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.