November 2010

PUBLIC REVIEW DRAFT

Station Camp–Middle Village

Environmental Assessment

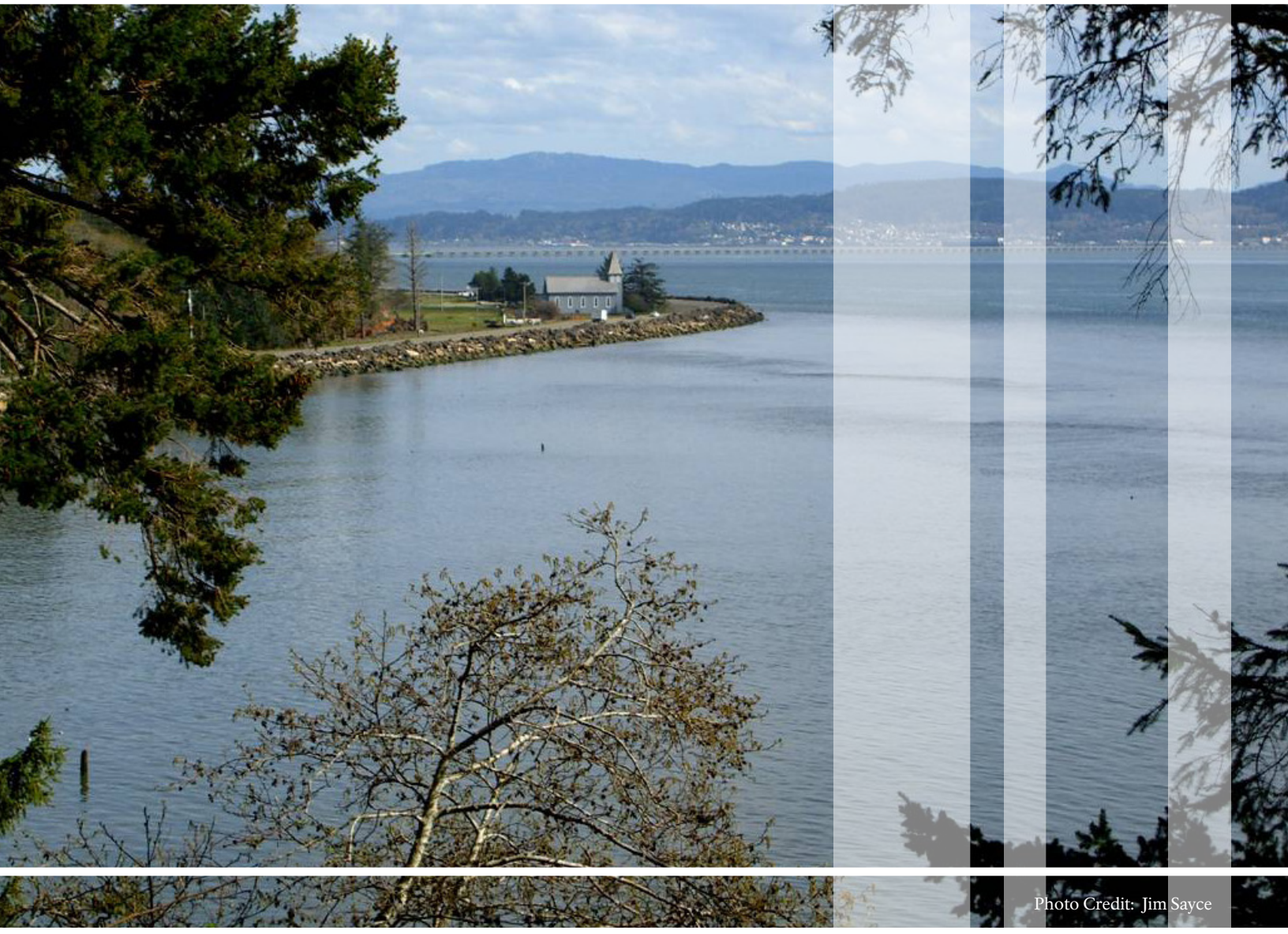


Photo Credit: Jim Sayce

WASHINGTON STATE HISTORICAL SOCIETY

U.S. Department of Transportation
Federal Highway Administration

otak

SUMMARY

Name of the Proposal: Park Improvements and Resource Protection at the Station Camp – Middle Village Site

Location: The Station Camp – Middle Village site is located along the Columbia River, adjacent to US Highway 10, between Fort Columbia State Park and the Astoria Bridge in southwest unincorporated Pacific County, Washington. The site, located one mile east of Fort Columbia State Park, near milepost 2.0, within Section 22 and the northeast quarter of Section 21, Township 9 North, Range 10 West of the Willamette Meridian.

Proposed Action: The park improvements and resource protection activities proposed at the Station Camp–Middle Village site would preserve, enhance, and protect cultural and natural resources, and expand visitor access and awareness of the full history of the site and region. Approximately 3.63 acres of the 7.63-acre site would be developed for visitor use, with the remaining 4.0 acres either being left in its natural condition or revegetated over time with native dune ecosystem plants and grasses. Views of the Columbia River, its confluence with the Pacific Ocean, and the surrounding cultural landscape would be maximized and the full interpretation potential of the site would be realized through additional interpretive exhibits and tribal art located in the developed area of the site. Gateway signage would initiate the visitor experience upon approach to the park on US Highway 101. NPS and related roadway signs would signify a new sense of place and arrival to the Station Camp – Middle Village unit. Access improvements and a parking area would facilitate safe ingress and egress to and from US Highway 101. Pathways would be developed on site to direct visitor circulation and provide access to key viewpoints and interpretive nodes. A trail linking Station Camp – Middle Village to Fort Columbia State Park would be extended from the west end of the site.

Lead Agency: National Park Service, US Department of the Interior

Public Involvement: The public is invited to attend a public meeting to provide comments on the Environmental Assessment. The meeting will be held on Friday, November 19th, 2010, from 3:00 pm to 5:00 pm, at Fort Columbia Theater, Fort Columbia State Park.

Date of Issuance: November 3, 2010

Comments Due: December 3, 2010

Availability of the EA and Contact Information:
This EA has been distributed to federal, state, and local agencies and tribes involved in project planning and can also be accessed by contacting:

David Szymanski
Lewis and Clark National Historical Park
92343 Fort Clatsop Road
Astoria, Oregon 97103-9197
Phone: (503) 861-4401
Fax: (503) 861-2585
LEWI_Superintendent@nps.gov

The EA is available for review through the NPS Planning, Environment, and Public Comment (PEPC) website: *http://parkplanning.nps.gov/* Reviewers are encouraged to enter comments directly through this website, or alternatively, comments may be submitted to the contact above via US Mail or email.

In addition copies of the EA can be reviewed at the following locations:

Ilwaco Timberland Library
158 First Avenue North
Ilwaco, WA 98624

City of Ilwaco
120 First Avenue North
Ilwaco, WA 98624

Ocean Park Library
1308 256th Place
Ocean Park, WA 98640-0310

Columbia Pacific Heritage Museum
115 Lake Street SE
Ilwaco, WA 98624

Pacific County Department of Community Development
7013 Sandridge Road
Long Beach, WA 98631

Note to Reviewers and Respondents:
If you are unable to attend the public meeting and wish to comment on this Environmental Assessment, you may submit comments within 30 days to the PEPC website above or to the name and address above. Before including your address, phone number, email address, or other personal identification in your comment, you should be aware that your entire comment, including your personal identifying information, may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we would be able to do so.

TABLE OF CONTENTS

4–Environmental Consequences

5–Consultation and Coordination

6–References, Resources, Preparers and Contributors

Appendices

ACRONYMS & ABBREVIATIONS

BE	Biological Evaluation
CARL	Critical Areas and Resource Lands
CEQ	Council on Environmental Quality
EA	Environmental Assessment
ESA	Environmental Site Assessment
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
GIS	Geographic Information System
MP	Milepost
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPS	National Park Service
OHWM	Ordinary High Water Mark
SEPA	State Environmental Policy Act (Washington)
DAHP	Washington State Department of Archaeology and Historic Preservation
WSDFW	Washington State Department of Fish and Wildlife
WSDOT	Washington State Department of Transportation
WSHS	Washington State Historical Society
WSPRC	Washington State Parks and Recreation Commission
USFWS	US Fish and Wildlife Service

1—INTRODUCTION

This chapter of the Station Camp–Middle Village Environmental Assessment introduces the purpose of and need for action, describes the project location and background, summarizes relevant planning considerations and activities, reviews the results of scoping, and describes impact topics retained for further analysis, as well as impact topics dismissed from further analysis.

Purpose of and Need for Action

The purpose of this project is to protect, interpret, and develop Station Camp–Middle Village, a unit of the National Park Service and a site of national importance along the Lower Columbia River. Development of the site will facilitate protection of sensitive cultural and natural resources and will enhance visitor experience through interpretive education, scenic overlooks, and other site improvements.

The Station Camp–Middle Village site allows a unique opportunity to interpret events of national importance from the perspective of First Americans. Chinookan people occupied the river for generations before the arrival of Europeans and Euro-Americans. The Columbia-Snake River trading network was one of the two largest pre-contact trading networks in what would later become the United States of America. The Chinookan people who occupied the area near the confluence of the Columbia River and Pacific Ocean not only controlled the intersection of the Columbia-Snake trading network with coastal trading networks to the north and south, they also held a monopoly on the choicest salmon from the continent's largest pre-contact run. Contact with this trading network was one of the key objectives of American exploration, but contact also brought devastating diseases to the native people. The pre-contact population of the tribes along the Lower Columbia was not reached again until the twentieth century. Development of this site and interpretation of Station Camp–Middle Village history would allow the nation to share the largely untold story of the Chinookan people before, during, and after contact. It would also allow the interpretation of the role of the estuary and salmon in the region's history, a story that continues today as tribes, states, and the federal government work to protect and restore salmon runs.

This project is also needed to improve several concerns related to the existing project site, including the protection of a sacred cultural site and important historical and archeological objects, as well as, enhancement of the site's natural environment. The current site is infested with Scot's broom, an invasive, non-native species. Archeologists fear that the roots of the broom might disturb resources shallowly buried in the thin sandy soil. Other concerns at the site include a lack of thematic and physical connections to other nearby public lands and interpretive sites. Station Camp–Middle Village is likely the richest cultural/historic site between Knappton Cove and Cape Disappointment, and it is one of many sites along this passage that reveals a deep and dynamic history of the mouth of the Columbia River. In order for visitors to fully understand and appreciate the role of the mouth of the river in the prehistory and history of the northwest, it is important that separate sites are connected into a coherent and connected narrative. Improvements to the Station Camp–Middle Village site will serve as a catalyst for development of these connections.

The project site is directly adjacent to Fort Columbia State Park. Currently, there is no pedestrian access between the site and Fort Columbia. Visitors must get into their cars and travel a section of US Highway 101 to move between sites. Because auto travel can break up a visit and interfere with a visitor's ability to experience this section of river as part of one landscape, this project proposes a new trail connection between Fort Columbia and Station Camp–Middle Village.

The NPS and its partners have developed the following goals for this project:

- Develop a strategy to ensure the protection of cultural resources and sacred sites. This is the primary goal for the site.
- Develop interpretation and access to the site in a way that is consistent with the goal to protect resources and sacred sites.
- Develop interpretation that helps to tie together the entire Lower Columbia region.
- Develop a low-impact connection between Station Camp–Middle Village and Fort Columbia for pedestrian access between the two sites.

Project Area Description and Location

The Station Camp–Middle Village site is located along the Columbia River, adjacent to US Highway 101, between Fort Columbia State Park and the Astoria Bridge in southwest unincorporated Pacific County, Washington. The site is located one mile east of Fort Columbia State Park, near milepost 2.0, within Section 22 and the northeast quarter of Section 21, Township 9 North, Range 10 West of the Willamette Meridian. St. Mary's Church, an in-holding property located within the boundaries of the Station Camp–Middle Village site, is a national historic register site still in operation. Other remnants of the historic McGowan townsite exist in the vicinity of the site, on adjacent private property. Refer to Figure 1-1, Project Vicinity and Figure 1-2, Area of Potential Effect.

Regional Context

Located across the river from Astoria, Oregon and in proximity to Washington communities, Chinook, Ilwaco, Seaview, and Long Beach, the Station Camp–Middle Village site sits within a unique bi-state regional setting. This region, known as the Columbia – Pacific, has been influenced by a strong maritime heritage with present-day working waterfronts and landscapes reflecting the industries of fishing, forestry, and agriculture. Tourism and recreation opportunities in the region are abundant and also vital to the regional economy. The site is also part of the Lewis and Clark National Historical Park, a system of national park units that, along with several state parks and local historical sites in Oregon and Washington, interprets the history and prehistory of the Lower Columbia. Station Camp–Middle Village is not only an important historic and cultural site drawing visitors from throughout the region, nation and abroad, but also an important heritage and recreation site to local communities. Refer to Figure 1-3, Regional Context.

History and Significance of Lewis and Clark National Historical Park and Station Camp Unit (Now Referred to as Station Camp–Middle Village)

The Station Camp–Middle Village site has great significance in the history of the Pacific northwest due to its strategic location and topographic characteristics. Historical interpretations of the past few decades have tended to focus on the history of the Lewis and Clark Expedition and its interactions with Chinookan people at the site. With archeological and historical research completed in recent years, the site's historical importance to the nation has been further documented. Historic events related to the site extend far beyond the events of the Lewis and Clark Expedition. Because of the site's strategic location at the mouth of the Columbia River, it was of great importance to the nation's history in the northwest.

Based on archeological records, the Station Camp–Middle Village vicinity appears to have been one of the great trading sites of the Lower Columbia. During the pre-contact period and following contact, Chinookan people used the site as a seasonal fishing and trading village. From 1792 to 1813, contact and trade between the Chinook Nation at the mouth of the river and the young and expansionist United States along with other colonizing powers determined the fate of both nations. The voyage of Robert Gray is also an important event in this history as the first documented visit of a non-Indian to the river and the earliest basis for the United States' claim to possession. Then came the great overland expeditions: the Lewis and Clark Expedition, which was the first documented cross-continental journey to the west coast, and the Astor Expedition, founders of the first United States settlement west of the Rocky Mountains. The history continues, and includes impacts to the Chinookan people and cultural changes brought on by settlement in the area and the specific settlement of the site by Patrick J. McGowan, and his subsequent development of a town and cannery at the site.

The story of the Station Camp–Middle Village site continues to the present-day and into the future, with a commitment to enhance and rehabilitate the natural environment and to protect cultural resources at the site.

National Park Service (NPS) Mission and Lewis and Clark National Historical Park Objectives

NPS MISSION

The mission of the NPS is to: "*...promote and regulate the use of the...national parks...which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations*."

National Park Service Organic Act, 16.U.S.C.1

LEWIS AND CLARK NATIONAL HISTORICAL PARK

The designation and development of a national park unit at Station Camp–Middle Village was authorized by Congress in 2004 by Public Law 108-387, an act to redesignate Fort Clatsop National Memorial to the Lewis and Clark National Historical Park. The enabling legislation cites the purpose of establishing the Lewis and Clark National Historical Park as follows.

"In order to preserve for the benefit of the people of the United States the historic, cultural, scenic, and natural resources associated with the arrival of the Lewis and Clark Expedition in the lower Columbia River area…"

Project Background and Relevant Planning Activities

PREVIOUS AND RELATED PLANNING STUDIES

The Station Camp–Middle Village project and surrounding area has been the subject of extensive planning. In the late 1990s, the local, state, and federal agencies and tribes of the region worked together to plan for the commemoration of the bicentennial of the Lewis and Clark Expedition (2003-2006).

As a result of the above efforts, the Washington State Historical Society (WSHS), in partnership with the NPS, Washington State Parks and Recreation Commission (WSPRC), Washington State Department of Transportation (WSDOT), and several other agencies and entities proceeded to develop plans for improvements to the Station Camp–Middle Village site. These plans called for the relocation of US Highway 101 to the north side of St. Mary's Church, creating a nine-acre waterfront park with visitor amenities and interpretation. An EA was prepared by EDAW, Inc. and published in June 2004 to assess alternatives for site development. FONSI was issued to FHWA and WSDOT. In addition, all required federal, state, and local permits were obtained for the project. After the construction work to relocate the highway was underway, an inadvertent discovery of archeological resources occurred. In accordance with Section 106, the project proponents had previously consulted with the Chinook Tribe and developed a Recovery Plan that had also been reviewed and approved by the Washington Department of Archaeology and Historic Preservation (DAHP), WSDOT, and others. Based on the procedures outlined in the Recovery Plan, construction work was halted and project proponents worked closely with the Chinook Tribe to address preservation and protection needs. Also as a result of the inadvertent discovery, plans for the Station Camp–Middle Village site were reformulated. It was determined that the highway would not be relocated, and that the level of development of the site would be greatly reduced, avoiding excavation to the maximum extent possible. This approach led to the development of Alternative B, the proposed alternative for site development, and the need to prepare a new EA addressing the revised approach to site development.

As part of Lewis and Clark Bicentennial commemoration, plans were developed to expand and further develop the Station Camp–Middle Village site for visitor use. The locally-initiated process to expand Fort Clatsop to include Station Camp–Middle Village and create the new Lewis and Clark National Historical Park also occurred at that time. The Lower Columbia River Lewis and Clark Sites Boundary Study was published in 2003. This was followed by official legislation to create the Lewis and Clark National Historical Park, enacted in 2004.

REGULATORY ISSUES AND MANAGEMENT CONCERNS

Once developed, the Station Camp–Middle Village site will be owned and managed by the NPS upon transfer from WSHS, as authorized in the 2004 enabling legislation for the Lewis and Clark National Historical Park. The need for further federal legislation is not anticipated at this time. Improvements and management are expected to provide a 50+ year project timeframe. A general management plan will be developed in the near future, which will include specific provisions for ongoing management activities at the Station Camp–Middle Village site. In the interim, Lewis and Clark National Historic Park staff have been

coordinating closely with WSHS, the Chinook Nation, and WSDOT representatives on development plans, applying appropriate best practices in accordance with current NPS management policies and directives.

Prior to implementation and construction of the site and highway access improvements, all local, state and federal land use processes and construction permits will be obtained. A list of known permits needed includes the following:

- National Environmental Policy Act compliance (the subject of this EA)
- SEPA compliance—administered by Pacific County and reviewed by the Washington State Department of Ecology
- Coastal Zone Management – federal consistency, as documented by this EA
- National Pollution Discharge Elimination System (NPDES)—Administered by the Washington State Department of Ecology
- Access Connection Permit—WSDOT
- Shoreline Substantial Development Permit (SDP)—Pacific County
- Critical Areas and Resource Lands Permit (CARL)—Pacific County
- Grading Permit/Site Development Permit—Pacific County
- Building Permit – Pacific County
- Demolition Permit – Olympic Region Clean Air Agency
- Hydraulics Project Approval permit - WDFW
- Section 106 Compliance -SHPO

Scoping

The planning process for the proposed action was initiated with internal, agency, and public scoping in late 2009 and early 2010. The NPS and its partners held a formal agency and public scoping meeting December 17, 2009 at Fort Columbia State Park. At this meeting, the NPS solicited agency and public input on options for improvements and actions at the Station Camp–Middle Village site. The meeting also provided participants with information on the purpose and need for the project, the planning process that would follow, and potential visitor improvements under consideration.

As part of this scoping effort, as well as, ongoing project permitting and environmental compliance activities, several agencies have been contacted, including the Tribal nations of the Chinook Nation, Clatsop-Nehalem Confederated Tribes, and Confederated Tribes of Grand Ronde, the US Fish and Wildlife Service, Washington State Department of Historical and Archeological Preservation, Washington State Department of Fish and Wildlife, Washington State Department of Transportation, Washington State Parks and Recreation Commission, and Federal Highway Administration. Local stakeholders and adjacent property owners also were consulted. Internal NPS scoping between NPS team members and their partners and consultants was an ongoing process.

Following the public scoping session, the NPS held a 30-day public scoping comment period to obtain additional input. For more detailed information related to scoping refer to Chapter 5: Consultation and Coordination.

Planning Issues and Concerns

Through previous and ongoing planning and design efforts and the scoping process, several key issues were identified as important considerations in the design and development of the site. The following key issues were identified as the most important relevant to the site planning and design. The proposed alternative was created with consideration of these issues. Each key issue is described in more detail on the following page.

PRESERVING AND PROTECTING NATURAL AND CULTURAL RESOURCES.

There are sensitive natural and cultural resources at the Station Camp–Middle Village site that require special management practices. These include wetlands and stream corridors that feed into the Columbia River, as well as native vegetation communities threatened by invasive species. Cultural resources management and protection is also an important issue. The NPS is mandated to preserve and protect cultural resources throughout the National Park System and determination has been made that significant portions of this site are eligible for listing on the National Register of Historic Place.

PROVIDING INTERPRETIVE EXPERIENCES TO HONOR THE HISTORIC AREA AND EDUCATE PEOPLE ABOUT ITS SIGNIFICANCE.

At present the interpretive experience at the Station Camp–Middle Village site is limited. There is a single interpretive display addressing the history of the Lewis and Clark Expedition's experiences at the site. Additional interpretation and visitor improvements (including scenic viewpoints) are needed to adequately tell the full story of the natural and cultural history and influences that have affected the site over time. This includes interpreting the story of Native American use of the site and area, as well as activities of traders and explorers who came into the mouth of the Columbia River before and after the Lewis and Clark Expedition. The subsequent history of settlement and industrial development and its effects on native culture and population also needs to be addressed. Additionally, today's strong commitment to enhance and protect the natural environment and to honor Chinookan culture is also a part of the story. It is important that all the layers of history that have influenced the Station Camp–Middle Village site need to be interpreted to park visitors.

PROVIDING SAFE ACCESS TO THE SITE FROM THE US HIGHWAY 101.

US Highway 101 is a busy travelway that carries residents, commuters, and visitors through the area, as well as commercial traffic delivering freight and goods to nearby communities. The Station Camp–Middle Village site will need safe ingress and egress from the highway, improving safety for park visitors and passing highway travelers. Considerations related to providing adequate sight distance, turn lanes, and acceleration and deceleration lanes have been an important factor in design of site improvements under the proposed alternative.

Impact Topics Retained for Analysis

Impact topics encompass resources of concern within the project area that could be affected, either beneficially or adversely, by the range of alternatives presented in this EA. Impact topics were identified based on issues raised during scoping of the project, as well as influences such as existing site conditions, federal laws and regulations, Executive Orders and agency policies. Impact topics identified and analyzed in this EA are listed below along with a brief description of why the impact topic is retained for analysis.

Earth Resources – Soils and Topography. An important aspect of the proposed design is avoidance of excavation on site due to concerns related to sensitive cultural resources that may be present. The topographic conditions of the site greatly influence visitor experience and visual resources (scenic views). The design associated with the proposed alternative would alter site topography by introducing imported fill to enhance scenic viewpoints in selected areas. Because of these considerations, the impact topic of Earth Resources has been retained for further analysis.

Water Resources – Stormwater Management and Water Quality. The Washington State Department of Ecology and the local jurisdiction, Pacific County, have requirements for stormwater management and treatment on site, triggered by the potential creation of new impervious surfaces under Alternative B, the Proposed Alternative. As such, the impact topic of Water Resources has been retained for further analysis.

Wetlands. Analysis of wetlands within the proposed park site is required per Executive Order 11990, *Protection of Wetlands* and NPS Director's Order 77-1, *Wetland Protection*. Wetlands are areas of inundated or saturated by surface or groundwater often enough and long enough to support aquatic vegetation. Wetlands are present in the project area, and while no fill of wetlands is proposed, the presence of the wetlands and NPS Director's Order 77-1 require analysis of potential impacts.

Fish and Wildlife (Including Special Status Species). A Biological Evaluation (BE), prepared by Ecological Land Services in August 2010, identified the several species of fish with designated critical habitat present along the Lower Columbia River. The Station Camp–Middle Village site is located adjacent to the river, and with drainage systems that outlet to the river. As such, the BE identified the federally endangered, threatened, proposed, and candidate species with critical habitat that may occur within the action area of the project. For a complete listing of these species, refer to Chapter 3, Affected Environment. No other wildlife species (besides the fish species) were identified as having critical habitat in the action area.

Vegetation. The native vegetation communities of the Station Camp–Middle Village site have been heavily altered over time, and the site management partnership has been working to remove invasive species. The NPS plans to rehabilitate the site by reintroducing native vegetation, including dune ecosystem species and upland species common to the area. While no special status species of vegetation have been identified on the site, this impact topic has been retained to address the proposed revegetation activities proposed for the Station Camp–Middle Village site.

Historic and Cultural Resources. Due to the historical significance of the area and the known presence of historical and cultural resources this site is designated as a site of national significance. Therefore this impact topic was retained for further analysis.

Land Use, Including Consistency with Plans and Policies. In accordance with the NPS *Management Policies* (NPS 2006), planning aids in defining the set of resource conditions, visitor experiences and management actions that will preserve resources for future generations. Local agencies have plans and policies in place that serve to regulate the use of property and protect natural resources. Because of these management principles and the potential effects of a new use within the local policy framework, this impact topic is included and analyzed in more detail in this document.

Access and Transportation. Transportation covers considerations related to public access and safety. Both alternatives could have potential effects on traffic and transportation conditions within and immediately surrounding the park, and as such transportation and related traffic analysis have been retained for detailed analysis.

Visual Resources. Both alternatives could have potential impacts related to visual resources; therefore this topic has been retained for further analysis.

Soundscapes and Noise. Soundscape management relates to the experience at the park site and the effects on neighboring uses. Because both alternatives have potential effects related to soundscapes and noise, including the need to manage highway related noise to enhance visitor experience, this topic has been retained for further analysis.

Public Facilities and Services/Park Operations. The responsibilities and costs associated with providing public facilities and services at the Station Camp–Middle Village site are an important consideration under both alternatives. Therefore, this impact topic has been retained for further analysis.

Visitor Use and Experience. The Organic Act states that enjoyment of park resources and values by people is part of the fundamental purpose of all parks (NPS 2006b). The NPS strives to provide opportunities for forms of enjoyment that are uniquely suited and appropriate to the natural and cultural resources found in parks. The proposed action is meant to enhance visitor experience, encompassing interpretation, understanding, enjoyment, safety, circulation, and accessibility. Because the proposed action would result in changes to the visitor experience, this topic has been included for further analysis.

Public Health and Safety/Children's Health and Safety. Public safety concerns currently exist within the study area related to the project's proximity to the US Highway 101 corridor and the need for safe ingress and egress from the highway. The health and safety of children is a high priority for all federal agencies, as identified in Executive Order 13054, dated April 21, 1997. This order requires that Federal agencies "shall make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children; and shall ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks." Environmental health is also a consideration. Because a primary objective of the proposed action is the improvement of safety, this impact topic has been retained for further analysis.

Socioeconomics. NEPA provisions require environmental analysis to consider potential impacts of socioeconomic conditions related to employment, occupation, income, housing and tax base. The local economy of Pacific County may be affected by both alternatives, and as such, the topic of socioeconomics has been retained for further analysis.

Environmental Justice. All federal agencies are required to incorporate environmental justice into

their mission statements. The goal of environmental justice is to not shift risks or adverse affects onto one population, but rather the fair treatment and meaningful involvement of all populations. Executive Order 12898, *General Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires the incorporation of environmental justice analysis. This analysis, as described under Title VI of the Civil Rights Act of 1964 and Executive Order 12898, addresses disproportionately high and adverse impacts on minority or low-income populations. This topic has been retained for further analysis due to the presence of low income and minority populations in the vicinity of the project area.

Impact Topics Dismissed from Further Analysis

Several impact topics were dismissed from further analysis based on the results of scoping, as well as a lack of relevance to the project site and alternatives being evaluated. Impact topics dismissed are summarized below:

Climate Change. Climate change refers to any significant changes in average climatic conditions (such as mean temperature, precipitation, or wind) or variability (such as seasonality, storm frequency, etc.) lasting for extended periods (decades or longer). Recent reports by the US Climate Change Science Program, the National Academy of Sciences, and the United Nations Intergovernmental Panel on Climate Change (IPCC) provide clear evidence that climate change is occurring and will accelerate in the coming decades. There is strong evidence that global climate change is being driven by human activities worldwide, primarily the burning of fossil fuels and tropical deforestation. These activities release carbon dioxide and other heat-trapping gases, commonly called "greenhouse gases," into the atmosphere (IPCC 2007). The two aspects of climate change that must be considered in environmental analysis are:

- Proposed action impact on climate change; the potential to increase or decrease emission of greenhouse gases that contribute to climate change; and
- The impact of climate change on the site and alternatives – how will resources need to be managed in response to changing climate conditions.

It is not anticipated that the alternatives being analyzed for the Station Camp–Middle Village site would have measurable impacts on climate change. With regard to managing potential impacts, the NPS will be working closely with WSDOT to manage the US Highway 101 embankment and Columbia River shoreline, which is currently armored with rip rap throughout the length of the site. This rip rap embankment protects the site from sudden surges of water during storms. With climate change and potential increases in sea level over a long period of time, maintenance of the armored edge along the river will be important. Other than these considerations, climate change impacts associated with the project would be negligible to none, and as such, this impact topic has been dismissed from further analysis.

Floodplains. Executive Order 11988, *Floodplain Management*, and NPS DO-77.2: *Floodplain Management*, require an examination of impacts to floodplains and potential risk involved in placing facilities within floodplains. The Station Camp–Middle Village site is designated to be within Zone C on Flood Hazard Boundary Maps, most likely protected by a levee from a 100-year flood, nor does the Pacific County geographic information system (GIS) identify the area as being within frequently flooded areas defined by its Flood Control Ordinances. Additionally, the site is not located within the boundaries of an active flood management zone. Pacific County's Flood Control Zone District No. 1 was formed in 1961. The district's activities are focused on the Long Beach Peninsula and its boundaries end just west of the project site. Without the proposal of buildings or occupied structures as part of the park development, improvements to the park would not be detrimentally impacted by a rise in sea level. The risk of flooding is also not likely to increase due to the restructuring and stacking of the highway rip rap by WSDOT approximately every five years. In addition, the overall expected gradual sea level rise will not impact the park site within the foreseeable future. Due to these considerations, the impact topic of floodplains has been dismissed.

Prime and Unique Farmland. Prime and unique farmland is one of several designations made by the US Department of Agriculture to identify important

farmlands in the United States. This is important due to the nation's short- and long-range needs for food and fiber. There are no designated prime farmlands within the study area. The size and configuration of the site and its soils are not consistent with characteristics of prime farmland. As such this topic was dismissed from further analysis.

Indian Trust Resources and Sacred Sites. Secretarial Order 3175 requires that any anticipated impacts to Indian Trust resources from the proposed action by Department of Interior agencies be explicitly addressed in environmental documents. The federal Indian Trust responsibility is a legally enforceable fiduciary obligation on the part of the United States to protect tribal lands, assets, resources, and treaty rights, and it represents a duty to carry out the mandates of federal law with respect to American Indian and Alaska Native tribes. The lands comprising the park are not held in trust by the Secretary of the Interior for the benefit of Indians due to their status as Indians. Therefore, the topic of Indian Trust Resources has been dismissed as an impact topic in this EA.

Museum Collections. NPS *Management Policies* (2006b) and NPS Director's Order 28 *Cultural Resource Management Guideline* require the consideration of impacts on museum collections (archaeology, ethnology, history, biology, paleontology, geology, and archives) as a subtopic of Cultural and Historic Resources. It is anticipated that the Lewis and Clark National Historical Park or other agency museum collections would be negligibly affected by the proposed alternative. As such, this subtopic has been dismissed.

Paleontological Resources. There would be no measurable impact to or loss of fossils at the Station Camp–Middle Village site because activities would not occur in geologic layers known to contain extensive fossils, and the volume of bedrock disturbance would be negligible to none. Therefore Paleontological Resources was dismissed as an impact topic.

Energy Requirements and Conservation Potential. The Council on Environmental Quality (CEQ) guidelines for implementing NEPA require examination of energy requirements and conservation potential as a possible impact topic in environmental documents (40 CFR 1502.16(e)). Lewis and Clark National Historical Park is committed to incorporating principles of sustainable design and development into all facilities and operations. No buildings that would use energy are proposed as part of the project. No lighting is proposed since the park would be a day-use only facility. While parking would be provided, enabling vehicle access to the site, the numbers of vehicles parking at the site on average would not be expected to be substantially more than the number of vehicles informally parking in the project vicinity under current conditions. Bus parking and accessibility to bicycles and pedestrians are provisions of the proposed action, which could result in negligible reductions in the use of energy resources to access the site. Overall, any adverse impacts relating to energy use, availability or conservation would be negligible to none. As such, this impact topic has been dismissed from further analysis.

FIGURE 1-1
Project Vicinity

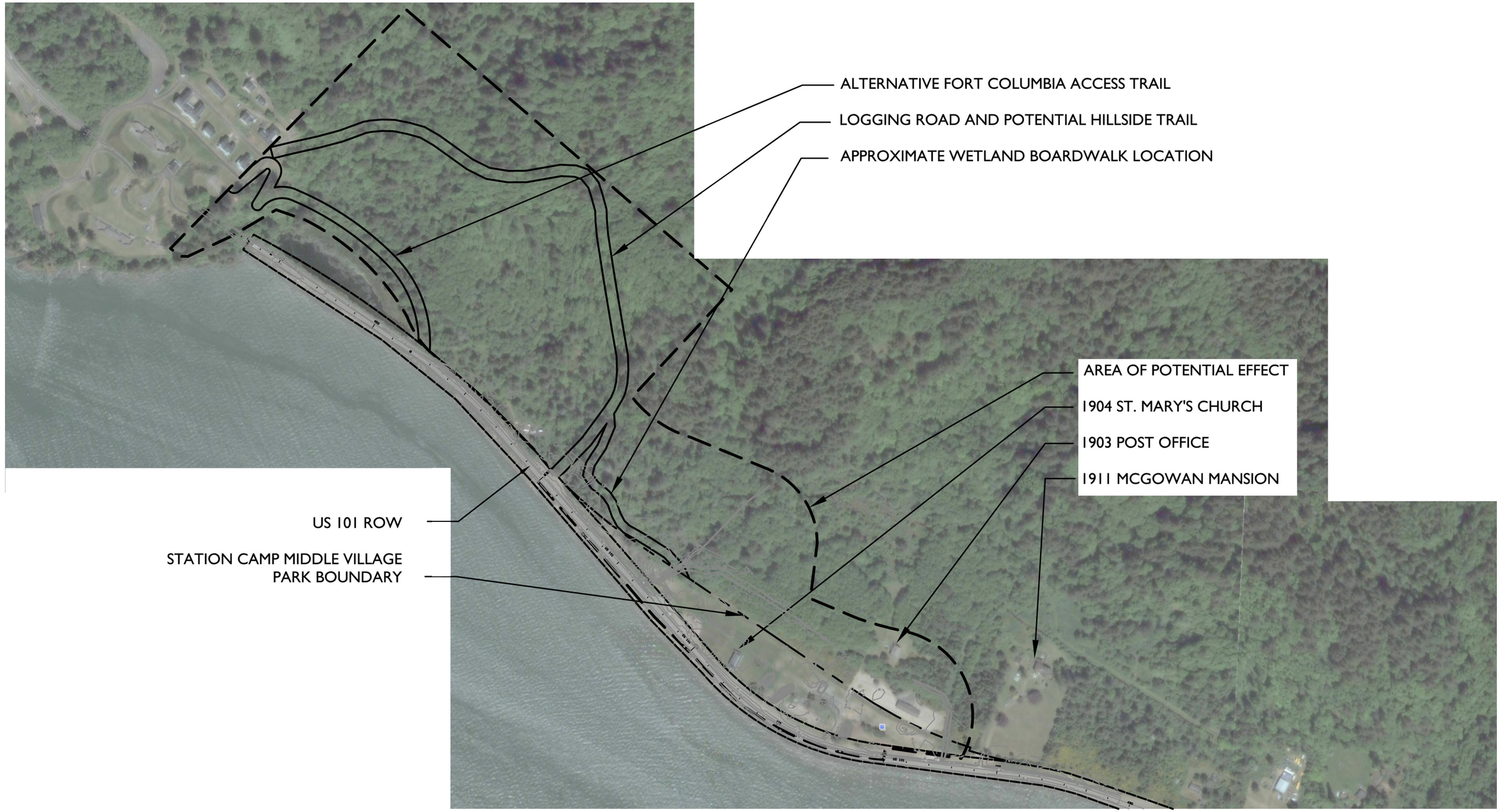


FIGURE 1-2
Area of Potential Effect

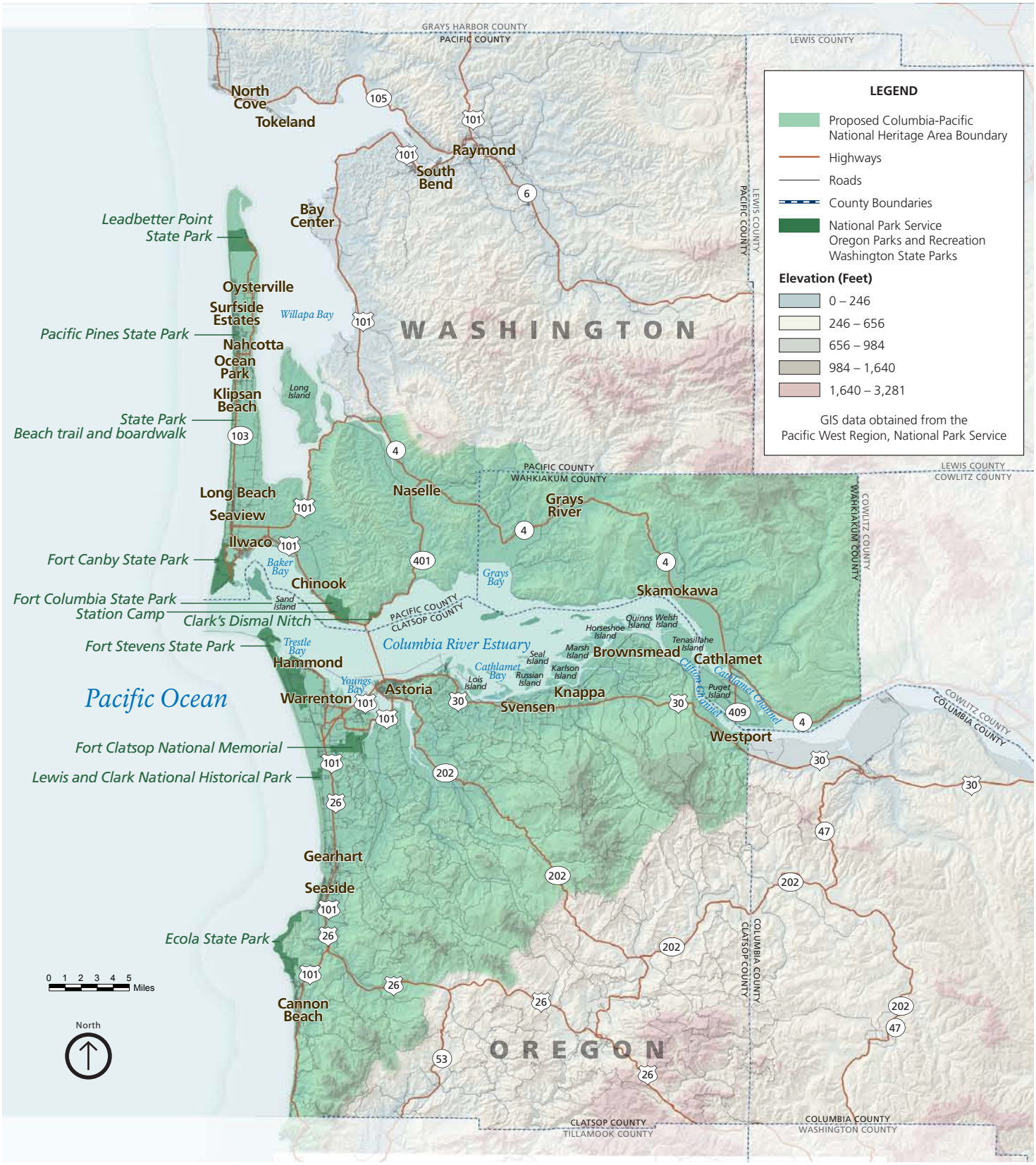


FIGURE 1-3
Regional Context

National Park Service
U.S. Department of the Interior

Station Camp – Middle Village Park
Washington

2—ALTERNATIVES

This chapter describes the two alternatives being evaluated: Alternative A, which is the no action alternative and Alternative B, which is the proposed action by the NPS to implement improvements to the Station Camp–Middle Village. The description and evaluation of the no action alternative provides a baseline to which the action alternative can be compared. The proposed action alternative was designed with the protection of cultural resources as paramount, with added benefits such as improvement of site access, visitor use and experience (including expanded visitor knowledge through interpretation), public safety, and resource protection and management at the Station Camp–Middle Village site. Mitigation measures associated with Alternative B are summarized in this chapter. Exiting condition photos, proposed views, and trail alignments are displayed in Figures 2-1. Several design elements considered but dismissed are also described in this chapter, followed by a summary of the alternatives and a summary of environmental consequences.

Development Of Alternatives And Range Of Alternatives

NPS decided to analyze two alternatives: Alternative A, the no action alternative, and Alternative B, Station Camp–Middle Village Improvements, which is also the preferred alternative. After extensive public and stakeholder involvement and coordination between partnering agencies, it was determined that the purpose and need for action (described in Chapter 1) would be accomplished through the proposed improvements in Alternative B. Scoping occurred over the course of several meetings with partners, stakeholders, and the public. The proposed action is consistent with Lewis and Clark National Historical Park's enabling legislation and the park's stewardship, environmental leadership, recreational experience, education, and professional excellence objectives developed as part of the NPS Centennial Initiative, as summarized in Chapter 1. The alternatives are evaluated in this document to determine their potential affect on various elements of the environment.

Alternative A—No Action

Under the No Action Alternative, the 7.63-acre Station Camp – Middle Village site would remain in its current condition and configuration as displayed on Figure 2-2. Conditions at the site would remain unimproved. The site would remain in public ownership, with the ownership eventually being transferred from the State of Washington to the NPS. The NPS would provide ongoing annual maintenance (such as invasive vegetation management by hand-cutting and spot-treating with pesticides, general clean up, and general protection of cultural and natural resources to the best of the agency's ability without physical improvements to the site). For example, invasive plant species, such as Scot's Broom would continue to be removed and managed. The NPS management of the site would be limited to providing minimal maintenance and care due to current budget challenges. The NPS would seek to work cooperatively with the WSPRC to provide maintenance to the site. Since no physical improvements would be made under Alternative A, the ability to manage visitor use and minimize intrusion and disturbance of cultural and natural resources would be limited (without physical improvements to direct visitors to certain areas and to control their access). Wetlands on the site would remain untouched without protection or enhancement. Forest lands on and adjacent to the site to the north would remain under the ownership of the McGowan family, available for logging and potentially affecting the historic natural setting of the National Park unit.

The general public, including visitors to the area, seasonal anglers, St. Mary's Church patrons, and US Highway 101 travelers would continue to informally access the site via the unimproved gravel pull off/ interpretive wayside and small gravel parking areas that currently exist there. Scenic views of the Columbia River and surrounding Columbia-Pacific region would remain limited from the park site. Interpretive improvements and services would be limited to the existing interpretive panel at the site and information conveyed via the internet and other park media (the park brochure and newsletter for example). The current interpretive panel at the site is limited to information about the Lewis and Clark Expedition and their journey to the Pacific Ocean.

On-site interpretation does not cover the full history of the site, and the NPS's ability to share the full significance of the site with visitors would be limited.

US Highway 101 would remain within its current right-of-way and configuration with one 12-foot eastbound lane and one 12-foot westbound lane at a speed limit of 55 mph and undefined and unimproved ingress, and egress, to the site. St. Mary's Church would remain as an in-holding of the park and a historic remnant of the McGowan Town Settlement. Church patrons would continue to access the site at periodic times during the year to attend services and special events.

The NPS would continue to explore potential options to project the natural and cultural resources on the site, but these could take three to five years or more to implement, and there is a concern that an unintended consequence of the protection might be greater unwanted public attention to the sensitive areas at the site.

Alternative B—Proposed Action Station Camp—Middle Village Park Improvements

Under Alternative B, approximately 3.64 acres of the 7.63-acre site would be improved for visitor access and use. The remaining 4 acres will be retained in an undeveloped condition with intensive rehabilitation of site vegetation and management of invasive species by hand-cutting and spot-treating with pesticides. The proposed improvements would expand visitor access and awareness of the full history of the site and region. Views of the Columbia River, its confluence with the Pacific Ocean, and the surrounding cultural landscape would be maximized. The full interpretive potential of the site would be realized through additional outdoor exhibits and tribal art located at the site. Gateway signage would initiate the visitor experience upon approach to the park on US Highway 101. NPS and related roadway signs would signify a new sense of place and arrival to the new NPS unit. Proposed improvements associated with Alternative B are illustrated in Figure 2-3.

Improvements to US Highway 101 under Alternative B would include development of a formal access and circulation system, providing a means of safe ingress and egress to the park with a left turn lane. Shoulders along both sides of the highway would be widened, to accommodate these improvements, with east and westbound travel lanes striped at 11.5 feet each. The speed would remain at 55 mph.

The proposed visitor parking area would be located in an area that is partially disturbed, in the vicinity of the existing gravel wayside pull off, to minimize new disturbance and compaction at the site. Access to the parking lot, located just west of the historic St. Mary's Church, would allow for one-way vehicular circulation with an east entry and west exit. Delineated parking of 15 angled spaces would encourage predictable and safe vehicular movements in the parking area. An additional six parking spaces could be constructed here if needed to serve future increased visitation as shown in the conceptual site plan, Figure 2-4.

Improvements would include a visitor drop off area designed to accommodate loading and unloading of two buses or larger vehicles with the intent to serve school and tour groups. The visitor drop off area would serve as a welcoming point to the site with an adjacent orientation space offering visitors an understanding of the experiential opportunities available at Station Camp–Middle Village. From the orientation space, visitors would be able to move in multiple directions to experience the park. A pedestrian path extending to the southeast from the orientation path provides access to interpretive areas via a looped pathway system culminating with an elevated overlook at the east end. Along either side of the path, a coastal prairie landscape would be re-established. Several interpretive spaces along the looped pathway would provide interpretive exhibits covering storylines of the site's history with views across the restored landscape and forested backdrop. Interpretive topics would include Native American heritage, Euro-American trade, the cultural landscape, and the natural environment. As the pathway reaches the elevated overlook terminus, visitors would be provided a prominent vantage point with sweeping views of the Columbia River and surroundings. This would be the highest elevation in the park, allowing breathtaking views over the Columbia River towards Astoria, Saddle Mountain, Fort Columbia and Cape Disappointment State Park, and the confluence of the Columbia River with the Pacific Ocean. Interpretive topics covered

at this overlook would include the Native American heritage, the McGowan town settlement, maritime heritage, and the Lewis and Clark Expedition. Refer to Figure 2-4 for the Proposed Action Site Plan.

The return pathway to the parking lot passes in front of St. Mary's Church, which stands as a national historic landmark from the 1940 McGowan town settlement. This path also provides access for church patrons.

As visitors venture to the orientation area, they will be able to view elements in the western portion of the park, including another proposed elevated overlook structure with interpretive exhibits, northwest of the parking area. This elevated view platform would be accessible from the parking area and orientation space. From the elevated platform visitors would be afforded sweeping views of the cultural landscape from Station Camp – Middle Village to Saddle Mountain. Native American heritage, wetland interpretation, the McGowan town settlement, and the cultural landscape and natural environment would be featured topics in this space. Visitors would be able to follow a boardwalk and trail connection from the elevated structure toward the west, across a wetland, and toward a connection to Fort Columbia State Park, which follows an old logging road for part of the proposed route. This trail also ties into the path back to the parking area.

Development of the Fort Columbia trail connection would occur in the future, as part of Phase 2 improvements to the park. These Phase 2 improvements are included in this EA and consists of approximately 1,000 feet of boardwalk constructed on pilings, 1,950 feet of at grade trail, and a 40-foot and 10-foot boardwalk footbridge. Overall, this trail would establish a shared use path between the Station Camp–Middle Village Park and Fort Columbia State Park. The trail would include on-grade trail, segments of boardwalk, and bridges segments and would create a unique connection, stretching approximately one quarter mile between the National Park site at Station Camp – Middle Village and the State Park. This connection also opens up future opportunities to link these two sites with the Towns of Chinook and Ilwaco.

Design of the park has followed a guiding principle to minimize impacts and honor the sensitivity of the site's heritage. Context sensitive design methods and low impact development features would be implemented to minimize effects to the site and surrounding environmental resources. The pervious pavement parking area would infiltrate stormwater, recharge the ground water, and during high volumes it would convey drainage towards the wetland. Boardwalk treatments throughout the park would be designed to minimize effects to wetlands and preserve the natural environment as much as possible. Invasive vegetation management and treatment would remove unwanted plant species, and re-establish native plantings. Design of path alignments have been shifted and adjusted to avoid sensitive cultural features associated with the site.

Mitigation Measures For The Proposed Action

Proposed mitigation measures and best management practices for the proposed action, Alternative B, are summarized below:

- Pervious pavement is being used in the parking areas to decrease the total square footage of impervious surfaces on the site.
- Boardwalks and pathways will be used in order to focus pedestrian traffic in specific areas preserve the function and integrity of on-site wetlands.
- Clean, culturally sterile fill material will be brought from an off-site, approved source, therefore limiting excavation on the site in order to protect existing cultural resources.
- The staging and material stockpiling will be limited to existing cleared areas.
- Best management practices for construction, including but not limited to, construction equipment kept in good, working condition, and appropriate temporary erosion control measures in place to control stormwater runoff.
- All work will comply with agency required permits and their conditions.

Project Design Elements Considered But Dismissed From Further Analysis

Major Realignment of US Highway 101. Previous alternatives that proposed a major realignment of

US Highway 101 northward to create a waterfront park have been dismissed. These include alternatives analyzed prior to the start of construction of the highway relocation project discussed in Chapter 1, as well as more recent adjustments to the highway alignment considered as part of the current project design. Major realignment will not support attaining the goals identified in the purpose and need and are not desirable due to the concerns of potential effects to cultural resources, as well as cost considerations.

More Extensive Park Development

Broader, more extensive plans for park development were analyzed during the conceptual design phase of the project. Through various planning and design discussion meetings, internal and external scoping meetings, and discussions with local stakeholder groups, it was determined that the level of site development should be minimized to that proposed under Alternative B, the proposed action. Guiding principles and project goals were kept in mind during these planning and design meetings. Elements vetted through the design process but dismissed included additional parking at the east end of the park, additional parking at the proposed parking area, a tertiary pathway system, and a US Highway 101 side bus drop off. Evaluation of a westbound bus drop off along the highway was vetted by the project team and the WSDOT. It was not considered a feasible option due to pedestrian safety concerns and the lack of deceleration and acceleration transition space.

The potential for an additional informal pathway system offset from the main interpretive path system, allowing visitors to experience more of the site with interpretation at specific locations, was dismissed. The project team in consultation with Chinook Tribe representatives decided to eliminate the tertiary pathway system due to concerns related to visitor intrusion in or near sensitive cultural resource areas. Development of additional visitor facilities, such as a restroom building/contact station was also dismissed due to concerns related to excavation because it does not support attaining the goal set forth in the purpose and need to protect cultural resources.

Table 2-1: Summary of Alternatives

Elements	Alternative A *(No Action)*	Alternative B
Park Entrance/Formalizing Safe Park Access, Ingress and Egress	No	Yes
Gateway Treatments/Formal NPS Signing Program	No	Yes
Park Improvements *(Visitor Access, Paths, Viewpoints, Wayfinding/Signs)*	No	Yes
Interpretation	Limited to current Lewis and Clark Expedition interpretation	Yes – Interpretation of a full spectrum of historical and cultural influences and stories
Bicycle/Pedestrian Circulation	Limited	Yes
Trail Connection to Fort Columbia State Park	No	Yes
Traffic Calming/Safety/ Access	No	Yes
Stormwater Management and Water Quality Features	No	Yes
Preservation and Protection of Cultural Resources	Yes	Yes
Active Management of Site Vegetation and Ecosystems	Yes	Yes

Rehabilitation to a More Natural Landscape *(Return to Historical Setting)*	No – Rehabilitation may occur in the future but would not be initiated before property transfer to the NPS.	Yes
Preservation of Partnerships and Cooperative Management Approaches	Limited	Yes
Meets Purpose and Need	No	Yes

NPS Preferred Alternative

Alternative B, the proposed action, was selected by the NPS as the preferred alternative. This selection was made based on how Alternative B protects cultural resources on the site while interpreting and improving the site for the enjoyment of visitors. Although Alternative B imposes environmental impacts, the EA has determined that any potential adverse impacts would be negligible to minor. The EA also has determined that Alternative B would result in several areas of positive effects, including soil stability and protection, water quality improvements and protect cultural resources.

The NPS has determined that implementation of the no action alternative, Alternative A, would limit the agency's ability to fully preserve and protect natural and cultural resources. Also Alternative A would not provide opportunities to enhance and improve visitor experience and enjoyment at the site.

Environmentally Preferred Alternative

Alternative A (No Action) is determined to be the environmentally preferred alternative as no development action would occur on the site. Although a no action alternative is often times the environmentally preferred alternative, there are many positive effects to the implementation of Alternative B.

Photo 1: View southwest from east end of project site along north side of US Highway 101.

Photo 2: View looking northwest on the east side of US Highway 101 just south of the gravel parking area.

Photo 3: View looking southwest across the site from the eastern culvert.

Photo 4: Southern face of the St. Mary's Church.

Photo 5: View of cut and treated Scot's broom following the vegetation treatment process.

FIGURE 2-1a
Existing Study Area Photographs

Photo 6: View south from approximate elevation and location of northwest overlook structure (Alternative B).

Photo 7: East-facing view of St. Mary's Church and Bachelor Quarters building (to be removed in Alternative B).

Photo 8: View east along proposed path alignment to Fort Columbia State Park on private logging road.

Photo 9: Lowland section of private logging road to fort Columbia State park.

Photo 10: Forested wetland downslope of the upland Fort Columbia trail alignment.

FIGURE 2-1b
Existing Study Area Photographs

FIGURE 2-2
Alternative A, No Action

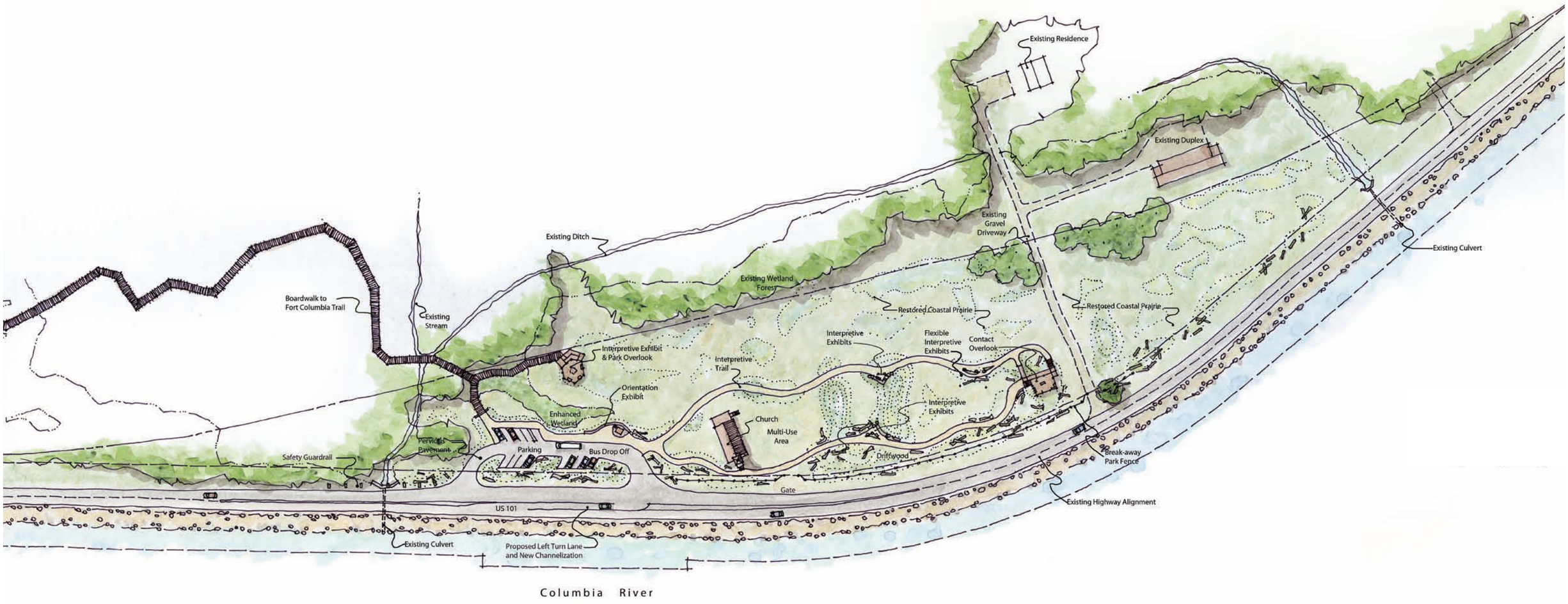
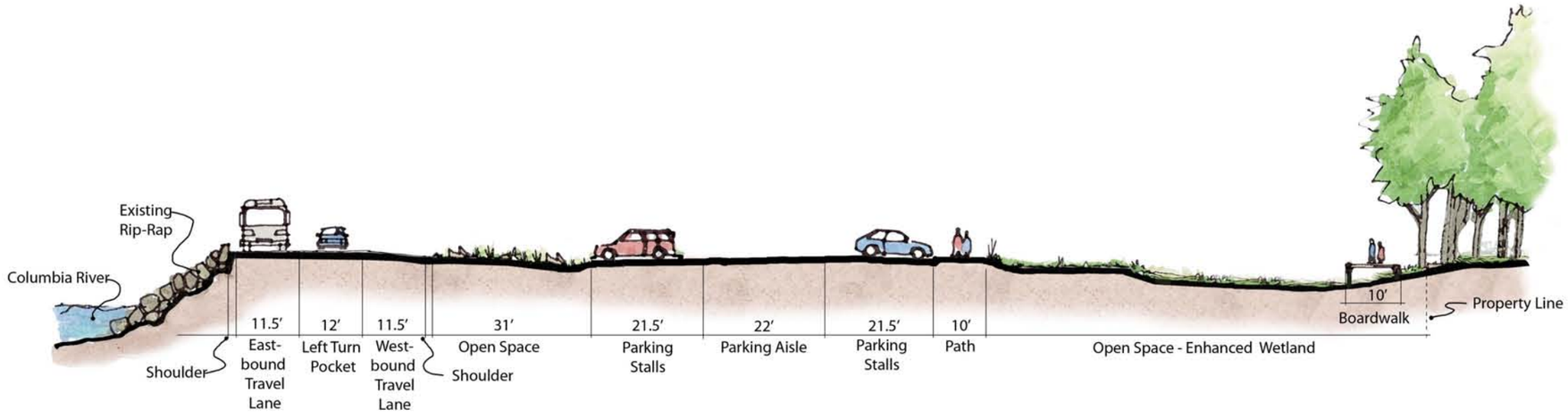


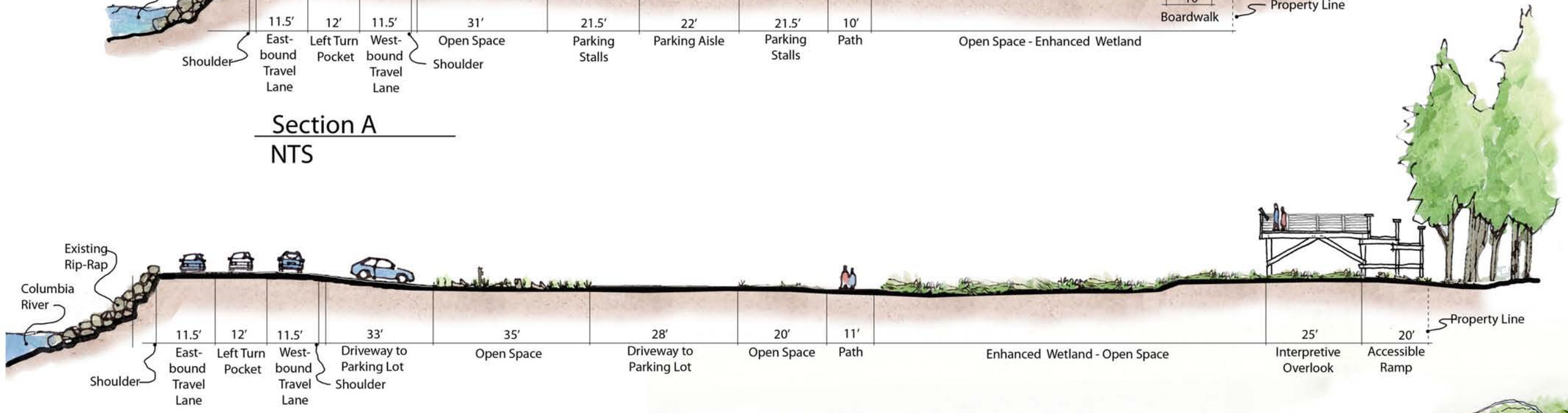
FIGURE 2-3
Alternative B, Proposed Action – Conceptual Site Plan

National Park Service
U.S. Department of the Interior

Station Camp – Middle Village Park
Washington



Section A
NTS



Section B
NTS

Sections Key

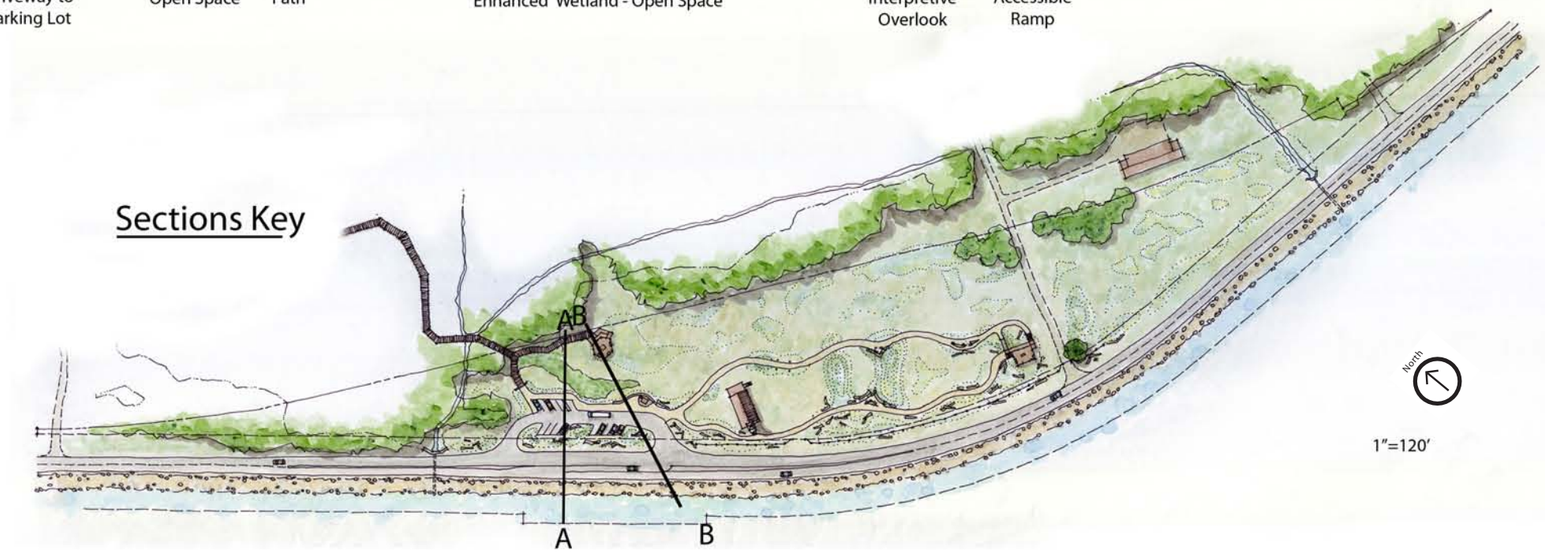


FIGURE 2-4a
Alternative B, Proposed Action – Park Section Graphic

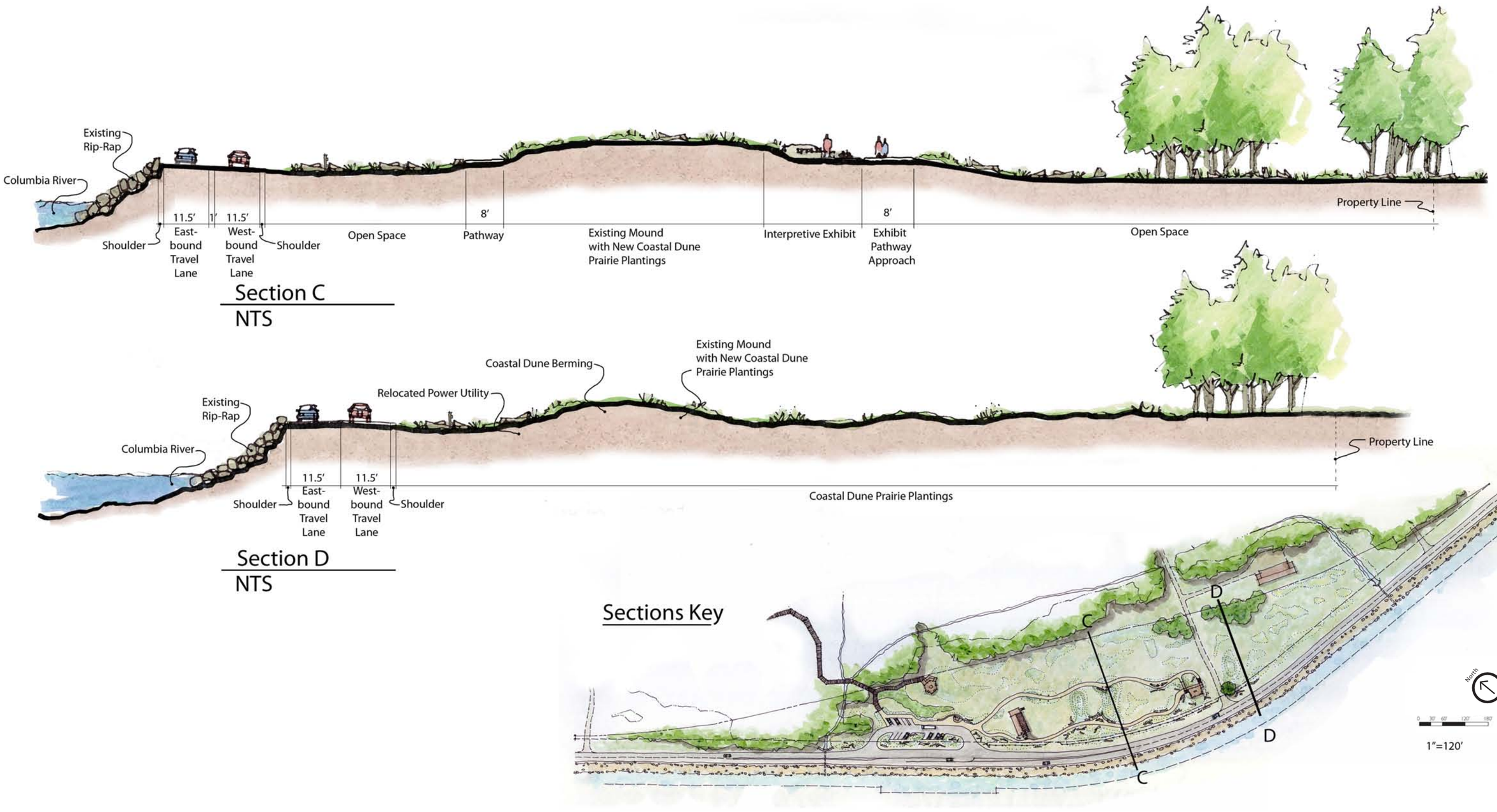


FIGURE 2-4b
Alternative B, Proposed Action – Park Section Graphic

* Alignment under negotiations with property owner.

100' 0' 100' 200'
SCALE IN FEET

FIGURE 2-5
Alternative B, Fort Columbia State Park Connection Trail

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.

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 (Onchorhynchus tshawytscha)		
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 (Onchorhynchus keta)		
Columbia River Chum Salmon ESU	Threatened	Designated
Coho Salmon (Onchorhynchus kisutch)		
Lower Columbia River Coho Salmon ESU	Threatened	No
Sockeye Salmon (Onchorhynchus nerka)		
Snake River Sockeye DPS	Endangered	Designated
Steelhead (Onchorhynchus mykiss)		
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 (Acipenser medirostris)	Threatened	Designated
Columbia River Smelt – Southern DPS (Thaleichthys pacificus)	Threatened	No
Steller Sea Lion (Eumetopias jubatus)	Threatened	No
USFWS Jurisdiction		
Bull Trout - Columbia River DPS (Salvelinus confluentus)	Threatened	Proposed
Marbled Murrelet (Brachyramphus marmoratus)	Threatened	No
Northern Spotted Owl (Strix occidentalis caurina)	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).

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

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.

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	• 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	• 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	• 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).

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

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 are 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

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. Shelfish 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 Evironmental 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.

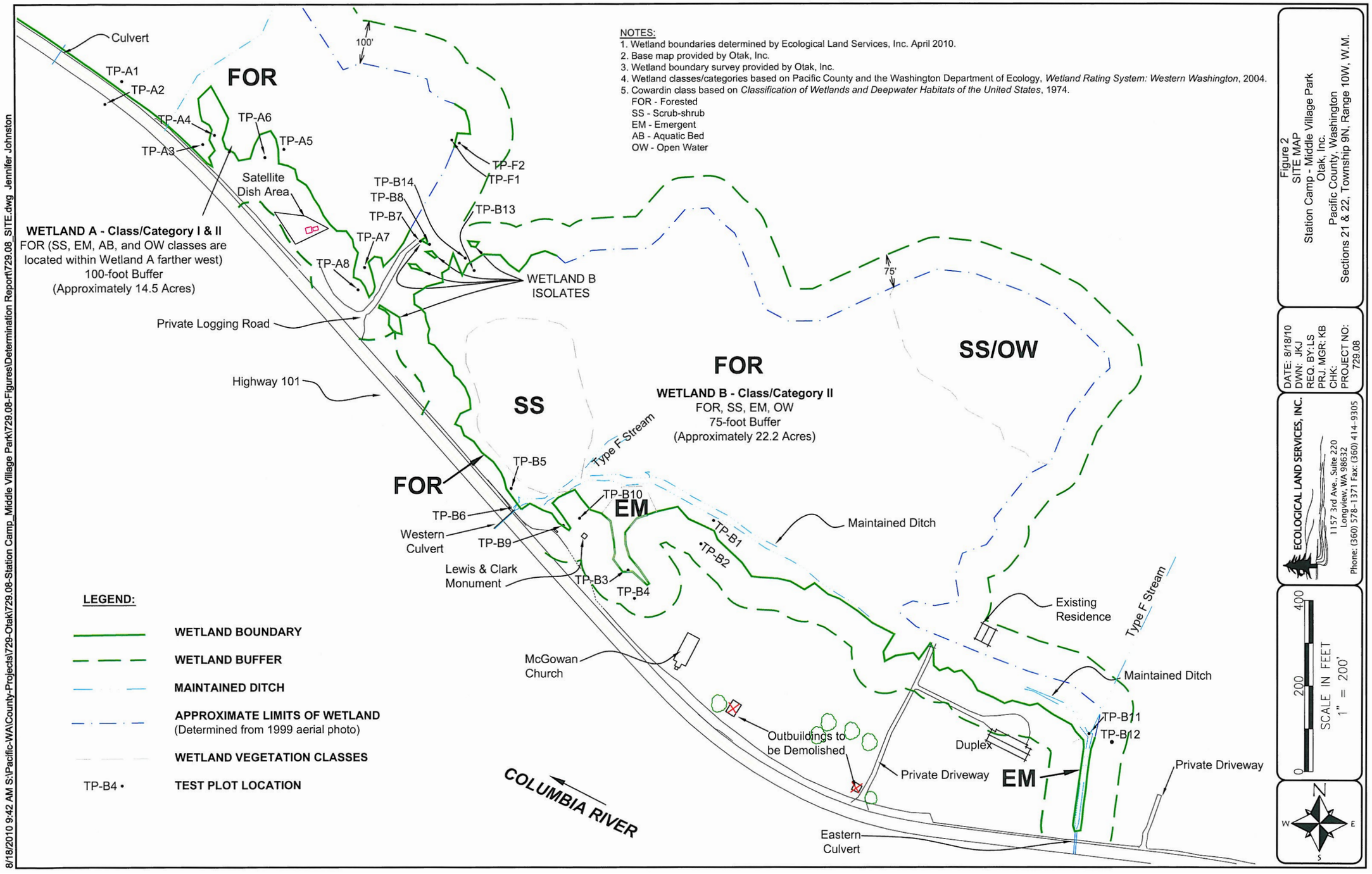


FIGURE 3-1
Existing Wetlands

FIGURE 3-2
Existing Vegetation

4—ENVIRONMENTAL CONSEQUENCES

General Methodology for Assessing Impacts

Impacts in this chapter are organized by type, context, intensity and duration. Each analysis includes direct and indirect impacts which may not be specifically identified as such in the text. Definitions for these terms can be found below:

Type of impacts relates to the effect that an alternative has on a specific impact topic, either adverse (negatively) or beneficial (positively) and in some cases direct (caused by the alternative at a specific time and place) and indirect (a foreseeable impact caused by the alternative at a later time).

Context is the setting in which impacts are analyzed. The context can be site-specific, local or regional. In this document, context is defined as site-specific or within the area of the proposed action, local—within the vicinity of the project area/surrounding areas, or regional—impacts that would affect a greater area beyond the project area that may affect neighboring towns and parks.

Intensity is defined as the degree to which a resource will be beneficially or adversely affected (negligible, minor, moderate or major). The criteria used to evaluate the intensity of the specific impact topic are identified under each impact topic heading.

Duration identifies the time period for which impacts are expected. They can be either short-term or long-term. The short-term impact may relate to a temporary condition, such as elements of the construction process, that would not last for longer than a period of one year. Long-term impacts last longer than one year and are generally defined as a change in the resource which does not return to the pre-disturbance condition and is more permanent in nature.

Cumulative Impact Methodology

The assessment of cumulative impacts in the decision-making process is required through the NEPA process. Cumulative impacts are defined as impacts on the environment that result when the impact of the proposed action is added to the impacts of past, present or future foreseeable actions regardless of what agency (federal or non-federal) or person undertakes such action (40 CFR 1508.7). In order to determine potential cumulative impacts a survey of existing and anticipated future projects were identified, including NPS property, adjacent property and greater, surrounding parks land, cultural and natural resources of the area, as well as local and regional plans, including land use and transportation.

The cumulative impacts analysis takes into consideration the potential future foreseeable actions which are identified in all of the supporting policies and plans listed in Chapter 3, which include and other federal, state and local regulations:

- National Park Service Management Policies
- 1998 Pacific County Comprehensive Plan
- Shoreline Management Program (SMP) Ordinance No. 2000-039
- Critical Areas and Resource Lands (CARL) Ordinance No. 147, 147A, 147B

Cumulative Impact Contribution Methodology

The following terminology is used in this Chapter to define the contribution of each alternative to cumulative impacts:

Negligible: The incremental effect contributed by the alternative to the overall cumulative impact is such a small increment that it is impossible or extremely difficult to discern.

Minor: The incremental effect contributed by the alternative would be small in proportion to overall cumulative impact yet detectable and observable.

Moderate: The incremental effect contributed by the alternative would be apparent and noticeable in relation to the overall cumulative impact.

Major: The incremental effect contributed by the alternative would be substantial and a large portion of the overall cumulative impact.

Findings on Impairment of Park Resources and Values

NPS *Management Policies* and Director's Order 12 require that analysis of proposed actions impairment of park resources be analyzed in addition to the environmental consequences for each impact topic. Impairment is defined as an impact that, in the judgment of the NPS Manager, would harm the integrity of park resources or values including opportunities that otherwise would be present for the enjoyment of those resources or values. As stated in the NPS *Management Policies* (NPS 2006, Section 1.4.5), "Before approving a proposed action that could lead to an impairment of park resources and values, an NPS decision maker must consider the impacts of the proposed action and determine, in writing, that the activity will not lead to impairment of park resources and values. If there would be an impairment, the action must not be approved." An impact to any park resource of value may constitute impairment and can result from NPS activities in management of the park, visitor activities, or activities by others operating in the park. However, an impact does not necessarily constitute impairment to the extent that it affects a resource or value whose conservation is:

- Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- Key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or
- Identified as a goal in the park's general management plan or other relevant NPS planning documents.

A finding regarding impairment appears in the concluding section for all impact topics, except Access and Transportation, Public Facilities and Services/Park Operations, Visitor Use and Experience, Public Health and Safety/Children's Health and Safety, Land Use, Socioeconomics, and Environmental Justice because these topics are not resource based and therefore not considered parks resources or values according to the Organic Act and cannot be impaired even if impacts do occur. In this EA, impairment is only assessed for NPS lands, not potions of the project area under other jurisdictions.

Analysis of Effect

EARTH RESOURCES (SOILS AND TOPOGRAPHY)

Information on soils was derived from the USDA Soil Survey Map, past environmental documents and geotechnical reports. Forecasts of potential short- and long-term site impacts are based on previous projects and other studies. The threshold of intensity of impacts on soils is defined as follows:

Methodology

Negligible: The effects on soils would be below or lower than detectable levels. Any effects would be slight and no long-term effects on soils would occur.

Minor: The effects on soils would be small, yet detectable. Mitigation may be needed to offset any likely adverse effects.

Moderate: The effect on soil would be readily apparent and would result in a change to the soil character over a wide area. Successful mitigation measures would be needed to offset any adverse impacts.

Major: Impacts to soil would be readily apparent and would substantially change the character of the soils over a large area within and outside the proposed park area. Mitigation measures would be needed to offset any adverse impacts, the success of which could not be guaranteed.

Impacts of Alternative A (No-Action)

Impacts

Under the No Action Alternative, there would be no additional effect to area soils beyond current land use impacts. Land use patterns and associated impacts to soil composition and distribution in the project area would remain as they currently exist. Continued dispersed recreation and use of the site from a potential lack of sufficient designated areas for human activities would represent a persistent detrimental disturbance impact to area soils. The No Action Alternative would result in minor, short-term, adverse impacts on soils and earth resources.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions have and continue to contribute to the cumulative impacts on the soils in the study area. These actions include sightseeing tourists traveling

along US Highway 101 and local anglers using the existing wayside park area inappropriately as a bathroom, thus contaminating the ground surface with human waste. Alternative A would have a minor, long-term, adverse cumulative impact on the soils in the study area. Allowing contamination by human waste to occur on the site, Alternative A would contribute moderate adverse cumulative impact by not formalizing and controlling the use of the area with regard to human waste.

Impacts of Alternative B (Proposed Action)

Impacts

Effects to area soils under Alternative B would be limited in nature. Short-term impacts to soils would be associated with project construction. The amount of imported fill material needed to complete the proposed pervious and impervious parking areas, trails, elevated interpretative outlooks and highway shoulder work is limited to an approximate total of 8,000 yards of fill brought in from approved off-site sources. Due to the sensitive nature of the site, limited soil movement will occur associated with the project, therefore having minor, short-term adverse impacts. The fill soils will be separated from the existing ground surface by a layer of filter fabric and marking tape. This process of layering the fill will provide for greater preservation of the underlying culturally sensitive soils. Temporary erosion and sedimentation control practices will be implemented to avoid erosion of soils during construction.

The fill material proposed to be imported to the site will be appreciably beneficial by supporting positive drainage and filtration along with good soil structure for successful growth of native plant species. In addition, the continued actions of sightseeing tourists traveling along US Highway 101 and local anglers using the park area inappropriately as a bathroom, would be reduced due to improved management of site access and formalization of recreational activities. The result of implementing Alternative B would be minor, long-term beneficial impacts to soils and earth resources.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions have and continue to contribute to the cumulative impacts on the soils in the study area. These actions include sightseeing tourists traveling along US Highway 101 and local anglers using the existing wayside park area inappropriately as a bathroom, thus contaminating the ground surface with human waste. Formalizing the gravel area and managing pedestrian activities and circulation routes on the site would impede use of the site's surroundings as an informal bathroom. With these improvements that formalize and manage site activities, Alternative B would contribute a minor beneficial increment to cumulative impact on the soils in the study area. The cumulative long-term impact would be a negligible adverse impact with the implementation of Alternative B.

Findings on Impairment of this Element

Alternative A would not result in the impairment of soils in the project area.

Alternative B would not result in the impairment of soils in the project area.

WATER RESOURCES (STORMWATER MANAGEMENT AND WATER QUALITY)

The water resource topic relates to drainage of stormwater from the site of the proposed park and adjacent US Highway 101, as well as stormwater quality issues related to that drainage. The analysis describes how the alternatives would affect the stormwater runoff patterns and downstream water quality and identifies measures to avoid or reduce potential impacts to hydrologic patterns and maintenance of water quality.

The project area currently receives stormwater runoff along the southwest property line from US Highway 101. There are also two wetlands present on and adjacent to the project site. Wetland B is a Category II Wetland totaling approximately 22.2 acres and consists of open water, emergent, scrub-shrub, and forested wetland classes. Wetland A is a Category I Wetland located northwest of the private logging road and consists of 14.5 acres of aquatic bed, open water, emergent, scrub-shrub, and forested wetland classes. Both Wetlands A and B are fed by Type F streams that originate in the extensive upland forest to the north of the site.

The wetlands and associated streams drain to the Columbia River by culverts beneath US Highway 101. Wetland A has a permanently flooded area that appears to drain year-round to the river. In contrast, the

western culvert of Wetland B only conveys water during high precipitation storms and the eastern culvert is dry most of the year. The threshold of intensity of impacts on drainage and water quality is defined as follows:

Methodology

Negligible: Impacts are chemical, physical, or biological effects that would not be detectable, would be well below water quality standards or criteria, and would be within historical or desired water quality conditions.

Minor: Impacts (chemical, physical, or biological effects) would be detectable but would be well below water quality standards or criteria and within historical or desired water quality conditions. Also, a beneficial change of similar magnitude to a minor adverse impact of water quality.

Moderate: Impacts (chemical, physical, or biological effects) would be detectable but would be at or below water quality standards or criteria; however, historical baseline or desired water quality conditions would be altered on a short-term basis. Also, a beneficial change of similar magnitude to a moderate adverse impact of water quality.

Major: Impacts (chemical, physical, or biological effects) would be detectable and would be frequently altered from the historical baseline or desired water quality conditions; and/or chemical, physical, or biological water quality standards or criteria would be slightly and singularly exceeded on a short-term basis. Also, a beneficial change of similar magnitude to a major adverse impact of water quality.

Impacts of Alternative A (No-Action)

Impacts

Under the No Action Alternative, no new impervious surfaces would be added, and no stormwater treatment would occur. Untreated stormwater that does not infiltrate would continue to flow into the Columbia River via the wetlands and existing 36-inch culvert at the west end of the site and 24-inch culvert at the east end of the site. The No Action Alternative would result in negligible, short and long-term, adverse impacts to water resources.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions have and continue to contribute to the cumulative impacts on the drainage and water quality in the study area. The Department of Ecology established updated water quality standards for new development in 2005. Alternative A would not require application of these standards if the study area was undeveloped beyond its current condition. Not implementing these standards would have a minor, long-term, adverse cumulative impact on the storm drainage and water quality in the study area. Additionally, no significant improvement projects are planned for US Highway 101 or the surrounding properties in the foreseeable future. Therefore, new water quality standards would not be met as no new development would occur in the study area. Through Alternative A the study area would maintain its existing stormwater patterns and function and would contribute appreciable adverse cumulative impacts by not applying drainage and water quality improvement techniques to the area which immediately discharges into the Columbia River.

Impacts of Alternative B (Proposed Action)

Impacts

Short-term adverse impacts to water resources as a result of Alternative B are negligible. All new construction is required to meet County and Department of Ecology stormwater treatment requirements. An estimated 12,000 square feet of new impervious surface would be created on-site with approximately 9,000 square feet of impervious surface created within the US Highway 101 right-of-way. Additionally, approximately 10,000 square feet of pervious surfaces are proposed on the project site. As a result of this alternative, stormwater quality treatment would be provided for all new impervious surface runoff. Roadside vegetated filter strips and media filter drain will be utilized to improve water quality treatment of stormwater runoff from the highway surface.

Drainage from pervious site parking areas will receive water quality treatment by passing through the pervious pavement and associated base material into the underlying soil structure. During times of peak flows, stormwater drainage patterns will be directed to eventually discharge into Wetland B and the nearby western stream which immediately discharges the treated stormwater into the Columbia River through an existing 36-inch culvert at the west end of the site. Other site grading will raise existing grade in some areas allowing the site to be more useable. Alternative

B will result in minor, long-term beneficial impacts to water quality and stormwater management.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions have and continue to contribute to the cumulative impacts on the drainage and water quality in the study area. The Department of Ecology established updated water quality standards for new development in 2005. The proposed improvements in Alternative B will be required to meet County and State permitting standards and requirements. Consistency with these standards, along with other improvements proposed in Alternative B, would establish a moderate, long-term, beneficial cumulative impact on water quality and drainage treatments to the study area. Alternative B would contribute a major beneficial increment to these cumulative impacts.

Findings on Impairment of this Element

Alternative A would not result in impairment to the water resources of the study area .

Alternative B would not result in the impairment to the natural resources in the study area as stormwater management and water quality treatment would be improved.

WETLANDS

The NPS has adopted a goal of 'no net loss' of wetlands and has also set goals for a long-term net gain of wetlands service wide (NPS 2002b). Two wetlands are present within the study area in association with intertidal zones. Wetland B is a Category II Wetland totaling approximately 22.2 acres and consists of open water, emergent, scrub-shrub, and forested wetland classes. Wetland A is a Category I Wetland located northwest of the private logging road and consists of 14.5 acres of aquatic bed, open water, emergent, scrub-shrub, and forested wetland classes. Both Wetlands A and B are fed by Type F streams that originate in the extensive upland forest to the north of the site. The wetlands drain to the Columbia River by culverts beneath US Highway 101. Wetland A has a permanently flooded area that appears to drain year-round to the river. In contrast, the western culvert of Wetland B only has water during high precipitation storms and the eastern culvert is dry most of the year. The threshold of intensity of impacts on wetland resources is defined as follows:

Methodology

Negligible: No wetlands would be affected or impacts would be below or at the lower levels of detection. Negligible effects may be present in wetland buffers.

Minor: The impacts to wetlands would be detectable and relatively small in terms of area and the nature of change. Impacts to wetland buffers would be detectable and apparent but buffer plant species would remain viable.

Moderate: Impacts to wetlands would be measurable and readily apparent over a small area. These impacts could be mitigated through restoration of other derogated wetlands, therefore no net loss of wetland and ecological function. Impacts to wetland buffers would be apparent over a larger area but mitigation is provided.

Major: The impacts to wetlands would be apparent over a larger area and have measureable consequences and impacts for the wetland that could not be mitigated for. The ecological function and habitat of the wetland would be disrupted with species present at risk in the project area. Measureable impacts to the wetland buffers would occur. Impacts encompass a greater area than necessary and disruption presents risk of viability to wetland buffer plant species.

Impacts of Alternative A (No-Action)

Impacts

Under the No Action Alternative, wetland resources within the study area would remain unchanged. A Vegetation Management and Treatment Plan, developed by ELS in June 2010, identifies methods for management and treatment for non-native and invasive plants on the park site. This plan has and will continue to be implemented at the park site under Alternative A. However, because there are currently no stormwater management treatments applied to the existing gravel parking area, stormwater runoff would continue to drain into Wetland B unabated. This untreated stormwater would potentially transport sediment and other pollutants from the unpaved parking area into Wetland B and its associated buffer. The discharge of these pollutants and sedimentation would most likely be undetectable. However, the long-term effect could result in minor adverse impacts by reduction of the wetland's function and its natural resource features.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions have and continue to contribute to the cumulative impacts on the vegetation in the study area. Climate change may eventually impact the coastal wetland resources through sea level rise and ancillary effects such as changes in storm frequency and intensity. These changes could result in inland shifts of vegetation and wildlife communities, as well as changes in the extent of wetland acreage. These conditions and the Vegetation Management and Treatment Plan, along with conditions of Alternative A would provide for minor, long-term, adverse cumulative impacts to the wetland resources in the study area.

The NPS would continue application of the Vegetation Management Plan to reduce the existence of non-native plant species; however current condition of the gravel parking area would result in a continuation of pollutant and sediment discharge into wetland B and its buffer. Allowing the study area to remain in its current condition, Alternative A would contribute a minor adverse cumulative impact by not establishing an extensive application of native vegetation across the park site.

Impacts of Alternative B (Proposed Action)

Impacts

Alternative B has been designed to avoid direct wetland impacts through the construction of pathways from pier-type boardwalks that will span existing wetlands and some wetland buffers. A pervious pathway surface/boardwalk will allow natural water flow into the ground and will help prevent water erosion. Wetlands A and B will not be directly impacted by park development per the U.S. Army Corps of Engineers criteria for wetland impacts. Any impacts from the development of the Park and trail will be to wetland buffers only.

A mitigation plan proposes the enhancement of 0.11 acres through the seeding of native wetland species and invasive weed control in Wetland B, and 7.5 acres of offsite wetland preservation. Offsite wetland preservation will occur within a 10.93-acre parcel in the upper Chinook River watershed. This plan proposes to preserve 7.5 acres of this high-quality, Category II, forested wetland as mitigation for wetland boardwalk coverage and wetland buffer impacts from the Proposed Action. This alternative proposes a native coastal dune prairie plant palette. Plant species identified for this landscape are chosen for aesthetical, functional, and historical reasons.

The plant selection supports the regional ecology and the NPS and interpretive experiences established for the Park. In addition, this boardwalk creates an interpretation opportunity to educate users of the importance of wetland resources. Implementation of Alternative B will result in minor short-term adverse impacts due to the construction of pier and boardwalk type pathways within the wetland and its buffers. Additionally, minor, long term beneficial impacts are anticipated due to the establishment of the designated pathways and boardwalks which will provide a designated area for walking, as well as the proposed onsite wetland enhancement and offsite wetland preservation areas.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions have and continue to contribute to the cumulative impacts on the wetland resources in the study area. A Vegetation Management and Treatment Plan was developed by ELS in June of 2010, as described in Alternative A. Additionally, a Mitigation Plan was also developed by ELS in August of 2010 to mitigate for proposed wetland buffer impacts.

Long term cumulative impacts such as climate change may also eventually impact the coastal wetland resources through sea level rise and ancillary effects such as changes in storm frequency and intensity. These changes could result in inland shifts of vegetation and wildlife communities, as well as changes in the extent of wetland acreage. These conditions and plans, along with Alternative B, would provide for minor, long-term, beneficial cumulative impacts to the wetland resources in the study area.

In addition, the construction of a pervious boardwalk through wetland areas will provide long-term protection of the wetland plants, limiting potential long-term impacts. Minimizing surface disturbance during construction of the wetland boardwalk results in minor beneficial cumulative impacts to wetlands to wetlands in the study area.

Findings on Impairment of this Element

Alternative A would not result in impairment to the wetlands resources of the study area.

Alternative B would not result in the impairment to the wetlands resources of the study area. Long term impacts will be positive for both interpretation and education opportunities of the site while preserving the integrity of the wetland and its ecological function through on site wetland enhancement and offsite wetland preservation acreage through a proposed mitigation plan.

FISH AND WILDLIFE (INCLUDING SPECIAL STATUS SPECIES)

Impacts to fish and wildlife, including species listed or proposed as threatened or endangered under the Federal Endangered Species Act, are described in this section. Information gathered for this analysis was gathered from the BE performed in August 2010 by Ecological Land Services, Inc. The threshold of intensity of impacts on fish and wildlife, and threatened and endangered species is defined as follows:

Methodology

Negligible: No observable or measureable impacts to native species, their habitats or natural processes which sustain the species. Potential impacts would be short in duration, within natural fluctuations of habitats.

Minor: Impacts would be measurable but not likely to impact a given species and within the range of variability that is natural for that species or habitat.

Moderate: The impacts of an action would be measureable and result in some change to population or individual species with some adverse impacts to a given species.

Major: Impacts from the proposed action would result in a measureable and noticeable change in the population of species with substantial adverse impact to the species.

Impacts of Alternative A (No-Action)

Impacts

Under the No Action Alternative, there would be no impact to fish and wildlife and listed fish and wildlife species. Land use patterns and associated impacts to occurrence and distribution of bald eagle, marbled murrelet, and federally listed fish species in the project area would remain as they currently exist.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions have and continue to contribute to the cumulative impacts on the fish and wildlife and threatened and endangered species in the study area. A BE was completed by ELS in August 2010 to assess the establishment of critical areas within the study area. Implementation of Alternative A would provide for negligible, long-term, adverse cumulative impacts to the fish and wildlife and threatened and endangered species in the study area. Alternative A would contribute an imperceptible beneficial increment to these cumulative impacts by retaining the existing conditions in their unimproved state.

Impacts of Alternative B (Proposed Action)

Impacts

In general, effects to fish and wildlife under Alternative B would be negligible. Temporary impacts associated with Alternative B construction would be limited. Any effects to special status fish and wildlife species potentially resulting from implementation of Alternative B would only be due to temporary construction impacts and would result in negligible short-term adverse impacts.

Implementation of Alternative B would not directly impact suitable bald eagle habitat or known marbled murrelet nest sites. Construction activities under Alternative B would be limited, with limited temporary construction-associated noise and visual impacts to area bald eagle and marbled murrelet populations.

The proposed project improvements, including wetland enhancement and water quality treatment would result in beneficial impacts to special status fish species through improved water quality and the provision of additional suitable habitat. These beneficial impacts would not be associated with development of the project area under Alternative A.

Alternative B may affect, but is not likely to adversely affect, the following species and critical habitat:

- 13 ESUs/DPSs of Salmon and Steelhead
- Designated Critical Habitat for 12 ESUs/DPSs of Salmon and Steelhead
- North American Green Sturgeon – Southern DPS

- Designated Critical Habitat for North American Green Sturgeon – Southern DPS
- Columbia River Smelt (Eulachon) – Southern DPS
- Steller Sea Lions
- Bull Trout – Columbia River DPS
- Marbled Murrelets
- Northern Spotted Owls

Alternative B will not destroy or adversely affect proposed critical habitat for bull trout. If bull trout critical habitat is designated prior to consultation completion, Alternative B may affect, but is not likely to adversely affect designated bull trout critical habitat.

On the basis of direct effects to EFH in freshwater and estuarine habitats, Alternative B will not adversely affect EFH for Pacific salmon, Pacific groundfish, or coastal pelagic fisheries.

The bald eagle (Haliaeetus leucocephalus) was federally de-listed in August 2007; however, the species is still protected by the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act (BGEPA). According to the Priority Habitats and Species Map from the Washington Department of Fish and Wildlife, no bald eagle nesting sites are located within the 1,600-foot (0.3-mile) action area. Therefore, buffers required by the BGEPA to be in place between project activities and known bald eagle nests will be maintained.

Alternative B would result in minor, long-term beneficial impacts to fish and wildlife including special status species.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions have and continue to contribute to the cumulative impacts on the fish and wildlife and threatened and endangered species in the study area. A BE was completed by ELS in August of 2010 to assess the establishment of critical habitat areas within the study area. Implementation of Alternative B would provide for negligible, long-term, beneficial cumulative impacts to the fish and wildlife and threatened and endangered species in the study area through the enhancement of wetland buffers and re-establishment of native plant material on-site.

Findings on Impairment of this Element

Alternative A would not result in the impairment of fish and wildlife and threatened and endangered species.

Alternative B would not result in impairment to fish and wildlife or special status species.

VEGETATION

A native Pacific Northwest plant palette would reflect the type of vegetation the NPS would prefer to see as a final implemented landscape at this site. Over time, the site has been subject to an undesirable spread of Scot's broom over most of the site. Recent vegetation management treatments have cut and treated a majority of the non-native plants, although continued management and treatment of the Scot's broom will be imperative to a successful elimination of this non-native species. The threshold of intensity of impacts on vegetation is defined as follows:

Methodology

Negligible: No native vegetation would be affected or some individual native plants could be affected as a result of the alternative, but there would be no effect on native plant species' populations. The effects would be on a small scale. Additionally, wetland resources would not be impacted, or if impacted, would be below the levels of detection.

Minor: The alternative would affect some individual plants and would also affect a relatively limited portion of that species' population. Mitigation to offset adverse effects could be required and would be effective. Additionally, impacts to wetlands would be small, however detectable in terms of the scope of the change and physical area. The action would impact a limited number of individual plants and wildlife within the wetland.

Moderate: The alternative would affect some individual native plants and would also affect a sizeable segment of the species' population over a relatively large area within the park. Mitigation to offset adverse effects could be extensive but would likely be successful. Additionally, impacts to wetlands would be measurable and readily apparent over a small area. These impacts could be mitigated through restoration of other degraded wetlands; therefore, no net-loss of wetland and ecological function.

Major: The alternative would have a considerable effect on individual native plants and affect a sizeable segment of the species' populations over a relatively large area in and out of the park. Mitigation measures to offset the adverse effects would be required, extensive, and success of the mitigation measures would not be guaranteed. Additionally, the impacts to wetlands would be apparent over a larger area and have measureable consequences and impacts for the wetland that could not be successfully mitigated. The ecological function and habitat of the wetland would be disrupted with species presently at risk in the project area.

Impacts of Alternative A (No-Action)

Impacts

The No Action Alternative, would have negligible, short-term beneficial impacts to local vegetation due to the implementation of the vegetation management plan. The NPS would maintain the property according to their vegetation management plan, which identifies the clearing of Scot's broom and other invasive non-natives on the property. The initial phases of the vegetation management and treatment plan were implemented in the summer of 2010. Long term adverse impacts would be minor as native plantings would likely not establish.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions have and continue to contribute to the cumulative impacts on the vegetation in the study area. To rid the site of non-native and invasive plants, a Vegetation Management and Treatment Plan was developed by ELS in June of 2010. Implementation of Alternative A would provide for minor, long-term, adverse impacts to the vegetation establishment at the park site. The NPS would continue application of the Vegetation Management Plan but the establishment of native plant species to overcome the non-native species would be challenging. Allowing the study area to remain in its current condition, Alternative A would contribute a minor adverse cumulative impact by not establishing an extensive application of native vegetation across the park site.

Impacts of Alternative B (Proposed Action)

Impacts

Long term impacts to vegetation under Alternative B are minor for the short term as the footprint of new construction and areas of disturbance are limited. The use of boardwalk construction limits potential direct impacts to vegetation. The park design includes natural areas with the planting of new native vegetation and a formalized entry point that may serve to benefit vegetation by focusing car and foot traffic to formal, designated areas.

The project has been designed to avoid direct wetland vegetation impacts by the construction of pathways from pier-type boardwalks that will span existing wetlands and some wetland buffers. A pervious pathway surface/boardwalk will allow natural water flow into the ground and will help prevent erosion and stormwater impacts which also impact vegetation. Any impacts from the development of the park and trail will be to wetland buffers only which is being mitigated through added native plantings to the wetlands for enhancement

A mitigation plan has been proposed which includes the enhancement of 0.11 acres through the seeding of native wetland species and invasive weed control in Wetland B, and 7.5 acres of offsite wetland preservation. Alternative B proposes a native coastal dune prairie plant palette. Plant species identified for this landscape are chosen for aesthetic, functional, and historical reasons. The plant selection supports the regional ecology and the NPS and interpretive experiences established for the park. Alternative B results in minor, short-term adverse impacts associated with construction and moderate, long-term beneficial impacts upon completion of the project through revegetation of the site to native plant materials. Like Alternative A, Alternative B would include the implementation of the vegetation management plan created for the site.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions have and continue to contribute to the cumulative impacts on the vegetation in the study area. To rid the site of non-native and invasive plants, a Vegetation Management and Treatment Plan was developed by ELS in June of 2010. Alternative B, would provide for moderate, long-term, beneficial cumulative impacts to the vegetation at the park site by establishing native vegetation and minimizing surface disturbance during construction of wetland boardwalks.

Findings on Impairment of this Element

Alternative A would not result in the impairment to vegetation as implementation of the vegetation management plan would occur.

Alternative B would not result in the impairment to vegetation as implementation of the alternative would result in management of invasive species and the native planting and enhancement of the project area.

HISTORIC AND CULTURAL RESOURCES

This description of the project area cultural resources is largely summarized from a cultural resource investigation technical memorandum prepared by Northwest Archaeological Associates, Inc., and a cultural inventory study prepared by the NPS. A discussion of the project area history is found in Chapter 1, Introduction: Purpose and Need, of this document. The previous project involved a relocation of US Highway 101 to the north to create a riverside interpretive park. The previous cultural resource investigation, the resulting inadvertent discoveries during initial stages of construction of the highway relocation, and the following cultural resource analysis of those discoveries led to a total re-evaluation of the project scope.

The change in scope of the project led to the decision to remove the highway relocation from the project and focus on a sensitive and scaled down interpretive park development project which would follow similar goals for the park component of the original project, but limit the extent of disturbance on the site. The project (either Alternative) will take a "no excavation" approach to any site development to prevent potential disturbance of unknown archeological resources that may be on-site and yet undiscovered. This approach along with a sensitivity to the historic St. Mary's Church adjacent and central to the site, would be avoiding potential adverse impacts to historic and cultural resources.

The following analysis represents the NPS determination. The NPS is seeking concurrence with these determinations from the Washington State Historic Preservation Officer and affected tribal governments. Please see Chapter 5 for a description of other permits and compliance actions underway. The threshold of intensity of impacts on historical and cultural resources is defined as follows:

Methodology

Negligible: Impacts are below levels of detection with no perceptible consequences, either adverse or beneficial, to archeological resources or historic structures. For purposes of Section 106 of the National Historic Preservation Act (hereafter "Section 106"), the determination of effect would be *no adverse effect*.

Minor: Adverse impact would be a disturbance of the site resulting in little, if any, loss of significance or integrity and the National Register eligibility of the site would be unaffected. For purposes of Section 106, the determination of effect would be *no adverse effect*. Mitigation of adverse effects would preserve the National Register eligibility. Beneficial impact would involve maintenance and preservation of a site. For purposes of Section 106, the determination of effect would be *no adverse effect*.

Moderate: Adverse impact would be a disturbance of the site diminishing the significance or integrity of the site and jeopardizing the site's National Register eligibility. If eligibility is jeopardized, adequate mitigation measures are included, such as Historic American Building Survey (HABS) level photography, reuse of portions of the historic structure, and/or design of the new structure to preserve elements of form and function of the historic structure. For purposes of Section 106, the determination of effect would be *adverse effect*. Beneficial impact would be a stabilization of the site. For purposes of Section 106, the determination of effect would be *no adverse effect*.

Major: Adverse impact would be a disturbance of the site diminishing the significance and integrity of the site to the extent that it is no longer eligible to be listed in the National Register, and mitigation measures are unlikely to be adequate. For purposes of Section 106, the determination of effect would be *adverse effect*. Beneficial impact would be an active intervention to preserve the site. For purposes of Section 106, the determination of effect would be *no adverse effect*.

Impacts of Alternative A (No-Action)

Impacts

The No Action Alternative would continue the current land use pattern of the existing site as a park, with a preservation approach to all historic and cultural

resources. Station Camp–Middle Village park site would continue to interpret, through expanded interpretive exhibits, the Native American heritage of the area, maritime heritage, the Columbia River ecosystem, and the end of the journey for the Lewis and Clark Expedition at the Pacific Ocean. The two remaining non-contributing dilapidated buildings associated with the town of McGowan would likely continue to deteriorate into ruin or eventually be removed. All remaining features on site would be protected and preserved.

The No Action Alternative would result in minor, long-term beneficial impacts to historic and cultural resources since the NPS policy is centered on protection and preservation of these types of resources. However, this historically significant site would continue to be under-represented and remain largely underappreciated by the public since access and interpretation will be limited.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions have and continue to contribute to the cumulative impacts on historic and cultural resources in the study area. The future ownership and management of the site by the NPS and the avoidance of excavation with all future potential improvements to the site would result in a minor beneficial increment to minor, long-term beneficial impacts of this alternative.

Impacts of Alternative B (Proposed Action)

Impacts

Alternative B would have a negligible, short-term adverse impact on historic and cultural resources as the proposal will not include any major excavation nor directly affect the St. Mary's Church. Some areas of the site will be "built up" using fill material from off-site sources to keep the historic and cultural resources in the ground undisturbed. The proposed improvements are minimal in nature and will not impact the St. Mary's Church. One of the primary goals of the park development would be to expand the interpretive features on-site which creates a visitor experience through use of Native American artwork, provides access to unique locations on the site and provides elevated viewpoints for views of the Columbia River and key observation points recorded by Lewis and Clark in their journals. The interpretation would also address the many layers of history which is evident on-site and through the archeological research over the past several years. Chinookan artwork will be incorporated into the interpretive program to educate visitors of the importance of the site to this Tribe and its historical significance over many generations of their culture. Pedestrian movement throughout the park will guide visitors to each of these interpretive features and overlooks with also places for contemplation. Circulating visitors on a journey through the park in a controlled manner will protect the site's cultural resources by minimizing the informal and unauthorized access across the entire park property. Thus, the Proposed Action would have a moderate, long-term beneficial impact on historic and cultural resources.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions have and continue to contribute to the cumulative impacts on historic and cultural resources in the study area. The future ownership and management of the site by the NPS, the avoidance of excavation with the proposed improvements to the site, and the enhanced educational features focused on historical and cultural resources under the Proposed Action would result in a moderate beneficial increment to moderate, long-term beneficial impacts of this alternative.

Findings on Impairment of this Element

Alternative A would not result in the impairment of the project area as the historic and cultural resources would remain protected and managed by the NPS.

Alternative B would not result in the impairment of the project area as the historic and cultural resources would remain protected and managed by the NPS.

LAND USE (INCLUDING CONSISTENCY WITH PLANS AND POLICIES)

The Pacific County Comprehensive Plan and other land use documents are in place at the local level to provide guidance and regulations for the use of land, to ensure compatibility with future and surrounding land use and natural features. This section of the EA discusses land uses within and adjacent to the site and how each alternative would directly or indirectly affect these land uses. The threshold of intensity of impacts on land use is defined as follows:

Methodology

Negligible: From a land use perspective, relatively little change in land use would occur.

Minor: The proposed land use would be similar to the existing uses and in character with the surrounding uses, not in conflict with land use plans for the area.

Moderate: Land use changes would be within ranges of allowable uses designated for the area by existing plans and mitigation would be required to avoid conflicts with other land uses.

Major: The proposed action would change the type of land use requiring action in existing land use plan revisions. Extensive mitigation would be required for the new land use to be compatible with existing and surrounding development.

Impacts of Alternative A (No-Action)

Impacts

The No Action Alternative would result in negligible impacts as the use and utilization of the site would remain as is. The site would continue to be rural in nature and unimproved, therefore an allowable use by the Pacific County Comprehensive Plan, Shoreline Management Plan and zoning regulations. The degraded and dilapidated buildings currently on site would remain. Land use conflicts associated with lack of formalized parking at the wayside park would also continue. Fort Columbia State Park, adjacent to the western edge of the study area, would remain unchanged and managed by the WSPRC. The adjacent private property owner north and east of the study area will remain unchanged.

Cumulative Impacts

Past, present, and reasonable foreseeable future actions have and continue to contribute to the cumulative impacts on the land use in the study area. In October of 2004, the Lewis and Clark National Historical Park Designation Act (Public Law 108-387) enacted the park site within the study area as a unit site of the National Historical Park. This designation, along with Alternative A would have a negligible, long-term cumulative impact to the study area. Land use plans and policies are updated regularly, however no known plan changes in the comprehensive plan, shoreline management plan or zoning regulations will affect the proposal. Future land development and use by private property owners is a possibility, however their proposals would be guided by the same governing documents.

Impacts of Alternative B (Proposed Action)

Impacts

Alternative B provides areas for vehicle parking in an improved parking area and formalized entry. Areas for interpretation and recreation would be available through designated trails for pedestrians. These improvements would result in negligible long-term beneficial impacts as the land use of the project area would not change in a substantial way. Improvements to the site would allow for increased use of the site; however, these improvements are an allowable use in the Pacific County Comprehensive Plan, Shoreline Management Plan and zoning regulations. Upon completion of the construction phase, transfer of ownership will be made from current State ownership to Federal, NPS ownership. This transfer will not change the land use of the site, but will be the final step to creation of this site as a nationally recognized park site.

Cumulative Impacts

Past, present, and reasonable foreseeable future actions have and continue to contribute to the cumulative impacts on the land use in the study area. In October of 2004, the Lewis and Clark National Historical Park Designation Act (Public Law 108-387) enacted the park site within the study area as a unit site of the National Historical Park. This designation, along with formalizing the parking area and access to the site and creation of a connection trail to Ft. Columbia State Park provides a valuable park and natural resource experience with protection of historic and cultural resources. With these improvements and adjustments from State to Federal ownership, Alternative B would have a minor, long-term, beneficial cumulative impact to land use in the study area. Proposed improvement features will retain the current land use of the site but will protect the site and offer its experiential value all who visitors. Land use plans and policies are updated regularly, however no known plan changes in the comprehensive plan, shoreline management plan or zoning regulations will affect the proposal. Future land development and use by private property owners is a possibility, however their proposals would be guided by the same governing documents.

ACCESS AND TRANSPORTATION

The alternatives were analyzed in a Traffic Study prepared by DKS Associates in August 2010. This Traffic Study provides the basis for the following analysis including the nature of existing traffic patterns along US Highway 101; how the project alternative would affect the local circulation system, either directly or indirectly; and measures proposed to avoid or reduce potential impacts. The threshold of intensity of impacts on area transportation system is defined as follows:

Methodology

Negligible: Effects are not detectable and the action would have no measurable effect related to transportation flow or safety.

Minor: Impacts are slightly detectable; however the action would not be expected to have an overall effect on the transportation conditions or traffic flow and safety.

Moderate: Impacts are detectable and would have an appreciable effect on transportation conditions and traffic flows and safety. The visitor would be aware of the effects associated with the alternative and would likely be able to express an opinion about the changes.

Major: The impacts of the action would have a substantial and highly noticeable impact to the permanent alteration of conditions related to transportation conditions, traffic flows and safety. The visitor would be aware of the effects associated with the alternative and would likely be able to express a strong opinion about the changes.

Impacts of Alternative A (No-Action)

Impacts

Transportation conditions under the No Action Alternative would result in a minor long- term adverse impacts due to long term increase in traffic volumes on US Highway 101, affecting the ability for visitors to access the existing wayside park due to no formal access improvements. The informal gravel parking area would remain at the wayside park location and the loose gravel access areas would remain.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions have and continue to contribute to the cumulative impacts on access and transportation in the study area. These actions include WSDOT projections for increased traffic volumes along US Highway 101, and the Station Camp Middle Village Park Traffic Analysis created by DKS Associates in August 2010. The conclusions in these documents, paired with the lack of improvements proposed in Alternative A would have moderate long-term adverse cumulative impacts on access and transportation. Without improvements to the gravel parking area at the site, safety may become more of a risk for users of the wayside park area. Alternative A would contribute a moderate adverse cumulative impact by not formalizing and improving the parking area with regard to safe ingress and egress.

Impacts of Alternative B (Proposed Action)

Impacts

Proposed improvements associated with Alternative B include both on-site and off-site improvements. An eastbound left turn pocket would be provided to allow a refuge for turning cars from oncoming traffic into the park site. Parking would be provided on the site to accommodate 15 vehicles and two bus drop-off locations.

Station Camp Middle Village Park Traffic Analysis by DKS Associates identifies peak trip generation at facilities similar to the proposed action typically occur during summer months. It is anticipated that visitors would typically stay at the site for about 20 minutes. The parking lot is proposed to have 15 parking stalls and two bus drop off locations. As a worst case scenario, it was assumed that 17 vehicles (one for each parking stall plus the two bus drop off locations) could enter and exit the site every half hour. Based on this assumption, peak hour trip generation could be 34 vehicles in and 34 vehicles out of the site in a one-hour period. The impacts are likely to be much less since some of the stalls may be occupied by hikers accessing the Ft. Columbia boardwalk connection trail (Phase 2), who will stay much longer, and since it is unlikely that every stall will turn over as quickly as every half hour.

Left turn lane warrants were checked at the site access points for both base and future year (2030) traffic volume conditions. Based on the traffic volumes developed from the trip generation assumptions, the left turn storage length required is 100 feet plus the appropriate taper length. A left turn lane at the

site ingress point to accommodate projection traffic volumes is planned in this alternative.

It should be noted that left turn lane warrants were calculated based on the worst case trip generation described above and based on the existing split of northbound and southbound traffic on US Highway 101. It is expected that a majority of the vehicles entering the site would likely come from the south/east as they head into the Long Beach Peninsula for recreational activities. As such, a far higher percentage of traffic would enter the site via a northbound right turn rather than a southbound left turn. The turn lane warrants are marginally met, however, a left turn lane would provide additional safety for the fair amount of recreational vehicle traffic and other types of traffic (vehicles towing boats, etc.) that may require longer to maneuver safely into the site.

There is the potential for a trail between Fort Columbia State Park and Station Camp Middle Village Park. Fort Columbia State Park is located approximately three-quarters of a mile north of the proposed Station Camp Middle Village Park. The access to Fort Columbia State Park from US Highway 101 is located on the west side of US Highway 101, just north of a tunnel that goes under the State Park. The access is configured as a two pronged access to US Highway 101, with a "free right" or "slip lane" from southbound US Highway 101 which connects to a second, perpendicular, access to US Highway 101. The access is configured this way to allow more sight distance for vehicles exiting the park to US Highway 101 northbound since the southernmost access is only a few hundred feet from the tunnel under the park. WSDOT records show four crashes at or near these access points in the most recent three year period. Three of the crashes were vehicles hitting fixed objects and one was a rear-end collision. These numbers indicate a crash rate much lower than one per million entering vehicles and therefore, do not indicate a significant safety concern.

Additional landscape and roadside planting improvements along the north highway right-of-way would provide traffic calming measures. Presenting context sensitive design and improvement to the right-of-way will offer a sense of arrival to the National Park site for highway travelers. This should in turn support the desire for reduced traffic speeds to increase safety as travelers approach and drive alongside the park site.

US Highway 101 shoulders may continue to be used heavily for parking by anglers. This alternative would not improve existing pedestrian safety concerns associated with the heavy use of the site by anglers between April and September.

Improvements proposed in Alternative B would provide moderate short term adverse impacts due to construction activity which will close the site to visitors. Implementation of traffic control plans will manage vehicular flow on the highway during construction. Long term impacts on access and transportation will be moderate long term beneficial impacts due to the enhanced formal access, construction of a left turn lane off of US Highway 101 and on-site parking opportunities for visitors.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions have and continue to contribute to the cumulative impacts on access and transportation in the study area. These actions include WSDOT projections for increased traffic volumes along US Highway 101, and the Station Camp Middle Village Park Traffic Analysis created by DKS Associates in August 2010. These documents propose a minor adverse impact in the study area but when combined with the improvements of Alternative B, there would be moderate long-term beneficial cumulative impacts on access and transportation. Paved improvements to the vehicular ingress and egress and the addition of an eastbound left turn lane would provide safer means of travel to and from the site and within the parking area for visitors. Alternative B would contribute a moderate beneficial cumulative impact by formalizing and improving the parking area with regard to safe ingress and egress.

VISUAL RESOURCES

This section of the EA addresses the visual impacts of the alternatives both on the site and within the project vicinity. The threshold of intensity of impacts on visual resources is defined as follows:

Methodology

Negligible: The action would introduce only the perception of additional vehicular traffic. The

change to the landscape would be at or below the level of detection, so low as to not impact the visual experience of the area.

Minor: The action would introduce noticeable, however slight impacts to the landscape with minimal impact of the visitor experience of that landscape. Impacts would be small and localized in one area with potential mitigation measures relatively small and scope and likely to be successful.

Moderate: The action would introduce non-natural man-made, localized additions that may include parking, and other structures that would be detectable. Mitigation measures, if needed, would be more extensive and likely successful.

Major: The action would introduce multiple, drastic additions that would affect the landscape as experienced by the visitor on the project site and affect surrounding landscapes. Extensive mitigation measures would be required to off-set the adverse impacts, of which their success could not be guaranteed.

Impacts of Alternative A (No-Action)

Impacts

The visual character of the park site would remain unchanged as a result of the No Action Alternative. The informal gravel parking area would retain its disorganized appearance and not present itself as a NPS unit site. Views from the interior of the park site across the Columbia River would continue to be impeded by vehicular traffic movement along US Highway 101 and the Columbia River shoreline rip rap. With no change to the existing site conditions, this alternative would result in negligible impacts to the visual resources in the study area.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions have and continue to contribute to the cumulative impacts on the visual resources in the study area. These actions include the US Highway 101 Coastal Corridor Master Plan highlighting the need to develop a facility to accommodate viewpoints of the Columbia River Bar at the Station Camp location. US Highway 101 remains a visual barrier between this NPS unit site and one of the most captivating viewshed corridors in the region. Alternative A would contribute a minor adverse cumulative impact to visual resources by not capturing the scenic beauty of the region.

Impacts of Alternative B (Proposed Action)

Impacts

The visual environment would not undergo dramatic change as a result of Alternative B. Negligible impacts to St. Mary's Church would result but the proposed planted interpretive mound would enhance the immediate backdrop of the church supporting its presence as a key historic visual marker within the US Highway 101 corridor. However, no changes to the actual church building would result from implementation of this alternative.

Contouring of the site landscape and the planting of native vegetation would establish a buffer between the interior park site and the US Highway 101 vehicles. Design of the vegetated dunes would frame view corridors across a restored coastal dune landscape, the St. Mary's Church, the Columbia River, and natural features beyond the Columbia and to the Pacific Ocean. Elevated viewing platforms are proposed without disrupting the rural character of the setting but allow visitors the opportunity to elevate themselves gaining perspectives of the overall site character while given the opportunity to contemplate the vast, panoramic vista afforded of the mouth of the Columbia River. Placement and design of these overlook features will minimize impacts to the scenic corridor and blend into the surrounding landscape.

Clear zones along the highway right-of-way will remain and be kept clear of obstructions. Interior forested wetland views would be available from the Phase 2 boardwalk connection trail. As this trail gains elevation, it remains concealed on the hillside but offers filtered views across the Columbia River from high above. Travelers along US Highway 101 are drawn to views across the river, but improvements in this alternative will offer a soft landscape on the north side of the highway to compliment the vast view across the Columbia River. The Proposed Action would result in moderate, long-term beneficial impacts to the visual resources in the study area.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions have and continue to contribute to the

cumulative impacts on visual resources in the study area. These actions include the US Highway 101 Coastal Corridor Master Plan highlighting the need to develop a facility to accommodate viewpoints of the Columbia River Bar at the Station Camp location. These plans, along with Alternative B improvements to enhance the sites visual character, would result in a minor, beneficial increment to cumulative impacts on the visual resources in the study area.

Findings on Impairment of this element

Alternative A would not result in the impairment of park resources as the existing setting would remain unchanged.

Alternative B would not result in the impairment of park resources as the proposed improvements would serve to increase the opportunities for visitors to experience the visual character of many environments both on and off of the project site and throughout the entire study area.

SOUNDSCAPES AND NOISE

NPS policies state that noise and soundscapes should maintain the natural environment. Soundscapes and noise within and adjacent to the site will change by alternative. The threshold of intensity of impacts on soundscapes and noise is defined as follows:

Methodology

Negligible: From a soundscape and noise perspective, natural sounds would prevail on the site; motorized noise from the roadway would remain. Change in noise would be absent, mostly immeasurable.
Minor: The proposed natural sounds would predominate, with infrequent, low-level motorized noise. In areas where motorized noise is consistent with park purpose and objectives, motorized noise could be heard frequently throughout the day at moderate levels, or infrequently at higher levels, and natural sounds could be heard occasionally.

Moderate: Natural sounds and existing US Highway 101 noise would predominate, but motorized noise could occasionally be present at low to moderate levels predominantly during daylight hours with natural sounds still heard occasionally.

Major: In areas where motorized noise is present, the natural soundscape would be impacted most of the day by motorized noise at low to moderate intensity levels. Motorized noise would disrupt conversation for long periods of time and make enjoyment of the park area difficult; natural sounds would rarely be heard during the day.

Impacts of Alternative A (No-Action)

Impacts

Soundscape and noise levels under the No Action Alternative are projected to increase in the study area as a result of increased traffic in the future resulting in negligible long-term adverse impacts.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions have and continue to contribute to the cumulative impacts on soundscapes and noise in the study area. These actions include increased travel along US Highway 101 due to increased population and growth in and around the project area. The Station Camp Middle Village Park Traffic Analysis created by DKS Associates in August 2010 documents that higher traffic volumes will bring increased road noise levels beyond the current baseline level. Alternative A would result in moderate adverse cumulative impact by not applying soundscape or noise management treatments to the study area.

Impacts of Alternative B (Proposed Action)

Impacts

Soundscape and Noise levels under Alternative B will likely result in long term increase due to increased visitation to the proposed park site. However, there are no high intensity recreation opportunities on the site. Therefore, noise associated with the Proposed Action will likely be negligible when paired with the traffic noise of adjacent US Highway 101, which is projected to increase as a result of increased traffic in the future. Short-term effects may be heard due to construction activities. The addition of vegetation materials and rolling landscape topography would provide a filtering of the traffic noise levels from the interior improved park space. WSDOT right-of-way improvements offer a replicated dune landscape designed to absorb vehicular sounds from US Highway 101, thus lowering the noise levels within the park.These noise-reduction factors are considered in the 2010 BE and in that report the improvements are determined to result in no adverse impacts to the biological environment.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions have and continue to contribute to the cumulative impacts on noise in the study area. These actions include increased travel along US Highway 101 due to population and tourism growth in and around the project area. The Station Camp Middle Village Park Traffic Analysis completed by DKS Associates in August 2010 identifies this likely growth in traffic on US Highway 101. The proposed noise absorption and filtration measures identified in Alternative B will result in a minor, beneficial increment to minor, adverse cumulative impacts on soundscape and noise in the study area.

Findings on Impairment of this Element

Alternative A would not result in the impairment of park resources as the soundscapes of the project area would remain unchanged.

Alternative B would not result in the impairment of park resources as the proposed improvements would serve to decrease vehicular sounds to enhance the natural soundscapes of the site for visitors to enjoy and experience.

PUBLIC FACILITIES AND SERVICES/PARK OPERATIONS

This section describes potential impacts to applicable public facilities and services that would serve the proposed project, including police, fire and emergency medical service, water, and sewer facilities. This section will also describe potential impacts to park operations, including staff and maintenance needs. The threshold of intensity of impacts on public facilities is defined as follows:

Methodology

Negligible: Public facilities and services would not be affected, or impacts would be at low levels of detection, with an unnoticeable impact.

Minor: The impacts would be detectable but of low magnitude that there would not be an appreciable impact on public facilities and services.

Moderate: The impacts would be readily apparent and would result in a change to public service and facilities serving the area in a manner noticeable by service providers.

Major: The impacts would be readily apparent and result in a substantial change in the level of public facilities and services provided to the project area, requiring additional staff or infrastructure to serve the improvements.

Impacts of Alternative A (No-Action)

Impacts

Public facilities and service levels would not change from existing conditions under the No Action Alternative. There are no functioning fire hydrants on the project site; therefore, fire suppression in this area would require the transporting of water to the project site to extinguish flames. The Chinook Valley Volunteer Fire Department (CVVFD), located west of the project site along US Highway 101, is equipped with two fully operational fire "pumper" trucks capable of transporting up to 750 gallons of water to an emergency situation. Overhead power, currently dissecting the site, would remain within the existing utility easement. Park operations would transfer from State agencies to the NPS following transfer of property ownership. Minimized services would be applied to the study area with implementation of this alternative, with staffing of the site likely not to occur in the short-term future. This alternative would result in negligible adverse impacts due to the inconsistent staffing needs that would be required at the site.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions have and continue to contribute to the cumulative impacts on the public facilities and park operations in the study area. These actions include the 1998 Pacific County Comprehensive Plan, the NPS Management Policies (NPS 2006). Alternative A would result in minor adverse cumulative impacts by retaining an undeveloped and deteriorating facility with features that may require unscheduled staffing and maintenance inconsistent with protocol set forth by the NPS.

Impacts of Alternative B (Proposed Action)

Impacts

Public facilities and service levels would have minimal change from existing conditions under the Proposed Action Alternative. There are no functioning fire hydrants on the project site. Under the alternative, no new fire hydrants would be installed and are not required for this development

through Pacific County. Therefore, fire suppression in this area would require the transporting of water to the project site to extinguish flames and as described in Alternative A, the CVVFD is equipped to transport water for an emergency situation.

Existing above ground power utility will be relocated underground to the north side of the US Highway 101 right-of-way. Utilities would be laid in conduit on existing grade and covered to a depth acceptable by WSDOT and utility providers (i.e. PUD, communications companies, etc). This method is proposed to limit any ground disturbances. Utility poles located on site would be cut at the existing grade with the above ground sections removed from the site. Utility poles below the existing grade would remain to minimize ground surface impacts. With this relocation of lines from the project site to the US Highway 101 right-of-way, additional communication utilities would have the opportunity to coordinate alignment of network lines within the right-of-way for implementation during the construction phase of this project.

Park operations would transfer from the state agency to the NPS following transfer of property ownership. The site would be fully recognized as a developed park site as a unit of the Lewis and Clark National Historical Park. Designation of the location as a unit site establishes the need for increased staff to operate this unit as a day use facility. Construction of the Phase 2 connection trail would require regularly clearing debris from the trailway and scheduled maintenance checks of the trail and boardwalk structures. This alternative would result in minor short-term impacts due to construction and utility relocation, but minor, long-term beneficial impacts due to the undergrounding of utilities and increased operational efficiency in managing the site.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions have and continue to contribute to the cumulative impacts on the public facilities and park operations in the study area. These actions include the 1998 Pacific County Comprehensive Plan and the NPS Management Policies (NPS 2006). The Proposed Action, Alternative B, would result in minor, beneficial cumulative impacts by undergrounding power utilities and providing conduit for additional communication lines without excavation. In addition, providing an organized, manageable site infrastructure would create minimal impact to NPS staffing.

VISITOR USE AND EXPERIENCE

The public's experiences as they visit a park site is an important consideration to the NPS as outlined in the NPS Management Guidelines. Impacts on visitor use and experience that may occur as a result of each alternative, either directly or indirectly are addressed in this section. The threshold of intensity of impacts on visitor use and experience is defined as follows:

Methodology

Negligible: The action would bring impacts that are not detectable and would have no measurable effect on the recreation and interpretive elements of the site. Visitors would not be affected or be aware of the impacts associated with the action.

Minor: Impacts are slightly detectable, but would not be expected to have an overall effect of recreation and interpretive opportunities or visitor experience of the park. The visitor would be slightly aware of the impacts associated with the alternative; however the effects would be slight.

Moderate: Impacts are clearly detectable with changes in the visitor experience readily apparent. The visitor would be aware of the effects and likely be able to express an opinion about the changes.

Major: An action would have a substantial and highly noticeable effect on recreational and visitor use or experience. The visitor would be aware of the effects and would likely express a strong opinion about the change.

Impacts of Alternative A (No-Action)

Impacts

Under the No Action Alternative, no physical improvements would occur at the site, although the NPS would continue to implement a Vegetation Management Plan to control the spread of non-native plant species throughout the site. The informal setting of the existing site does not offer an inviting, safe, or enjoyable environment for visitors. The gravel wayside pull-off would remain under this alternative, providing limited vehicular and pedestrian access to the western portion of

the project site, without any designated pedestrian circulation routes. Access across the site would be undefined, therefore leaving the park's sensitive areas unprotected with no potential for self-guided interpretation. The site would lack educational opportunities with only the existing Lewis and Clark interpretive marker to remain. The NPS would more than likely expand the interpretive exhibits around the gravel pull-off in the long term. however the rest of the site would remain unimproved and thus limiting the visitor experience for interpreting the outstanding views and important historic and cultural value of the site. The result of Alternative A would be moderate, long-term adverse impacts to visitor use and experience.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions have and continue to contribute to the cumulative impact on the visitor use and experience of the study area. These actions include the Federal designation of the Lewis and Clark National Historical Park, the designation of Station Camp–Middle Village Park as a unit site of that Historical Park, Highway 101 Coastal Corridor Master Plan, Columbia Pacific Passage Plan and the Draft Columbia-Pacific Heritage Area Feasibility Study. Alternative A would have a moderate, long-term, adverse cumulative impact on the visitor use and experience of the study area. Without improvements to the site's infrastructure and interpretive experience, Alternative A would contribute a moderate adverse increment to this cumulative impact.

Impacts of Alternative B (Proposed Action)

Impacts

In this alternative, the visitor experience will begin prior to entering the project site off of US Highway 101. NPS gateway and corridor signage will present the site upon approach for potential visitors and passing motorists. The Proposed Action will formalize access to and within the parking area while providing for a safe transition from vehicular areas to pedestrian pathways. A variety of walkable surface materials will provide the opportunities to interpretive the history of the site, the sensitive approach to the development of the site and the efforts to preserve the site's sensitive natural and cultural resources.

A net zero approach to wetland impacts allows the NPS to interpret the importance of wetlands to our natural ecosystem while experiencing them from a boardwalk above. In addition, the visitor experience will include interpretation on the importance of cultural resource preservation and the long history of human occupation of this site. Phase 2 improvements will connect two major park systems in the region. The linking of Fort Columbia State Park and Station-Camp Middle Village Park with a boardwalk and at-grade trail creates the opportunity to connect the State and National Park systems and to unify interpretation of the regional resources. Alternative B will result in negligible short-term, adverse impacts during construction since there is limited visitor experience opportunity under the current condition and during construction. Alternative B will result in moderate, long-term, beneficial impacts due to the significant improvement to visitor use and experience through the proposed improvements and interpretation of natural, cultural and historic resources.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions have and continue to contribute to the cumulative impact on the visitor use and experience of the study area. These actions include the Federal designation of the Lewis and Clark National Historical Park, the designation of Station Camp–Middle Village Park as a unit site of that Historical Park, Highway 101 Coastal Corridor Master Plan and the Draft Columbia-Pacific Heritage Area Feasibility Study.

Development of the Proposed Action would have a major, long-term, beneficial cumulative impact by providing an enriching interpretive educational experience through interpretation of the site and area's historical and cultural significance and natural surroundings. The Phase 2 trail would provide for a connection between park systems with a pedestrian walkway between Fort Columbia State Park and Station Camp–Middle Village Park. The improvements would also provide for a safer and pleasant experience upon arrival at a formalized parking area with designated vehicle and pedestrian site features. With other interpretive improvements planned in the future at surrounding parks and historic sites, Alternative B would contribute a moderate beneficial increment to a moderate beneficial cumulative impact associated with this Proposed Action.

PUBLIC HEALTH AND SAFETY/CHILDREN'S HEALTH AND SAFETY

This section identifies impacts to environmental site conditions and public safety considerations and addresses mitigation measures to avoid or minimize impacts within the proposed project site area. This impact topic focus includes health and safety concerns for the general public and site visitors and specifically health and safety of children. The threshold of intensity of impacts on environmental health is defined as follows:

Methodology

Negligible: The action would bring impacts that are not detectable and would have no measurable effect on the public health and safety of the site. Public health and children's health and safety would not be affected by the impacts associated with the action.

Minor: Impacts are slightly detectable, but would not be expected to have an appreciable effect on public health and safety or children's health and safety at the park site. Public health and children's health and safety would be affected in a limited manner by the impacts associated with the action, but would not require special mitigation nor reach a threshold of public concern (ie. simple first-aid application).

Moderate: Impacts are clearly detectable and would result in substantial change in public health and safety noticeable to management and the public. The park staff and visitors would be aware of the effects and would express some level of concern.

Major: An action would have a substantial and highly noticeable effect on public health and safety and children's health and safety. The impacts would be readily apparent and if adverse, an injury would result in a serious health condition, injury or death.

Impacts of Alternative A (No-Action)

Impacts

The No Action Alternative would maintain the existing site condition and would not include any significant demolition or grading activities. Therefore, the No Action Alternative would not result in environmental impacts associated with lead-based paint or asbestos. Leaving these structures in place would allow for the potential of flaking lead-based paint to carry across the site and rest on the landscape potentially contaminating the soils. The existing Underground Storage Tank (UST) located in the WSDOT right-of-way would remain in place and could be subject to environmental issues in the future if any disturbance to the areas occurs.

Existing access to the gravel parking lot would continue to be uncontrolled and unmanaged creating some concern for vehicular safety. The lack of interpretive features on the site, might entice some visitors to view the Columbia River by crossing US Highway 101 since views from the park site are extremely limited. With a speed limit of 55 miles per hour on the highway, uncontrolled crossings of the highway would be very dangerous. In addition, a lack of controlled circulation on-site and limited use of the site allows continued use of the wayside area as an informal bathroom facility for anglers and some site visitors creating a public health hazard. Alternative A would result in a moderate, long-term adverse impact to public health and safety and children's health and safety.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions have and continue to contribute to the cumulative impact on the public health and safety and children's health and safety of the study area. These actions include users of the existing wayside park as a bathroom around the gravel parking and Lewis and Clark interpretive marker. In addition, the existence of dilapidated wood structures possibly containing lead-base paint and asbestos materials. With the potential for the NPS to provide additional interpretive information near the existing wayside stop, visitation may slightly increase creating additional potential for uncontrolled pedestrian crossings of the highway due to the lack of views to the Columbia River from the north side of US Highway 101. Alternative A would have a moderate, long-term, adverse cumulative impact on the environmental health of the study area. Without formalization around the gravel parking area and removal of the wood structures, Alternative A would contribute a moderate adverse increment to this cumulative impact.

Impacts of Alternative B (Proposed Action)

Impacts

The Proposed Action alternative is proposing to decommission the UST located in WSDOT

right-of-way following consultation with the agency. A Phase II Focused ESA was performed by PNG Environmental in March 2003. This report recommends a licensed Washington State UST Service Provider to decommission the UST by excavation and removal. The recommendations also mentioned other in-situ methods are available. The other methods will be further investigated since a "no excavation" policy has been established across the project site by the team of partner agencies overseeing the project. The UST would however be decommissioned in accordance with all applicable federal, state, and local regulations.

There are two dilapidated wooden structures proposed for removal in the Proposed Action alternative. The first structure is located east of the Church and is identified as the "Bachelor's Quarters". It is a small abandoned house that has been unoccupied for many years. There is no power or utilities provided but an overhead electrical line that is not live is attached to the east corner. The house has "No Trespassing" signs posted on it but shows signs of recent trespassing. The age of this structure suggests that it may contain lead-based paint and asbestos-containing materials. The second structure located just west of the gravel driveway is a shed open on two sides containing various crates and miscellaneous materials. Similar to the "Bachelor's Quarters" this structure may contain lead-based paint and asbestos-containing materials. Demolition of this structure and the "Bachelor's Quarters" would occur prior to the transportation of fill material to the site. Removal of both structures would conform to all federal, state, and local regulations.

Under Alternative B, formalizing the parking area and managing pedestrian activities and circulation routes on the site would impede use of the site's surroundings as an informal bathroom. The park improvements that provide pedestrian pathways and boardwalks leading to interpretive nodes and elevated viewpoints of the site and Columbia River will provide safe visitor experiences on the site and thus minimizing the potential for visitors to cross the highway for a view of the Columbia River. This alternative results in moderate, long-term beneficial impacts to public health and safety and children's health and safety.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions have and continue to contribute to the cumulative impact on the public health and safety and children's health and safety of the study area. Alternative B would reduce the potential for use of the park as an informal bathroom near the parking area. The alternative will also eliminate the public health hazard associated with the existing dilapidated wood structures possibly containing lead-base paint and asbestos materials and the UST located in the US Highway 101 right-of-way adjacent to the site. Alternative B would have a moderate, long-term, beneficial cumulative impact on the environmental health of the study area. With formalization of the parking and pedestrian circulation areas, removal of the wood structures and provision for extensive interpretation and viewpoints of the Columbia River, Alternative B would contribute a moderate beneficial increment to these cumulative impacts.

SOCIOECONOMICS

The socioeconomics analysis is based on data from the U.S. Census, Pacific County, Washington State Employment Security Department and other agency sources. The threshold of intensity of impacts on socioeconomics is defined as follows:

Methodology

Negligible: Effects to socioeconomic conditions would be below the level of detection with no discernable effect on the character of the social and economic environment.

Minor: The effects would be slightly detectable with any effects small. Any mitigation, if needed, would be simple and likely successful with no significant impact on the established social and economic environment.

Moderate: The effects to the socioeconomic condition would be readily apparent where effects would result in changed to the socioeconomic conditions at the local scale. Mitigation, if needed, would be more extensive but likely successful.

Major: The effects to the socioeconomic condition would be readily apparent and would cause substantial changes to the social and economic

conditions at a regional scale. Mitigation measures to offset the potential effects would be extensive and not guaranteed to be successful.

Impacts of Alternative A (No-Action)

Impacts

No changes to population on-site would occur under the No Action Alternative. Local economies in southwest Pacific County would realize no benefits from increased levels of tourism along the Lewis and Clark National Historical Park. Without the Proposed Action, this historic site would not be as much of a contributing component of the Lewis and Clark National Historical Park and would reduce potential economic trickle-down effects to area communities.

No short-term economic improvements from park construction and development associated with employment opportunities or goods and services purchased would occur. This alternative results in negligible, long-term impacts to socioeconomics in the study area.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions have and continue to contribute to cumulative impacts on the socioeconomics in the study area. These actions include the projected increase in population within the local area communities based on the U.S. Census Bureau. Alternative A would result in negligible cumulative impacts by retaining an undeveloped facility that offers no improvements, thus establishing no additional draw to the area or the need for employment of local resources for construction. Overall, Alternative A would result in negligible adverse impacts to socioeconomics.

Impacts of Alternative B (Proposed Action)

Impacts

Alternative B would include interpretive facilities on-site featuring local Chinookan artwork in addition to a storyline expressing the ancestry of the park site and influence it had on the region today. In addition, development of this unit site of the NPS would support tourism by broadening the useable facility footprint of the Lewis and Clark National Historical Park. Continued expansion and development of these unit sites should in turn offer opportunities beneficial to the local economies due to the increased level of tourism. Construction-related economic benefits would also be available in the short-term with the development of the Proposed Action. This alternative results in moderate, short-term and minor, long-term beneficial impacts to socioeconomics in the study area.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions have and continue to contribute to the cumulative impacts on the socioeconomics in the study area. These actions include the projected increase in population within the local area communities based on the U.S. Census Bureau. The Proposed Action, Alternative B, would result in moderate, short-term, beneficial cumulative impacts by establishing employment opportunities during construction of the park improvements. In addition, Alternative B would result in minor, long-term, beneficial cumulative effects by requiring a slight increase in NPS staffing to manage and maintain the park site.

ENVIRONMENTAL JUSTICE

Environmental justice analyses, as described under Title VI of the Civil Rights Act of 1964 and Executive Order 12898, address disproportionately high and adverse impacts on minority or low-income populations. This section addresses the potential for the Station Camp–Middle Village project to have disproportional effect on any such population. The threshold of intensity of impacts on environmental justice is defined as follows:

Methodology

Negligible: The action would bring impacts that are not detectable and would have no measurable effect on a disproportionate percentage of low-income and/or minority residents in the study area. Environmental justice would not be affected by the impacts associated with the action.

Minor: Impacts are slightly detectable, but would not be expected to have an appreciable effect on a disproportionate percentage of low-income and/or minority residents in the study area. Environmental justice would be affected in a limited manner by the impacts associated with the action, but would not require special mitigation nor reach a threshold of public concern.

Moderate: Impacts are clearly detectable and would result in substantive impact on a disproportionate

percentage of low-income and/or minority residents in the study area. The park staff and the public would be aware of the effects and would express some level of concern, if adverse. Mitigation measures would likely be required for an adverse impact.

Major: An action would have a substantial and highly noticeable effect on a disproportionate percentage of low-income and/or minority residents in the study area. The impacts would be readily apparent and if adverse, mitigation measures would be definitely required.

Impacts of Alternative A (No-Action)

Impacts

The No Action Alternative would not adversely affect a disproportionate percentage of low-income and/or minority residents. Implementation of limited interpretive exhibits by the NPS at the existing wayside area would have negligible beneficial impact on specifically the Chinook Tribe which is a segment of the minority population.

Cumulative Impacts

The No Action Alternative would not incrementally affect long-term cumulative affects to environmental justice, either adversely or beneficially.

Impacts of Alternative B (Proposed Action)

Impacts

Similar to the No Action Alternative, the Proposed Action is not expected to adversely affect a disproportionate percentage of low-income and/or minority residents. The median income of residents within Pacific County does not meet the income threshold for poverty status. Although the poverty is slightly higher in Pacific County relative to other counties in Washington State, the Proposed Action would affect all residents of Pacific County more or less evenly. The proportion of minority residents in the study area (Pacific County) is less than the proportion of minority residents at both the county and statewide levels. Thus, minority populations affected by a proposal are not "meaningfully greater" than that represented within the county as a whole. Therefore, an "environmental justice population" as defined by Federal guidelines is not present. Furthermore, the project is expected to be largely beneficial, not adverse, in its impacts.

The Proposed Action includes construction of pathways and boardwalks with interpretive panels leading to viewpoint overlooks, all with the purpose to educate the public on various historical themes including the known history of the Chinook Tribe at this site and on the Lower Columbia River (before, during, and after the time of Lewis and Clark). These educational opportunities would benefit Native Americans in the area by raising the level of awareness of the importance of the Chinook Tribe in shaping the region's history. Thus, the Proposed Action would have a minor, long-term beneficial impact on this specific segment of the minority population of Pacific County.

Existing tribal fishing rights that occur on-site or within the general project area would not be adversely affected by the alternatives.

Cumulative Impacts

An environmental justice population is not present in Pacific County by Federal standards, and thus, no incremental impacts to cumulative impacts on environmental justice are expected in this study area.

Table 4-1: Summary of Environmental Consequences

Earth Resources *(Soils and Topography)*	
Alternative A (No Action)	**Alternative B**
No additional effect to area soils beyond current land use impacts. Land use patterns and associated impacts to soil composition and distribution in the project area would remain as they currently exist, which includes the use of the area for parking, compacting area soils and bringing up dust. **Overall Impact:** minor, short-term, adverse impacts with no impairment. **Cumulative Impact:** moderate, long-term, adverse cumulative impacts.	Fill soil (approximately 8,000 cubic yards of approved, off-site fill) will be imported and compacted during construction to create a positive substrate for park improvements. This fill material will support positive drainage and filtration along with good soil structure for successful growth of native plant species. The fill soils will be separated from the existing ground surface by a layer of filter fabric and marking tape, which will provide for greater preservation of the underlying culturally sensitive soils. Temporary erosion and sedimentation control practices will be implemented to avoid erosion of soils during construction. **Overall Impact:** minor, short-term, adverse impacts and minor, long-term, beneficial impacts with no impairment. **Cumulative Impact:** negligible, adverse cumulative impacts
Water Resources *(Stormwater Management and Water Quality)*	
Alternative A (No Action)	**Alternative B**
Site erosion would remain uncontrolled and untreated. Stormwater and sedimentation deposits would occur into the wetland buffers, wetlands, and streams. **Overall Impact:** negligible, short and long-term adverse impacts with no impairment. **Cumulative Impact:** minor, long-term, adverse cumulative impacts.	Stormwater from developed site areas (approximately 10,000 square feet of pervious surface and 12,000 square feet of impervious surface) will be treated on-site using advanced stormwater solutions such as pervious paving and pervious boardwalks, therefore improving stormwater management and water quality treatment on the site and meeting Department of Ecology standards. Short-term impacts would be due to construction, however temporary erosion control measures would be in place. **Overall Impact:** negligible short-term adverse impacts due to construction and a major, long-term, beneficial increment to moderate, long-term with no impairment. **Cumulative Impact:** minor, long-term, beneficial cumulative impacts.

Wetlands	
Alternative A (No Action)	**Alternative B**
The lack of erosion control and filtration measures at the existing gravel parking area would allow pollutants and sediments to discharge into the wetland resources, as stormwater would remain untreated. **Overall Impact:** minor, long-term, adverse impacts with no impairment. **Cumulative Impact:** minor, adverse, cumulative impacts.	In the short-term, construction impacts may result from construction of a pervious boardwalk through Wetland B. However, the elevated pervious boardwalk will then provide access across Wetland B for the Phase 2 trail users while protecting the wetland from future ground surface contact, therefore protecting the integrity of the wetland and its ecological function. Approximately 24,000 SF of wetland buffer impacts are anticipated, which will be mitigated through the enhancement of several acres of offsite wetlands. **Overall Impact:** minor, long-term, beneficial impacts with no impairment. **Cumulative Impact:** moderate, long-term, beneficial cumulative impacts.
Fish and Wildlife *(Including Special Status Species)*	
Alternative A (No Action)	**Alternative B**
Land use and associated impacts to the occurrence of listed and threatened species would remain as it currently exists. **Overall Impact:** no impacts and no impairment. **Cumulative Impact:** negligible, long-term, beneficial cumulative impacts by retaining existing conditions in their unimproved state.	Construction of the Phase 2 wetland boardwalk and upland connection trail may result in minimal disturbance to wildlife habitat. Water quality improvements shall beneficially impact the associated wetland habitats and aquatic life in the wetland and adjoining streams. Temporary impacts from construction would be limited. **Overall Impact:** negligible, short-term adverse impacts and minor, long-term, beneficial impacts with no impairment. **Cumulative Impact:** negligible, long-term, beneficial cumulative impacts on fish and wildlife and special status species in the study area.

Vegetation	
Alternative A (No Action)	**Alternative B**
No new vegetation would be introduced to the project site. However, implementation of the vegetation management plan will be carried out in an effort to overcome the intrusion of the non-native, invasive species such as Scot's broom. **Overall Impact:** negligible short-term beneficial and minor, long-term, adverse impacts and no impairment. **Cumulative Impact**: minor, long-term, adverse cumulative impacts.	In addition to the implementation of the vegetation program to eliminate non-native, invasive species as identified in the vegetation management plan (also carried out in Alternative A), additional native plant species would be introduced and establishment in the study area. **Overall Impact:** minor, short-term, adverse impacts from construction and moderate, long-term, beneficial impacts and no impairment. **Cumulative Impact:** moderate, long-term, beneficial cumulative impacts.
Historic and Cultural Resources	
Alternative A (No Action)	**Alternative B**
NPS policy is centered on protection and preservation of these types of resources. Therefore the future long-term ownership and management of the site by the NPS and the avoidance of excavation with all future potential improvements to the site would protect the resources in the project area. **Overall Impact:** minor, long-term beneficial impacts and no impairment. **Cumulative Impact:** minor cumulative, long-term, beneficial impacts.	Little to no excavation will occur as part of the Alternative (refer to earth resources for specific information regarding soil movement). Existing power poles will be cut down to ground level and power lines will be buried from existing grade. Fill soil will be brought in to raise the site and which will be separated from the existing ground surface by a layer of filter fabric and marking tape, which will provide for greater preservation of the underlying culturally sensitive soils. **Overall Impact:** negligible, short-term, adverse impacts due to construction and moderate, long-term, beneficial impact upon completion of the improvements, due to the protection and preservation of resources on-site. No impairment will occur. **Cumulative Impact:** moderate, long-term, beneficial cumulative impacts.

Land Use *(Including Consistency with Plans and Policies)*	
Alternative A (No Action)	**Alternative B**
No improvements would occur and land use would remain the same resulting in no significant positive change over time at the park site. **Overall Impact:** negligible, long-term, adverse impacts with no impairment. **Cumulative Impact:** negligible, long-term, adverse cumulative impacts.	Improvements would provide positive change to the site's accessibility and use as allowed by the current local governing document. Land use would remain the same with increased opportunities for visitation. The construction of Phase 2 trail connection improvements would offer an expanded site experience. **Overall Impact:** negligible, long-term, beneficial impacts with no impairment. **Cumulative Impact:** minor, long-term, beneficial cumulative impacts.
Access and Transportation	
Alternative A (No Action)	**Alternative B**
Existing conditions will remain, including the loose gravel across the informal access and parking area off of US Highway 101. **Overall Impact:** minor, long-term, adverse impacts. **Cumulative Impact:** moderate, long-term, adverse cumulative impacts.	Proposes paved, formal access point from an added left turn lane off of US Highway 101. Right-of-way traffic calming applications. **Overall Impact:** moderate, short-term, adverse impact during rechannelization and construction of the right-of-way and parking improvements and moderate, long-term, beneficial impacts due to enhanced access and circulation along the highway following construction completion. **Cumulative Impact:** moderate, long-term, beneficial cumulative impacts.
Visual Resources	
Alternative A (No Action)	**Alternative B**
Currently there are limited views from the project area due to the existing elevation of the project site and the presence of the roadway and existing rock bulkhead at the Columbia River. Under this alternative views would remain impeded and the presence of overhead power lines across the site would remain. **Overall Impact:** negligible, long-term, adverse impact and no impairment. **Cumulative Impact:** minor, adverse, cumulative impacts.	Design elements have been designed to frame view corridors, elevate visitors above the vehicular traffic through the introduction of fill and elevated platforms. Landscaping proposed will establish a pleasant, soft landscape which will highlight the visitation experience. Under this alternative the existing overhead power lines and poles would be removed and buried. **Overall Impact:** minor short-term adverse impacts from construction activity and moderate, long-term beneficial cumulative impacts results from elevated viewpoints and enhancements to the sites character and visual resources. No impairment will occur. **Cumulative Impact:** minor, beneficial cumulative impacts.

Soundscapes and Noise	
Alternative A (No Action)	**Alternative B**
With the No Action Alternative no sound filtration and absorption actions are proposed. Roadway noise levels are expected to increase as related to the projected increase in traffic along the Highway. **Overall Impact:** negligible, long-term, adverse impacts related to the increase of traffic noise levels in the study area over time and no impairment. **Cumulative Impact:** moderate, long-term, adverse cumulative impacts.	The proposal includes the strategic placement of plant species and landscape along the Highway which will serve to deflect, absorb, and filter noise levels from existing and future increased traffic volumes. Expected increase in visitation population will show little to no increase as the use of the park will include pedestrian activities and parking only. The proposed improvements will not impact the biological environment. **Overall Impact:** minor short-term adverse impacts due to construction and no adverse impacts. **Cumulative Impact:** minor, long-term, beneficial cumulative impacts results from sound absorption and filtration measures that will be implemented.

Public Facilities and Services/Park Operations	
Alternative A (No Action)	**Alternative B**
The existing informal nature of the parking area and site circulation warrant less park operations staff; however, over time would require unpredictable maintenance needs. Existing overhead utilities would remain. **Overall Impact:** negligible, short-term, adverse impacts due to inconsistant staffing needs. **Cumulative Impact:** minor, long-term, adverse cumulative impacts due to maintenance and inconsistant staffing needs as it relates to the property and deteriorating facilities.	Under this alternative, there would be a need for increased staff due to increased maintenance of improvements, including the parking area, boardwalks and interpretative information. With this alternative, existing utilities would be removed and buried underground. **Overall Impact:** minor, short-term, adverse impacts due to construction and minor, long-term, beneficial impacts. **Cumulative Impact:** minor, long-term, beneficial cumulative impacts.

Visitor Use and Experience	
Alternative A (No Action)	**Alternative B**
Existing visitor experience is limited due to lack of formal entry, parking areas, pedestrian circulation and interpretation of the site. Under this alternative, the educational experience may be improved in the future by the NPS through the installation of interpretive exhibits, however is not currently planned and would be subject to budgetary constraints. **Overall Impact:** moderate, long-term, adverse impact. **Cumulative Impact:** moderate, long-term, adverse cumulative impacts.	The entry and parking area would be formalized and enhanced with designated pedestrian and vehicle circulation separation, allowing for a safe visitor experience. Expanded site access and educational opportunities would be greatly expanded to inform visitors of the site's natural environment and rich history; learning about generations of history and historic events that bring value to the site. Phase 2 improvements would connect the site to a larger park system. **Overall Impact:** moderate, long-term, beneficial impact. **Cumulative Impact:** moderate, long-term, beneficial cumulative impacts.
Public Health and Safety/Children's Health and Safety	
Alternative A (No Action)	**Alternative B**
The site is currently being used as dumping grounds for human waste and garbage, existing deteriorating buildings on the site would remain allowing lead-based and asbestos materials to remain on site, the underground storage tank would not be decommissioned as recommended, and potential pedestrian safety concerns will remain. **Overall Impact:** moderate, long-term, adverse impact. **Cumulative Impact:** moderate, long-term, adverse cumulative impacts.	Existing deteriorating buildings would be removed and the underground storage tank would be properly decommissioned. Additionally, the proposed improvements provide enhanced access through the formalization of the entry and addition of the left turn lane off of US Highway 101 and designated parking controlled area, and providing more extensive access with interpretive nodes and viewpoints to the Columbia River would be a moderate beneficial impact to the project area. **Overall Impact:** moderate, long-term, beneficial impact. **Cumulative Impact:** moderate, long-term, beneficial cumulative impacts.

Socioeconomics	
Alternative A (No Action)	**Alternative B**
The no-action alternative would not affect the socioeconomics of the region. No increase in tourism and associated economic benefits would occur. **Overall Impact:** negligible, long-term impact. **Cumulative Impact:** negligible, long-term, adverse cumulative impacts.	Short-term construction activity at the site that would require the need for an increase in park staff to oversee the work and construction staff to complete the work. Additionally, on the long-term, the implementation of a docent program to interpret the local history associated with the site may be put in place. Increased visitation and tourism may increase opportunity for local opportunities for Chinookan artwork. **Overall Impact:** moderate, short-term, beneficial impacts and minor, long-term, beneficial impacts. **Cumulative Impact:** minor, long-term, beneficial cumulative impacts.
Environmental Justice	
Alternative A (No Action)	**Alternative B**
Implementation of limited interpretive exhibits by the NPS at the existing wayside area would have a negligible beneficial impact on, specifically, the Chinook Tribe which is a segment of the minority population. **Overall Impact:** no adverse impacts are anticipated. **Cumulative Impact:** none are anticipated.	The Proposed Action includes construction of interpretive panels and features to educate the public on various historical themes including the known history of the Chinook Tribe at this site and on the Lower Columbia River. These educational opportunities would benefit Native Americans in the area by raising the level of awareness of the importance of the Chinook Tribe in shaping the region's history. **Overall Impact:** minor, long-term beneficial impact on this specific segment of the minority population of Pacific County. **Cumulative Impact:** none are anticipated.

5—CONSULTATION AND COORDINATION

THE SCOPING PROCESS

The scoping process for environmental review is started at the beginning of a project which requires NEPA review. This process is required in order to identify the scope of the project, spectrum of environmental review, the proposed alternatives, their impacts and proposed mitigation.

INTERNAL SCOPING

Project Team

NPS, WSHS, and the Chinook Indian Nation form the core team for this project and manage all activities through close, day-to-day collaboration and weekly compliance, permitting and design meetings. Other agencies and individuals also play key roles for certain aspects of the project. A representative from the Garvin family, owner of the property that underlies much of the Congressional designation, attends relevant meetings to provide guidance on the best way to coordinate park design with on-going uses on neighboring Garvin family lands. WSDOT has provided guidance on how best to provide access and construct right-of-way improvements along US Highway 101. WSRPC has collaborated with partners on proposals to connect state and Federal park units, include connecting trails, complimentary design and interpretation, and other elements.

The project team and partner agencies began scoping in November 2009. The first internal scoping meeting occurred on November 24, 2009 at Fort Clatsop and was attended by FHWA-Western Federal Lands, NPS, WSHS, as well adjacent property owners, and consultants. A facilitator from FHWA guided a discussion on history and significance of the site, site access, landscape context, education opportunities, visitor experience, and methods for interpretation. Discussion topics included park organization, prioritization of site features, and site management and operation.

ENVIRONMENTAL SCREENING

On February 16, 2010, the project team and partner agencies met to complete preliminary Environmental Screening. Participants included the NPS, WSHS, the Chinook Indian Nation and consultants who were engaged to prepare permits and compliance documents.

PUBLIC SCOPING

A public scoping meeting took place in the evening of December 17, 2009 at Fort Columbia State Park. Nineteen people attended this meeting and discussed the proposed alternatives and potential impacts related to those alternatives. The public expressed concern for the protection and preservation of natural and cultural resources, as well as, preserving safety and natural beauty of the site while sharing the stories and history of the site. The public also expressed interest in the opportunity of a trail connection to Fort Columbia from Station Camp-Middle Village.

Additional public comments focused on public facility improvements and expected hours and park fees. The public expressed the interest in minimizing impacts and improvements on the site but formalizing and expanding the interpretation of the site's history.

TRIBAL AND AGENCY CONSULTATION

In addition to including Tribes and agencies in the core project team, the NPS has also offered formal channels for consultation. On December 3, 2009, section 106 consultation letters were sent to the Chinook Indian Nation, the Confederated Tribes of the Grand Ronde, the Chehalis Confederated Tribes, the Cowlitz Indian Tribe, the Quinault Indian Nation, and the Shoalwater Bay Indian Tribe. These letters NPS hoped to achieve not only government-to-government consultation, but government-to-government collaboration as requested by the Chair of the Chinook Nation. The NPS used government-to-government collaboration as a guiding principle during this project.

On December 7, 2009 a letter was sent to coordinating agencies, including FHWA, USFWS, Army Corps of Engineers, EPA, WA DAHP, WSHS, WSDOT, WSPRC, WA Department of General Administration, DOE, Pacific County and the Cowlitz-Wahkiakum Council of Governments.

An agency and tribal scoping meeting took place in the afternoon of December 17, 2009 at Fort Columbia State Park. Twelve (12) people attended the meeting, representing WSPRC, NPS, the Chinook Indian Nation, the Confederated Tribes of the Grand Ronde, FHWA – Western Federal Lands Division, and the WSHS. The agencies expressed interest in the approach for further archaeological investigation, the protection and preservation of natural and cultural resources, as well as, the development of an appropriate interpretive plan for the site.

Participants provided the following comments:

Chinook History:

- Canoe design is a Chinook design (Scarborough name is not a design)
- Bunk house (not currently there) is the edge of the town.
- Town site at this point was North of Hwy 101.
- At first, shovel probes did not reveal any key archeological information. Then archaeology revealed the town location.
- Chinook people are still connected to the site and want to remain connected to the site.
- Chinook "gathering" fish heads from the cannery town site alludes to a scarcity of resources available to native populations after Euro-development.
- Chinook have a long and strong connection to the site.
- It is unknown how many burials are at the site and they are concerned about how potential park development.
- Scot's broom is "horrible". Chinook support Scot's broom removal however we must be sensitive to how it is removed (maybe beetles biocontrol agent.
- Cultural material can still be located on the surface of the site.
- Prior to any development (12 years ago) Chinook held meetings about the site to decide actions or desires for site development.
- Chinook invested and interested in site interpretation. They encourage working with tribal members to develop storyline however there may be some cultural stories not acceptable for public interpretation.
- Do nothing that disturbs graves or artifacts on the site.
- Before development of any kind it is to reference cultural resources on site for tribes so they know and understand the site and its resources.
- Grand Ronde will defer interpretation to Chinook.
- Assurances to build up rather than down. Use materials that will insulate trails from compacting the ground (sand, geotextiles) reroute the trail around as much cultural material as is known.
- Expand the Riprap for future waterside trail access.
- How do we avoid taboos at a Chinook people's site without directly exposing some their cultural beliefs that are sacred or not open to the general public? (No smoking, cursing).
- Idea of Chinook Longhouse on the site and that gifted to the tribe.

Fort Columbia:

- Exhibit at Fort Columbia "Chinook Exhibit"
  - About ½ a barracks
  - Displays artifacts form Middle Village
  - Review artifacts before display for Chinook
  - How items can be displayed part of future details design
- Supportive of trail connection to Ft. Columbia.
- Agrees with the focus on reduce impacts and protection of resource.
- Ft. Columbia has been under used
- Circulation issues: in general a transportation study or circulation study is encouraged to find safe solutions to providing increased public access including parking at Columbia.
- Turn pocket at entrance: this is a dangerous entrance, how will increased use be done safely with this entrance?
- Access to shoreline: they prefer to not increase the public access to the shoreline at their site.
- What will a potentially larger scale parking area do to the historic landscape?

General Comments:

- Recommended to have archeological monitoring during wetland delineation (NPS-LEWI will provide monitoring).
- Next cultural resources Inventory (potential days January 12-15).
  - Develop testing methods only for sites that have the potential to be developed.
  - Notify planned work schedules to Tribes and other interested Agencies.
  - Tribes and interested Agencies have the right to review drafts before the next steps.
  - Tribe will review formatting of products for security of sacred information.
- Develop an Interpretive Plan for the State Park, Tribe and NPS for continuity about the site.
- Surface soils should be studied to understand how it can either be of use in protecting cultural material or how it may be needed to have more suitable soil for reduced compaction brought to the site.
- Select culturally valuable plants for landscaping (Labrador Tea).
- Since 2005 the site has been monitored for disturbances and none have been observed.
- Tribe has worked in spirit of cooperation to support good ideas coming forward.
- Concerns: site protection, grave protection, longevity of Chinook on the site, development will recognize Chinook, recognize village site.
- How to enter a plank house (inter panel?).
- Signage on how to be respectful (Hawaiian example).
- Scarborough Hill has positive and negative stories to the site.
- Tribes would like to be contemporary (i.e. First Salmon Ceremony at Ft. Columbia).
- Ft. Columbia could be water access for tribal ceremonies.
- Signage of respectful behavior is important to display subtlety.
- Berms on site are different than how the site was a potential disturbance to the tribe
- "Re-mounding" or adding sand to reestablish a berm context and provide additional protection.
- Perspective on how the houses laid on the land is valuable to express to visitors.
- Removing the viewing mounds would restore the landscape; providing visitors with a more accurate depiction of the village site.

Section 7 of the Endangered Species Act

U.S. Fish and Wildlife Service were invited to comment and attend an agency scoping meeting. No formal response or attendance to the agency scoping occurred. Endangered, threatened, proposed, and candidate species and critical habitat protected under the ESA were obtained from the following agencies and can be found in Appendix B: Biological Evaluation:

- NOAA Fisheries, National Marine Fisheries Services (NMFS) website research for species lists on May 17, 2010 (NMFS 2010).
- U.S. Fish and Wildlife Service (USFWS) website research for county species and habitats list on May 17, 2010 (USFWS 2007).
- U.S. Fish and Wildlife Service (USFWS) *Critical Habitat Portal* website research on May 17, 2010 (USFWS 2010).
- WDFW *Priority Habitats and Species* (PHS) Report dated April 13, 2010 (WDFW 2010a).
- WDFW *SalmonScape* website research on May 17, 2010 (WDFW 2010b).
- Washington Department of Natural Resources (WDNR) Website research conducted on May 17, 2010 (WDNR 2010).

Section 106 of the National Historic Preservation Act

The Washington DAHP was contacted in December 2009 to begin consultation, pursuant to Section 106 of the National Historic Preservation Act [36 CFR 800.2(c)(4)]. DAHP is very interested in this project because of the sensitivity of cultural resources at the site. DAHP was also invited to attend a tribal and agency scoping meeting and was requested to advise NPS in the development of a study plan for a cultural resources inventory (CRI) of the site. NPS received a review of the CRI study plan on March 4, 2010. The CRI study was revised and resubmitted to DAHP. NPS then contacted DAHP by phone regarding the revised CRI. DAHP indicated they were satisfied with the revisions and to proceed with the study while keeping DAHP informed of the results.

NPS met with DAHP on September 23, 2010 to discuss preliminary reviews of the CRI study findings. The report will be transmitted to DAHP for formal concurrence in November, 2010. A letter to DAHP can be found in Appendix A: Relevant Correspondence.

Tribal Consultation

The National Park Service places great emphasis on not only government to government consultation, but also government to government collaboration with both recognized and unrecognized Indian Tribal Nations.

NPS initiated formal consultation in December 2009 with the Chinook Indian Nation, the Confederated Tribes of the Grande Ronde, the Cowlitz Indian Tribe, the Chehalis Confederated Tribes, the Quinault Indian Nation, and the Shoalwater Bay Indian Tribe. We invited all of these Tribal Governments to join us at a Dec 17, 2009 scoping meeting. The consultation letters can be found in Appendix A: Relevant Correspondence. Representatives from the cultural committee of the Chinook Indian Nation and the Tribal Historic Preservation Officer from the Confederated Tribes of the Grande Ronde attended and shared comments, concerns, and suggestions, which are recorded earlier in this chapter.

NPS also invited the above six tribes to review the draft CRI design. Representatives from both the tribal council and cultural committee of the Chinook Indian Nation met with the CRI team on site to guide design of the study.

Tribal Chair Ray Gardner and Tribal Council Member Charlie Funk have represented the Tribal Council of the Chinook Indian Nation as part of the inter-governmental project team, which also includes NPS and the State of Washington. Chairman Gardner and Council Member Funk have been very active in guiding the design and making certain that cultural resources associated with the Chinook Indian Nation and the site in general are protected and respectfully interpreted.

FUTURE COMPLIANCE AND COORDINATION

Several permits and further agency coordination and consultation will be needed in order to construct the proposed improvements. This EA and NEPA process is just one step in the review of this proposal. The JARPA and NEPA review are at a state and federal level with other reviews and permits required at the local county level as described in greater detail below.

Further Agency Consultation

Tribal Consultation and Concurrence – Further tribal consulation will occur concurrent with the public comment period for this EA.

Department of Archeology Historic Preservation – Documents required for concurrence by DAHP will be submitted upon completion of this document, concurrent with the public review period for this EA.

Required Permits and Approvals

Prior to the development of the site and implementation of the proposed action, a number of permits and approvals are required. These include:

Coastal Zone Management (CMZ) Consistency and Certification – This CZM Certification is required due to the location of the project site within one of the 15 coastal counties of Washington State. This program is regulated by the Washington State Department of Ecology. This certification is required of all federal or federally funded projects, activities or developments to determine that the project is consistent with Washington's Coastal Zone Management Program (WCZMP) to the "maximum extent practicable."

State Environmental Policy Act (SEPA) – This State environmental review is required for every project. In this case the EA and NEPA review is aiding in the SEPA review. The SEPA review is led by Pacific County, the local agency with jurisdiction, as part of their permit review process.

National Pollution Discharge Elimination System (NPDES) – An NPDES permit is required due to the site area of proposed "disturbance" or soil movement. In this case the importing of soil and area of new impervious surfaces exceeds the one acre threshold. This permit includes the noticing of the project and a stormwater discharge permit from the Department of Ecology.

Shoreline Management Substantial Development Permit (SDP) – An SDP is required for any improvements that occur within 200 feet of the OHWM of a waterbody of significance. In this case the waterbody is the Columbia River, where the proposed improvements lie within the 200-foot shoreline jurisdiction.

Critical Areas Resource Lands (CARL) Variance Application – The CARL is the ordinance that provides regulations to the development of projects located in critical areas and resource lands within Pacific County. A CARL variance is triggered due to the impacts proposed to wetland buffers at the site. This CARL application requires the completion of a JARPA application (more on JARPA below).

Joint Aquatic Resources Permit Application (JARPA) – A JARPA is a joint application that is used by a variety of reviewing agencies to review aquatic resource impacts of a proposal. Due to the potential impacts to wetland buffers from this project a JARPA is required.

Development Permit Application – A development permit application is required in Pacific County for all new development or grading activity. Due to the significance of improvements proposed, this review is triggered.

6—REFERENCES, RESOURCES, PREPARERS AND CONTRIBUTORS

Literature

DKS Associates. 2010. Memorandum: Station Camp Middle Village Park Traffic Analysis. Portland, OR. August 9, 2010.

ELS (Ecological Land Service, Inc.). 2010. Jurisdictional Wetland Determination Report for Station Camp – Middle Village Park, Pacific County, WA. Prepared for Otak on behalf of the Washington State Historical Society. August 2010.

ELS. 2010. Vegetation Management Plan for Station Camp Middle Village Park. Prepared for Otak on behalf of the Washington Historical Society. April 26, 2010.

ELS. 2010. Biological Evaluation for Station Camp – Middle Village Park, Pacific County, WA. Prepared for the Washington State Historical Society. Revised August 19, 2010.

ELS. 2010. Wetland Buffer Mitigation Plan for Station Camp – Middle Village Park, Pacific County, WA. Prepared for Otak on behalf of the Washington State Historical Society. August 2010.

Milbor-Pita and Associates, Inc. 2002 Geotechnical Engineering Report for Proposed Lewis and Cark Survey Station Camp Park near Ilwaco, WA. Woodinville, WA.

NPS (National Park Service). 1995. Resource Management Plan for the Fort Clatsop National Memorial. U.S. Department of the Interior National Park Service. Astoria (Clatsop County), OR.

NPS. 2004. Public Law 108-387. October 30, 2004.

NPS. 2006. Management Policies 2006. U.S. Department of the Interior.

Northwest Archaeological Associates, Inc. (NWAA). 2010. Technical Memorandum: Cultural resources Investigation for the Middle Village/Station Camp Interpretive Park, Pacific County, WA. August 12, 2010.

Pacific County Department of Community Development. 1995. Pacific County Parks and Recreation Plan. South Bend, WA.

Pacific County Department of Community Development. 1999. Critical Areas and Resource Lands (CARL) Ordinance No. 147, 147A, and 147B. South Bend, WA.

Pacific County Department of Community Development. 2000. Pacific County Stormwater Management Program. South Bend, WA.

Pacific County Department of Community Development. 2000. Pacific County Shoreline Master Program. Shoreline Management Program Ordinance No. 2000-039. South Bend, WA.

Pacific County Department of Community Development, 2003 – 2008 Parks & Recreation Capital Improvement Program. South Bend, WA.

PNG Environmental, Inc. 2003. Phase 2 Focused Environmental Site Assessment – Station Camp Underground Storage Tank. March 17, 2003. McGowan, WA.

WDOE. 2005. Stormwater Management Manual for Western Washington. Olympia, WA.

Internet Resources

EPA (U.S. Environmental Protection Agency). 2003. Office of Environmental Justice. Website at: http://www.epa.gov/compliance/environmentaljustice/index.html

EPA. 1994. Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. Website at: http://www.epa.gov/fedreg/eo/eo12898.htm

NPS (National Park Service). Lewis and Clark National Historical Park and Eastern Legacy Study. Website at: http://bulk.resource.org/gpo.gov/laws/108/publ387.108.pdf

NPS. 2002. Director's Order #77-1: Wetland Protection. Website at: http://www.nps.gov/policy/dorders/do77-1-reissue.htm

Pacific County. 2003. Pacific County website at: http://www.co.pacific.wa.us/geninfo.htm

Washington State Employment Security Department. 2010. Pacific County Labor Market Information. http://www.workforceexplorer.com/cgi/databrowsing/localAreaProfileQSResults.asp?selectedarea=Pacific+County&selectedindex=25&menuChoice=localAreaPro%3DlocalAreaPro&state=true&geogArea=5304000049&countyName=asp?selectedarea=Pacific+County&selectedindex=25&menuChoice=localAreaPro%3DlocalAreaPro&state=true&geogArea=5304000049&countyName=

Washington State Historical Society. Website at: http://www.wshs.org/

Preparers And Contributors

This document was prepared by Otak, Inc. with input from the National Park Service, Washington State Historical Society, Federal Highway Administration – Western Federal Lands Division, Ecological Land Services, Inc, and DKS Associates.

LEAD CONSULTANT

Otak, Inc.
10230 NE Points Drive
Suite 400
Kirkland, WA 98033

Environmental Assessment

Mandi Roberts, Principal In Charge
Chad Weiser, Principal Advisor
Keith Bates, Project Manager
Kristen Clem, Planner
Holli Coleman, Project Administrator
Marissa Chargualaf, Graphic Designer

CONTRIBUTING CONSULTANTS

Ecological Land Services, Inc.
1157 3rd Avenue
Suite 220
Longview, WA 98632

Biological Evaluation

Karey Bock, Project Manager/Biologist
Lynn Simpson, Environmental Scientist

Vegetation Management Plan

Francis Naglich, President/Wetland Biologist
Karey Bock, Project Manager/Biologist
Wetland Delineation Plan
Francis Naglich, Wetland Biologist

DKS Associates
1400 SW 5th Avenue
Suite 500
Portland, OR 97201

Station Camp Middle Village Park Traffic Analysis

Julie Sosnovske, P.E.
Carl Springer, P.E.

PRIMARY REVIEWERS AND CONTRIBUTORS

National Park Service
Lewis and Clark National Historical Park
92343 Fort Clatsop Road
Astoria, OR 97103

David Szymanski, Park Superintendent
Zachery Bolitho, Chief of Resources
Doug Wilson, Director
Northwest Cultural Resource Institute
Alan Schmierer, Environmental
Compliance Coordinator
Pete Field, Transportation Planner
FHWA, Western Federal Lands Division

Washington State Historical Society
1911 Pacific Avenue
Tacoma, WA 98402

Jim Sayce, Project Manager
David Nicandri, Director

APPENDIX A

Relevant Correspondence

National Park Service
U.S. Department of the Interior

Station Camp – Middle Village Park
Washington

United States Department of the Interior
NATIONAL PARK SERVICE
Lewis and Clark National Historical Park
92343 Fort Clatsop Road
Astoria, Oregon 97103

December 7, 2009

Dr. Allyson Brooks
Washington State
Department of Archeology and Historic Preservation
1063 S. Capitol Way, Suite 106
Olympia, WA 98501

Re: Initiation of Section 106 consultation for the development of a unit of the National Park System at Station Camp-Middle Village

Dear Dr. Brooks:

The National Park Service (NPS) would like to initiate consultation with the Washington State Historic Preservation Office (SHPO) for the proposed development of the Station Camp - Middle Village site, a unit of Lewis and Clark National Historical Park. The proposed park site is located in the vicinity of the existing wayside park in Pacific County, Washington (T09N R10W Sections 21, 22), on the north side of the Columbia River and US Highway 101 (MP 1.85-2.3), west of the Astoria Megler Bridge, and east of Fort Columbia State Park. This site was designated by Congress as a unit of the National Park Service in November, 2004.

The NPS and its partners intend to begin an Environmental Assessment (EA) in compliance with the National Environmental Policy Act (NEPA), Section 106 consultation, and a Biological Assessment (BA) in December, 2009, to assess the impacts of developing this park unit.

Recent archeological investigations have revealed the significance of the Chinookan Middle Village that once occupied the location. These investigations documented the interaction between the Euro-American fur traders and the powerful Chinook people who controlled trade at the mouth of the Columbia River in the late 18th and early 19th centuries. Additional known periods of significance for the property include Lewis and Clark's Station Camp (1805-1806) and the fishing and cannery town of McGowan (late 19th and early 20th century). As a whole, the project site opens a window on the first contact period in the Columbia Pacific area and the early development of the river's mouth. It is that knowledge that we wish to share with visitors to the area.

Our most important responsibilities are to protect the irreplaceable cultural resources, objects, and sacred items at the site and to minimize impacts to the natural and human environment.

Modification proposals to US Highway 101 would be minor only to improve vehicular access in the vicinity of the parking lot. We do not intent to cause any disturbance to the Columbia River shoreline.

A core project team comprised of Tribal, State and Federal agencies will be developing a proposed action for this site. The purpose is to provide visitor experiences at this NPS unit site, improve visitor access to the site, provide interpretation of the site's historical significance, and create a direct connection to adjacent Fort Columbia State Park. Identified needs for this proposal include protection and preservation of the site's archaeological discoveries, improvement of a site that is already being used informally by visitors, management and restoration of a deteriorating landscape, and unification of two adjacent park facilities.

To date, the National Park Service has been working in partnership with the Chinook Nation, the Washington State Historical Society (WSHS), Washington State Parks and Recreation Commission, Washington State Department of Transportation, and the Garvin-McGowan family that owns land adjacent to the property, and others to develop this site. These partners will continue to play key roles as we move forward.

As the lead federal agency for the project, the National Park Service would like to initiate consultation with the Washington SHPO, pursuant to Section 106 of the National Historic Preservation Act [36 CFR 800.2(c)(4)].

We request that you review the attached Area of Potential Effects and either concur or suggest modifications to it. We also cordially invite you or your representative(s) to attend an agency and tribal scoping meeting on Thursday, December 17, 2009 at 2:00 p.m. at the theater at Fort Columbia State Park.

We would also like to invite you to advise us in the development of a study plan for a cultural resources inventory. This inventory is intended to ensure that the project site is adequately protected and that sensitive sites are identified. The study plan will be developed in January with any Tribal, local, state, or federal partners who wish to participate. The park will coordinate with parties on dates and meeting.

Thank you for taking the time to consider these requests. If you have any questions, please contact me (503-861-4401).

Sincerely,

David Szymanski
Superintendent

United States Department of the Interior

NATIONAL PARK SERVICE
Lewis and Clark National Historical Park
92343 Fort Clatsop Road
Astoria, Oregon 97103

IN REPLY REFER TO:

Date December 3, 2009

The Honorable David Burnett
Chehalis Confederated Tribes
420 Howanut Road, P.O. Box 536
Oakville, WA 98568

Re: Development of a National Park Unit at Station Camp – Middle Village Environmental Assessment

Dear Chairman Burnett:

The National Park Service (NPS) would like to initiate government-to-government consultation with the Chehalis Confederated Tribes for the development of a unit of the National Park System along the lower Columbia River in Pacific County, Washington. The National Park Service, in cooperation with its partners, intends to begin an Environmental Assessment (EA) in December, 2009, to assess the impacts of the development of this park unit. In coordination with this undertaking, we are initiating the Section 106 process.

The proposed park site is located at the Chinook Middle Village (*qí'qayaqilxam*) on the north side of the Columbia River, west of the Astoria Megler Bridge landing at Point Ellice, and east of Fort Columbia State Park. This site was designated by Congress as a unit of the National Park System in November, 2004.

Recent archeological investigations have revealed the global significance of the Chinookan Middle Village that once occupied the location. These investigations documented the interaction between the Euro-American fur traders and the powerful Chinook people who controlled the trade at the mouth of the Columbia River in the late 18th and early 19th centuries. Additional periods of significance for the property include Lewis and Clark's Station Camp (1805-1806) and the fishing and cannery town of McGowan, WA (late 19th and early 20th century). As a whole, the project site opens a window on the first contact period in the Columbia Pacific area, and has the potential to increase dramatically our knowledge of both the Chinook people and those who explored and settled the banks of the Columbia River. It is that knowledge that we wish to share with visitors to the area.

Our most important responsibility is to protect the irreplaceable resources, objects, and sacred items at the site. The location is sacred to the Chinook and other First Americans. We believe that the current use of the site as a vacant, weedy field often visited by recreationists for inappropriate reasons is unbefitting a site of this significance.

As the lead federal agency for the project, the National Park Service would like to initiate consultation with the Chehalis Confederated Tribes, pursuant to Section 106 of the National Historic Preservation Act [36 CFR 800.2(c)(4)]. We seek any information the Chehalis Confederated Tribes has on historic resources within or near the vicinity of the project.

Ray Gardner, Chair of the Chinook Nation, has challenged us to move beyond government-to-government consultation to government-to-government collaboration. We intend to use his challenge as a guiding principle during this project.

To date, the National Park Service is working in partnership with the Chinook Nation, the Washington State Historical Society (WSHS), Washington State Parks, the Garvin-McGowan family that owns land adjacent to the property, and many others to develop this site. These partners will continue to play key roles as we move forward.

We would very much appreciate the opportunity to meet with you and other appropriate representatives of the Chehalis Confederated Tribes in order to commence government-to-government consultation on the development of a national park unit at Station Camp – Middle Village. The goal of the consultation is to identify any concerns early in the environmental review process and reach mutually agreeable decisions while taking into account the interests of Tribal, State and Federal governments.

We cordially invite you or your representative(s) to attend a tribal and agency scoping meeting on Thursday, December 17, 2009 at 2:00 p.m. at the theater at Fort Columbia State Park. We would also like to invite you to participate in the development of a study plan for a cultural resources inventory. This inventory is intended to ensure that the project site is adequately protected and that sensitive sites are identified. The study plan will be developed in January with any Tribal, State, or Federal partners who wish to participate. Deborah Wood from our staff will provide additional information on dates and meeting times as these are set.

Thank you for taking the time to consider these requests. Our tribal liaison, Deborah S. Wood will contact your office in the coming weeks to inquire about scheduling a meeting to discuss these matters further. Deborah is intimately familiar with the project site and its resources. If you have any questions, please contact me (503-861-4401) or Deborah (503-861-4442).

Sincerely,

David Szymanski
Superintendent

United States Department of the Interior

NATIONAL PARK SERVICE
Lewis and Clark National Historical Park
92343 Fort Clatsop Road
Astoria, Oregon 97103

IN REPLY REFER TO:

Date December 3, 2009

The Honorable Ray Gardner
Chinook Nation
PO Box 368
Bay Center, WA 98527

Re: Development of a National Park Unit at Station Camp – Middle Village Environmental Assessment

Dear Chairman Gardner:

The National Park Service (NPS) would like to initiate government-to-government consultation with the Chinook Nation for the development of a unit of the National Park System along the lower Columbia River in Pacific County, Washington. The National Park Service, in cooperation with its partners, intends to begin an Environmental Assessment (EA) in December, 2009, to assess the impacts of the development of this park unit. In coordination with this undertaking, we are initiating the Section 106 process.

The proposed park site is located at the Chinook Middle Village (*qí'qayaqilxam*) on the north side of the Columbia River, west of the Astoria Megler Bridge landing at Point Ellice, and east of Fort Columbia State Park. This site was designated by Congress as a unit of the National Park System in November, 2004.

Recent archeological investigations have revealed the global significance of the Chinookan Middle Village that once occupied the location. These investigations documented the interaction between the Euro-American fur traders and the powerful Chinook people who controlled the trade at the mouth of the Columbia River in the late 18th and early 19th centuries. Additional periods of significance for the property include Lewis and Clark's Station Camp (1805-1806) and the fishing and cannery town of McGowan, WA (late 19th and early 20th century). As a whole, the project site opens a window on the first contact period in the Columbia Pacific area, and has the potential to increase dramatically our knowledge of both the Chinook people and those who explored and settled the banks of the Columbia River. It is that knowledge that we wish to share with visitors to the area.

Our most important responsibility is to protect the irreplaceable resources, objects, and sacred items at the site. The location is sacred to the Chinook and other First Americans. We believe that the current use of the site as a vacant, weedy field often visited by recreationists for inappropriate reasons is unbefitting a site of this significance.

As the lead federal agency for the project, the National Park Service would like to initiate consultation with the Chinook Nation, pursuant to Section 106 of the National Historic Preservation Act [36 CFR 800.2(c)(4)]. We seek any information the Chinook Nation has on historic resources within or near the vicinity of the project.

As Chair of the Chinook Nation, you challenged us to move beyond government-to-government consultation to government-to-government collaboration. We intend to use this challenge as a guiding principle during this project.

To date, the National Park Service is working in partnership with the Chinook Nation, the Washington State Historical Society (WSHS), Washington State Parks, the Garvin-McGowan family that owns land adjacent to the property, and many others to develop this site. These partners will continue to play key roles as we move forward.

We would very much appreciate the opportunity to meet with you and other appropriate representatives of the Chinook Nation in order to commence government-to-government consultation on the development of a national park unit at Station Camp – Middle Village. The goal of the consultation is to identify any concerns early in the environmental review process and reach mutually agreeable decisions while taking into account the interests of Tribal, State and Federal governments.

We cordially invite you or your representative(s) to attend a tribal and agency scoping meeting on Thursday, December 17, 2009 at 2:00 p.m. at the theater at Fort Columbia State Park. We would also like to invite you to participate in the development of a study plan for a cultural resources inventory. This inventory is intended to ensure that the project site is adequately protected and that sensitive sites are identified. The study plan will be developed in January with any Tribal, state, or federal partners who wish to participate. Deborah Wood from our staff will provide additional information on dates and meeting times as these are set.

Thank you for taking the time to consider these requests. Our tribal liaison, Deborah S. Wood will contact your office in the coming weeks to inquire about scheduling a meeting to discuss these matters further. Deborah is intimately familiar with the project site and its resources. If you have any questions, please contact me (503-861-4401) or Deborah (503-861-4442).

Sincerely,

David Szymanski
Superintendent

United States Department of the Interior

NATIONAL PARK SERVICE
Lewis and Clark National Historical Park
92343 Fort Clatsop Road
Astoria, Oregon 97103

IN REPLY REFER TO:

Date December 3, 2009

The Honorable William Iyall
Cowlitz Indian Tribe
1055 9th Avenue Suite B
Longview, WA 98632

Re: Development of a National Park Unit at Station Camp – Middle Village Environmental Assessment

Dear Chairman Iyall:

The National Park Service (NPS) would like to initiate government-to-government consultation with the Cowlitz Indian Tribe for the development of a unit of the National Park System along the lower Columbia River in Pacific County, Washington. The National Park Service, in cooperation with its partners, intends to begin an Environmental Assessment (EA) in December, 2009, to assess the impacts of the development of this park unit. In coordination with this undertaking, we are initiating the Section 106 process.

The proposed park site is located at the Chinook Middle Village (*qí'qayaqilxam*) on the north side of the Columbia River, west of the Astoria Megler Bridge landing at Point Ellice, and east of Fort Columbia State Park. This site was designated by Congress as a unit of the National Park System in November, 2004.

Recent archeological investigations have revealed the global significance of the Chinookan Middle Village that once occupied the location. These investigations documented the interaction between the Euro-American fur traders and the powerful Chinook people who controlled the trade at the mouth of the Columbia River in the late 18th and early 19th centuries. Additional periods of significance for the property include Lewis and Clark's Station Camp (1805-1806) and the fishing and cannery town of McGowan, WA (late 19th and early 20th century). As a whole, the project site opens a window on the first contact period in the Columbia Pacific area, and has the potential to increase dramatically our knowledge of both the Chinook people and those who explored and settled the banks of the Columbia River. It is that knowledge that we wish to share with visitors to the area.

Our most important responsibility is to protect the irreplaceable resources, objects, and sacred items at the site. The location is sacred to the Chinook and other First Americans. We believe that the current use of the site as a vacant, weedy field often visited by recreationists for inappropriate reasons is unbefitting a site of this significance.

As the lead federal agency for the project, the National Park Service would like to initiate consultation with the Cowlitz Indian Tribe, pursuant to Section 106 of the National Historic Preservation Act [36 CFR 800.2(c)(4)]. We seek any information the Cowlitz Indian Tribe has on historic resources within or near the vicinity of the project.

Ray Gardner, Chair of the Chinook Nation, has challenged us to move beyond government-to-government consultation to government-to-government collaboration. We intend to use his challenge as a guiding principle during this project.

To date, the National Park Service is working in partnership with the Chinook Nation, the Washington State Historical Society (WSHS), Washington State Parks, the Garvin-McGowan family that owns land adjacent to the property, and many others to develop this site. These partners will continue to play key roles as we move forward.

We would very much appreciate the opportunity to meet with you and other appropriate representatives of the Cowlitz Indian Tribe in order to commence government-to-government consultation on the development of a national park unit at Station Camp – Middle Village. The goal of the consultation is to identify any concerns early in the environmental review process and reach mutually agreeable decisions while taking into account the interests of Tribal, State and Federal governments.

We cordially invite you or your representative(s) to attend a tribal and agency scoping meeting on Thursday, December 17, 2009 at 2:00 p.m. at the theater at Fort Columbia State Park. We would also like to invite you to participate in the development of a study plan for a cultural resources inventory. This inventory is intended to ensure that the project site is adequately protected and that sensitive sites are identified. The study plan will be developed in January with any Tribal, State, or Federal partners who wish to participate. Deborah Wood from our staff will provide additional information on dates and meeting times as these are set.

Thank you for taking the time to consider these requests. Our tribal liaison, Deborah S. Wood will contact your office in the coming weeks to inquire about scheduling a meeting to discuss these matters further. Deborah is intimately familiar with the project site and its resources. If you have any questions, please contact me (503-861-4401) or Deborah (503-861-4442).

Sincerely,

David Szymanski
Superintendent

United States Department of the Interior

NATIONAL PARK SERVICE
Lewis and Clark National Historical Park
92343 Fort Clatsop Road
Astoria, Oregon 97103

IN REPLY REFER TO:

Date December 3, 2009

The Honorable Cheryle A. Kennedy
Confederated Tribes of the Grand Ronde
9615 Grand Ronde Road
Grand Ronde, OR 97347-0038

Re: Development of a National Park Unit at Station Camp – Middle Village Environmental Assessment

Dear Chairwoman Kennedy:

The National Park Service (NPS) would like to initiate government-to-government consultation with the Confederated Tribes of the Grand Ronde for the development of a unit of the National Park System along the lower Columbia River in Pacific County, Washington. The National Park Service, in cooperation with its partners, intends to begin an Environmental Assessment (EA) in December, 2009, to assess the impacts of the development of this park unit. In coordination with this undertaking, we are initiating the Section 106 process.

The proposed park site is located at the Chinook Middle Village (*qí'qayaqilxam*) on the north side of the Columbia River, west of the Astoria Megler Bridge landing at Point Ellice, and east of Fort Columbia State Park. This site was designated by Congress as a unit of the National Park System in November, 2004.

Recent archeological investigations have revealed the global significance of the Chinookan Middle Village that once occupied the location. These investigations documented the interaction between the Euro-American fur traders and the powerful Chinook people who controlled the trade at the mouth of the Columbia River in the late 18th and early 19th centuries. Additional periods of significance for the property include Lewis and Clark's Station Camp (1805-1806) and the fishing and cannery town of McGowan, WA (late 19th and early 20th century). As a whole, the project site opens a window on the first contact period in the Columbia Pacific area, and has the potential to increase dramatically our knowledge of both the Chinook people and those who explored and settled the banks of the Columbia River. It is that knowledge that we wish to share with visitors to the area.

Our most important responsibility is to protect the irreplaceable resources, objects, and sacred items at the site. The location is sacred to the Chinook and other First Americans. We believe that the current use of the site as a vacant, weedy field often visited by recreationists for inappropriate reasons is unbefitting a site of this significance.

As the lead federal agency for the project, the National Park Service would like to initiate consultation with the Confederated Tribes of the Grand Ronde, pursuant to Section 106 of the National Historic Preservation Act [36 CFR 800.2(c)(4)]. We seek any information the Confederated Tribes of the Grand Ronde has on historic resources within or near the vicinity of the project.

Ray Gardner, Chair of the Chinook Nation, has challenged us to move beyond government-to-government consultation to government-to-government collaboration. We intend to use his challenge as a guiding principle during this project.

To date, the National Park Service is working in partnership with the Chinook Nation, the Washington State Historical Society (WSHS), Washington State Parks, the Garvin-McGowan family that owns land adjacent to the property, and many others to develop this site. These partners will continue to play key roles as we move forward.

We would very much appreciate the opportunity to meet with you and other appropriate representatives of the Confederated Tribes of the Grand Ronde in order to commence government-to-government consultation on the development of a national park unit at Station Camp – Middle Village. The goal of the consultation is to identify any concerns early in the environmental review process and reach mutually agreeable decisions while taking into account the interests of Tribal, State and Federal governments.

We cordially invite you or your representative(s) to attend a tribal and agency scoping meeting on Thursday, December 17, 2009 at 2:00 p.m. at the theater at Fort Columbia State Park. We would also like to invite you to participate in the development of a study plan for a cultural resources inventory. This inventory is intended to ensure that the project site is adequately protected and that sensitive sites are identified. The study plan will be developed in January with any Tribal, State, or Federal partners who wish to participate. Deborah Wood from our staff will provide additional information on dates and meeting times as these are set.

Thank you for taking the time to consider these requests. Our tribal liaison, Deborah S. Wood will contact your office in the coming weeks to inquire about scheduling a meeting to discuss these matters further. Deborah is intimately familiar with the project site and its resources. If you have any questions, please contact me (503-861-4401) or Deborah (503-861-4442).

Sincerely,

David Szymanski
Superintendent

United States Department of the Interior

NATIONAL PARK SERVICE
Lewis and Clark National Historical Park
92343 Fort Clatsop Road
Astoria, Oregon 97103

IN REPLY REFER TO:

Date December 3, 2009

The Honorable Fawn Sharp
Quinault Indian Nation
PO Box 189
Taholah, WA 98587

Re: Development of a National Park Unit at Station Camp – Middle Village Environmental Assessment

Dear President Sharp:

The National Park Service (NPS) would like to initiate government-to-government consultation with the Quinault Indian Nation for the development of a unit of the National Park System along the lower Columbia River in Pacific County, Washington. The National Park Service, in cooperation with its partners, intends to begin an Environmental Assessment (EA) in December, 2009, to assess the impacts of the development of this park unit. In coordination with this undertaking, we are initiating the Section 106 process.

The proposed park site is located at the Chinook Middle Village (*qí'qayaqilxam*) on the north side of the Columbia River, west of the Astoria Megler Bridge landing at Point Ellice, and east of Fort Columbia State Park. This site was designated by Congress as a unit of the National Park System in November, 2004.

Recent archeological investigations have revealed the global significance of the Chinookan Middle Village that once occupied the location. These investigations documented the interaction between the Euro-American fur traders and the powerful Chinook people who controlled the trade at the mouth of the Columbia River in the late 18th and early 19th centuries. Additional periods of significance for the property include Lewis and Clark's Station Camp (1805-1806) and the fishing and cannery town of McGowan, WA (late 19th and early 20th century). As a whole, the project site opens a window on the first contact period in the Columbia Pacific area, and has the potential to increase dramatically our knowledge of both the Chinook people and those who explored and settled the banks of the Columbia River. It is that knowledge that we wish to share with visitors to the area.

Our most important responsibility is to protect the irreplaceable resources, objects, and sacred items at the site. The location is sacred to the Chinook and other First Americans. We believe that the current use of the site as a vacant, weedy field often visited by recreationists for inappropriate reasons is unbefitting a site of this significance.

As the lead federal agency for the project, the National Park Service would like to initiate consultation with the Quinault Indian Nation, pursuant to Section 106 of the National Historic Preservation Act [36 CFR 800.2(c)(4)]. We seek any information the Quinault Indian Nation has on historic resources within or near the vicinity of the project.

Ray Gardner, Chair of the Chinook Nation, has challenged us to move beyond government-to-government consultation to government-to-government collaboration. We intend to use his challenge as a guiding principle during this project.

To date, the National Park Service is working in partnership with the Chinook Nation, the Washington State Historical Society (WSHS), Washington State Parks, the Garvin-McGowan family that owns land adjacent to the property, and many others to develop this site. These partners will continue to play key roles as we move forward.

We would very much appreciate the opportunity to meet with you and other appropriate representatives of the Quinault Indian Nation in order to commence government-to-government consultation on the development of a national park unit at Station Camp – Middle Village. The goal of the consultation is to identify any concerns early in the environmental review process and reach mutually agreeable decisions while taking into account the interests of Tribal, State and Federal governments.

We cordially invite you or your representative(s) to attend a tribal and agency scoping meeting on Thursday, December 17, 2009 at 2:00 p.m. at the theater at Fort Columbia State Park. We would also like to invite you to participate in the development of a study plan for a cultural resources inventory. This inventory is intended to ensure that the project site is adequately protected and that sensitive sites are identified. The study plan will be developed in January with any Tribal, State, or Federal partners who wish to participate. Deborah Wood from our staff will provide additional information on dates and meeting times as these are set.

Thank you for taking the time to consider these requests. Our tribal liaison, Deborah S. Wood will contact your office in the coming weeks to inquire about scheduling a meeting to discuss these matters further. Deborah is intimately familiar with the project site and its resources. If you have any questions, please contact me (503-861-4401) or Deborah (503-861-4442).

Sincerely,

David Szymanski
Superintendent

United States Department of the Interior

NATIONAL PARK SERVICE
Lewis and Clark National Historical Park
92343 Fort Clatsop Road
Astoria, Oregon 97103

IN REPLY REFER TO:

Date December 3, 2009

The Honorable Charlene Nelson
Shoalwater Bay Indian Tribe
PO Box 130
Tokeland, WA 98590

Re: Development of a National Park Unit at Station Camp – Middle Village Environmental Assessment

Dear Chairperson Nelson:

The National Park Service (NPS) would like to initiate government-to-government consultation with the Shoalwater Bay Indian Tribe for the development of a unit of the National Park System along the lower Columbia River in Pacific County, Washington. The National Park Service, in cooperation with its partners, intends to begin an Environmental Assessment (EA) in December, 2009, to assess the impacts of the development of this park unit. In coordination with this undertaking, we are initiating the Section 106 process.

The proposed park site is located at the Chinook Middle Village (*qí'qayaqilxam*) on the north side of the Columbia River, west of the Astoria Megler Bridge landing at Point Ellice, and east of Fort Columbia State Park. This site was designated by Congress as a unit of the National Park System in November, 2004.

Recent archeological investigations have revealed the global significance of the Chinookan Middle Village that once occupied the location. These investigations documented the interaction between the Euro-American fur traders and the powerful Chinook people who controlled the trade at the mouth of the Columbia River in the late 18th and early 19th centuries. Additional periods of significance for the property include Lewis and Clark's Station Camp (1805-1806) and the fishing and cannery town of McGowan, WA (late 19th and early 20th century). As a whole, the project site opens a window on the first contact period in the Columbia Pacific area, and has the potential to increase dramatically our knowledge of both the Chinook people and those who explored and settled the banks of the Columbia River. It is that knowledge that we wish to share with visitors to the area.

Our most important responsibility is to protect the irreplaceable resources, objects, and sacred items at the site. The location is sacred to the Chinook and other First Americans. We believe that the current use of the site as a vacant, weedy field often visited by recreationists for inappropriate reasons is unbefitting a site of this significance.

As the lead federal agency for the project, the National Park Service would like to initiate consultation with the Shoalwater Bay Indian Tribe, pursuant to Section 106 of the National Historic Preservation Act [36 CFR 800.2(c)(4)]. We seek any information the Shoalwater Bay Indian Tribe has on historic resources within or near the vicinity of the project.

Ray Gardner, Chair of the Chinook Nation, has challenged us to move beyond government-to-government consultation to government-to-government collaboration. We intend to use his challenge as a guiding principle during this project.

To date, the National Park Service is working in partnership with the Chinook Nation, the Washington State Historical Society (WSHS), Washington State Parks, the Garvin-McGowan family that owns land adjacent to the property, and many others to develop this site. These partners will continue to play key roles as we move forward.

We would very much appreciate the opportunity to meet with you and other appropriate representatives of the Shoalwater Bay Indian Tribe in order to commence government-to-government consultation on the development of a national park unit at Station Camp – Middle Village. The goal of the consultation is to identify any concerns early in the environmental review process and reach mutually agreeable decisions while taking into account the interests of Tribal, State and Federal governments.

We cordially invite you or your representative(s) to attend a tribal and agency scoping meeting on Thursday, December 17, 2009 at 2:00 p.m. at the theater at Fort Columbia State Park. We would also like to invite you to participate in the development of a study plan for a cultural resources inventory. This inventory is intended to ensure that the project site is adequately protected and that sensitive sites are identified. The study plan will be developed in January with any Tribal, State, or Federal partners who wish to participate. Deborah Wood from our staff will provide additional information on dates and meeting times as these are set.

Thank you for taking the time to consider these requests. Our tribal liaison, Deborah S. Wood will contact your office in the coming weeks to inquire about scheduling a meeting to discuss these matters further. Deborah is intimately familiar with the project site and its resources. If you have any questions, please contact me (503-861-4401) or Deborah (503-861-4442).

Sincerely,

David Szymanski
Superintendent

APPENDIX B

Biological Evaluation

National Park Service
U.S. Department of the Interior

Station Camp – Middle Village Park
Washington

Biological Evaluation
for
Station Camp - Middle Village Park
Pacific County, Washington
ESA and EFH Consultation

Prepared for:
Otak, Inc.
10230 NE Points Drive, Suite 400
Kirkland, Washington 98033
425-250-5900

On behalf of:
Washington State Historical Society
1911 Pacific Avenue
Tacoma, Washington 98402
253-798-5900

Prepared by:
Ecological Land Services, Inc.
1157 3rd Avenue, Suite 220
Longview, Washington 98632
360-578-1371
ELS Project Number 729.08

***Revised* August 19, 2010**

SIGNATURE PAGE

The information and data in this report were compiled and prepared under the supervision and direction of the undersigned.

Lynn Simpson
Environmental Scientist

EXECUTIVE SUMMARY

Project Description

The project is in a portion of the northwest quarter of Section 22 and the extreme northeast quarter of Section 21, Township 9 North, Range 10 West, Willamette Meridian, in Pacific County, Washington. The proposed park lies immediately north of the north bank of the Columbia River, at River Mile 10 at latitude 46° 14' 49" North and longitude 123° 54' 32" West. The 5th field hydrologic unit code (HUC) is 1708000603.

The Washington State Historical Society and the National Park Service are planning to develop Station Camp - Middle Village Park to recognize the Native American and maritime heritage of the site, the McGowan town settlement, and the Corps of Discovery (Lewis and Clark Expedition). In the second phase of park development, a pedestrian trail is planned to connect Station Camp - Middle Village Park with Fort Columbia State Park to the west, which is a 593-acre day-use historical park at the Chinook Point National Historic Landmark.

The developed park will highlight the McGowan Family history, McGowan Church history, the local Native Americans, the unique ecology of the Columbia River estuary and the Lewis and Clark Expedition. Currently, the historic Station Camp site, which was named after the surveying measurements conducted by Captain William Clark, is unidentified except for a small roadside monument to the north of Highway 101. This site was also near the Chinook Tribe's "Middle Village" which was the site of tribal fishing and trading. The project will create a 7.63-acre public park with interpretive and recreational opportunities.

All permitting for the original project was completed in 2004, and project construction began during the construction season of 2005. During initial construction, the project was halted following the discovery of significant heritage resources on the proposed highway realignment, so the project was re-designed without highway realignment.

Phase 1 construction is scheduled to occur within the proposed park in spring 2011 and will be finished in fall 2011. A pedestrian trail is planned as part of Phase 2 of this project that connects Station Camp - Middle Village Park with the Fort Columbia State Park to the west; however, construction timing is uncertain because negotiations are still in progress to attain access across the parcel on the western boundary of Station Camp - Middle Village Park.

Impact-Minimization Measures

Park design followed the guiding principle of minimizing impacts and honoring the sensitivity of the site's heritage. Context-sensitive design methods and low-impact development features were used to minimize effects to the site and surrounding environmental resources. The pervious-pavement parking area will infiltrate stormwater, and recharge groundwater. Boardwalk design throughout the park will minimize effects to wetlands and preserve the natural environment as much as possible. Invasive-vegetation management and treatment will remove unwanted plant species, and re-establish native coastal prairie plants. During design, path alignments were shifted to avoid wetlands and sensitive cultural features associated with the site. The trail to Fort Columbia was designed to use the existing logging road and existing stream-crossing locations as much as possible to

avoid tree cutting and earth moving. Impact-minimization measures for the project include the following actions:

1. The contractor will follow the Temporary Erosion and Sediment Control Plan
2. Follow provisions in any Hydraulic Project Approval permit received from WDFW for Phase 2.
3. Locate construction staging and stockpile areas within the project area at least 150 feet from the nearest wetland or stream.
4. Fuel equipment at least 100 feet from the nearest wetland or waterbody.
5. Locate stockpiles and staging areas at least 150 feet from the nearest wetland or waterbody.
6. Cover exposed soils with erosion-control fabric or mulch. Hydroseed newly disturbed areas.
7. Future bridge construction and repair on the trail will take place in summer or early fall, when site conditions are driest and the erosion potential is lowest.
8. Some materials will consist of pressure-treated wood. Care will be taken to keep sawdust from treated wood from entering the environment by cutting these materials over a tarp. Sawdust will be removed from the site and will be properly disposed.
9. During the critical marbled murrelet nesting season, between April 1 and September 15, bridge construction, repair, and chain-saw maintenance tasks near Fort Columbia will not take place during the following times: one hour before official sunrise until two hours after official sunrise, and one hour before official sunset until one hours after official sunset.
10. Boardwalk construction will take place when in mid-summer to early fall, when site conditions are driest to minimize soil compaction and temporary damage to wetland plants.
11. Posts will consist of pressure-treated members anchored on pier foundations. Care will be taken to keep sawdust from treated wood from entering the wetland or streams by cutting these materials over a tarp. Sawdust will be removed from the site and will be properly disposed.

Potential Project Effects

Potential direct effects from construction include the following activities:

- Soil compaction in the wetland from boardwalk construction.
- Temporary vegetation damage from boardwalk construction.
- Visual and noise disturbances in the park and along the trail connecting the parks.
- Stormwater runoff flowing into the wetlands from areas with disturbed soils.
- Fluid releases from construction equipment.
- Increased suspended solids or construction-equipment contaminants to streams from road-widening activities.
- Increased suspended solids to streams or construction-equipment contaminants from bridge construction and repair on the pedestrian trail.

Potential indirect effects from the project include the increased human activity and noise from daytime use of the park and pedestrian trail.

Effect Determinations

The project **may affect, but is not likely to adversely affect** the following species and critical habitat:

- 13 ESUs/DPSs of Salmon and Steelhead
- Designated Critical Habitat for 12 ESUs/DPSs of Salmon and Steelhead
- North American Green Sturgeon – Southern DPS
- Designated Critical Habitat for North American Green Sturgeon – Southern DPS
- Columbia River Smelt (Eulachon) – Southern DPS
- Steller Sea Lions
- Bull Trout – Columbia River DPS
- Marbled Murrelets
- Northern Spotted Owls

The project **will not destroy or adversely affect** proposed critical habitat for bull trout.

If bull trout critical habitat is designated prior to consultation completion, the project **may affect, but is not likely to adversely affect** designated bull trout critical habitat.

On the basis of direct effects to EFH in freshwater and estuarine habitats, this project will **not adversely affect EFH for Pacific salmon, Pacific groundfish, or coastal pelagic fisheries**.

The bald eagle (*Haliaeetus leucocephalus*) was federally de-listed in August 2007; however, the species is still protected by the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. According to the Priority Habitats and Species Map from the Washington Department of Fish and Wildlife, no bald eagle nesting sites are located within the 1,600-foot (0.3-mile) action area, so required buffers between project activities and known bald eagle nests will be maintained.

TABLE OF CONTENTS

TABLES (In Text)

FIGURES (Appended)

APPENDICES

INTRODUCTION

CONSULTATION HISTORY

On August 28, 2002, a pre-biological assessment meeting was held, but National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS), collectively referred to as the Services, did not attended. Minutes from the meeting were sent to all parties invited. A federal nexus was created because the project was sponsored in part by the Washington State Historical Society in cooperation with Washington State Department of Transportation (WSDOT) and the National Park Service. A second meeting was held on September 25, 2002, and Nancy Brennan-Dubbs from USFWS, and Bill Leonard from NMFS attended and provided comments on the project and mitigation strategies.

The first biological assessment was written for this project by Ecological Land Services, Inc. (ELS 2003). The project was reviewed by WSDOT Highways and Local Programs and the Federal Highways Administration. Letters dated July 17, 2003 from NMFS and December 29, 2003 from USFWS stated concurrence with the informal consultation.

Addendum Number 1 (ELS 2005) was submitted to address proposed critical habitat for nine ESUs/DPSs of salmon and steelhead. Addendum Number 2 (ELS 2008) was reviewed by WSDOT Highways and Local Programs to address the recent listing of the Lower Columbia River Evolutionarily Significant Unit (ESU) for coho salmon (*Oncorhynchus kisutch)* and the Southern Distinct Population Segment (DPS) of green sturgeon (*Acipenser medirostris).* It also included other species not addressed in the original BA or Addendum 1. Critical habitat for salmon and steelhead ESUs/DPSs had also been designated since that time. Addendum Number 2 also addressed project design changes and construction timing because the highway alignment and other project features were redesigned to avoid the heritage resources.

The WSDOT reviewer of Addendum Number 2 requested more information, because the project design, construction timing, and listed species had changed significantly since the first BA. However, the project was again postponed for further design revisions, so it was not submitted to the Services for concurrence.

Because initial construction work revealed unforseen cultural resources, the project design has been changed to avoid ground disturbance and highway re-alignment will no longer be allowed. Therefore, the Washington State Department of Transportation (WSDOT) and the Federal Highways Administration are no longer directly involved with project design. Additionally, the previous park design required a wetland permit from the U.S. Army Corps of Engineers, creating a federal nexus with that federal agency. The project proponent is now the Washington State Historical Society in cooperation with the National Park Service. Because the project design no longer requires a wetland permit, the federal nexus for the project is now the National Park Service.

There have been numerous changes to park design and federal listings of species and critical habitats since the original BE in 2002. This document is being submitted as a complete BE instead of another addendum to the 2002 BE to facilitate its review.

BACKGROUND

The project is in a portion of the northwest quarter of Section 22 and the extreme northeast quarter of Section 21, Township 9 North, Range 10 West, Willamette Meridian, in Pacific County, Washington (see Figure 1). The proposed park lies immediately north of the north bank of the Columbia River, at River Mile 10 at latitude 46° 14' 49" North and longitude 123° 54' 32" West. The 5th field hydrologic unit code (HUC) is 1708000603.

The estuarine shoreline in both Washington and Oregon are primarily rocky, forested cliffs or low-elevation, gently sloping floodplain areas. Because the estuary has a large diversity of aquatic, wetland, and upland habitats, hundreds of fish and wildlife species reside in or migrate through the estuary (LCFRB 2004).

The Washington State Historical Society and the National Park Service are planning to develop Station Camp - Middle Village Park to recognize the Native American and maritime heritage of the site, the McGowan town settlement, and the Corps of Discovery (Lewis and Clark Expedition). In the second phase of park development, a pedestrian trail is planned to connect Station Camp - Middle Village Park with Fort Columbia State Park to the west, which is a 593-acre day-use historical park at the Chinook Point National Historic Landmark.

The developed park will highlight the McGowan Family history, McGowan Church history, the local Native Americans, the unique ecology of the Columbia River estuary and commemorate the Lewis and Clark Expedition. Currently, the historic Station Camp site, which was named after the surveying measurements conducted by Captain William Clark, is unidentified except for a small roadside monument to the north of Highway 101. This site was also near the Chinook Tribe's "Middle Village" which was the site of tribal fishing and trading. The project will create a 7.63-acre public park with interpretive and recreational opportunities.

WORK COMPLETED TO DATE

All permitting for the original project was completed in 2004, and project construction began during the construction season of 2005. During initial construction, the project was halted following the discovery of significant heritage resources on the proposed highway realignment, so the project was re-designed without highway realignment.

Work that has been permitted and completed is listed below, and is presented only for informational purposes. It is not considered part of this new biological evaluation. The following activities took place during the early construction phase (September 19, 2005 to November 29, 2006) along the original highway realignment:

- To mitigate for onsite wetland impacts, 10.93 acres of a Category II, forested wetland was purchased in December 2004. The wetland is located in the upper Chinook River watershed, contains valuable salmonid habitat, and will be preserved for conservation

purposes in perpetuity. The offsite preservation occurred in advance of wetland impacts because project construction was suspended in 2005.

- Silt fencing was installed prior to project construction, and all exposed soil areas were hydroseeded with a native plant mixture. Silt fencing has been removed, and disturbed areas are currently revegetated.
- Approximately 2,000 linear feet of the highway realignment was cleared of brush and trees. Large merchantable timber was removed from the west side of the project area. Two large Sitka spruce trees designated for onsite mitigation were felled with roots attached and remain onsite. Brush and stumps were burned under a permit and the ashes were removed from the site.
- Approximately 1,000 linear feet of the new highway corridor was stripped of a 4- to 6-inch layer of topsoil and organic material. This material is contained in two piles adjacent to the new realignment right-of-way.
- Approximately 700 feet of the realignment was compacted with heavy machinery without removing the topsoil.
- Approximately 800 cubic yards of landscaping topsoil was delivered to the site and stacked in one pile, which remains onsite.
- Approximately 1,250 feet of utility conduit was placed at or near the surface, and two utility vaults were placed.
- The inadvertent discovery area was covered with two layers of heavy stone and approximately 70 yards of sand was placed on top of the stone.
- A temporary extension of the culvert (near MP 2.0) was installed with gravel backfill to allow exposed utility lines to be covered. This culvert is located at the west end of the project, and consists of the only wetland fill (approximately 0.002 acres) that occurred during the early construction stages.
- A residence (duplex) was removed from the site. The footing of the residence was covered with imported clean fill.
- An old structure was demolished and associated metal debris was removed from the site.
- All plastic and concrete pipe/culverts, river rock, cable, conduit, silt fencing, and other construction materials that were placed during the early construction phases were removed and/or stored at onsite locations.
- Archeological testing and data recovery were conducted within the project-impact area.
- Scot's-broom removal (May 2010).

DESCRIPTION OF THE PROPOSED ACTION

Phase 1 of the project includes a parking lot with two access points from U.S. Highway 101, three interpretive exhibits, two overlook sites, and interpretive trails connecting the exhibits, and the parking lot (see Figure 5). The parking lot will be paved with pervious concrete, and no restroom services will be provided. An interpretive trail connecting site features crosses the wetland in two places, so sections over the wetland will consist of boardwalks. Existing wetlands will be avoided, so there will be no wetland impacts from the park.

McGowan Church is on a separate parcel and is not part of the park, although the park was designed to accommodate its presence. Similarly, the duplex and another structure are located east of the park and are not on the project site.

Phase 2 of the project includes constructing a approximately 3,000-foot long trail that connects Station Camp - Middle Village Park with Fort Columbia State Park, which is 0.3 miles to the west along U.S. Highway 101. Negotiations are being conducted with the adjacent property owners for the exact footprint of the trail, but tentative plans show the most-likely route includes building an approximately 1,000-foot-long on piling over portions of Wetland B. The boardwalk will cross the western stream in the park in one location and will cross Wetland B in two locations. The trail connecting the parks will follow an existing logging road that crosses two streams that are Type-N at the crossing points. An existing wooden bridge over the eastern stream will have its deck replaced and a hand-rail installed. The western stream crossing is over a smaller, ephemeral stream with an existing culvert (see Photoplates). The existing crossing over the stream will be replaced with a 40-foot bridge, and the culvert will remain in place.

CONSTRUCTION SEQUENCING

Phase 1 construction is anticipated from March through November 2011, pending permit issuance, and the timing of Phase 2 construction has not been determined. Negotiations are currently being conducted with the landowner of the parcel to the west of the park.

PHASE 1

Mobilize *– (March 2011 - pickup trucks, hand tools)*

Construction staging areas will be established within project limits. Project limits will be flagged or fenced with temporary construction fencing. The contractor will implement any necessary best management practices (BMPs) and impact minimization measures (IMMs). A complete list of BMPs will be described and implemented as described in the contractor's Temporary Erosion Sedimentation Control (TESC) plan, which includes straw wattles and a temporary construction entrance. A designated TESC lead person will implement necessary construction BMPs.

Clearing, Fill, and Grading *(spring 2010 and late spring 2011 - chain saws, dump truck, backhoe, dozer)*

Scot's broom, a non-native, invasive shrub, was removed from the site in late spring 2010, and removal efforts will continue, if necessary. The park will require approximately 14,000 cubic yards of fill from a local, offsite source to construct two, elevated, interpretive overlooks and create a coastal dune landscape along the U.S. Highway 101 right-of-way. After fill and grading is complete, a decomposed granite path will be installed to access the interpretive overlooks.

Highway Widening *(early summer 2011 - grader, paver, road striper)*

The north side of Highway 101 will be widened to the north to accommodate a left-turn lane into the park. The total additional paved area will be approximately 9,000 square feet. No detours will be necessary during construction. As part of the widening project, a gabion headwall will be added above the ordinary high water mark (OHWM) of the western stream

to support the widened overlay. Culvert extensions will not be necessary. Once the roadbed fill is complete, side slopes and other disturbed areas will be seeded, fertilized, and mulched. These areas will be hydroseeded with a mixture appropriate for the site and local environmental conditions. Final construction details such as signs and striping will be completed.

Utilities *(early summer - hand tools)*
The existing overhead power line extending through the site will be relocated to conduit laid on top of existing grade in the highway right-of-way. Fill materials will be placed over the power line conduit to meet acceptable WSDOT cover depths for underground burial. No trenching or excavation will occur during this utility relocation process to protect cultural resources.

Parking Lot Construction *(summer 2011 - backhoe, dozer, grader, dump truck, trencher, paver, curb layer)*
After the site is graded, pervious concrete/asphalt will be installed.

Interpretive Exhibit and Path Construction *(summer 2011 - dump truck, backhoe, dozer, compactor, hand tools)*
After fill is placed for the Columbia River Overlook, the exhibit floor will be installed. Materials that may be selected for the floor include pervious concrete/asphalt, stained/colored/textured concrete, or seeded-pattern concrete. Materials that may be selected for the paths include gravel, crushed granite, pervious concrete/asphalt, crushed seashells, mown grass, or wood chips. Edging material for the paths will consist of aluminum or wood. Stormwater generated from the paths and exhibit floors will infiltrate into surrounding sandy soils.

Fence Construction *(summer or fall 2011 - dump truck, backhoe, chain saws)*
A break-away park fence will be added along the north side of the highway from the eastern stream to about 200 feet west of the western stream. Materials that may be selected include cedar, stacked stone/metal, stacked stone/concrete, or metal.

Finishing *(late summer/fall 2011 - curb layer, hand tools, striper)*
Curbing for the parking area and site ingress/egress, as well as lighting and other items will be installed. These include as picnic benches and tables, interpretive signs, and edging. Materials that may be selected for site furnishings include metal/wood, metal, or custom (driftwood, stone, etc). The roadway and parking lot will be striped.

Boardwalk Construction over Wetlands *(fall 2011 - backhoe, hand tools)*
Boardwalks 10-feet wide and totaling 1,078-feet long will be installed to create walkways over wetlands. Diamond-pier or equal-post foundations will be installed to minimize surface-area contact with the wetland while providing structural security. Framing, decking, kick-rails, and railing will be attached to the anchored posts. Boardwalk materials include pressure-treated timber, concrete, or metal treads and kick-rails. Posts will consist of pressure-treated members anchored on pier foundations. Care will be taken to keep sawdust

from treated wood from entering the wetland or stream by cutting these materials over a tarp. Sawdust will be removed from the site.

Restored Coastal Prairie *(fall 2011 - hydroseeder)*
Most of the park area will be restored as a coastal prairie. Planting details are in the *Vegetation Management Plan* (ELS 2010). Restoration has already begun in this area with the removal and spraying of Scot's broom. Planting is not allowed in this area to protect archaeological resources, so restoration will include seeding and weed control.

Landscaping *(fall 2011 - backhoe, dump truck, hand tools, hydroseeding truck)*
Native plants appropriate to the site and local environmental conditions will be planted in fill material brought into the site. Driftwood will be added to complete the design.

Stormwater Management
The paved parking lot will consist of pervious concrete, and stormwater from pathways will infiltrate into the site's sandy soils, so no stormwater facilities will be necessary.

PHASE 2 (TIMING UNDETERMINED)

Boardwalk Construction over Western Stream *(truck, hand tools)*
All construction will take above the OHWM using the same materials and construction techniques as described above. Construction BMPs will be followed to avoid impacts to the stream and wetland, and hydroseeding will take place in areas of soil disturbance. Sawdust from pressure-treated wood will be collected on a tarp and will be properly disposed offsite.

Trail to Fort Columbia State Park *(to take place as needed - truck, chain saw, hand tools)*
The existing trail is in good shape and no vegetation needs to be removed. Trees and branches that fall on the trail will be cleared as part of regular maintenance, as will trees or snags that have become hazardous to pedestrians. Water bars will be installed on steeper areas to facilitate stormwater runoff and to minimize trail erosion.

Bridge Construction and Repair *(truck, chain saw, hand tools)*
A 40-foot bridge over the eastern stream will be constructed, and the existing 15-foot bridge on the western stream will be re-decked; both crossing locations are over Type-N stream segments and all work on both bridges will take place entirely above the OHWMs. A typical boardwalk-bridge structure is shown on Figure 6 that will be constructed over the eastern stream. Wood-and-cable railings will be constructed on the downslope side for western bridge, and railings will be constructed on both sides of the eastern bridge. The trail will be open all year to pedestrian and bicycle traffic, and most of the use is anticipated during the summer. Horses and motorized vehicles will not be allowed on the trail.

INTERRELATED AND INTERDEPENDENT ACTIONS

The interrelated activity of this project is wetland mitigation for impacts to the wetland buffer, as described above. Interdependent actions include stockpiles and staging areas, which will occur on the project site or along the trail to Fort Columbia. Detours will not be necessary.

IMPACT AVOIDANCE AND MINIMIZATION MEASURES

Park design followed the guiding principle of minimizing impacts and honoring the sensitivity of the site's heritage. Context-sensitive design methods and low-impact development features were used to minimize effects to the site and surrounding environmental resources. The pervious-pavement parking area will infiltrate stormwater, and recharge groundwater. Boardwalk design throughout the park will minimize effects to wetlands and preserve the natural environment as much as possible. Invasive-vegetation management and treatment will remove unwanted plant species, and re-establish native coastal prairie plants. During design, path alignments were shifted to avoid wetlands and sensitive cultural features associated with the site. The trail to Fort Columbia was designed to use the existing logging road and existing stream-crossing locations as much as possible to avoid tree cutting and earth moving. Impact-minimization measures for the project include the following actions:

General Impact-Minimization Measures

1. The contractor will follow the Temporary Erosion and Sediment Control Plan (see Figure 7).
2. Follow provisions in any Hydraulic Project Approval permit received from WDFW for Phase 2.
3. Locate construction staging and stockpile areas within the project area at least 150 feet from the nearest wetland or stream.
4. Fuel equipment at least 100 feet from the nearest wetland or waterbody.
5. Locate stockpiles and staging areas at least 150 feet from the nearest wetland or waterbody.
6. Cover exposed soils with erosion-control fabric or mulch. Hydroseed newly disturbed areas.

Bridge Construction and Repair

7. Future bridge construction and repair on the trail will take place in summer or early fall, when site conditions are driest and the erosion potential is lowest.
8. Some materials will consist of pressure-treated wood. Care will be taken to keep sawdust from treated wood from entering the environment by cutting these materials over a tarp. Sawdust will be removed from the site and will be properly disposed.
9. During the critical marbled murrelet nesting season, between April 1 and September 15, bridge construction, repair, and chain-saw maintenance tasks near Fort Columbia will <u>not</u> take place during the following times: one hour before official sunrise until two hours after official sunrise, and one hour before official sunset until one hours after official sunset.

Boardwalk Construction

10. Boardwalk construction will take place when in mid-summer to early fall, when site conditions are driest to minimize soil compaction and temporary damage to wetland plants.
11. Posts will consist of pressure-treated members anchored on pier foundations. Care will be taken to keep sawdust from treated wood from entering the wetland or streams by

cutting these materials over a tarp. Sawdust will be removed from the site and will be properly disposed.

ACTION AREA

The action area is defined as all areas that will be directly and indirectly affected by the project. It is constructed by overlaying zones of impact from direct and indirect effects in both the terrestrial and aquatic environments.

Direct Effects to the Environment

Potential effects of the project to the environment are summarized below.

Direct Effects on Terrestrial/Wetland Habitats:

Potential direct effects from construction include the following activities:

- Soil compaction in the wetland from boardwalk construction.
- Temporary vegetation damage from boardwalk construction.
- Visual and noise disturbances in the park and along the trail connecting the parks.
- Stormwater runoff flowing into the wetlands from areas with disturbed soils.

Background information involving noise-impact assessments are explained more fully in the *WSDOT Advanced Biological Assessment Manual, Version 02-2010* (February 2010). A baseline noise level of 68 dBA for nearby traffic from U.S. Highway 101 (55 mph, 500 vehicles per hour) was used. Construction equipment with the loudest atmospheric noise will be from graders (89 dBA). Noise-attenuation calculations predict that noise from construction equipment will attenuate to the highway noise level of 68 dBA at a 1,600-foot (0.3-mile) radius from the project site.

Noise along the pedestrian trail from visitors is estimated to be between 60 and 70 dBA (conversational speech and business-office levels). Background noise in rural, forested areas has been estimated by USFWS as between 35 and 40 dBA. A chain saw (78 dBA), and hand tools will be used for bridge construction and repairs on the eastern and western streams, and chain saws will be used to clear fallen trees from the trail. Noise-attenuation calculations predict that noise from construction will attenuate to the estimated background noise level of 38 dBA at a 1,600-foot (0.3 miles) radius from the project site. Noise-reduction factors used in the calculation include "soft site" conditions with line-of-site breaks.

Direct Effects on Aquatic Habitats:

The project will potentially cause the following direct effects to aquatic habitats:

- Fluid releases from construction equipment.
- Increased suspended solids or construction-equipment contaminants to streams from road-widening activities.
- Increased suspended solids to streams or construction-equipment contaminants from bridge construction and repair on the pedestrian trail.

Onsite Western Stream and Columbia River

Impact-minimization measures for proper equipment maintenance, fueling, and operations will avoid or reduce impacts from equipment fluids. Storms that cause erosion and sedimentation are unlikely during the dry season while the work above the OHWM is being performed. The first-flush rain event could wash construction-related soils or contaminants into the Type-F stream on the west side of the park, but the stream only flows into the Columbia River during heavy precipitation, and first-flush storm events rarely produce enough rain to cause the western stream to flow into the Columbia River (see description in *Environmental Settings* section). By incorporating the impact-minimization measures, and because of the hydrologic characteristics of the site, direct aquatic effects in the Columbia River are not anticipated, but could possibly occur if rainfall causes more runoff than is typical for construction season.

Streams along the Trail to Fort Columbia

Bridge repair and construction will occur on the western and eastern Type-N stream crossings, respectively, along the trail between the parks. Impact-minimization measures for proper equipment maintenance, fueling, and operations will avoid or reduce aquatic impacts from equipment fluids, although the eastern stream will not likely be flowing during the dry season. Storms that cause erosion and sedimentation are unlikely during the dry season while the work above the OHWM will be performed. The first-flush rain event could wash construction-related solids or contaminants into the streams.

The western stream flows into a permanently inundated area on the west side of Wetland A, which is connected to the Columbia River by a 24-inch culvert that appears to flow year-round. Any solids or contaminants that enter the streams during construction or a first-flush event would enter Wetland A, where suspended solids would settle out and minor amounts of contaminants would be diluted before they could enter the Columbia River. By incorporating the impact-minimization measures, and because of the hydrologic characteristics of the streams, direct aquatic effects could occur in the streams and in Wetland A, but it is considered unlikely. They could possibly occur if rainfall causes more runoff than is typical during construction season.

Indirect Effects to the Environment

Indirect effects are defined as those effects caused by the project, but occur after project completion.

Indirect Effects to Terrestrial/Wetland Habitats

This project will increase human presence on the park site, but is not expected to cause more vehicle trips along U.S. 101, because the park does not allow overnight use and does not provide new recreational opportunities other than a scenic interpretive exhibit. The site currently experiences noise from people using the onsite structures and cars pulling over at the small wayside area on the west side of the site. The park will be open during daylight hours with associated visual and noise disturbances from vehicles and pedestrians expected to increase above current levels.

Noise along the trail from pedestrian use is estimated to be between 60 and 70 dBA (conversational speech and business-office levels). Background noise in rural, forested areas has been estimated by USFWS as between 35 and 40 dBA. Using the most conservative estimates (70 dBA and 35 dBA), noise is estimated to attenuate to background levels 300 feet from the trail. Noise-reduction factors include that the area has "soft site" conditions with line-of-site breaks.

Indirect Effects to Aquatic Habitats

There will be no adverse indirect effects to aquatic habitats in the action area. Stormwater on the park site will infiltrate into the sandy soils, so contaminated runoff to streams is not anticipated. No adverse indirect effects to aquatic environments are expected from pedestrian and bicycle traffic along the trail.

Effects Associated with Interdependent Activities

Interdependent actions have no independent utility apart from the proposed action. Staging and stockpile areas are expected to be located within the project boundaries in upland areas at least 150 feet away from aquatic resources and wetlands. If impact-minimization measures for the project are followed, there will be no effects to the environment above current levels of use.

Effects Associated with Interrelated Activities

Interrelated actions are a part of a larger action and only occur if the project occurs. This project has avoided all wetland impacts, but a portion of Wetland B with heavy coverage of reed canarygrass will be enhanced as a part of wetland-buffer mitigation, as required by Pacific County. This will require weed-control methods that do not disturb the cultural resources of the site, so increased suspended solids from exposed soils are not a concern. Canarygrass will be initially mowed with a brush hog and hand tools, and will be maintained using hand tools.

Action Area Definition and Description

The action area has been defined based on the extent of all anticipated direct and indirect effects, and the effects from any interrelated and/or interdependent actions. The action area is defined as a 1,600-foot radius (0.3 miles) around Station Camp - Middle Village Park and on each side of the pedestrian trail connecting the parks (see Figure 8). The extent of the action area is based on construction noise.

SPECIES AND CRITICAL HABITAT IN THE ACTION AREA

Endangered, threatened, proposed, and candidate species and critical habitat protected under the ESA were obtained from the following agencies and can be found in Appendix A:

- NOAA Fisheries, National Marine Fisheries Services (NMFS) website research for species lists on May 17, 2010 (NMFS 2010).
- U.S. Fish and Wildlife Service (USFWS) website research for county species and habitats list on May 17, 2010 (USFWS 2007).
- U.S. Fish and Wildlife Service (USFWS) *Critical Habitat Portal* website research on May 17, 2010 (USFWS 2010).

- WDFW *Priority Habitats and Species (PHS) Report* dated April 13, 2010 (WDFW 2010a).
- WDFW *SalmonScape* website research on May 17, 2010 (WDFW 2010b).
- Washington Department of Natural Resources (WDNR) Website research conducted on May 17, 2010 (WDNR 2010).

The following table shows federally endangered, threatened, proposed, and candidate species and critical habitat that may occur within the action area of the project. Life history information for species addressed in this report is included in Appendix B.

Table 1. 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 *(Onchorhynchus tshawytscha*)		
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 (*Onchorhynchus keta*)		
Columbia River Chum Salmon ESU	Threatened	Designated
Coho Salmon (*Onchorhynchus kisutch*)		
Lower Columbia River Coho Salmon ESU	Threatened	No
Sockeye Salmon (*Onchorhynchus nerka*)		
Snake River Sockeye DPS	Endangered	Designated
Steelhead (*Onchorhynchus mykiss*)		
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 *(Acipenser medirostris)*	Threatened	Designated
Columbia River Smelt (Eulachon) Southern DPS *(Thaleichthys pacificus)*	Threatened	No
Steller Sea Lion *(Eumetopias jubatus)*	Threatened	No
USFWS Jurisdiction		
Bull Trout - Columbia River DPS *(Salvelinus confluentus)*	Threatened	*Proposed*
Marbled Murrelet *(Brachyramphus marmoratus)*	Threatened	No
Northern Spotted Owl (*Strix occidentalis caurina*)	Threatened	No

DPS = Distinct Population Segment ESU = Evolutionarily Significant Unit

NMFS Jurisdiction

Salmon and Steelhead

Each of the listed 13 ESUs/DPSs of salmon and steelhead occur within the Columbia River and 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 spring 2001 and December 2002. The WDFW Area Habitat Biologist (pers. comm. K. McMurry) 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, because they were not part of the project at that time.

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 saltwater habitat; however, they have been found upriver as far as Bonneville Dam. Critical habitat has been designated in the Columbia River estuary, which is in the (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).

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 deeper portion of the water column for movement and migration (USFWS 2002). Critical habitat in the Columbia River estuary is being revised, and it will be finalized on September 30, 2010. Currently, the Columbia River estuary is proposed critical habitat (Federal Register 2010).

No suitable bull trout spawning or rearing habitat is present in Type-F streams in the proposed park, because they flow intermittently. Bull trout could forage or overwinter in these streams during high river levels, and they have access to Wetland A and the lower fish-bearing reaches of the streams that flow into Wetland A.

Marbled Murrelets

According to the USFWS and WDFW species databases, marbled murrelets occur in the vicinity of the project. The WDFW PHS map shows a marbled murrelet occupancy site in the vicinity of the trail that connects the proposed park with Fort Columbia. Construction is planned during their breeding season of April 1 through September 15. The nearest designated critical habitat is approximately 4 miles northeast of the site (Federal Register 2008a).

Based on historic aerial photographs, forested areas near the park were logged in the 1940s, 1960s, and 1970s. Consequently, most of the trees near the park range from approximately 40 to 70 years of age, not the 200+ years generally needed to develop the old-growth characteristics that provide suitable nesting habitat. Nests are generally found in trees at least 30-inches diameter and breast height (dbh), although suitable nest platforms are more important than tree height. Along some stream corridors near the park, there are some pockets of trees greater than 60 years of age.

About half of the forested component in Wetland A was selectively logged in the 1960s, so that area does not meet the criteria for mature or old-growth forest. Prior to the 1960s, much of Wetland B was farm fields and not forested. It is unlikely that the park area provides suitable marbled murrelet nesting habitat.

Within the proposed park, 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 park 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.

A contiguous forested area that appears to meet the criteria for suitable marbled-murrelet habitat is located on Fort Columbia State Park property where there is an estimated 400-acre tree stand with trees greater than 70 years old. USFWS representatives onsite in 2003 identified this area as the nearest suitable habitat, as reported in the original BE for the project (ELS 2003).

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 those for marbled murrelets, which according to the USFWS representatives, occurs on Fort Columbia State Park property near the western end of the trail. The early breeding season for northern spotted owls is March 1 through July 15, and the breeding season is October 1 through February 28 (WSDOT 2010).

Dispersal habitat refers to any areas used for movement and typically includes stands with adequate tree size and canopy closure to protect them from avian predators (Federal Register 1992b). Washington Department of Natural Resources (2001) defines dispersal habitat as timber stands of at least 5 acres with the following characteristics: 1) 70 percent or more canopy cover, 2) 50 percent or more of the stand in conifer species greater than 6 inches dbh, 3) a minimum of 130 trees per acre with a dbh of at least 10 inches or a basal area of 100 square feet and at least 10 inches dbh, 4) a total tree density of 300 trees per acre or less, and 5) 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. Foraging habitat is a continuum between dispersal and nesting/roosting habitat (Federal Register 1992b). The subject property has habitat that meets these criteria, so northern spotted owls may use areas within the park for dispersal and foraging.

SPECIES AND CRITICAL HABITAT NOT PRESENT IN THE ACTION AREA

Table 2 summarizes species not addressed in this document because the action area does not have suitable habitat or critical habitat for the species.

Table 2. Species and Critical Habitats Not Addressed in this Document.

Species, ESU, or DPS	Federal Status	Critical Habitat in Action Area?
USFWS Jurisdiction		
Oregon Silverspot Butterfly *(Speyeria zerene hippolyta)*	Threatened	No
Short-Tailed Albatross (*Phoebastria albatrus*)	Endangered	No
Streaked Horned Lark (*Eremophila alpestris strigata*)	*Candidate*	No
Western Snowy Plover (*Charadrius alexandrinus nivosus*)	Threatened	No

The above-listed species are not expected to occur in the action area because suitable habitat and critical habitat for these species does not occur in the action area:

- Oregon silverspot butterfly (no salt-spray meadows or meadow habitat supporting early blue violets (*Viola adunca*).
- Short-tailed albatross (the action area does not include nearshore marine habitat).
- Streaked horned lark (no beach, native prairie, or dredge-spoil island habitat).
- Western snowy plover (no beach habitat or sparsely vegetated, sandy shorelines). The nearest critical habitat is 27 miles northwest of the site on the Long Beach Peninsula.

Because suitable habitat for these species does not occur in the action area, the project will have **no effect** on the Oregon silverspot butterfly, short-tailed albatross, streaked horned lark, and western snowy plover. Critical habitat for the western snowy plover does not occur in the action area, so the project will have **no effect** on western snowy plover critical habitat.

Bald Eagle and Golden Eagle Management Act

The bald eagle (*Haliaeetus leucocephalus*) was federally de-listed in August 2007; however, the species is still protected by the Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act. According to the WDFW PHS map and database, no bald-eagle nesting sites are located within the action area, so state and federal nest-buffers requirements will be met.

ENVIRONMENTAL SETTING

PROJECT AREA

The project area extends approximately ½ mile along the shoreline of the Columbia River and encompasses the park development and the highway-widening area to accommodate the left-turn lane. The project area also includes the trail corridor connecting the two state parks.

PARK SETTING

The project area, which includes the park and trail to Fort Columbia, lies immediately north of U.S. Highway 101, which aligns the north bank of the Columbia River, at River Mile 10. Near the project area, the Columbia River is approximately 4.4 miles wide and has depths that range to 50 feet (Pacific County 2000; National Ocean Service 1991). The Pacific County *Shoreline Master Program* (2000) characterizes the aquatic environment in the McGowan area as having strong tidal currents, with rapid flushing action, and moderate to high fish support. The shoreline has steep slopes and is composed of coarse sand with gravel and larger rock. In the vicinity of the project area and action area, the shoreline consists of large riprap 2 to 5 feet in diameter. U.S. Highway 101 lies immediately north of the riprap in a 120-foot right-of-way. The existing highway lacks designed water-quality treatment and detention facilities for runoff, and much of the runoff infiltrates into the sandy soils.

Under the Pacific County *Shoreline Master Program* (2000), most of the Columbia River shoreline adjacent to the project area is designated Rural Shorelands. Rural Shorelands are shoreline areas in which private and public recreational facilities are encouraged. The Pacific County *Comprehensive Plan* (1998) designates the land use of the project area as Transitional Forest and the surrounding land uses as Public Preserve and Forest of Long Term Significance. The land-use designation in the vicinity of the project is to protect transitional forest areas, primarily located adjacent to rural shoreline property, and is generally intended for small-scale farms, forestry activities, dispersed single-family homes, and open space. Most of the land surrounding the project area is publicly-owned state park land or privately-owned by the Garvin Family (descendants of the McGowan Family). According to the Pacific County *Comprehensive Plan* (1998), the land-use designations of the surrounding lands are a) to protect ecologically, recreationally, or geologically unique and publicly owned areas, and b) to conserve forest lands of long-term commercial significance and discourage residential encroachment.

The structures within the project boundaries include a small wayside state park with a vehicle pull-off area and an interpretive sign. Other buildings include the McGowan Church with grass parking area near the center of the site; however, the church is on a parcel that is not within the park boundaries. The church was built in 1904 and is still used during the summer months for Sunday mass and weddings. It is accessed from the U.S. Highway 101 by a gravel driveway and has a grass parking area.

Two private residences that share a gravel driveway are east of the park and are outside of the park boundaries. The guest house, which was originally used as a post office, was located north of the existing highway until being moved to its present location in 1981. The large, two-story house was built in 1911 in its current location, and has remained occupied by descendants of the McGowan Family and caretakers for most years since being built (Columbia Diachronic Services 2002). The other residence is a 1970s duplex that was moved from its former location near the highway to its present location.

TERRESTRIAL HABITAT

Uplands

Upland fields occupy most of the project area and are comprised of 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. It was noticeably dense and reaches the stature of small trees, but it was removed in May 2010 by hand cutting. Stumps were painted with herbicide and re-sprouted portions were sprayed.

Three small areas of forested upland are also present within the project area. Most of the forest within the action area is a multi-aged, mixed coniferous and deciduous forest that is over 60 years old, based on historical aerial photographs. The forest lacks late-successional or old-growth characteristics.

The pedestrian-trail corridor between Wetland B and Fort Columbia passes through mixed deciduous and coniferous forested areas. Near the western portion of the trail near Fort Columbia, there is an area of contiguous, mature forest. In 2003, USFWS representatives identified this area as the nearest suitable habitat for marbled murrelets.

Fort Columbia State Park is located about 0.3 miles west of the project and covers more than 500 acres. The Fort was constructed in the late 1800s and was used to defend the Columbia River from 1896 to 1947. Flat areas near the highway between the proposed park and Fort Columbia have wetlands in low areas, and the hillsides have a continuous, mixed-forest cover and natural understory between about 50 and 70 years old. Forested areas higher on the hill are roughly the same age, with older stands within state park property. The hills within and surrounding state-park property have elevations of 700 to 1000 feet above sea level. Surrounding industrial forests have scattered patches of clearcuts and stands of various ages that are noticeably younger than those within the state park.

Wetlands

According to the National Wetlands Inventory Map (NWI), palustrine forested and scrub-shrub wetlands that are seasonally flooded are present within and adjacent to the project area. The palustrine wetlands are fed by streams identified as seasonally-flooded and intermittent riverine streambed wetlands. Additionally, the Columbia River shoreline immediately south of the project area is identified as unconsolidated, intertidal estuarine wetlands, which may be regularly flooded or irregularly exposed depending on the specific water regime.

Wetlands A and B were identified within and adjacent to the project area. A summary of their characteristics is shown in the following table.

Table 3. Summary of Delineated Wetlands

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

1 = Based on Cowardin *et al*. 1979.
2 = Based on WDOE 2006/ CARL Section 4.
3 = Based on CARL Section 4.

Forested portions of Wetland A and Wetland B extend north of the project area to the toe of the headlands. As the slope rises to the north, the vegetation grades into a fairly even-aged upland forest that was logged in sections in the 1940s, 1960s, and 1970s. Pockets of older, larger diameter trees, which were not harvested, exist along drainages in the upland forest areas.

Wetland A. Wetland A is an approximately 14.5-acre Class/Category I wetland, and requires 100-foot buffers according to Pacific County (Section 4 CARL). The wetland consists of forested, scrub-shrub, emergent, aquatic bed, and open water components (Cowardin *et al*. 1979). Wetland A is fed by two unnamed Type-N streams that originate in the extensive upland forest to the north. Wetland A has a permanently flooded open-water area that appears to outlet year-round to the Columbia River through a 24-inch concrete culvert. During high water events, water from the river may back up into the culvert and enter the open water component of Wetland A, and thus serve as refugia for fish during storms or floods. The wetland appears to outlet year-round to the Columbia River and the culvert appears fish-passable. Wetland A soils have a thin organic layer that covers a sandy-textured mineral layer.

The forested wetland class occupies the largest area of Wetland A and is dominated by Sitka spruce, red alder, and black cottonwood. Douglas-fir and Oregon ash (*Fraxinus latifolia*) are also present in the overstory. Within the forested areas, false lily-of-the-valley (*Maianthemum dilatatum*) and slough sedge (*Carex obnupta*) are common understory species. Drier pockets within Wetland A contain upland species, such as sword fern (*Polystichum munitum*) trailing blackberry (*Rubus ursinus*), common snowberry (*Symphoricarpos albus*), evergreen huckleberry (*Vaccinium ovatum*), and bigleaf maple. The overstory canopy of Wetland A is not contiguous and has gaps due to windblown trees and snags. Strong coastal winds and excessively saturated soils likely weakened tree roots and caused windthrow.

Scrub-shrub species are found as a separate wetland class and as mid-understory throughout the forested wetland area. The shrub species are diverse and consist of willows (*Salix),* Douglas spiraea (*Spiraea douglasii*), black twinberry (*Lonicera involucrata*), red alder, salmonberry (*Rubus spectabilis*), Nootka rose (*Rosa nutkana*), and western crabapple (*Malus fusca*).

The aquatic bed class, which is located along the western extent of Wetland A, is dominated by duckweed (*Lemna minor*), yellow spatterdock (*Nupha luteum* spp. *polysepalum*), broadleaf water-plantain (*Alisma plantago-aquatica* var. *americanum*), and marsh-pennywort (*Hydrocotyle ranunculoides*). Emergent species surround the perimeter of the aquatic bed, include yellow iris (*Iris pseudacorus*), common cattail (*Typha latifolia*), slough sedge, giant horsetail (*Equisetum telmateia* var. *braunii*), yellow touch-me-not (*Impatiens noli-tangere*), bulrushes (*Scirpus*), and willowherbs (*Epilobium*).

Wetland B. Wetland B is an approximately 22.2-acre Category/Class II wetland that requires a 75-foot buffer (Section 4 CARL). The wetland consists of forested, scrub-shrub, emergent, and open-water components (Cowardin *et al*. 1979). The forested vegetation consists of Sitka spruce, Douglas-fir, black cottonwood, and red alder in the overstory. Oregon ash, western crabapple, salmonberry, Douglas spiraea, and other shrubs occupy the mid-understory. Slough sedge, trailing blackberry, and sword fern are prominent understory species in most of the forested wetland and adjacent buffer. Scrub-shrub wetland areas are dominated by the same species found in the mid-understory of the forested wetland. The wetland buffers for forested and scrub-shrub areas grade into upland species such as non-native blackberries, red huckleberry, snowberry, Indian plum (*Oemleria cerasiformis*), Nootka rose, and salal (*Gaultheria shallon*).

Wetland B is hydrologically maintained by groundwater and by an unnamed Type-F stream that originates in the extensive upland forest to the north and outside of the action area. During low to normal precipitation, the stream flows southwest toward the existing western culvert within the project area but makes an abrupt greater-than 90-degree bend about 50 feet north of the culvert and flows east into a drainage ditch, eventually infiltrating into the sandy substrate. Apparently, the western culvert receives water and outlets to the Columbia River only during periods of heavy rainfall when water spills out of the ditch at the greater-than 90-degree bend (ELS observations; pers. comm. K. McMurry). The drainage ditch, which has been maintained since at least the 1940s, runs west-east between the western and eastern culverts. Water apparently infiltrates in the drainage ditch.

According to the WDFW Area Habitat Biologist (pers. comm. K. McMurry), the eastern channel is generally dry year-round and does not support fish. In contrast, the western channel contains water seasonally and the culvert is fish passable. Coho salmon, mottled sculpins (*Cottus bairdi*), and three-spine stickle backs (*Gasterosteus aculeatus*) were identified in the channel immediately north of the western culvert during the spring 2001 electrofishing survey conducted by the WDFW Area Habitat Biologist. The coho salmon likely use the area around the western culvert as a refuge during winter storms. Coho salmon were not identified upstream in the channel, beyond the area immediately north of the western culvert, in spring 2001 and winter 2002 electrofishing surveys.

The eastern ditch consists of a monoculture of reed canarygrass with a fringe of Himalayan blackberry and other shrubs. The substrate is grass, and underlying soils have a sandy loam texture. North of the western culvert, the drainage is dominated by reed canarygrass with a

fringe of Himalayan blackberry and red alder. The substrate is grass, and underlying soils have a sandy to sandy loam texture.

Like Wetland A, the overstory canopy of Wetland B is not contiguous and has gaps due to windblown trees and snags. Strong coastal winds and excessively saturated soils likely weakened tree roots and caused the windthrow.

AQUATIC HABITAT

The project is located in the Columbia River estuary, approximately 10 miles from the Pacific Ocean. The elevation of mean sea level (MSL) is at 5 feet, and mean higher high water is at 8.2 feet MSL). Ordinary high water is at approximately 10.0 feet MSL.

Fish Habitat

Columbia River

The Columbia River estuary provides both commercial and recreation fisheries, and serves as a migratory corridor for shorebirds, waterfowl, birds of prey, anadromous fish, and various life stages of pelagic marine species and groundfish. No water-quality impairments are shown on Ecology's *2008 303(d) List* (WDOE 2008)for the onsite streams or for the action area of the Columbia River.

Park – Type-F Streams

Two Type-F streams flow from the north into the project area at the park site. The western Type-F stream flows seasonally into the western outlet channel. During heavy precipitation, the stream flows south and outlets to the Columbia River via the western culvert under the existing highway. During low to normal precipitation, the stream flows south to within about 150 feet of the western culvert, but makes an abrupt greater-than 90-degree bend and flows east in the maintained drainage ditch where it eventually infiltrates, except during high precipitation events. The eastern stream only flows through the culvert beneath the highway during heavy rainfall.

Existing culverts are round, pre-cast concrete culverts at the western and eastern stream crossings beneath Highway 101. The existing western culvert is 24 inches in diameter and 55 feet long, and the existing eastern culvert is 36 inches in diameter and 64 feet long. There is an outfall drop at the western culvert of 2 feet, creating a partial fish-passage barrier, except during high water levels. Culvert slopes are currently 1.61 percent at the western culvert and 0.12 percent for the eastern culvert. According to the *WSDOT Fish Passage Inventory* (WDFW/WSDOT 2008), there are 4,495 and 3,346 linear feet of fish habitat upstream of the western and eastern culverts, respectively.

Coho were previously found in the western stream above the culvert during the electrofishing surveys conducted in spring 2001, but they were not found above the eastern culvert. The channel above the western culvert has water in the rainy season and has documented fish use by coho salmon, mottled sculpins, and three-spine stickle backs in the area immediately north of the culvert (pers. comm. K. McMurry). An electrofishing survey in December 2002 revealed mottled sculpins in the drainage above the western culvert; no other fish species were encountered.

Trail Corridor – Type-N Streams
There are two unnamed Type-N streams along the trail to Fort Columbia. They originate in the extensive upland forest to the north and flow into Wetland A. Both streams are shown as Type-F streams in the lower reaches near Wetland A, and the portions on the steeper slope are shown as Type N (WDNR 2010). Both streams likely have intermittent flow during the dry season in most years. The riparian buffers are vegetated with an overstory consisting primarily of alder, a shrub understory, and herbaceous groundcover.

Wetland A likely drains year-round to the Columbia River through a 24-inch concrete culvert that appears to be fish-passable. During high water events, water from the river may back up into the culvert and enter the open-water component of Wetland A and thus serve as refugia for fish during storms or high-water events in the Columbia River.

NMFS Baseline Condition Summary and Impact Analysis
An evaluation of the baseline environmental conditions for freshwater habitat the project area was conducted for listed salmonids according to *Making Endangered Species Act Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996). The Columbia River is not evaluated using this method, because it is an estuary at the project site and is not fresh water. The western Type-F stream was the only stream evaluated, because it is near the road-widening area and park development. The eastern Type-F stream was not evaluated because it does not flow as often as the western stream, and it is not located near project-impact areas.

The Type-F stream evaluation on the western side of the project site is summarized in Table 4. Several baseline indicators were assessed to determine whether the proposed action would restore, maintain, or degrade existing baseline conditions at the watershed and project-area scales. The evaluation is based on field measurements, review of site and aerial photographs, and consultation with USACE, WDFW, USFWS, and NOAA Fisheries staff (pers. comm. G. Terzi, K. McMurry, N. Brennan-Dubbs, and B. Leonard).

The environmental baseline conditions are “at risk” or “not properly functioning” in many pathways at the project-area scale, including water quality, habitat elements, channel condition and dynamics, flow hydrology, and watershed conditions. The stream has a perched culvert and is “not properly functioning” at the habitat-access pathway. The stream channel within the project area is also “at risk” because the sandy substrate is vegetated with reed canarygrass, and contains no suitable substrate for spawning.

Other habitat elements such as large woody debris, pool frequency pool quality, and off-channel habitat and refugia are “at risk” for the stream because they are lacking in sufficient quality or quantity. Within the channel condition and dynamics pathway, width-to-depth ratio is “properly functioning” for the Type-F stream. The streambank within the project area is vegetated and stable, and therefore “properly functioning” for this indicator. Floodplain connectivity is “not properly functioning” because of reduced linkage to wetlands, floodplains, and riparian areas. The timing of peak/base flows appears unaltered, and this indicator is identified as “properly functioning”. The watershed-condition indicators

are "at risk" because of the highway crossing, a high level of disturbance, and a moderately poor riparian reserves.

At the watershed scale, the project will maintain all pathways and indicators. At the project scale, water-quality indicators could be degraded during construction, but they will be maintained in the long term because any ground disturbance during construction will revegetate and all stormwater runoff from the park will be infiltrated through pervious pavement.

Table 4. National Marine Fisheries Service Environmental Baseline Condition Summary for the Western Type-F Stream by Watershed Scale and Project-Area Scale for Listed Salmonids.

PATHWAYS[1] ▪ Indicators	ENVIRONMENTAL BASELINE			PROJECT EFFECTS AT WATERSHED SCALE			PROJECT EFFECTS AT PROJECT SCALE		
	Properly Functioning	At Risk	Not properly Functioning	Restore	Maintain	Degrade	Restore	Maintain	Degrade
WATER QUALITY ▪ Temperature		X			X			X	
▪ Sediment		X			X			X Long-term	X Short-term
▪ Chemical Contam./Nutrients			X		X			X	X Potentially, short-term
HABITAT ACCESS ▪ Physical Barriers			X		X			X	
HABITAT ELEMENTS ▪ Substrate			X		X			X	
▪ Large Woody Debris		X			X			X	
▪ Pool Frequency		X			X			X	
▪ Pool Quality		X			X			X	
▪ Off-channel Habitat		X			X			X	
▪ Refugia		X			X			X	
CHANNEL CONDITION & DYNAMICS ▪ Width/Depth Ratio	X				X			X	
▪ Streambank Condition	X				X			X	

PATHWAYS[1] ▪ Indicators	ENVIRONMENTAL BASELINE			PROJECT EFFECTS AT WATERSHED SCALE			PROJECT EFFECTS AT PROJECT SCALE		
	Properly Functioning	At Risk	Not properly Functioning	Restore	Maintain	Degrade	Restore	Maintain	Degrade
▪ Floodplain Connectivity			X		X			X	
FLOW HYDROLOGY ▪ Change in Peak/Base Flows	X				X			X	
▪ Drainage Network Increase		X			X			X	
WATERSHED CONDITIONS ▪ Road Density & Location			X		X			X	
▪ Disturbance History		X			X			X	
▪ Riparian Reserves		X			X			X	

[1] Wade, G. 2002. *Salmon and Steelhead Habitat Limiting Factors: Water Resource Inventory Area 25*. Washington State Conservation Commission. Note: this report addresses parts of WRIA 24.

Critical Habitat - Primary Constituent Elements Present in Action Area

Salmon and Steelhead

Onsite streams have not been designated as critical habitat; however, critical habitat has been designated in the Columbia River for 12 ESUs of salmon and steelhead as a rearing/migration corridor. The primary constituent elements (PCEs) addressing estuarine areas of critical habitat include "areas free of obstruction with water quality and quantity, and salinity conditions supporting juvenile and adult physiological transitions between fresh- and saltwater; natural cover and side channels, and juvenile and adult forage, including aquatic invertebrates and fishes, supporting growth and maturation." The shoreline in the action area does not have natural cover or side channels, but the other estuarine PCEs are present.

All but two estuarine PCEs are functioning properly. The exceptions are natural cover and side channels, and juvenile and adult foraging areas. The shoreline has been developed and diked, reducing former floodplain connectivity, wetlands, and side channels that provide juvenile cover and forage. Project effects were discussed in the *Action Area* section of this report. There may be direct effects due to the water-quality PCE to first-flush rainfall events, but no indirect effects to PCEs in the Columbia River are anticipated.

North American Green Sturgeon

Critical habitat has been proposed in the Columbia River from the mouth to Bonneville Dam (Federal Register 2009); this entire reach is considered an estuary. The six primary constituent elements for estuaries are listed below:

1. Food resources, primarily benthic invertebrates and fishes.
2. Water flow (applies only to California).

3. Water quality. Characteristics necessary for normal behavior, growth, and viability of all life stages including temperature, salinity, oxygen, and chemical contaminants.
4. Migratory corridor. Safe and timely passage between riverine, estuarine, and marine habitats.
5. Water depth. A diversity of depths to support different life stages and habitat uses.
6. Sediment quality. Free of elevated levels of chemical contaminants that can cause adverse effects to all life stages.

The following PCEs apply to critical habitat present in the Columbia River and at the project site: food resources, water quality, migratory corridor, water depth, and sediment quality. These PCEs appear to be properly functioning. There may be direct effects to the water-quality PCE due to first-flush rainfall events, but no indirect effects to PCEs in the Columbia River are anticipated.

Bull Trout

Critical habitat has been proposed in the Columbia River from the mouth to Okanogan County (Federal Register 2010). The PCEs for bull trout critical habitat are listed below:

1. Springs, seeps, groundwater sources, and subsurface water connectivity (hyporehic flows) to contribute to water quality and quantity and provide thermal refugia.
2. Migratory habitats with minimal physical, biological, or water quality impediments between spawning, rearing, overwintering, and freshwater and marine foraging habitats, including but not limited to permanent, partial, intermittent, or seasonal barriers.
3. An abundant food base, including terrestrial organisms of riparian origin, aquatic macroinvertebrates, and forage fish.
4. Complex river, stream, lake, reservoir, and marine shoreline aquatic environments and processes with features such as large wood, side channels, pools, undercut banks, and substrates to provide a variety of depths, gradients, velocities, and structure.
5. Water temperatures ranging from 2 to 15 °C (36 to 59 °F) with adequate thermal refugia available for temperatures at the upper end of this range. Specific temperatures within this range will vary depending on bull through life-history stage and form; geography; elevation; diurnal and seasonal variation; shade, such as that provided by riparian habitat; and local groundwater influence.
6. Substrates of sufficient amount, size, and composition to ensure success of egg and embryo overwinter survival, fry emergence, and young-of-the-year and juvenile survival. A minimal amount (e.g., less than 12 percent) of fine substrate less than 0.85 mm (0.03 inches) in diameter and minimize embeddedness of these fines in larger substrates are characteristic of these conditions.
7. A natural hydrograph, including peak, high, low, and base flows within historic and seasonal ranges or, if flows are controlled, they minimize departures from a natural hydrograph.
8. Sufficient water quality and quantity such that normal reproduction, growth, and survival are not inhibited.
9. Few or no nonnative predatory (e.g., lake trout, walleye, northern pike, smallmouth bass); inbreeding (e.g., brook trout); or competitive (e.g., brown trout) species present.

PCEs that apply to estuarine environments are properly functioning, with the exception that the shoreline has been simplified with riprap and wetlands and off-channel areas have largely been eliminated since the 1800s. Also, numerous dams on the river have altered the natural hydrograph. There may be direct effects to the water-quality PCE due to first-flush rainfall events, but no indirect effects to PCEs in the Columbia River are anticipated.

EFFECTS OF THE ACTION

NMFS JURISDICTION

13 ESUs/DPSs of Salmon and Steelhead

Each of the listed 13 ESUs/DPSs of salmon and steelhead occur within the action area for adult migration and juvenile rearing and migration. Effects from construction (May through October) may occur in aquatic habitats during the first-flush rainfall event. Juveniles and adults may be exposed to a minor increase of suspended solids or contaminant releases from work near the western Type-F stream, streams where bridge construction and repair will occur, near Wetland A, or near the Columbia River.

Exposure to increased suspended sediments can have negative, neutral, or beneficial effects, which include gill irritation and reduced visibility. The response of juveniles to increased suspended solids is reduced visibility, which may reduce feeding rates, cause juveniles to feed in other areas, or it can provide visual cover from predators. Increased feeding rates have been observed, presumably because they feel less vulnerable to predators.

Contaminant exposure can cause a wide range of negative effects, including tissue irritation, olfactory alteration, reduced numbers of prey, direct toxic effects, or toxic effects from bioaccumulation in the food chain. Responses to contaminant exposure include avoidance of contaminated areas, behavioral effects, illness, and death. Impact-minimization measures for construction equipment maintenance, fueling, and operation will be implemented, and construction BMPs will reduce the potential for suspended sediment or contaminant releases.

All ESUs/DPSs could be in the Columbia River during the May through October construction season. Juvenile coho are likely to be in Wetland A year round and in the western Type-F stream if river levels are high.

Direct effects to adult and juvenile salmon and steelhead and their prey will be insignificant for the following reasons:

- Increased suspended-solids concentrations are only expected during the first-flush rainfall event and will not likely reach the Columbia River.
- The chance of chemical contamination is low because impact-minimization measures will be in place and construction will occur during the dry season.
- Bridge construction and repair will not occur below OHWM.
- The Columbia River estuary is a large waterbody, and a small amount of suspended solids that may occur during the project or after the first flush will dissipate quickly.

There will be no adverse, indirect effects to juvenile or adult salmon and steelhead as a result of increased use of the project area. Pervious paved surfaces will infiltrate all stormwater from pollution-generating surfaces.

Designated Critical Habitat – Salmon and Steelhead - 12 ESUs/DPSs

There is designated critical habitat in the Columbia River, adjacent to the proposed park. PCEs in estuarine areas are "areas free of obstruction, with water quantity and quality conditions, and salinity conditions supporting juvenile and adult physiological transitions between fresh and saltwater; natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, and side channels; and juvenile and adult forage, including aquatic invertebrates and fishes supporting growth and maturation." The shoreline of the action area currently does not have natural cover and does not have side channels, but the other estuarine PCEs are present.

The project will have no effect on the following PCEs: areas free from obstruction, water quantity, salinity, and forage for juveniles and adults. The project may adversely affect the water-quality PCE from construction stormwater runoff containing pollutants from construction-equipment leaks or suspended sediments. Impact-minimization measures for construction equipment maintenance, fueling, and operation will be implemented, and construction BMPs will reduce the potential for suspended sediment or contaminant releases.

Direct effects to the water-quality PCE will be insignificant for the following reasons:

- Increased suspended solids during a first-flush rain event will be temporary and will not likely reach the Columbia River.
- The chance of chemical contamination is low because impact-minimization measures will be in place and construction will occur during the dry season.
- Bridge construction and repair will not occur below OHWM.
- The Columbia River estuary is a large waterbody, and a small amount of suspended solids that may occur during the project or after the first flush will dissipate quickly.

There will be no adverse, indirect effects to salmon and steelhead PCEs as a result of increased use of the project area. Pervious paved surfaces will infiltrate all stormwater from pollution-generating surfaces.

North American Green Sturgeon – Southern DPS

The Southern DPS of North American green sturgeon occur in the Columbia River estuary during summer and early fall as subadults and adults. Effects from construction may occur in aquatic habitats during the first-flush rainfall event, causing a minor increase of suspended solids or contaminant releases from work near the western Type-F stream, streams where bridge construction and repair will occur, near Wetland A, or near the Columbia River.

Exposure to increased suspended sediments may include gill irritation or reduced visibility. The response of green sturgeon to increased suspended sediments may include reduced feeding rates, they may move to other areas, or it may provide visual cover from predators.

Contaminant exposure can cause a wide range of negative effects, including tissue irritation, olfactory alteration, reduced numbers of prey, direct toxic effects, or toxic effects from bioaccumulation in the food chain. Responses to contaminant exposure include avoidance of contaminated areas, behavioral effects, illness, and death. Impact-minimization measures for construction equipment maintenance, fueling, and operation will be implemented, and construction BMPs will reduce the potential for suspended sediment or contaminant releases.

Direct effects to green sturgeon and their prey will be insignificant for the following reasons:

- Increased suspended solids during a first-flush rain event will be temporary and will not likely reach the Columbia River.
- The chance of chemical contamination is low because impact-minimization measures will be in place and construction will occur during the dry season.
- Bridge construction and repair will not occur below OHWM.
- The Columbia River estuary is a large waterbody, and a small amount of suspended solids that may occur during the project or after the first flush will dissipate quickly.

There will be no adverse, indirect effects to juvenile or adult salmon and steelhead as a result of increased use of the project area. Pervious paved surfaces will infiltrate all stormwater from pollution-generating surfaces.

Designated Critical Habitat – North American Green Sturgeon – Southern DPS

Critical habitat has been designated in the Columbia River adjacent to this site. The following PCEs apply to critical habitat present in the Columbia River and at the project site: food resources, water quality, migratory corridor, water depth, and sediment quality.

The project will have no effect on the migratory corridor, water depth, and sediment quality PCEs. The project may adversely affect water quality from construction stormwater runoff containing pollutants from construction-equipment leaks or suspended sediments. Impact-minimization measures for construction equipment maintenance, fueling, and operation will be implemented, and construction BMPs will reduce the potential for suspended sediments releases. Temporary effects to the water-quality PCE may also affect the food-resources PCE.

Direct effects to the water-quality PCE will be insignificant for the following reasons:

- Increased suspended solids during a first-flush rain event will be temporary and will not likely reach the Columbia River.
- The chance of chemical contamination is low because impact-minimization measures will be in place and construction will occur during the dry season.
- Bridge construction and repair will not occur below OHWM.
- The Columbia River estuary is a large waterbody, and a small amount of suspended solids that may occur during the project or after the first flush will dissipate quickly.

There will be no adverse, indirect effects to the water-quality or food-resources PCEs as a result of increased use of the project area. Pervious paved surfaces will infiltrate all stormwater from pollution-generating surfaces.

Columbia River Smelt – Southern DPS

Columbia River smelt spawn in freshwater in the mainstem Columbia River and some of its major tributaries in winter. Larvae float downstream to the estuary for rearing. Available life-history information is unclear about how long juveniles rear in the estuary.

Effects from construction may occur in aquatic habitats during the first-flush rainfall event in summer through fall, causing a minor increase of suspended solids or contaminant releases from work near the western Type-F stream, streams where bridge construction and repair will occur, near Wetland A, or near the Columbia River. Adults and larvae will not be in the action area until winter, when no project effects are anticipated.

Exposure of smelt juveniles to increased suspended sediments are expected to be similar to salmon and steelhead juveniles, which may include tissue irritation or reduced visibility. The response of individuals in these life stages may include reduced feeding rates, may cause them to move to other areas, or it may provide visual cover from predators.

Contaminant exposure will likely cause a wide range of effects, as they do in salmon and steelhead. Exposure may include tissue irritation, olfactory alteration, reduced numbers of prey, direct toxic effects, or toxic effects from bioaccumulation in the food chain. Responses to contaminant exposure include avoidance of contaminated areas, behavioral effects, illness, and death. Impact-minimization measures for construction equipment maintenance, fueling, and operation will be implemented, and construction BMPs will reduce the potential for suspended sediment or contaminant releases.

Direct effects to smelt and their prey will be insignificant for the following reasons:

- First-flush events will not occur during the winter, so there will be no effects to smelt adults or larvae.
- Increased suspended-solids concentrations are only expected during the first-flush rainfall event, which will not likely reach the Columbia River.
- The chance of chemical contamination is low because impact-minimization measures will be in place and construction will occur during the dry season.
- Bridge construction and repair will not occur below OHWM.
- The Columbia River estuary is a large waterbody, so a small amount of suspended solids that may occur during the project or after the first flush will dissipate quickly.

There will be no adverse, indirect effects to larvae, juvenile, or adult smelt as a result of increased use of the project area. Pervious paved surfaces will infiltrate all stormwater from pollution-generating surfaces.

Steller Sea Lions

Steller sea lions may forage within the action area, so they may be exposed to increased suspended sediments from construction runoff or pollutants from construction equipment if they reach the Columbia River. Impact-minimization measures for construction equipment maintenance, fueling, and operation will be implemented, and stormwater BMPs will reduce suspended sediments from the site. Additionally, the Columbia River estuary is a large

waterbody, and a small amount of suspended solids that may occur during construction or after the first-flush rainfall will dissipate quickly.

Exposure to increased suspended sediments may include tissue irritation and reduced visibility. The primary response of sea lions to increased suspended solids is likely reduced visibility, which may reduce feeding rates or cause them to forage in other areas.

Contaminant exposure can cause a wide range of negative effects, including tissue irritation, olfactory alteration, reduced numbers of prey, direct toxic effects, or toxic effects from bioaccumulation in the food chain. Responses to contaminant exposure include avoidance of contaminated areas, behavioral effects, illness, and death. Impact-minimization measures for construction-equipment maintenance, fueling, and operation will be implemented, and construction BMPs will reduce the potential for contaminant releases.

Direct effects to sea lions and their prey will be insignificant for the following reasons:

- First-flush events will not occur during the winter when Steller sea lions are most likely to be present.
- Increased suspended-solids concentrations are only expected during the first-flush rainfall event, which will not likely reach the Columbia River.
- The chance of chemical contamination is low because impact-minimization measures will be in place and construction will occur during the dry season.
- Bridge construction and repair will not occur below OHWM.
- The Columbia River estuary is a large waterbody, so a small amount of suspended solids that may occur during the project or after the first flush will dissipate quickly.

There will be no adverse, indirect effects to Steller sea lions as a result of increased use of the project area. Pervious paved surfaces will infiltrate all stormwater from pollution-generating surfaces.

USFWS JURISDICTION

Bull Trout

Adult or subadult bull trout may be overwintering, migrating, or foraging in the Columbia River in the action area, so they may be exposed to increased suspended sediments from construction runoff or pollutants from construction equipment. Impact-minimization measures for construction equipment maintenance, fueling, and operation will be implemented, and stormwater BMPs will reduce suspended sediments from the site.

Exposure to increased suspended sediments will likely include tissue irritation and reduced visibility, but it can also provide cover from predators. The primary response of bull trout to increased suspended solids is likely reduced visibility, which may reduce feeding rates, cause them to forage in other areas, or result in greater survival from predator attacks.

Contaminant exposure can cause a wide range of negative effects, including tissue irritation, olfactory alteration, reduced prey numbers, direct toxic effects, or toxic effects from bioaccumulation in the food chain. Responses to contaminant exposure include avoidance of

contaminated areas, behavioral effects, illness, and death. However, this project is expected to produce little or no contaminants during construction.

Direct effects to bull trout and their prey will be insignificant for the following reasons:

- Increased suspended solids during a first-flush rain event will be temporary and will not likely reach the Columbia River.
- The chance of chemical contamination is low because impact-minimization measures will be in place and construction will occur during the dry season.
- Bridge construction and repair will not occur below OHWM.
- The Columbia River estuary is a large waterbody, and a small amount of suspended solids that may occur during the project or after the first flush will dissipate quickly.

There will be no adverse, indirect effects to bull trout as a result of increased use of the project area. Pervious paved surfaces will infiltrate all stormwater from pollution-generating surfaces.

Proposed Critical Habitat – Bull Trout – Columbia River DPS

Critical habitat has been proposed in the Columbia River adjacent to this site. PCEs have been specified for currently designated critical habitat, and they are likely to remain the same for any revised designations.

The following PCEs apply to critical habitat present in the Columbia River estuary in the action area: impediments between habitats; food resources; habitat diversity; natural hydrograph; sufficient water quality and quantity; and nonnative predators, inbreeding, or competitive species present.

The project will have no effect on the PCEs regarding impediments between habitats; habitat diversity; natural hydrograph; and nonnative predators, inbreeding, or competitive species present. The project may adversely affect the water-quality PCE and the food-resources PCE from construction stormwater runoff containing pollutants from construction-equipment leaks or suspended sediments. Impact-minimization measures for construction equipment maintenance, fueling, and operation will be implemented, and construction BMPs will reduce the potential for suspended sediments releases that could temporarily affect the PCE that addresses sufficient water quality and quantity;. Temporary effects to the water-quality PCE may also affect the food-resources PCE.

Direct effects to the water-quality and food-resources PCEs will be insignificant for the following reasons:

- Increased suspended solids during a first-flush rain event will be temporary and will not likely reach Wetland A or the Columbia River.
- The chance of chemical contamination is low because impact-minimization measures will be in place and construction will occur during the dry season.
- Bridge construction and repair will not occur below OHWM.
- The Columbia River estuary is a large waterbody, and a small amount of suspended solids that may occur during the project or after the first flush will dissipate quickly.

There will be no adverse, indirect effects to the water-quality or food-resources PCEs as a result of increased use of the project area. Pervious paved surfaces will infiltrate all stormwater from pollution-generating surfaces.

Marbled Murrelets

As stated above, the trail on Fort Columbia State Park property is on the edge of a forested area has been identified by USFWS representatives to meet the criteria for suitable marbled-murrelet habitat is located near the portion of. An increased level of noise and human activity will take place along the trail connecting the parks. After project construction, human disturbance from pedestrians and bicycle traffic will be above the forested background noise level, and is estimated to carry 300 feet from the trail before the noise attenuates to background conditions. The WDFW Priority Habitats and Species map shows a marbled-murrelet occupancy site that is farther than 300 feet from the trail.

The USFWS *Recovery Plan for the Threatened Marbled Murrelet* (1997) does not advise specific management guidelines, such as buffers or timing restrictions for marbled murrelets. Instead, the Recovery Plan identifies that the decline in murrelets appears largely due to 1) loss of old-growth forest, nesting habitat, and direct loss and changes in forest-age distribution, and 2) poor reproductive success in the remaining habitat because of increased vulnerability of nests to predators in highly fragmented landscapes.

According to the WDFW *Management Recommendations for Washington's Priority Habitats and Species* (Rodrick and Milner 1991), a 0.5-mile radius buffer is an appropriate distance between construction activities and marbled-murrelet occupancy sites. This distance was suggested before noise-attenuation calculations were used to predict noise from specific types of construction equipment under different site conditions.

Noise calculations discussed in the *Action Area* section of this report stated that noise from culvert removal and bridge construction will attenuate to the estimated background noise level of 38 dBA at a distance of 1,600 feet (0.3 miles) from the activity. This distance includes the occupancy site and suitable habitat as identified by USFWS representatives in 2003. For this reason, the following impact-minimization measure will be followed for construction work along the trail: during the critical marbled-murrelet nesting season, between April 1 and September 15, construction work and chain-saw maintenance tasks on the trail to Fort Columbia will <u>not</u> take place during the following times: one hour before official sunrise until two hours after official sunrise, and one hour before official sunset until one hour after official sunset.

Marbled murrelets may nest or roost in mature forested areas on the edge of the action area near the trail to Fort Columbia, so they may be exposed to direct effects during construction from visual and noise disturbances during the nesting season; however, the project is not between nesting sites and marine-foraging areas, so these impacts will be smaller than if murrelets had to cross the project area. Because nesting habitat is on the edge of the action area, and there are other noise and visual disturbances from the highway, residences, and Fort Columbia, the likelihood of delayed or missed feedings of young murrelets is judged to

be small. The overall anticipated response of murrelets is no change in behavior. Because disturbances to nesting behavior could occur, but is not likely to occur, direct effects to murrelets are considered insignificant.

Northern Spotted Owls
Northern spotted owls may use suitable nesting and roosting habitat on Fort Columbia State Park property near the western portion of the trail. Dispersal and foraging habitat also occurs within the state park and may also occur near or within the Station Camp – Middle Village Park. Currently, there is suitable foraging habitat in the action area, and there are other noise and visual disturbances from the highway, residences, Fort Columbia, and the existing trail.

Direct effects from bridge construction and repair include increased noise for a 1,600-foot radius from the pedestrian trail. This area includes dispersal and foraging habitat, and may include suitable nesting and roosting habitat.

During and after construction, there will be an increase of human activity in the park and along the trail, indirect effects from visual and noise disturbances may occur during the daytime when the park and trail are being used. Construction will take place from May to October, and the early breeding season for northern spotted owls is March 1 through July 15, and the breeding season is October 1 through February 28 (WSDOT 2010).

The owls may also react to the increased daytime activity by adjusting their use of the park and vicinity to times when there are no visitors. Their response to increased activity along the trail may be to avoid the area. However, northern spotted owls are known to be less disturbed by human presence than many species. Humans can walk to within several feet of northern spotted owls before they fly away (Thomas *et al* 1990).

Because owls are less susceptible to human presence, there is currently human presence in these areas, owls are more active at night, and the park and trail will be open only during the day, the likelihood of significantly impacting nesting, roosting, dispersal, or foraging habitat is judged to be small. Therefore, direct and indirect effects of the proposed project to northern spotted owls are considered insignificant.

EFFECT DETERMINATIONS

Effect determinations below include a summary of direct, indirect, and beneficial effects to species and critical habitat discussed earlier.

NMFS JURISDICTION

13 ESUs/DPSs of Salmon and Steelhead
The project **may affect, but is not likely to adversely affect** salmon and steelhead. A "**may affect**" determination is warranted because: juveniles and adults may be exposed to the following adverse effects:

- In the Columbia River estuary during the construction period, juveniles could be migrating or rearing, and adults could be migrating through the action area.

Construction could cause temporary increases of suspended solids from exposed soils or chemicals from heavy equipment.

- Juveniles from any of the 13 ESUs/DPSs may be using Wetland A as off-channel habitat during bridge construction and repair. Juvenile coho may also be rearing in Wetland A. Construction could cause temporary increases of suspended solids from exposed soils or chemicals from heavy equipment.
- Juveniles from any of the 13 ESUs/DPSs may be using the western Type-F stream or parts of Wetland B for off-channel rearing if river levels are high during construction. Construction could cause temporary increases of suspended solids from exposed soils or chemicals from heavy-equipment leaks.

A "**not likely to adversely affect**" determination is warranted because:

- There will be no indirect effects to aquatic habitats, because all stormwater will be infiltrated and no restroom facilities will be added.
- Impact-minimization measures for construction equipment maintenance, fueling, and operation will be implemented, and stormwater BMPs will reduce suspended-sediment releases or heavy-equipment leaks from the site.
- Increased suspended-solids concentrations or heavy-equipment leaks are only expected during the first-flush rainfall event and will not likely reach the Columbia River.
- Bridge construction and repair will not occur below OHWM.
- The Columbia River estuary is a large waterbody, and a small amount of suspended solids or chemicals that may occur during the project or after the first flush will dissipate quickly.

Designated Critical Habitat for 12 ESUs/DPSs of Salmon and Steelhead

The project **may affect, but is not likely to adversely affect** 12 ESUs/DPS of designated critical habitat for salmon and steelhead. A "**may affect**" determination is warranted because:

- The project may directly affect the water-quality PCE from construction stormwater runoff containing pollutants from construction-equipment leaks or suspended solids.

A "**not likely to adversely affect**" determination is warranted because:

- There will be no indirect effects to aquatic habitats, because all stormwater will be infiltrated and no restroom facilities will be added.
- Impact-minimization measures for construction equipment maintenance, fueling, and operation will be implemented, and stormwater BMPs will reduce suspended-sediment releases or heavy-equipment leaks from the site.
- Increased suspended-solids concentrations or heavy-equipment leaks are only expected during the first-flush rainfall event and will not likely reach the Columbia River.
- Bridge construction and repair will not occur below OHWM.
- The Columbia River estuary is a large waterbody, and a small amount of suspended solids or chemicals that may occur during the project or after the first flush will dissipate quickly.

- There will be no adverse, indirect effects as a result of increased use of the project area. Pervious paved surfaces will infiltrate all stormwater from pollution-generating surfaces.

North American Green Sturgeon – Southern DPS

The project **may affect, but is not likely to adversely affect** green sturgeon. A "**may affect**" determination is warranted because:

- The action area includes suitable foraging and over-summering habitat for subadult and adult green sturgeon during the construction period.
- The project may directly affect water quality from construction stormwater runoff containing pollutants from construction-equipment leaks or suspended solid increases.

A "**not likely to adversely affect**" determination is warranted because:

- There will be no indirect effects to aquatic habitats, because all stormwater will be infiltrated and no restroom facilities will be added.
- Impact-minimization measures for construction equipment maintenance, fueling, and operation will be implemented, and stormwater BMPs will reduce suspended-sediment releases or heavy-equipment leaks from the site.
- Increased suspended-solids concentrations or heavy-equipment leaks are only expected during the first-flush rainfall event and will not likely reach the Columbia River.
- Bridge construction and repair will not occur below OHWM.
- The Columbia River estuary is a large waterbody, and a small amount of suspended solids or chemicals that may occur during the project or after the first flush will dissipate quickly.

Designated Critical Habitat for North American Green Sturgeon – Southern DPS

The project **may affect, but is not likely to adversely affect** designated critical habitat for the green sturgeon. A "**may affect**" determination is warranted because:

- The project may directly affect the water-quality PCE from construction stormwater runoff containing pollutants from construction-equipment leaks or suspended solids.

A "**not likely to adversely affect**" determination is warranted because:

- There will be no indirect effects to aquatic habitats, because all stormwater will be infiltrated and no restroom facilities will be added.
- Impact-minimization measures for construction equipment maintenance, fueling, and operation will be implemented, and stormwater BMPs will reduce suspended-sediment releases or heavy-equipment leaks from the site.
- Increased suspended-solids concentrations or heavy-equipment leaks are only expected during the first-flush rainfall event and will not likely reach the Columbia River.
- Bridge construction and repair will not occur below OHWM.

- The Columbia River estuary is a large waterbody, and a small amount of suspended solids or chemicals that may occur during the project or after the first flush will dissipate quickly.

Steller Sea Lions

The project **may affect, but is not likely to adversely affect** Steller sea lions. A "**may affect**" determination is warranted because:

- The action area includes suitable foraging habitat for Steller sea lions.
- The project may directly affect water quality from construction stormwater runoff containing pollutants from construction-equipment leaks or increased suspended solids.

A "**not likely to adversely affect**" determination is warranted because:

- There will be no indirect effects to aquatic habitats, because all stormwater will be infiltrated and no restroom facilities will be added.
- Impact-minimization measures for construction equipment maintenance, fueling, and operation will be implemented, and stormwater BMPs will reduce suspended-sediment releases or heavy-equipment leaks from the site.
- Increased suspended-solids concentrations or heavy-equipment leaks are only expected during the first-flush rainfall event and will not likely reach the Columbia River.
- Bridge construction and repair will not occur below OHWM.
- The Columbia River estuary is a large waterbody, and a small amount of suspended solids or chemicals that may occur during the project or after the first flush will dissipate quickly.

USFWS JURISDICTION

Bull Trout – Columbia River DPS

The project **may affect, but is not likely to adversely affect** bull trout. A "**may affect**" determination is warranted because:

- The action area includes suitable foraging, overwintering, and migration habitat for adult and sub-adult bull trout during the construction period.
- The project may directly affect water quality from construction stormwater runoff containing pollutants from construction-equipment leaks or increased suspended solids.

A "**not likely to adversely affect**" determination is warranted because:

- Bull trout are rare in the Columbia River.
- There will be no indirect effects to aquatic habitats, because all stormwater will be infiltrated and no restroom facilities will be added.
- Impact-minimization measures for construction equipment maintenance, fueling, and operation will be implemented, and stormwater BMPs will reduce suspended-sediment releases or heavy-equipment leaks from the site.

- Increased suspended-solids concentrations or heavy-equipment leaks are only expected during the first-flush rainfall event and will not likely reach the Columbia River.
- Bridge construction and repair will not occur below OHWM.
- The Columbia River estuary is a large waterbody, and a small amount of suspended solids or chemicals that may occur during the project or after the first flush will dissipate quickly.

Proposed Critical Habitat for Bull Trout – Columbia River DPS

The project may directly affect the water-quality and food-resources PCEs from construction stormwater runoff containing pollutants from construction-equipment leaks or suspended solids; however, it **is not likely to destroy or adversely modify** proposed critical habitat for bull trout. This determination is warranted because:

- There will be no indirect effects to aquatic habitats, because all stormwater will be infiltrated and no restroom facilities will be added.
- Impact-minimization measures for construction equipment maintenance, fueling, and operation will be implemented, and stormwater BMPs will reduce suspended-sediment releases or heavy-equipment leaks from the site.
- Increased suspended-solids concentrations or heavy-equipment leaks are only expected during the first-flush rainfall event and will not likely reach the Columbia River.
- Bridge construction and repair will not occur below OHWM.
- The Columbia River estuary is a large waterbody, and a small amount of suspended solids or chemicals that may occur during the project or after the first flush will dissipate quickly.

Marbled Murrelets

The project **may affect, but is not likely to adversely affect** marbled murrelets. A "**may affect**" determination is warranted because:

- The western edge of the action area may contain suitable nesting and roosting habitat.
- There will be increased disturbances from visual and atmospheric-noise levels from construction and possibly from permanent increases in public use during the daytime.

A "**not likely to adversely affect**" determination is warranted because:

- Murrelets will not have to fly through or around the action area or project area between marine-foraging areas and nesting areas.
- The pedestrian trail near suitable habitat is currently in use.
- Potential nesting areas are at the outer edge of the action area, so effects will be insignificant.
- Long-term indirect effects may or may not occur from increased public use and they will only occur during the daytime when the park is open.

Northern Spotted Owl

The project **may affect, but is not likely to adversely affect** northern spotted owls. A "**may affect**" determination is warranted because:

- The western edge of the action area may contain suitable nesting and roosting habitat.
- The project site and pedestrian trail may currently be used for foraging and dispersal habitat
- There will be increased disturbances from visual and atmospheric-noise levels from construction and possibly from permanent increases in public use during the daytime.

A "**not likely to adversely affect**" determination is warranted because:

- Potential nesting and roosting areas are at the outer edge of the action area, so effects will be insignificant.
- Long-term effects may or may not occur from increased public use and they would only occur during the daytime when the park is open.
- These areas currently experience human activity and noise.

SUMMARY

The project **may affect, but is not likely to adversely affect** the following species and critical habitat:

- 13 ESUs/DPSs of Salmon and Steelhead
- Designated Critical Habitat for 12 ESUs/DPSs of Salmon and Steelhead
- North American Green Sturgeon – Southern DPS
- Designated Critical Habitat for North American Green Sturgeon – Southern DPS
- Columbia River Smelt (Eulachon) – Southern DPS
- Steller Sea Lions
- Bull Trout – Columbia River DPS
- Marbled Murrelets
- Northern Spotted Owls

The project **will not destroy or adversely affect** proposed critical habitat for bull trout.

If bull trout critical habitat is designated prior to consultation completion, the project **may affect, but is not likely to adversely affect** designated bull trout critical habitat.

On the basis of direct effects to EFH in freshwater and estuarine habitats, this project will **not adversely affect EFH for Pacific salmon, Pacific groundfish, or coastal pelagic fisheries** (see Appendix C for the analysis).

REFERENCES

Alaska Sea Otter and Steller Sea Lion Commission. 2006. *Steller Sea Lions*. http://www.seaotter-sealion.org/stellersealion/factsssl.html. Web site accessed May 27, 2006.

Columbia Diachronic Services. 2002. *Draft Management Summary: Archaeological Survey and Test Excavations at Lewis and Clark's "Station Camp."* Prepared for the National Park Service. U.S. Department of the Interior.

Cowardin, L.M., C. Carter, F. Golet, and E. Laroe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States.* FWS/OBS-78/31. U.S. Department of the Interior, Fish and Wildlife Service, Office of Biological Services, Washington D.C.

Ecological Land Services, Inc. (ELS). 2010. *Vegetation Management Plan for Station Camp – Middle Village Park.* Prepared for the Washington State Historical Society. August.

Ecological Land Services, Inc. (ELS). 2003. *Biological Assessment for Station Camp*. Prepared for the Washington Department of General Administration on behalf of the Washington State Historical Society. Longview, Washington. May.

Federal Register. 2010. *Endangered and Threatened Wildlife and Plants; Revised Designation of Critical Habitat for Bull Trout in the Coterminous United States; Proposed Rules*. Federal Register Volume 75 Number 9. Department of the Interior. Fish and Wildlife Service. Pages 2270-2417.

Federal Register. 2009. *Proposed Threatened Status for Southern Distinct Population Segment of Eulachon*. 50 CFR Part 223 Volume 74 Number 48. National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA). Pages 10857-10876. March 13.

Federal Register. 2009. *Final Rulemaking to Designate Critical Habitat for the Threatened Southern Distinct Population Segment of North American Green Sturgeon*. 50 CFR Part 226 Volume 74 Number 195. National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA). Pages 52300-52351. October 9.

Federal Register. 2008a. *Revised Critical Habitat for the Marbled Murrelet (Brachyramphus marmoratus). Proposed Rule.* 50 CFR Part 17. Federal Register Volume 73 Number 148. Pages 44678-44701. July 31.

Federal Register. 2008b. *Revised Designation of Critical Habitat for the Northern Spotted Owl; Final Review*. 50 CFR Part 17. Federal Register Volume 73 Number 157. Pages 47326-47522. August 13.

Federal Register. 2006. *Threatened Status for Southern Distinct Population Segment of North American Green Sturgeon; Final Rule.* Volume 71, Number 67. April 7. Pages 17757-17766.

Federal Register. 2005a. *Designation of Critical Habitat for 12 Evolutionarily Significant Units of West Coast Salmon and Steelhead in Washington, Oregon, and Idaho; Final Rule.* Volume 20, Number 65. September 2.

Federal Register. 2005b. *Proposed Threatened Status for Southern Distinct Population Segment of North American Green Sturgeon; Final Rule.* Vol. 20, No. 65. April 6.

Federal Register. 2005c. *Designation of Critical Habitat for Bull Trout; Final Rule. 50* CFR Part 17, Volume 70, Number 185. U.S. Fish and Wildlife Service. September 26.

Federal Register. 1999. *Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for Bull Trout in the Coterminous United States; Final Rule*. Federal Register Volume 64 Number 210. Fish and Wildlife Service. Pages 58909-58933.

Federal Register. 1996. *Endangered and Threatened Wildlife and Plants; Final Designation of Critical Habitat for the Marbled Murrelet*; *Final Rule*. Fish and Wildlife Service. Federal Register Volume 61 Number 102. Pages 26255-26320.

Federal Register. 1992a. *Determination of Threatened Status for the Washington, Oregon, and California Population of the Marbled Murrelet; Final Rule.* Federal Register Volume 57 Number 191. Fish and Wildlife Service. Pages 45328-45337. October 1.

Federal Register. 1992b. *Endangered and Threatened Wildlife and Plants; Determination of Critical Habitat for the Northern Spotted Owl.* Volume 57 Number 10. Pages 1796-1838. U.S. Fish and Wildlife Service. January 15.

Hruby. T. 2004. *Wetland Rating System for Western Washington (Revised).* Washington State Department of Ecology. Publication #04-06-025. Olympia, Washington.

Jeffries, S.J., P.J. Gerin, H.R. Huber, D.L. Saul. 2000. *Atlas of Seal and Sea Lion Haulout Sites in Washington.* Washington Department of Fish and Wildlife, Wildlife Science Division. Olympia, Washington. February.

Lower Columbia Fish Recovery Board. 2004. *Lower Columbia Salmon Recovery and Fish and Wildlife Subbasin Plan. Volume II - Subbasin Plan. Chapter A - Lower Columbia Mainstem and Estuary*. Longview, Washington. December 15.

National Marine Fisheries Service (NMFS). 2008a. *Endangered Species Act Status of West Coast Salmon and Steelhead.* February 26, 2008. Online document http://www.nwr.noaa.gov. Accessed August 6, 2008.

National Marine Fisheries Service (NMFS). 2008b. *Steller Sea Lion Critical Habitat and No-Entry Zones.* Online document http://www.fakr.noaa.gov/protectedresources/stellers/habitat.htm accessed August 19, 2008.

National Marine Fisheries Service (NMFS). 2008c. *Recovery Plan for the Steller Sea Lion (Eumetopias jubatus). Revision*. Silver Spring, Maryland. March.

National Marine Fisheries Service (NMFS). 2007. *Green Sturgeon ESA Questions and Answers*. Online document http://swr.nmfs.noaa.gov/pdf/20060411_ESA_Questions.pdf. Accessed September 18, 2007.

National Marine Fisheries Service. (NMFS). 2005a. *Endangered Species Act – Section 7 Consultation Biological Opinion and Conference Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for Reinitiation of Columbia River Federal Navigation Channel Improvements Project.* (channel-deepening project) 2004/01612. Portland Oregon. February 16.

National Marine Fisheries Service. (NMFS). 2005b. *Endangered Species Act – Section 7 Consultation Biological Opinion and Conference Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation Biological Opinion and Conference Opinion for Columbia River Channel Operations and Maintenance Program. Columbia River Basin. Mouth of the Columbia River to Bonneville Dam*. 2004/01041. Portland Oregon. March 11.

National Marine Fisheries Service (NMFS). 1996. *Making Endangered Species Act Determinations of Effect for Individual or Grouped Actions at the Watershed Scale*. Environmental and Technical Services Division. August.

National Ocean Service. 1991. *River Cruising Atlas*: Columbia, Snake, Willamette. Evergreen Pacific Publishing, Seattle, Washington.

North Pacific Universities Marine Mammal and Research Consortium. 2006. *Steller Sea Lion Biology*. http://www.marinemammal.org/steller_sea_lion/fastfacts.php. Web site accessed May 27, 2006.

Pacific County. 2000. *Pacific County Shoreline Master Program*. Pacific County, Washington.

Pacific County. 1998. *Comprehensive Plan*. Pacific County, Washington.

Pacific County. 1999. Section 4 – *Critical Areas and Resource Lands (CARL) Ordinance* 147. Pacific County, Washington.

Pacific Fisheries Management Council (PFMC). 1999. *Amendment 14 to the Pacific Coast Salmon Plan: Appendix A: Description and Identification of Essential Fish Habitat,*

Adverse Impacts, and Recommended Conservation Measures for Salmon. Portland Oregon.

Pacific Fisheries Management Council (PFMC). 1998a. *The Coastal Pelagic Species Fishery Management Plan: Amendment 8.*

Pacific Fisheries Management Council (PFMC). 1998b. *Final Environmental Assessment/ Regulatory Review for Amendment 11 to the Pacific Coast Groundfish Fishery Management Plan.*

Ralph, C.J., G.L. Hunt, Jr., M.G. Raphael, and J.F. Piatt. 1995. *Ecology and Conservation of the Marbled Murrelet in North America: An Overview*. *In* C.J. Ralph, C.L. Hunt, Jr., M.G. Raphael, and J.F. Piatt, eds. Ecology and Conservation of the Marbled Murrelet. U.S.D.A. Forest Service General Technical Report PSW-152. Pacific Southwest Research, Albany, California.

Rodrick, E. and R. Milner, eds. 1991. *Management Recommendations for Washington's Priority Habitats and Species*. Washington Department of Wildlife, Wildlife Management, Fish Management, and Habitat Management Divisions, Olympia, Washington.

Thomas, J.W., Forsman, K., Ling, J., Meslow, E, Noon, B, Verner, J. 1990. *A Conservation Strategy for the Northern Spotted Owl*. Portland, Oregon.

U.S. Army Corps of Engineers (USACE). 2001. *Biological Assessment – Columbia River Channel Improvements Project*. December 28.

U.S. Fish and Wildlife Service (USFWS). 2008. *North American Green Sturgeon Species Profile.* Online information at http://ecos.fws.gov/speciesProfile/SpeciesReport.do? spcode =E09K. Accessed August 18.

U.S. Fish and Wildlife Service (USFWS). 2007. *Listed and Proposed Endangered and Threatened Species and Critical Habitat: Candidate Species: and Species of Concern in Western Washington. Pacific County.* Revised November 1, 2007. Web site accessed May 17, 2010. http://www.fws.gov/westwafwo/se/SE_List/endangered_Species.asp.

U.S. Fish and Wildlife Service (USFWS). 2004. *Draft Recovery Plan for the Coastal-Puget Sound Distinct Population Segment of Bull Trout (Salvelinus confluentus). Volume II* of (II): Olympic Peninsula Management Unit. Region 1. Portland, Oregon. July.

U.S. Fish and Wildlife Service (USFWS). 2002. *Biological and Conference Opinions for the Columbia River Channel Improvements Project.* Portland, Oregon. May 20.

U.S. Department of the Interior, Fish and Wildlife Service (USFWS). 1997. *Recovery Plan for the Threatened Marbled Murrelet (Brachyramphus marmoratus*) in Washington, Oregon, and California. U.S. Fish and Wildlife Service, Portland, Oregon. September 24.

Varoujean, D.H. and W.A. Williams. 1995. *Abundance and Distribution of Marbled Murrelets in Oregon and Washington Based on Aerial Surveys. In* C.J. Ralph, G.L. Hunt, Jr., M.G. Raphael, and J.F. Piatt, techn. eds. Ecology and Conservation of the Marbled Murrelet. USDA Forest Service General Technical Report PSW-GTR-152. Pacific Southwest Research Station, Albany, California.

Wade, Gary. 2002. *Salmon and Steelhead Habitat Limiting Factors Analysis for WRIA 25, Grays-Elochoman Rivers.* Washington State Conservation Commission.

Washington Department of Ecology (Ecology). 2008. *303(d) List*. http://apps.ecy.wa.gov/wqawa/viewer.htm accessed May 17, 2010.

Washington Department of Fish and Wildlife (WDFW) and Washington State Department of Transportation (WSDOT). 2008. *WSDOT Fish Passage Inventory. Progress Performance Report*. Olympia, Washington. June.

Washington Department of Fish and Wildlife. 2010a. *Priority Habitat and Species Report in the Vicinity of T09R10W Section 22*. April 13.

Washington Department of Fish and Wildlife. 2010b. *SalmonScape*. http://wdfw.wa.gov/mapping/salmonscape/ accessed May 17, 2010.

Washington State Department of Natural Resources (WDNR). 2010. *Forest Practices Activity Maps.* http://fortress.wa.gov/dnr/app1/fpars/viewer.htm accessed July 28, 2010.

Washington Department of Natural Resources. 2007. *Self-Help Desk - TRS List* dated October 30, 2007. http://www.dnr.wa.gov/Publications/amp_nh_trs.pdf accessed May 17, 2010.

Washington State Department of Natural Resources (WDNR). 2001. *Washington Forest Practices*. Washington Forest Practices Board. Olympia, Washington.

Washington State Department of Transportation (WSDOT). 2010. *Biological Assessment Preparation for Transportation Projects – Advanced Training Manual. Version 02-2010.* Olympia, Washington. February.

PERSONAL COMMUNICATIONS

Janet Anthony, Marbled Murrelet Biologist
Washington Department of Fish and Wildlife
360/902-8373
09-13-02 (telephone call)

Nancy Brennan-Dubbs, Fish and Wildlife Biologist, Permit Coordinator
U.S. Department of the Interior
Fish and Wildlife Service
360/753-5835
09-24-02, 10-24-02, and 10-28-02 (emails)
09-25-02 (pre-consultation meeting)

Jane Jenkerson
Washington Department of Fish and Wildlife
360/902-2497
09-09-02 (telephone call, fax)

Bill Leonard
NOAA Fisheries, National Marine Fisheries Service
360/753-9887
09-25-02 (pre-consultation meeting)

Key McMurry, Area Habitat Biologist
Washington Department of Fish and Wildlife
360/249-4628 ext. 231
08-28-02 (pre-application meeting)
09-23-02 and 10-24-02 (telephone calls)
12-03-02 (electrofishing survey)

Gail Terzi, Environmental Analyst
U.S. Army Corps of Engineers
206/764-6903
07-23-02 (site visit)
08-28-02 (pre-application meeting)

Max Zahn, Region 6 Wildlife Biologist
Washington Department of Fish and Wildlife
360/753-2600
09-16-02 (telephone call)

FIGURES

APPENDIX A

Official Species Lists:

National Marine Fisheries Service (NMFS),
U.S. Fish and Wildlife Service (USFWS)

APPENDIX B

Biology of Listed Species

Listed Species under NMFS Jurisdiction

Salmon and Steelhead ESUs (*Oncorhynchus* species)

Status

Table 1 lists 13 salmon and steelhead ESUs as threatened or endangered (NMFS 2006). Critical habitat has been designated in the action area for all chinook, chum, sockeye, and steelhead ESUs, because each fish run must migrate through the Columbia River mainstem Critical habitat for coho is currently under review.

Life-History Types and Habitat Requirements

All life-history information in this section is from the USACE *Biological Assessment for Columbia River Channel Improvements Project* (channel deepening), December 28, 2001.

Individual fish from each population may be present within the action area as juveniles or adults, because they move through the action area as juveniles on their way to the ocean and again as adults during their return migration to spawn in their ESU or DPS. However, the amount of time spent in the lower Columbia River during different life stages and at different seasons varies greatly among populations. Because of differences in each of these salmonid types, different portions of the habitat are used, so changes to habitat may affect them differently.

Water depth, water velocity, and substrate type are basic physical characteristics determining habitat suitability for young and adult salmon. Water temperature, salinity, and turbidity are secondary physical factors that influence habitat suitability.

As adults, returning salmonids have much less restrictive habitat requirements than juveniles tend to migrate in deeper water. This biological evaluation focuses on juvenile life stages, because they are more vulnerable to environmental disturbances. Habitat requirements for salmon and steelhead can be divided into two life-history strategies. The ocean-type rears in freshwater for only a few weeks to a few months before migrating to sea during their first year of life. Stream-type salmonids spend at least a year rearing in fresh water prior to their downstream migration. Table 2 shows life-history types and juvenile life stages of each listed ESU or DPS within the action area.

Table B-1. Life-History Types and Juvenile Life Stages of Listed ESUs and DPSs in the Action Area.

Common Name	Scientific Name	Life-History Type	Juvenile Life Stage in Action Area
Chinook	*Oncorhynchus tshawytscha*		
Lower Columbia River ESU		*Ocean*	*Subyearling*
Upper Columbia River Spring Run ESU		Stream	Yearling +
Snake River Spring/Summer Run ESU		Stream	Yearling +
Snake River Fall Run ESU		*Ocean*	*Subyearling*
Upper Willamette River ESU		*Ocean*	*Subyearling*
Chum	*Oncorhynchus keta*		
Columbia River ESU		*Ocean*	*Subyearling*
Coho	*Oncorhynchus kisutch*		
Lower Columbia River ESU		Stream	Yearling +
Sockeye	*Oncorhynchus nerka*		
Snake River ESU		Stream	Yearling +
Steelhead	*Oncorhynchus mykiss*		
Lower Columbia River DPS		Stream	Yearling +
Middle Columbia River DPS		Stream	Yearling +
Upper Columbia River DPS		Stream	Yearling +
Snake River Basin DPS		Stream	Yearling +
Upper Willamette River DPS		Stream	Yearling +

Ocean Type

Ocean-type salmon migrate downstream to the estuary as subyearlings, generally leaving the spawning area where they hatched within days to months following their emergence from the gravel. Ocean-type salmon ESUs in the Columbia River include some chinook ESUs (Lower Columbia River, Snake River fall, and Upper Willamette River) and the Columbia River chum ESU.

The first outbound migrants of the lower Columbia River fall chinook and chum may arrive in the lower Columbia River as early as late February. The majority of these fish are present from March through June. Outbound Snake River fall chinook begin their migration much farther upstream and arrive in the lower Columbia River approximately one month later.

There is considerable variability in the freshwater-rearing period of ocean-type juveniles. Subyearlings from the mid-Columbia and Snake Rivers tend to be substantially larger than the Lower Columbia ESU by the time they reach the lower Columbia River. Larger subyearlings from the Snake River can likely use a greater range of depth and current conditions than the subyearlings of the lower Columbia River ESUs.

Once ocean-type subyearlings arrive in the lower Columbia River, they may remain for weeks to months. Because these fish arrive small in size, they undergo extended lower river and estuary rearing before they reach the transitional size necessary to migrate to the ocean. This larger size is necessary to deal with the physical conditions and predators they face in

the ocean environment, as well as to be successful in obtaining prey in that environment. Ocean-type yearlings require weeks to months in the lower Columbia River to reach this larger size.

Subyearlings are commonly found within a few meters of the shoreline at water depths of less than 1 meter. Although they migrate between areas over deeper water, they generally remain close to the water surface and near the shoreline during rearing, favoring water no more than 2 meters deep and areas where currents do not exceed 0.3 meters per second. They seek lower-energy areas where waves and currents do not require them to expend considerable energy to remain in position while they consume invertebrates that live on or near the substrate.

Stream Type

Stream-type salmon rear in freshwater, usually remaining in the stream where they hatched for a year or more before beginning their downstream migration to the ocean. Steelhead trout may rear in freshwater for several years before migrating to the ocean. Sockeye rear in lakes rather than in streams. Stream-type ESUs and DPSs include some of the chinook salmon ESUs (upper Columbia spring run and Snake River spring/summer runs), sockeye, coho, and steelhead. Stream-type populations migrate to the ocean in their second year of life or later as relatively large smolts (generally 100 to 300 mm) and travel quickly through riverine reaches of the river within days to weeks.

Smolts undergo a physiological alteration in the spring that prepares them for migration and saltwater adaptation. Although fish of various populations may migrate at somewhat different times, smolts tend to migrate from early April through September. Migration timing varies with species and with distance between the ocean and the stream where they hatched.

The larger size of the yearling smolts allows them to occupy a wider range of habitats. Smolts are commonly found farther from shore with a deeper distribution than ocean-type migrants. They are not shoreline oriented, but they are typically found within the top 20 feet of the water column. Yearling smolts are also found in a wider range of current speeds and tend to avoid low-velocity areas except during brief periods when they hold position against river currents. These fish either remain in major channels where substantial current occurs or are actively swimming at a high rate. They also move between channels. Yearling salmon are not associated with specific substrate types, because they tend to be water-column oriented rather than shoreline oriented.

Adult Salmon and Steelhead

Adult salmon and steelhead returning to the Columbia River migrate through the river mouth throughout the year. The majority migrate in or near the action area from early spring through autumn, with the exception that winter steelhead peak migration is from April to July (NMFS 2005b).

North American Green Sturgeon *(Acipenser medirostris)*

Status

The Southern DPS of North American green sturgeon is federally listed as threatened (the Northern DPS is a species of concern) (Federal Register 2006). Critical habitat has not been designated (USFWS 2008b).

Life History

Sturgeon are large, primitive, bottom-dwelling fish with a skeleton consisting mostly of cartilage. Like all sturgeon, green sturgeon are anadromous and they are the most marine-oriented of the sturgeon species. They range from Mexico to the Bearing Sea and are commonly observed in bays and estuaries along the west coast of North America, with particularly large concentrations entering the Columbia River estuary, Willapa Bay, and Grays Harbor during late summer, peaking in August. Reasons for these concentrations are unclear, but to not appear to be related to spawning or feeding. Studies show green sturgeon caught in the Columbia River gillnet fishery have empty stomachs, while white sturgeon stomachs contain digested material. Green sturgeon in the Columbia River are typically immature; however, at least one ripe fish has been caught in the lower Columbia River (Federal Register 2006).

Little is known about green sturgeon feeding. Adults in the Sacramento River are reported to feed on benthic invertebrates, including shrimp, mollusks, amphipods, and even small fish. Green sturgeon spawn every 2 to 5 years. They spend most of their lives in nearshore marine or estuarine waters then migrate to freshwater beginning in late February. Spawning occurs from March to July. Confirmed spawning locations of the Southern DPS are in the Sacramento and Feather Rivers up to 200 miles from the ocean. Eggs are likely broadcast over large cobbles and settle into the cracks. Stream temperatures above 68° F are lethal to embryos in laboratory experiments. Juveniles spend 1 to 4 years in freshwater and little is known about their prey, but they are known to feed on shrimp and amphipods. Life spans range from 15 to 40 years old, with maximum ages likely to 60 or 70 years. They can reach 350 pounds (Federal Register 2006).

Habitat

The principal threat to the Southern DPS is the reduction in spawning habitat due to the construction of stream barriers along the Sacramento and Feather Rivers. Other threats are sufficient flow rates, increase water temperatures, water diversion, non-native species, poaching, pesticide and heavy-metal contamination, and local fishing (NMFS 2007).

Columbia River Smelt (Eulachon) – Southern DPS (*Thaleichthys pacificus*)

Status

The Southern DPS of eulachon were proposed for listing as a threatened species under the ESA on March 13, 2009 (Federal Register 2009). The Southern DPS is defined as south of, but not including the Nass River, near Prince Rupert in Canada.

Life History

Columbia River smelt (also called, eulachon, candlefish, or hooligan) are endemic to the northeastern Pacific Ocean, ranging from northern California to the southwest and south-central Alaska and to the southeastern Bering Sea. South of the United States/Canada border, most smelt production occurs within the Columbia River just upstream from the estuary (River Mile [RM] 25) to immediately downstream of Bonneville Dam at RM 146 and in the Cowlitz River. Adults average from 180 to 200 millimeters (5.1 inches) and 40 to 58 grams at age 2, to 220-225 millimeters (5.7 inches) and 80 to 90 grams at age 5. Periodic spawning also occurs in the Grays, Skamokawa, Elochoman, Kalama, Lewis, and Sandy rivers (Columbia River tributaries). Other river basins below the Canadian border with documented spawning runs include the Klamath River in northern California and infrequently in some, but not all, coastal rivers.

Smelt typically spend 3 to 5 years in saltwater before returning to spawn in freshwater from December through March in the Columbia River watershed and are influenced by water temperatures and the occurrence of high tides. Spawning grounds are typically in the lower reaches of larger rivers fed by snowmelt, and spawning usually occurs at night. Males typically outnumber females 2:1 or more. In the Columbia River and tributaries, spawning occurs over sand, coarse gravel, or detrital substrates. Eggs are fertilized in the water column, sink, and adhere to the river bottom. Most adults die after spawning.

Smelt eggs hatch in 20 to 40 days, depending on water temperature. Shortly after hatching, larvae are carried downstream and disperse by estuarine and ocean currents. Juvenile smelt are thought to imprint on the chemical signature of their natal river basin, although returning smelt stray from their spawning sites more than salmon.

After leaving estuarine rearing areas, juvenile smelt move from shallow nearshore areas to deeper areas over the continental shelf where larvae and young juveniles become widely distributed in coastal waters. There is currently little information about their movements in nearshore areas and the open ocean.

Smelt feed on zooplankton, primarily crustaceans. Larvae and post-larvae eat phytoplankton, copepods and their eggs, mysids, barnacle larvae, worm larvae, and smelt larvae. Adults and juveniles commonly forage at moderate depths (15 to 182 meters) in inshore waters.

Smelt are very high in lipids. Due to their availability during spawning runs, they are an important part of the Pacific coastal food web. They have numerous avian and marine mammal predators. During spawning runs, bears and wolves feed on smelt. Fish predators include white sturgeon, spiny dogfish, sablefish, salmon sharks, arrowtooth flounder, salmon, Dolly Varden, Pacific halibut, and Pacific cod. Smelt seem to provide a significant food source for white sturgeon in the Columbia and Fraser rivers.

Steller Sea Lion *(Eumetopias jubatus)*

Status

The Steller sea lion is federally listed as threatened. Critical habitat has not been designated within the state of Washington (NMFS 2008).

Life History

The average adult male Steller sea lion is 9 feet in length and 1500 pounds. The average adult female is 7 feet in length and 600 pounds. The average lifespan of a Steller sea lion is about 20 to 23 years although females may live up to 30 years. Predators include humans, sharks, and killer whales (The Alaska Sea Otter and Steller Sea Lion Consortium, 2006).

Steller sea lions become sexually mature at 3 to 7 years of age and mate and give birth on land. Males usually arrive at a rookery in May and stake out their territories for up to 60 days. Females arrive later and usually give birth to a pup that was conceived the prior year. A pregnancy lasts about 11½ months and lactation continues for 1 to 3 years. Mating occurs shortly after the pups are born, during June and July.

Steller sea lions are opportunistic and eat a wide range of fish including herring, pollock, salmon, cod, rockfishes, as well as squid, shrimp, and octopus. To survive, an adult sea lion needs to eat at least 6 percent of its body weight each day; young sea lions require twice this amount. Steller sea lions do not need to drink water because the food they eat provides them with all the water they need. Sea lions do not chew their food, most is swallowed whole. Feeding occurs in groups and at night between 9 p.m. and 6 a.m. (The Alaska Sea Otter and Steller Sea Lion Consortium, 2006).

Habitat Requirements

Steller sea lions range throughout the Pacific Rim (from southern California to Northern Honshu in Japan, and to the Bering Strait). About 70 percent of the Steller sea lion population resides in Alaska. Steller sea lions are highly gregarious and they use traditional haulout sites (an area used for resting) and rookeries (an area used for breeding and rearing young) on remote and exposed islands. These sites can be rock shelves, ledges, boulders, and gravel or sand beaches (North Pacific Universities 2006).

Listed Species under USFWS Jurisdiction

Bull Trout (*Salvelinus confluentus*)

Status

The USFWS lists the Columbia River Distinct Population Segment (DPS) of bull trout as federally threatened (see Table 1). The nearest critical habitat has been designated in Grays Harbor (Federal Register 2005c), and proposed changes to critical habitat are expected to be finalized in September 2010.

Habitat Requirements

Bull trout are members of the char subgroup of the salmon family, which also includes Dolly Varden, lake trout, and Arctic char. Bull trout and Dolly Varden look similar, and were once considered to be the same species. Bull trout are native throughout the Pacific Northwest and historically ranged from 41° to 60° north latitude (Rodrick and Milner 1991). They now exist primarily in upper tributary streams and several lake and reservoir systems (Federal Register 1999) and may exist in isolated populations above stream barriers.

Bull trout reach sexual maturity between 4 and 7 years of age and are known to live as long as 12 years. They spawn in the fall after temperatures drop below 8°C (48° F), in streams with cold, unpolluted water, clean gravel and cobble substrate, and gentle stream slopes. Some bull trout fry migrate from their natal streams to lakes and reservoirs. Because lakes and reservoirs provide poor spawning habitat for the species, migratory bull trout may swim long distances to spawn (Federal Register 1999).

Bull trout are adversely affected by high stream temperatures, lack of degraded spawning and rearing habitat, and lack of preferred food (Rodrick and Milner 1991). Small bull trout eat terrestrial and aquatic insects although they also consume insects, amphibians, crayfish, and other available food, but shift to preying on other fish as they mature. Large bull trout are primarily fish predators, eating whitefish, sculpins, and other salmonids (USACE 2001). They are more sensitive to increased water temperatures, poor water quality, and degraded stream habitat than many other salmonids. In addition, brook trout have been introduced as sport fish throughout much of the bull trout's range and the two species often hybridize, producing sterile offspring. Dams and irrigation canals also are hazards to bull trout because they can trap fish, alter water temperatures, and block migration routes (Federal Register 1999).

Management Recommendations

Federal management recommendations are not explicit, but state that for the Olympic Management Unit, recovery of bull trout includes protecting, restoring, and maintaining suitable habitat conditions and water quality with actions such as removing fish-passage barriers, maintaining and improving water quality, and improving habitat conditions in and along mainstem rivers (USFWS 2004).

WDFW (Rodrick and Milner 1991) advises the following management recommendations for streams that contain bull trout and steelhead: 1) maintain buffer zones along stream banks of at least the width of the height of the tallest tree or 50 feet, whichever is wider, 2) avoid road construction and maintenance activities, and 3) avoid in-stream structures, such as bridges, trestles, boat ramps, or culverts, that impede the natural movements of fish.

Marbled Murrelet (*Brachyramphus marmoratus*)

Status

Marbled murrelets are designated as a threatened species at both the federal and state levels (Table 1). Critical habitat has been designated in Pacific County (Federal Register 2007).

Habitat Requirements

Marbled murrelets are found year-round in late-successional and old-growth forests near the western Washington coast (Rodrick and Milner 1991). The southwest Washington coast, however, has a lower abundance of murrelets (less than 1.0 bird per square kilometer) than the northern coast (Varoujean and Williams 1995). Additionally, marbled murrelets are not common at the mouths of the Columbia River, Willapa Bay, and Grays Harbor (less than 10 individuals based on aerial surveys), although the area may serve as important summer foraging habitat (Varoujean and Williams 1995).

Favorable marbled murrelet breeding habitat generally consists of greater than 500 acres of low-elevation forests with at least 30 percent late-successional or old-growth forest components (USFWS 1997, Federal Register 1992a). Old-growth forests provide important nesting habitat for murrelets because they have developed the broad, horizontal-branching structure necessary for nest platforms. Murrelets do not build nests, but rather lay a single egg on a moss or detritus-covered branch or deformity. Old-growth forests typically have a multi-storied canopy, high to moderate canopy closure, and trees greater than 81 centimeters (32 inches) diameter at breast height. The larger trees in these areas have an average age over 200 years (USFWS 1992; Rodrick and Milner 1991). Ralph *et al.* (1995) note that murrelets likely adapted to old-growth coniferous forests during the mid-Miocene when dawn redwoods dominated the Pacific Coast. Today, as old-growth forests become fragmented, murrelets may fly up to 80 kilometers inland from marine foraging areas to nest in late-successional or old-growth forests (USFWS 1997; Ralph *et al.* 1995; Rodrick and Milner 1991). Murrelet nests have been found in Douglas fir, coastal redwood, western hemlock, western red cedar, and Sitka spruce. Nest platforms are typically found in the oldest trees in the stand with large, flat, moss or detritus-covered branches or deformities, such as forked limbs, broken tops, dwarf mistletoe infections, or witches' brooms, to support the nest (USFWS 1997; Ralph *et al.* 1995; Rodrick and Milner 1991). Overhanging branches are important to provide cover and protect nest platforms from predators and inclement weather. Canopy coverage over nests averages about 84 percent (Federal Register 1996).

Marbled murrelets favor foraging areas on inland saltwater bodies and marine waters within 1.2 miles of the shore, where they dive for small fish and invertebrates below the surface (Federal Register 1992a; Rodrick and Milner 1991). The marine birds spend the bulk of their lives on the ocean, traveling inland to nest from April through September. The species does visit some inland forest stands during all months of the year (Federal Register 1992a).

Marbled murrelets reach sexual maturity at age two, but have a variable reproductive rate and may not breed annually (Federal Register 1992a). In breeding years, murrelets produce only one egg per nest. Both male and female of the species incubate the egg in shifts for about 30

days. After hatching, the chick fledges for about 28 days. The adults fly to and from marine foraging areas to feed their young, most often at dawn and dusk.

Ralph *et al.* (1995) note that the species appears to be limited by nesting habitat, rather than foraging habitat. Marbled murrelets are primarily affected by loss of nesting habitat caused by logging and land conversion of old-growth forests throughout its range (USFWS 1997, Federal Register 1992a, Rodrick and Milner 1991). Avian predators, such as jays, crows, and ravens, also impact the species' survival. Avian predators are the most important cause of murrelet nest failure in a study of 32 marbled murrelet nests. Fire and windthrow also adversely impact forests and the nesting habitat of the species. Marbled murrelets are secondarily affected by avian predation, saltwater oil spills, and entanglement in gill-nets, especially in Washington where gill-netting is allowed (Federal Register 1992a; Rodrick and Milner 1991). Predation by great-horned owls, Steller's jays, common ravens, peregrine falcons, sharp-shinned hawks, gray jays, and common crows appears to increase as older forests become fragmented by logging and land conversion.

Management Recommendations

Federal

The USFWS *Recovery Plan for the Threatened Marbled Murrelet* (1997) does not advise specific management guidelines, such as buffers or timing restrictions for marbled murrelets. Instead, the Recovery Plan identifies that the decline in murrelets appears largely due to 1) loss of old-growth forest, nesting habitat, and direct loss and changes in forest-age distribution, and 2) poor reproductive success in the remaining habitat because of increased vulnerability of nests to predators in highly fragmented landscapes.

State

According to the WDFW *Management Recommendations for Washington's Priority Habitats and Species* (Rodrick and Milner 1991), a 0.5-mile radius buffer is an appropriate distance between construction activities and marbled murrelet occupancy sites. No nesting or occupancy sites have been identified near the project site, so WDFW management recommendations will be met.

Northern Spotted Owls (*Strix occidentalis caurina*)

Status

Northern spotted owls are designated as a threatened species at the federal level and endangered at the state level (Table 1). Critical habitat has been designated in Washington (Federal Register 2008).

Life History

Northern spotted owl historically inhabited heavily forested areas in Washington and other parts of the Pacific Coast. Today, the spotted owl is found in large tracts of old-growth forests (greater than 200 years old) in British Columbia, Washington, Oregon, and northern California, although the subspecies has been documented in less mature or young coniferous forests (less than 100 years old). This subspecies is distributed from 70 to 6,000 ft above sea

level. In high-elevation, western Washington Cascade forests, the spotted owl is often associated with Pacific silver fir forests.

Northern spotted owls usually mate for life, forming pairs and laying two to three eggs in the spring. Nests are built in the tops in broken trees, cavities in tree trunks, on mistletoe brooms, or atop squirrel or raptor nests. The females incubate the eggs for about 30 days and brood the young for about 35 days after hatching when the juvenile birds fledge. Spotted owl pairs are territorial and require a large amount of land for nesting and foraging; each pair may occupy up to 150 square miles. Northern spotted owls require nesting, roosting, dispersal, and foraging habitats. The subspecies selects older forests (greater than 200 year old) for roosting and foraging habitat, although the age of the forest is not as important as the vegetation and structural characteristics (Federal Register 1992b). Nesting and roosting habitat is generally characterized by: 1) moderate to high canopy cover (60 to 80 percent), 2) multi-layered and multi-species canopy with large, overstory trees greater than 30 inches dbh, 3) high incidence of large trees with deformities such as large cavities, broken tops, mistletoe infection, or other evidence of decadence, 4) large snags, 5) large accumulations of fallen trees and woody debris, and 6) sufficient open space below the canopy for owls to navigate (Federal Register 1992b).

Dispersal habitat refers to any areas used for movement and typically includes stands with adequate tree size and canopy closure to protect the subspecies from avian predators (Federal Register 1992b). Washington Department of Natural Resources (2001) defines dispersal habitat as timber stands of at least 5 acres with the following characteristics: 1) 70 percent or more canopy cover, 2) 50 percent or more of the stand in conifer species greater than 6 inches dbh, 3) a minimum of 130 trees per acre with a dbh of at least 10 inches or a basal area of 100 square feet and at least 10 inches dbh, 4) a total tree density of 300 trees per acre or less, and 5) 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.

Foraging habitat is a continuum between dispersal and nesting/roosting habitat (Federal Register 1992b). Northern flying squirrels, voles, mice, and woodrats are the primary prey of spotted owls, although the subspecies preys on a variety of mammals, birds, insects, amphibians, and reptiles.

Northern spotted owls are known to be less disturbed by human presence than many species. Humans can walk to within several feet of northern spotted owls before they fly away (Thomas *et al*).

Northern spotted owls are affected by habitat loss caused by timber practices, land conversion, and natural disturbances (Federal Register 1992b). Reduced or degraded habitat makes the subspecies more vulnerable to competitors, such as barred owls. Timber harvesting often results in fragmented forest stands that are susceptible to edge effects, such as windthrow and microclimate changes, that negatively affect the subspecies. Natural disturbances, such as fire and blowdowns, also adversely impact spotted owl habitat. Thomas *et al.* 1990, as cited in Federal Register 1992b, revealed that spotted owl distribution

and habitat quality on the western Washington Cascades is poor because of fragmented habitat, low population size, low reproductive success, competition with barred owls, and poor habitat connectivity.

APPENDIX C

Essential Fish Habitat Assessment

ESSENTIAL FISH HABITAT ASSESSMENT

Federal Action Agency: National Park Service
Project Name: Station Camp – Middle Village Park

Essential Fish Habitat Background
The Magnuson-Stevens Fishery Conservation and Management Act includes a mandate that NMFS must identify Essential Fish Habitat (EFH) for federally managed marine fish and federal agencies must consult with the NMFS on all activities, or proposed activities, authorized, funded, or undertaken by the agency that may adversely affect EFH. The Pacific Fisheries Management Council (PFMC) has designated EFH for the federally managed Pacific salmon, Pacific coast groundfish, and coastal pelagic fisheries (PFMC 1999, 1998a, 1998b).

Description of Proposed Action
A full description of the proposed project, including impact-minimization measures is included in the section entitled *Project Description*. A brief summary is included below.

Phase 1 of the project includes a parking lot with two access points from U.S. Highway 101, three interpretive exhibits, two overlook sites, and interpretive trails connecting the exhibits, and the parking lot. The parking lot will be paved with pervious concrete, and no restroom services will be provided. An interpretive trail connecting site features crosses the wetland in two places, so sections over the wetland will consist of boardwalks. Existing wetlands will be avoided, so there will be no wetland impacts from the park.

Phase 2 of the project includes constructing a pedestrian trail that connects Station Camp - Middle Village Park with Fort Columbia State Park, which is 0.3 miles to the west along U.S. Highway 101. Negotiations are being conducted with the adjacent property owners for the exact footprint of the trail, but tentative plans show the most-likely route includes building a boardwalk on piling over portions of Wetland B. The boardwalk will cross the western stream in the park in one location and will cross Wetland B in two locations. The trail connecting the parks will follow an existing logging road that crosses two streams that are Type-N at the crossing points. An existing wooden bridge over the eastern stream will have its deck replaced and a hand-rail installed. The western stream crossing is over a smaller, ephemeral stream with an existing culvert (see Photoplates). The existing crossing over the stream will be replaced with a 40-foot bridge, and the culvert will remain in place.

Presence of Essential Fish Habitat in the Project Area and Action Area

Pacific Salmon
The EFH designation for the Pacific salmon fishery includes all those streams, lakes, ponds, wetlands, and other waterbodies currently or historically accessible to salmon in Washington, Oregon, Idaho, and California. In estuarine and marine areas, proposed designated EFH for salmon extends from near-shore and tidal submerged environments within state territorial waters out to the full extent of the exclusive economic zone offshore of Washington, Oregon,

and California north of Point Conception (PFMC 1999). Coho are present in the western Type-F stream, Wetland A, and in the Columbia River.

Groundfish and Coastal Pelagic Fisheries
The EFH designation for groundfish and coastal pelagic species is defined as those waters and substrate necessary to ensure the production needed to support a long-term sustainable fishery. The marine extent of these essential fish habitats includes waters from the near-shore and tidal submerged environment within Washington, Oregon, and California state territorial waters out to the exclusive economic zone (231.5 miles) offshore between Canada and Mexico (PFMC 1998a, b). The estuarine extent of groundfish EFH includes all waters from the mean higher high water line and the upper extent of saltwater intrusion in river mouths along the coasts (PFMC 1998b). The estuarine extent of coastal pelagic fishery EFH includes all estuarine waters (PFMC 1998a). EFH for groundfish and pelagic fisheries are present in the project and action areas.

Effect Determination
A full discussion of direct, indirect, and beneficial effects to aquatic habitat, are discussed in the section entitled *Action Area*. Existing baseline conditions are also discussed above.

Indirect effects to EFH are not anticipated. However, direct effects may occur within EFH due to a minor increase of suspended solids or contaminant releases from construction equipment.

A "**will not adversely affect**" determination is warranted for Pacific salmon, pacific groundfish and coastal pelagic fisheries because:

- There will be no indirect effects to aquatic habitats, because all stormwater will be infiltrated and no restroom facilities will be added.
- Impact-minimization measures for construction equipment maintenance, fueling, and operation will be implemented, and stormwater BMPs will reduce suspended-sediment releases or heavy-equipment leaks from the site.
- Increased suspended-solids concentrations or heavy-equipment leaks are only expected during the first-flush rainfall event and will not likely reach the Columbia River.
- Bridge construction and repair on the pedestrian trail will not occur below OHWM.
- The Columbia River estuary is a large waterbody, and a small amount of suspended solids or chemicals that may occur during the project or after the first flush will dissipate quickly.

Based on this information, this project **will not adversely affect EFH for Pacific salmon, Pacific groundfish, or coastal pelagic fisheries**.

NOTE: 2007 aerial photo provided by Google Earth™.

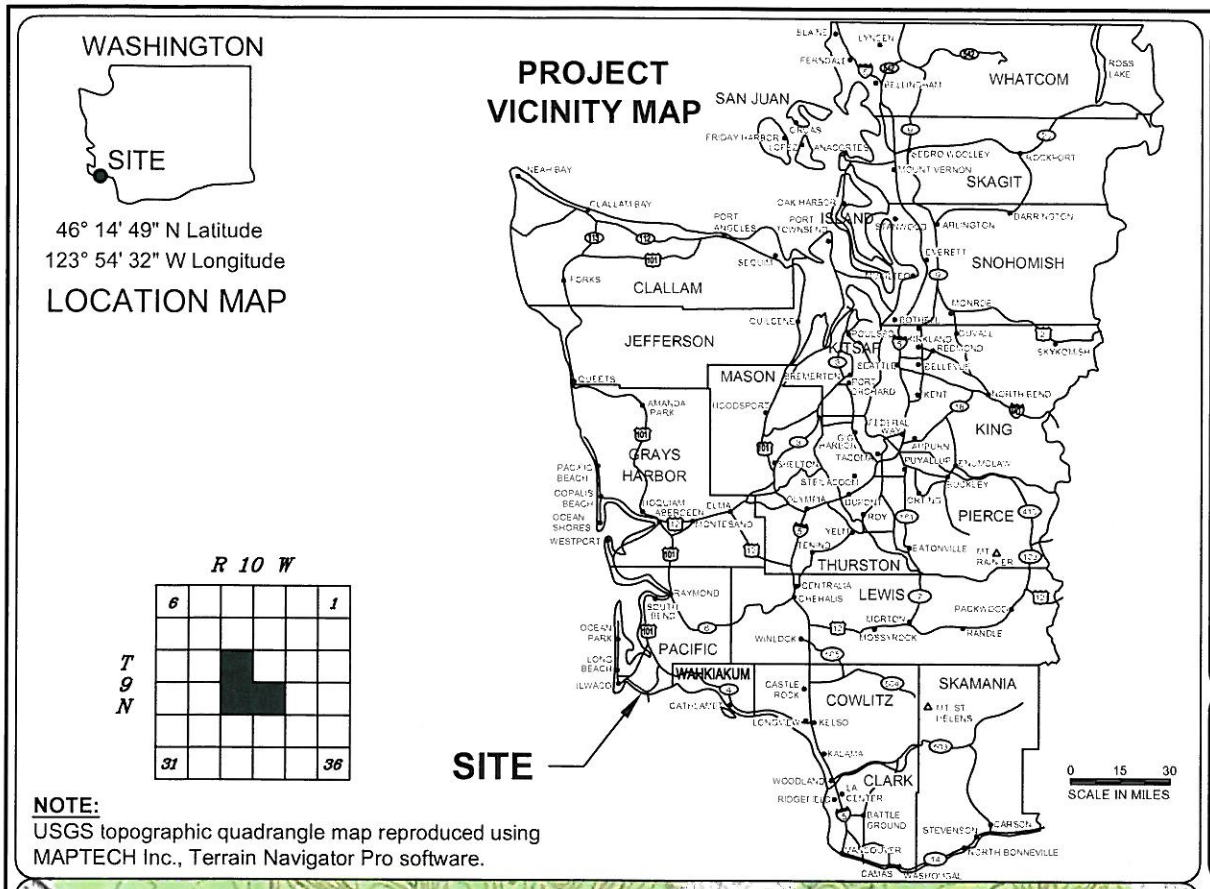
N
W E
S

0 2000 4000
SCALE IN FEET
1" = 2000'

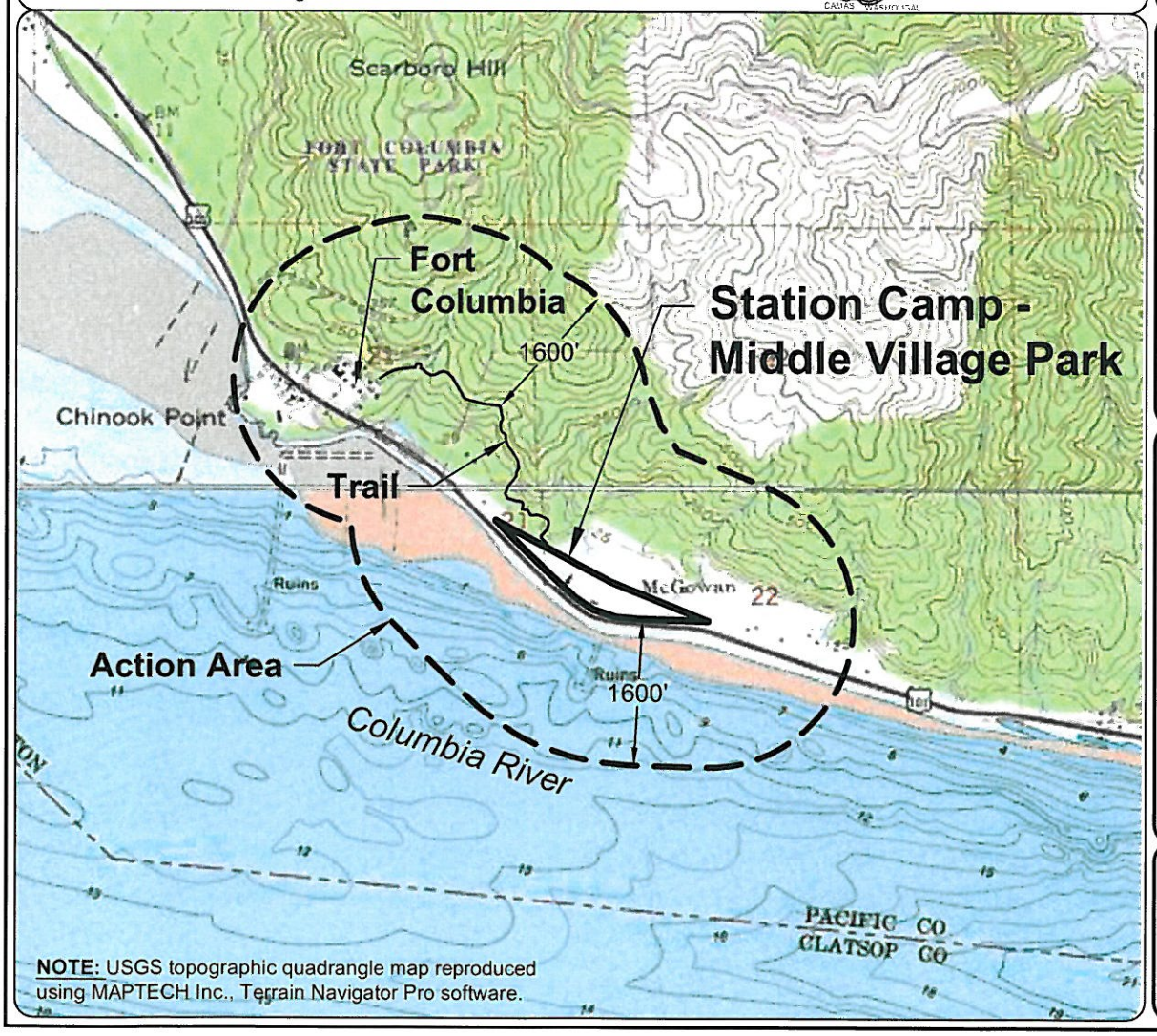
ECOLOGICAL LAND SERVICES, INC.
1157 3rd Ave., Suite 220
Longview, WA 98632
Phone: (360) 578-1371 Fax: (360) 414-9305

DATE: 8/19/10
BCB: JKJ
REQ. BY: LS
PRJ. MGR: KB
CHK:
PROJECT NO: 729.08

Figure 8
ACTION AREA MAP
Station Camp - Middle Village Park
Washington State Historical Society
Pacific County, Washington
Sections 21 & 22, T9N, R10W, W.M.



NOTE:
USGS topographic quadrangle map reproduced using MAPTECH Inc., Terrain Navigator Pro software.



NOTE: USGS topographic quadrangle map reproduced using MAPTECH Inc., Terrain Navigator Pro software.

Figure 1
VICINITY AND ACTION AREA MAP
Station Camp - Middle Village Park
Washington State Historical Society
Pacific County, Washington
Sections 21 & 22, T9N, R10W, W.M.

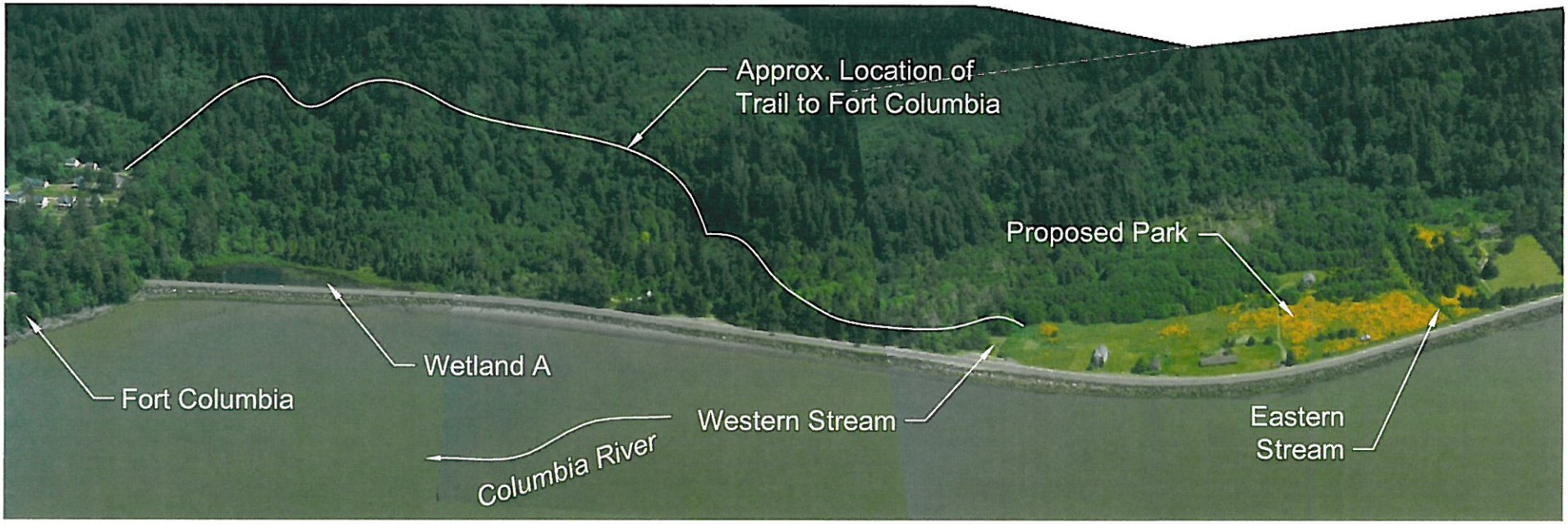
DATE: 8/18/10
BCB: JKJ
REQ. BY:LS
PRJ. MGR: KB
CHK:
PROJECT NO: 729.08

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'

N W E S

8/18/2010 11:19 AM S:\Pacific-WA\County-Projects\729-Otak\729.08-Station Camp_Middle Village Park\729.08-Figures\BE\729.08_VM.dwg Jennifer Johnston



NOTES:

1. Access to trail route in negotiation.
2. 1997 shoreline aerial photos provided by the Washington State Department of Ecology.

N.T.S.

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

DATE: 8/18/10
BCB: JKJ
REQ. BY: LS
PRJ. MGR: KB
CHK:
PROJECT NO: 729.08

Figure 3
1997 SHORELINE AERIAL PHOTOGRAPH
Station Camp - Middle Village Park
Washington State Historical Society
Pacific County, Washington
Sections 21 & 22, Township 9N, Range 10W, W.M.

Photo 1

Looking west from east side of the project site at the church and duplex during Scot's broom removal. Duplex on right side of photo is not within the proposed park boundary. Photos taken on May 19, 2010.

NOT TO SCALE

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

DATE: 8/18/10
DWN: BCB
REQ. BY: LS
PRJ. MGR: LS
CHK:
PROJECT NO: 729.08

Photoplate 1
SITE PHOTOS
Station Camp - Middle Village Park
Washington State Historical Society
Pacific County, Washington
Sections 21 & 22, Township 9N, Range 10W, W.M.

Photo 2
View to the south along the east ditch.

Photo 3
Looking north at the confluence of the maintained ditch (left side) and the east ditch (right side).

NOT TO SCALE

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

DATE: 8/18/10
DWN: BCB
REQ. BY: LS
PRJ. MGR: LS
CHK:
PROJECT NO: 729.08

Photoplate 2
SITE PHOTOS
Station Camp - Middle Village Park
Washington State Historical Society
Pacific County, Washington
Sections 21 & 22, Township 9N, Range 10W, W.M.

Photo 4
Looking west along the maintained ditch in Wetland B north of the church.

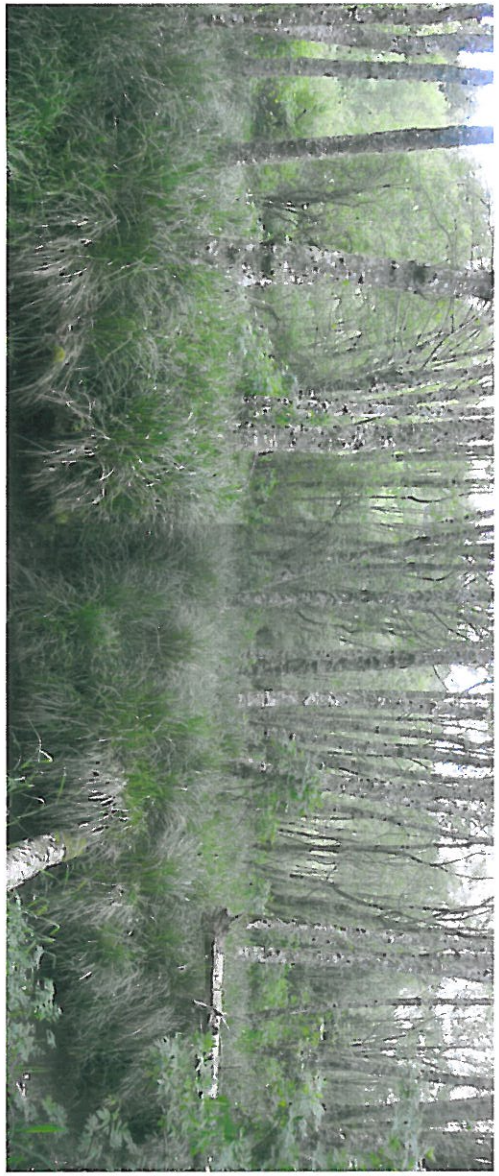


Photo 5
Wetland B on the north side of the maintained ditch.

NOT TO SCALE

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

DATE: 8/18/10
DWN: BCB
REQ. BY: LS
PRJ. MGR: LS
CHK:
PROJECT NO: 729.08

Photoplate 3
SITE PHOTOS
Station Camp - Middle Village Park
Washington State Historical Society
Pacific County, Washington
Sections 21 & 22, Township 9N, Range 10W, W.M.

Photo 7
Wetland A.

Photo 6
View to the north of the west ditch and Wetland B from the culvert at the highway.

NOT TO SCALE

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

DATE: 8/18/10
DWN: BCB
REQ. BY: LS
PRJ. MGR: LS
CHK:
PROJECT NO: 729.08

Photoplate 4
SITE PHOTOS
Station Camp - Middle Village Park
Washington State Historical Society
Pacific County, Washington
Sections 21 & 22, Township 9N, Range 10W, W.M.

Photo 8
Location of eastern Type-N stream crossing on trail to Fort Columbia. The 40-foot bridge will span the existing culvert and will not require work within the OHWM.

Photo 9
Aquatic habitat in the eastern stream along the pedestrian trail to Fort Columbia.

NOT TO SCALE

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

DATE: 8/18/10
DWN: BCB
REQ. BY: LS
PRJ. MGR: LS
CHK:
PROJECT NO: 729.08

Photoplate 5
SITE PHOTOS
Station Camp - Middle Village Park
Washington State Historical Society
Pacific County, Washington
Sections 21 & 22, Township 9N, Range 10W, W.M.

Photos 10 & 11

Representative habitat along the pedestrian trail. Most of the overstory consists of alder, with some big leaf maple, interspersed with young conifers.

NOT TO SCALE

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

DATE: 8/18/10
DWN: BCB
REQ. BY: LS
PRJ. MGR: LS
CHK:
PROJECT NO: 729.08

Photoplate 6
SITE PHOTOS
Station Camp - Middle Village Park
Washington State Historical Society
Pacific County, Washington
Sections 21 & 22, Township 9N, Range 10W, W.M.