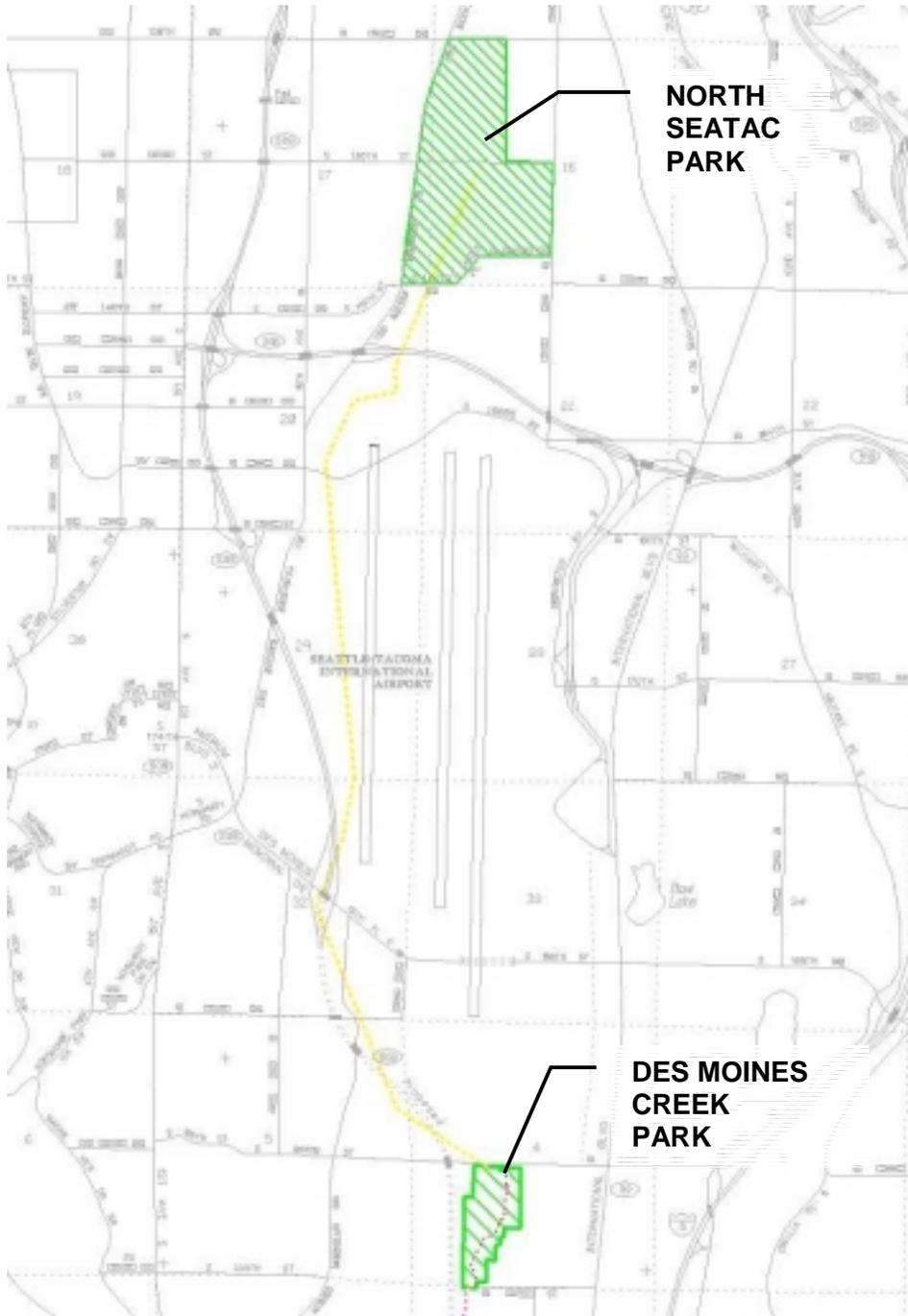


WHITE PAPER
NORTH EXTENSION OF DES MOINES CREEK TRAIL
SR 509/SOUTH ACCESS ROAD CORRIDOR EIS
WASHINGTON STATE DEPARTMENT OF TRANSPORTATION



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1. PROJECT DESCRIPTION

1.1 BACKGROUND

In March of 1999, a value engineering analysis was conducted to evaluate the SR509 extension alternatives B, C and D (see Value Engineering Study Report, SR 509 Corridor and South Access Road, February 8-12, 1999). From that analysis, Alternative C was modified to reduce the right of way impacts on the south end. This modified alignment was named Alternative C1. Two other variants of Alternative C were developed, C2 and C3, that could reduce costs and residential displacements. As a tradeoff for the reduced costs and displacements, however, C2 and C3 would impact Des Moines Creek Park to a greater extent than C1 or other alternatives.

To mitigate these potential impacts of Alternatives C2 and C3 to Des Moines Creek Park, an extension of the existing Des Moines Creek Trail, from its current terminus at South 200th St. northward to North SeaTac Park was investigated. The specific objectives for this investigation were:

1. Identify feasible trail alignments consistent with the City of SeaTac Comprehensive Plan (12/95).
2. Make a recommendation on the feasibility of using the trail to provide access to the Northwest Ponds.
3. Make a recommendation on the feasibility of extending the trail north of the SR 509 project limits.
4. Provide a final recommendation on which trail alternative would provide the greatest benefits.

1.2 EXISTING CONDITIONS

Des Moines Creek Park encompasses the largest natural preserve of woodland environment in the urbanized SeaTac/Des Moines area. The park is located along the steep ravine that has been cut by the Des Moines Creek and encompasses approximately 96 acres. 52 acres of the park lie within the City of SeaTac; the remaining 44 acres lie within the City of Des Moines. SeaTac has classified this park as a "Community-Wide Resource" facility. Des Moines classifies this resource as a "Conservancy" and "Community" park. The park boundaries are discontinuous, being divided by the existing SR 509 right of way and the Midway Sewer District treatment plant. The park was purchased by King County using Forward Thrust funds in the 1970s but is now jointly owned and managed by the two cities.

A trail has been developed along the creek from a trailhead at South 200th Street at the north end of the park to the Midway Sewer District treatment plant to the south. A small parking area at the trailhead has been provided to support the use of the trail. Des Moines intends to complete the roughly 2-mile trail through the park and on to Des Moines Beach Park along the Puget Sound shoreline; this trail will include a 12-foot wide paved surface, benches, interpretive signs, and a tunnel at Marine View Drive. 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. The City of SeaTac and the Port of Seattle have been examining that possible trail extension through Port-owned property and along the west side of the proposed third runway.

No other uses are currently planned within Des Moines Creek Park. Local planners and park administrators emphasize that the natural, undeveloped appearance is the primary characteristic that sets the park apart from other locally-managed parks in the vicinity. The natural environment is embodied in a 15.5 acre Class 2 (City of SeaTac rating) wetland in the northeast corner of the park, the riverine wetlands and riparian areas along the entire creek, and the Class 2 Des Moines Creek. The purpose of the trail is to allow people to use and enjoy this natural setting in an otherwise developed and urbanized environment.

SeaTac and Des Moines park administrators and planners indicate that Des Moines Creek Park is particularly important to neighborhood, community, and regional recreationists in part because it will provide a north-south link to regional trail connections. The Des Moines Creek Trail would provide pedestrian, bicycle and possibly equestrian linkage between Des Moines Beach Park, Saltwater State Park, and other recreation 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.

1.3 PROPOSED SR 509 EXTENSION

Under the current SR 509 alignment alternatives, SR 509 would be extended from its existing terminus at S. 188th Street south to intersect Interstate 5 between SR 516 and South 208th Street, depending on which alternative is chosen.

Currently, the primary focus of the SR 509 study is on the C alternatives (C1, C2 and C3) that were developed in 1999 following the Value Engineering Study Report. Two of three alternatives (C2 and C3) directly encroach into the park along the northeast corner. Alternative C2 has been identified as the preliminary preferred SR 509 extension alternative and will be the primary focus of this analysis. This white paper will address issues related to Alternative C2 only. The proposed trail alignment is proposed as mitigation for the impacts to the park caused by the Alternative C2 alignment. Refer to Figure 4 for the Alternative C2 alignment.

A significant interchange is proposed for the SAR connection near the northeast corner of the park, which will present significant obstacles to extending the Des Moines Creek Trail. Those obstacles include proposed retaining walls, widening of S. 200th St., and embankment construction. The following figures and related text, provide a brief description of the impact of each alternative to the park, as well as impacts to the possible extension of the trail.

Alternative C1

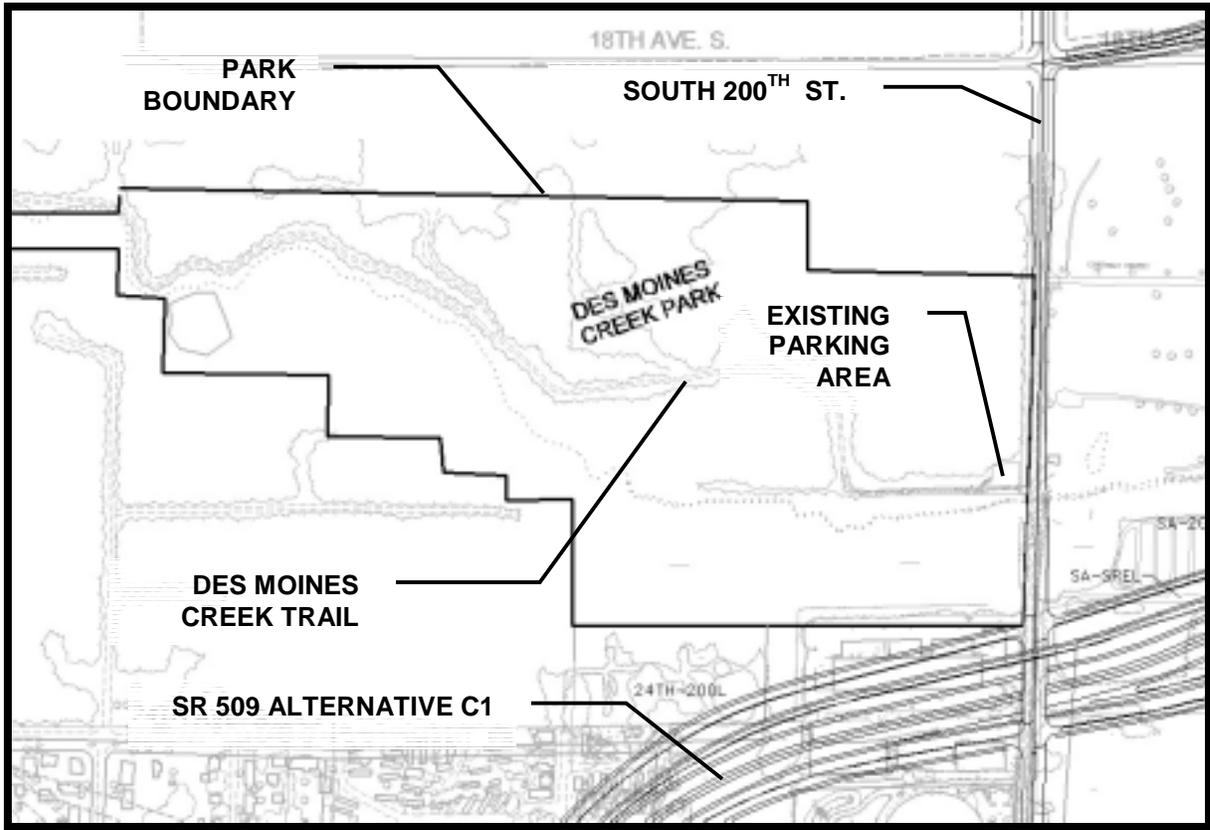


Figure 1 Alternative C1 Impacts

No direct impacts to Des Moines Creek Park. The alignment would skirt Des Moines Creek Park at its northeast corner.

Alternative C2

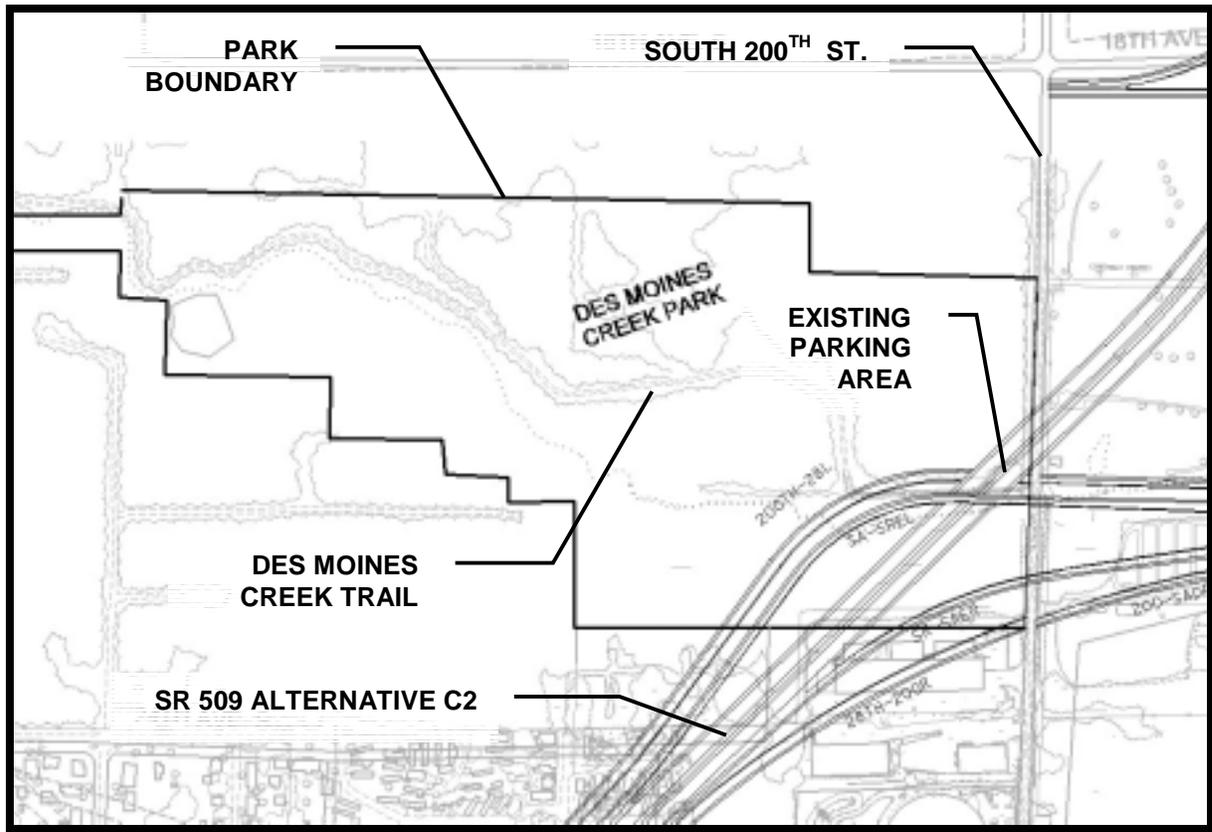


Figure 2 Alternative C2 Impacts

SR 509 would clip the northeast corner of Des Moines Creek Park, taking approximately 7.5 acres of the park (or roughly 6 acres if the SB frontage road from South 200th St. to 24th Avenue S. were not built). Roadways would cross through the park parking lot and trail head area.

Alternative C3

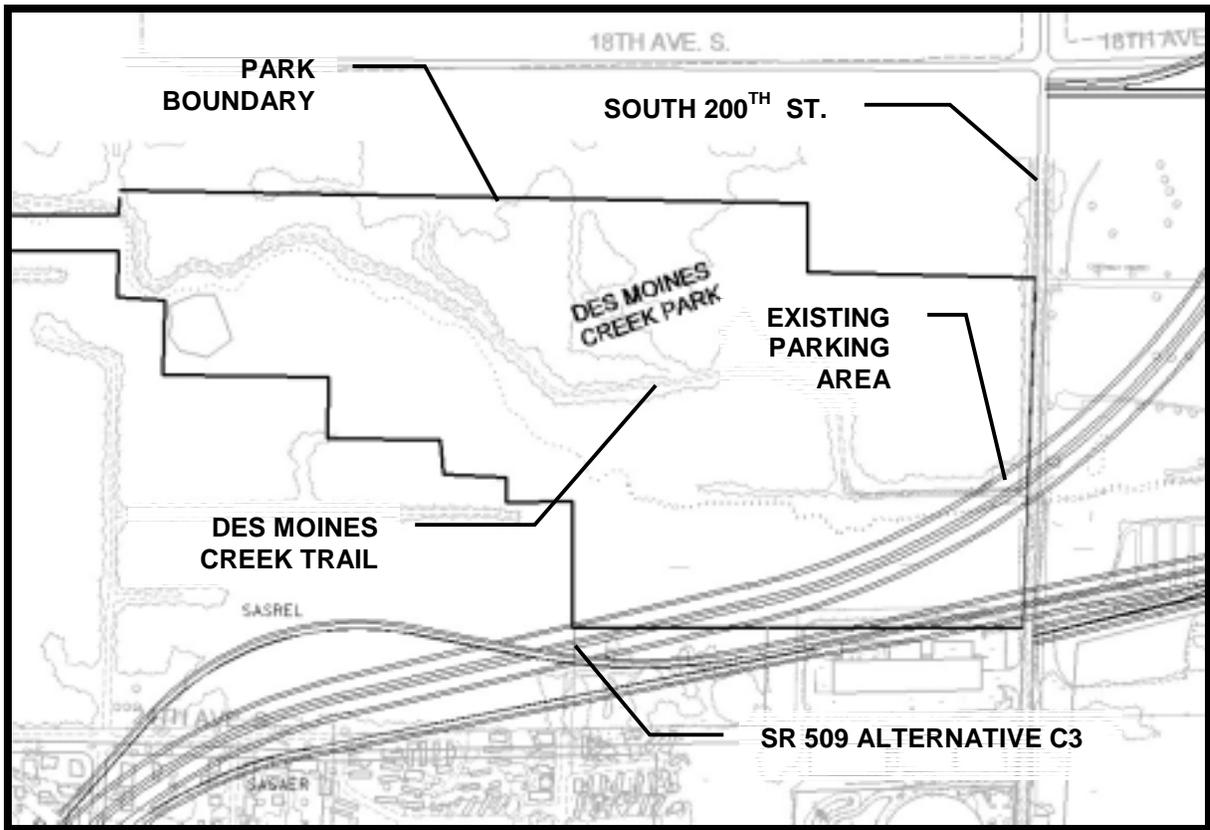


Figure 3 Alternative C3 Impacts

SR 509 would clip the northeast corner of Des Moines Creek Park, taking approximately 6 acres of the park. Roadways would cross through the park parking lot and trail head area.

2. DESCRIPTION OF TRAIL ALTERNATIVES

2.1 ALTERNATIVE 1

Alternative 1 would relocate the existing trailhead and parking area southwest approximately 300 feet (see Figure 5 for the proposed alignment of Alternative 1). The trail extension would start at this point heading north and cross, at grade, South 200th St. under the proposed SR 509/South 200th St. overpass. The trail alignment would then turn northwest, following the proposed SR 509 right of way for approximately 1200 feet before splitting into two paths. One path would head north to provide access to the Northwest Ponds, while the principal trail alignment would continue northwest. Approximately 800 feet northwest of the split, the primary alignment would enter the existing SR 509 right of way and stay within that right of way for approximately 4000 feet before exiting near the existing SR 509 terminus. From that point, the alignment would parallel the existing SR 509 right of way and would end at the northern terminus of the SR 509 project limits,

approximately 2900 feet north of S. 188th St. From this point, the trail could be extended further north to North SeaTac Park following the alignment shown in the City of SeaTac Comprehensive Plan alignment (see Figure 8).

At grade pedestrian crossings of roadways would occur at South 200th St., South 196th St., South 192nd St., and South 188th St. The most critical crossing points would be at South 200th St. and South 188th St. due to the higher speeds and volumes. The crossing at South 188th St. could be located at a traffic signal, that would be needed to control northbound traffic exiting from and entering onto SR 509, to provide a controlled pedestrian crossing. The South 200th St. crossing could similarly be controlled with the traffic signal needed for control of the southbound traffic exiting from the proposed South Access Road.

Approximate length: 10,500 feet.

2.2 ALTERNATIVE 2

Alternative 2 is identical to Alternative 1 with the exception of the pedestrian crossing scenario at South 200th St. Rather than providing an at grade pedestrian crossing, Alternative 2 would provide for a pedestrian tunnel below South 200th St. The tunnel would be between 60 and 100 feet in length with entering and exiting ramps between 60 and 100 feet in length (max 10% slope) to provide access in and out of the tunnel. Refer to Figure 5 for the proposed alignment of Alternative 2. Approximate length: 10,500 feet.

2.3 ALTERNATIVE 3

Alternative 3 also would relocate the existing parking area and trailhead to the southwest. Rather than immediately exiting the park to the north, this alignment would extend the trail to the west, paralleling South 200th St. to 18th Avenue South. The trail would then turn to the north with an at grade crossing of South 200th St. at the South 200th/18th Av. S. intersection. This pedestrian crossing would be controlled by the existing traffic signal at this intersection. The alignment would split, similar to Alternatives 1 and 2, to provide access to the Northwest Ponds with the primary trail alignment, from the split north, identical to Alternatives 1 and 2, terminating at the northern limit of the SR 509 extension project. As in Alternatives 1 and 2, the trail could continue northward from this point following the City of SeaTac Comprehensive Plan alignment (see Figure 8). Refer to Figure 6 for the proposed alignment of Alternative 3. Approximate length: 11,300 feet

2.4 ALTERNATIVE 4

Alternative 4 would relocate the existing parking area and trailhead to the west. Rather than immediately exiting the park to the north, this alignment would extend the trail to the west, paralleling South 200th St. to 18th Avenue South. The trail would then turn to the north with at grade crossings of South 200th St. and 18th Avenue South at the South 200th/18th Av. S. intersection. These pedestrian crossing would be controlled by the existing traffic signal at this intersection. The trail would continue northward along the western edge of the proposed Alternative C2 fill slopes. The trail would terminate at S. 188th Street with future segments to be completed by others. Refer to Figure 7 for the proposed alignment of Alternative 4. Approximate length: 8,050 feet.

3. ALTERNATIVE ANALYSIS

Due to the schematic nature of the alignments developed for this white paper, a detailed analysis of the alternatives is not possible. Rather, a comparative level analysis has been prepared to highlight differences in the following broad categories:

1. **Cost:** Comparative level cost estimates have been prepared. The costs developed are for comparison purposes only and are not suitable for planning purposes. Costs are based on a fourteen foot wide trail section (10 foot paved section with 2 feet cleared on either side.) Based on WSDOT information a base unit cost of \$900,000 per mile has been used.
2. **Safety:** A comparison of the relative level of pedestrian safety based on the number and type of roadway crossings and the extent to which the trail impacts the runway protection zone. Crossings are broken down into two categories--controlled and uncontrolled. A controlled crossing would be a signalized crossing at either a signalized intersection or signalized pedestrian crossing.
3. **Aesthetics:** A subjective analysis of the aesthetic qualities of each alternative.
4. **Noise:** Relative noise levels experienced by users from both roadway and aircraft.
5. **Connectivity:** The level of connectivity of each alternative in relation to the regional trail and park system.

3.1 ALTERNATIVE 1

Cost: \$1.8 million

Safety: 6 roadway crossings--2 controlled and 4 uncontrolled. The trail encroaches into the runway protection zone.

Aesthetics: The alignment would stay within essentially undeveloped land with visual impacts primarily from the SR 509 fill slopes and retaining walls and roadway crossings.

Noise: Trail users would experience significant aircraft noise resulting from the frequent takeoffs and landings at SeaTac International Airport (>70.7 dBA through 2020) as well as road noise from the adjacent SR 509 extension.

Connectivity: Alternative 1 would provide a significant first step in creating a link between Des Moines Creek Park and North SeaTac Park, both considered significant resources to the City of SeaTac. As part of the link between the two parks, Alternative 1 would become part of a regional park and trail system. In addition, the extension would provide a recreational trail, that currently does not exist, accessible to residents in the southwest portion of SeaTac.

3.2 ALTERNATIVE 2

Cost: \$1.9 million

Safety: 5 roadway crossings--1 controlled and 4 uncontrolled. The tunnel at South 200th St. is not considered a roadway crossing for this analysis since pedestrians using the tunnel would not impact traffic on South 200th St. Users may have safety concerns with using a

tunnel. Adequate lighting would be needed to provide an acceptable level of comfort for users. The trail encroaches into the runway protection zone.

Aesthetics: The alignment would stay within essentially undeveloped land with visual impacts primarily from the SR 509 fill slopes and retaining walls and roadway crossings. The pedestrian tunnel at South 200th St. would eliminate one roadway crossing, reducing visual impacts to users from adjacent traffic but place users into an illuminated, concrete passageway, separated from the natural environment.

Noise: Trail users would experience significant aircraft noise resulting from the frequent takeoffs and landings at SeaTac International Airport (>70.7 dBA through 2020) as well as road noise from the adjacent SR 509 extension. The pedestrian tunnel at South 200th St. would eliminate one roadway crossing, reducing the noise impacts to users from adjacent traffic.

Connectivity: Alternative 2 would provide a significant first step in creating a link between Des Moines Creek Park and North SeaTac Park, both considered significant resources to the City of SeaTac. As part of the link between the two parks, Alternative 2 would become part of a regional park and trail system. In addition, the extension would provide a recreational trail, that currently does not exist, accessible to residents in the southwest portion of SeaTac.

3.3 ALTERNATIVE 3

Cost: \$1.9 million

Safety: 6 roadway crossings; 2 controlled, 4 uncontrolled. The trail encroaches into the runway protection zone.

Aesthetics: The first 1000 feet of the trail parallels South 200th St., which would expose users to higher visual impacts resulting from traffic on South 200th St. In addition, placement of the trail parallel to South 200th St. would require clearing of existing vegetation along South 200th, creating a visual impact to roadway users. Once the alignment crosses South 200th St it stays within essentially undeveloped land with visual impacts primarily from the SR 509 fill slopes and retaining walls and roadway crossings.

Noise: Trail users would experience significant aircraft noise resulting from the frequent takeoffs and landings at SeaTac International Airport (>70.7 dBA through 2020) as well as road noise from the adjacent SR 509 extension. In addition, placement of the trail parallel to South 200th St. would expose trail users to additional road noise emanating from South 200th St.

Connectivity: Alternative 3 would provide a significant first step in creating a link between Des Moines Creek Park and North SeaTac Park, both considered significant resources to the City of SeaTac. As part of the link between the two parks, Alternative 3 would become part of a regional park and trail system. In addition, the extension would provide a recreational trail, that currently does not exist, accessible to residents in the southwest portion of SeaTac.

3.4 ALTERNATIVE 4

Cost: \$1.4 million

Safety: 4 roadway crossing; 2 controlled, 2 uncontrolled. Trail avoids the runway protection zone.

Aesthetics: The first 1000 feet of the trail parallels South 200th St., which would expose users to higher visual impacts resulting from traffic on South 200th St. In addition, placement of the trail parallel to South 200th St. would require clearing of existing vegetation along South 200th, creating a visual impact to roadway users. Once the alignment crosses South 200th St it stays within essentially undeveloped land with visual impacts primarily from the SR 509 fill slopes and retaining walls and roadway crossings.

Noise: Trail users would experience significant aircraft noise resulting from the frequent takeoffs and landings at SeaTac International Airport (>70.7 dBA through 2020) as well as road noise from the adjacent SR 509 extension. In addition, placement of the trail parallel to South 200th St. would expose trail users to additional road noise emanating from South 200th St.

Connectivity: Alternative 4 would provide a significant first step in creating a link between Des Moines Creek Park and North SeaTac Park, both considered significant resources to the City of SeaTac. As part of the link between the two parks, Alternative 4 would become part of a regional park and trail system. In addition, the extension would provide a recreational trail, that currently does not exist, accessible to residents in the southwest portion of SeaTac.

4. RECOMMENDATIONS

4.1 Northwest Ponds Access

There does not appear to be any physical obstacles to providing access to the Northwest Ponds. However, the Port of Seattle has indicated safety and security concerns with providing access to the ponds because of their location relative to the runway ends.

Alternatives 1 through 3 would provide access to the ponds, thus creating an additional attraction for trail users. Alternative 4 does not provide access to the ponds.

Because of the safety and security concerns the Port has in relation to the pond access trails it is unlikely that access trails to the ponds will be included in the final trail alignment.

4.2 Trail Extension North of SR 509 Project Limit

The current City of SeaTac Comprehensive Plan indicates that the connection between Des Moines Creek Park and North SeaTac Park is an important component of the city's vision for a regional trail system. The trail extension may also provide the Port of Seattle with an opportunity to mitigate the impacts from the third runway construction. To accomplish the final extension of the trail will require cooperation, commitment and continued dialogue between the City of SeaTac and the Port of Seattle.

With regard to the SR 509 extension project, it seems more logical to maintain the current project limits and extend the trail only to the northern project limit. Two arguments for this approach can be made:

1. The extension of the trail adjacent to the proposed SR 509 extension will appear as a logical component of the overall project. Any extension beyond the existing project limits will appear as an add-on by a public already concerned with the costs of transportation projects.
2. Extending the trail only to the northern project limit, maintains localized construction activities. The construction of the SR 509 extension will be a complex project involving extensive grading operations. There will be advantages in construction efficiency by maintaining confined operations. While the trail extension would be a very minor component of the overall construction activities, it would extend the construction corridor by almost two miles, adding to already complex phasing and staging requirements.

4.3 Preferred Alternative Recommendation

The following table scores each of the alternatives based on the above criteria. Cost and safety have been assigned a higher point value due to their significant impact on the selection of a preferred alternative.

	COST (2pts)	SAFETY (2pts)	AESTHETICS (1pt)	NOISE (1pt)	CONNECTIVITY (1pt)	TOTAL
ALTERNATIVE 1			X	X	X	3
ALTERNATIVE 2			X	X	X	3
ALTERNATIVE 3					X	1
ALTERNATIVE 4	X	X			X	5

Based on the total score the following ranking of the alternatives is recommended:

1. Alternative 4 (Preferred Alternative)
2. Alternatives 1 and 2
3. Alternative 3

4.4 Recommendation Summary

1. Designate the Alternative 4 trail alignment as the preferred alternative alignment and integrate it into the design of Alternative C2.
2. Do not provide access to the Northwest Ponds.
3. Extend the trail to the existing northern project limit only.

CITY OF SEATAC
COMPREHENSIVE PLAN

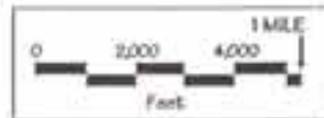


..... Existing Signed Bicycle Route/
 Pedestrian Trail

----- Proposed Signed Bicycle Route/
 Pedestrian Trail

■ Proposed Bridge Over/Under Crossing

Produced by City of SeaTac Department of Planning & Community Development, 1994.
 Source: City of SeaTac



Map 9.5
BIKE ROUTES & PEDESTRIAN TRAILS

5. REFERENCES

Value Engineering Study Report, SR 509 Corridor and South Access Road, Washington State Department of Transportation, February 12, 1999.

City SeaTac Comprehensive Plan, Fourth Annual Update, City of SeaTac Department of Planning and Community Involvement, December 8, 1998.

SR 509/South Access Road EIS Discipline Report, Section 4(f) Evaluation, CH2M HILL ,