

3—AFFECTED ENVIRONMENT

Earth Resources (Including Soils and Topography)

According to the US Department of Agriculture (USDA) Web Soil Survey, the project area consists of a majority of Montesa silt loam (1 to 8 percent slopes) and Ocosta silty clay loam. The Monesta silt loam is found in an area of the project site that extends from the shoreline of the Columbia River, inland extending approximately 1,200 feet and from the area just west of St. Mary's Church extending eastward. This type of soil is alluvium derived from sedimentary and igneous sediment. The permeability of Monesta soil is moderately slow with high available water capacity; therefore potential hazard from water erosion is very low.

Ocosta silty clay loam occurs from the shoreline, extending approximately 500 feet inland from the eastern edge of the area of Montesa silt loam and then extending westward along the shoreline. This type of soil is very deep and poorly drained, typical of floodplains and deltas from clayey alluvium deposited from the quiet waters of coastal bays. Soil permeability is very slow and water capacity is high with limited water erosion hazard.

Soils of the project site were further examined through a series of 3-inch hand-augered borings in 2002 by geotechnical engineers at Milbor-Pita & Associates. The borings revealed that the site is overlain by 4 inches of sandy topsoil, with 8 to 18 inches of loose, dark brown silty fine sand. This layer then grades to a loose, light brown to gray, fine sand with minimal silt.

Groundwater elevation was encountered in several of the hand borings at 36 to 44 inches in depth below the surface, however groundwater elevation is subject to seasonal changes. The soil samples and subsequent testing of samples identified sandy soils typical of beach environments. The soils appear to be fairly well-drained with storm event runoff typically infiltrating into the ground rather than collecting on the surface, although localized ponding may occur after severe rain events. It is

noted that past development of McGowan, railroad and highway construction may have all contributed to the modification of original soil profiles.

The project area is comprised of a relatively flat, low lying space adjacent to the Columbia River. The site is located within a lowland area between a series of steep forested bluffs to the north and the Columbia River to the south. The overlying topography has been altered from its natural condition as a result of settlement and uses of the site with localized changes; however, the low flat sandy profile is unchanged overall. Some rises in topography have been created as a result of more recent earthwork over the last several years.

Water Resources (Including Stormwater Management and Water Quality)

Stormwater drainage patterns and water quality of the project site are directly affected by the existing natural features located on and surrounding the site, as well as the existing developed conditions, such as former development of the townsite of McGowan and presence of US Highway 101. The presence of US Highway 101 impacts natural drainage of the site into the Columbia River. The roadway slopes up (due to super elevation) at the outer edge of the site and stormwater is confined in culverts under the roadway. At the south side of the roadway there is a rip rap bank 16 to 17 foot above the ordinary high water mark that, in major storm events, protects the roadway and project area (at approximately 11 feet in elevation) acting as a dike structure. The rip rap prevents erosion of the bank in all types of weather; without it, much more erosion would likely have occurred.

Soils in the project area, as indicated in the previous section, provide some drainage capacity. Two culverts serve the project area, which convey flow under US Highway 101 into the Columbia River from the project site. At the western end of the site, west of the existing roadside pull-out, there is a 36-inch concrete culvert that drains one of the forested wetlands (Wetland B) present on the site (see "Wetlands" discussion). Wetland B empties to a drainage swale adjacent to the roadway. The second culvert is located east of the site. This 24-inch culvert



meets a maintained drainage ditch that serves the project site and land and residences located to the north. The culverts penetrate the rip rap along the river's edge and discharging stormwater drainage into the river. The western culvert contains water and is fish passable in the winter; however, the eastern culvert is mainly dry and not fish passable. There have been plans in the past to replace these culverts with larger, fish passable culverts, but these plans remain on hold due to a lack of funding.

Stormwater draining from the project site is either infiltrated or flows into the culverts then discharging to the Columbia River. Due to the curve and upward slope of the roadway along the site, a majority of the stormwater drains north onto the site rather than south to the river. There are no specific swales in place to treat stormwater from the impervious surfaces of the highway as it was not required at the time it was constructed many decades ago.

Although the project is located adjacent to the Columbia River, the site is not located within the 100-year floodplain, nor is the area identified as a Frequently Flooded Area, as defined by Flood Control Ordinances (Pacific County 1997) in the Pacific County GIS. Additionally, based on the rip rap embankment height, the project site would flood only in extraordinary conditions.

Wetlands

Some areas of the site are classified as wetlands due to the type of aquatic vegetation, hydrology and soils present through the USACE *Wetlands Delineation Manual* (Environmental Laboratory 1987), the U.S. Army Corps of Engineers' *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (2010) and the Washington State Department of Ecology (WDOE) *Washington State Wetlands Identification and Delineation Manual* (1997). The wetlands are fed by two Type F streams that originate in the upland forest to the north of the project area that feed into two wetlands located within and adjacent to the project site. Onsite observations indicate that the western stream is perennial, and the eastern stream is seasonal. Above the wetland, both streams are shown as Type-N streams. The two jurisdictional wetlands identified within and

adjacent to the project site are referred to as Wetlands A and B. According to Pacific County, Wetland A is a Class I Wetland and requires a 100-foot buffer. Wetland B is a Class II Wetland and requires a 75-foot buffer (See Figure 3-1). Both Wetlands A and B are fed by Type F streams that originate in the extensive upland forest to the north, adjacent to the project site. Both Wetlands A and B drain to the Columbia River by culverts beneath US Highway 101. Wetland A contains a permanently flooded area that appears to drain year-round to the river. In contrast, the western culvert of Wetland B only contains water during high precipitation storms, and the eastern culvert is dry most of the year. Table 3-1 below lists the basic characteristics and classifications of Wetlands A and B. Figure 3-1 depicts the location of these wetlands.

Table 3-1: Summary of Wetlands Occurring Within and Adjacent to the Project Boundary of Station Camp–Middle Village

| Wetland | Size (acres) | Cowardin Class ¹ | Class/Category ² | Buffer ³ |
|---------|--------------|--|-----------------------------|---------------------|
| A | 14.5 | Forested, Scrub-shrub, Emergent, Aquatic Bed, Open Water | I | 100 feet |
| B | 22.2 | Forested, Scrub-shrub, Emergent, Open Water | II | 75 feet |

¹ Based on Cowardin et al. 1979.

² Based on Section 4 of Pacific County's CARL and Hruby 2004.

³ Based on Section 4 of Pacific County's CARL.

Wetland A, located west of the project site, is approximately 14.5 acres and consists of aquatic bed, open water, emergent, scrub-shrub, and forested wetland classes (Cowardin *et al.* 1979). The National Wetland Inventory map identifies seasonally flooded, palustrine forested and permanently flooded, unconsolidated bottom wetlands where Wetland A is mapped. Further investigation and site visits indicate the addition of aquatic bed, emergent, and scrub-shrub wetland classes in addition to those identified by the NWI. According to the *Washington State Wetlands Rating System: Western Washington* (Hruby 2004), the wetland is a Category I Wetland, which



requires a 100-foot buffer, according to Section 4C and 4D of the *Pacific County CARL Ordinance*.

The evaluated soils within Wetland A generally have several inches of organic material, followed by a thin, dark gray to dark grayish brown sandy or loamy sand layer from 2 to 4-inches depth, based on observations in 2002. A thicker, dark gray to dark yellowish-brown sandy or loamy sand layer is present to at least 16 inches beneath the upper shallow layer. Colors are difficult to determine due to the sandy composition. Mottles, if present, are coarse and abundant below 4 to 6 inches.

Upland soils adjacent to Wetland A also have layers of sandy or loamy sand beneath an organic surface layer. Colors vary from dark grayish brown to yellowish brown, but again, are difficult to determine due to the sandy composition. All the upland test plots lacked mottles, except Test Pit (TP) A6. The local soil survey identifies the areas associated with Wetland A as Montesa silt loam.

Wetland B, located mostly north of the project site except for a small section along the western end, totals approximately 22.2 acres, and consists of open water, emergent, scrub-shrub, and forested wetland classes (Cowardin et al. 1974). The NWI map identifies seasonally flooded, palustrine forested and scrub-shrub wetlands where Wetland B is mapped. Further investigation and site visits indicate the addition of open water and emergent wetland classes. According to the WDOE *Washington State Wetlands Rating System: Western Washington* (Hruby 2004), Wetland B is a Category II wetland, which requires a 75-foot buffer, according to Sections 4C and 4D of the *Pacific County CARL Ordinance*.

Like the soils associated with Wetland A, the soils evaluated in 2002 within Wetland B typically had a thin organic layer that overlays sandy loam, or sandy clay loam soils. The soil colors varied from dark gray, to very dark brown, to dark brown; but again, the sandy composition made it difficult to determine the soil color. Mottles were coarse and present in few or many numbers generally below the organic layer. Upland soils adjacent to Wetland B had a thick sandy layer beneath a thin organic layer, if present. None of the upland test pits had mottles. The local soil survey maps the area associated with Wetland B as Montesa silt loam and Ocosta silty clay loam.



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Fish and Wildlife (Including Special Status Species)

This section focuses on the predominant species of fish and wildlife that may occur within the action area of the project, including special status species. Table 3-2 shows federally endangered, threatened, proposed, and candidate species and critical habitat that may occur within the action area of the project. Specific information can be found in the BE found in Appendix B.

Table 3-2: Listed, Proposed, and Candidate Species and Critical Habitat Addressed in this Document

| Species, ESU, or DPS | Federal Status | Critical Habitat in Action Area? |
|---|----------------|----------------------------------|
| NMFS Jurisdiction | | |
| Chinook Salmon (<i>Onchorhynchus tshawytscha</i>) | | |
| Lower Columbia River Chinook ESU | Threatened | Designated |
| Upper Willamette River Chinook ESU | Threatened | Designated |
| Upper Columbia River Spring-run Chinook ESU | Endangered | Designated |
| Snake River Spring-run Chinook ESU | Threatened | Designated |
| Snake River Fall-run Chinook ESU | Threatened | Designated |
| Chum Salmon (<i>Onchorhynchus keta</i>) | | |
| Columbia River Chum Salmon ESU | Threatened | Designated |
| Coho Salmon (<i>Onchorhynchus kisutch</i>) | | |
| Lower Columbia River Coho Salmon ESU | Threatened | No |
| Sockeye Salmon (<i>Onchorhynchus nerka</i>) | | |
| Snake River Sockeye DPS | Endangered | Designated |
| Steelhead (<i>Onchorhynchus mykiss</i>) | | |
| Lower Columbia River Steelhead DPS | Threatened | Designated |
| Upper Willamette River Steelhead DPS | Threatened | Designated |
| Middle Columbia River Steelhead DPS | Threatened | Designated |
| Upper Columbia River Steelhead DPS | Threatened | Designated |
| Snake River Basin Steelhead DPS | Endangered | Designated |
| North American Green Sturgeon - Southern DPS (<i>Acipenser medirostris</i>) | Threatened | Designated |
| Columbia River Smelt – Southern DPS (<i>Thaleichthys pacificus</i>) | Threatened | No |
| Steller Sea Lion (<i>Eumetopias jubatus</i>) | Threatened | No |
| USFWS Jurisdiction | | |
| Bull Trout - Columbia River DPS (<i>Salvelinus confluentus</i>) | Threatened | Proposed |
| Marbled Murrelet (<i>Brachyramphus marmoratus</i>) | Threatened | No |
| Northern Spotted Owl (<i>Strix occidentalis caurina</i>) | Threatened | No |

DPS = Distinct Population Segment

ESU = Evolutionarily Significant Unit



National Marine Fisheries Service (NMFS) Jurisdiction

SALMON AND STEELHEAD

Each of the listed 13 ESUs/DPSs of salmon and steelhead occur within the action area for rearing and migration. The Columbia River estuary is designated critical habitat for 12 ESUs/DPSs of salmon and steelhead as a rearing and migration corridor. Tributaries to the Columbia River within the project area are not designated as critical habitat (Federal Register 2005a). Critical habitat for coho is currently under review and has not been designated or proposed.

The *SalmonScape* internet map (WDFW 2010) shows that coho spawn in the western Type-F stream that flows through the park site, and winter steelhead presence is not shown as potential, presumed, historic, or documented. Juvenile coho were observed in the western stream of the park during an electrofishing survey in 2003 (Appendix G in the 2003 BA). The WDFW Area Habitat Biologist stated that there is no spawning habitat in either stream within the project area, but the streams serve as off-channel habitat during high water when the western culvert outlet is not perched and when the eastern stream has standing or flowing water, which rare. If coho spawn upstream of the site as shown by *SalmonScape*, the western stream and the artificially created ditch connecting the eastern and western stream within Wetland B could also be used by juvenile coho for rearing.

The *SalmonScape* internet map (WDFW 2010) does not show salmonid presence as potential, presumed, historic, or documented in the western stream that flows into Wetland A. The eastern stream is not shown on the *SalmonScape* map, but it is shown on the WDNR stream-typing map. Electrofishing was not conducted on these streams.

NORTH AMERICAN GREEN STURGEON

Subadult and adult green sturgeon use the Columbia River estuary in the summer and fall months for thermal refugia and for foraging (Federal Register 2008). Their presence in the Columbia River occurs from June through September, with the peak occurring in August. Green sturgeon generally remain in the Columbia River estuary in salt water habitat; however, they can travel upriver as far as

Bonneville Dam. Critical habitat has been designated the Columbia River estuary (USFWS 2009).

COLUMBIA RIVER SMELT (EULACHON)

The Southern DPS of Columbia River smelt spawn in the mainstem Columbia River and some of its major tributaries in winter, and juveniles rear in the estuary. Critical habitat is expected to be proposed in 2011 and will likely include the portion of the estuary within the action area.

STELLER SEA LIONS

Recent surveys by WDFW show a substantial increase in Steller sea lion abundance at the South Jetty in the Columbia River from peak counts of 50 to 60 animals in the 1980s to peak counts of 300 to 700 animals in unpublished reports. Numbers typically peak during winter months (Beach et al. as cited in LCFRB 2004). Steller sea lions may forage within the action area. There are no Steller sea lion rookeries or haul-out locations in the action area (Jeffries 2000), and there is no designated critical habitat in Washington (NMFS 2008b).

US Fish and Wildlife Service (USFWS) Jurisdiction

BULL TROUT

The *SalmonScape* map shows that bull trout are present in the Columbia River, but not in the small streams within the action area. Adult bull trout mainly use the upper 20 feet of the Columbia River and estuary water column for foraging and they may also use a deeper portion of the water column for movement and migration (USFWS 2002). Critical habitat in the Columbia River estuary has been revised, and it will be finalized in the fall of 2010. (Federal Register 2010). No suitable habitat is present in the onsite streams because they flow intermittently and there is no gravel for spawning habitat.

MARBLED MURRELETS

According to the USFWS and WDFW species databases, marbled murrelets occur in the vicinity of the project, with nesting between April 1 and September 15. The nearest designated critical habitat is approximately 4 miles northeast of the site (Federal Register 2008a).



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Based on historical aerial photographs, the forest within the action area was logged in sections in the 1940s, 1960s, and 1970s. Consequently, most of the trees within the action area range from approximately 30 to 60 years of age, not the 200+ years generally needed to develop the old-growth characteristics that provide suitable marbled murrelet nesting habitat. Some pockets of older trees, greater than 60 years of age, were not logged and remain along some drainages within the action area. About half of the forested component in Wetland A was selectively logged in the 1960s and does not meet the criteria for mature or old-growth forest. Much of Wetland B was farm fields and not forested prior to the 1960s. It is unlikely that the project area provides suitable marbled murrelet nesting habitat.

Within the Station Camp–Middle Village site, Sitka spruce is the most common tree species, followed by western crabapple, red alder, and Douglas fir in order of frequency. Few trees and no forested stands are present within the park that would provide suitable marbled-murrelet nesting habitat. The isolated trees within the project area lack old-growth characteristics and sufficient upper canopy coverage, are widely spaced, and are located in a heavily disturbed area (adjacent to a busy highway in an area is frequently buffeted by strong coastal winds). Windthrown trees and downed woody debris are present and have created large gaps in the canopy. The project area does not meet the USFWS definition of suitable marbled murrelet habitat because, although suitable platform trees are present, the trees within the project area are isolated in a greater than 5-acre patch and not a part of a contiguous forested area (pers. comm. W. Pierce). The western project area, in which the possible platform trees are located, grades into a wetland area dominated by deciduous species without a contiguous overstory canopy.

As stated above, a contiguous forested area that appears to meet the criteria for suitable marbled-murrelet habitat is located about 0.3 miles west of the western project area, on Fort Columbia State Park property. Based on aerial photo interpretation and consultation with USFWS and WDFW (pers. comm. K. Flotlin, K McMurry, W. Ritchie) the closest potentially suitable habitat for marbled murrelets lies just inside the action area at approximately 1,550 feet (0.3 miles) to the west, on Fort Columbia State Park land.

NORTHERN SPOTTED OWLS

The USFWS species list for Pacific County shows northern spotted owls are present in the county (USFWS 2010); however, they are not identified within or near the vicinity of the action area according to the WDFW PHS database (WDFW 2010a). There is no designated critical habitat in Pacific County (Federal Register 2008b).

This species has nesting and roosting habitat requirements similar to marbled murrelets. Both species need mature forests or old-growth forest habitat for nesting and roosting, which according to the marbled murrelet survey and personal communications, occurs 0.3 miles west of the project area, so nesting and roosting habitat do not occur in the action area.

Two of the four dispersal and foraging habitat requirements are not present in the action area (50 percent or more of the stand-in conifer species greater than 6 inches diameter breast height, and a minimum of 20 feet between the top of the understory vegetation and the bottom of the live canopy, with lower boles relatively clear of dead limbs (WDNR 2001).

Based on ELS aerial photo interpretation and consultation with USFWS and WDFW (pers. comm. K. Flotlin, K McMurry, W. Ritchie) the closest potentially suitable habitat for marbled murrelets lies just inside the action area at approximately 1,550 feet (0.3 miles) to the west, on Fort Columbia State Park land. Therefore, because the species have similar habitat requirements, northern spotted owls may use the same habitat for dispersal and foraging.

Vegetation

The vegetation in the project area has been altered by historic land uses and intrusion of invasive species. The project area is located within the Coast Range Physiographic Province, which is described as topographically mature with steep mountain slopes and sharp ridgelines. The vegetation associated with this province is known as the Sitka Spruce (*Picea sitchensis*) Zone, which is part of a larger coastal vegetation zone that extends from Northern California to Alaska. This zone is known to have the mildest climate of any northwest vegetation zones because



of the minimal temperature extremes, therefore providing habitat for tall and dense forest stands of Sitka spruce, western hemlock (*Tsuga heterophylla*), western red cedar (*Thuja Plicata*), Douglas fir (*Pseudotsuga menziesii*), grand fir (*Abies grandis*), and silver fir (*A. amabilis*), (Franklin and Dyrness 1988).

Within the Station Camp–Middle Village site boundaries, the vegetation consisted predominately of disturbed upland fields with areas invaded by Scot’s broom until recent vegetation management practices at the site began a regime of removal of this invasive species. In May 2010, mature Scot’s broom was cut and removed from the site, and an herbicide was applied to the cut stumps to control regrowth. This invasive species will be controlled as part of the park’s *Vegetation Management Plan* (ELS 2010a). Other vegetation commonly found in the lowland fields of the site includes native and non-native grasses, rushes, plantain, hairy cat’s-ears, and weedy species typical of upland fields. Scot’s broom existed mostly in the northern and eastern portions.

A small area of forested, scrub-shrub, and emergent wetlands are located within the project area boundaries. For information about the vegetation species existing in these wetland areas, refer to the “Wetlands” section. Refer to Figure 3-2 for mapping of vegetative communities.

Outside of the site area, the vegetation consists of forested, scrub-shrub, and emergent wetland species. Further to the north, the vegetation transitions into upland coastal forest dominated by a dense overstory of Sitka spruce (*Picea sitchensis*) and western hemlock (*Tsuga heterophylla*), and smaller amounts of Douglas fir (*Pseudotsuga menziesii*), red alder (*Alnus rubra*), and bigleaf maple (*Acer macrophyllum*).

All the trees within the previously proposed US Highway 101 realignment on the north end of the site were removed during construction of the previous highway relocation project, except those trees that were slated for use as large woody debris in the onsite mitigation areas. There were six Sitka spruce, and of these, two were pulled over and one blew down. These three are still lying on the ground where they were standing, and the other three spruce trees are still standing. They will be felled and placed, along with the three spruce already on the ground, in the onsite mitigation areas when the project resumes.

Historic and Cultural Resources

Historic and cultural resources exist at the site and in the surrounding vicinity. The site’s location along the Columbia River, near its outlet to the Pacific Ocean, has influenced the presence of historical and cultural resources at the site over time. At the time of European and American contact, the area lay within territory of the Chinookan people of the Lower Columbia. The Chinook established a series of summer camps and villages along the north shore of the river. When the Lewis and Clark Expedition arrived at the site in November 1805, the explorers recorded the presence of a village of 36 houses west of Point Ellice. Past studies, associated with a prior proposal to realign US Highway 101 uncovered that the project area contains a National Register - eligible Native American Middle Village site, which is comprised of an area of about .6 hectares (1.5 acres). During the data recovery phase, archaeologists, geoarchaeologists, and other specialists, collected data to refine the age of the site (chronology), site development, technology and trade/exchange patterns, the spatial distribution of artifacts and features, human subsistence, architecture, and site function and settlement patterns. The chronological analyses confirmed that, at least within the project area, the Middle Village component appears to date to the contact period (ca. 1790 to 1820) with very limited evidence for precontact use. The McGowan-period materials date to the later fishing, canning, and agricultural activities at the site, predominantly in the late-19th century when the fishing and canning activities were at their zenith, but also extending into the early- to mid-20th century.

Based on the distribution of plank walls and other architectural features, the inferred locations of houses and major activity/discard spaces within the Middle Village component were modeled. Up to five, and possibly more plank houses appear to have sat along a former dune area backed by a wetland and fronted by a slight swale. Activity areas, middens, and areas of sheet trash associated with the activities of the village were also identified. Within the space of each small house, a central hearth area provided cooking facilities for the one or more families and their slaves who lived there. A hearth periphery would have provided an area next to the fire for cooking and other hearthside activities. Bench areas



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likely were present on the margins of each house, with small pits beneath them used for storage. The walls were made of planks driven into trenches in the sand, and there were posts to support the walls and roof, which was either a gable-type or shed-type roof. Doors probably hung on either the eastern or southern walls of each plankhouse, away from the prevailing wind or fronting the beach.

Stone tool technology at the Middle Village component represented expedient-manufacture, typical of the late prehistoric and contact period assemblages from elsewhere in the region. The lithic assemblage at 45PC106 is distinctively different from other sites. What is rare at other Chinookan sites appears common at Middle Village (and the inverse). Projectile points, cores, and general lithic implements are relatively small percentages of the Middle Village lithic assemblage and lithic debitage is in extraordinarily low frequencies. In contrast, traditionally rare objects, like stone pipes, abraders, clay balls and nodules, and gunflints, are all substantial proportions of the 45PC106 lithic assemblage.

The diversity and density of fur trade objects within the Middle Village component, including copper and glass trade beads, other copper artifacts, coins, brass tacks, nails, knives, musket balls and shot, fragments of creamware and porcelain ceramics, and glass bottles, indicates that trade there was of particular importance. This abundance of fur-trade items at Station Camp is unique. Traditional Chinookan wealth and prestige items, like copper bracelets, pendants, sheets, and beads are prevalent.

Analysis of botanical remains identified traces of kinnikinnick, red elderberry, rubus (wild blackberry or raspberry, including Pacific blackberry and salmonberry), Indian plum, hazelnut, camas, and wapato. Shellfish remains included mussels, clams (bent nose, gaper clam, butter clam), and cockles. Fish, which constituted the most abundant food resource (by identified specimen) recovered archaeologically, was dominated by sturgeon (88%), with salmonids (including *Oncorhynchus* sp.) representing about 11% of the identifiable fish remains. Other fish were only a small proportion of the assemblage, including rockfish, flatfish, minnow-sucker, and shark (one tooth). Eulachon was present in the bulk samples, which used a much finer mesh sieve,

and trace amounts of herring and starry flounder also were present. Avian faunal remains were few in number, but included small and large ducks, and the modified radius of an albatross, apparently the manufacturing debris from making a bone tool, like an awl. Mammalian faunal remains, also infrequent, included mountain beaver, beaver, porpoise/dolphin, black bear (canine), harbor seal, elk, and deer.

Based on the abundant evidence for domestic structures and the presence of trade goods, the function of the Middle Village site seems to be a summer settlement where people likely conducted some domestic and productive activities, but where trading also occurred. The most abundant artifacts at the site are the trappings of the consumption of manufactured goods. Even some of the food remains might relate to feasting associated with trade as opposed to daily consumption. Thus, the Middle Village component at Station Camp appears to be dedicated to the acquisition and consumption of fur trade goods. That these activities happened within traditional Chinook houses is of particular interest.

The results of the excavations of the Middle Village component, particularly when coupled with work at other regional contact-period Chinookan and colonial fur-trade sites, offer a rich data set with which to explore a variety of issues about the fur-trade-period, some arising as a result of the excavations reported here and others of long standing. These include issues of diet and subsistence economy, technology and material culture, trade and exchange, and changing women's roles.

During the period of the earliest European and American contact with Native Americans in the area, explorations of the mouth of the Columbia River were common. Spanish sea captains sailing up from Mexico and California were among the earliest to visit the area. An active fur trading industry based on the pelts of sea otter traded in China was flourishing throughout the Pacific Northwest seacoast by the 1790s. An American, Captain Robert Gray, in command of the *Columbia Rediviva* entered the mouth of the river in 1792.

By November 1805, the Lewis and Clark Expedition had crossed the continent and reached the mouth of the Columbia River. The Expedition camped at this



site for fifteen days. Several members of the party mentioned that they had achieved their mission of reaching the Pacific Ocean and had reached the “end of our voyage” in their journals while camped at the Station Camp location (Clark’s name for the camp). The Expedition members also carved their names in a grove of alder trees at the site, and met with several tribal leaders of Native Americans from throughout the region at the site. The Expedition members voted about where to make their winter camp, and left Station Camp for the south side of the river in late November, eventually establishing Fort Clatsop as their winter encampment.

Other explorers and traders continued to visit the area in the 1800s, including John Jacob Astor’s first trading vessel, which entered the Columbia River in March 1811. The Hudson’s Bay Company was established and employees began settling near the mouth of the river in the 1840s. In 1848, the Stella Maris Catholic Mission was founded in the vicinity of Station Camp. A successful gold miner from Ireland named Patrick J. McGowan bought half of the mission grant in 1853, including the land west of the old Chinook village and established a salmon cannery there. McGowan’s cannery was the first commercial salmon packing business in the region, and became the catalyst for development of the townsite of McGowan. According to Harrison (2003) most of the structures from the cannery era have been demolished, with the exceptions of the St. Mary’s Church (1904), several McGowan family homes, and several deteriorating outbuildings. The descendents of Patrick J. McGowan continue to own the original land grant and occupy residents there (adjacent to the Station Camp–Middle Village site).

Deteriorated non-contributing structures exist that attest to the former presence of McGowan, those that remain are:

- Deteriorated wooden structure known as the BQ, or bachelor’s quarters, east of the Church
- Dilapidated building(s) east of the BQ, formerly used as a gas station, a bait house, and woodshed.

Harrison (2003) makes a number of recommendations regarding documentation of structures before demolition, preservation of the Church, and archeological monitoring of ground-disturbing activities. Eligibility for listing with the

National Register of Historic Places should be made for the 1904 St. Mary’s Church, the 1903-era building known as the “office” and the 1911 Henry McGowan House, as representative structures from the town of McGowan, an early and important settlement in the area. These features are depicted on the Area of Potential Effect figure in Chapter 1.

Land Use (Including Consistency with Existing Plans and Policies)

Phase 1 of the proposed improvements is situated on approximately 7.63 acres of currently state-owned property, adjacent to the US Highway 101 right-of-way (ROW). The site is vacant/unoccupied and undeveloped with a gravel drive from US Highway 101. Public use of the site includes parking for church services during the summer months at the St. Mary’s Catholic Church, as well as travelers pulling off to view the interpretative exhibit. Sturgeon anglers occupy areas along the river bank in the vicinity of the site during the June through September season.

US Highway 101 ROW serves as the southern border for the project. This ROW is owned and maintained by Washington Department of Transportation (WSDOT). A small wayside area, known as Station Camp State Park serves as a small roadside rest area within the project area. The wayside gravel pullout is maintained by WSDOT and the marker and surrounding area is maintained by WSPRC.

St Mary’s Catholic Church is owned by the Roman Catholic Seattle Arch-Diocese and includes an approximately 0.12-acre parcel contained entirely within the project site. A historic wooden chapel, built in 1904 is located within this 0.12 acre area and is further described in the Cultural and Historic resources section above.

Current land use adjacent to the site includes open field, coniferous timber, and several private residences and associated buildings. The proposed trail connection in Phase 2 of the proposed improvements is located on property owned descendents of the McGowan Family (the Garvins), who owns a large tract of land that surrounds the project site, extending from the Columbia River around the project site to the north, west and east.



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The property is located within unincorporated Pacific County and therefore under the jurisdiction of the County. The area is zoned Transitional Forest (F-T), as identified in the Pacific County Zoning Atlas, dated 2008. The zoning designation is taken from the comprehensive plan land use designation (further described below) and was established by ordinance in 2004. Prior to the development of this ordinance, the County did not have any zoning regulations, above and beyond comprehensive land use provisions, in place.

Allowable uses in the (F-T) zone include small-scale farming and harvesting, watershed management practices, normal public utilities, single-family development and nature parks and interpretative centers including buildings, trails, parking areas, interpretative areas and signs. Minimum development standards for the zone include minimum front, side and rear setbacks of 20 feet from property lines with all non-water dependent residential, commercial and industrial structures maintaining a minimum setback of 200 feet from the OHWM of Willapa Bay (which is not applicable to this property). Building height in this zone is restricted to 35 feet.

EXISTING PLANS AND POLICIES

1998 Pacific County Comprehensive Plan

The 1998 Comprehensive Plan for Pacific County identifies the project area as transitional forest (F-T). This purpose of this designation is to protect important resource-based land areas located adjacent to the rural shorelines of Willapa Bay and the Columbia River estuaries, while also regulating land use activities with the potential to impact water quality. The designation allows residential development with the protection of critical areas through county ordinances. Additionally the transitional area consists of small-scale farms, forestry activities, open space and low density single-family development. The County is currently in the process of updating their comprehensive plan; a final draft is available for review (August 2010). It is not anticipated that the comprehensive plan update will be adopted before the Station Camp–Middle Village project would receive permits for development. However, even if the new comprehensive plan is adopted, land use provisions related to the site would not be affected.

Shoreline Management Program (SMP) Ordinance No. 2000-039

The Shoreline Management Program was adopted in 2000. The document is a requirement by the growth management act to protect the environments and functions of shorelines of statewide and local significance. The shoreline jurisdiction encompasses the land 200 feet landward from the OHWM. The project site is located within the shoreline jurisdiction, less than 200 feet from the OHWM of the Columbia River, with the US Highway 101 right-of-way being located between the river shoreline and the site.

The site is comprised of the Rural Shoreland (R-s) designation that extends 200 feet landward from the OHWM, covering a majority of the project site. The purpose of the R-s designation is to provide for uses and activities associated with agriculture, timber management and recreation. Under this designation, according to Section 18 of the SMP, low to medium recreational uses are permitted subject to the following regulations:

- *A recreational facility or structure which changes or detracts from the character of the local environment shall be prohibited.*
- *Access roads to recreational facilities shall be subject to the regulations for logging roads in Subsection 6.A.8., except that maximum widths shall be 15 feet for single-lane roads and 25 feet for doublelane roads.*
- *Parking lots with spaces for 10 or more cars shall not be located within 100 feet of the OHWM.*

A Shoreline Substantial Development Permit (SSDP) is required for all non-exempt developments and uses exceeding \$5,718 fair market value per RCW 90.58.030(e).

Critical Areas and Resource Lands (CARL) Ordinance No. 147, 147A, 147B

The CARL ordinance regulates the critical areas and resource lands of the County, protecting resources by regulating development and ensuring sufficient mitigation requirements. “Critical Areas” include all wetlands, frequently flooded areas, aquifer recharge areas, fish and wildlife habitat conservation areas, geologically hazardous areas, shellfish areas, and kelp, eelgrass, herring and smelt spawning areas. “Resource Lands” include areas designated



as agricultural, forest and mineral lands (Pacific County website, 7/29/10). Sections of the ordinance that are applicable to the proposed improvements include Section 4—Wetlands Regulations, Section 5—Fisheries Habitat Regulations, and Section 12—Forest Land Regulations.

Wetlands are regulated under Section 4, updated in Ordinance 174B, which identifies proper classification standards, wetland buffer, and mitigation measures. A Class I wetland requires a buffer of 100 feet, Class II requires 75 feet, Class III requires 50 feet and a Class IV requiring a 25-foot buffer. There are methods in place to reduce buffer widths, through buffer reduction or averaging as identified in Section 4.D(2-5) or wetland banking as identified in Section 4.H. Mitigation is determined through the permitting process and varies depending on the class of the wetland, working from a mitigation ratio based on the proposed work and class of the wetland.

Section 5 of the CARL, updated in Ordinance 147A, identifies protection measures to maintain fish

species and habitat. The protection standards vary from the type of stream or body of water. In this case, the Columbia River is identified as a Type 1 stream, which requires a 100-foot setback (Section 5.C.1(a)). The setback is measured from the OHWM. Prohibited activities within the stream setback include the removal of stream bank, land filling or grading, land clearing, planting of non-native vegetation and application of chemicals, fertilizers and pesticides.

The purpose of the Forest Land Regulations section of the CARL ordinance is to conserve productive forest land. Regulations associated with this classification are generalized and are covered under the discussion of the zoning and comprehensive plan regulation (Transitional Forest designation) in this document.

Work within or adjacent to a critical area, in this case a wetland or shoreline area, must only occur with issuance of a permit from Pacific County. The County requires a CARL application with review of all supporting information to determine impacts of the proposal.

Table 3-3: Summary of Major Development Regulations

| Regulatory Authority | Designation/ Critical Area | Standard |
|---|---|--|
| Pacific County Comprehensive Plan Land Use Element/ Map | Transitional Forest | <ul style="list-style-type: none"> • Parcels must be an average of 5 acres • Minimum 200-ft setback of structures from adjacent property boundaries. • Allow similar development in accordance with the CARL |
| Shoreline Management Program | Rural Shoreland | <ul style="list-style-type: none"> • 100-ft setback for recreational structures that are not water-dependent • 100-ft setback for parking lots with supply for 10 or more cars • 100-ft setback for standard on-site septic drainfields • 75-ft setback for pressure distribution septic systems |
| CARL Ordinance No. 147, 147A, 147B | Type 1 Waters, Wetland, and Resource Lands Wetlands | <ul style="list-style-type: none"> • 100-ft setback for Fisheries Habitat Protection of a Type I Water (Columbia River) requirement • Class I wetlands require 100 foot buffer (Wetland A) • Class II wetlands require a 75 foot buffer (Wetland B) |

Source: Pacific County Comprehensive Plan, Zoning Amendments and CARL Ordinances (2010).



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Access and Transportation

The project site lies adjacent to a 0.55-mile segment of US Highway 101 at approximately mile post (MP) 2.0, near the St. Mary's Church. Within the vicinity of the project site, US Highway 101 is designated as a Highway of Statewide Significance (HSS) and classified as a Principal County Arterial. HSS routes are typically principal arterial roadways that are needed to connect major communities in the state. After leaving the project site, US Highway 101 extends west and north through the towns of Chinook, Ilwaco, and South Bend and south and east along the Columbia River. The roadway continues south over the Columbia by way of the Astoria-Megler Bridge through Astoria, Oregon and along the western coast of the United States. US Highway 101, known as the "coastal road," connects the United States with the Mexican border south of San Diego, California and extends north to its end point in Olympia, Washington. The roadway is heavily utilized by tourists during the summer months due to the access to the Long Beach Peninsula recreational area and scenic views. Otherwise, primary users include local residents, and fishermen.

The posted speed on US Highway 101 is 55 miles per hour and the section of roadway is relatively flat and straight. A volume and speed survey was conducted on US Highway 101 at the proposed project site. Average daily traffic (in late July) was about 8,600 vehicles per day on a Saturday, which was higher than Thursday, Friday or Sunday. Traffic counts reported by WSDOT within two miles of the project site are lower – ranging from 5,400 to 5,800 over the past five years (2005 – 2009). July is typically one of the highest months for traffic on recreational routes, therefore, the counts conducted likely represent a worst case scenario. The posted speed is 55 miles per hour. An 85th percentile speed of 50 miles per hour was recorded northbound and 62 miles per hour southbound. While more southbound drivers are exceeding the speed limit than northbound drivers, a majority of drivers are obeying the speed limit.

Collision data for 2006-2008 was obtained for US Highway 101 near the proposed project (within about ½ mile on either side of the proposed access points). Over a three year period (2007-2009), three collisions occurred near the proposed project. Two

of the three collisions occurring during that time period near the proposed project site involved only one vehicle. Out of three incidents within one mile of the project site, two vehicles hit fixed objects and one vehicle rear-ended another vehicle. These numbers represent a crash rate much lower than one per million entering vehicles and, therefore, do not indicate a significant safety concern.

Existing access to the project site is via an unimproved gravel pull-off area on the north side of the highway with capacity for approximately ten vehicles. This area serves as parking for tourists, fisherman and visitors of the wayside rest area and the St. Mary's Church. The Church is primarily used on weekends in the summer and generates a very limited number of trips to and from the site. In the vicinity of the project area, along the Columbia River, is a popular sturgeon fishing spot which may see 30 or more vehicles parked along the shoulder on a typical day during Sturgeon fishing season (June through September).

Visual Resources

The visual resources of the project area vary from the rural wooded and wetland views available on the site to the waters of the Columbia River and predominant features beyond the river (such as Saddle Mountain, Cape Disappointment and prominent headlands along the river). The character of the area is rural in nature. The immediate vicinity of the proposed park site consists of open areas of low vegetation, including grasses, smaller areas of scrub-shrub, emergent wetlands and forested land.

The overall visual character of the site is dominated by the presence of the Columbia River to the south, which is approximately three and one half miles wide at the area of the project site, as it extends to meet the Pacific Ocean and forested ridgeline with the crest approximately one mile to the north.

The highway also presents a dominant visual element along the north bank of the Columbia River, adjacent to the project site. To a passer-by on US Highway 101, the area offers a string of rural housing north of the highway in the foreground of the wooded forest ridge with the view of the broad spread river to the



south. The landscape in the project vicinity has been substantially altered by man due to the presence of the roadway and the engineered rip rap along the river's bank. Additionally, much of the forested condition has been altered due to the development of the historic town of McGowan and the McGowan salmon cannery. However, these buildings are now gone and dense second- and third-growth native forest dominate the middle and background views, leaving the impression to the casual observer that the landscape away from the river is largely untouched by human activity.

In general, views from the project site are directed out toward the river. When looking from the project site, views of the Columbia River and Pacific Ocean are restricted due to the height of the rip rap wall armoring the bank of the river, along with super-elevation effects of roadway design which creates a banked curve with the outside riverside edge of the roadway higher than that of the inside edge. These together combine to block unrestricted views of the Columbia River, as well as distant views of the Pacific Ocean. St. Mary's Church is located to the southeast of the project area. The Church consists of a small wooden chapel dating to 1904. The building is well maintained with architectural appeal and charm and is a landmark in the area. For roadway travelers, the Church commands attention, as the highway wraps around the Church on the southern side. It offers a unique view along this stretch of highway, as human improvements are infrequent and not remarkable in character.

Public views of the project site are mainly from US Highway 101 and property lines of adjacent parcels. Travelers on the highway currently enjoy unimpeded distant views toward the site from the Megler-Astoria Bridge crossing the Columbia. Views into the site from the river are limited by the presence of the rip rap barrier and the bank of the roadway, as well as the tidal elevation, which can vary considerably. Other than views from the highway, the best public views into the site are from parking areas in Fort Columbia State Park on Scarborough Ridge approximately 1 mile to the west. These views are dramatic, being elevated several hundred feet above the Station Camp site, but are partially blocked by on-site vegetation growth in summer months.

Soundscapes and Noise

US Highway 101 is located directly adjacent to the Station Camp–Middle Village site, and is the primary source of noise affecting visitor experience at the site. Noise levels were measured in the study area from the highway. They were found to range from levels typical of a highway through a rural environment to levels typical of a suburban environment near a major freeway. Noise levels exceeded FHWA criteria at three of the modeled locations in the project vicinity.

Public Facilities and Services/ Park Operations

Public facilities and services in proximity to the site include police, as well as, fire and emergency medical service and various utility services. Park operations at the site are also part of the public facilities and services description.

Police, Fire, and Emergency Services

The project area is served by the Pacific County Sheriff Department (PCSD), who provides patrols and emergency 911 response to the project area and unincorporated Pacific County from its two locations in Long Beach and South Bend. One deputy patrols US Highway 101 in the south county where the site is located. The PCSD currently provides adequate service to the residents, the congregation of St. Mary's Church, and a limited amount of travelers that visit the existing roadside pullout on the proposed site. However, the PCSD has indicated in the past that the department's resources are stressed, and downsizing is a possibility (pers. Comm., Ron Clark, PCSD, October 7, 2002).

Fire and emergency medical services are provided by several Pacific County Fire Districts and from incorporated cities of Long Beach and Ilwaco through the South Pacific County Mutual Air Agreement. For fire service, the project site is located within the jurisdiction of the Chinook Valley Volunteer Fire Department (CVVFD), Fire District #2 (FD#2).

The CVVFD is located west of the project site at US Highway 101 and Chinook Valley Road. The CVVFD is operated by a staff of volunteer firefighters, which



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includes a paramedic and Emergency Medical Technician (EMT). The fire department has two fully equipped fire “pumper” trucks capable of carrying up to 750 gallons of water and one rescue rig for emergency medical aid. Secondary service is provided by six adjacent fire stations that serve under the above mentioned South Pacific County Mutual Aid Agreement. These fire stations provide backup fire emergency protection for the CVVFD, who is the primary fire suppression and emergency service provider to the project area, as well as any traffic-related accidents on the adjacent US Highway 101. Ambulance units to serve the area would be dispatched from Ilwaco and Long Beach Ambulance Services respond to emergency medical and rescue calls in the project vicinity.

There are no functioning fire hydrants on the project site. Fire suppression in this area would require transporting water to the project site to extinguish flames. Other emergency management is provided by the County through the Pacific County Emergency Management Agency (PCEMA), who provides community emergency response and recovery services to the project site. Emergency management in Pacific County is also provided by several volunteer groups.

Utilities

Pacific County Public Utility District (PUD) #2 provides electrical service to all of Pacific County. The utility serves 15,400 residential, commercial, industrial, and irrigation customers throughout Pacific County. The PUD purchases 85% of its power from the Bonneville Power Administration (BPA) and 15% from other power suppliers. Several utility poles with overhead power lines traverse the project site and are managed by the PUD.

The site is not currently served by either domestic water or sewer services and is not within a service area of utility district providing those services. Telecommunication lines are installed underground in the public road ROW. Telephone services in Pacific County are provided by Century Tel Communications and the Western Wahkiakum County Telephone Company.

Park Operations

The Station Camp–Middle Village site is currently

state-owned, but eventually will be transferred to NPS ownership. The site will be managed and operated as a unit of the Lewis and Clark National Historical Park. Currently, representatives from the WSHS are working cooperatively with the NPS to make management decisions affecting the site and to oversee plans for site development and related permitting and environmental compliance. Current park operations include vegetation management and preservation and protection of natural and cultural resources at the site.

Visitor Use and Experience

The project site currently attracts a limited number of visitors, including those who stop at the wayside rest area, St Mary’s Church, or those who park at or near the project site to fish along the banks of the Columbia River. The majority of the visitors are either local residents or tourists that are traveling through the site as they travel along US Highway 101 taking in the views of the Columbia River, the Washington and Oregon coasts, and historic sites dispersed along it.

There is a small wayside pull off area located within the study area several hundred feet west of St. Mary’s Church. This area consists of a small parking area with a monument/interpretive display related to the history of the Lewis and Clark Expedition. This is currently the only marker of the Station Camp – Middle Village experience near the site. No public restrooms exist at the site. The nearest public restroom facilities are located in a local park at the east end of Chinook, several miles west of St. Mary’s Church, and at Fort Columbia State Park, one mile west of St. Mary’s Church.

Currently visitors of the site experience a rural setting along the Columbia River; structures are sparsely located along the highway. The natural forested environment, open fields, and skyline are attractive attributes of the area. The highway is a dominant feature adjacent to the project site. While the presence of the river can be felt and the visitor understands that side is adjacent to the river, the river is not very visible from most of the project site due to the lower elevation of the land and the height of the riprap armor protecting the river banks.



Public Health and Safety/Children's Health and Safety

PUBLIC HEALTH AND SAFETY

A Phase I Environmental Site Assessment (ELS 2003b) and the Phase II Focused Site Assessment (PNG Environmental 2003) were completed for the Station Camp–Middle Village site. The Phase I Assessment includes a site inspection, a property-owner interview, government agency record review, historical aerial photograph review, historical topographic map review, and an archaeological survey report.

Three existing environmental issues were identified in the Phase I Assessment based on site reconnaissance, interviews, and record review. The first issue relates to the ages of the existing buildings on site, which suggest that they may contain lead-based paint and asbestos-containing materials. The primary concern with lead is that small children may ingest flaking paint. Paint on the duplex and Church is in good condition, but the rest of the on-site buildings have traces of flaking paint (ELS 2003b).

The second environmental concern is that relatively concentrated areas of unburied human fecal matter occur in areas behind the Lewis and Clark statue, along the satellite dish access road adjacent to the site, and at the lower end of a logging road immediately east of the satellite dish access road. Besides the human health concern, human waste also contains heavy metals and nitrogen compounds. These substances could contaminate shallow groundwater or be carried by surface water into nearby wetlands (ELS 2003b).

Lastly, the Phase I Assessment identified an underground storage tank (UST) within the US Highway 101 ROW associated with a former gasoline station that was previously used for gasoline storage located southeast of the existing duplex on site. The station operated from the 1940s through the 1960s, selling only petroleum products.

The Phase I report recommended that a Phase II ESA be prepared to further investigate the former gas station site. A Phase II Focused ESA was conducted on February 20, 2003. The investigation included drilling five geoprobe borings to collect subsurface soil and groundwater samples in the immediate vicinity of

the UST and associated ancillary piping located on the subject site to assess soil and groundwater quality conditions near the UST (PNG 2003).

The UST measured 8 feet long by 4 feet wide. An oil/water interface probe was lowered down the tank to measure the depth to bottom and the thickness of water and/or product in the tank. No product or water was found in the tank and the tank did not appear to be leaking; no water was observed inside the tank although a portion of the tank is below groundwater. Field observations (site, odor, sheen, or PID screening) did not indicate that any petroleum contamination was present in the soil and groundwater samples collected from the borings.

Analytical results indicated that there was no detection of petroleum hydrocarbons in the form of gasoline, diesel, or oil in the soil or groundwater samples submitted for chemical analysis. There was also no detection of compound such as benzene, toluene, ethylbenzene, or total xylenes (BTEX) that would signal the presence of gasoline in the groundwater sample collected at the assumed down-gradient sampling location. However, a non-petroleum hydrocarbon was detected in one sample at a concentration of 100 ug/L. Although the compound could not be identified by analysts, the concentration was ten times below the Model Toxics Control Act (MTCA) Method A Cleanup Standard for gasoline of 1,000 ug/L (where no benzene is present).

CHILDREN'S HEALTH AND SAFETY

Children are rarely present on the project site due to its rural and remote nature. However, several public and private uses around the project site attract families and children, which include the existing residences in vicinity of the project area, St. Mary's Church, US Highway 101, the roadside pullout/picnic area, and the Columbia River shoreline. Children are typically present only in small numbers visiting with families. There is currently no attraction that warrants an organized visit by school children.

Socioeconomics

Pacific County contains four incorporated Cities, which include Ilwaco (Population 945, Incorporated 1890), Long Beach (Population 1,340, Incorporated



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1922), Raymond (Population 2,985, Incorporated 1907) and South Bend (Population 1,790, Incorporated 1890). Ilwaco and Long Beach are located west of the project area, sited along US Highway 101.

The population of Pacific County has steadily increased since 1930. According to the U.S. Census Bureau the population of Pacific County was estimated at approximately 21,343 people and a housing stock of approximately 14,604 in 2006-2008, both of which are expected to increase. The Census estimates that approximately 88 percent of the County population is Caucasian, with the remaining 12 percent consisting of groups identifying with racial groups such as Asian (2 %), Native American or Alaska Native (1.5 %), African American (0.4 %), with the remaining identifying with more than one race.

Employment in Pacific County has increased over the last decade from 6,070 jobs in 2000 to 8,510 jobs in 2010. Employment associated with natural-resource based economics such as wholesale trade and resources industries (such as agriculture, forestry, and fishing) saw a large decline in employment. However, the service sector has seen substantial gains in employment with approximately 25 percent of the workforce in 2010. This shows an economic shift in the Pacific County economy from natural resource based industry to non-manufacturing sectors such as health, information services, government and retail.

Unique employment in Pacific County comes from shellfish harvesting along the County's coastal tidelands and seasonal sturgeon fishing along the Columbia River. Between June through September the Columbia River, adjacent to the project site, is known as a local "hot spot" for seasonal sturgeon fishing. It is estimated that up to 80 anglers on any given day through these months can be found on the bank if the Columbia casting lines (pers. Comm., D. Chadwick WDFW 2002) during Sturgeon season. Shellfish harvesting occurs all along the coastal waters, especially in the City of Long Beach, at the southern end of the Long Beach Peninsula; known for oyster harvesting industries with a growing tourism industry. Long Beach is known for its 28 miles of hard sand beach. However, tourism, forestry and cranberry farming also play important roles in

the local economies of Pacific County. Due to the areas rich history and scenic appeal, tourism is a prominent component of the service employment base. Astoria, Oregon, located directly across the Columbia River from the project site is a well-known tourist attraction, as well as historic Fort Clatsop National Monument nearby, the famous 4.2 mile long Astoria-Megler Bridge, Baker Bay and Chinook landmarks, Fort Columbia and Canby State parks and the cities of Ilwaco and Long Beach.

Pacific County historically experiences higher unemployment rates than Washington State and the United States as a whole. Unemployment in Pacific County has ranged from below nine percent in 2000 to a low of around six percent in 2007 to the current unemployment rate of 10.3 percent in July of 2010 (WSESD, 2010). Such persistent high unemployment levels are characteristics of other rural, natural-resource based economies in the Pacific Northwest.

Pacific County per capita and household incomes are consistently lower than state averages by approximately 33 percent. Per capita income for 2006-2008 for Pacific county is estimated at \$21,384 in comparison to Washington State at an estimated \$29,927. Household incomes in Pacific County are estimated at \$36,635, while the State household income is estimated at \$57,234. Additionally, approximately 17 percent of individuals in Pacific County are below the poverty level, nearly 5.5 percent higher than the State's average at 11.6 percent. However, these income levels and poverty characteristics are common to many rural Washington economies outside the high wage-earning areas of central Puget Sound (U.S. Census, 2006-2008 American Community Survey 3-Year Estimates).

Environmental Justice

The EPA's Office of Environmental Justice defines environmental justice as:

"Environmental Justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. EPA has this goal for all communities and persons across this nation. It will be achieved when everyone enjoys



the same degree of protection from environmental and health hazards and equal access to the decision-making process to have a healthy environment in which to live, learn, and work.” (EPA 2010).

Low-income is generally defined as a household income at or below the U.S. Department of Health and Human Services poverty guidelines. The guidelines establish poverty thresholds on an annual basis; the poverty threshold for 2009 was \$22,050 for a 4-person family in the contiguous United States. However, other thresholds may be used as appropriate. *Low-income population* means any readily identifiable group of low-income persons who live in geographic proximity and, if circumstances warrant, geographically dispersed/transient persons (such as migrant workers) who will be similarly affected by the proposed action, policy, or activity.

Minority Population means any readily identifiable groups of minority persons who live in geographic proximity and, if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who will be similarly affected by a proposed program, policy, or activity).

A *minority population* is considered to be present if the minority population percentage of the affected area is greater than the minority population percentage in the general population or other appropriate unit of geographic analysis (census tracts are generally considered appropriate). Guidance from the Council on Environmental Quality states that:

“Minority populations should be identified where either (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis” (EPA 2003).

Disproportionately High and Adverse Effect on Minority and Low-Income Populations is defined by CEQ to mean that an adverse effect is predominately borne by a minority population and/or a low-income population and that the effect will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the rest of the population.

U.S. Census data and local information sources from Pacific County were analyzed to determine the location of low-income and racial minority populations. Income and demographic information was collected at the block group, county, and state levels. Federal guidelines for analysis of environmental justice issues were then evaluated.

The environmental justice study area, as defined by this analysis, is the population potentially affected by the Proposed Action; this population was inventoried at the block group level (Census Tract 9504 Block Group 03). This study area provides the best available demographic information for the Station Camp–Middle Village area as of the publication date of this document. This analysis reviews the composition of minority and low-income populations within the study area in comparison to Pacific County and Washington State as a whole.

Land uses in the vicinity of the project site in southwest Pacific County are primarily rural, forestlands, and shoreline. However, some residences are located on and close to the site along US Highway 101. In general, the median income of Pacific County households, which represents the site area in this analysis, is lower than the median income of Washington State. According to the 2000 U.S. Census demographic estimates, Pacific County has a median household income of \$31,209, or 68 percent of the state (\$45,776). The percent of families with incomes below the poverty level in Pacific County is almost 2 percent higher than the state’s average. This pattern is not typical of rural Washington counties.



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Figure 5
VEGETATION ASSOCIATIONS MAP
 Station Camp - Middle Village Park
 Washington State Historical Society
 Pacific County, Washington
 Sections 21 & 22, Township 9N, Range 10W, W.M.

DATE: 8/18/10
 DWN: JKJ
 REQ. BY: KB
 PRJ. MGR: KB
 CHK:
 PROJECT NO: 729.03

ECOLOGICAL LAND SERVICES, INC.
 1157 3rd Ave., Suite 220
 Longview, WA 98632
 Phone: (360) 578-1371 Fax: (360) 414-9305

0 2000 4000
 SCALE IN FEET
 1" = 2000'

FIGURE 3-2
Existing Vegetation

