine Fisheries Service

U.S. Department of Transportation
- Federal Aviation Administration
- Federal Transit Administration
- Federal Highway Administration

Tribes

Muckleshoot Tribe
Suquamish Tribe
Duwamish Tribe
Puyallup Indian Tribe
The Yakama Indian Nation

State Agencies

Office of Archaeology and Historic Preservation
Office of the Attorney General
Community Development
Department of Ecology
Fish & Wildlife Service
Department of Natural Resources
Department of Social and Health Services
Interagency Committee for Outdoor Recreation
Parks and Recreation Commission
Washington State Patrol

Utilities and Transportation Commission
Puget Sound Water Quality Authority
Governor's Office – Salmon Recovery Funding Board

Regional Agencies

Northwest Indian Fisheries Commission
King County
- Public Works Roads and Engineering Division
- Development and Environmental Services Department
- Department of Public Health Fire Districts 2, 26, 39
- Sheriff, Federal Way Precinct No. 5
- Metro Environmental Planning

Puget Sound Clean Air Agency
Puget Sound Regional Council
Port of Seattle
Regional Transit Authority
Sound Transit

Local Agencies

City of SeaTac
- Fire Department
- Police Department
- Public Works
- Planning and Community Development
- Parks & Recreation Department

City of Des Moines
- Public Works
- Planning
- Police Department
- Parks Department

City of Federal Way
- Planning
- Public Works

City of Burien
- Planning
- Public Works

City of Normandy Park
- Planning
- Public Works

City of Kent
Planning
Public Works

City of Tukwilla
Planning
Public Works

Public Officials

Representative Zack Hudgins, 11th District
Representative Velma Veloria, 11th District
Representative Mark Miloscia, 30th District
Representative Skip Priest, 30th District
Representative Shay Schual-Berke, 33rd District
Representative Dave Upthegrove, 33rd District
Representative Joe McDermott, 34th District
Representative Eileen Cody, 34th District
Representative Doug Erickson, Vice-Chair House Transportation Committee
Representative Mike Cooper, Vice-Chair House Transportation Committee
Representative Ruth Fisher, Co-Chair House Transportation Committee
Representative Maryann Mitchell, Co-Chair House Transportation Committee
Representative John Lovick, Co-Chair House Transportation Committee
Representative Shirley Hankins, Vice-Chair House Transportation Committee

Senator Margarita Prentice, 11th District
Senator Tracey Eide, 30th District
Senator Karen Keiser, 33rd District
Senator Erik Poulsen, 34th District
Senator Jim Horn, Chair, Senate Transportation Committee
Senator Dan Swecker, Vice-Chair, Senate Transportation Committee
Representative Ed Morray, Chair, House Transportation Committee
Representative Doug Ericksen, Vice-Chair, House Transportation Committee
Ranking Minority Leader, House Transportation Committee

Mayor Wing Woo, City of Burien
Burien City Council

Mayor Don Wasson, City of Des Moines
Des Moines City Council

Mayor Jeanne Burbidge, City of Federal Way
Federal Way City Council

Mayor Jim White, City of Kent
Kent City Council

Mayor John Wiltse, City of Normandy Park
Normandy Park City Council

Mayor Kath Gehring-Waters, City of SeaTac
SeaTac City Council

Mayor Steven Mullet, City of Tukwila
Tukwila City Council

Libraries

King County Library System
    Boulevard Park, Burien, Des Moines, Federal Way-320th Street, Kent, Seattle Public Library (Downtown), Tukwila, Valley View, and White Center Regional Branches
Suzzallo Library, University of Washington
Highline Community College
Wilson Library, Western Washington University
WSDOT Library

Schools

Highline School District
Federal Way School District
Highline Community College

Utilities

Highline Water District
King County Water District 54
Federal Way Water District
Midway Sewer District
Federal Way Sewer District
Puget Sound Energy
Olympic Pipeline Co.
AT & T
Qwest

Organizations

Southwest King County Chamber of Commerce
Transportation Choices Coalition
Heritage Court Condominium Association

News Media

Seattle Post Intelligencer
Seattle Times
Valley Daily News
Highline Times
Des Moines News
Federal Way News
The Facts
The Hispanic News
NW Asian Weekly
South County Journal
Vietnamese Northwest Biweekly News

Citizens

Pat Ashcraft
Arlene Brown
Debi DesMarais-Wagner
Brett Fish
David Hoffman
Warren Yee

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Appendix E
Right-of-Way Acquisition Process

APPENDIX E

RIGHT-OF-WAY ACQUISITION PROCESS

Once right-of-way plans are approved and funding is made available for a highway project, the Washington State Department of Transportation (WSDOT) can begin to acquire the necessary right of way from property owners. The year-long acquisition process includes presentation of an offer to purchase and relocate people or personal property displaced by the project.

The price offered for property being acquired by WSDOT is established by appraisal. The appraiser's task is to determine "just compensation" for affected properties based on "fair market values." When total acquisition is required, the property owner receives the current market value. Compensation for a partial acquisition is the difference between the fair market value of the original property and that of the remainder.

Upon completion of the appraisal process, a WSDOT representative will offer to purchase the property. The representative will answer any questions individuals may have about procedures, rights, and impacts associated with the project.

When a settlement is reached, the representative will collect the required signatures and complete the necessary paperwork. Only after these details have been completed will payment for the acquisition be processed.

If you are the occupant (tenant or owner) of a structure that is to be acquired by WSDOT, or if you own personal property located within the area to be acquired, you may be eligible for certain relocation services. Eligibility complies with federal and state regulations (Public Law 91-646, RCW 8.26.010 to 8.26.910). Typically, these benefits may include advisory services, replacement dwelling supplements, and reimbursement for moving expenses incurred as a result of the project.

Since each property, ownership, and occupancy is unique, there may be considerable variation in procedures and time requirements. Including the reviews that are necessary during the process, it will normally take up to nine months from the appraisal start date to the date when the owner receives payment for the acquisition. Ownerships involving relocation can take about three months in addition to the acquisition time frame.

In all cases, WSDOT will initiate contact with owners and tenants. Should questions arise about the schedule or process, please call WSDOT, Northwest Region, Real Estate Services Office (206) 440-4163.

After the project is completed, WSDOT may identify and dispose of surplus real property. Frequently these properties are created when right of way is vacated because a roadway is moved or when small uneconomic pieces are purchased during the acquisition process. Disposal of these pieces of land are offered to governmental agencies, abutting owners, or other interested individuals subject to established legal and standard policy procedures.

Appendix F
Environmental Justice

APPENDIX F

Environmental Justice

Summary

The SR 509: Corridor Completion/I-5/South Access Road Project is not expected to have any high and adverse impacts nor will it disproportionately affect minority or low-income populations.

This determination is based on:

- Demographic makeup of the neighborhoods within the project area.
- Analysis of impacts identified by the Project's discipline studies and public comment and outreach.
- Incorporation of mitigation measures as identified in the Project's discipline studies.

The SR 509: Corridor Completion/I-5/South Access Road Project build alternatives were evaluated for compliance with Presidential Executive Order (EO) 12898 and Federal Highway Administration (FHWA) Order 6640.23. These orders establish that it is federal policy to avoid, to the extent practicable, disproportionately high and adverse human health or environmental impacts on minority or low-income populations.

Introduction

This report was prepared in compliance with Presidential EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, dated February 11, 1994; and FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (FHWA Order 6640.23), dated December 2, 1998.

This report does the following:

1. Describes the proposed project and the project's build alternatives.
2. Describes the methodology and analyzes data used to make a determination.

3. Makes a determination as to whether or not the proposed SR 509: Corridor Completion/I-5/South Access Road Project is likely to have disproportionately high and adverse human health or environmental effects on minority and/or low-income populations.

This report also discusses the specific outreach efforts made to involve minority and low-income populations in the decision-making process.

Description of the Proposed Action

FHWA, Washington State Department of Transportation (WSDOT), Port of Seattle, King County, and the Cities of Des Moines and SeaTac propose to improve regional highway connections with an extension of SR 509 to serve future transportation needs in southwest King County and to enhance southern access to and from Seattle-Tacoma International Airport (Sea-Tac Airport) by means of a new South Access Road. (Figure F-1 shows the location of the project area and Figure F-2 shows the project vicinity.) To accommodate an interchange at I-5 and SR 509, improvements to I-5 between approximately South 210th Street and South 310th Street are also proposed. The SR 509: Corridor Completion/I-5/South Access Road Project would improve regional highway connections, enhance southern access to and from Sea-Tac Airport, and improve related local traffic circulation patterns.

Description of Project Alternatives

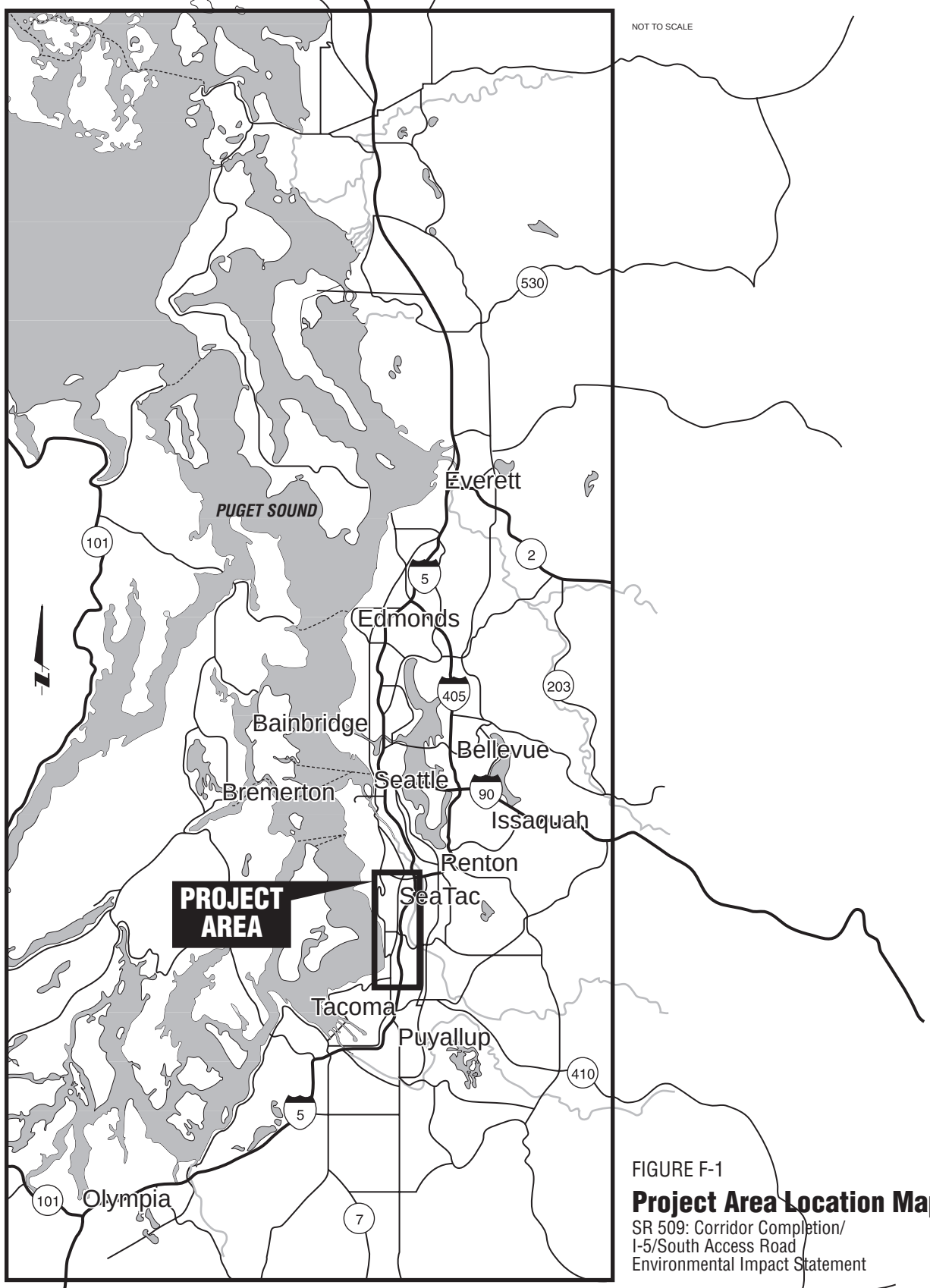
Three build alternatives (Alternatives B, C2, and C3) and a No Action Alternative (Alternative A) are considered in this FEIS.

Alternative A (No Action)

The No Action Alternative (Figure F-3) represents the baseline conditions assumed to exist in the future regardless of whether the proposed project is constructed. Under the No Action Alternative, the SR 509 freeway extension, the South Access Road to Sea-Tac Airport, and the improvements to I-5 would not be built. This alternative, as well as the other alternatives, is defined in Chapter 2.

Features Common to All Build Alternatives

Each alternative for the SR 509 freeway extension would originate at approximately South 188th Street/12th Place South. The northern terminus of the South Access Road would be at the south end of the airport terminal drives. The southern terminus of the South Access

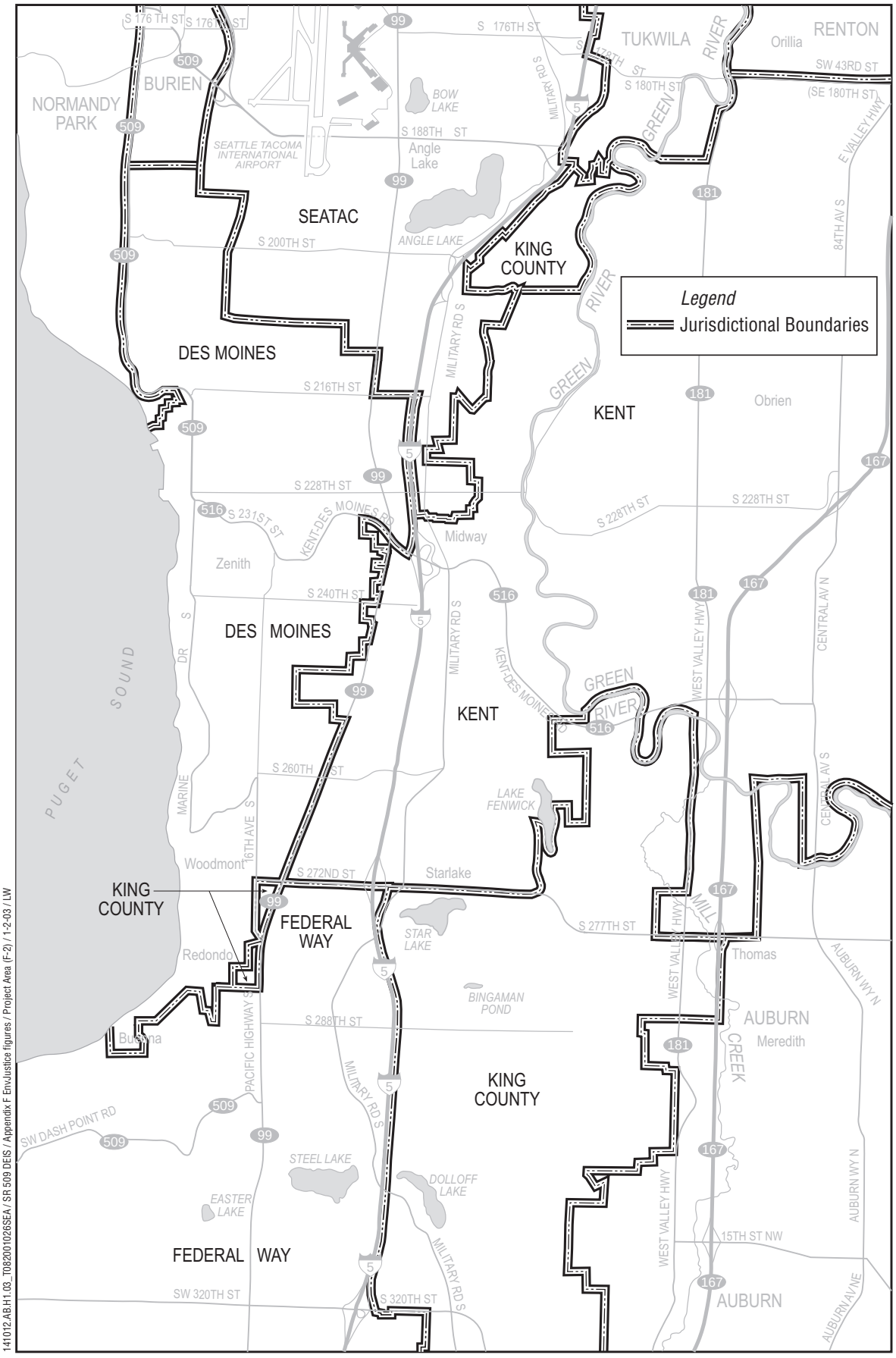


141012.AB.H1.03_T082001026SEA / SR 509 DEIS / Appendix F Env Justice / ProjectAreaLocationMap / CJS / 1-2-03 / LW

FIGURE F-1

Project Area Location Map

SR 509: Corridor Completion/
I-5/South Access Road
Environmental Impact Statement



141012.AB.H1.03_T08200102GSEA / SR 509 DEIS / Appendix F EnvJustice figures / Project Area (F-2) / 1-2-03 / LW

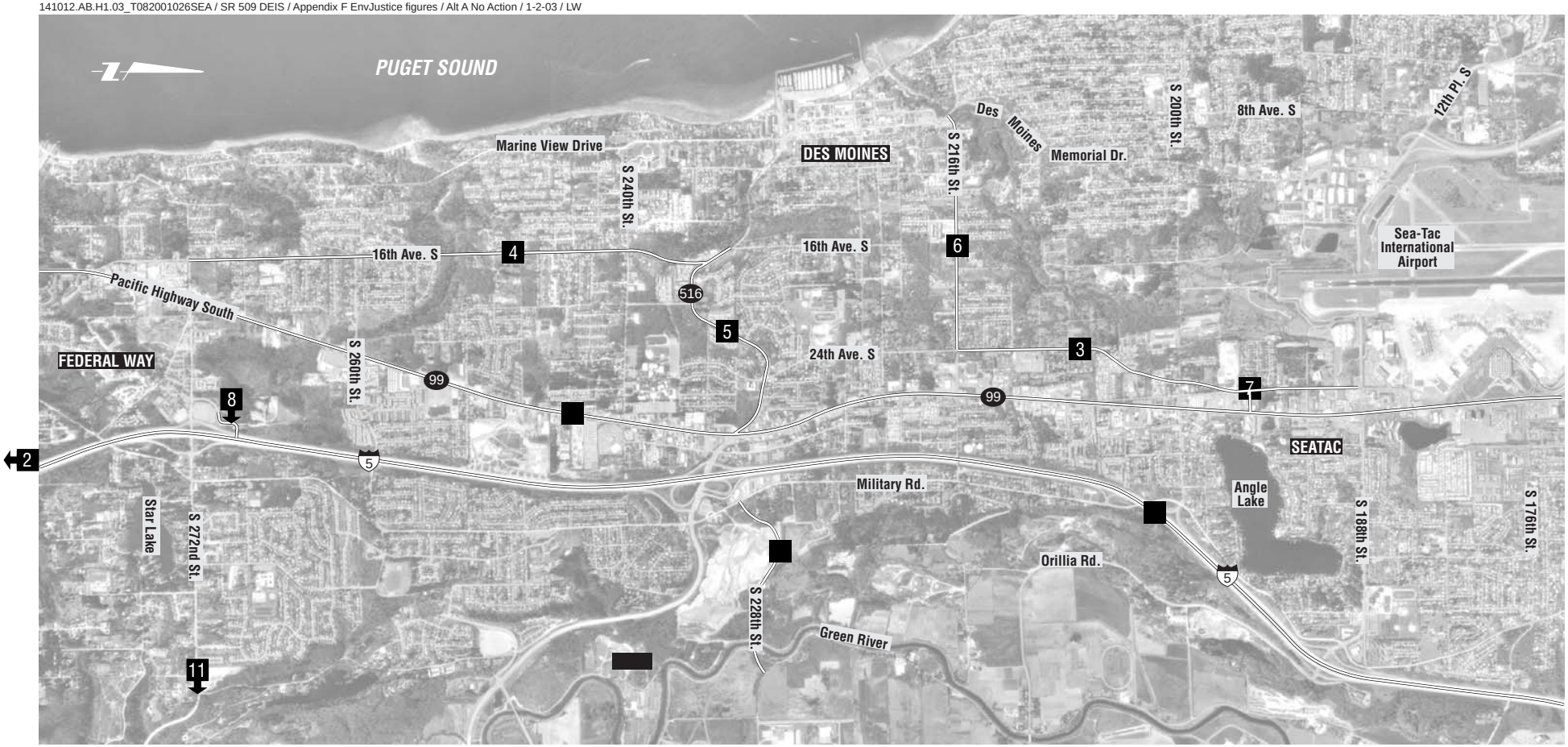
0 1900 3800
Scale in Feet

North

FIGURE F-2

Project Area

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement



Legend

Baseline Projects by others

0 1/4 1/2 3/4 1 MILES

Baseline Projects Assumed for No Action Alternative.

1. I-5 HOV Lanes
2. I-5 @ S. 317th Street Direct Access Ramp
3. 28th/24th Avenue S. Arterial (Phase 1 completed – S. 188th to S. 204th Streets)
4. 16th Avenue S.
5. Kent-Des Moines (SR 516) Road
6. S. 216th Street
7. S. 195th Street
8. I-5 @ S. 272nd Street In-Line Station
9. Pacific Highway S./International Boulevard (SR 99) (Phases 1 and 2 completed – S. 170th to S. 200th Streets)
10. S. 228th Street
11. S. 272nd/S. 277th Street Corridor

FIGURE F-3

Alternative A (No Action)

SR 509: Corridor Completion/I-5/South Access Road Environmental Impact Statement

Road would connect with the SR 509 freeway extension; the location and design of this connection would vary with each alternative. There would be interchanges at South 200th Street and 28th/24th Avenue South, but not at SR 99. Improvements to I-5 would be the same for all build alternatives.

SR 509 Mainline/South Access Road

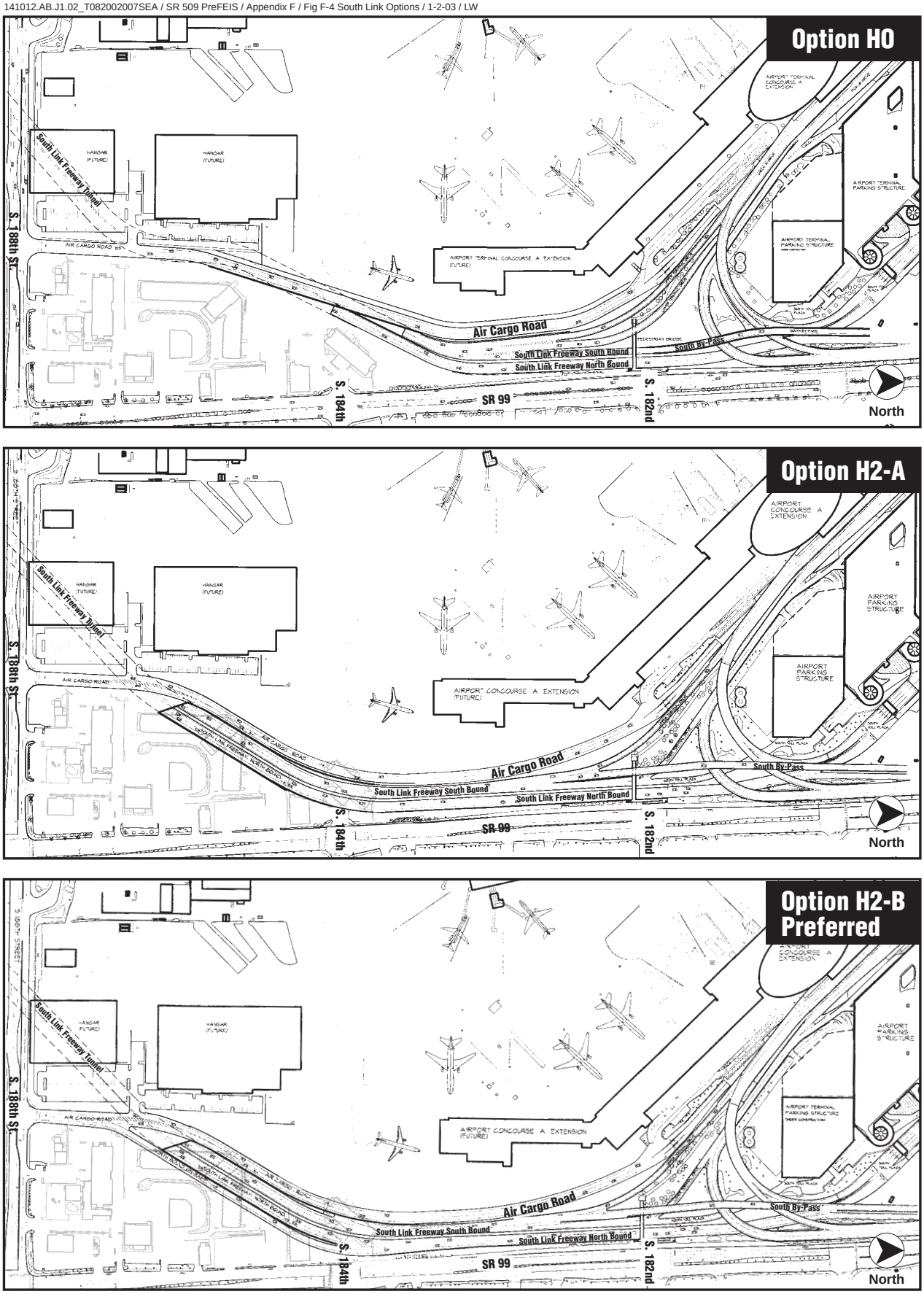
The configuration of the SR 509 freeway extension would be six lanes: two general purpose travel lanes and an inside high-occupancy vehicle (HOV) lane in each direction. The South Access Road would consist of two general purpose lanes in each direction, for a total of four lanes. In general, right-of-way widths would be at least 200 feet for the SR 509 freeway extension and at least 120 feet for the South Access Road. The SR 509 freeway extension would be designed to level of service (LOS) D and a speed of 70 miles per hour (mph). The South Access Road would be designed to LOS D and a speed of 35 to 45 mph.

South Airport Link

The South Airport Link, the last 1,000 feet of roadway connecting the South Access Road to the existing airport roadways, has three design options. At the south end, each design option crosses beneath South 188th Street and the southeast corner of Sea-Tac Airport via a tunnel. At the north end, the design options would maintain both southbound and northbound connections from the upper and lower terminal drives. Under Design Option H0, Air Cargo Road and the South Access Road would be "stacked" via an extended “S”-curve tunnel structure (Figure F-4). Under Design Option H2-A, Air Cargo Road and the South Access Road would generally parallel each other and would be separated by medians (Figure F-4). Design Option H2-B, the preferred alternative, would be essentially the same as Design Option H2-A, except that it would provide a local access route for northbound traffic into the airport at the intersection of South 188th Street and 28th Avenue South (Figure F-4).

Improvements to I-5

The southbound improvements to I-5 would include two new collector-distributor (C/D) lanes between the SR 509 convergence and SR 516, two new auxiliary lanes from SR 516 to South 272nd Street, and a new auxiliary lane from South 272nd Street to approximately South 310th Street, where the proposed project would match with an auxiliary lane to be constructed for the Sound Transit I-5 @ South 317th Street Direct Access Ramp project. On northbound I-5, a new auxiliary lane would extend between South 272nd Street and the



0 100 200

Approx.
Scale in Feet

FIGURE F-4

South Airport Link Design Options

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement

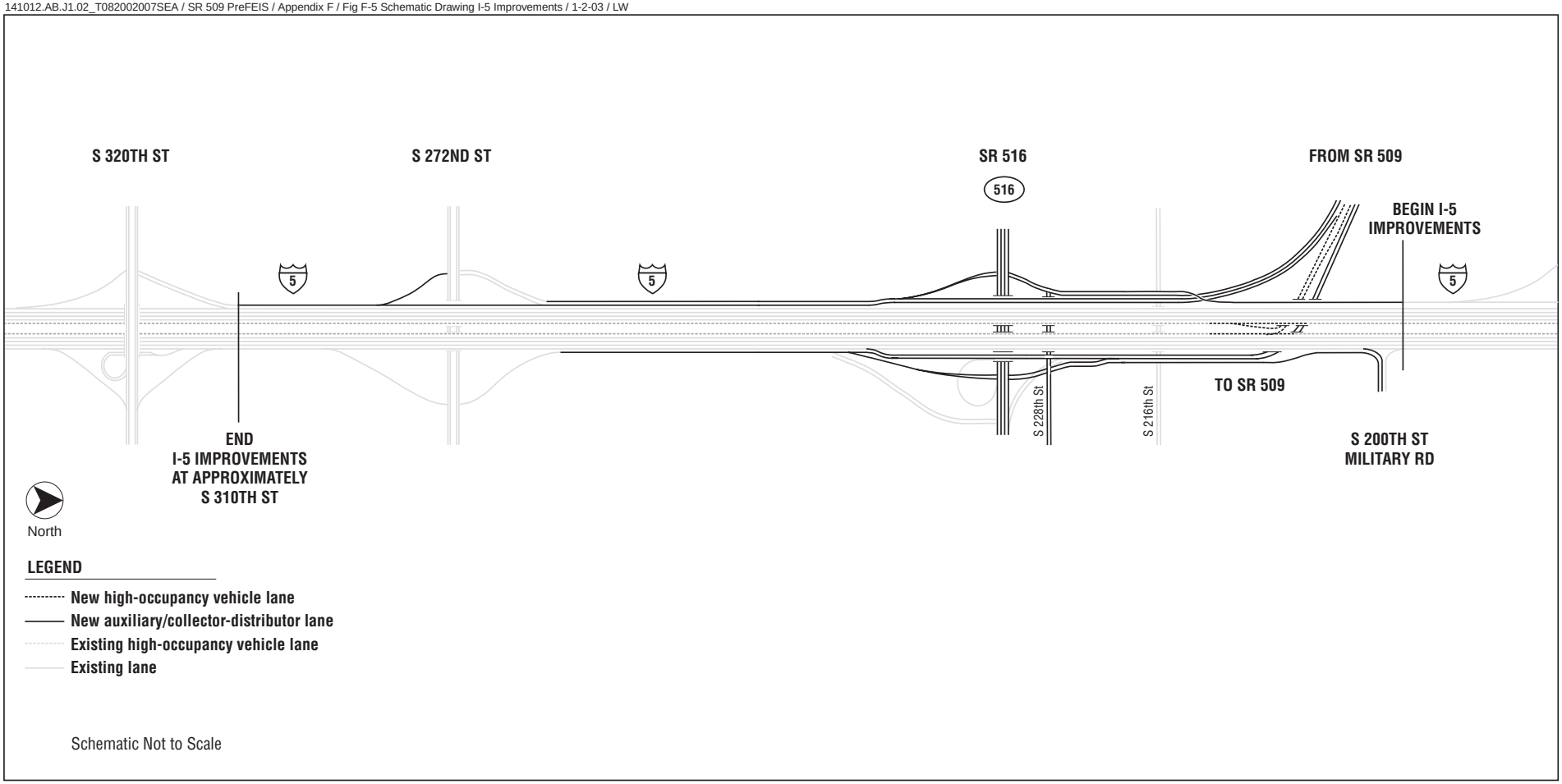


FIGURE F-5

Schematic Drawing of I-5 Improvements

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement

SR 516 interchanges, and two new C/D lanes would start at the SR 516 interchange to serve I-5 traffic exiting to SR 509 and SR 516 traffic entering I-5. In addition, a South 228th Street extension and underpass would be constructed, providing a direct connection to northbound I-5 from South 228th Street and from southbound I-5 to South 228th Street. Figure F-5 presents a schematic of the I-5 improvements. These improvements would cover approximately 6.7 miles.

Alternative B

Under Alternative B, the SR 509 mainline would extend southward from its existing terminus at South 188th Street/12th Place South and intersect with I-5 in the vicinity of South 211th Street (Figure F-6). The freeway extension and the South Access Road would generally parallel each other in a north-south orientation on the west and east sides of Des Moines Creek Park, starting in the vicinity of South 208th Street and 24th Avenue South. The alignment would cross over Des Moines Creek and through Des Moines Creek Park at its narrowest point. The length of the SR 509 freeway extension (including the South Access Road) under Alternative B would be approximately 3.8 miles.

Alternative C2

Alternative C2, the preferred alternative, would begin at the existing SR 509 terminus at South 188th Street/12th Place South and intersect with I-5 in the vicinity of South 212th Street (Figure F-7). Alternative C2 would cross to the east on the north side of Des Moines Creek Park. The alignment would be elevated as it crosses the northeast corner of Des Moines Creek Park. The South Access Road interchange with SR 509 would be in the vicinity of South 208th Street and 24th Avenue South. The length of the SR 509 freeway extension (including the South Access Road) under Alternative C2 would be approximately 3.2 miles.

Alternative C3

Alternative C3 would begin at the existing SR 509 terminus at South 188th Street/12th Place South and intersect with I-5 in the vicinity of South 212th Street (Figure F-8). Like Alternative C2, Alternative C3 would cross to the east on the north side of Des Moines Creek Park; however, it would encroach further into the park than Alternative C2. Alternative C3 would also be elevated as it crosses the northeast corner of Des Moines Creek Park. The South Access Road interchange would occur in the vicinity of South 204th Street and 24th Avenue South. Under Alternative C3, the length of the SR 509

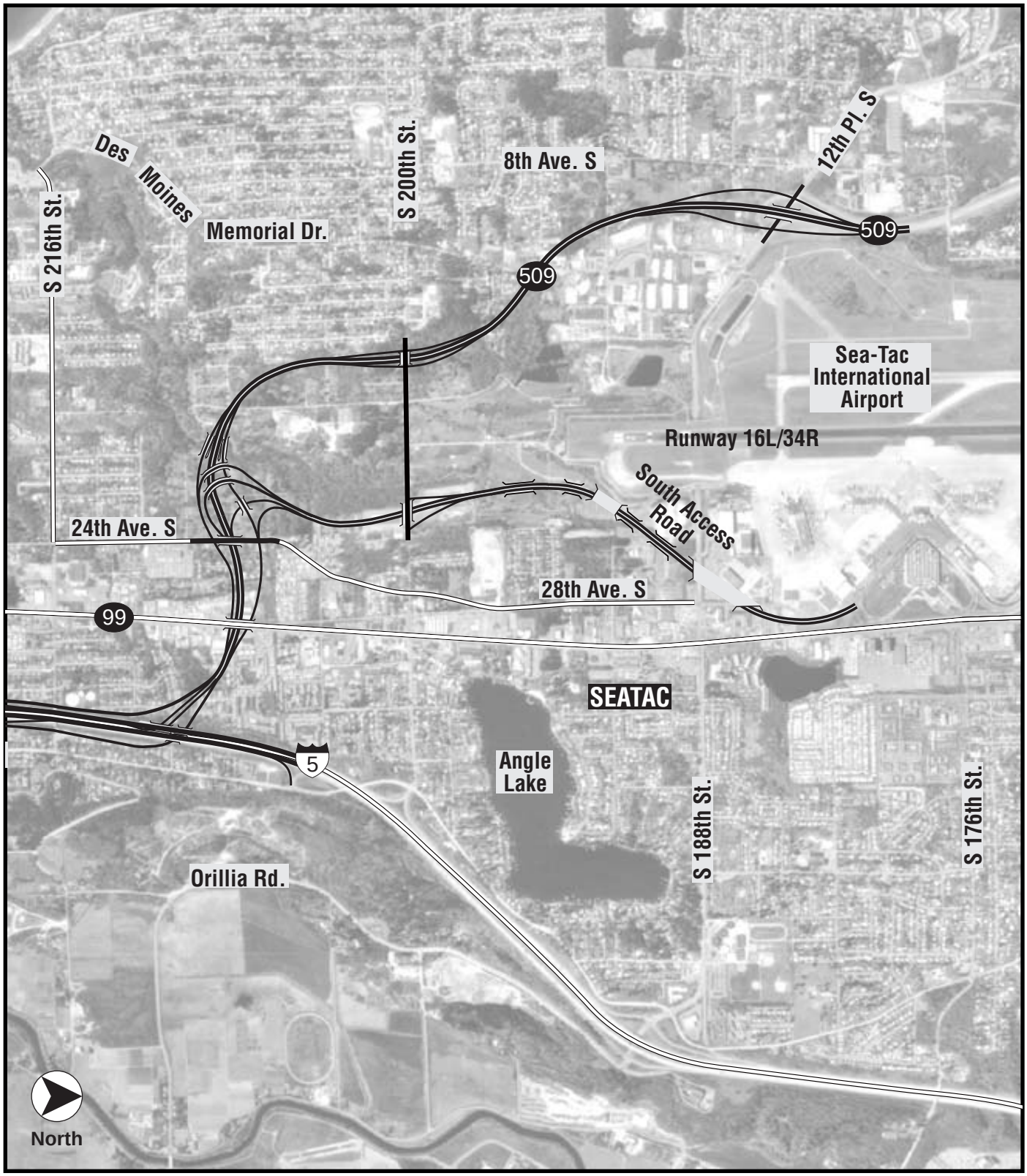
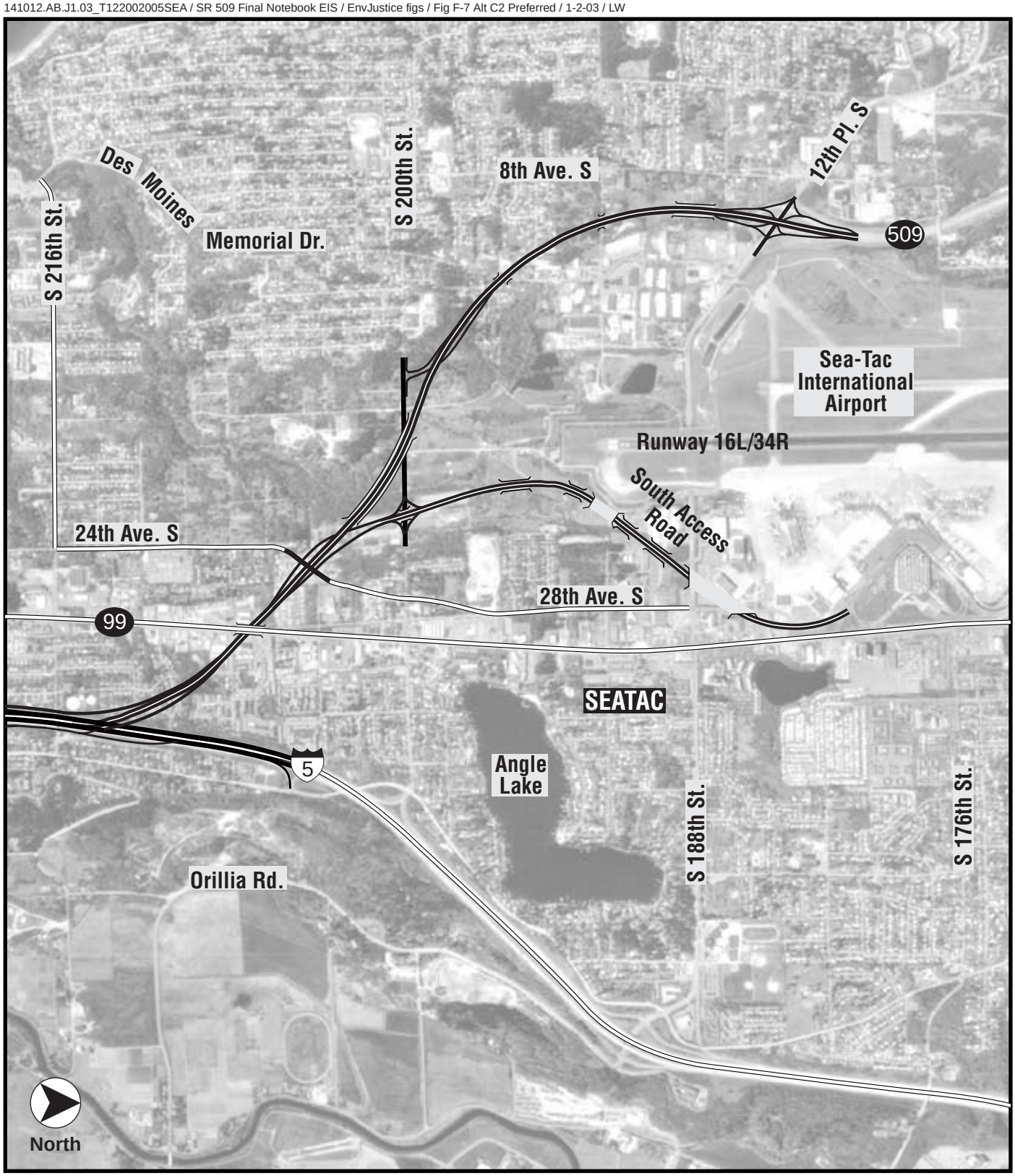


FIGURE F-6

Alternative B

SR 509: Corridor Completion/I-5/South Access Road Environmental Impact Statement



0 1/4 1/2 3/4 1 MILES

Legend

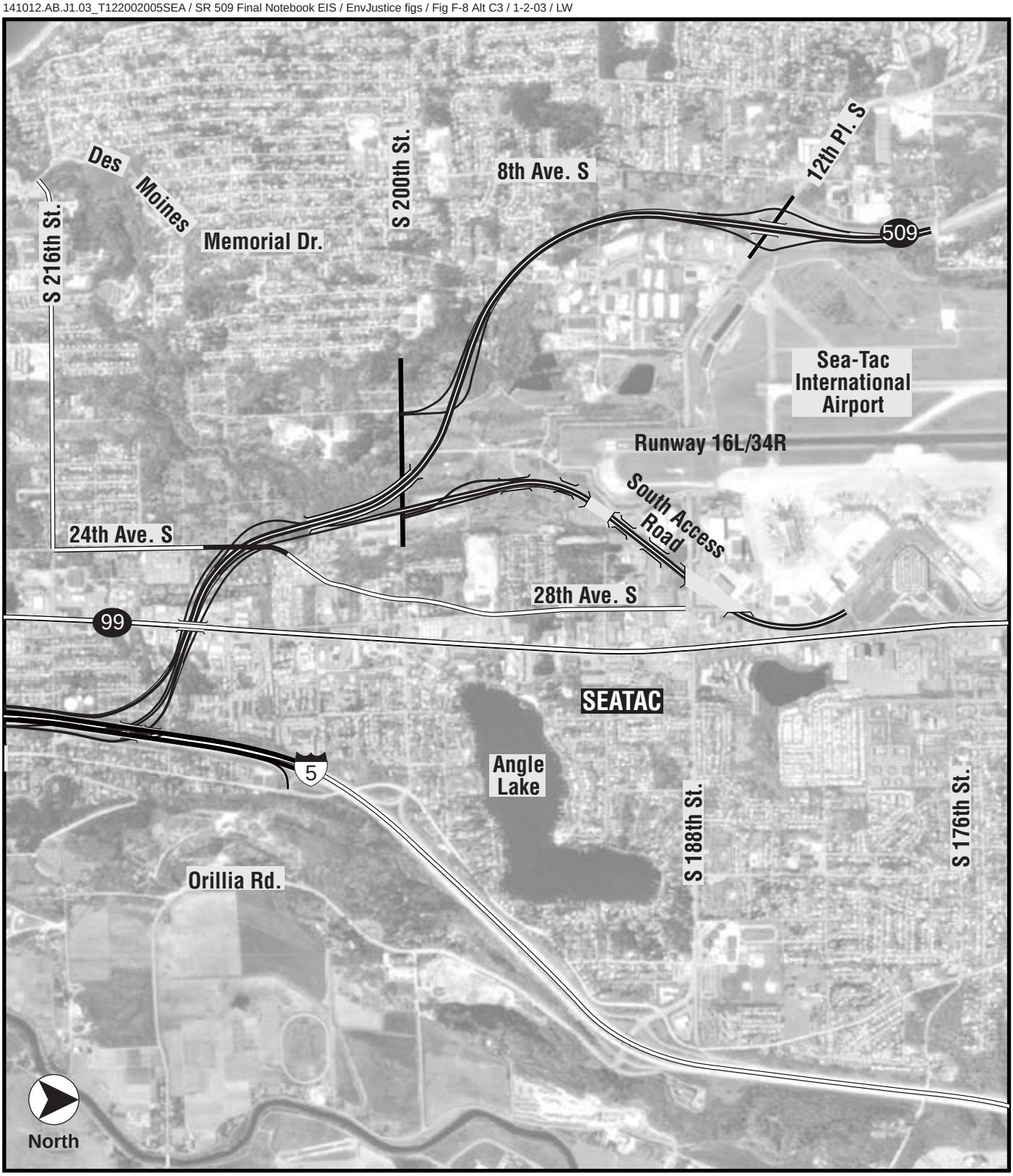
SR 509/South Access Road Improvements

Bridge

FIGURE F-7

Alternative C2 (Preferred)

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement



Legend

SR 509/South Access Road Improvements

Bridge

FIGURE F-8

Alternative C3

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement

freeway extension, including the South Access Road would be approximately 3.5 miles.

Studies Performed and Coordination Conducted

Overview of EO 12898 and FHWA Order 6640.23

EO 12898, issued by President Clinton in 1994, requires that "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations…." In his memorandum transmitting EO 12898 to federal agencies, President Clinton further specified that, "each Federal agency shall analyze the environmental effects, including human health, economic and social effects, of Federal actions, including effects on minority communities and low-income communities, when such analysis is required by the National Environmental Policy Act of 1969."

Guidance on how to implement EO 12898 and conduct an environmental justice analysis has been issued by the President's Council on Environmental Quality (CEQ 1997) and several federal agencies, including the U.S. Department of Transportation (DOT Order 5610.2) and the FHWA (FHWA Order 6640.23).

FHWA Order 6640.23 provides guidance on determining when a disproportionately high and adverse impact is likely and how to respond if such a finding is made. When determining whether a particular program, policy, or activity

> "...will have disproportionately high and adverse effects on minority and low-income populations, FHWA managers and staff should take into account mitigation and enhancement measures and potential offsetting benefits to the affected minority or low-income populations. Other factors that may be taken into account include design, comparative impacts, and the relevant number of similar existing system elements in non-minority and non low-income areas. FHWA managers and staff will ensure that the programs, policies, and activities that will have disproportionately high and adverse effects on minority populations or low-income populations will only be carried out if further mitigation measures or alternatives that would avoid or reduce the disproportionately high and adverse effects are not

practicable. In determining whether a mitigation measure or an alternative is "practicable," the social, economic (including costs) and environmental effects of avoiding or mitigating the adverse effects will be taken into account. FHWA managers and staff will also ensure that any of their respective programs, policies or activities that have the potential for disproportionately high and adverse effects on populations protected by Title VI ("protected populations") will only be carried out if:

(1) a significant need for the program, policy or activity exists, based on the overall public interest; and

(2) alternatives that would have less adverse effects on protected populations have either:

(a) adverse social, economic, environmental, or human health impacts that are more severe; or

(b) would involve increased costs of an extraordinary magnitude.

Any relevant finding identified during the implementation of this Order must be included in the planning or NEPA documentation that is prepared for the activity."

Methodology and Approach

The proposed SR 509 project alternatives were evaluated for compliance with EO 12898 and FHWA Order 6640.23. For this type of analysis, three fundamental evaluation measures were used:

1. Determined whether minority or low-income populations exist in the project area. The terms "minority populations" and "low-income populations" were defined. Sources of data used included census data; school enrollment; anecdotal information from discussions with local officials, business owners, property owners and managers; and public meeting attendees.

2. Identified impacts that could potentially affect any minority and low-income communities of concern. This identification was based on the Project's disciplines studies and discussions with the authors, and results of public comment and outreach

efforts. Public involvement is key in achieving environmental justice. FHWA Order 6640.23 Part 5(c) states that FHWA will administer its governing statutes so as to identify and avoid discrimination and disproportionately high and adverse effects on minority populations and low-income populations by: (Subpart 4) "providing public involvement opportunities and considering the results thereof, including providing meaningful access to public information concerning the human health or environmental impacts and soliciting input from affected minority and low-income populations in considering alternatives during the planning and development of alternatives and decisions."

3. Determined if the identified potential impacts would have a high or adverse effect that would fall disproportionately on minority or low-income populations.

Affected Environment

The primary source of demographic data was the 2000 U.S. Census because it is the most comprehensive, complete, and detailed data source currently available. Block group-level statistics on minority composition, income level, and related information were obtained for each of the project area neighborhoods that would be affected by the build alternatives (see Section 3.10, *Social*, Table 3.10-1). Personal communications with public agency and school district staff, as well as property owners and managers, were used to corroborate U.S. Census demographic data and to identify pockets of low-income or minority populations that fall within the Census Blocks. The project area is composed of portions of five jurisdictions:

- City of SeaTac—8th Avenue South/Des Moines Drive, Home stead Park, Mansion Hill, Madrona, and Grandview
- City of Des Moines—Pacific Ridge and North Hill
- City of Kent
- City of Federal Way
- King County

Based on the 2000 U.S. Census, the total population of the area within approximately one-half mile of the build alternatives is approximately 67,410. The minority population comprises approximately 33 percent of total project area population. The low-income population comprises approximately 12 percent of this total population.

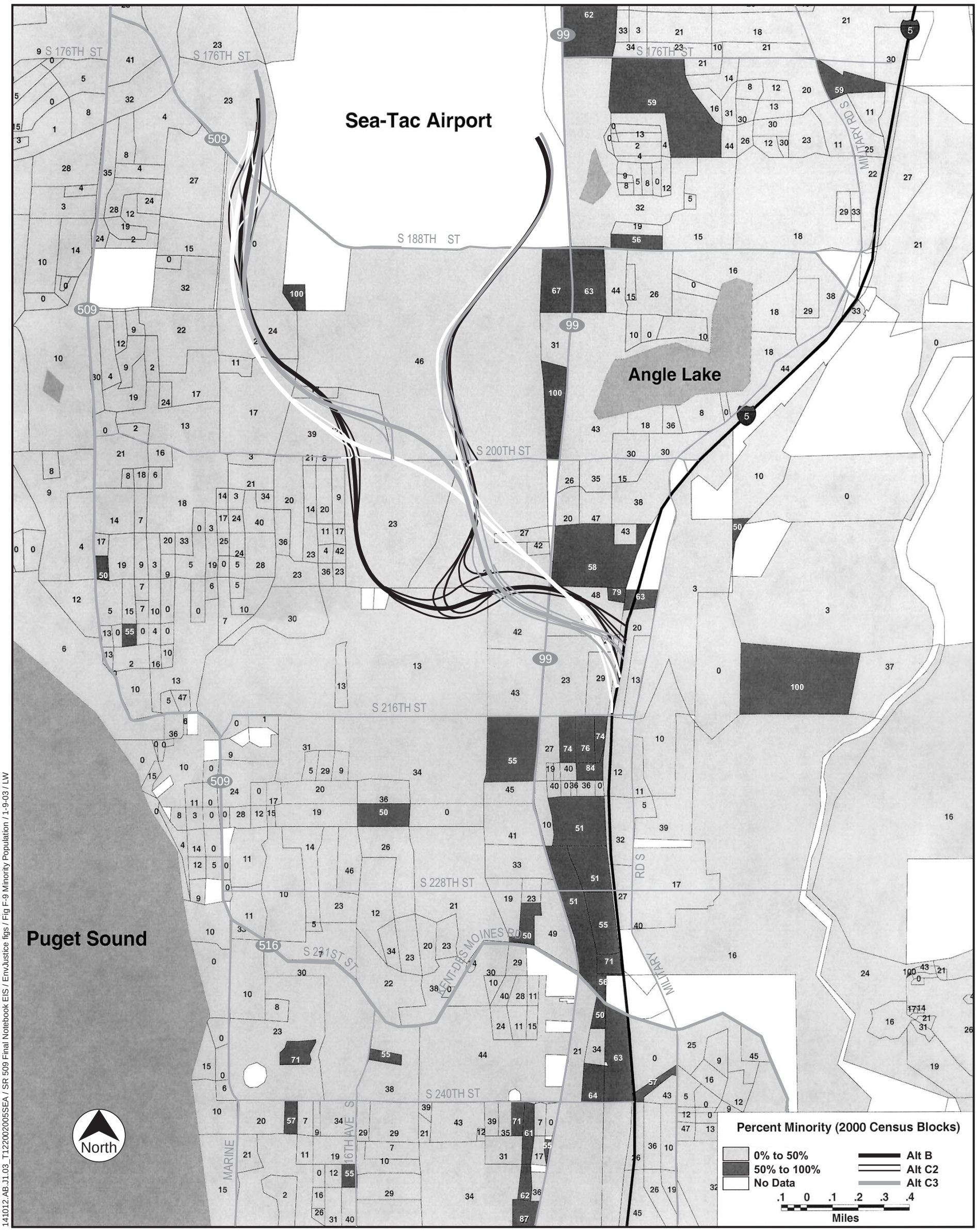
For the purpose of this analysis, "low-income populations" and "minority populations" are defined as follows:

- Low-income population means a readily identifiable group of low-income persons whose median household income is at or below the Department of Health and Human Services poverty guidelines.

- Minority population means any readily identifiable group of minority persons (Black, Hispanic, Asian, American Indian, and Alaskan Native) who live in geographic proximity, and if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who will be similarly affected by a proposed FHWA program, policy, or activity.

Distribution of the Minority Population

Figures F-9 and F-10 identify the minority population percentages of U.S. Census blocks in the vicinity of the build alternatives based on 2000 U.S. Census data. Personal communications with public agency and school district staff, as well as property owners and managers, were used to corroborate U.S. Census demographic data and to identify pockets of minority populations. As shown on these figures, many U.S. Census blocks in the project area are below 50 percent minority population. These census blocks were further evaluated to determine if pockets of minority populations existed that might be disproportionately affected by the impacts of the project. The neighborhoods with direct impacts or greater proximity impacts by the project (8th Avenue South/Des Moines Drive, Homestead Park, Mansion Hill, and North Hill) are located in census blocks not showing a 50 percent or greater minority population. Extensive public outreach, community meetings, and public hearings were conducted to communicate with the residents of these neighborhoods and gather information on the populations. In addition, detailed information was gathered through site surveys and discussions with potentially affected residents. The information gathered was consistent with the census data. These neighborhoods, which consist primarily of single-family homes or mobile homes, did not have pockets of high percentage minority populations, and those minority populations that do exist are interspersed evenly within the neighborhoods. For these neighborhoods, the minority population percentage of the affected area was determined to not be meaningfully greater than the minority population percentage in the general population.



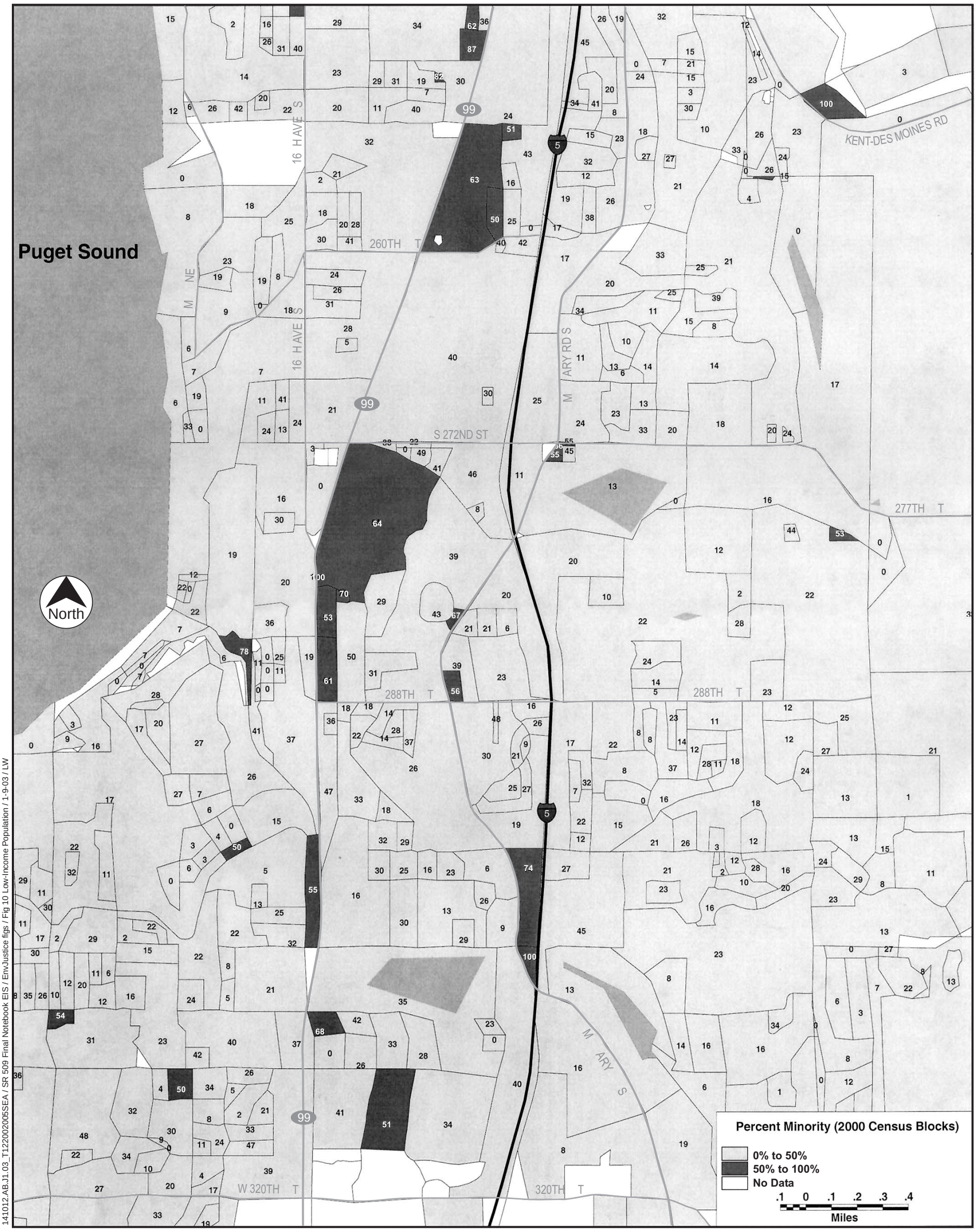
141012.AB.J1.03_T122002005SEA / SR 509 Final Notebook EIS / EnvJustice figs / Fig F-9 Minority Population / 1-9-03 / LW

Note: The number in each census block represents the percentage of minority population.

FIGURE F-9

Minority Population in the SR 509 Build Alternatives Area

SR 509: Corridor Completion/I-5/South Access Road Environmental Impact Statement



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Note: The number in each census block represents the percentage of minority population.

FIGURE F-10

Minority Population in the I-5 Corridor Area

SR 509: Corridor Completion/I-5/South Access Road Environmental Impact Statement

There were, however, several U.S. Census blocks west of I-5 and others east of Sea-Tac Airport that are above 50 percent minority. These latter U.S. Census blocks have minority population densities high enough (i.e., greater than 50 percent) to be considered minority populations based on the following guidance contained in CEQ (1997):

> "Minority populations should be identified where either: (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis."

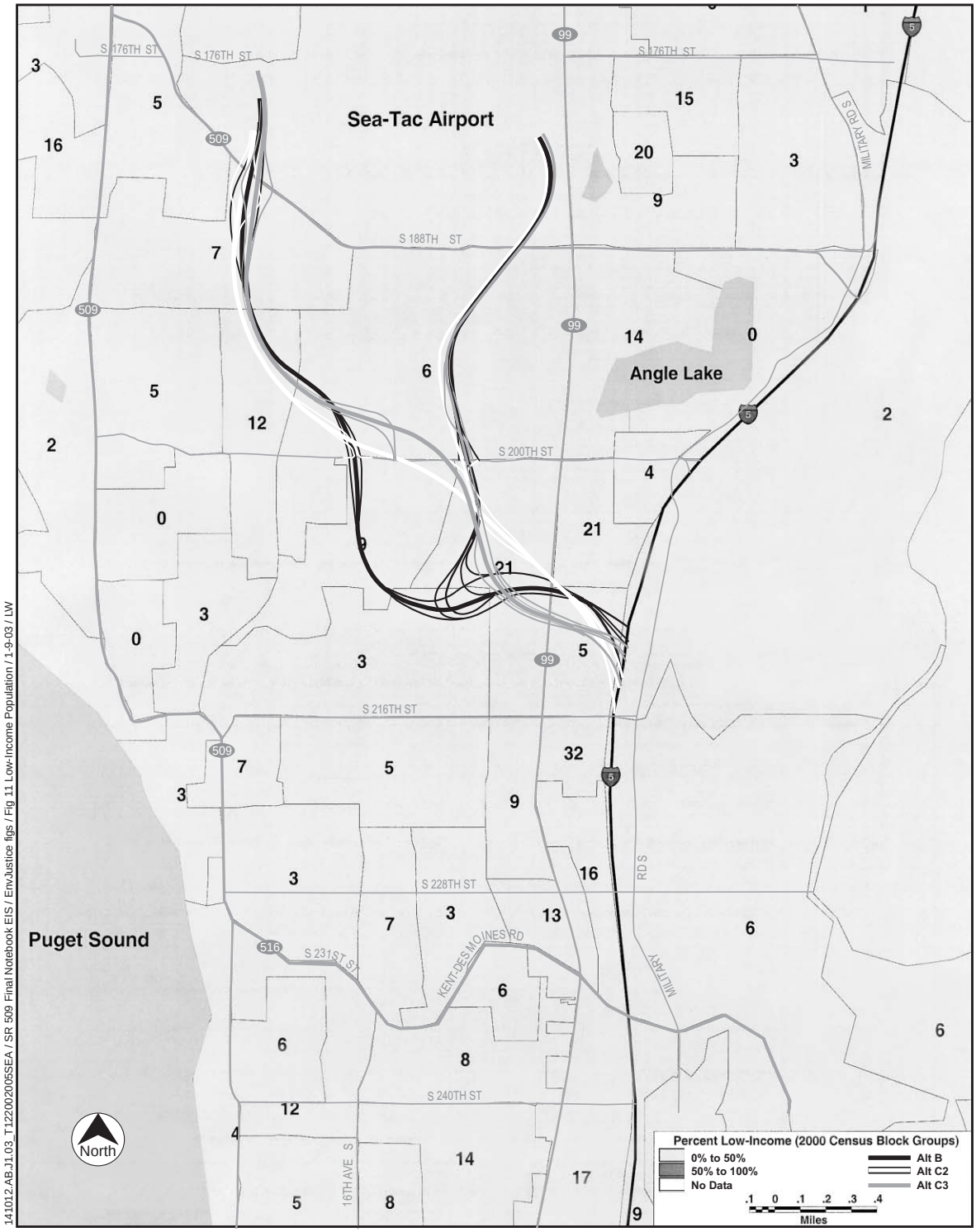
The census blocks with higher densities of minorities (as defined above) are found within the Madrona and Pacific Ridge neighborhoods (see Section 3.10, *Social*, Figure 3.10-1, for the location of these neighborhoods). These neighborhoods are the communities for which an impact analysis was conducted.

Distribution of the Low-Income Population

Figures F-11 and F-12 identify the low-income population percentages of U.S. Census block groups in the vicinity of the build alternatives based on 2000 U.S. Census data. These figures show that the U.S. Census block groups in the project area have low-income populations. These percentages range from 0 percent to 32 percent, with about half of the block groups having low-income population percentages below 10 percent, and the other half above 10 percent.

Unlike the CEQ (1997) guidance on minority population, no environmental justice order or guidance document contains a quantitative definition of how many low-income individuals constitute a low-income population. In the absence of guidance, for this analysis the density used to identify minority populations (i.e., 50 percent or greater) was also initially used to identify low-income populations. Since there is no U.S. Census block group in the project area with 50 percent or more low-income population, personal communication with public agency and school district staff, as well as with property owners and managers, was used to corroborate census demographic data and to identify any pockets of low-income populations.

As determined through school district subsidized lunch program data, as well as low-income housing data provided by King County, census blocks potentially containing pockets of low-income residents are contained the Madrona and Pacific Ridge neighborhoods.



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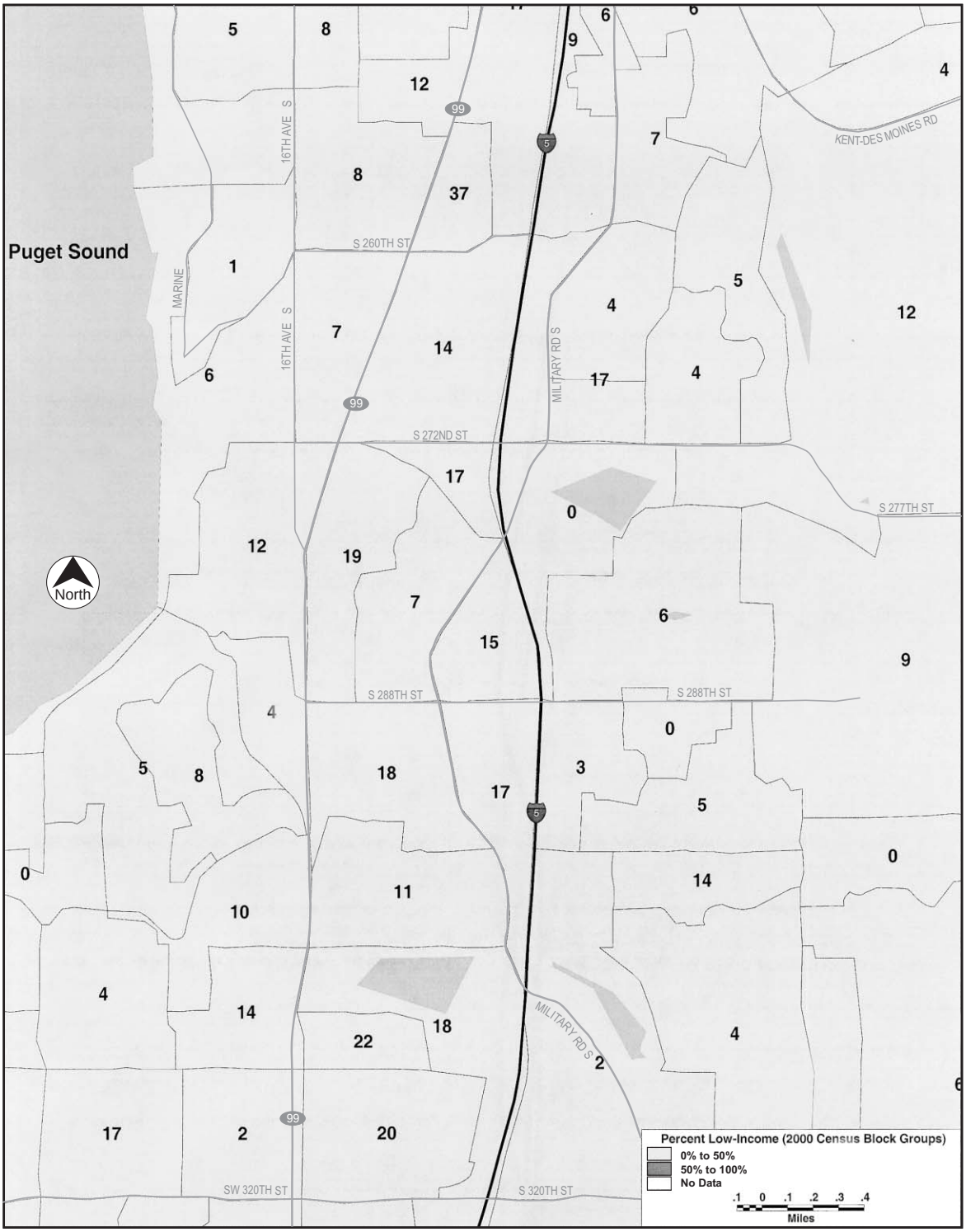
Note: The number in each census block represents the percentage of low-income population.

FIGURE F-11

Low-Income Population in the SR 509 Build Alternatives Area

SR 509: Corridor Completion/I-5/South Access Road Environmental Impact Statement



141012.AB.J1.03_T122002005SEA / SR 509 Final Notebook EIS / EnvJustice figs / Fig 12 Low-Income Population / 1-9-03 / LW

Note: The number in each census block represents the percentage of low-income population.

FIGURE F-12

Low-Income Population in the I-5 Corridor Area

SR 509: Corridor Completion/I-5/South Access Road Environmental Impact Statement

Summary of Demographic Analysis

Based on the demographic analysis the specific minority and low-income communities of concern within project area are shown in Table F-1.

Impact Identification

The series of discipline reports prepared for the SR 509 FEIS were reviewed to determine if there were environmental or human health impacts on the communities of concern. These impacts were compared to the comments received from the project's public outreach efforts to ensure that a comprehensive list is obtained before determining if these impacts would have an adverse and high impact, or disproportionate impact on the communities of concern.

Discipline Studies

The series of discipline reports prepared for the SR 509 FEIS were reviewed to determine the environmental or human health impacts on the communities of concern, and discussions were conducted with discipline report authors to determine if any environmental or human health impacts could reach the high and adverse level after proposed mitigation measures.

For purposes of this analysis, National Environmental Policy Act significant adverse impacts, as identified by the professional analysts working on this FEIS, were considered to be synonymous with high and adverse impacts as described in EO 12898 and FHWA Order 6640.23. This decision was made since there is no official guidance on the definition of "high and adverse" in any environmental justice order or guidance document.

The areas that could potentially have impacts on the neighborhoods of concern include noise, social, and relocation impacts.

Noise Impacts

Based on the noise analysis conducted for the project, noise levels would be expected to increase up to 4.4 dBA in the Pacific Ridge neighborhood, and up to 13.4 dBA in the Madrona neighborhood. Total noise levels could exceed 67 dBA, which is the FHWA noise abatement criterion. Noise barriers along I-5 and the proposed SR 509 freeway extension in the vicinity of these neighborhoods were evaluated and are proposed for noise abatement in these locations (see Appendix I of this FEIS).

Table F-1
Demographic Characteristics of Affected Census Blocks of Concern

Neighborhood	Census Block(s)	Pop.	White	African Amer.	Amer. Ind./ Alaska Native	Asian/ Pacific Islander[a]	Hispanic[b]	Elderly[c]	Median Household Income[d]	Median Value of Owner-Occupied Housing Units[d]	Median Contract Rent[d]
Madrona	53033028802 2003	160	61.9%	16.9%	0%	19.4%	3.8%	11.9%	$68,542	$155,400	$725
	53033028802 3000	92	20.7%	25%	2.2%	47.8%	1.1%	3.3%	$43,125	$162,200	$653
	53033028802 3001	352	51.7%	17.6%	2.3%	15.3%	13.4%	6.5%	$43,125	$162,200	$653
	53033028802 5004	1668	41.5%	23.6%	0.9%	12%	25.7%	3.1%	$37,708	$66,404	$587
	53033028802 5005	227	56.8%	22%	0.9%	10.1%	11.0%	0.9%	$37,708	$66,404	$587
Pacific Ridge	53033028902 1000	153	26.1%	28.1%	1.3%	30.1%	13.1%	1.3%	$28,803	$17,400	$556
	53033028902 1007	268	16.0%	1.1%	0.3%	22.8%	71.6%	0.4%	$28,803	$17,400	$556
	53033028902 3000	1	100%	0%	0%	0%	0%	0%	$31,023	$90,600	$546
	53033028902 3001	86	48.8%	7.0%	0%	38.4%	9.3%	12.8%	$31,023	$90,600	$546
	53033028902 3004	180	48.9%	14.4%	2.2%	24.4%	10%	7.2%	$31,023	$90,600	$546
	53033028902 3005	387	45.5%	17.6%	1.0%	15.5%	20.7%	1.3%	$31,023	$90,600	$546
	53033028902 3006	161	28.6%	39.1%	0.6%	10.5%	20.5%	1.2%	$31,023	$90,600	$546
	53033028902 3007	52	44.2%	15.4%	0%	15.4%	17.3%	0%	$31,023	$90,600	$546

Source: 2000 U.S. Census

[a] *Includes the Native Hawaiian race.*
[b] *Includes all races alone or in combination with one or more other races.*
[c] *65 years of age or older.*
[d] *Income figures are at the census block-group level; all blocks in the same block-group have the same level of income, rent, and median house value.*

Note: For racial characteristics "Other" and "Two or more races" are not depicted in these data; therefore, totals may not equal 100 percent.

Social Impacts

The discipline study on social impacts identified the following areas of potential effect:

- Community Cohesion—Community cohesion would be affected in all impacted neighborhoods to some degree through the loss of single- and multifamily homes, the physical fragmentation of residential areas, and the disruption of access to community facilities and services. Total impact on community cohesion was assessed by observing the pattern of right-of-way acquisition and the resulting physical disruption (such as demolition of houses and severing of neighborhood streets) that the proposed roadway would cause with each build alternative. The main difference between the three build alternatives is that Alternatives B and C2 would have greater impacts on the Madrona neighborhood, while Alternative C3 would have greater impacts on the Mansion Hill neighborhood.

- Services and Utilities—The project's primary impact on schools would be the disruption of access for students living within a school's attendance boundaries. Impacts would be most severe on children who live within the school district's "walk boundary," because those who live on the far side of the proposed roadway might be forced to make long detours to cross it. Neighborhoods where such impacts could occur include Homestead Park and Mansion Hill, where students walking to Madrona Elementary School would likely face more circuitous routes to school and additional traffic (only under Alternative B). Access to the Christian Faith Center School for those who walk or drive would also be more circuitous. Conversely, better traffic flow after construction would allow school buses to reach their destinations more quickly.

Relocation Impacts

Table 3.9-1 in Section 3.9, *Relocation*, summarizes the relocation impacts of each build alternative. Impacts are characterized by a range of potentially displaced single-family and multifamily residential units and businesses. Ranges occur in the displacement totals because either (1) only part of a building would be impacted, resulting in the potential to avoid displacements, or (2) there is a difference in the number of displacements for the South Airport Link design options. Through innovative roadway design, the total number of displacements may be reduced.

Public Outreach

Public comments were generally positive towards the project. Specific issues raised included concerns about:

- Noise impacts and noise barrier locations
- Bicycle and pedestrian access
- Acquisition and relocations issues
- Desire to have this project built as soon as possible

No neighborhood or community group has come forward in opposition to this project at any of the public meetings or hearings, or through any other communication channel. The general response to this project has been favorable from almost everyone who has expressed an opinion.

Public input to the SR 509 project has been an essential element of the environmental analysis, documentation, and review process. Public involvement is ongoing and seeks to establish informed public consent for the population within the SR 509 project area. The SR 509 project area provided unique challenges for implementing a public involvement program. The project alignment is approximately 10 miles long and, based on the 2000 U.S. Census, approximately 67,410 people live within approximately one-half mile of the build alternatives. In addition, research revealed that the project area's special populations are served by few organized community organizations or media outlets, and instead are loosely affiliated.

In response, a multimedia approach to public involvement was implemented that incorporates both broad-based and highly targeted communication tools and strategies.

Outreach and involvement efforts included the following:

- Seven newsletters mailed to individual residents, their political representatives, and local officials
- Individual letters and graphics mailed to potentially affected residences and businesses
- Two public scoping meetings
- Six public open houses

- Multiple news releases to newspapers of general circulation and the minority press

- Newspaper articles, including interviews with mobile home owners

- Two public hearings

There was also a specific effort to inform and involve residents (and owners) of mobile home parks in the project area due to the unique nature and size of the mobile home park community. WSDOT committed to publishing meeting announcements in Spanish and Vietnamese, as well as in English, based on observations and input from several mobile home residents at the January 2001 public meeting, as well as examination of 2000 U.S. Census data.

In addition, attempts were made to conduct special information exchange meetings within the mobile home parks, using their community rooms; the park owners declined. Another attempt was made to conduct a special information exchange meeting at the nearby fire station, targeted at residents of the mobile home park that would be impacted by the build alternatives. When it was learned that using the fire station's community room is not permitted during evening hours (which are the most convenient time for working residents), this attempt was abandoned. Mobile home park residents have, however, participated extensively in the general open houses and hearings, and have had constant communication with project staff. During the ongoing SR 509 public outreach efforts, the Port of Seattle and Federal Aviation Authority (FAA) have also been conducting public meetings concerning the relocations related to the Part 150 Noise Remedy Program, which included targeted meetings with the mobile home residents, all of whom would be affected by the Part 150 plan.

During the open houses, project staff talked informally with participants. The general consensus of mobile home park residents, like that of most residents who have expressed an opinion, is favorable to the project. The findings that emerged from the public meetings were corroborated by a *Seattle Post-Intelligencer* article in March 1999 (see Appendix B in CH2M HILL September 2001), which was based on an interview with mobile home park residents who would be substantially displaced. It is important to note that since the publication of this newspaper article, these mobile homes will not likely be displaced as a result of this project. Instead, these residents would be relocated by the Port of Seattle and FAA as a part of the current Part 150 Noise Remedy Program for Sea-Tac Airport.

Impact Determination and Conclusion

As discussed in the *Methodology and Approach* section above, a three-tiered approach was used to support a determination:

- Determination that there are minority and low-income populations within the project area, based on 2000 U.S. Census data, local agency and school district data, and supported by public outreach efforts and communication with property owners and managers.

- Identification of impacts, and the level of those impacts, that could affect those minority or low-income populations, as determined through the discipline reports.

- Determination of whether the project will have disproportionate high and adverse impacts on minority or low-income populations, based on the severity of the impacts and the ability to mitigate those impacts, along with a determination of whether or not minority or low-income populations were disproportionately impacted.

As reported in the series of discipline reports prepared for the FEIS, the project has the potential for disproportionate impacts on low income and minority populations; however, based on the results of the analysis in this section, no disproportionate impacts are expected. With the proposed mitigation, it is believed that the impacts have been adequately mitigated, and are therefore not high and adverse. The expected impacts related to the communities of concern, as well as proposed mitigation, are identified in Table F-2.

Based on appropriate and adequate mitigation resulting in no disproportionately high and adverse impacts, the analysis concludes that the SR 509: Corridor Completion/I-5/South Access Road Project can therefore be considered to be consistent with the policy established in EO 12898 and FHWA Order 6640.23.

Table F-2 Summary of Noise, Relocation, and Social Impacts				
Environmental Element	**Alternative A (No Action)**	**Alternative B**	**Alternative C2 (Preferred)**	**Alternative C3**
3.2 Noise	**Operation (Long-Term) Impacts** Based on the detailed method of noise analysis, peak-hour traffic noise levels would increase by 1 dBA at noise sensitive locations along I-5. Noise levels would exceed noise abatement criteria at a few residential locations along I-5. **Mitigation Measures** None proposed. **Construction (Short-Term) Impacts** No impacts. **Mitigation Measures** None proposed.	**Operation (Long-Term) Impacts** Noise levels at residences in the Madrona and Pacific Ridge neighborhoods could exceed in the FHWA noise abatement criteria. Noise levels along I-5 would increase slightly over 1 dBA relative to the No Action Alternative. **Mitigation Measures** Noise barriers would be provided at appropriate areas where residents would likely be impacted by traffic noise and where construction of the barriers is justified. Other possible mitigation measures could include building insulation, retaining existing trees and vegetation, thereby reducing noise annoyance psychologically by removing the noise source from view, and constructing land forms.	**Operation (Long-Term) Impacts** Same as Alternative B **Mitigation Measures** Same as Alternative B.	**Operation (Long-Term) Impacts** Same as Alternative B **Mitigation Measures** Same as Alternative B.
3.9 Relocation	**Operation (Long-Term) Impacts** None. **Mitigation Measures**	**Operation (Long-Term) Impacts** Madrona: 1 business, 6-8 single-family units,	**Operation (Long-Term) Impacts** Madrona: 1 business, 2 single-family units,	**Operation (Long-Term) Impacts** Madrona: 2 businesses, 0-2 single-family units,

Table F-2 Summary of Noise, Relocation, and Social Impacts				
Environmental Element	**Alternative A (No Action)**	**Alternative B**	**Alternative C2 (Preferred)**	**Alternative C3**
	None.	143 multifamily units, and 0 mobile homes. 5 Section 8 households Pacific Ridge: 0 businesses, 3 single-family units, 95 multifamily units, and 0 mobile homes. 15 Section 8 households **Mitigation Measures** Displacees would be eligible for relocation assistance to find suitable and comparable relocation sites under the Uniform Relocation Assistance and Real Property Acquisition Act of 1970, as amended. Most replacement housing is within walking distance of SR 99, which has good transit service. WSDOT will find replacement housing already within the Section 8 program for those displaced persons who receive assistance. If Section 8 housing is not available, WSDOT will compute the entitlement.	69 multifamily units, and 0 mobile homes. 5 Section 8 households Pacific Ridge: 0 businesses, 3 single-family units, 95 multifamily units, and 0 mobile homes. 15 Section 8 households **Mitigation Measures** Same as Alternative B.	0 multifamily units, and 0 mobile homes. 0 Section 8 households Pacific Ridge: 0 businesses, 3 single-family units, 95 multifamily units, and 0 mobile homes. 15 Section 8 households **Mitigation Measures** Same as Alternative B.

Table F-2 Summary of Noise, Relocation, and Social Impacts				
Environmental Element	**Alternative A (No Action)**	**Alternative B**	**Alternative C2 (Preferred)**	**Alternative C3**
3.10 Social	**Operation (Long-Term) Impacts** Community cohesion would be largely unaffected. **Mitigation Measures** None.	**Operation (Long-Term) Impacts** The substantial loss of affordable housing and displacement of minority households could affect Madrona's cultural balance. Because the roadway would travel through a corner of the neighborhood, barrier effects would be minimal. South 208th Street would be closed just west of SR 99. Madrona residents would benefit from increased accessibility to employment centers. Access to businesses and public transit on SR 99 would also be maintained. Pacific Ridge would retain its cohesiveness. No roads would be severed, and the circulation of internal traffic would be unimpeded. Connections to SR 99 and the neighborhoods would remain, and I-5 would be easily accessible. No barriers would be created because the project would be constructed on the edge of the neighborhood. The loss of multifamily units would represent a loss of affordable housing and would likely include the displacement of low-income households **Mitigation Measures** Construct new access	**Operation (Long-Term) Impacts** Alternative C2 would impact less of Madrona than Alternative B. A more moderate amount of affordable housing would be displaced, increasing the chance that households could be relocated nearby. The roadway would travel through the corner of the neighborhood, and barrier effects would be minimal. Madrona residents would benefit from reduced traffic near the neighborhood which would increase accessibility to local and regional employment centers. Access to businesses and public transit on SR 99 would also be maintained. Madrona would experience an enhancement of dual access to SR 99, including access by traveling either north to South 204th Street or south via South 211th Street (Mansion Hill Same cohesion impacts to Pacific Ridge. **Mitigation Measures** Same community cohesion mitigation as Alternative B, except for the loss of connectivity at South 208th Street. WSDOT would construct new access connections between South	**Operation (Long-Term) Impacts** Alternative C3 would nick a small corner of Madrona, resulting in a small number of displacements. There would be minimal effects on community cohesion. No barriers would be created through the neighborhood, and all internal circulation patterns would be unaffected. Access to nearby public facilities and services would remain the same. The neighborhood would benefit from reduced congestion along SR 99. Same cohesion impacts to Pacific Ridge. **Mitigation Measures** Same community cohesion mitigation as Alternative B. Same recreational mitigation as Alternative C2. Same service and utility mitigation as Alternative B.

Table F-2 Summary of Noise, Relocation, and Social Impacts				
Environmental Element	**Alternative A (No Action)**	**Alternative B**	**Alternative C2 (Preferred)**	**Alternative C3**
		connections between South 208th and the SR 99 corridor to preserve access to remaining apartment complexes in the Madrona neighborhood and single-family homes in the Homestead neighborhood. Investigate the feasibility and benefits of maintaining through access on key streets and installing pedestrian access across the roadway. Extend school bus routes to include children whose school access would be disrupted. Sidewalk construction related to access improvements would improve pedestrian access to Madrona Elementary School. Access plans would be developed for emergency services in areas where street access would be changed.	208th and South 204th, and South 211th Streets to preserve access to remaining apartment complexes in the Madrona neighborhood. Portions of the existing WSDOT right-of-way would be traded to local jurisdictions in exchange for acquired parkland. An extension of Des Moines Creek Park Trail would be incorporated into alignment design. Same service and utility mitigation as Alternative B.	

Bibliography and References

CEQ (Council on Environmental Quality). *Environmental Justice; Guidance Under the National Environmental Policy Act*. Executive Office of the President, Washington, D.C. December 10, 1997 [released July 1998].

CH2M HILL. *SR 509/South Access Road EIS Discipline Report: Environmental Justice.* Prepared for Washington State Department of Transportation, Seattle, WA. September 2001.

CH2M HILL. *Technical Memorandum: SR 509/South Access Road Alternative C2 Minimized*. Prepared for Washington State Department of Transportation, Seattle, WA. September 2001.

Clinton, William J., President of the United States. *Executive Order 12898. Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. Federal Register, Vol. 59, No. 32, Wednesday, February 16, 1994, 7629-7633. Washington D.C. February 11, 1994.

U.S. Department of Transportation. *Order 5610.2, DOT Order to Address Environmental Justice in Minority Populations and Low-Income Populations*. Federal Register, Vol. 62, No. 72, Tuesday, April 15, 1997, 18377-18381. Washington, D.C. April 15, 1997.

U.S. Department of Transportation, Federal Highway Administration. *Order 6640.23, FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. Federal Register, December 2, 1998.

U.S. Department of Transportation, Federal Highway Administration. *Draft Title VI Guidance for EPA Assistance Recipients Administering Environmental Permitting Programs (Draft Recipient Guidance) and Draft Revised Guidance for Investigating Title VI Administrative Complaints Challenging Permits (Draft Revised Investigation Guidance)*. Federal Register Volume 65, Number 124, pages 39649-39701. Washington, D.C. June 27, 2000.

Appendix G
Section 106 Coordination and Consultation with Affected Tribes

APPENDIX G

Section 106 Coordination and Consultation with Tribes

An extensive tribal involvement program has been in progress for a decade as part of the Washington State Department of Transportation's (WSDOT's) compliance with federal regulations regarding public, agency, and government-to-government contact. Tribal involvement has occurred in two forms:

1. Through the public involvement process, in which the tribes were invited to participate in the Draft EIS scoping and development process starting in 1992

2. Through Section 106 tribal consultation efforts

The information presented here focuses on the Section 106 tribal consultation efforts.

Revised Section 106 Tribal Consultation Regulations

Section 106 requires federal agencies to account for the effects of their undertakings on historic properties, and to afford the Advisory Council on Historic Preservation an opportunity to comment. The Federal Highway Administration (FHWA) and WSDOT seek to ensure that each tribe has the opportunity to identify and address any concerns regarding identification and evaluation of cultural resources and potential effects of the undertaking upon such resources.

In 1999, a Section 106 consultation was initiated pursuant to 36 CFR 800.2(a)(4). These requirements were modified in 2000 to incorporate Presidential Executive Order 13175 regarding "Consultation and Coordination with Indian Tribal Governments." These modifications established a process and timeline in an effort to ". . . strengthen the United States government-to-government relationships with Indian Tribes, and to reduce the imposition of unfounded mandates upon Indian Tribes."

Historic and Archaeological Resources

The completed Historic and Archaeological Report was submitted to the State Historic Preservation Officer (SHPO) for concurrence. The SHPO sent a concurrence letter on October 2, 2002, stating that no known state

or National Register of Historic Places (NRHP) listed or NRHP-eligible resources are located in the Areas of Potential Effect (APE). (Attachment G1).

Cultural Resources

Contacted Tribes

WSDOT contacted the following tribes throughout the environmental process:

- Muckleshoot Tribe
- Duwamish Tribe
- Lummi Nation
- Puyallup Tribe
- Suquamish Tribe
- Yakama Nation

WSDOT identified these tribes by reviewing the Usual and Accustomed Area maps (originally dated May 1987, as updated) available through the Governor's Office of Indian Affairs.

Section 106 Contact Procedures

WSDOT initiated consultations in 1999 with the tribes regarding the *SR 509/South Access Road EIS Discipline Report: Archaeological and Historical Preservation* (CH2M HILL February 1999). FWHA initiated formal consultation with the tribes in March 2000, implementing the Presidential Executive Order.

Consultation Request

The cultural resources survey was initiated to identify and evaluate the impacts of the proposed alternatives on tribal resources within the APE. FHWA initiated Section 106 in March 2000 with a contact letter requesting tribal consultation and delegating responsibility to WSDOT to coordinate the report of findings with the SHPO for concurrence pursuant to 36 CFR 800.4(d)(1).

Comments

The tribes were provided 30 days to comment beginning from the date of the letter. Following transmittal of the request letter and approximately 15 days prior to the end of the comment period, the tribes were contacted by telephone to seek additional information. Comments were received from the Duwamish, Muckleshoot, and Suquamish Tribes, and the Yakama Nation. Concerns were expressed regarding cultural resources.

In November 2000, the SR 509 Test Drilling Cultural Resources Monitoring Survey was completed. Copies of the report and letter

requesting comments were sent to the tribes in February 2001. No comments were received within the 30-day comment period or subsequently.

SHPO Concurrence

A completed cultural resources monitoring report was sent to the SHPO seeking concurrence on February 7, 2001, and copies were sent to the tribes for their information. Concurrence was received from SHPO on October 12, 2001, with the report findings that no historic properties would be affected by the proposed project.

Attachment G2 contains copies of this correspondence. As part of the WSDOT public involvement process, the tribes continue to be notified of project activities.

app g sect 106.doc

ATTACHMENT G1

Historic and Archaeological Resources Concurrence

RECEIVED
DEC 10 2002
ENVIRONMENTAL

Washington State Department of Transportation
Douglas B. MacDonald
Secretary of Transportation

Transportation Building
310 Maple Park Avenue S.E.
P.O. Box 47300
Olympia, WA 98504-7300

360-705-7000
TTY: 1-800-833-6388
www.wsdot.wa.gov

10 September 2002

Allyson Brooks, Ph.D.
State Historic Preservation Officer
Office of Archaeology and Historic Preservation
P.O. Box 48343
Olympia, WA 98504-8343

Re: SR 509/South Access Road EIS Project, King County

Dear Dr. Brooks:

Enclosed please find a copy of CH2M Hill's discipline report (dated January 2000) summarizing a cultural resources study for the project area. Consultation for the project was initiated with your office in 1997 (see the project summary, page 1). Since that time, project design has changed, resulting in an Area of Potential Effect that has in turn evolved.

As you will note in the report and attached Historic Property Inventory forms, eleven historic-period residences and the site of a residence (razed since the initial 1997 inventory) were observed within the project's APE. (Note the attached HPI forms with color photos are dated July 2002 and supercede HPI forms for the same properties recorded in 1997 and included in the report). None of the buildings nor the building site appears eligible for inclusion in the National Register of Historic Places. No other cultural resources have been identified in the project area. Thus we have determined that no historic properties will be affected by the proposed project.

Areas of high archaeological probability identified in the cultural resources study (p. 38) include the shoreline vicinities of Angle and Bow Lakes and the headwaters of Des Moines Creek in what is now the Tyee Valley Golf Course. Construction in those areas, as well as in representative samples of moderate and low probability areas, will be monitored for cultural resources. Contrary to what is stated on pages 51 and 52, final disposition of any cultural resources or human remains discovered during construction will be determined by your office, per RCW 27.53.060.

I look forward to your concurrence with our determinations. If you have questions, or should you have concerns regarding the project, please contact me at 360-570-6639, email at holstinec@wsdot.wa.gov, or Steve Shipe at 206-440-4531. Thank you for your attention to this matter.

Sincerely,

C. Holstine

Craig Holstine
Cultural Resources Specialist
Enc.
Cc: Steve Shipe, WSDOT Northwest Region

STATE OF WASHINGTON
OFFICE OF COMMUNITY DEVELOPMENT
Office of Archaeology and Historic Preservation
1063 S. Capitol Way, Suite 106 - Olympia, Washington 98501
(Mailing Address) PO Box 48343 - Olympia, Washington 98504-8343
(360) 586-3065 Fax Number (360) 586-3067

October 02, 2002

Mr. Craig Holstine
Cultural Resources Specialist
Department of Transportation
310 Maple Park Ave. SE
Olympia, WA 98504-7300

In future correspondence please refer to:
Log: 100202-52-DOT
Property: SR 509 SOUTH ACCESS RD EIS PROJECT
Re: Determination of Eligibility for the National Register of Historic Places

Dear Mr. Holstine:

Thank you for contacting the Washington State Office of Archaeology and Historic Preservation (OAHP). The above referenced project has been reviewed on behalf of the State Historic Preservation Officer under provisions of Section 106 of National Historic Preservation Act of 1966 (as amended) and 36 CFR Part 800. My review is based upon documentation contained in your communication.

Research indicates that no resources within the above referenced project are currently listed in the Washington Heritage Register or National Register of Historic Places. I concur with your findings that none of the surveyed properties are ELIGIBLE for the National Register of Historic Places due to their low level of integrity. As a result of this finding, further contact with OAHP is not necessary. However, if additional information on the property becomes available, or if any archaeological resources are uncovered during construction, please halt work in the area of discovery and contact the appropriate Native American Tribes and OAHP for further consultation.

Thank you for the opportunity to review and comment. Should you have any questions, please feel free to contact me.

Sincerely,

Michael Houser
Architectural Historian
(360) 586-3076
MichaelH@cted.wa.gov

ATTACHMENT G2

Cultural Resources Concurrence

Washington State Department of Transportation
Sid Morrison
Secretary of Transportation

Transportation Building
P.O. Box 47300
Olympia, WA 98504-7300

24 January 2001

Allyson Brooks, Ph.D.
State Historic Preservation Officer
Office of Archaeology and Historic Preservation
P.O. Box 48343
Olympia, WA 98504-8343

Re: SR 509 Extension and South Access Road Project, King County

Dear Dr. Brooks:

Enclosed please find a copy of the cultural resources report (AHS EWU Letter Report DOT00-37, by Charles T. Luttrell, dated 13 November 2000) recommending monitoring for cultural resources at four geotechnical test hole locations in the project area. As you will note in the report, no known historic properties will be affected by the proposed drilling. No traditional cultural properties have been identified, nor have other cultural resources been recorded with the Washington State Office of Archaeology and Historic Preservation. FHWA initiated formal consultation with the Yakima Nation, Suquamish Tribe, Puyallup Tribe, Lummi Nation, Duwamish Tribe, and the Muckleshoot Tribe on 9 March 2000; to date, the Muckleshoot Tribe has expressed concern (see attached).

I look forward to receiving your comments on our determination of no historic properties affected. Please call me at 360-570-6639, or FAX me at 360-570-6633, if you have questions or concerns. Thanks very much.

Sincerely,

Craig Holstine
Cultural Resources Specialist

Enc.

Cc: Kevin Stuber

STATE OF WASHINGTON

OFFICE OF COMMUNITY DEVELOPMENT

Office of Archaeology and Historic Preservation

420 Golf Club Road SE, Suite 201, Lacey • PO Box 48343 • Olympia, Washington 98504-8343 • (360) 407-0752
Fax Number (360) 407-6217

January 30, 2001

RECEIVED

JAN 3 1 2001

ENVIRONMENTAL AFFAIRS - POINT PLAZA

Mr. Craig Holstine
Department of Transportation
Transportation Building
PO Box 47300
Olympia, Washington 98504-7300

Re: SR 509 Extension and South Access Road
Log No: 012601-19-FHWA

Dear Mr.Holstine;

Thank you for providing a copy of the cultural resources survey of the proposed SR 509 extension and access road by AHS of Eastern Washington University. We concur with their recommendations and your findings that no historic properties will be effected by the proposed project.

These comments are based on the information available at the time of this review and on the behalf of the State Historic Preservation Officer. Should additional information become available, our assessment may be revised. In the event that archaeological or historic materials are discovered during project activities, work in the immediate vicinity should be discontinued, the area secured, and this office notified.

Thank you for the opportunity to comment and a copy of these comments should be included in subsequent environmental documents.

Sincerely,

Robert G. Whitlam, Ph.D.
State Archaeologist
(360) 407-0771
email: robw@cted.wa.gov

Washington State Department of Transportation
Sid Morrison
Secretary of Transportation

Transportation Building
P.O. Box 47300
Olympia, WA 98504-7300

7 February 2001

Allyson Brooks, Ph.D.
State Historic Preservation Officer
Office of Archaeology and Historic Preservation
P.O. Box 48343
Olympia, WA 98504-8343

Re: Cultural Resources Monitoring, SR 509 Extension and South Access Road Project, King County
Log No: 012601-19-FHWA

Dear Dr. Brooks:

Enclosed please find a copy of the cultural resources report (AHS EWU Short Report DOT01-01, by Charles T. Luttrell, dated 29 January 2001) summarizing the results of monitoring drilling and excavation for cultural resources at 16 geotechnical test holes and pits in the project area. On 30 January 2001, Rob Whitlam of your office concurred with the findings and recommendations of the preceding report (DOT00-37) that identified locations warranting the monitoring that is the subject of this report.

As you will note in the enclosed report, no known historic properties have been affected by the test drilling and excavating. No traditional cultural properties have been identified, nor have other cultural resources been recorded with the Washington State Office of Archaeology and Historic Preservation. FHWA initiated formal consultation with the Yakima Nation, Suquamish Tribe, Puyallup Tribe, Lummi Nation, Duwamish Tribe, and the Muckleshoot Tribe on 9 March 2000; to date, the Muckleshoot Tribe has expressed concern (see attached).

I look forward to receiving your comments on our determination of no historic properties affected. Please call me at 360-570-6639, or FAX me at 360-570-6633, if you have questions or concerns. Thanks very much.

Sincerely,

Craig Holstine
Cultural Resources Specialist
Enc.
Cc: Kevin Stuber

STATE OF WASHINGTON
OFFICE OF COMMUNITY DEVELOPMENT
Office of Archaeology and Historic Preservation
420 Golf Club Road SE, Suite 201, Lacey • PO Box 48343 • Olympia, Washington 98504-8343 • (360) 407-0752
Fax Number (360) 407-6217

RECEIVED
FEB 1 4 2001
ENVIRONMENTAL AFFAIRS - POINT PLAZA

February 12, 2001

Mr. Craig Holstine
Department of Transportation
Transportation Building
PO Box 47300
Olympia, Washington 98504-7300

Re: Cultural Resource Monitoring: SR 509
Log No: 020901-12-FHWA

Dear Mr.Holstine:

Thank you for providing a copy of the cultural resources monitoring report by AHS of Eastern Washington University. We concur with their recommendations and your findings that no historic properties will be effected by the proposed project.

These comments are based on the information available at the time of this review and on the behalf of the State Historic Preservation Officer. Should additional information become available, our assessment may be revised. In the event that archaeological or historic materials are discovered during project activities, work in the immediate vicinity should be discontinued, the area secured, and this office notified.

Thank you for the opportunity to comment and a copy of these comments should be included in subsequent environmental documents.

Sincerely,

Robert G. Whitlam, Ph.D.
State Archaeologist
(360) 407-0771
email: robw@cted.wa.gov

Appendix H
Air Quality Conformity Determination

APPENDIX H

Air Quality Conformity Determination

Subsequent to issuance of the Revised DEIS, the proposed SR 509: Corridor Completion/I-5/South Access Road Project preferred alternative was analyzed to determine localized (hot-spot) and regional conformity to the Puget Sound Region's air quality maintenance plans pursuant to the requirements of 40 CFR Part 93 and WAC 173-420. The conformity analysis was completed using the latest regional planning assumptions, including emission factors and an analysis year consistent with those used in PSRC's Metropolitan Transportation Plan (MTP) adopted in 2001 (*Destination 2030*) and its subsequent revisions. FHWA policy is that project conformity must be demonstrated prior to issuance of the record of decision for a project for which FHWA is lead agency.

Project-Level Conformity Analysis

Project-level conformity is required for projects in CO maintenance areas. Conformity is demonstrated by showing that a proposed project would not cause or contribute to any exceedance of the NAAQS for the duration of the planning horizon. To demonstrate localized conformity for the proposed SR 509: Corridor Completion/I-5/South Access Road Project preferred alternative, the 10 ramp terminal intersections that would either be newly constructed or have their channelization modified as part of the SR 509 project were modeled using Cal3QHC and the latest Mobile5b model outputs obtained from PSRC. Projected traffic volumes, intersection operations data, and emission factors for 2030 were used. The year after project opening when transportation pollutant emissions most likely would exceed the region's emission budgets based on PSRC modeling trends is 2030. Regional CO emissions were incorporated by including a background CO concentration of 3 ppm averaged over 1 hour. Mainline emissions from SR 509, the South Access Road, and I-5 were also included in the model.

The preferred alternative was modeled to result in maximum 1-hour average CO concentrations ranging between 5.0 and 10.2 ppm and maximum 8-hour average concentrations ranging between 3.5 and 7.1 ppm in 2030 (Table 1). The modeled concentrations were less than the 1-hour and 8-hour NAAQS of 35 and 9 ppm, respectively, at all locations. Based on these results, the proposed project is not expected to cause any new or contribute to any existing localized violations of the NAAQS for CO.

Table 1 Maximum Modeled CO Concentrations for the Preferred Alternative in 2030		
Location	**Maximum 1-hour Average Concentration (ppm)**	**Maximum 8-hour Average Concentration (ppm)**
SR 509 and South 188th Street/12th Place new Single Point Urban Intersection	6.3	4.4
SR 509 and South 200th Street	6.2	4.3
South Access Road Southbound and South 200th Street	5.4	3.8
South Access Road Northbound and South 200th Street	5.0	3.5
South Access Road /SR 509 Southbound and 28th Ave South	10.2	7.1
South Access Road /SR 509 Northbound and 28th Ave South	8.7	6.1
I-5 Southbound Frontage Road and South 228th Street	8.8	6.2
I-5 Northbound Frontage Road and South 228th Street	7.4	5.2
I-5 Southbound Frontage Road and SR 516	8.2	5.7
I-5 Northbound Frontage Road and SR 516	9.3	6.5

Note: The 1-hour NAAQS for CO is 35 ppm and the 8-hour NAAQS is 9 ppm.

Regional Conformity Analysis

On June 27, 2002, the PSRC Executive Board approved refinement of the MTP to reflect the design of the preferred alternative for the proposed project. The revised modeling runs show regional emissions below the emission budgets for all pollutants in 2020 and 2030 for the MTP, including the preferred alternative. PSRC's modeling demonstrates that air quality in the Puget Sound region, including implementation of the preferred alternative, would conform at the regional level to the regional air quality maintenance plans. The preferred alternative would not cause any new or contribute to any existing regional exceedances of the NAAQS.

Conformity Determination

FHWA and WSDOT projects must comply with project-level conformity criteria of the EPA Conformity Rule, and with WAC Chapter 173-420. The project must be included in a conforming plan (the MTP and the TIP) by the regional metropolitan planning organization (MPO). The proposed project is included as project WDOUM-6 in the Regional TIP and MTP as revised on

June 27, 2002. Per 40 CFR Part 93, the following criteria must be met when determining project conformity.

- The conformity determination must be based on the latest planning assumptions. The project-level hot-spot conformity analysis was completed using the Puget Sound Region MOBILE5b emission files used by PSRC for the *Destination 2030* MTP and TIP conformity determination. The SR 509: Corridor Completion/I-5/South Access Road Project is included in PSRC's current MTP and Regional TIP.
- The conformity determination must be based on the latest emissions estimation model available. Emissions to determine conformity to the MTP and TIP for the proposed SR 509: Corridor Completion/I-5/South Access Road Project were calculated using MOBILE5b, the emission model used to model conformity to the current Puget Sound Air Quality Maintenance Plans.
- The MPO must make the conformity determination according to the consultation procedures of this rule and the implementation plan revision required by Section 51.396. PSRC's MTP and TIP have been determined to conform to the SIP and have been accepted by EPA for the proposed project. The refinement of the MTP and TIP adopted on March 22, 2002, includes the full configuration of the preferred alternative.
- There must be a current conforming plan and a current conforming TIP at the time of project approval. The proposed project is included in PSRC's current MTP and Regional TIP.
- The project must come from a conforming transportation plan and program. The proposed SR 509: Corridor Completion/I-5/South Access Road Project is included in PSRC's MTP and TIP.
- The FHWA project must not cause or contribute to any new localized CO or PM_{10} violation in CO and PM_{10} nonattainment or maintenance areas. The proposed SR 509: Corridor Completion/I-5/South Access Road Project is located in a CO maintenance area. The proposed project would not create any new regional violations or contribute to the frequency or severity of any existing violations of the NAAQS for CO. The project area is not within a PM_{10} nonattainment or maintenance area.
- The FHWA project must comply with PM_{10} control measures in the applicable implementation plan. The project area is not within a nonattainment or maintenance area for PM_{10}.

The proposed project is included in PSRC's current MTP and Regional TIP. The project meets all requirements of 40 CFR Part 93 and WAC 173-420, and conforms to the Puget Sound Air Quality Maintenance Plans.

app h air qual conformity determination.doc

Appendix I
Noise Technical Memorandum for SR 509:Corridor Completion/I-5/South Access Road

Draft Noise Technical Memorandum for SR 509: Corridor Completion/I-5/South Access Road

PREPARED FOR: John White
Kynan Patterson
Washington State Department of Transportation

PREPARED BY: Farshad Farhang

COPIES: Sharon Feldman
Bob Swope

DATE: January 6, 2003

Introduction

This technical memorandum provides a detailed account of the methods and procedure, data, and results of the traffic noise study conducted for the SR 509: Corridor Completion/I-5/South Access Road Project. This study was conducted to further evaluate potential noise barrier locations for the preferred alternative (Alternative C2). Figure 1 shows the location of the project.

Methodology

This noise analysis has been conducted in accordance with the requirements of Washington State Department of Transportation (WSDOT) Traffic Noise Analysis and Abatement Policies and Procedures. The analysis takes into account roadway design data, topography information, and existing berms and barriers throughout the project area. A combination of onsite noise level measurements and noise modeling utilizing Federal Highway Administration (FHWA) Traffic Noise Model (TNM) Version 2.0 was used to establish peak-hour traffic noise levels along Interstate 5 (I-5) and ambient noise levels along the proposed SR 509 corridor, and to predict future peak-hour noise levels throughout the project corridor.

The noise impacts of the Preferred Alternative were evaluated by measuring noise levels and concurrent traffic counts in the project area to validate the FHWA TNM. The validated noise model was then used to predict peak-hour traffic noise levels without the project and future noise levels from the proposed project using forecast traffic data and the existing and proposed roadway geometry.

FHWA's TNM is a new analytical method for traffic noise evaluation that will formally replace the current FHWA Model (STAMINA 2.0) as the preferred method for highway traffic noise prediction. The TNM noise model is based on reference energy emission levels

for automobiles, medium-size trucks (two axles), heavy trucks (three or more axles), buses, and motorcycles, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. TNM was developed to predict noise levels for both constant-flow and interrupted-flow traffic conditions. The model enables the user to account for the effects of pavement type, graded roadways, and attenuation over and through rows of buildings and dense vegetation.

Traffic data, including existing and projected future (2020) volumes and truck percentages used in the TNM, were derived from traffic count data and traffic forecast studies conducted in the project area. The traffic data used in the noise analysis are shown in Attachment A.

The noise analysis further evaluates the noise-reducing effects of noise barriers at impacted neighborhoods, and recommends reasonable and feasible noise barriers for construction in accordance with 23 CFR 772 and WSDOT Traffic Noise Analysis and Abatement Policies and Procedures.

Existing Noise Environment

A noise-level measurement survey was conducted between July 11 and July 13, 2002. The survey consisted of short-term traffic noise level measurements at 13 representative residential locations along I-5 and continuous (24-hour) background noise level measurements at three residences near the proposed SR 509 alignment that are currently affected by noise from flight operations at Seattle-Tacoma International Airport (Sea-Tac Airport). These measurements were used to establish existing background noise levels and to obtain traffic noise levels and simultaneous traffic count data for validating the TNM input data for the noise analysis. The short-term traffic noise monitoring locations are depicted as Sites 1 through 13 and the continuous noise monitoring locations are shown as Sites A1 through A3 in Figures 2A through 2I. Following are descriptions of the noise monitoring locations.

Traffic Noise Monitoring Locations:

1. 2839 South 308th Lane
2. Church west of I-5
3. Mobile home #204 at the end of Sir Galahad Court (west of I-5)
4. Mobile home #67 at Sir Galahad Court (west of I-5)
5. 2923 South 285th Street
6. 28106 29th Avenue South
7. 3005 South 265th Street
8. End of South 259th Court cul-de-sac (west of I-5)
9. 25509 32nd Place South
10. 3025 South 252nd Street
11. 22856 30th Avenue South (Silverwood Apartments) between Building 3 and Building 4
12. Midway Neighborhood Park (at setback of nearest home to the north)
13. 21833 32nd Place South

Airport Noise Monitoring Locations:

A1. Residence at 2406 South 207th Street
A2. Residence at 1243 196th Place (east of Des Moines Creek Park)
A3. 1122 South 194th Street (rooftop of building)

The short-term traffic noise level measurements were conducted with a Bruel & Kjaer (B&K) Type 2236 precision integrating sound-level meter equipped with a B&K Type 4155 1/2-inch polarized condenser microphone. A B&K Type 4230 acoustical calibrator was used for the microphone to ensure accurate measurements. Three Larson Davis Laboratories (LDL) Model 824 sound level meters equipped with LDL Type 2560 1/2-inch microphones were used to measure continuous noise levels at locations near Sea-Tac Airport. An LDL Model CA200 acoustical calibrator was used for these sound-level meters. All of the equipment complies with the requirements of the American National Standards Institute (ANSI) and the International Electrotechnical Commission (IEC) for precision sound level measurement instrumentation.

Weather conditions during the survey consisted of mostly clear skies with temperatures near 70 to 80ºF. Winds varied between calm to 5 miles per hour, with prevailing winds from the north-northwest except for the afternoon of July 13, when prevailing winds were from the south.

Traffic Noise-Level Measurements and Noise Model Validation

TNM input files were developed using the existing I-5 roadway geometry, local terrain, vegetation, and the traffic count data obtained during this survey. Table 1 summarizes the results of comparisons between the measured traffic noise levels and noise levels predicted by TNM at monitoring locations 1 through 13 (see Figures 2A through 2F for locations). FHWA recommends that no adjustments be made to TNM traffic noise level predictions at a given location if predicted levels using the model are within 3 dBA of measured levels. From the data presented in Table 1, it is apparent that, with the exception of location 8, the differences between predicted and measured noise levels are within the allowable range of ±3 dBA. Therefore, TNM can be used without adjustment to accurately predict traffic noise levels at locations where the model overpredicts traffic noise levels. To safeguard against underestimating traffic noise levels at locations where TNM underpredicted noise levels (locations represented by Sites 2 and 4), the model was adjusted by +2 dBA. At location 8, the difference between the measured and predicted noise levels exceeds the 3 dBA threshold. At locations represented by location 8, it was determined that a –4 dBA adjustment factor should be applied to predict traffic noise exposure.

Table 1

Comparison of Measured and Predicted Traffic Noise Levels (dBA)

Monitoring Location	Measured	Predicted	Difference
1	65.7	68.4	2.7
2	66.9	64.9	-2.0
3	62.0	64.5	2.5
4	65.6	63.8	-1.8
5	68.9	71.8	2.9
6	66.0	67.9	1.9
7	68.4	67.7	-0.7
8	66.9	71.2	4.3
9	65.6	65.4	-0.2
10	71.9	71.9	-0-
11	64.5	66.3	1.8
12	67.3	67.2	-0.1
13	63.9	66.1	2.2

Peak-Hour Traffic Noise Levels

Existing peak-hour traffic data on I-5 (as shown in Attachment A) were used in the validated noise model to predict existing peak-hour traffic noise levels at noise-sensitive locations along I-5. A total of 135 receiver locations along I-5 were selected to evaluate existing peak-hour traffic noise levels, as shown in Figures 2A through 2G. Coincidentally, receiver locations 1 through 13 are in the same locations as the monitoring locations 1 through 13 discussed above. Table 2 summarizes the existing peak-hour traffic noise levels at the 135 receiver locations and identifies those locations where the noise abatement criterion (NAC) of 67 dBA was approached or exceeded.

Table 2

Existing Peak-hour Traffic Noise Levels (dBA)

Receiver Location	Noise Level	Exceeds NAC?	Receiver Location	Noise Level	Exceeds NAC?
1	70.6	YES	69	73.3	YES
2	67.5	YES	70	65.0	NO
3	65.7	NO	71	67.5	YES
4	63.3	NO	72	66.1	YES
5	70.9	YES	73	67.2	YES
6	68.1	YES	74	66.0	YES
7	68.6	YES	75	68.4	YES
8	74.1	YES	76	64.5	NO
9	66.9	YES	77	61.7	NO
10	74.6	YES	78	63.6	NO
11	67.9	YES	79	67.3	YES

Table 2

Existing Peak-hour Traffic Noise Levels (dBA)

Receiver Location	Noise Level	Exceeds NAC?	Receiver Location	Noise Level	Exceeds NAC?
12	68.1	YES	80	69.1	YES
13	66.5	YES	81	64.0	NO
14	71.7	YES	82	73.8	YES
15	73.2	YES	83	72.9	YES
16	75.6	YES	84	66.2	YES
17	57.4	NO	85	66.2	YES
18	72.0	YES	86	70.9	YES
19	64.3	NO	87	70.2	YES
20	69.0	YES	88	60.7	NO
21	69.0	YES	89	66.2	YES
22	76.5	YES	90	72.7	YES
23	66.6	YES	91	68.3	YES
24	71.7	YES	92	71.7	YES
25	60.0	NO	93	72.3	YES
26	61.0	NO	94	69.4	YES
27	---	---	95	63.8	NO
28	63.2	NO	96	68.2	YES
29	68.1	YES	97	73.3	YES
30	74.0	YES	98	72.1	YES
31	66.7	YES	99	60.8	NO
32	65.4	NO	100	64.5	NO
33	62.7	NO	101	67.9	YES
34	64.5	NO	102	67.9	YES
35	70.0	YES	103	65.5	NO
36	61.1	NO	104	62.1	YES
37	67.8	YES	105	70.2	YES
38	62.6	NO	106	65.3	NO
39	59.9	NO	107	65.5	NO
40	61.1	NO	108	67.0	YES
41	63.1	NO	109	61.1	NO
42	69.3	YES	110	64.4	NO
43	59.5	NO	111	61.0	NO
44	60.7	NO	112	67.8	YES
45	58.2	NO	113	65.2	NO
46	60.5	NO	114	60.2	NO
47	65.2	NO	115	58.1	NO
48	60.7	NO	116	63.7	NO
49	63.1	NO	117	65.4	NO
50	64.8	NO	118	66.1	YES
51	64.2	NO	119	67.4	YES

Table 2

Existing Peak-hour Traffic Noise Levels (dBA)

Receiver Location	Noise Level	Exceeds NAC?	Receiver Location	Noise Level	Exceeds NAC?
52	65.0	NO	120	65.1	NO
53	66.0	YES	121	72.3	YES
54	64.9	NO	122	60.5	NO
55	65.6	NO	123	67.0	YES
56	68.1	YES	124	66.4	YES
57	67.6	YES	125	59.6	NO
58	48.9	NO	126	63.7	NO
59	67.0	YES	127	59.9	NO
60	70.8	YES	128	70.0	YES
61	57.6	NO	129	55.0	NO
62	64.8	NO	130	64.5	NO
63	74.5	YES	131	69.4	YES
64	58.7	NO	132	54.2	NO
65	56.9	NO	133	69.2	YES
66	62.1	NO	134	65.8	NO
67	69.6	YES	135	72.4	YES
68	66.7	YES			

Existing Noise Exposure at Noise-Sensitive Areas near Sea-Tac Airport

To establish existing background noise levels at noise-sensitive locations along the Preferred Alternative alignment of SR 509, continuous ambient noise levels were measured at three representative locations (shown as A1 through A3 on Figures 2H and 2I). These measurements included hourly average (L_{eq}) noise levels at each location. Attachment B contains a detailed summary of the ambient noise level measurements.

Aircraft arrivals and departures at Sea-Tac Airport are the main sources of environmental noise at locations A1 through A3. Existing daytime (7 AM to 10 PM) hourly L_{eq} values measured at the proposed SR 509 / 24th Avenue South interchange ranged between 54 and 68 dBA. When southerly aircraft departures are in effect, this area experiences the highest noise levels at 67 to 68 dBA. When aircraft approach the airport from the south, hourly noise levels range from 54 to 57 dBA.

Existing daytime hourly L_{eq} values measured between 57 and 68 dBA at residential areas along South 196th Place and east of Des Moines Memorial Drive. When southerly aircraft departures are in effect, this area experiences the highest noise levels at 67 to 68 dBA. When aircraft approach the airport from the south, hourly noise levels range from 59 to 64 dBA.

Existing daytime hourly L_{eq} values measured between 59 and 63 dBA at exterior areas of multifamily residences along South 194th Street and west of Des Moines Memorial Drive. Increased airport activity between 9 PM and 10 PM result in higher noise levels of

68 dBA L_{eq}. When aircraft depart to the south, hourly noise levels increase to levels ranging from 65 to 67 dBA.

Predicted Future Traffic Noise Levels

Detailed noise modeling utilizing FHWA's TNM was performed for both the No Action Alternative and the Preferred Alternative under 2020 traffic conditions.

Existing topographic data, I-5 as-built plans provided by WSDOT, and forecast future (2020) traffic data were used to predict traffic noise levels under the No Action Alternative. Proposed roadway plans for both I-5 and SR 509, data pertaining to changes in topography (cuts and fills), and forecast future (2020) traffic data with the project were used to predict traffic noise levels under the Preferred Alternative.

Future (2020) noise levels were predicted at a total of 148 noise receiver locations. Figures 2A through 2I depict the noise receiver locations. Sites 1 through 135 are at the same locations along I-5 for which existing noise levels were evaluated. Sites 136 through 148 represent the residential areas near the proposed SR 509 alignment and areas in Des Moines Creek Park closest to the proposed highway. Table 3 summarizes the predicted future traffic noise levels for both the No Action Alternative and the Preferred Alternative and compares them to the existing peak-hour traffic noise levels.

Table 3

Comparison of Future (2020) Peak-hour Traffic Noise Levels to Existing Peak-hour Traffic Noise Levels (dBA)

Receiver Location	Existing Noise Level	2020 No Action		2020 Preferred Alternative	
		Noise Level	Change	Noise Level	Change
1	70.6	71.7	1.1	72.7	2.1
2	67.5	68.6	1.1	68.7	1.2
3	65.7	66.8	1.1	67.3	1.6
4	63.3	64.4	1.1	74.8	1.5
5	70.9	72.0	1.1	73.9	3.0
6	68.1	69.2	1.1	69.7	1.6
7	68.6	69.5	0.9	70.2	1.6
8	74.1	75.0	0.9	76.9	2.8
9	66.9	67.8	0.9	68.8	1.9
10	74.6	75.5	0.9	76.7	2.1
11	67.9	68.7	0.8	--- [a]	--- [a]
12	68.1	68.9	0.8	63.0	-5.1
13	66.5	67.3	0.8	--- [a]	--- [a]
14	71.7	72.8	1.1	72.8	1.1
15	73.2	74.4	1.2	74.4	1.2
16	75.6	76.7	1.1	76.9	1.3
17	57.4	58.6	1.2	58.9	1.5
18	72.0	73.1	1.1	73.2	1.2

Table 3

Comparison of Future (2020) Peak-hour Traffic Noise Levels to Existing Peak-hour Traffic Noise Levels (dBA)

Receiver Location	Existing Noise Level	2020 No Action		2020 Preferred Alternative	
		Noise Level	Change	Noise Level	Change
19	64.3	65.4	1.1	65.6	1.3
20	69.0	70.1	1.1	70.2	1.2
21	69.0	70.1	1.1	69.9	0.9
22	76.5	77.6	1.1	77.6	1.1
23	66.6	67.7	1.1	67.9	1.3
24	71.7	72.8	1.1	72.6	0.9
25	60.0	61.1	1.1	61.6	1.6
26	61.0	62.1	1.1	62.0	1.0
28	63.2	64.3	1.1	64.1	0.9
29	68.1	69.2	1.1	69.8	1.7
30	74.0	75.1	1.1	76.7	2.7
31	66.7	67.8	1.1	70.8	4.1
32	65.4	66.5	1.1	69.3	3.9
33	62.7	63.8	1.1	63.5	0.8
34	64.5	65.6	1.1	65.2	0.7
35	70.0	71.1	1.1	70.3	0.3
36	61.1	62.2	1.1	62.0	0.9
37	67.8	68.9	1.1	68.7	0.9
38	62.6	63.7	1.1	63.4	0.8
39	59.9	61.0	1.1	60.7	0.8
40	61.1	62.2	1.1	63.6	2.5
41	63.1	64.2	1.1	63.9	0.8
42	69.3	70.4	1.1	72.5	1.1
43	59.5	60.6	1.1	60.3	1.1
44	60.7	61.8	1.1	61.5	0.8
45	58.2	59.3	1.1	59.1	0.9
46	60.5	61.6	1.1	61.5	1.0
47	65.2	66.3	1.1	67.1	1.9
48	60.7	61.8	1.1	61.7	1.0
49	63.1	64.2	1.1	64.2	1.1
50	64.8	65.9	1.1	65.7	0.9
51	64.2	65.3	1.1	65.1	0.9
52	65.0	66.1	1.1	65.8	0.8
53	66.0	67.0	1.0	66.8	0.8
54	64.9	66.0	1.1	65.8	0.9
55	65.6	66.6	1.0	66.4	0.8
56	68.1	69.2	1.1	68.9	0.8

Table 3

Comparison of Future (2020) Peak-hour Traffic Noise Levels to Existing Peak-hour Traffic Noise Levels (dBA)

Receiver Location	Existing Noise Level	2020 No Action		2020 Preferred Alternative	
		Noise Level	Change	Noise Level	Change
57	67.6	68.7	1.1	65.2	-2.4
58	65.4	66.5	1.1	65.3	-0.1
59	67.0	68.1	1.1	67.1	0.1
60	70.8	71.9	1.1	71.8	1.0
61	57.6	58.7	1.1	59.5	1.9
62	64.8	65.8	1.0	67.8	3.0
63	74.5	75.6	1.1	75.3	0.8
64	58.7	59.8	1.1	61.3	2.6
65	56.9	58.0	1.1	59.2	2.3
66	62.1	63.1	1.0	63.9	1.8
67	65.2	66.4	1.2	66.8	1.6
68	66.7	67.8	1.1	65.8	-0.9
69	73.3	74.2	0.9	73.6	0.3
70	65.0	65.8	0.8	66.2	1.2
71	67.5	68.3	0.8	69.1	1.6
72	66.1	67.0	0.9	67.6	1.5
73	67.2	68.1	0.9	68.8	1.6
74	66.0	66.9	0.9	67.5	1.5
75	68.4	69.3	0.9	69.7	1.3
76	64.5	65.4	0.9	66.2	1.7
77	61.7	62.6	0.9	63.5	1.8
78	63.6	64.4	0.8	65.2	1.6
79	67.3	68.2	0.9	69.0	1.7
80	69.1	69.9	0.8	71.0	1.9
81	64.0	64.9	0.9	65.8	1.8
82	73.8	74.7	0.9	75.5	1.7
83	72.9	73.8	0.9	74.3	1.4
84	66.2	67.1	0.9	68.2	2.0
85	66.2	67.1	0.9	68.8	2.6
86	70.9	71.7	0.8	74.0	3.1
87	70.2	71.0	0.8	74.6	4.4
88	60.7	61.4	0.7	62.6	1.9
89	66.2	66.9	0.7	65.4	-0.8
90	72.7	73.5	0.8	74.5	1.8
91	68.3	69.1	0.8	72.3	4.0
92	71.7	72.5	0.8	74.7	3.0
93	72.3	73.1	0.8	74.9	2.6

Table 3

Comparison of Future (2020) Peak-hour Traffic Noise Levels to Existing Peak-hour Traffic Noise Levels (dBA)

Receiver Location	Existing Noise Level	2020 No Action		2020 Preferred Alternative	
		Noise Level	Change	Noise Level	Change
94	69.4	70.2	0.8	74.9	5.5
95	63.8	64.6	0.8	68.0	4.2
96	68.2	69.0	0.8	69.5	1.3
97	73.3	74.1	0.8	73.7	0.4
98	72.1	72.8	0.7	76.0	3.9
99	60.8	61.4	0.6	63.1	2.3
100	64.5	65.2	0.7	65.0	0.5
101	67.9	68.6	0.7	73.1	5.2
102	67.9	68.6	0.7	59.4	-8.5
103	65.5	66.3	0.8	67.1	1.6
104	62.1	62.9	0.8	62.8	0.7
105	70.2	71.0	0.8	73.0	2.8
106	65.3	66.2	0.9	64.6	-0.7
107	65.5	66.3	0.8	68.3	2.8
108	67.0	67.8	0.8	73.6	6.6
109	61.1	61.9	0.8	67.4	6.3
110	64.4	65.2	0.8	72.2	7.8
111	61.0	61.8	0.8	66.2	5.2
112	67.8	68.6	0.8	79.4	11.6
113	65.2	66.0	0.8	76.7	11.5
114	60.2	61.0	0.8	65.8	5.6
115	58.1	58.9	0.8	63.5	5.4
116	63.7	64.5	0.8	--- [a]	--- [a]
117	65.4	66.2	0.8	68.4	3.0
118	66.1	66.8	0.7	77.2	11.1
119	67.4	68.2	0.8	67.8	0.4
120	65.1	65.8	0.7	75.2	10.1
121	72.3	73.0	0.7	72.5	0.2
122	60.5	61.3	0.8	73.0	12.5
123	67.0	67.8	0.8	68.0	1.0
124	66.4	67.2	0.8	68.9	2.5
125	59.6	60.3	0.7	73.0	13.4
126	63.7	64.5	0.8	66.5	2.8
127	59.9	60.7	0.8	65.3	5.4
128	70.0	70.8	0.8	70.3	0.3
129	55.0	55.8	0.8	70.5	14.5
130	64.5	65.3	0.8	67.3	2.8

Table 3

Comparison of Future (2020) Peak-hour Traffic Noise Levels to Existing Peak-hour Traffic Noise Levels (dBA)

Receiver Location	Existing Noise Level	2020 No Action		2020 Preferred Alternative	
		Noise Level	Change	Noise Level	Change
131	69.4	70.2	0.8	70.1	0.6
132	54.2	55.0	0.8	62.8	8.6
133	69.2	70.0	0.8	69.5	0.3
134	65.8	66.6	0.8	67.9	2.1
135	72.4	73.2	0.8	---	---
136	---	---	---	75.4	---
137	---	---	---	67.9	---
138	---	---	---	67.8	---
139	---	---	---	64.6	---
140	---	---	---	66.8	---
141	---	---	---	68.5	---
142	---	---	---	70.2	---
143	---	---	---	68.6	---
144	---	---	---	66.6	---
145	---	---	---	67.6	---
146	---	---	---	67.7	---
147	---	---	---	69.2	---
148	---	---	---	72.5	---

Note: Underlined numbers indicate locations where the NAC is approached or exceeded.
***Bold** numbers indicate locations where a substantial increase in noise level is anticipated.*

[a] *These receivers will no longer exist in 2020 due to right-of-way acquisition.*

Noise Abatement Analysis

Available roadway design and topographic data were used to evaluate the effectiveness of barriers as a noise abatement measure under the Preferred Alternative. Based on the results of this evaluation, 20 noise barrier locations were identified throughout the project corridor and these locations were evaluated for feasibility and reasonableness per the WSDOT criteria.

FHWA's TNM first determined the exact locations and heights of noise barriers that would meet WSDOT's feasibility criteria. A noise barrier is considered feasible if it reduces noise by 7 dBA at a minimum of one first-row location, and reduces noise levels by 5 dBA or more at 60 percent or more of first-row homes. Second-row receivers are counted as benefited if the noise barrier reduces noise by 3 dBA. Table 4 summarizes the results of the noise barrier calculations.

Table 4

Noise Barrier Noise Reduction Calculations (dBA)

Receiver Location	Noise Level Without Barrier	12-Foot High Barrier		14-Foot-High Barrier		16-Foot-High Barrier	
		Noise Level	I.L.	Noise Level	I.L.	Noise Level	I.L.
Barrier 1: West Side of I-5 between South 320th and South Military Road							
1	72.7	66.9	6	66.6	6	66.4	6
14	72.8	64.5	10	63.7	11	63.0	11
15	74.4	65.4	12	64.7	12	64.0	13
16	76.9	57.4	2	57.9	1	58.1	1
17	58.9	64.4	9	63.8	9	63.0	10
18	73.2	59.8	6	59.3	6	58.8	7
19	65.6	63.8	6	63.1	7	62.4	8
20	70.2	65.5	7	64.4	8	63.3	9
Barrier 2: West Side of I-5, North of South Military Road							
22	77.6	---	---	66.7	11	65.6	12
23	67.9	---	---	65.5	2	64.7	3
2	68.7	---	---	61.7	7	61.2	8
25	61.6	---	---	59.7	2	59.5	2
Barrier 2a: North of Barrier 2							
29	69.8	63.4	6	63.0	7	62.5	7
30	76.7	69.3	7	68.8	8	68.6	8
Barrier 3: East Side of I-5, North of South Military Road							
21	69.9	64.6	5	64.3	6	64.2	6
24	72.6	65.5	7	64.3	8	63.5	9
Barrier 3a: East Side of I-5 Northward Extension of Existing Barrier South of South 288th Street							
35	70.3	65.8	5	65.6	5	65.4	5
Barrier 5: West Side of I-5, North of South 288th Street							
42	72.5	68.4	4	67.1	5	66.1	6
5	73.9	69.4	5	67.4	7	66.0	8
47	67.1	61.6	5	60.9	6	60.3	7
Barrier 6: East Side of I-5, South of South 272nd Street							
53	66.8	61.4	5	61.1	6	60.8	6
54	65.8	62.6	3	62.4	3	62.2	4
55	66.4	61.8	5	61.4	5	61.1	5
56	68.9	62.0	7	61.2	8	60.6	8
60	71.8	63.0	9	61.9	10	61.0	11
63	75.3	67.1	8	66.4	9	65.7	10
Barrier 8: West Side of I-5, North of South 272nd Street							
69	73.6	65.4	8	64.8	9	64.3	9
70	66.2	64.9	1	64.8	1	64.8	1
Barrier 9: East Side of I-5, North of South 272nd Street							
7	70.2	65.3	5	64.8	5	64.4	6
71	69.1	64.7	4	64.6	5	64.4	5
Barrier 10a: West Side of I-5, South of South 260th Street							
72	67.6	62.3	5	62.0	6	61.7	6
Barrier 10: West Side of I-5, North of South 260th Street							
8	76.9	65.8	11	64.8	12	63.8	13

Table 4

Noise Barrier Noise Reduction Calculations (dBA)

Receiver Location	Noise Level Without Barrier	12-Foot High Barrier		14-Foot-High Barrier		16-Foot-High Barrier	
		Noise Level	I.L.	Noise Level	I.L.	Noise Level	I.L.
74	67.5	64.2	3	63.4	4	63.0	5
75	69.7	62.9	7	62.7	7	62.2	8
10	76.7	76.0	1	75.4	1	74.5	2
Barrier 12: West Side of I-5, South of SR 516							
85	68.8	66.3	3	66.1	3	65.9	3
Barrier 16: East of I-5 between SR 516 and South 216th Street							
89	65.4	63.6	2	63.5	2	63.4	2
91	72.3	67.7	5	66.2	6	65.3	7
94	74.9	64.9	10	64.1	11	63.4	12
95	68.0	61.3	7	60.9	7	60.6	7
98	76.0	67.1	9	66.1	10	65.1	11
99	63.1	58.6	5	58.4	5	58.1	5
100	65.0	60.9	4	60.4	5	60.0	5
102	59.4	58.4	1	58.0	1	57.4	2
103	67.1	61.4	6	60.5	7	59.8	7
105	73.0	71.4	2	69.0	4	67.2	6
108	73.6	65.1	9	64.3	9	63.5	10
109	67.4	62.9	5	62.3	5	61.7	6
110	72.2	63.8	8	63.2	9	62.6	10
111	66.2	64.5	2	64.4	2	64.2	2
113	76.7	66.3	10	65.9	11	65.5	11
Barrier 17a: East of I-5 between South 216th Street and Remaining Existing Barrier							
114	65.8	62.4	3	62.1	4	61.9	4
115	63.5	59.7	4	58.9	5	58.7	5
117	68.4	64.4	4	64.1	4	63.9	5
Barrier 17b: East of I-5, North of Existing Barrier							
121	72.5	69.8	3	69.0	4	67.9	5
123	68.0	63.9	4	63.0	5	62.0	6
128	68.1	64.0	6	63.0	7	62.0	8
131	70.1	62.0	8	61.5	9	61.0	9
133	69.5	62.1	7	61.6	8	61.3	8
Barrier 18: North Side of SR 509, East of SR 99							
136	75.4	66.8	9	65.9	10	64.9	11
137	67.9	65.0	3	64.7	3	64.4	4
138	67.8	66.4	2	66.3	2	66.1	2

I.L. = insertion loss

Noise Barrier Reasonableness Determination

Once construction of a noise barrier has been determined to be feasible, WSDOT determines whether construction is reasonable by thoroughly considering a wide range of criteria. Noise barriers are only constructed if they are both feasible and reasonable. The decision to recommend implementation of a noise barrier is typically the responsibility of the Regional

Traffic Noise Abatement Manager, with concurrence from design personnel. Reasonableness is determined based on the following factors:

- Noise level in the design year approaches or exceeds the noise abatement criteria in Table 1 of 23 CFR 772 or qualifies as a substantial exceedance.
- Most (60 percent or more) first-row receivers obtain a minimum 5-dBA insertion loss and at least one has at least a 7-dBA reduction.
- The noise mitigation cost per residence (or residential equivalent) is at or less than that indicated in Table 5. This is determined by counting all residences (including owner-occupied, rental units, mobile homes) benefited by the noise barrier in any subdivision or given development and dividing that number into the total cost of the noise abatement measure. Each unit in a multifamily building is counted as a separate residence. Table 5 shows that as predicted future noise levels increase, it is reasonable to implement more costly measures, if necessary, to mitigate traffic noise.

Table 5

Allowance for Impacts Caused by Total Traffic Noise Level

Design Year Traffic Noise Decibel Level (dBA)	Allowed Cost per Household [a]	Equivalent Wall Surface Area per Household
66	$15,500	65.0 m^2 (700 ft^2)
67	$17,000	71.5 m^2 (770 ft^2)
68	$18,500	77.7 m^2 (837 ft^2)
69	$20,000	84.0 m^2 (905 ft^2)
70	$21,500	90.5 m^2 (973 ft^2)
71	$23,000	96.7 m^2 (1041 ft^2)
72	$24,500	103.0 m^2 (1109 ft^2)
73	$26,000	109.2 m^2 (1176 ft^2)
74	$27,500	115.5 m^2 (1244 ft^2)

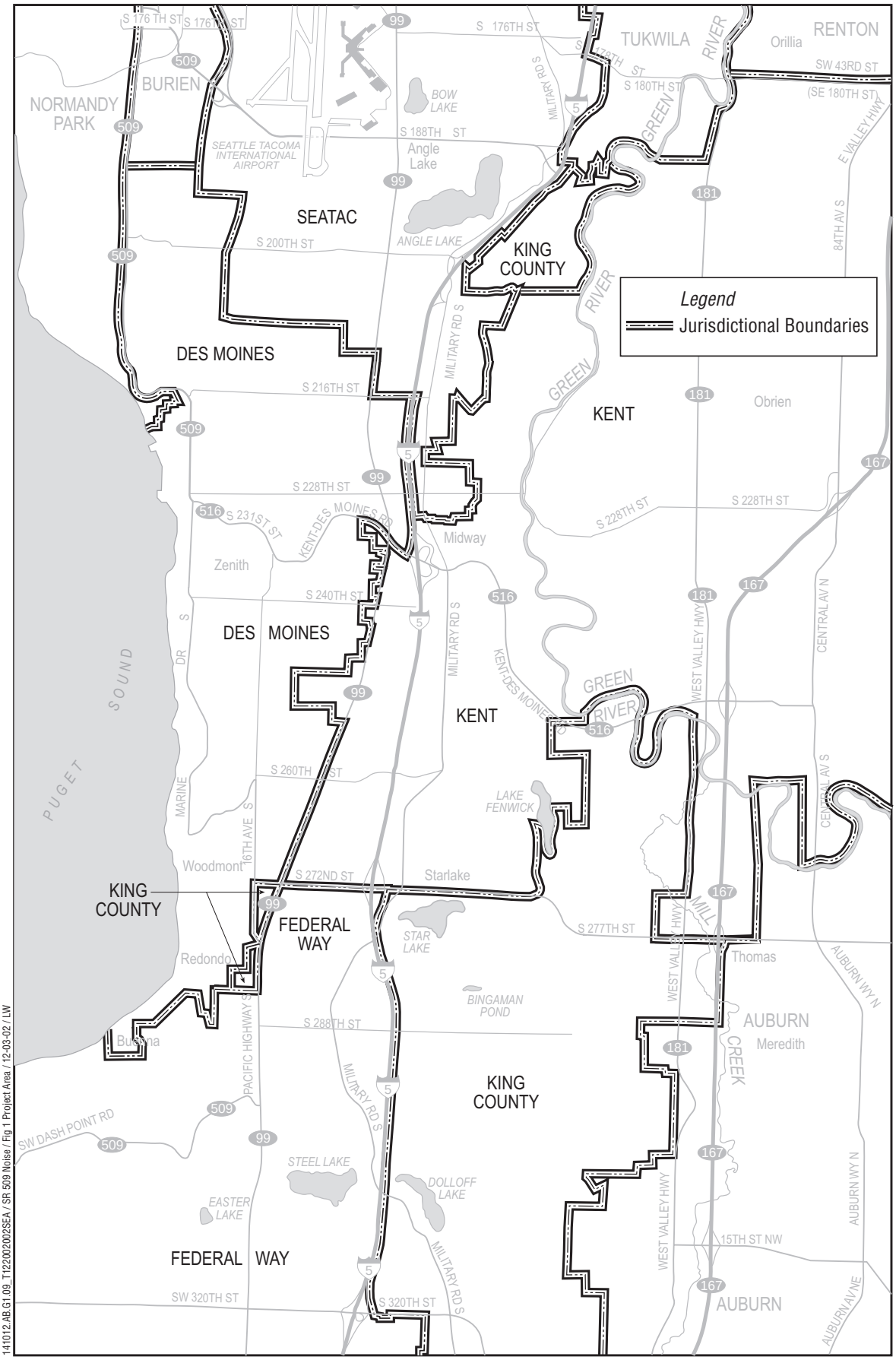
[a] Reevaluated in January of each year. Based on $22.1 per square foot constructed cost. Source: WSDOT Noise Analysis and Abatement Policies. <fix>

- Property use is considered a factor affecting the reasonableness of abatement. For example, churches and parks may be used only during specific hours or days of the week. These facilities generally have a greater number of receivers than if simply counted as a residence. In such cases, residential equivalents are used (usage factor multiplied by the number of users), in accordance with WSDOT Directive D22-22.

Table 6 summarizes the results of the noise barrier reasonableness analysis. Based on the findings of the detailed noise barrier evaluation, it is preliminarily determined that it would be reasonable to construct noise barriers at the locations shown by Figures 2A through 2G.

Table 6
Preliminary Noise Barrier Reasonableness Determination

Barrier Number	Noise Levels Without Barrier (dBA)	Noise Levels With Barrier (dBA)	Amount of Noise Reduction (dBA)	Barrier Height (ft)	Barrier Length (ft)	Barrier Surface Area (ft^2)	Total Barrier Cost ($)	Number of Benefited Homes	Barrier Cost Allowance ($)	Reasonable to Build?
1	59-77	57-66	6-12	12–16	3,375	44,103	974,700	45	976,500	**Yes**
2	62-77	60-66	2-12	14-16	2,040	30,196	667,300	22	716,500	**Yes**
2a	70-77	62-66	6-11	12-22	1,062	15,606	344,900	6	139,500	No
3	70–73	65	3–8	10–13	1,018	12,008	265,400	8	169,000	No
3a	70	65	5	16	373	5,970	131,900	3	61,500	No
4	69–71	62–63	7–8	14–16	1,324	19,110	422,300	40	920,000	**Yes**
5	67-74	61-65	5-9	12–18	1,110	16,731	369,800	17	400,000	**Yes**
6	66–75	61-65	3-10	12-16	1,382	17,737	392,000	16	329,000	No
7	62–74	59–65	3–11	12–16	1,143	17,256	381,400	16	392,000	No
8	66-74	65	1–8	12	734	8,809	194,700	5	137,500	No
9	69-70	63-64	5-7	14-20	757	12,614	278,800	4	80,000	No
10a	68	61-62	5-7	22	1,052	23,144	511,500	16	260,000	No
10	68-77	63-64	5-10	10-12	1,724	19,243	425,300	25	449,000	**Yes**
11	Existing noise barrier needs to be extended northward by 370 feet.									**Yes**
13	65–78	62–65	6–13	10–18	5,710	86,037	1,901,400	151	4,100,000	**Yes**
14	65–71	60–62	6–10	12–22	2,160	39,207	866,500	27	661,500	**Yes**
15	63–73	62–65	5–10	14–20	4,103	63,654	1,406,800	60	1,560,000	**Yes**
17a	64-68	59-64	4-5	14	882	12,342	272,800	19	279,500	**Yes**
17b	68-73	63-68	4-7	10-16	1,649	19,215	424,700	20	437,500	**Yes**
18	68–75	64–65	3–10	16	1,004	16,067	355,100	22	600,000	**Yes**
19	67–68	61–62	5–7	18	697	12,546	277,300	3	55,500	No
20	69–70	62–64	6–7	16	704	11,262	248,900	5	107,500	No
21	69–73	61–65	7–8	12–20	1,002	17,286	382,000	13	338,000	No



1410 12.AB.G1.09_T122002002SEA / SR 509 Noise / Fig 1 Project Area / 12-03-02 / LW

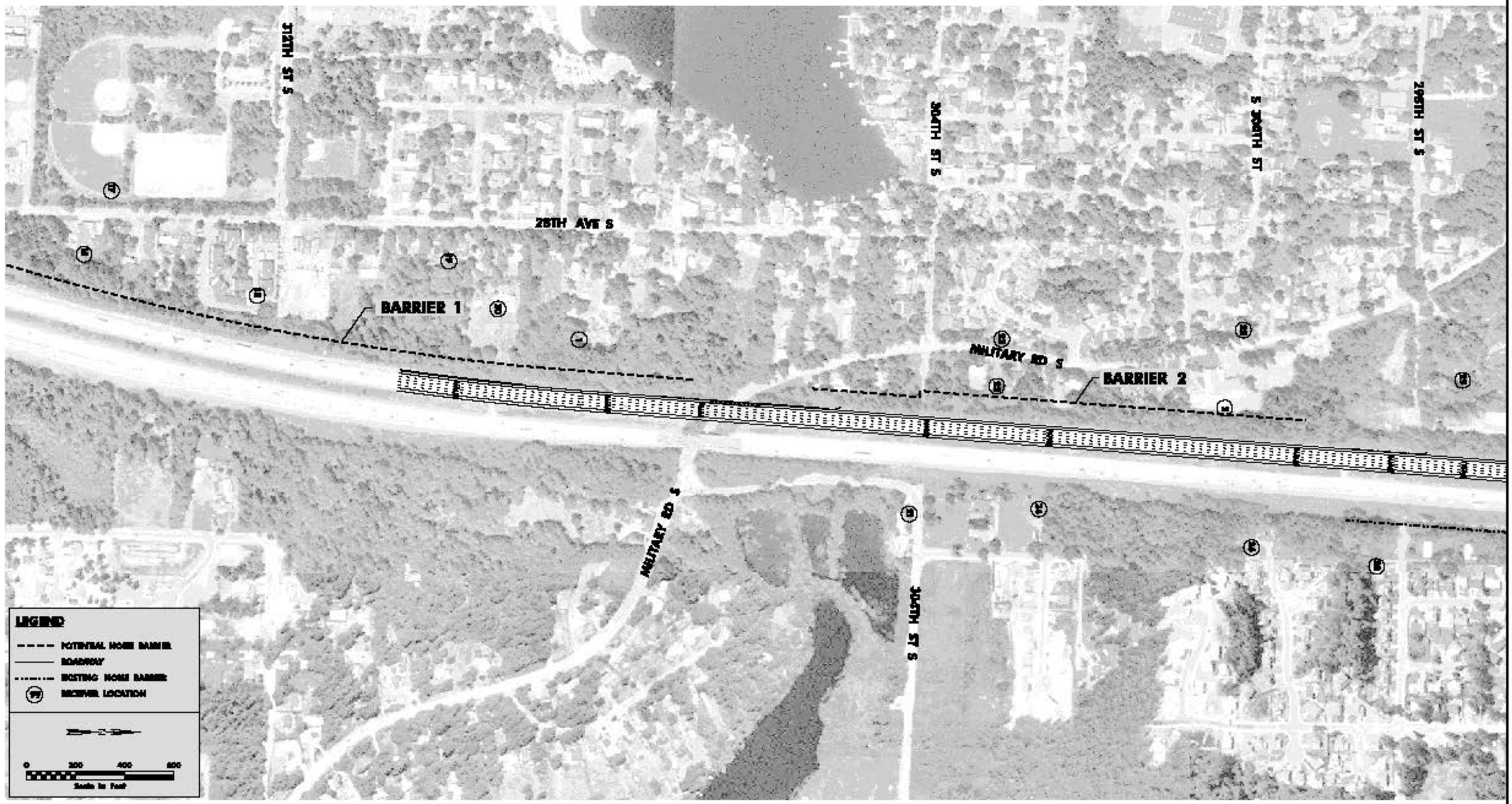
0 1900 3800
Scale in Feet

North

FIGURE 1

Project Area

SR 509: Corridor Completion/I-5/South Access Road
Environmental Impact Statement



PRELIMINARY

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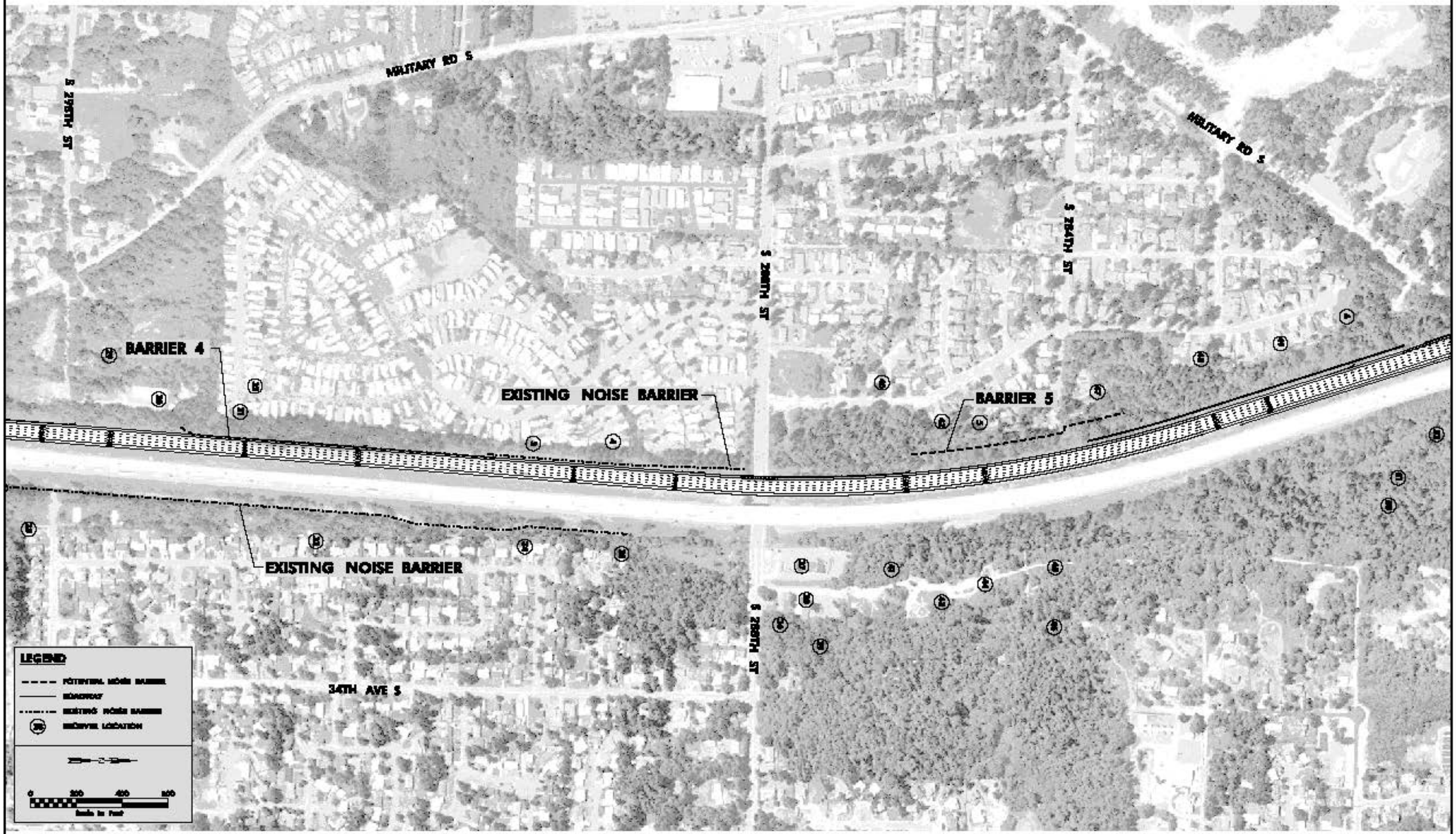
Washington State Department of Transportation

FIGURE 2A

NOISE RECEIVERS AND POTENTIAL NOISE BARRIER LOCATIONS
S 296TH ST / I-5
TO S 312TH ST / I-5



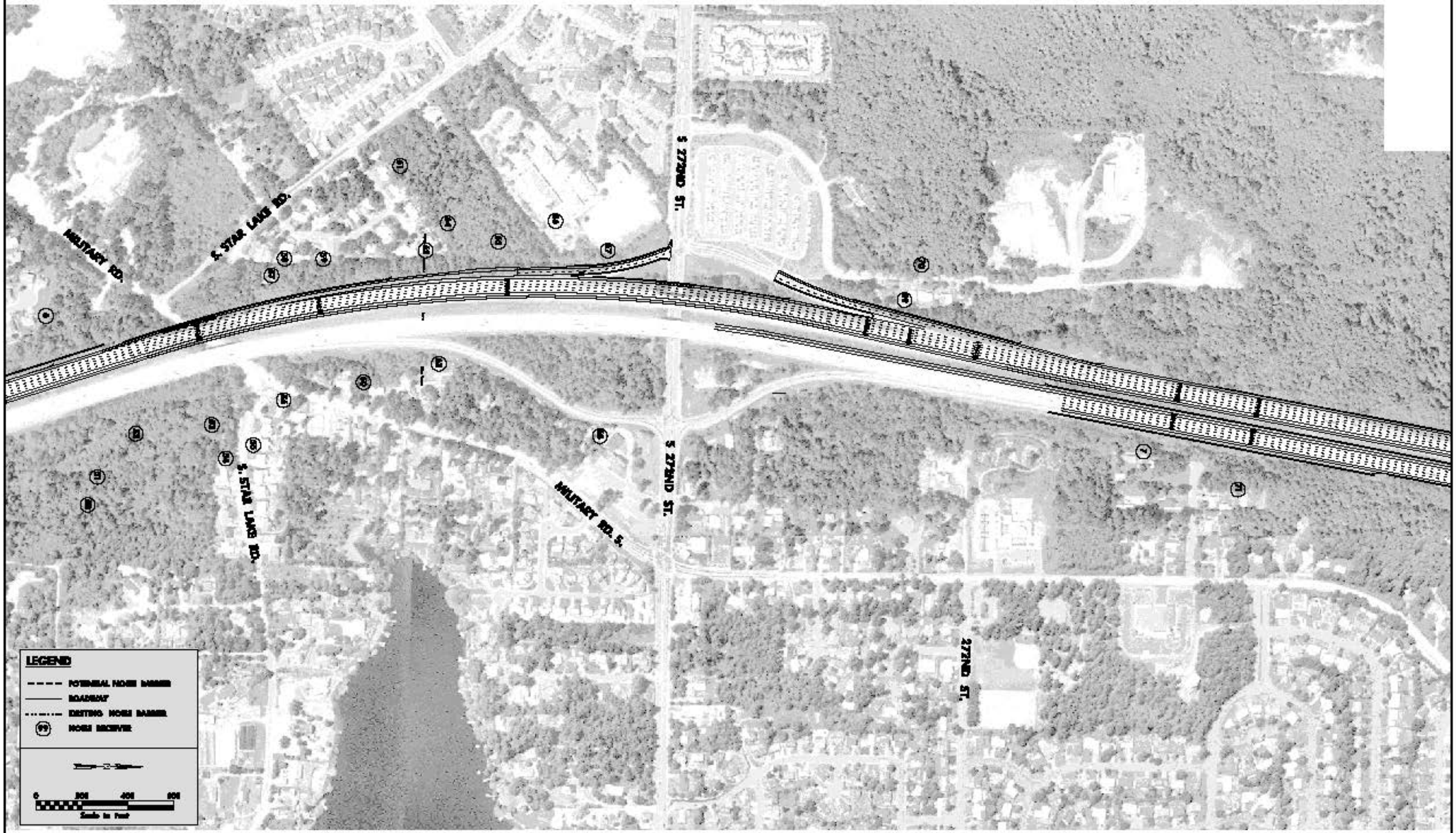
PRELIMINARY

CH2MHILL

Washington State Department of Transportation

FIGURE 28

NOISE RECEIVERS AND POTENTIAL NOISE BARRIER LOCATIONS
S 29BTH ST / I-5
TO S 284TH ST / I-5



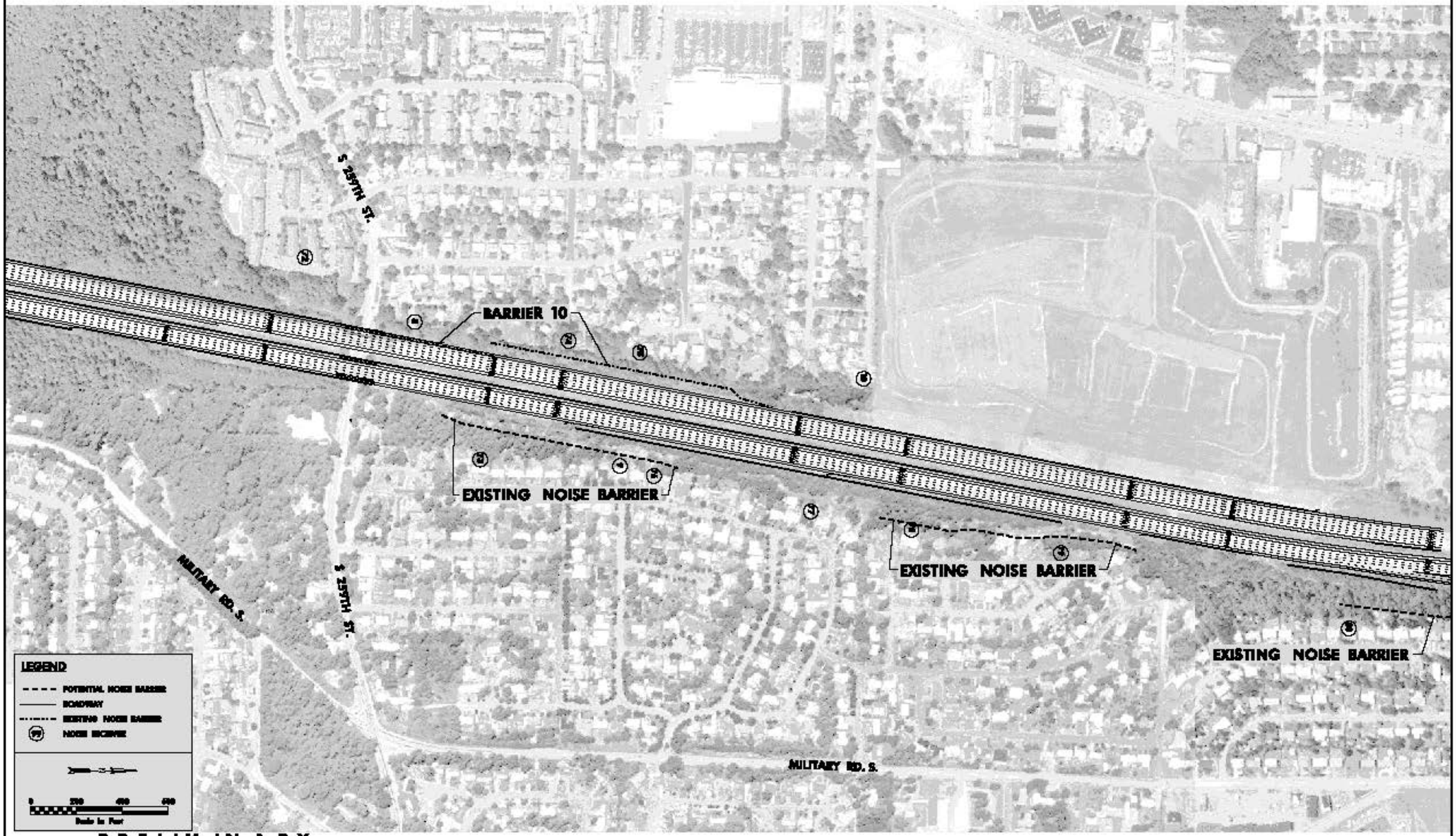
PRELIMINARY

CH2MHILL

Washington State Department of Transportation

FIGURE 2C

NOISE RECEIVERS AND POTENTIAL NOISE BARRIER LOCATIONS
S STAR LAKE RD / I-5
TO S 268TH ST / I-5



PRELIM IN A RY

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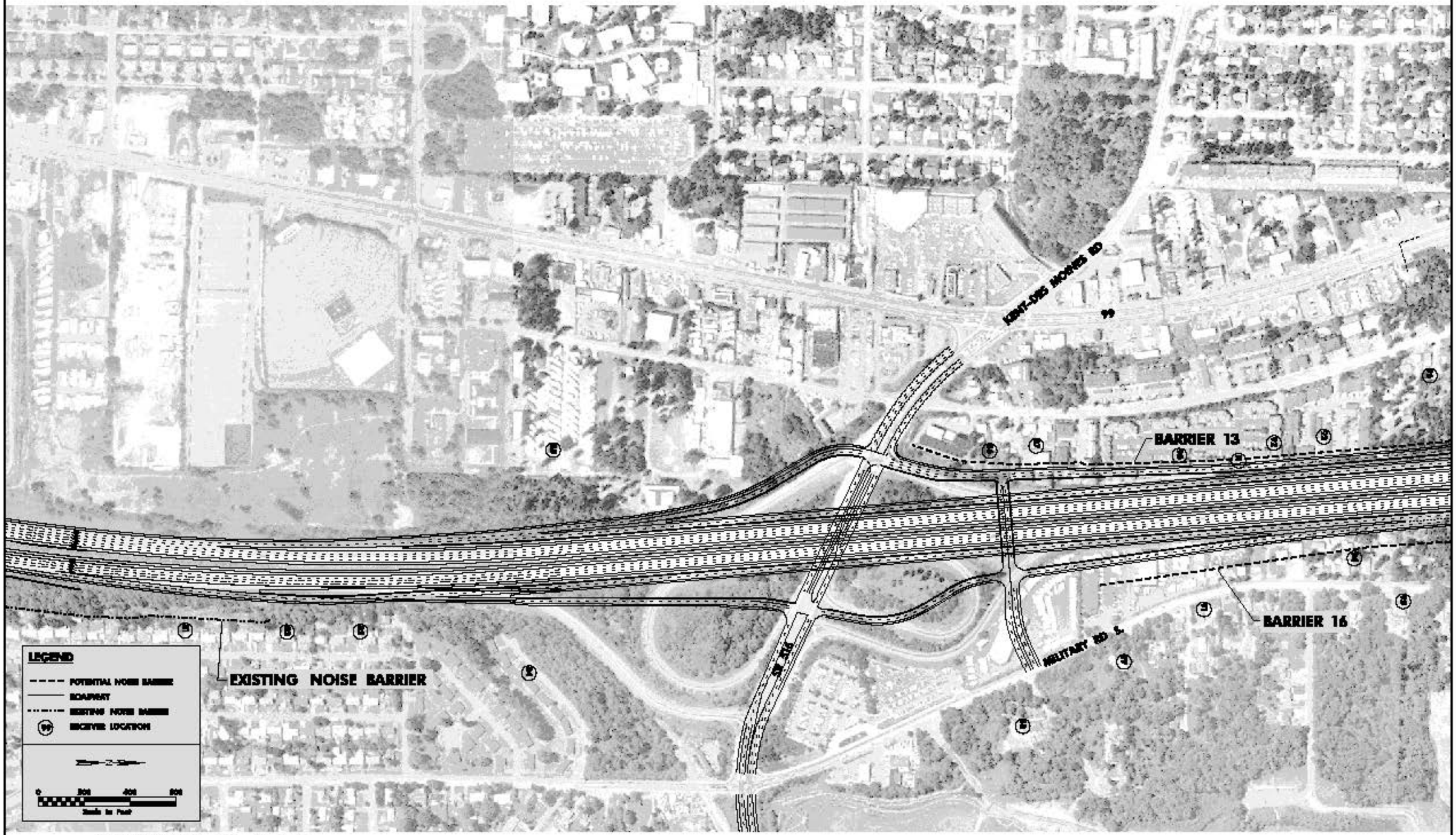
Washington State Department of Transportation

FIGURE 3D

NOISE RECEIVERS AND POTENTIAL NOISE BARRIER LOCATIONS
S 260TH ST / I-5
TO S 246TH ST / I-5



PRELIMINARY

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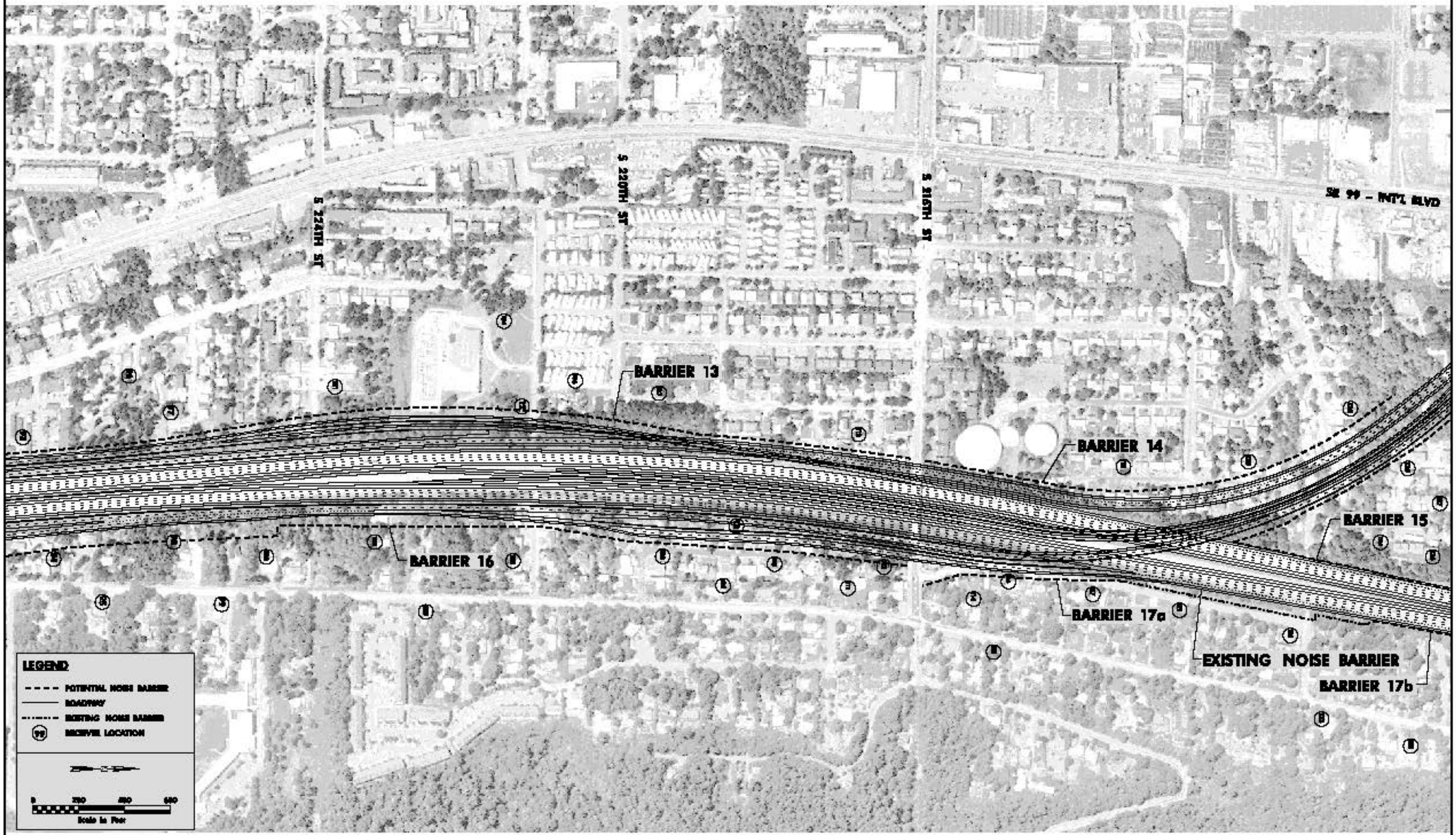
FIGURE 2E

NOISE RECEIVERS AND POTENTIAL NOISE BARRIER LOCATIONS
SR 509/ 12TH PLACE SOUTH
TO SOUTH 224TH STREET / I-5



PRELIM IN A RY

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FIGURE 2F

NOISE RECEIVERS AND POTENTIAL NOISE BARRIER LOCATIONS
S 216TH / I-5
TO S 224TH / I-5

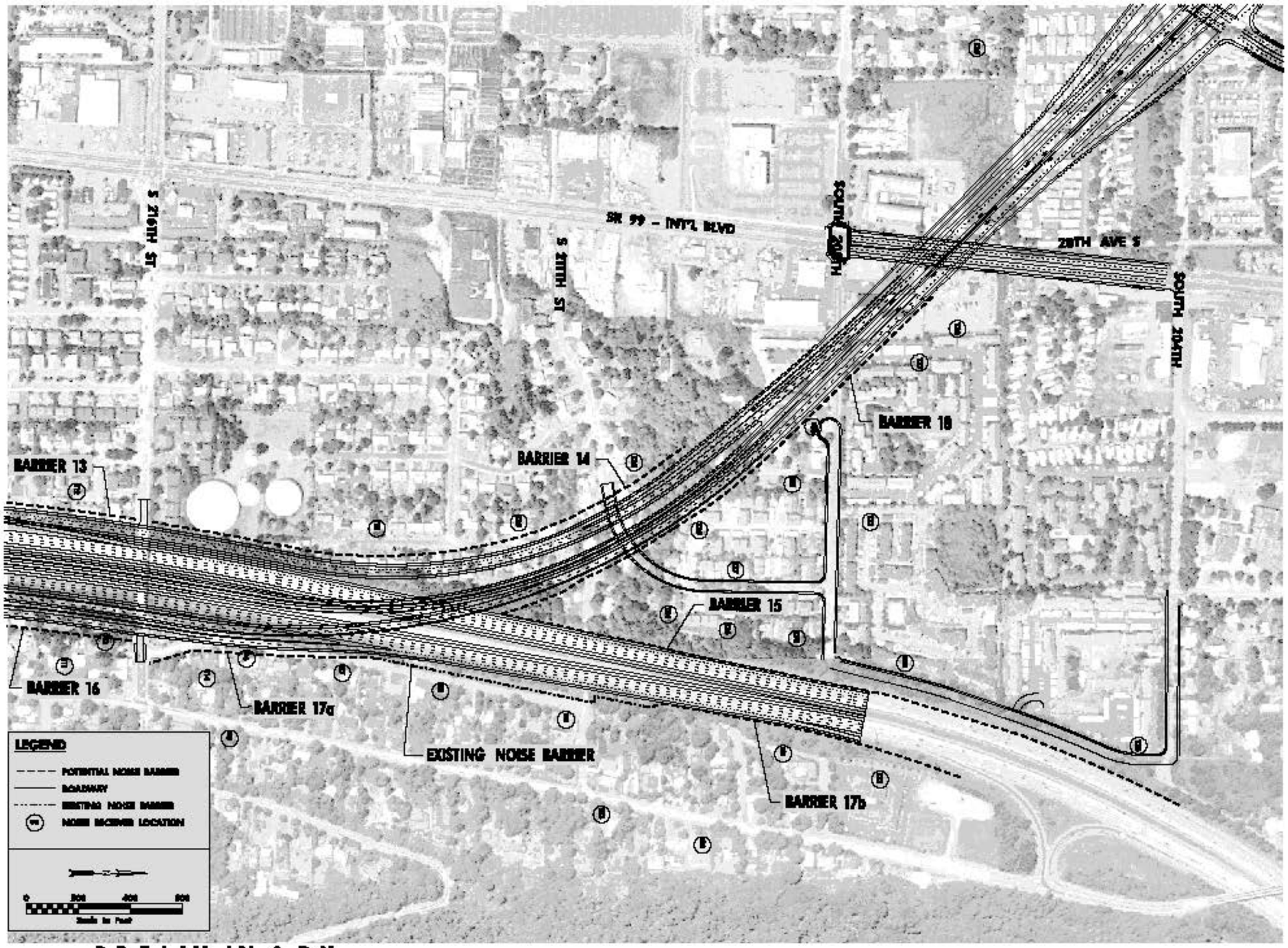

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FIGURE 2C

NOISE RECEIVERS AND POTENTIAL NOISE BARRIER LOCATIONS
S 204TH ST / I-5
TO S 216TH ST / I-5



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FIGURE 2H

NOISE RECEIVERS AND POTENTIAL NOISE BARRIER LOCATIONS
SR 509
PREFERRRED ALTERNATIVE

PORT OF SEATTLE

SASA

LEGEND

- POTENTIAL NOISE BARRIER
- ROADWAY
- EXISTING NOISE BARRIER
- NOISE RECEIVER LOCATION
- AIRPORT NOISE MONITORING LOCATION

N

PRELIMINARY

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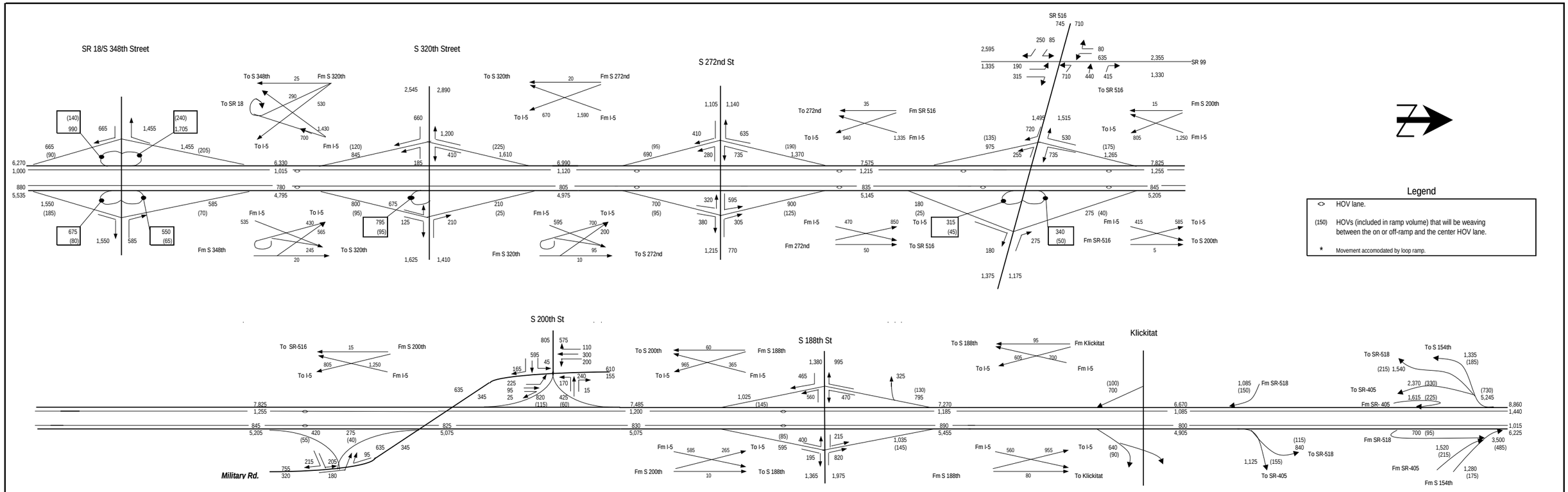
FIGURE 21

NOISE RECEIVERS AND POTENTIAL NOISE BARRIER LOCATIONS
SR 509
PREFERRED ALTERNATIVE

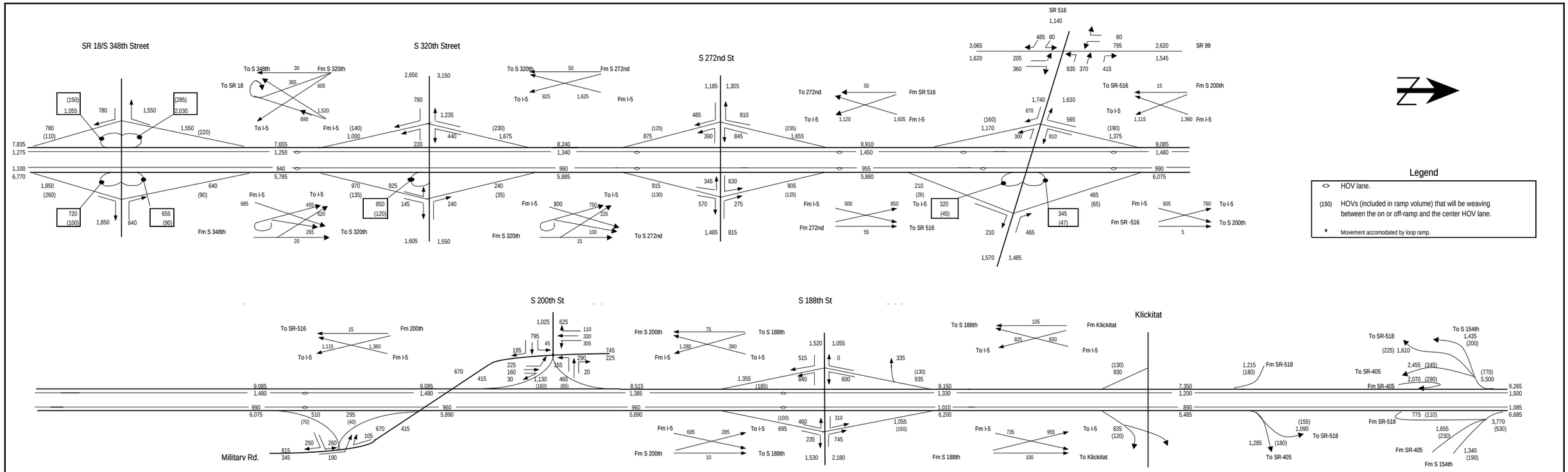


ATTACHMENT FIGURE A-1

Estimated No-Build 2003 PM Peak Hour Traffic Volumes

SR 509/South Access Road
Access Point Decision Report

01/10/2003
4:04 PM

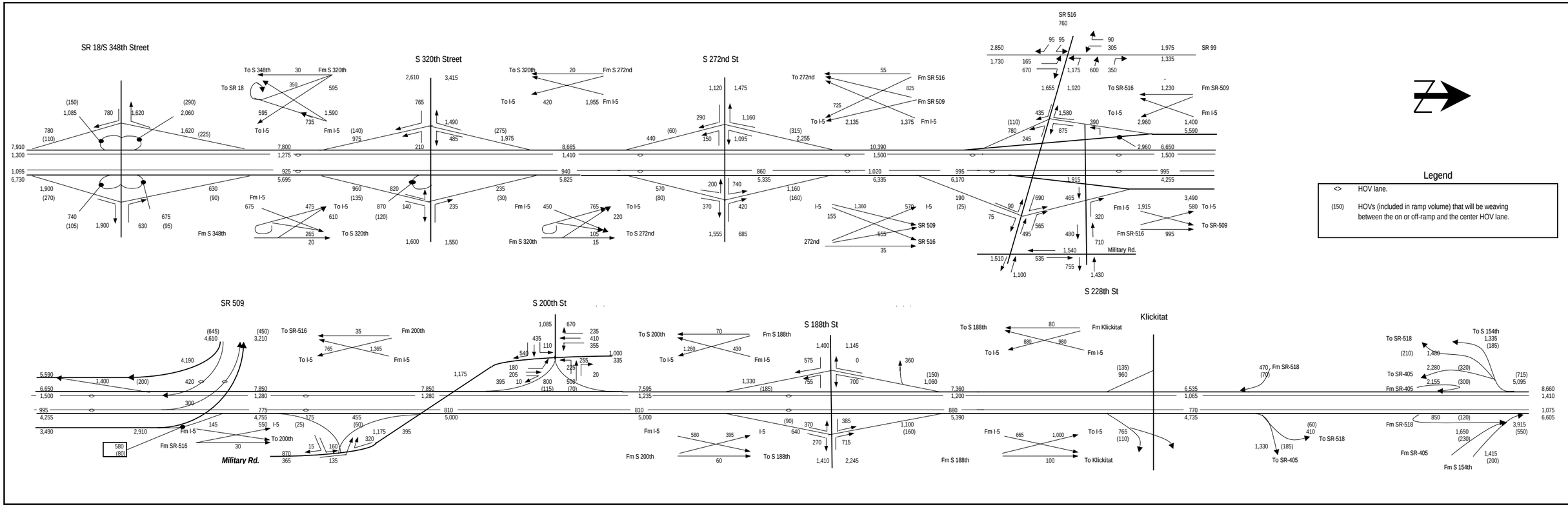


ATTACHMENT FIGURE A-2

Estimated No-Build 2020 PM Peak Hour Traffic Volumes

SR 509/South Access Road
Access Point Decision Report

01/10/2003
4:06 PM



ATTACHMENT FIGURE A-3

Estimated Preliminary Preferred Alternative 2 Peak Hour Traffic Volumes

SR 509/South Access Road
Access Point Decision Report

01/10/2003
4:10 PM

ATTACHMENT TABLE B-1
Airport Noise Monitoring Results at Location A1

A1: 2406 S. 207th Street						
Record #	**Date**	**Time**	**Duration**	**Leq**	**Lmin**	**Lmax**
1	11-Jul-02	11:15:51	0:44:08	56.2	38.5	72.7
2	11-Jul-02	12:00:00	1:00:00	56	38.5	71.8
3	11-Jul-02	13:00:00	1:00:00	56.3	38.8	74.9
4	11-Jul-02	14:00:00	1:00:00	55.9	40.1	72.9
5	11-Jul-02	15:00:00	1:00:00	55.6	38.9	71.8
6	11-Jul-02	16:00:00	1:00:00	56.5	38.9	75.9
7	11-Jul-02	17:00:00	1:00:00	54.8	38.8	70.2
8	11-Jul-02	18:00:00	1:00:00	58.4	39.2	84.7
9	11-Jul-02	19:00:00	1:00:00	56.9	38.8	72.8
10	11-Jul-02	20:00:00	1:00:00	55.5	39.8	70.7
11	11-Jul-02	21:00:00	1:00:00	57.8	42.3	73.7
12	11-Jul-02	22:00:00	1:00:00	55.4	44.8	69.5
13	11-Jul-02	23:00:00	1:00:00	54.0	43.4	70.8
14	12-Jul-02	0:00:00	1:00:00	51.9	42.3	70.6
15	12-Jul-02	1:00:00	1:00:00	50.0	37.4	69.6
16	12-Jul-02	2:00:00	1:00:00	53.0	36.3	75.7
17	12-Jul-02	3:00:00	1:00:00	53.8	38.3	75.5
18	12-Jul-02	4:00:00	1:00:00	51.5	41.5	70.3
19	12-Jul-02	5:00:00	1:00:00	59.4	42.7	78.5
20	12-Jul-02	6:00:00	1:00:00	55.7	43.2	76.2
21	12-Jul-02	7:00:00	1:00:00	53.8	40.9	71
22	12-Jul-02	8:00:00	1:00:00	56.6	39.7	73
23	12-Jul-02	9:00:00	1:00:00	56.0	39.7	72
24	12-Jul-02	10:00:00	1:00:00	57.7	39.7	73.1
25	12-Jul-02	11:00:00	1:00:00	60.2	37.5	88.4
26	12-Jul-02	12:00:00	1:00:00	55.7	39.8	70.7
27	12-Jul-02	13:00:00	1:00:00	56.4	39.9	72.1
28	12-Jul-02	14:00:00	1:00:00	56.2	39.6	70.7
29	12-Jul-02	15:00:00	1:00:00	57.7	40.2	76
30	12-Jul-02	16:00:00	1:00:00	57.5	38.8	78.4
31	12-Jul-02	17:00:00	1:00:00	56.8	38.7	76.6
32	12-Jul-02	18:00:00	1:00:00	55.9	37.3	73.1
33	12-Jul-02	19:00:00	1:00:00	57.2	40.3	72.5
34	12-Jul-02	20:00:00	1:00:00	56.6	42.6	79.4
35	12-Jul-02	21:00:00	1:00:00	57.0	44.1	71
36	12-Jul-02	22:00:00	1:00:00	56.3	42.3	72.5
37	12-Jul-02	23:00:00	1:00:00	54.8	40.5	71
38	13-Jul-02	0:00:00	1:00:00	55.3	38.4	73.4
39	13-Jul-02	1:00:00	1:00:00	53.3	41.7	71.9

ATTACHMENT TABLE B-1
Airport Noise Monitoring Results at Location A1

A1: 2406 S. 207th Street						
Record #	**Date**	**Time**	**Duration**	**Leq**	**Lmin**	**Lmax**
40	13-Jul-02	2:00:00	1:00:00	52.4	37.5	73.9
41	13-Jul-02	3:00:00	1:00:00	46.7	36.4	70.7
42	13-Jul-02	4:00:00	1:00:00	53.2	35.2	72.9
43	13-Jul-02	5:00:00	1:00:00	55.7	38.2	76.1
44	13-Jul-02	6:00:00	1:00:00	67.8	43.7	85.3
45	13-Jul-02	7:00:00	1:00:00	68.1	40.5	84.7
46	13-Jul-02	8:00:00	1:00:00	66.9	39.2	88.1
47	13-Jul-02	9:00:00	1:00:00	55.2	36.1	70
48	13-Jul-02	10:00:00	1:00:00	57.9	37.5	75.3
49	13-Jul-02	11:00:00	1:00:00	64.3	36.2	85.5
50	13-Jul-02	12:00:00	1:00:00	69.6	34.7	88.1
51	13-Jul-02	13:00:00	1:00:00	68.1	39.5	85.8
52	13-Jul-02	14:00:00	1:00:00	70.4	37.5	92.7
53	13-Jul-02	15:00:00	1:00:00	58.7	40.7	78.2
54	13-Jul-02	16:00:00	1:00:00	53.9	35.4	71.6
55	13-Jul-02	17:00:00	1:00:00	55.4	37.8	73.3
56	13-Jul-02	18:00:00	1:00:00	63.8	36.3	84.6
57	13-Jul-02	19:00:00	1:00:00	67.0	38.5	85.9
58	13-Jul-02	20:00:00	0:48:50	67.4	40.8	87.4

Highlighting indicates likely times when future peak-hour traffic on SR 509 would occur.

ATTACHMENT TABLE B-2
Airport Noise Monitoring Results at Location A2

A2: 1243 S. 196th Place						
Record #	**Date**	**Time**	**Duration**	**Leq**	**Lmin**	**Lmax**
1	11-Jul-02	12:08:40	0:51:19	59.0	45.8	75.3
2	11-Jul-02	13:00:00	1:00:00	60.8	48.1	80.9
3	11-Jul-02	14:00:00	1:00:00	63.5	48.3	82.6
4	11-Jul-02	15:00:00	1:00:00	63.0	51.5	82.6
5	11-Jul-02	16:00:00	1:00:00	60.8	51.4	77.3
6	11-Jul-02	17:00:00	1:00:00	61.9	49.6	79.8
7	11-Jul-02	18:00:00	1:00:00	60.8	46.1	78.8
8	11-Jul-02	19:00:00	1:00:00	62.2	45.2	82.8
9	11-Jul-02	20:00:00	1:00:00	61.3	46.1	77.3
10	11-Jul-02	21:00:00	1:00:00	66.8	46.3	84.9
11	11-Jul-02	22:00:00	1:00:00	65.7	50.1	83.7
12	11-Jul-02	23:00:00	1:00:00	64.1	47.4	86.1
13	12-Jul-02	0:00:00	1:00:00	59.5	44.4	81.7
14	12-Jul-02	1:00:00	1:00:00	55.2	44.1	77.6
15	12-Jul-02	2:00:00	1:00:00	66.6	44.0	90.1
16	12-Jul-02	3:00:00	1:00:00	51.2	43.6	69.6
17	12-Jul-02	4:00:00	1:00:00	58.2	41.5	83.3
18	12-Jul-02	5:00:00	1:00:00	62.6	46.2	87.0
19	12-Jul-02	6:00:00	1:00:00	63.7	49.8	80.5
20	12-Jul-02	7:00:00	1:00:00	60.7	48.3	81.7
21	12-Jul-02	8:00:00	1:00:00	61.1	47.6	78.7
22	12-Jul-02	9:00:00	1:00:00	59.7	45.1	77.1
23	12-Jul-02	10:00:00	1:00:00	60.2	47.2	74.5
24	12-Jul-02	11:00:00	1:00:00	60.1	44.6	76.9
25	12-Jul-02	12:00:00	1:00:00	61.4	47.8	83.0
26	12-Jul-02	13:00:00	1:00:00	62.5	47.1	80.6
27	12-Jul-02	14:00:00	1:00:00	60.1	47.9	76.4
28	12-Jul-02	15:00:00	1:00:00	63.8	49.1	84.6
29	12-Jul-02	16:00:00	1:00:00	62.4	48.1	83.1
30	12-Jul-02	17:00:00	1:00:00	59.4	46.7	75.5
31	12-Jul-02	18:00:00	1:00:00	61.0	47.3	77.6
32	12-Jul-02	19:00:00	1:00:00	63.7	49.0	81.1
33	12-Jul-02	20:00:00	1:00:00	61.9	49.9	80.3
34	12-Jul-02	21:00:00	1:00:00	67.1	52.6	84.9
35	12-Jul-02	22:00:00	1:00:00	64.7	48.5	82.1
36	12-Jul-02	23:00:00	1:00:00	65.7	46.8	87.7
37	13-Jul-02	0:00:00	1:00:00	60.1	45.1	81.1
38	13-Jul-02	1:00:00	1:00:00	57.1	43.0	79.1

ATTACHMENT TABLE B-2
Airport Noise Monitoring Results at Location A2

A2: 1243 S. 196th Place						
Record #	**Date**	**Time**	**Duration**	**Leq**	**Lmin**	**Lmax**
39	13-Jul-02	2:00:00	1:00:00	61.8	42.2	85.4
40	13-Jul-02	3:00:00	1:00:00	54.2	40.9	74.9
41	13-Jul-02	4:00:00	1:00:00	54.5	41.1	76.7
42	13-Jul-02	5:00:00	1:00:00	56.6	42.1	74.9
43	13-Jul-02	6:00:00	1:00:00	67.7	46.4	84.1
44	13-Jul-02	7:00:00	1:00:00	68.4	44.9	84.7
45	13-Jul-02	8:00:00	1:00:00	66.8	42.0	88.0
46	13-Jul-02	9:00:00	1:00:00	57.0	40.1	75.2
47	13-Jul-02	10:00:00	1:00:00	61.9	42.3	79.6
48	13-Jul-02	11:00:00	1:00:00	63.6	39.1	82.7
49	13-Jul-02	12:00:00	1:00:00	68.1	40.5	84.6
50	13-Jul-02	13:00:00	1:00:00	67.5	46.6	84.4
51	13-Jul-02	14:00:00	1:00:00	70.2	47.1	86.3
52	13-Jul-02	15:00:00	1:00:00	69.7	47.5	76.8
53	13-Jul-02	16:00:00	1:00:00	68.5	48.2	75.5
54	13-Jul-02	17:00:00	1:00:00	69.0	51.6	78.1
55	13-Jul-02	18:00:00	1:00:00	71.2	50.5	82.1
56	13-Jul-02	19:00:00	1:00:00	70.4	50.3	81.0
57	13-Jul-02	20:00:00	1:00:00	70.8	51.4	83.5
58	13-Jul-02	21:00:00	0:02:43	74.1	64.6	77.7

Highlighting indicates likely times when future peak-hour traffic on SR 509 would occur. Measured noise levels during the afternoon of July 13 were contaminated by noise from festivities in the neighborhood, including loud sounds created by a live music band.

ATTACHMENT TABLE B-3
Airport Noise Monitoring Results at Location A3

A3. 1122 S. 194th Street (rooftop of building)						
Rec #	**Date**	**Time**	**Duration**	**Leq**	**Lmin**	**Lmax**
1	11-Jul-02	10:14:27	0:45:32	61.4	49.8	75.1
2	11-Jul-02	11:00:00	1:00:00	60.0	49.6	75.8
3	11-Jul-02	12:00:00	1:00:00	60.6	50.5	74.9
4	11-Jul-02	13:00:00	1:00:00	60.3	50.7	72.8
5	11-Jul-02	14:00:00	1:00:00	62.9	50.8	80.8
6	11-Jul-02	15:00:00	1:00:00	61.7	49.9	80.1
7	11-Jul-02	16:00:00	1:00:00	60.3	49.2	77.9
8	11-Jul-02	17:00:00	1:00:00	61.4	49.4	81.3
9	11-Jul-02	18:00:00	1:00:00	60.6	48.6	82.9
10	11-Jul-02	19:00:00	1:00:00	60.4	48.0	75.8
11	11-Jul-02	20:00:00	1:00:00	62.9	49.1	79.7
12	11-Jul-02	21:00:00	1:00:00	66.8	50.5	85.0
13	11-Jul-02	22:00:00	1:00:00	66.4	51.7	82.6
14	11-Jul-02	23:00:00	1:00:00	65.5	49.4	87.2
15	12-Jul-02	0:00:00	1:00:00	61.6	47.0	84.0
16	12-Jul-02	1:00:00	1:00:00	55.5	46.1	72.4
17	12-Jul-02	2:00:00	1:00:00	64.5	45.9	85.6
18	12-Jul-02	3:00:00	1:00:00	54.0	46.5	74.9
19	12-Jul-02	4:00:00	1:00:00	60.2	45.8	80.6
20	12-Jul-02	5:00:00	1:00:00	63.9	48.3	86.1
21	12-Jul-02	6:00:00	1:00:00	68.2	55.3	88.1
22	12-Jul-02	7:00:00	1:00:00	63.2	52.4	84.1
23	12-Jul-02	8:00:00	1:00:00	62.2	52.0	76.9
24	12-Jul-02	9:00:00	1:00:00	62.5	49.9	81.0
25	12-Jul-02	10:00:00	1:00:00	61.3	50.9	74.7
26	12-Jul-02	11:00:00	1:00:00	59.9	48.7	74.7
27	12-Jul-02	12:00:00	1:00:00	61.3	50.8	77.6
28	12-Jul-02	13:00:00	1:00:00	62.1	50.0	75.8
29	12-Jul-02	14:00:00	1:00:00	61.6	50.0	79.3
30	12-Jul-02	15:00:00	1:00:00	63.0	52.1	79.3
31	12-Jul-02	16:00:00	1:00:00	61.1	49.6	81.1
32	12-Jul-02	17:00:00	1:00:00	59.4	49.4	74.5
33	12-Jul-02	18:00:00	1:00:00	61.1	49.2	78.6
34	12-Jul-02	19:00:00	1:00:00	64.6	50.6	82.5
35	12-Jul-02	20:00:00	1:00:00	62.8	50.4	80.1
36	12-Jul-02	21:00:00	1:00:00	68.4	53.7	86.5
37	12-Jul-02	22:00:00	1:00:00	65.9	52.9	83.3
38	12-Jul-02	23:00:00	1:00:00	66.9	50.6	87.1

ATTACHMENT TABLE B-3
Airport Noise Monitoring Results at Location A3

A3. 1122 S. 194th Street (rooftop of building)						
Rec #	**Date**	**Time**	**Duration**	**Leq**	**Lmin**	**Lmax**
39	13-Jul-02	0:00:00	1:00:00	62.6	48.5	82.1
40	13-Jul-02	1:00:00	1:00:00	58.2	46.5	80.0
41	13-Jul-02	2:00:00	1:00:00	63.0	45.5	88.4
42	13-Jul-02	3:00:00	1:00:00	56.5	41.3	79.4
43	13-Jul-02	4:00:00	1:00:00	54.2	42.4	72.4
44	13-Jul-02	5:00:00	1:00:00	58.1	43.9	77.8
45	13-Jul-02	6:00:00	1:00:00	68.5	49.5	85.3
46	13-Jul-02	7:00:00	1:00:00	68.9	46.7	85.5
47	13-Jul-02	8:00:00	1:00:00	66.6	45.6	87.3
48	13-Jul-02	9:00:00	1:00:00	57.8	43.8	76.2
49	13-Jul-02	10:00:00	1:00:00	61.9	48.4	77.9
50	13-Jul-02	11:00:00	1:00:00	64.3	47.2	83.8
51	13-Jul-02	12:00:00	1:00:00	68.1	47.8	83.2
52	13-Jul-02	13:00:00	1:00:00	67.7	49.1	84.0
53	13-Jul-02	14:00:00	1:00:00	66.5	46.4	83.1
54	13-Jul-02	15:00:00	1:00:00	58.7	46.6	72.0
55	13-Jul-02	16:00:00	1:00:00	55.7	42.9	69.8
56	13-Jul-02	17:00:00	1:00:00	56.9	43.4	75.6
57	13-Jul-02	18:00:00	1:00:00	63.6	44.8	83.9
58	13-Jul-02	19:00:00	1:00:00	65.7	43.0	83.3
59	13-Jul-02	20:00:00	0:18:46	64.6	43.4	82.3

Highlighting indicates likely times when future peak-hour traffic on SR 509 would occur.