

Appendix B
Environmental Inventory

Appendix B: Environmental Inventory

1 What level of environmental review will be performed for this project?

The *SR 169 Route Development Plan* is a predesign, planning level study that does not require a State Environmental Policy Act (SEPA)**Error! Bookmark not defined.** review or a National Environmental Policy Act (NEPA)**Error! Bookmark not defined.** review. Planning level studies are categorically exempt from SEPA under WAC 568-12-800 (3), and are categorically excluded from NEPA under CFR section 771.117(c)(1).

A SEPA review or a NEPA review will occur before proceeding to the design Plans, Specifications, and Estimates (PS&E)**Error! Bookmark not defined.** stage of implementing the final corridor improvement recommendations.

Since this is a predesign study, an inventory of environmentally sensitive areas along the corridor and a cursory review of the existing natural and built environmental conditions were conducted. This data will be available as reference material should the project move forward into the PS&E stage where a more detailed environmental analysis will be required.

Future project development beyond this study's recommendations, including the environmental review, is dependent on the availability of transportation funding. The source of funding will determine who the lead jurisdiction agencies are in the study. If the project's funding source includes federal dollars, then a NEPA environmental review process will be required. The Federal Highway Administration (FHWA)**Error! Bookmark not defined.** will be the federal lead agency and the Washington State Department of Transportation (WSDOT) will be the state lead agency.

Depending on the presence and significance of probable adverse environmental impacts, an appropriate level of SEPA and NEPA environmental documentation will be chosen by the lead agencies. The level of SEPA documentation will be

The *SR 169 Route Development Plan* does not require SEPA or NEPA review since it is a planning level study.

selected based on state SEPA regulations (WAC 197-11). Funding provided by the Federal Transit Administration (FTA)**Error! Bookmark not defined.** will require NEPA documentation based on the FTA NEPA regulations (23 CFR 771). In cases where there are extensive changes to the existing conditions, public scoping meeting(s) may be held to solicit public input.

2 What natural environmental characteristics are located near the SR 169 Corridor?

To identify environmental considerations in the SR 169 corridor, an environmental inventory was conducted. Maps, reports, and other information were collected from various state and local government agencies. In addition, members of the study team drove the corridor to verify the information. A summary of the key features of the natural and built environment in the SR 169 study area is shown in Exhibits B.1 through B.5 (pages 3 through 7), and described in the following text.

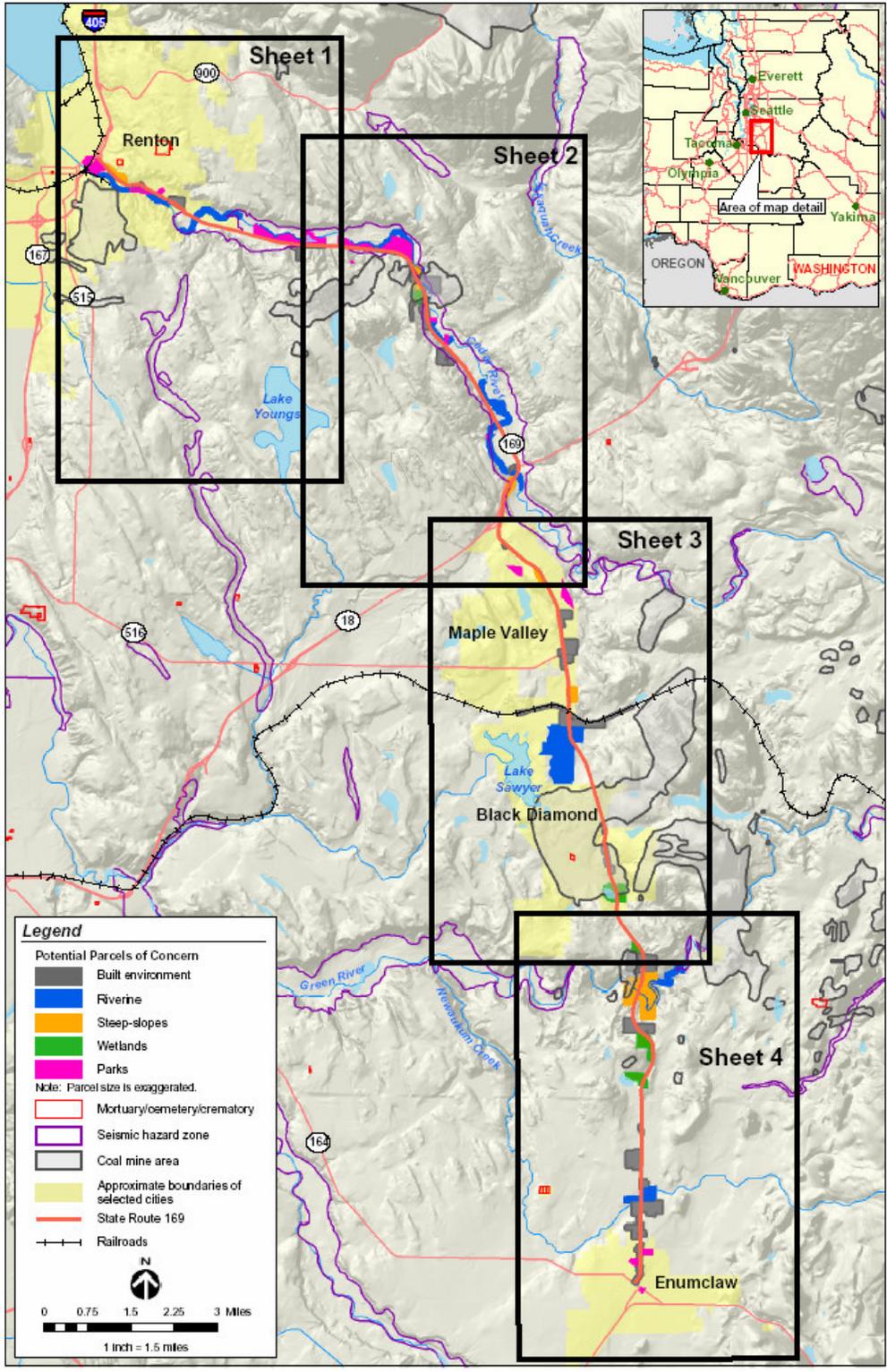
Wetlands

A number of wetlands have been identified along the SR 169 corridor. Exhibits B.1 through B.5 show the wetland locations, and Exhibit B.6 (page 8) provides a summary of the wetlands identified along the corridor.

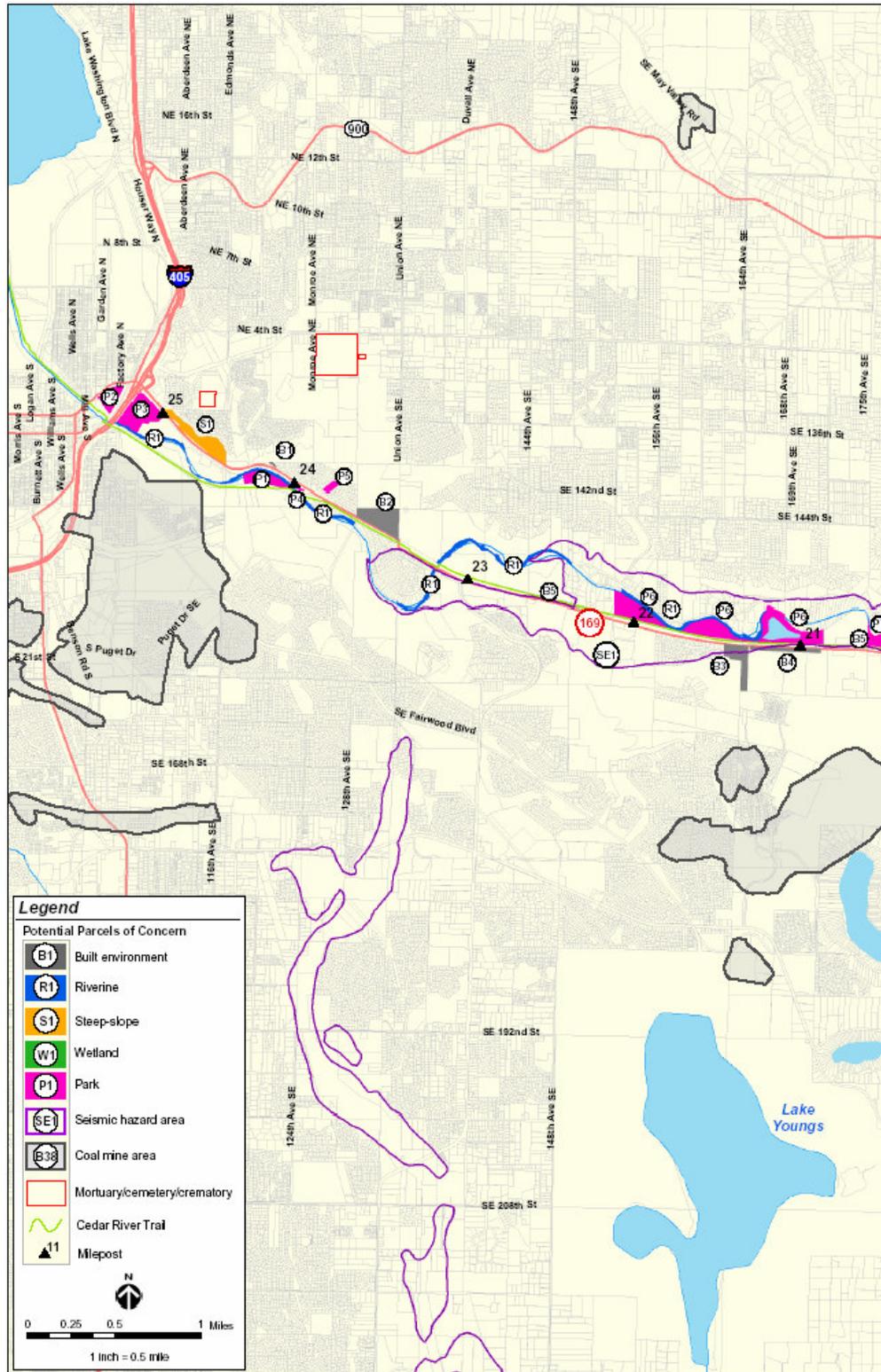
Wetlands were identified at the southwest corner of the intersection of SR 169 and 196th Avenue SE in the Cedar River segment. In the Black Diamond segment, a wetland is located on both sides of SR 169 near Jones Lake. In the Rural/Agricultural segment, a wetland was identified near the intersection of SR 169 and Green Valley Road.

There are numerous wetlands in the study area, especially near the Cedar River, and in the Rural/Agricultural segment.

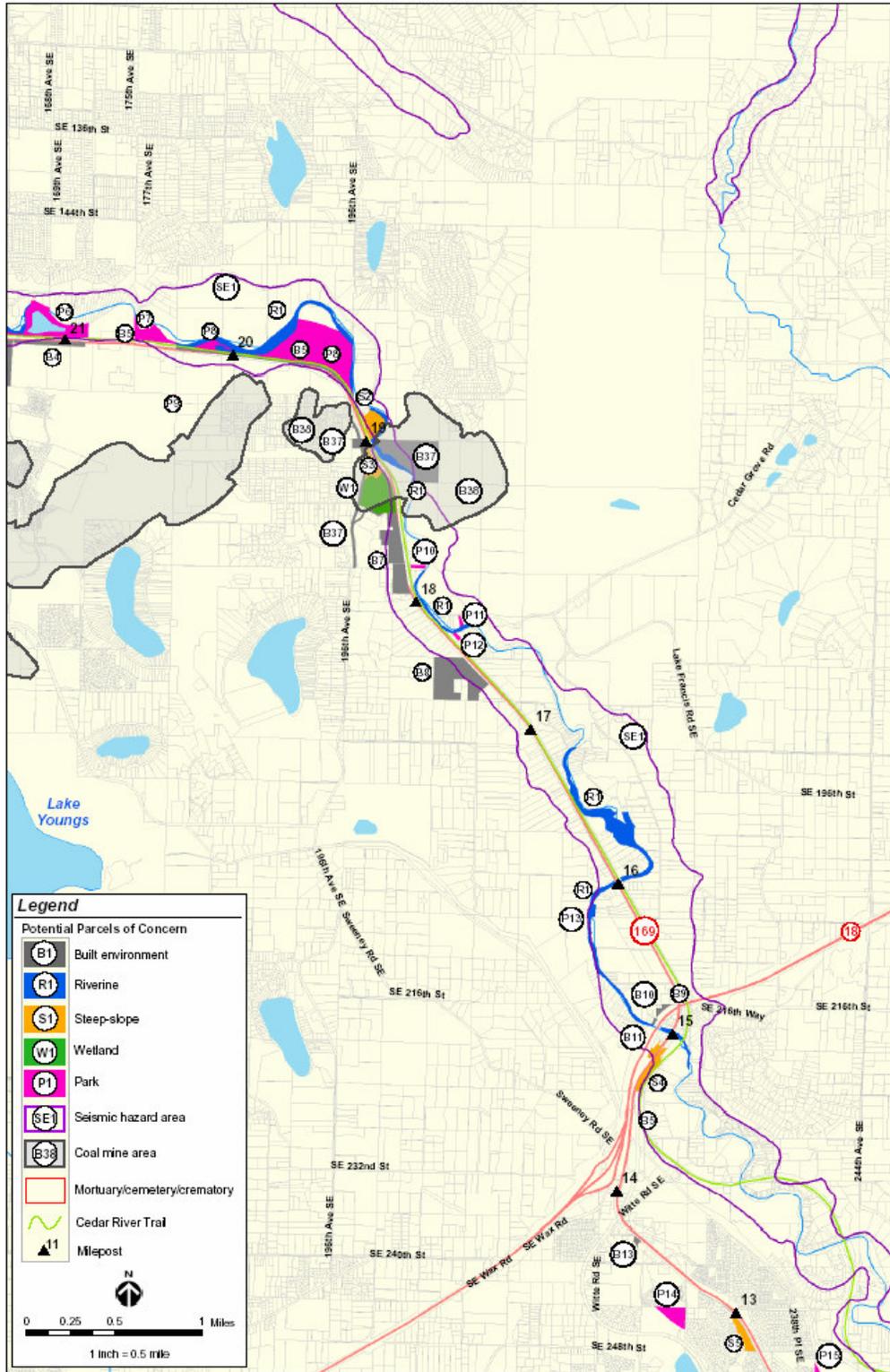
**Exhibit B.1
Overview of Environmental Constraints Near SR 169**



**Exhibit B.2
Environmental Constraints Near SR 169 (Renton Segment)**



**Exhibit B.3
Environmental Constraints Near SR 169 (Cedar River Segment)**



**Exhibit B.6
Potential Wetlands along SR 169 Corridor**

Exhibit B2 to B5					
Label	Location Description	Milepost	King County PIN	Type	Concern
W1	South of 196th Avenue SE	18.50	Several Parcels	Natural Resource	Permitting
W2	North of 17603 SR 169 (Near Jones Lake)	7.24	Several Parcels	Natural Resource	Permitting
W3	SE Green Valley Rd	6.02	2421069011	Natural Resource	Permitting
W4	North of Enumclaw-Franklin Rd. SE	4.00	Several Parcels	Natural Resource	Permitting
W5	South of SE 383rd Street	3.52	Several Parcels	Natural Resource	Permitting
R2	Ravensdale Creek	10.00	Several Parcels	Natural Resource	Permitting
R4	Newaukum Creek	1.52	Several Parcels	Natural Resource	Permitting
P6	Cavanaugh Pond	20.5	Several Parcels	Natural Resource	Permitting
P8	Ricardi Reach/Cedar Grove	19.22	Several Parcels	Natural Resource	Permitting
	East of 140th Way SE	23.0	Several Parcels	Natural Resource	Permitting
	1200 feet east of 161st Avenue SE	21.8	Several Parcels	Natural Resource	Permitting
	West of SE 203rd Street	16.0	Several Parcels	Natural Resource	Permitting
	South of SE 288th Street	9.8	0221069023	Natural Resource	Permitting
	South of 367th Street	5.0	3621069059	Natural Resource	Permitting
	North of SR 416th Street	1.7	Several Parcels	Natural Resource	Permitting
	Newaukum Creek	1.5	Several Parcels	Natural Resource	Permitting

Another wetland is located on the west side of SR 169 north of Enumclaw-Franklin Road SE, and another is located adjacent to Bass Lake on the west side of SR 169. In the Enumclaw segment, wetlands are located adjacent to Newaukum Creek near the intersection of SR 169 and SE 416th Street.

There may be other wetlands associated with the Cedar River floodplain that were not identified during the windshield survey.

The Black Diamond Comprehensive Plan identifies wetlands associated with the Ravensdale (Covington) Creek near SE 288th Street. It shows wetlands on both sides of SR 169 at this location.

There were three wetlands identified through the King County Department of Natural Resources and Parks Web site. The Cavanaugh Pond Natural Area, located near MP 20.5, is

located on the left bank of the mainstem Cedar River. It is approximately 44 acres in size and consists of four parcels. The Natural Area is adjacent to the Cedar River Trail. The easternmost parcel of the Natural Area includes 14-acre Cavanaugh Pond, the only Class 1 wetland on the Cedar River valley floor. The wetland supports open water, forested, scrub-shrub, and emergent habitats.

The Ricardi Reach Natural Area located east of SR 169 and north of Jones Road, contains a six acre forested wetland along the Cedar River, including a side channel off the mainstem. The site is mostly forested with a dense shrub understory.

The nearby Cedar Grove Natural Area contains a thirty acre forested/scrub-shrub wetland and the peninsula contains multiple side channels that convey river flow during times of high water.

Permits from local, state, and federal agencies would be required for roadway improvements that impact any wetland area. Wetland areas that may be impacted by roadway improvements would need to be delineated. During design, impacts to wetland areas would need to be quantified and mitigation (compensation) for impacted wetlands would be required as part of the permit conditions. Long-term monitoring (up to 5 years) of the mitigation areas may also be required. A Corps Section 404 permit would be required for wetland fill. Other environmental documents as required by local (critical or sensitive areas studies), state [State Environmental Policy Act checklist or Environmental Impact Statement (EIS)**Error! Bookmark not defined.**], and federal environmental documents [National Environmental Policy Act (NEPA)] Environmental Assessment (EA)**Error! Bookmark not defined.** or EIS would need to be prepared.

Water Bodies

Two rivers and six streams were identified within the SR 169 study area. Exhibits B.2 through B.5 show the locations of the water bodies, and Exhibit B.7 provides additional information on them.

Exhibit B.7 Rivers and Streams near the SR 169 Corridor

Exhibit B.7 Rivers and Streams near the SR 169 Corridor					
Exhibit Label	Name	Milepost	King County PIN	Type	Concern
R1	Cedar River	23.0; 16.0; 15.0	Several Parcels	Natural Resource	Permitting
	Madsen Creek	22.0	Several Parcels	Natural Resource	Permitting
	Unnamed Stream 08.0316	15.0	Several Parcels	Natural Resource	Permitting
R2	Ravensdale Creek	10.0	Several Parcels	Natural Resource	Permitting
	Unnamed Tributary to Rock Creek	7.1	Several Parcels	Natural Resource	Permitting
	Rock Creek	7.0	Several Parcels	Natural Resource	Permitting
R3	Green River	5.2	Several Parcels	Natural Resource	Permitting
R4	Newaukum Creek	1.5	Several Parcels	Natural Resource	Permitting

The SR 169 highway lies adjacent to the Cedar River from MP 25 to MP 15, and crosses the Cedar River three times: once near MP 23, and twice again near MPs 16 and 15. The Cedar River is the largest tributary to Lake Washington, and is a unique natural aquatic feature that provides habitat for several fish species as well as drinking water for the city of Seattle.



The Cedar River parallels much of SR 169 between Renton and Maple Valley.

The Green River flows east to west across the SR 169 corridor near MP 5. The Green River is 65 miles long from the Cascade mountain range to Elliott Bay. The portion of the Green River within the study area is part of the Middle Green River subarea watershed.

Newaukum Creek is a tributary to the Green River, with its headwaters approximately 14 miles east in the Enumclaw foothills. It provides vital spawning and rearing habitat for Puget Sound salmonids.

Madsen Creek flows from south to north, crossing the SR 169 corridor near MP 22 prior to flowing into the Cedar River. The stream has its headwaters in the city of Renton.

Unnamed Stream 08-0316 flows along the northbound lane of SR 169 for approximately 0.5 mile between MP 15 and 16. The stream is a tributary to the Cedar River that originates along SR 18 corridor east of Maple Valley.

Ravensdale Creek crosses SR 169 near MP 10, and flows to Ravensdale Lake, east of SR 169. King County recently completed an agreement with a private landowner and the city of Black Diamond to preserve recreational open space adjacent to the stream (See section on Parks and Open Space below).

An unnamed tributary to Rock Creek flows from northeast to southwest, crossing SR 169 near MP 7.1 within the city of Black Diamond. The stream flows into Rock Creek approximately 0.5 mile downstream of the SR 169 crossing.

Rock Creek originates at Jones Lake, south of the city of Black Diamond and west of SR 169, and flows toward the southwest for nine miles before flowing into the Cedar River. Although Rock Creek does not cross the SR 169 corridor, its headwaters are located near the project corridor.

Jones Lake is located near Plass Road (south of SE 383rd Street) near MP 7. This small lake is associated with a wetland complex that abuts the roadway.

Bass Lake is located at MP 3.52 of SR 169, just south of SE 383rd Street. This lake is also associated with a wetland as shown in Exhibit B.5, label (W5). Bass Lake is owned by King County, and is listed as one of its ecological lands. According to King County, ecological lands are properties that contain a diversity of native vegetation that provide fish and wildlife habitat. The management goals for ecological lands are to conserve and enhance ecological value and to accommodate passive recreational use that does not harm the ecological resources on the site.¹

¹ King County Web site, Ecological Lands

Soils

Information on soils in the study area was obtained from the Natural Resources Conservation Service, formerly known as the Soil Conservation Service. Nineteen soil classifications are present in the study area. Exhibit B.8 (on the following two pages) provides the location of soil classifications within the project corridor and summarizes erosion hazard and excavation limitations of these soil classifications.

Soils are not a major problem within the SR 169 corridor study area for transportation improvements except for those soils associated most closely with rivers and in depressions. During construction, soils are a problem when they are susceptible to erosion, mass wasting, and poor drainage or are associated with higher water tables. Though problem soils appear to be very limited in extent, there is no one general area to avoid because most of the problem soils occur in limited portions of more stable areas. Detailed geotechnical studies would be needed to examine the impacts of developing a project and to identify the appropriate design standards to be applied, given the specific soil characteristics of the improvement location.

Problem soils are generally limited, and are mostly associated with rivers and depressions.

Exhibit B.8
Summary of Project Corridor Soils and Soil Properties as Classified by the Soil Conservation Service (SCS 1973)

Soil Unit	SCS Unit	Soil	Erosion Hazard ^a	Limitations for Shallow Excavation ^b	Project Segment
Alderwood Series	AgB	Alderwood gravelly sandy loam, 0–6 percent slopes	Slight	Severe: seasonal high water table	Rural/Enumclaw
	AgC	Alderwood gravelly sandy loam, 6–15 percent slopes	Moderate	Severe: seasonal high water table	Black Diamond Rural/Enumclaw
	AgD	Alderwood gravelly sandy loam, 15–30 percent slopes	Severe	Severe: steep slopes	Black Diamond
	AkF	Alderwood and Sitsap soils, very steep slopes	Severe to very severe	Severe: steep slopes	Renton Cedar River Rural/Enumclaw
Beusite Series	BeC	Beusite gravelly sandy loam, 6–15 percent slopes	Slight to severe	Severe: bedrock at a depth of 20–40 inches	Rural/Enumclaw
	BeF	Beusite gravelly sandy loam, 15–30 percent slopes	Moderate to very severe	Severe: slope: bedrock at a depth of 20–40 inches	Rural/Enumclaw
Buckley Series	Bu	Buckley silt loam	Slight	Severe: seasonal high	Rural/Enumclaw

**Exhibit B.8
Summary of Project Corridor Soils and Soil Properties as Classified by the Soil Conservation Service (SCS 1973)**

Soil Unit	SCS		Erosion Hazard ^a	Limitations for Shallow Excavation ^b	Project Segment
	Unit	Soil			
					water table
Everett Series	EvB	Everett gravelly sandy loam, 0–5 percent slopes	Slight to moderate	Severe: very gravelly	Cedar River Black Diamond
	EvC	Everett gravelly sandy loam, 5–15 percent slopes	Slight to moderate	Severe: very gravelly	Black Diamond Rural/Enumclaw
	EvD	Everett gravelly sandy loam, 15–30 percent slopes	Moderate to severe	Severe: slope: very gravelly	Black Diamond
Mixed Alluvial Land	Ma	Mixed alluvial land	Slight	Severe flood hazard	Cedar River Rural/Enumclaw
Neilton Series	NeC	Neilton very gravelly loamy sand, 2–15 percent slopes	Slight to moderate	Severe: very gravelly	Cedar River
Newberg Series	Ng	Newberg silt loam	Slight	Moderate: flood hazard	Renton Cedar River
Pilchuck Series	Pc	Pilchuck loamy fine sand	Moderate to severe	Severe: flood hazard; coarse texture	Renton Cedar River
Puyallup Series	Py	Puyallup fine sandy loam	Slight	Severe: flood hazard	Renton Cedar River
Riverwash	Rh	Riverwash	N/A	Severe: flood hazard; very gravelly	Renton Cedar River
Seattle Series	Sk	Seattle muck	None	Severe: seasonal high water table; organic soil.	Rural/Enumclaw
Sulton Series	Su	Sulton silt loam	Slight	Severe: flood hazard.	Cedar River
Urban Land	Ur	Urban Land	Slight to moderate	Variable.	Renton

^a Ratings are as classified in SCS (1973) for risk of erosion in woodland.

Slight = No special problem.

Moderate = Moderate loss of soil where runoff is not controlled and the vegetative cover is not adequate for protection.

Severe or Very Severe = If steep slopes, rapid or very rapid runoff, and past erosion make the soil highly susceptible to erosion, and intensive management, including special equipment and methods of operation that minimize soil deterioration are needed.

^b Ratings are as classified in SCS (1973) for soil uses that require excavating or trenching to a depth of 6 feet or less.

None to slight = Natural drainage is excessive, somewhat excessive, or good; seasonal high water table is below a depth of 60 inches; there is no flooding; slopes are less than 8 percent; materials within the depth to be excavated is fine sandy loam, sandy loam, loam, silt loam, or sandy clay loam; depth to bedrock is greater than 60 inches.

Moderate = Soils have one or more of the following – natural drainage is moderately good; seasonal high water table is 30 to 60 inches; flooding is rare; slopes are 8 to 15 percent; materials within depths to be excavated is silt, clay loam, or sandy clay, and all gravelly soils; depth to bedrock is 40 to 60 inches.

Severe = Soils have one or more of the following: Natural drainage is somewhat poor, poor, or very poor; seasonal high water table is at 30 inches or less; flooding is occasional to frequent; slopes are 15 percent or more; materials within the depth to be excavated is clay, sand, loamy sand, organic, or very gravelly; depth to bedrock is less than 40 inches.

Landslide Hazard Areas

Landslides are usually caused by periods of heavy rainfall or rapid snow melt, but can also be caused by earthquakes, volcanic activity and excavations. Locations at most risk from landslides include steep hills, steep road-cuts or excavations, places where landslides have occurred in the past, and steep areas where surface runoff is channeled.

SR 169 is located within the Puget Sound Lowlands geologic zone. The Puget Lowland consists of a broad, low lying region comprised of glacial soils. The Puget Lowland is particularly subject to both heavy rainfall and earthquakes. The Nisqually earthquake in February 2001 caused a portion of hillside near Jones Road to slide into the riverbed of the Cedar River. The flow of the river was partially blocked resulting in several homes along the river being damaged by the dammed waters.²

The King County Sensitive Areas map identifies most of the landslide prone areas near SR 169 as being located between Renton and Maple Valley. In the Renton segment, landslide prone areas are located along both sides of the Cedar River valley, where steep slopes and erosive conditions exist. Landslide prone areas within close proximity (within 300 feet) of SR 169 are located along the west side of SR 169 near 140th Way SE, and on the west side between 161st Avenue SE (MP 21.50) and the Cedar River bridge at MP 16.02. Other landslide prone areas within close proximity are located on the east side of SR 169 near SR 18 (MP 15.21), and on both sides of SR 169 south of Bain Road/Witte Road (MP 14.95). There are no landslide prone areas near SR 169 south of Maple Valley.

The King County Sensitive Area Ordinance defines landslide risk areas as landforms with:

- Slopes greater than 15 percent, impermeable soils and groundwater.

² King County Hazard Mitigation Plan

- Slopes with evidence of mass movements or soil wasting.
- Slopes resulting from rapid stream incision.
- Undercut banks, or wave actions.
- Slopes that experience snow avalanches.
- Alluvial fans.

In order to determine if an alternative route traversing a landslide hazard may be feasible, the alternative route would need to be evaluated, individual slopes would need to be analyzed, geotechnical borings would need to be advanced to characterize the slope, slope stability analysis would need to be performed for each slope, lateral earth pressures would need to be developed and preliminary slope stabilization recommendations would need to be provided to estimate the construction costs. During design of an alternative, analysis of different slope stabilization options would also have to be performed to select the most cost effective option. These studies would be completed during design of specific projects.

In addition to landslide prone areas, there are seven areas near SR 169 where steep slopes were sighted during the windshield survey. The King County Critical Areas Ordinance defines steep slopes as landforms with a slope of forty percent inclination or more within a vertical elevation change of at least ten feet. Exhibits B.2 through B.5 shows the locations of steep slopes. They are also listed in below Exhibit B.9.

**Exhibit B.9
Steep Slopes**

Exhibit B2 – B5					
Label	Location	Milepost	King County PIN	Type	Concern
S1	East side SR 169 near Blaine Drive	24.70	3955901420	Natural Steep Slope	Slope stability
S2	East side SR 169 south of Jones Road	19.25	Several Parcels	Natural Steep Slope	Slope stability
S3	West side SR 169 south of 196th Avenue SE	18.75	2923069047	Natural Steep Slope	Slope stability
S4	Both sides SR 169 near Bain Road/ Witte Road	14.95	Several Parcels	Natural Steep Slope	Slope stability
S5	West side SR 169 near SE 244th St.	13.00	5491467777	Natural Steep Slope	Slope stability

**Exhibit B.9
Steep Slopes**

Exhibit B2 – B5 Label	Location	Milepost	King County PIN	Type	Concern
S6	East side SR 169 south of SE 276th St.	10.90	Several Parcels	Natural Steep Slope	Slope stability
S7	Green River Gorge	5.30	Several Parcels	Natural Steep Slope	Slope stability River crossing

There are areas along the east side of the corridor where the Cedar River embankment is located along steep slopes. Wherever possible an alternative that would avoid the steep slope area should be considered. In most sections of SR 169, right-of-way is available on the opposite side of the roadway to avoid steep slopes. However, there is one area near MP 19, south of Jones Road, where the roadway is constricted between the Cedar River on one side and a steep hillside slope on the other.

Seismic Hazard Areas

The Puget Sound is a seismically active area and is classified as a Seismic Zone 3 by the Uniform Building Code. The potential magnitude of a seismic earthquake in this designation is 8.5 once every 400 to 500 years. Known seismically sensitive areas are shown in Exhibits B.2 through B.5. Earthquakes in the area have been sub-crustal, i.e., 30 to 50 miles below the surface (Draft Muckleshoot Amphitheater EIS).

The primary risk associated with seismic hazard areas is the possibility of soil liquefaction during a strong motion earthquake.

The Enumclaw Comprehensive Plan identified extensive areas within the Enumclaw city limits as seismic hazard areas. Much of the corridor between Renton and Maple Valley, where the road parallels the Cedar River channel, is seismically hazardous. This seismic area extends from approximately MP 23.5 to MP 15.0, where the Cedar River veers away from the SR 169 corridor. The study corridor section between MP 14.9 and MP 0.0 is not considered a seismically hazardous area.

3 What sensitive species and habitats are found near the SR 169 Corridor?

Fish and wildlife habitat areas are necessary for the survival of sensitive species. They contain the basic elements of the ecological function of the physical landscape. To protect this habitat, efforts must preserve existing habitat corridors and minimize impacts to habitat areas. For the purposes of this report, sensitive species include those that are listed by the U.S. Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration (NOAA) Fisheries, and the Washington Department of Fish and Wildlife (WDFW)**Error! Bookmark not defined.** Information on endangered and threatened species within the SR 169 study area was primarily identified from the WDFW Priority Habitats and Species database and other sources about the habitat associations and distributions of fish and wildlife in the project vicinity. This section also identifies threatened species, and species of concern. Threatened species are species that are likely to become endangered in the foreseeable future. Species of concern are those species that the USFWS is reviewing for consideration as candidates for listing under the Endangered Species Act. Additional information is needed to propose them as threatened or endangered.

There are many areas of second growth forests in the study area, primarily north of the Agricultural segment.

Vegetation

The presence of sensitive, threatened, and endangered plants was evaluated within the project corridor. Exhibit B.10 provides a list of federal and state listed plant species identified as potentially occurring in King County and their preferred habitat types. With the exception of the Alaska Harebell and Clubmoss Cassiope, the habitats preferred for all listed and sensitive species in King County are found within the study area. Although these habitats are present, the Washington Department of Natural Resources Natural Heritage Database (WDNR 2005a) does not document the presence of any listed



There are many areas of second growth forests in the study area, primarily north of the Agricultural segment.

or sensitive plants species within one-half mile of the project corridor.

**Exhibit B.10
Federal and State Listed Plants Potentially Occurring in King County, Washington**

Common Name	Scientific Name	Status ^a		Preferable Habitat Type	Known Occurrence in Corridor ^b
		Federal	State		
Swamp sandwort	<i>Arenaria paludicola</i>	E	X	Low-elevation wet areas	None documented
White-top aster	<i>Aster curtus</i>	SOC	S	Low-elevation open grassland	None documented
Alaska Harebell	<i>Campanula lasiocarpa</i>	SOC	S	Alpine rocky areas	None documented
Bristly Sedge	<i>Carex comosa</i>	–	S	Low-elevation marshes and lake shores	None documented
Large-awn Sedge	<i>Carex macrochaeta</i>	–	S	Low-elevation wet areas	None documented
Few-flowered Sedge	<i>Carex pauciflora</i>	–	T	Low-elevation bogs	None documented
Long-styled Sedge	<i>Carex stylosa</i>	–	S	Low-elevation moist areas	None documented
Clubmoss Cassiope	<i>Carex lycopodioides</i>	–	S	Alpine rocky areas	None documented
Golden Paintbrush	<i>Castilleja levisecta</i>	T	E	Low-elevation grasslands	None documented
Golden Chinquapin	<i>Chrysolepis chysophylla</i>	–	S	Low-elevation open and wooded areas	None documented
Tall Bugbane	<i>Cimicifuga elata</i>	SOC	S	Low to mid-elevation, mature forest	None documented
Black Lily	<i>Fritillaria camschatcensis</i>	–	S	Low-elevation moist and open meadows	None documented
Floating Water Pennywort	<i>Hydrocotyle ranunculoides</i>	–	S	Low-elevation wet areas	None documented
Canadian St. John's-wort	<i>Hypericum majus</i>	–	S	Low-elevation moist areas	None documented
Water Lobelia	<i>Lobelia dortmanna</i>	–	T	Low-elevation wet areas	None documented
Bog Clubmoss	<i>Lycopodiella inundata</i>	–	S	Low- to mid-elevation moist areas	None documented
Treelike Clubmoss	<i>Lycopodium dendroideum</i>	–	S	Low- to mid-elevation moist areas	None documented
White Meconella	<i>Meconella oregano</i>	SOC	T	Low-elevation grasslands	None documented
Branching Montia	<i>Monita diffusa</i>	–	S	Low-elevation moist areas	None documented
Choris' Bog-orchid	<i>Plantago macrocarpa</i>	–	T	Low-elevation moist open areas	None documented
Small Northern Bog-orchid	<i>Woodwardia fimbriata</i>	–	S	Low-elevation moist areas	None documented
Flat-leaved Bladderwort	<i>Utricularia intermedia</i>	–	S	Low-elevation wet areas	None documented

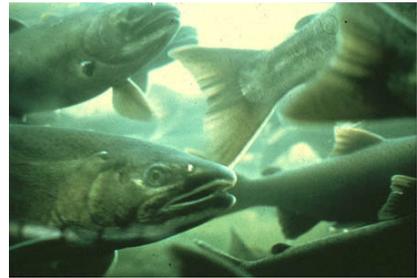
^a Status: X = Extirpated, E = Endangered, T = Threatened, SOC = Species of Concern.

^b Occurrence of species up to one-half mile from the project corridor.
Source: USFSW (2005 online); WDNR (2005b online); WDFW (2005a).

Fish and Associated Sensitive River Habitats

The rivers and streams within the SR 169 study area provide habitat for salmonids and resident fish populations, including federal and state listed fish species. The USFWS and NOAA Fisheries identify two federally listed fish species, Puget Sound Chinook salmon and Coastal/Puget Sound bull trout, and one candidate fish species, river lamprey, as occurring or potentially occurring in King County (USFWS 2005 online; NOAA Fisheries 2005 online). On April 5, 2005, NOAA Fisheries accepted a petition to list the Puget Sound steelhead under the ESA.

Exhibit B.11 (on the following page) presents federal and state listed species that potentially occur in streams occurring in the study area. The Cedar River and the Green River are expected to provide habitat for federally listed Chinook salmon and bull trout. Unnamed Creek 08.0316, Rock Creek, and Newaukum Creek are expected to provide habitat for federally listed Chinook salmon. It should be noted that all streams in the study area without downstream barriers that preclude anadromous fish passage potentially provide foraging and rearing habitats for the federally listed bull trout. Streams in the project corridor with anadromous fish populations are described on the next page.



Threatened fish species in the study area include Chinook salmon and bull trout.

**Exhibit B.11
Federal and State Listed Fish Species Potentially Occurring in Project Corridor Streams**

Common Name (Scientific Name)	Status ^a		Preferable Habitat Type	Documented Occurrence in Streams Within the Project Corridor
	Federal	State		
Bull Trout – Coastal/Puget Sound DPS (<i>Salvelinus confluentus</i>)	T	SOC	Streams and rivers draining to the Puget Sound.	Cedar River Green River
Chinook Salmon – Puget Sound ESU (<i>Oncorhynchus tshawytscha</i>)	T	SOC	Streams and rivers draining to the Puget Sound.	Cedar River ^b Unnamed Stream 08.0316 ^b Rock Creek Green River ^b Newaukum Creek ^b
Puget Sound Steelhead (<i>Oncorhynchus mykiss</i>)	P	–	Streams and rivers draining to the Puget Sound.	Cedar River Madsen Creek Unnamed Stream 08.0316 Rock Creek Green River Newaukum Creek
Riffle Sculpin (<i>Cottus Gulosus</i>)	–	M	On or near stream and lake bottoms.	Cedar River
Reticulate Sculpin (<i>Cottus Perplexus</i>)	–	M	On or near stream and lake bottoms.	Green River
River Lamprey (<i>Lampetra ayresi</i>)	C	SOC	Coastal freshwater streams	–
Salish Sucker (<i>Catostomus catostomus</i>)	–	M	Clear, cold headwater streams with good in-stream and overhanging cover.	Green River

^a Agency Status: C=Candidate, E = Endangered, M = Monitor, P = Petition accepted to review the federal status, T= Threatened,
SOC= Species of Concern. USFWS (2005 online); NOAA Fisheries 2005 online)

^b Critical habitat designated for species within the project area.

The Cedar River provides spawning and rearing habitat for several anadromous fish species including Chinook, coho, and sockeye salmon, and steelhead, coastal cutthroat, and bull trout. Bull trout have been documented in the lower Cedar River, but spawning habitat is limited to the upper Cedar River beyond the extent of the study area. Chinook salmon populations in the Cedar River are in steep decline driven primarily by reduction in habitat productivity. NOAA Fisheries has designated critical habitat for Chinook salmon within the segment of the Cedar River crossing the project corridor. Cavanaugh Pond,

located south of the Cedar River near MP 20.5, is noted for its populations of spawning sockeye salmon.³

Madsen Creek, a tributary to the Cedar River, provides spawning and rearing habitat for coho and sockeye salmon and steelhead trout.

The segment of the Green River within the study area contains the best salmon habitat remaining in the Green River watershed, according to the King County Department of Natural Resources and Parks. It provides the primary spawning and freshwater rearing areas of the Green/Duwamish and Central Puget Sound Watershed. Anadromous fish utilizing the segment of the Green River within the project corridor for spawning and rearing⁴ include Chinook, coho, chum, pink, and sockeye salmon and steelhead and coastal cutthroat trout. Additionally, bull trout utilize the Green River; however spawning populations are only expected upstream of the project corridor. The construction and operation of Howard Hanson Dam upstream of the study area has significantly reduced the amount of spawning gravel in the downstream reaches of the Green River and altered the natural flow regime of the river. NOAA Fisheries has designated critical habitat for Chinook salmon within the segment of the Cedar River crossing the SR 169 corridor.

Ravensdale Creek provides spawning and rearing habitat for coho salmon. The unnamed tributary to Rock Creek provides spawning and rearing habitat for coho salmon. Rock Creek is considered to be one of the few streams in King County that provide excellent salmon spawning and rearing areas. Rock Creek provides rearing and spawning habitat for several anadromous fish species including Chinook, coho, and sockeye salmon, and steelhead trout. These fish are also expected to utilize habitat in Jones Lake, the terminus of Rock Creek.

³ King County Department of Natural Resources Web site.

⁴ King County Department of Natural Resources and Parks, Water and Land Resources Division.

Newaukum Creek, a tributary to the Green River, provides important spawning, rearing and migration habitat for Chinook, coho, steelhead, chum, cutthroat, sockeye, and pink salmon within the vicinity of the study area. Approximately 16 percent of the naturally spawning adult Chinook enter the Green/Duwamish watershed via Newaukum Creek. NOAA Fisheries has designated critical habitat for Chinook salmon within the segment of Newaukum Creek crossing the project corridor.

Birds

The U.S. Fish and Wildlife Service (USFWS) identified three federally listed and one candidate bird species as occurring or potentially occurring in King County (USFWS 2005 online). Exhibit B.12 lists all federal and state listed bird species identified as potentially occurring in King County. The WDFW Priority Habitats and Species database does not identify any threatened, endangered, or candidate bird species within one-half mile of the project corridor; however, a Washington State monitored species, the osprey, is documented by WDFW as nesting on a tree top within one-half mile of the project corridor in the vicinity of the Green River gorge (MP 5.2).

**Exhibit B.12
Federal and State Listed Birds Species Potentially Occurring in King County, Washington**

Common Name (Scientific Name)	Status ^a		Preferable Habitat Type	Documented Occurrence Along Project Corridor (Segment) ^b
	Federal	State		
American White Pelican (<i>Pelecanus erythrorhynchos</i>)	–	E	Near fresh water with adequate perching and nesting trees.	No breeding/nesting sites within ½ mile of project corridor.
Bald Eagle (<i>Sorex trowbridgii destructioni</i>)	T	T	Near fresh water with adequate perching and nesting trees.	No breeding/nesting sites within ½ mile of project corridor.
Black-Backed Woodpecker (<i>Picoides arcticus</i>)	–	C	Breed in mature conifer forests; nest in edge habitat between coniferous forests and burns, bogs, meadows, or logged areas.	No breeding/nesting sites within ½ mile of project corridor.
Golden Eagle (<i>Aquila chrysaetos</i>)	–	C	Shrub-steppe areas and open forests	No breeding/nesting sites within ½ mile of project corridor.
Great Blue Heron (<i>Ardea herodias</i>)	–	M	Rivers, lake edges and marshes. Nests in trees near water.	No breeding/nesting sites within ½ mile of corridor.

**Exhibit B.12
Federal and State Listed Birds Species Potentially Occurring in King County, Washington**

Common Name (Scientific Name)	Status ^a		Preferable Habitat Type	Documented Occurrence Along Project Corridor (Segment) ^b
	Federal	State		
Marbled Murrelet (<i>Brachyramphus marmoratus</i>)	T	T	Nest in mature coniferous forest; forest in coastal waters.	No breeding/nesting sites within ½ mile of project corridor.
Mountain Quail (<i>Oreortyx pictus</i>)	–	M	Breed in successional-shrub	No breeding/nesting sites within ½ mile of project corridor.
Northern Goshawk (<i>Accipiter gentiles</i>)	SOC	C	Breeds in mature coniferous forest; winters in farmlands and woodland edges.	No breeding/nesting sites within ½ mile of project corridor.
Northern Spotted Owl (<i>Strix occidentalis caurina</i>)	T	E	Mature coniferous forests.	No breeding/nesting sites within ½ mile of project corridor.
Olive-sided Flycatcher (<i>Contopus borealis</i>)	SOC	–	Large forest areas in close proximity to cleared areas.	No breeding/nesting sites within ½ mile of project corridor.
Osprey (<i>Pandion haliaetus</i>)	–	M	Habitat adjacent to lakes, marshes, and rivers.	Black Diamond – nesting site along Green River gorge within ½ mile of project corridor.
Pileated Woodpecker (<i>Dryocopus pileatus</i>)	–	C	Forest with large trees; typically roost in western hemlock and western red cedar.	No breeding/nesting sites within ½ mile of project corridor.
Peregrine Falcon (<i>Falco peregrinus</i>)	SOC	SS	Nest on cliff faces.	No breeding/nesting sites within ½ mile of project corridor.
Vaux's Swift (<i>Chaetura vauxi</i>)	–	C	Nest in coniferous or mixed forest with snags.	No breeding/nesting sites within ½ mile of project corridor.
Yellow-billed Cuckoo <i>Coccyzus (americanus)</i>	C	C	Obligate riparian nester, found only in riparian forests	No breeding/nesting sites within ½ mile of project corridor.

^a Agency Status: C=Candidate, E=Endangered, M = Monitor, T=Threatened, SOC=Species of Concern, SS= State Sensitive, X = Extirpated.

^b Occurrence of species up to one-half miles from the project corridor. Sources: USFWS (2005 online); WDFW (2005c online).

Suitable habitat including nesting and foraging areas for federal and state listed bird species may occur within the study area even though the WDFW Priority Habitats and Species database does not indicate the presence of listed species. One federally listed species, the bald eagle, and five state listed species,

American white pelican, great blue heron, mountain quail, osprey, pileated woodpecker, and Vaux's swift, are known to occur in the vicinity of the study area. A detailed assessment of wildlife habitats and vegetation communities along the project corridor is needed to examine the presence of these and other listed bird species within the study area. Anecdotal information as well as habitat requirements for the federally listed species, the bald eagles, which is likely to occur within the study area is included below.

Bald eagles in the Pacific Northwest generally breed in dominant or co-dominant conifer trees in mature forests that overlook and provide a clear flight path to aquatic foraging areas. Wintering bald eagles typically concentrate in areas where prey, spawning salmon and/or waterfowl, is abundant and disturbance is minimal.

Bald eagles have been observed using the southern extent of the project corridor in an area known as the Enumclaw Plateau.

The USFWS has indicated that wintering bald eagles could affect construction schedules occurring between October 31 and March 31. If nesting activity by bald eagles, which occurs between January 1 and August 15, is discovered within the project corridor; construction activity could be limiting during the nesting period.

There may also be some occurrences of bird species not noted in the WDFW database that are of concern to local bird watching groups and ornithologists, such as the blue bird. Locally, the Rock Creek Valley east of Maple Valley is considered to be a prime bird watching area.

Mammals

Mammals identified by the USFWS as occurring or potentially occurring in King County include that are four federally listed, one candidate, and four species of concern (USFWS 2005 online). Exhibit B.13 (on the next page) lists all federal and state listed mammals identified as potentially occurring in King County. The WDFW Priority Habitats and Species database does not identify any threatened, endangered, or candidate

Two types of myotis (bats) within the study area are listed as a species of concern, including the long-eared myotis and the long-legged myotis.

mammals within one-half mile of the project corridor; however, suitable habitats for listed mammals may occur in the vicinity of the project corridor.

**Exhibit B.13
Federal and State Listed Mammals Potentially Occurring in King County, Washington**

Common Name (Scientific Name)	Status ^a		Preferable Habitat Type	Documented Occurrence Along Project Corridor (Segment) ^b
	Federal	State		
California Wolverine (<i>Gulo gulo luteus</i>)	SOC	C	Large areas of remote wilderness, wooded foothills, and mountains.	Not known to occur.
Canada Lynx (<i>Lynx Canadensis</i>)	T	T	Mixed forest, high tundra/coniferous forest, where prey is available.	Not known to occur.
Fisher (<i>Martes pennanti</i>)	C	E	Found in close proximity to riparian areas, lakes, ponds, and bogs with extensive areas of forested cover with acceptable amounts of large standing and down trees for denning and foraging.	Not known to occur.
Gray Wolf (<i>Canis lupus</i>)	T	E	Forests, open meadows, rocky rides, lakes, and rivers.	Not known to occur.
Grizzly Bear (<i>Ursus arctos = U.a. horribilis</i>)	T	E	Semi-open country usually in mountainous areas.	Not known to occur.
Long-eared Myotis (<i>Myotis evotis</i>)	SOC	–	Forested areas with old-growth features, and grasslands adjacent to rocky outcroppings.	Not known to occur.
Long-legged Myotis (<i>Myotis volans</i>)	SOC	–	Forested areas with old-growth features, and grasslands adjacent to rocky outcroppings.	Not known to occur.
Lynx (<i>Lynx canadensis</i>)	T	T	Found in forest favorable to hare populations (dense thickets).	Not known to occur.
Pacific Townsend's Big-eared Bat (<i>Plecotus tonsedii</i>)	SOC	C	Coniferous forest.	Not known to occur.

^a Agency Status: C=Candidate, E=Endangered, T=Threatened, SOC=Species of Concern, SS= State Sensitive X = Extirpated.
Sources: USFWS (2005 online); WDFW (2005c online).

Reptiles

Federally listed reptiles identified by the USFWS as occurring or potentially occurring in King County include one candidate species and six species of concern. Exhibit B.14 (on the next page) lists all federal and state listed reptiles potentially occurring in King County. The WDFW Priority Habitats and Species database indicates that the Northwest pond turtle, a federally listed species of concern has been documented along

the project corridor. Suitable habitat for federal and state listed reptiles may occur within the project corridor even though the WDFW Priority Habitats and Species database does not indicate their presence. Two federally listed species of concern, tailed frog and western toad, in addition in the Northwestern pond turtle are expected to occur in the vicinity of the project corridor.

**Exhibit B.14
Federal and State Listed Reptiles Potentially Occurring in King County, Washington**

Common Name (Scientific Name)	Status ^a		Preferable Habitat Type	Documented Occurrence Along Project Corridor (Segment) ^b
	Federal	State		
Cascade Frog (<i>Rana cascadae</i>)	SOC	–	Small pools adjacent to stream flowing through subalpine meadows, seasonally flooded forested wetlands, and small lakes and ponds.	Not known to occur.
Larch Mountain Salamander (<i>Plethodon larselli</i>)	SOC	SS	Shaded moist areas of talus slopes.	Not known to occur.
Northwestern Pond Turtle (<i>Clemmys marmorata</i>)	SOC	E	Mud-bottomed ponds, lakes, and slow-moving rivers	Sub-adult found along Kent Kangley Road 1/3 mile West of SR 169.
Oregon Spotted Frog (<i>Rana pretiosa</i>)	C	E	Usually occur in marshes and marshy edges of ponds, streams, and lakes.	Not known to occur.
Tailed Frog (<i>Ascaphus truei</i>)	SOC	–	Streams and nearby vegetation, does not prefer ponds or lakes.	Not known to occur.
Western Toad (<i>Bufo boreas</i>)	SOC	C	Common around marshes and small lakes.	Not known to occur.

^a Agency Status: C=Candidate, E=Endangered, T=Threatened, SOC=Species of Concern, SS= State Sensitive X = Extirpated.
Sources: USFWS (2005 online); WDFW (2005c online).

Tailed Frogs generally inhabit cold streams and rivers with a forested canopy and are commonly found within moist mature forest surrounding these areas. They are strictly stream dwellers, they do not inhabit ponds, lakes, or marshes, instead the tailed frog prefers streams with year-round flow containing large cobbles or boulders, which they can use for shelter from the rapid current. Suitable habitat for tailed frogs is potentially present within streams and rivers located in the study area.

The western toad is generally found west of the Rocky Mountains to the Pacific coast. They are common near marshes, springs, and small lakes and can also be found in

grasslands and wooded areas. The western toad prefers to breed in deep, permanent or temporary water bodies with sandy bottoms. The study area includes potentially suitable habitat for this species.

Northwestern pond turtles required logs, banks, or floating vegetation for basking in the sun. They may travel overland several hundred yards to get to nesting sties or to move between ponds. Several ponds and lakes are located within the study area that may provide habitat for the Northwestern pond turtle.

Insects

Listed insects identified by the USFWS as occurring or potentially occurring in King County include three species of concern (USFWS 2005 online). Exhibit B.15 (below) lists all federal and state listed insects identified as potentially occurring in King County. The WDFW Priority Habitats and Species database does not identify any threatened, endangered, or candidate insects along the project corridor; however, suitable habitats for listed insects may occur in the study area.

**Exhibit B.15
Federal and State Listed Insects Potentially Occurring in King County, Washington**

Common Name (Scientific Name)	Status ^a		Preferable Habitat Type	Documented Occurrence Along Project Corridor (Segment) ^b
	Federal	State		
Beller's Ground Beetle (<i>Agonum belleri</i>)	SOC	C	Bogs near the margins of lower elevation lakes.	Not known to occur.
Great Arctic Butterfly (<i>Oeneis nevadensis gigas</i>)	–	C	Coniferous forest opening, rocky hills, and meadow edges in the mountains.	Not known to occur.
Hatch's Click Beetle (<i>Eanus hatchi</i>)	SOC	C	Wetlands and bogs.	Not known to occur.
Johnson's Hairstreak (<i>Mitoura johnsoni</i>)	–	C	Lowland coniferous forests containing western hemlock and dwarf mistletoes (<i>Arceuthobium</i>).	Not known to occur.
Long-horned Leaf Beetle (<i>Donacia idola</i>)	–	C	Eutrophic sphagnum bogs associated with lakes.	Not known to occur.
Puget Blue Butterfly (<i>Plebejus icarioides blackmorei</i>)	–	C	Forest clearings and edge habitats.	Not known to occur.
Valley Silverspot Butterfly (<i>Speyeria zerene bremeri</i>)	SOC	C	The western blue violet (<i>Viola adunca</i>) is the only known host plant.	Not known to occur.

^a Agency Status: C=Candidate, E=Endangered, T=Threatened, SOC=Species of Concern, SS= State Sensitive X = Extirpated.
Sources: USFWS (2005 online); WDFW (2005c online).

4 What built environmental characteristics are located near the SR 169 corridor?

In general, the areas around the cities of Renton, Maple Valley, Black Diamond and Enumclaw have been developed in close proximity to the road with commercial, residential, and public uses. Setbacks vary considerably. Exhibits B.2 through B.5 show the more significant areas of the built environment.

Exhibit B.16 (on the next page) shows properties of concern for potential built environment effects. These properties were identified from secondary source research (King County GIS iMAP Web site), and during the field investigation.

Properties Near SR 169

There are a number of residential and commercial buildings that come within close proximity to SR 169, especially in the Black Diamond area. In Black Diamond, there are approximately 50 properties that have buildings within 100 feet of SR 169, primarily located between James Street at the north end, and Railroad Avenue at the south end. There are also a large number of homes and businesses within 100 feet of SR 169 in Enumclaw, primarily concentrated between McHugh Avenue at the north and SR 164 at the south.

Along most of the corridor, land within 100 feet of the roadway is generally undeveloped, although extensive residential construction is currently taking place and developed areas exist further from the roadway footprint.

Utilities

There are three transmission lines that cross the corridor (Sites B33, B35, and B37). A gravel conveyor belt crosses beneath the roadway south of SE Green Valley Road.

A railroad track crosses under the SR 169 corridor between MPs 10 and 11.



A number of properties within Black Diamond are in close proximity to SR 169

**Exhibit B.16
Properties of Concern Near SR 169**

Exhibit B2-B5 Label	Property	Milepost	King County PIN	Type	Concern
B1	Residence	23.65 to 24.20	1623059013 and 5126400010	Two Single Family Residences	Proximity to Road
B2	Maplewood Golf Course	23.16 to 23.65	2123059023	Driving Range and Golf	Proximity to Road
B3	Cedar Raids Market 76 Stations	21.50	2323059029	Gas Station	Hazardous Materials
B4	Complete Concrete Contractor	21.00	2423059011	Construction Business	Proximity to Road
B5	Cedar River Trail	14.95 to 24.00	1923069018	Recreation Trail	Steep Slopes
B6	AJ's Iron	19.50	Several Parcels	Metal Shop	Proximity to Road
B7	Residences	18.50	Several Parcels	Residences	Proximity to Road
B8	Commercial Properties	17.50	Several Parcels	Commercial	Proximity to Road Hazardous Materials
B9	Shell Station	15.30	Several Parcels	Gas Station	Hazardous Materials
B10	Maple Valley Market	15.10	5108400004	Commercial	Proximity to Road
B11	Maple Valley Grange VFW	14.90	5108400095	Public Building	Proximity to Road
B12	Park-and-Ride	14.27	Several Parcels	Park-and-Ride	Proximity to Road
B13	Chevron Station	13.70	1622069107	Gas Station	Hazardous Materials
B14	Rock Creek Elementary School	12.20	2722069056	Public School	Proximity to Road
B15	Residences	12.05	Several Parcels	Residences	Proximity to Road
B16	Commercial Properties	11.44	Several Parcels	Commercial	Proximity to Road Hazardous Materials
B17	Substation	8.30	1121069043	Public Utility	Proximity to Road
B18	76 Station	8.25	1121069099	Gas Station	Hazardous Materials
B19	Residential Properties	7.65 to 8.00	Several Parcels	Residences	Proximity to Road Historic Properties
B20	Cenex Station	7.60	0844001330	Gas Station	Hazardous Materials
B21	Black Diamond Auto Rebuild and Black Diamond Automotive	7.60	0844000830	Auto Repair Shop	Hazardous Materials Proximity to Road
B22	Abandoned Gas Station	2.67	1220069039	Gas Station	Hazardous Materials
B23	Krain Inn/Family Restaurant	2.67	0120069025	Commercial	Proximity to Road
B24	Residences	2.00	Several Parcels	Multi-Family Residential	Proximity to Road Environmental Justice

**Exhibit B.16
Properties of Concern Near SR 169**

Exhibit B2-B5 Label	Property	Milepost	King County PIN	Type	Concern
B25	Residences	1.67	Several Parcels	Residences	Proximity to Road
B26	Gas Station	1.67	1320069057	Gas Station	Hazardous Materials
B27	Trailer Park	1.50	Several Parcels	Mobile Homes	Proximity to Road Environmental Justice
B28	Residences	1.00	Several Parcels	Residences	Proximity to Road
B29	Irwin's Texaco	0.67	1320069114	Gas Station	Proximity to Road
B30	Residences	0.41 to 0.67	Several Parcels	Residences	Proximity to Road
B31	Residences	0.00 to 0.41	Several Parcels	Multi-Family Residential	Proximity to Road Environmental Justice
B32	Thunder Mountain Middle School	1.30	1320069010	Public School	No Impact
B33	Transmission Line	4.70	Several Parcels	Public Utility	Proximity to Road
B34	Gravel Conveyor Belt	6.00	Several Parcels	Mine Operations	Construction Impediment
B35	Transmission Line	10.05	Several Parcels	Public Utility	Proximity to Road
B36	Railroad Crossing	10.41	Several Parcels	Railroad	No Impact
B37	Transmission Line	19.00	Several Parcels	Public Utility	Proximity to Road
B38	Coal Mines – Former	6.00, 8.50, 17.80	Several Parcels	Unimproved	Engineering

Hazards/Hazardous Waste

An initial list of potential hazardous waste sites was inventoried through the windshield survey, and those locations are shown in Exhibits B.2 through B.5, and listed in Exhibit B.16. In addition, Exhibit B.17 (on the following three pages) identifies those facilities of interest along the corridor that have been identified by the Washington State Department of Ecology. Finally, open pit and subsurface coal mines are present in the SR 169 study area and should be a design consideration for developing the SR 169 highway corridor. There are two open pits near the corridor. The first open pit is located near MP 19, and the second one spans the length of roadway between MPs 9 and 7 (Exhibit B.4, Site B 38).

There are no large superfund hazardous waste sites along the SR 169 corridor. A number of smaller sites have been identified by the State Department of Ecology as facilities of interest.

**Exhibit B.17
Facilities of Interest to the Department of Ecology Near SR 169**

Segment	Site	Ecology Identifier	Address	Status	Description
Rural/Ag	Shakel Dairy	95626395	25900 SE 416th St.	Active	Minor Industrial/Dairy
Rural/Ag	Stop N Shop	64361149	41604 264th Ave. SE	Active	Underground storage tank/LUST facility/Emergency/ Haz Chem Rpt TIER2
Rural/Ag	WSDOT	75183261	268th SE and SE 400th	Active	Underground storage tank
Rural/Ag	Cadman Black Diamond Inc	51876748	26111 SE Green Valley Rd.	Active	Haz. Waste mgmt./underground storage tank/emergency/Haz Chem Rpt TIER 2
Rural/Ag	Cadman Black Diamond Inc	51876748	26111 SE Green Valley Rd.	Inactive	Hazardous waste generator/LUST Facility
Black Diamond	Cenex Convenient Store	74925166	32632 3rd Ave.	Active	Underground Storage Tank
Black Diamond	Cenex Convenient Store	74925166	32632 3rd Ave.	Inactive	LUST Facility
Black Diamond	Black Diamond Automotive	42472872	31109 HWY 169 N	Inactive	Underground Storage Tank
Black Diamond	Black Diamond Square	2754319	31509 3rd Ave.	Active	Underground Storage Tank
Black Diamond	Black Diamond Discount Auto	19389914	32607 3rd Ave.	Inactive	Underground Storage Tank
Black Diamond	Cenex Harvest States Diamond Mart	47756949	32326 3rd Ave	Inactive	Emergency/Haz Chem Rpt TIER2
Black Diamond	TRM Wood Products	27339595	26656 Maple Valley Rd. SE	Inactive	Underground Storage Tank
Maple Valley	Ace Cleaners	72431371	26921 Maple Valley Hwy.	Active	Hazardous waste generator
Maple Valley	BP Service Station	12272	26821 Maple Valley Hwy.	Active	Underground storage tank/ LUST facility/Haz. Waste mgmt.
Maple Valley	BP Service Station	12272	26821 Maple Valley Hwy.	Inactive	Emergency/Haz Chem Rpt TIER2
Maple Valley	Four Corners Cleaners	98451692	23900 Kent-Kanglely Rd.	Inactive	Hazardous waste generator
Maple Valley	Four Corner Auto Wrecking	2324	26615 Maple Valley Hwy.	Active	Voluntary Cleanup site/State cleanup site
Maple Valley	Stuth Company	25113468	28620 Maple Valley Hwy.	Inactive	Underground storage tank/LUST facility/Voluntary cleanup site
Maple Valley	Witte Road site	6840292	SE corner Witte Rd/ SR 169	Inactive	Underground storage tank/LUST facility/Voluntary cleanup site
Maple Valley	7 Eleven	89313273	23616 Witte Rd.	Active	Underground Storage tank
Maple Valley	7 Eleven	89313273	23616 Witte Rd.	Inactive	LUST Facility/Emergency/ Haz. Chem Rpt TIER 2
Maple Valley	James Oil Co.	41182643	22429 SE 231st St.	Active	Underground storage tank
Maple Valley	King Co. Fire District 43	99541858	22225 SE 231st St.	Active	Hazardous waste mgmt.

**Exhibit B.17
Facilities of Interest to the Department of Ecology Near SR 169**

Segment	Site	Ecology Identifier	Address	Status	Description
Maple Valley	King Co. Fire District 43	99541858	22225 SE 231st St.	Inactive	Underground storage tank/LUST facility/Haz waste generator
Maple Valley	Cedar Recycling Center	75725455	18409 Maple Valley Hwy.	Inactive	Hazardous waste generator
Cedar River	Thomas Construction	98744462	23713 SE 264th St.	Active	Hazardous waste generator
Cedar River	Safeway Fuel Center	87787543	27020 Maple Valley Hwy.	Active	Underground storage tank
Cedar River	USWCOM Maple Valley Co	39935456	21620 Maxwell Rd.	Active	Emergency/Haz Chem Rpt TIER2
Cedar River	Family Van Ruff Inc. DBA Wilderness Chevr	13688241	23701 Maple Valley Hwy.	Active	underground storage tank/state cleanup site/voluntary cleanup site
Cedar River	Family Van Ruff Inc. DBA Wilderness Chevr	13688241	23701 Maple Valley Hwy.	Inactive	Emergency/Haz Chem Rpt TIER2
Cedar River	Shell Station	23177881	21641 Maple Valley Hwy.	Active	Underground storage tank/hazardous waste generator
Cedar River	Shell Station	23177881	21641 Maple Valley Hwy.	Inactive	LUST Facility/Emergency/Haz. Chem Rpt TIER 2/Haz. Waste mgmt.
Cedar River	Shop Fast Grocery	64217476	26804 Maple Valley Hwy.	Active	Underground storage tank
Cedar River	Motorplex	58939858	18421 Maple Valley Hwy.	Inactive	Hazardous waste generator
Cedar River	Cedar Rapids Grocery	231344	18015 Maple Valley Hwy.	Active	Underground storage tank
Cedar River	Hillside Enterprises	33394767	17835 Maple Valley Hwy.	Inactive	Hazardous waste generator
Cedar River	Lightfoot	28513954	13601 Maple Valley Hwy.	Inactive	Hazardous waste generator/ voluntary cleanup site
Renton	King County shop	44299151	18825 Maple Valley Hwy.	Active	Underground storage tank/ LUST facility
Renton	Aqua Barn	5168785	15227 Renton-Maple Valley Rd.		Underground storage tank/LUST facility/ Voluntary cleanup site
Renton	Bonneville Waste	10783262		Inactive	Hazardous waste generator
Renton	Renton City Water Dept.	75784645	4030 Maple Valley Hwy.	Active	Emergency/Haz Chem Rpt TIER2
Renton	Gull 229	32528923	2904 Maple Valley Hwy.	Active	Underground storage tank
Renton	Gull 229	32528923	2904 Maple Valley Hwy.	Inactive	LUST Facility/Emergency/Haz. Chem Rpt TIER 2
Renton	Olympic Pipeline Co.	5494605	3524 SE 5th Street	Active	State cleanup site/voluntary cleanup site
Renton	Renton Radiator Inc.	97566329	3217 SE 6th Street	Active	Hazardous waste generator
Renton	Jack McCann Co.	71751766	13525 SE Maple Valley Rd.	Inactive	Underground storage tank

**Exhibit B.17
Facilities of Interest to the Department of Ecology Near SR 169**

Segment	Site	Ecology Identifier	Address	Status	Description
Renton	Stoneway Concrete	62244377	1915 SE Maple Valley Hwy.	Active	General permit industrial
Renton	Stoneway Concrete	62244377	1915 SE Maple Valley Hwy.	Inactive	Underground storage tank/hazardous waste generator
Renton	Technigraphic Systems	43269172		Inactive	Hazardous waste generator

Source: Washington State Dept. of Ecology, Facility/Site Identification System, October 2005
LUST refers to leaking underground storage tank.

Parks and Open Space

There are numerous parks and open spaces located within proximity to SR 169. A summary of all of the parks and open spaces within one mile of the corridor is shown in Exhibits B.2 through B.5, and listed in Exhibit B.18.

**Exhibit B.18
Parks and Open Space**

Exhibit B.2 to B.5 Label	Park Name	Milepost	King County PIN	Type
P1	Riverview Park	24.20	Several Parcels	Park
P2	Liberty Park	25.26	Several Parcels	Park
P3	Cedar River Park – Renton	25.12	Several Parcels	Park
P4	Maplewood Roadside Park	23.99	1623059051	Park
P5	Maplewood Park – Renton	23.86	Several Parcels	Park
P6	Cavanaugh Pond	20.91	Several Parcels	Park
P7	Ricardi Reach	20.00	Several Parcels	Park
P8	Cedar Grove	19.25	Several Parcels	Park
P9	McGarvey Park Open Space	20.00	9558001080	Park
P10	Belmondo Reach	18.50	2923069030	Park
P11	Rainbow Bend Site	17.68	7120400045	Park
P12	Cedar Grove Downstream	17.68	Several Parcels	Park
P13	Lower Peterson Creek Corridor		0922069014	Park
	Maple River Park	14.95	Several Parcels	Park
P14	Lake Wilderness Park	Nr .13.37	Several Parcels	Park
	Belmont Woods Park	13.00	Several Parcels	Park
P15	Rock Creek Natural Area	Nr. 12.38	Several Parcels	Park
P16	McFarland Park	00.60	Several Parcels	Park

Exhibit B.18 Parks and Open Space

Exhibit B.2 to				
B.5 Label	Park Name	Milepost	King County PIN	Type
P17	Dwight Garrett Park	00.41	Several Parcels	Park
P18	Town Center/Good Will Park	00.00	Several Parcels	Park
R1	Cedar River Regional Park	25.00	Several Parcels	Park
R1	Ron Regis Park	22.32	Several Parcels	Park
R1	Lower Taylor Creek Site		Several Parcels	Park
R1, B2	Maplewood Golf Course	23.34	Several Parcels	Park
R1, S4, B5	Cedar River Trail Site	14.95 to 24.00	Several Parcels	Trail ROW
Nr B36	Henry's Ridge open space	Nr. 10.00	Several Parcels	Open Space
	Danville-Georgetown open space	Nr. 11.44	Several Parcels	Open Space
R3, S7	Black Diamond Bridge Site	Nr. 5.20	Several Parcels	Park
B31	City Hall Park – Enumclaw	0.00	6353000005	Park
Starts near S4	Maple Valley Lake Wilderness Trail Site	14.95	Several Parcels	Trail ROW

The majority of park land is located in the Renton segment, north of Jones Road/196th Avenue SE. These include Cedar River Park, the Cedar River Interpretive Park and Natural Zone, Riverview Park, Ron Regis Park, and Cedar Grove Park. Within this segment is the Cedar River Trail, a nonmotorized trail that starts in the Cedar River Natural Zone near I-405. It meets SR 169 at Maplewood Roadside Park (MP 24.00) and parallels SR 169 all the way to Bain Road/Witte Road (MP 14.95) where it meets the Lake Wilderness Trail. The Cedar River trail branches off to the east, while the Lake Wilderness Trail continues south, paralleling SR 169 for over a mile. Near Witte Road, the Lake Wilderness Trail traverses west away from SR 169, but eventually parallels it again near SR 516. Other major parks within proximity of SR 169 include Lake Wilderness Park Rock Creek Natural Area, McFarland Park and Dwight Garrett Park.



The Cedar River Trail parallels SR 169 between Renton and Maple Valley.

In addition to the parks listed above, there are a number of natural open spaces that are owned by King County. The Ricardi Reach Natural Area and the Cedar Grove Natural Area are both located in the Cedar Grove segment. Both of these natural areas are located north of SR 169 west of Jones Road and adjacent to the Cedar River. They contain nearly 1.25 miles of contiguous forested habitat and wetlands along the Cedar River.



There are a number of natural open spaces along SR 169, especially adjacent to the Cedar River.

There are also a number of protected open spaces located between Maple Valley and Black Diamond, primarily in the Rock Creek area. Some of these open spaces directly abut SR 169.

The Rock Creek Natural Area is a 136 acre block owned by King County, located east of SR 169 near SE 253rd Place. Passive recreational use is allowed in the natural area.

The Danville-Georgetown Open Space is a 317-acre block owned by King County, located east of SR 169, between SR 516 (Kent-Kangley Road) and SE Summit Landsburg Road. Passive recreational uses are allowed; however, the County is studying whether the land should be used for forestry purposes.

The Kent (Clark Springs) Watershed is a 320-acre parcel owned by the city of Kent, located east of SR 169 and south of SR 516 (Kent-Kangley Road). No public use is permitted.

The Henry's Ridge open space is a 283-acre block located east of SR 169 near the BNSF railroad. It extends to Ravensdale Lake. It is under King County's Open Space Conservation Easement. The land will be conveyed fee simple to the County. Passive recreational uses are permitted, and the County is studying whether the land should be used for forestry purposes.

In addition, King County recently completed an agreement with the Plum Creek Timber Company, city of Black Diamond, and the Cascade Land Conservancy. The agreement will protect 1,600 acres of forestland known as Ravensdale Ridge from

commercial or residential development, conserve at least 10 miles of hiking, biking and horse trails, contain growth within the urban area, and create 388 acres of open space and parks within the city of Black Diamond.

The protection of Ravensdale Ridge will be guaranteed through a conservation easement on forestland owned by Plum Creek. The land will act as the match to secure an additional \$3.6 million under the federal Forest Legacy Program for working forestlands southeast of Black Diamond. This funding will conserve thousands of additional acres of working forestlands. Plum Creek will also give King County 645 acres of rural land, which is to remain as open space including land protecting the Ravensdale Creek corridor, important to the water quality of Lake Sawyer.

King County Conservation Futures Tax funding will help the city of Black Diamond purchase 77 acres of open space and working forest within the city limits and Plum Creek will give Black Diamond an additional 91 acres of land within the city for future green space. Plum Creek has also agreed to ensure that 55 acres immediately north of the city, remain as open space to provide a visual buffer along SR 169 and to act as a community separator into the future.⁵

If park property were to be impacted by a project, WSDOT would need to work with the appropriate agency that owns the park to minimize these impacts and provide mitigation. This analysis would be completed during development of the environmental documentation for a specific roadway improvement project.

Agricultural Lands

Agricultural land adjacent to or near SR 169 is primarily concentrated in the southern portion of the corridor, north of Enumclaw. Portions of the study area are within the Enumclaw Agricultural Production District. This designation is made by the Natural Resources Conservation Service based on soil

⁵ King County Department of Natural Resources and Parks

types. Federal Law requires that an alternative analysis be completed to determine the alternative which affects prime farmland the least.

In addition, King County has a farmland preservation program. The development rights for specific farms have been purchased to prevent conversion to non-farm uses. Because this program was established by initiative, only a vote by the public or formal condemnation proceedings can override the agricultural zoning in these areas. King County will release the land for road construction projects only after a case is made and the threat of condemnation is likely to succeed in court (based on advice from their legal staff). The County Council must decide that the request is reasonable, is not excessive, and that there is proper mitigation for wetlands.

Noise

Traffic noise abatement is often considered for sites where outdoor activities occur or near residences, or public facilities such as schools, hospitals, etc. Within the study corridor, there are a number of receptors that could be impacted by increased traffic noise due to roadway improvement projects. The Federal Highway Administration requires a noise analysis be conducted on projects receiving federal funds. State policy also requires a noise analysis if the project involves the construction of a new highway, changes the horizontal or vertical alignment, or increases the number of through lanes on an existing highway. An increase of ten decibels above existing ambient noise for one hour during peak traffic time is considered a substantial change and defined as a noise impact.

Archeological, Historic, and Cultural Resources

A review of the Washington State Office of Archaeology and Historic Preservation (OAHP)**Error! Bookmark not defined.** National Register of Historic Places found one listed historic building in the vicinity of the SR 169 corridor. The Louis and Ellen Olsen House (1513 Griffin Avenue) is located several blocks west of SR 169 in Enumclaw.

The Green River Gorge Historic District extends along the Green River from the Kummer area (west of the corridor) to

the Franklin area (east of the corridor). The existing SR 169 roadway traverses this historic district. Although the SR 169 Green River Bridge was not included as a feature in the historic district, it may be eligible for inclusion on the National Register of Historic Places because it is more than 50 years old and is located within the historic district.

There is a group of potentially historic garden-style apartments in Enumclaw that may need to be evaluated for possible Section 106 Historic Preservation Act and Executive Order 12898 environmental justice impacts. Properties on either side of SR 169 in Black Diamond should also be evaluated as a potential historic district.

The presence of Native American communities along the Green River and other river corridors suggests that any new road construction will have a high probability of uncovering previously unknown cultural sites. Archaeological sites are most likely to be concentrated along river corridors, where there would have been access to fish and water for domestic purposes, and in dry and relatively flat areas.

Staff at the OAHP has confirmed that there are a number of known archaeological sites near the SR 169 corridor. Because of the sensitive nature of these archaeological sites, the OAHP does not release site-specific information to the public. Field reconnaissance prior to clearing work and an on-call archeologist will be necessary to ensure that cultural resources in the area will be protected.

It is preferable to avoid historical and archaeological sites along the corridor. If this is not feasible, archaeological excavations should be conducted to retrieve site specific information. However, this could impact project cost and schedule.

Environmental Justice

Environmental Justice (Executive Order 12898) requires federal agencies to provide affected minority and low-income populations opportunities to be involved in projects. The executive order also requires federal agencies to make sure projects do not disproportionately affect these traditionally underserved groups.

An analysis of census data (year 2000) was conducted to determine both the poverty level and percentage of residents classified as a minority along the corridor. Exhibit B.19 provides a breakdown by segment of persons below the poverty level. The percentage of persons within King County living below the poverty level in 2000 was 8.4 percent. Exhibit B.20 shows the minority populations by segment. Exhibits B.21 through B.24 (pages 41 through 44) show where the concentrations of lower income residents live. There are no areas directly adjacent to the SR 169 corridor where high concentrations (above 15 percent) of persons live below the poverty level.

The percentage of population classified as a minority is generally small along the entire corridor. The Renton segment has the highest percentage of minority resident, at 22 percent. This is still below the overall percentage of minority residents within King County, which is 27 percent.

A large number of residential properties may need to be purchased and residents relocated to accommodate proposed transportation improvements. Areas with high concentrations of homes near the corridor are located in the Black Diamond and Enumclaw segments. The actual number of properties to be acquired would not be known until final design. Exhibit B.16 (page 29) shows the properties identified from the windshield survey and a secondary research source (King County GIS iMAP Web site). Parcels adjacent to the SR 169 corridor were reviewed for potential acquisition and structures within approximately 40 feet of the existing roadway were noted as

**Exhibit B.19
Percent of Population Below
Poverty Level***

Segment	% Below Poverty Level
Enumclaw	7%
Rural/Agricultural	5%
Black Diamond	3%
Maple Valley	3%
Cedar River	4%
Renton	7%
Total % Below Poverty Level	5%

**Countywide average is 8.4%.*

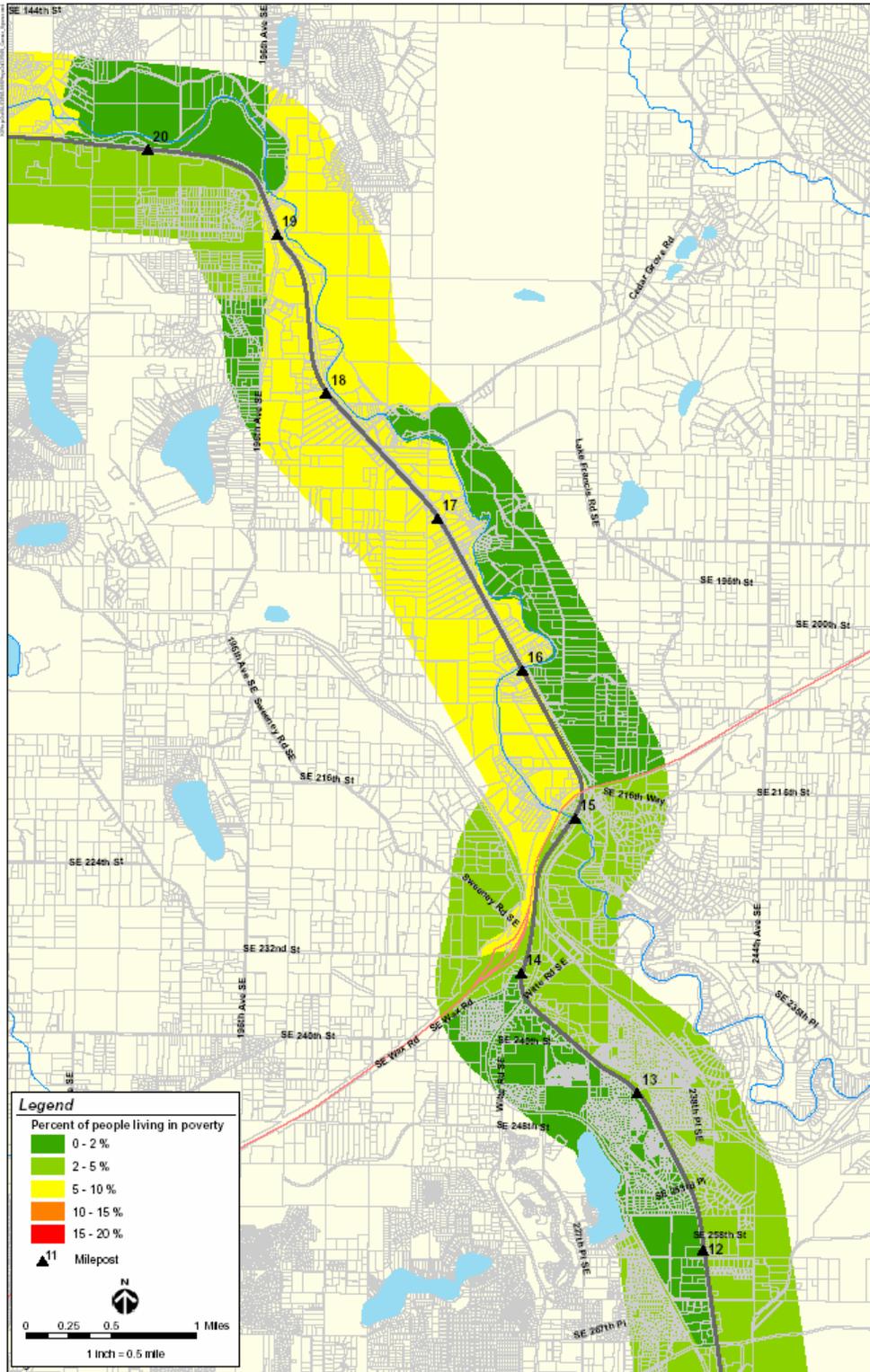
**Exhibit B.20
Percent Minority Population***

Segment	% Minority
Enumclaw	7%
Rural/Agricultural	7%
Black Diamond	6%
Maple Valley	8%
Cedar River	8%
Renton	22%
Total % Minority Along SR 169 Corridor	13%

**Minority includes Black, Native, Asian, Hawaiian/Pacific Islander, Other, and two or more races.*

possible acquisitions. Potential disproportionate effects to low-income or minority populations will be assessed as needed as part of environmental review for individual projects.

Exhibit B.22
Percent of People Living in Poverty Along SR 169 (Cedar River and Maple Valley Segments)



**Exhibit B.24
Percent of People Living in Poverty Along SR 169 (Rural and Enumclaw Segments)**

