

### **3.1. Biological/Physical Setting**

The following sections succinctly describe the general environment of the area to be affected by the alternatives under consideration. More detailed information for each environmental element is included in Chapter 4.

#### **3.1.1 Topography and Geology**

The Cross-Base Highway project area is located within the southern part of the Puget Lowland, a north-south trending structural trough bounded by the foothills of the Cascade and Olympic mountains to the east and west, respectively. The underlying bedrock forming this trough consists of weakly consolidated deposits of the Tertiary Period. The depth to bedrock near the corridor is on the order of 2,000 feet (Hall and Othberg 1974).

#### **3.1.2 Waterways, Hydrology, and Wetlands**

Only one surface stream (Coffee Creek) crosses the project area, from a large wetland area, Spanaway Marsh, on the east side of the project area northward to Spanaway Lake. The lack of surface drainage is primarily related to the high infiltration capacity of the soil.

The project area is underlain by two aquifer systems: (1) a shallow, unconfined groundwater system (Vashon Drift) and (2) a deep groundwater system, separated by the low-permeability Kitsap Formation. Taken together, these aquifers comprise the Central Pierce County Sole-Source Aquifer. The Kitsap Formation serves as an aquitard, separating the aquifers into upper and lower groundwater systems (West and Noble 1989).

Six wetland systems containing eight wetlands were identified and delineated in the project vicinity east of I-5; three wetlands were identified and delineated west of I-5 near the western terminus of the proposed highway. These wetlands contain palustrine forested, scrub-shrub, and emergent plant communities. Areas of open water are seasonally associated with Lake Mondress and Spanaway Marsh. Wetlands vary in size from approximately 0.02 acre to an estimated 370 acres; Spanaway Marsh is the largest wetland system in the project area.

#### **3.1.3 Wildlife Habitat and Fisheries**

Most of the region has been subjected to a variety of human disturbances over the past 150 to 200 years, including timber harvest, conversion to agriculture, road and railroad construction, military training activities, off-road vehicle use, equestrian use, and urban development. This history of disturbance has resulted in significant alterations to the original vegetation. Regardless, McChord AFB and Fort Lewis comprise some of the largest contiguous undeveloped tracts of prairie, oak woodland, conifer, and wetland complexes remaining in the South Puget Sound region. The relative protection from development afforded to these plant communities by the military installations has allowed them to remain functional

despite continual training and military operations. As a result, McChord AFB and Fort Lewis provide habitat for a wide variety of wildlife, fish, and plants, including a number of species of special interest. The Washington Department of Fish and Wildlife (WDFW) considers the glacial outwash mosaic of prairies, wetlands, oak woodlands, and lowland conifer forest to have statewide significance.

A recreational fishery within the headwaters of the upper Spanaway drainage is located near the eastern end of the project area. Cutthroat trout, largemouth bass, black crappie, and yellow perch, stocked after 1983, appear to support a growing fishery interest shared by military base personnel and other local residents.

#### **3.1.4 Air Quality**

The project area is within a maintenance area for ozone, inhalable particulate matter (PM<sub>10</sub>), and carbon monoxide (CO). No major air-polluting industries are located nearby; therefore, levels of sulfur oxides and nitrogen dioxide are not expected to be high.

#### **3.1.5 Noise**

Noise levels in the project area vary substantially. With only a few exceptions, noise levels west of I-5, in American Lake Gardens, and in the Spanaway area are typical of moderate-density urban areas. Existing peak-hour sound levels in these areas are between 53 and 69 dBA. Noise levels in the middle of the project area are substantially lower due to the absence of traffic and other activity. In these areas, peak-hour sound levels are between 38 and 45 dBA. However, areas south of McChord AFB are subject to aircraft noise. Depending on the type of aircraft and proximity to the runway, peak noise levels can exceed 90 dBA. Also, individuals in the entire project area can, at times, hear artillery practice from locations further south on Fort Lewis.

## **3.2. Social and Economic Setting**

### **3.2.1 Social Setting**

In 2000, the Pierce County population was 700,820 people, making it the second-most-populated county in the state (OFM 2003a). Due to recent incorporations, the majority (56 percent) of the population resides in incorporated areas of the county. Between 1990 and 2000, Pierce County's population increased 20 percent.

The Spanaway/Lake Park area population is expected to increase 25 percent between 2000 and 2030, while the American Lake Gardens/Tillicum population is expected to grow by 15 percent during the same period (PSRC 2003a).

In general, Pierce County residents are slightly younger and less affluent than the overall four-county Puget Sound region (King, Kitsap, Pierce, and Snohomish counties). In 2000, Pierce County had a median age of 34.1 years (OFM 2003b) and a per capita income of \$20,948 (U.S. Census Bureau 2003). During the same period, the four-county Puget Sound region had a median age of 35.1 years and a per capita income of \$24,051. The 2000 Census data show that Pierce County's population was 78 percent white, 7 percent black, 1 percent American Indian or Native Alaskan, 5 percent Asian, 1 percent Native Hawaiian or other Pacific Islander, 2 percent other, and 6 percent two or more races (U.S. Census Bureau 2003).

The FHWA Environmental Justice Strategy (FHWA 1998) is set forth to implement provisions of Executive Order 12898 on Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. The thrust of this Executive Order is to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects on minority populations and low-income populations (as defined in the DOT Final Order, Federal Register Vol. 72, No. 46, April 15, 1997).

For this analysis, low-income was defined as individuals listed in the 2000 Census as living below the federally designated poverty level. Minority was defined as individuals listed in the 2000 Census as non-white (total population minus white-alone population). According to the 2000 Census, all block groups along the project corridor have greater low-income populations than Pierce County's 10 percent. Similarly, all block groups along the corridor have greater minority populations than Pierce County's average of 22 percent. One block group in American Lake Gardens has 50 percent low-income population, and two block groups in American Lake Gardens have 50 to 51 percent minority population (U.S. Census Bureau 2003).

In Pierce County in 2000, the average household size of owner-occupied units was 2.67.

### 3.2.2 Economic Setting

#### 3.2.2.1 Property Values and Taxation

The local property tax is typically the largest single revenue source for a jurisdiction. Property taxes are based on the assessed valuation of real and personal property within a jurisdiction. A good measure of the relative capacity of this source to support the jurisdiction's service needs can be created by looking at the total assessed value of property on a per capita basis. Table 3.2-1 shows a comparison of the per capita assessed value of property in the City of Lakewood, the City of Tacoma, and Pierce County as a whole.

**Table 3.2-1. 2002 Average per Capita Assessed Property Value**

Jurisdiction	2002 Average Per Capita Assessed Value
City of Lakewood	\$57,350
City of Tacoma	\$59,867
Pierce County	\$64,237

Sources: Washington State Department of Revenue (2003); OFM (2003).

McChord AFB and Fort Lewis are federally owned properties and are, therefore, exempt from property taxes.

#### 3.2.2.2 Business Activity

Economic activity in and around the Cross-Base Highway project area is strongly influenced by Fort Lewis and McChord AFB, two major employers in the area. The combined military complex has a current employment base of almost 35,000. In addition to meeting their current mission requirements, each military installation has a number of development plans or future facility requirements.

Within central Pierce County, the major business activity west of I-5 is located within the cities of Lakewood and DuPont. Within the city of Lakewood are two major business centers: Lakewood Mall and the Lakewood Industrial Park. The mall has approximately 1.4 million square feet, which consists of a strip mall development surrounding a newer mall facility. The Lakewood Industrial Park, which is located on 175 acres in the north end of the city, contains 2 million square feet of industrial and manufacturing space with the potential to develop an additional 300,000 square feet. The city of DuPont is considered an employment center in the county. By 2020, approximately 6,482 jobs are projected for the area—a substantial increase from the 2,787 jobs located in the area in 2000 and the 12 jobs located in the area in 1990. Most of these jobs, around 70 percent, are expected to be in the manufacturing sector, with most of the remaining 30 percent expected to be in the service sector (PSRC 2003b).

East of I-5, Pierce County is primarily unincorporated. Economic activity in this area is centered around McChord AFB and Fort Lewis Military Reservation, the Frederickson employment center, and commercial activity along SR 7.

### **3.2.3 Land Use**

The major land areas affected by this project are the communities of Tillicum, American Lake Gardens, and Spanaway and the two military bases, Fort Lewis and McChord AFB. Both Tillicum and American Lake Gardens are communities within the city of Lakewood. The portion of Tillicum in the immediate vicinity of the modified Thorne Lane interchange includes duplexes on Union Avenue SW and single-family dwellings on Union Avenue SW and Spruce Street. American Lake Gardens is approximately 300 acres containing multi-family and single-family dwellings. There are also several equestrian businesses and a few small, isolated businesses. The portion of Spanaway in the project area contains single-family and multi-family dwellings mostly along Spanaway Loop Road S and 176th Street E. Commercial development is the predominant land use along SR 7. The other main land uses are related to the military bases. Land uses on Fort Lewis near the project include the Army Reserve Center and Navy and Marine Reserve Center, the Fort Lewis Logistics Center, an Ammunition Supply Point, and training areas. Land uses on McChord AFB near the project include the main air base runway, the PRIME BEEF and PRIME RIBS training areas, a communications facility, the base riding stables, and residential housing.

#### **3.2.3.1 Historical and Archaeological Resources**

There are two properties in the project area that are on or eligible for the National Register of Historic Places (36 CFR Part 500). The American Lake South School is eligible for the National Register, and Woodbrook Hunt Club was placed on the Register in 1997 (see Figure 5.1-1). Buildings at the American Lake South School that contribute to its historic nature include a three-room school house and gymnasium. The Woodbrook Hunt Club was established in 1924 and has been located at its present site, east of Woodbrook Road, since 1938. The property contains four historic structures. The project area also contains two archaeological sites. However, because of lack of integrity due to ground disturbance and the lack of historic research potential, these sites are not eligible for the National Register of Historic Places.