



Port Angeles Stormwater Separation Project

Environmental Assessment

October 2010





United States Department of the Interior

NATIONAL PARK SERVICE

Olympic National Park
600 East Park Avenue
Port Angeles, Washington 98362-6798

IN REPLY REFER TO:

L7615 (OLYM-PC)

October 5, 2010

Dear Interested Party:

National Park Service Announces Availability of an Environmental Assessment (EA) for the Port Angeles Stormwater Separation Project for public review and comment.

The proposed project is part of mitigation proposed by the National Park Service (NPS) to protect the Lower Elwha Klallam Tribe community from impacts of removing two dams on the Elwha River as part of the Elwha River Ecosystem Restoration Project. After the dams are removed, additional sediment will be carried downstream by the river, leading to higher stream flows and higher groundwater in the river's flood plains, which include areas within the Lower Elwha Klallam reservation. In turn, higher groundwater will increase the risk of septic system failures on the reservation. To protect the tribal community from this increased risk and provide for continued collection and treatment of the community's wastewater, the NPS is constructing a wastewater collection system for the reservation. In collaboration with the City of Port Angeles, the collected wastewater will then be treated and discharged to the City's existing wastewater treatment plant.

Adding the collected wastewater to the City's sewer system would put additional pressure on the City's combined sewer system, and would contribute to increased combined sewer overflow (CSO) discharges. Under an Agreed Order with Washington Department of Ecology, the City is not permitted to take any actions that increase the number or quantity of untreated (CSO) discharges. To protect the City's wastewater system from impacts associated with increased wastewater flows, the NPS is proposing the stormwater separation project.

The EA evaluates two alternatives including the no-action alternative and the preferred alternative. The no-action alternative does not include any new measures to collect or dispose of stormwater flows in downtown Port Angeles. NEPA requires that a no action alternative be analyzed in a NEPA document as a basis for comparison with the preferred alternative and its anticipated environmental consequences. Because the decision to remove the dams has already been made and the Lower Elwha Klallam Tribe has already received permission from the City of Port Angeles to connect to the City wastewater system, both the description of existing conditions and analysis of potential impacts under the no-action alternative are for comparison purposes only.

The preferred alternative (Stormwater Separation) proposes to collect stormwater from impervious surfaces in a four-block area of downtown Port Angeles and keep it separate from household wastewater and sewage. The proposed project involves construction of a new storm drain which would collect stormwater from this area, and add it to an existing storm drain system along Valley Street which discharges Valley Creek into Port Angeles Harbor. All construction would occur within existing City streets.

The National Environmental Policy Act (NEPA) of 1969, as amended, calls on federal agencies to consider environmental issues as part of their decision making process and to involve interested parties in the process. The NEPA process for the project was initiated in March 2010 with a public scoping notice soliciting issues and concerns on the preliminary proposed project. Responses to these scoping efforts were used during preparation of the EA.

The EA will be on public review for 30 days. The document can be reviewed online by selecting Olympic National Park at the NPS Planning, Environment and Public Comment website, <http://parkplanning.nps.gov>. A hard copy of the document will also be available at the following address:

Olympic National Park
600 East Park Avenue
Port Angeles, WA 98362

Public comments may be submitted online at the above website (the preferred method), or mailed to:

Superintendent – Port Angeles Stormwater Separation Project
Olympic National Park
600 East Park Avenue
Port Angeles, WA 98362

Fax: 360-565-3015
Website: <http://parkplanning.nps.gov>
Email: olym_ea@nps.gov

Comments will be accepted through November 10, 2010. The National Park Service encourages public participation through the NEPA process. After the public review period, the comments received will be carefully considered before a decision is made regarding implementation of actions proposed in the Port Angeles Stormwater Separation EA. Commenters should be aware that their comments, including names and home addresses, are considered public information and may be released to the public. However, individual commenters may request that their name and home address be withheld from public release by stating this in their comment letter.

For more information about this or other Olympic National Park projects, people may call the park at 360-565-3004.

Thank you for your interest in Olympic National Park.

Sincerely,

A handwritten signature in blue ink that reads "Todd J. Sness".



Karen Gustin
Superintendent

Table of Contents

Acronyms and Abbreviations	v
Introduction.....	1
Summary.....	1
Background.....	1
Project Purpose and Need.....	4
Legislation, Plans, and Guidance	4
Purpose and Significance of Olympic National Park.....	5
Management Policies 2006.....	5
Related ONP Plans and Actions	5
Scoping, Issues and Impact Topics	6
Scoping	6
Issues and Impact Topics	6
Impact Topics Dismissed from Further Analysis.....	7
Floodplains.....	7
Wetlands	7
Wildlife	7
Prime and Unique Farmland	7
Air Quality	8
Marine Resources.....	8
Cultural Resources	8
Indian Trust Resources	9
Socioeconomic Resources	9
Environmental Justice.....	9
Visitor Use and Recreation	10
Visual Resources.....	11
Soundscapes.....	11
Lightscape Management	11
Wilderness	12
Climate Change and Energy Resources.....	12
Alternatives	13
Introduction	13
No Action Alternative	13
The Preferred Alternative	13
Alternatives Considered but Eliminated from Detailed Study	19
Oak Street Alternative.....	19
Storage Alternative.....	19
Mitigation	20
Environmentally Preferred Alternative	21
Alternatives Comparison Table	22
Impact Summary	23
Affected Environment and Environmental Consequences	25
Introduction	25

TABLE OF CONTENTS

General Methods	25
Threshold for Impact Analysis	26
Soils	26
Water Quality	26
Special Status Species	27
Cumulative Impacts	29
Soils	30
Affected Environment	30
Environmental Consequences	31
No Action Alternative	31
Direct and Indirect Impacts of the Alternative	31
Conclusion	31
Preferred Alternative	31
Water Quality	32
Affected Environment	32
Environmental Consequences	33
No Action Alternative	33
Preferred Alternative – Stormwater Separation	34
Special Status Species	36
Affected Environment	36
Chinook Salmon	37
Bull Trout	37
Steelhead	38
Hood Canal Summer Chum Salmon	38
Coho Salmon	38
Pacific Herring	39
Southern DPS Pacific Eulachon/Smelt	39
Steller Sea Lion	39
Killer Whale	39
Marbled Murrelet	40
Essential Fish Habitat	40
Environmental Consequences	41
No Action Alternative	41
Preferred Alternative	42
Consultation and Coordination	45
Scoping/Consultation	45
Compliance with Federal and State Regulations	47
List of preparers and contributors	49
References	51
Appendix A	55

List of Tables

Table 1. Impact Topics Retained for Further Evaluation and Relevant Laws, Regulations, and Policies...	6
Table 2. Mitigation Measures	20
Table 3. Alternatives Comparison	22
Table 4. Impact Summary	23
Table 5. Soils Impact and Intensity.....	26
Table 6. Water Quality Impact and Intensity	27
Table 7. Special Status Species Impact and Intensity	28
Table 8. Federal and State Special Status Species.....	36
Table 9. Species of Fish with Designated EFH Occurring in Port Angeles Harbor	41
Table 10. Compliance with State and Federal Regulations	47

List of Figures

Figure 1. Vicinity Map.....	2
Figure 2. Project Location.....	15
Figure 3. Photos	17

ACRONYMS AND ABBREVIATIONS

ACHP	Advisory Council on Historic Preservation
ATP	Archeological Treatment Plan
BA	Biological Assessment
BMP	Best Management Practices
CCWQI	Clallam County Water Quality Index
CEQ	Council of Environmental Quality
CFS	cubic feet per second
COE	U.S. Army Corps of Engineers
CSO	Combined Sewer Overflow
CWA	Clean Water Act
DOI	Department of Interior
DPS	Distinct Population Segment
EA	Environmental Assessment
Ecology	Washington State Department of Ecology
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
FONSI	Finding of No Significant Impact
GMP	General Management Plan
GPM	gallons per minute
LEKT	Lower Elwha Klallam tribal community
MOU	Memorandum of Understanding
MSA	Magnusson Stevens Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollution Discharge Elimination Permit
NRHP	National Register of Historic Places
NPS	National Park Service
ONP	Olympic National Park
PA	Programmatic Agreement
PAH	Polyaromatic Hydrocarbons
PEPC	Planning, Environment and Public Comment
PFMC	Pacific Fisheries Management Council
TSS	Total Suspended Solids
SHPO	State Historic Preservation Officer
SWMP	Stormwater Management Program
USFWS	U.S. Fish and Wildlife Service
WDFW	Washington Department of Fish and Wildlife
WRIA	Water Resource Inventory Area
WSDOT	Washington State Department of Transportation

INTRODUCTION

SUMMARY

In collaboration with the City of Port Angeles, the National Park Service (NPS) is proposing the Port Angeles Stormwater Separation Project, a component project of the Elwha River Restoration Project. The proposed project would collect stormwater from impervious surfaces in a four-block area of downtown Port Angeles and keep it separate from household wastewater and sewage. Currently, stormwater from this area is added to the City's combined sewers and is treated by the wastewater treatment plant, or discharged during high flow events as combined sewer overflows (CSOs). The proposed stormwater separation project is located in Port Angeles, Washington outside the Olympic National Park (ONP) boundary (Figure 1).

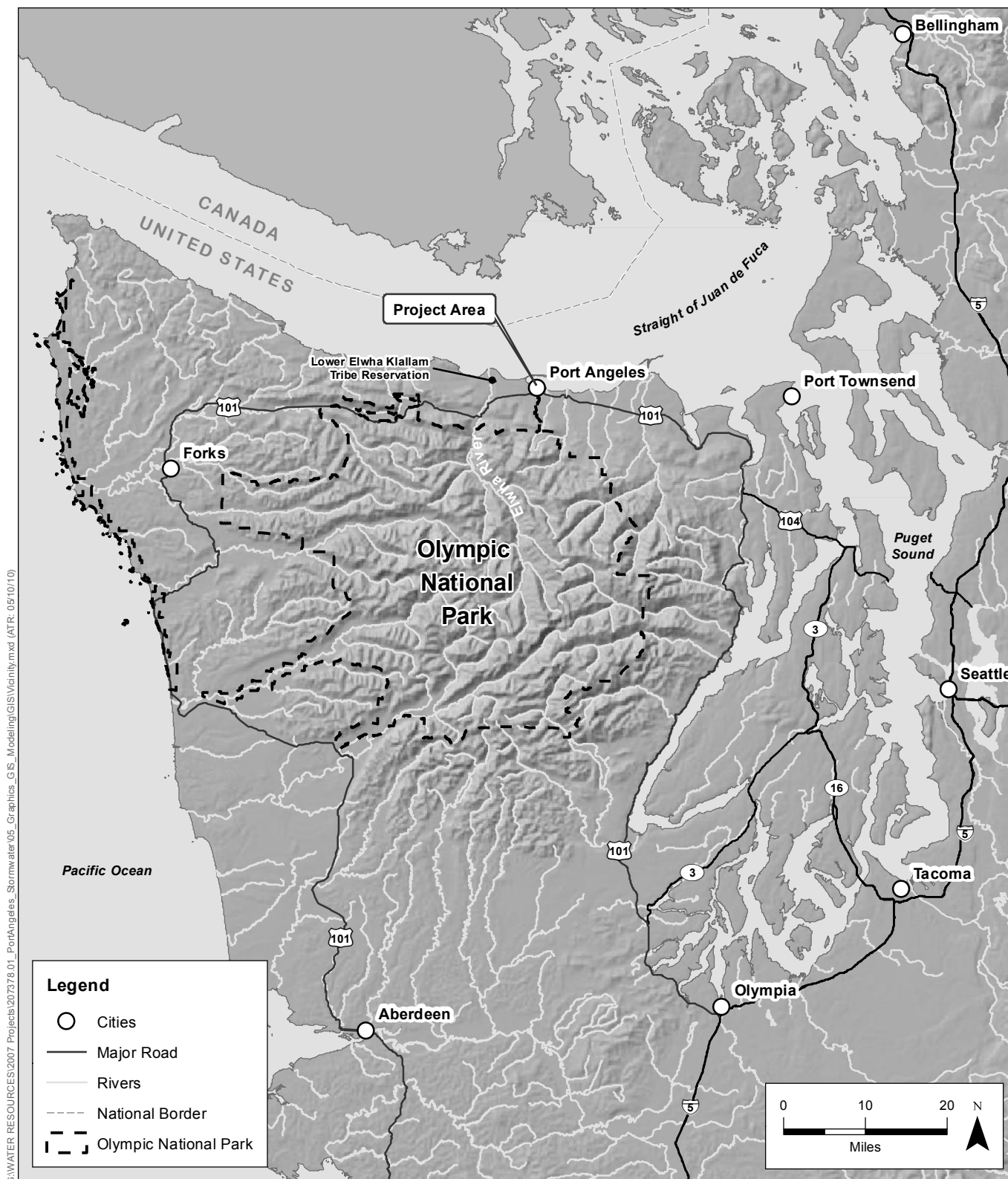
The project is needed to protect the City's wastewater system from impacts associated with increased wastewater flows. The increased wastewater flows are associated with mitigation proposed by the NPS to protect the Lower Elwha Klallam tribal community (LEKT) from impacts of removing two dams on the Elwha River, part of the Elwha River Ecosystem Restoration Project. Since the project is part of mitigation for dam removal, the stormwater separation project will be funded by NPS.

This Environmental Assessment (EA) describes a No Action Alternative and the Preferred Alternative, and evaluates the effects of these two alternatives on environmental and cultural resources. The EA was prepared in compliance with the National Environmental Policy Act (NEPA) to determine whether significant impacts would occur as a result of this proposed project and if an Environmental Impact Statement (EIS) or Finding of No Significant Impact (FONSI) would be required.

BACKGROUND

The Elwha and Glines Canyon dams on the Elwha River, Washington block fish access to most of the river, adversely affecting the river ecosystem and native anadromous fisheries (NPS 2005). The Elwha River Ecosystem and Fisheries Restoration Act was signed into law on October 24, 1992 (Public Law 102-495; hereafter referred to as the Elwha Act). The Elwha Act authorized the full restoration of the Elwha River ecosystem and native anadromous fisheries through removal of the two dams. In doing so, the "protection of the existing water quality and availability of water from the Elwha River for municipal and industrial uses from the possible adverse impacts of dam removal" must be accomplished (Elwha Act Section 4(3)).

In the early 1900s, the free-flowing Elwha River on the Olympic Peninsula in Washington State was blocked by two hydroelectric dams, neither of which was built with means to pass the 10 runs of native anadromous salmon and trout that had used the river for spawning and rearing for centuries. Since its completion in 1913, the Elwha Dam has prevented migrating salmon and trout from using the upstream 70 miles of the main stem and tributary habitat.



SOURCE:ESRI, 2005; WA Ecology, 2003; WDNr, 2002; WSDOT, 2001.

Port Angeles Stormwater Separation Project.207378.01

Figure 1
Vicinity Map
Port Angeles Stormwater Separation
Port Angeles, Washington

The Glines Canyon Dam was completed farther upstream in 1927. These dams are the primary cause of the precipitous decline of salmonid populations to fewer than 3,000 naturally spawning fish today compared to an estimated 392,000 fish prior to dam construction. The loss of fish from 93 percent of the Elwha River has resulted in severe impacts to the entire Elwha River ecosystem due to the loss of nutrients and carcasses and the effects on aquatic and terrestrial vegetation and wildlife.

To accomplish the purposes of the Elwha Act, two environmental impact statements (EISs) and a supplement to the final EIS were completed to analyze alternatives.

- The *Elwha River Ecosystem Restoration Project: Final Environmental Impact Statement* (NPS, 1995) evaluated options for restoring the Elwha River ecosystem and native anadromous fisheries. The “Record of Decision” that followed selected the removal of both dams as the only option that would accomplish full restoration.
- The *Elwha River Ecosystem Restoration Project Implementation: Final Environmental Impact Statement* (NPS, 1996b) examined two ways of removing the dams, as well as the sediment stored behind them. The “Record of Decision” selected “river erosion” as the preferred alternative for removing sediment. (The November 1996 FEIS included only specific changes to the DEIS, not the entire text of the draft document. Subsequently, a compilation of the DEIS and FEIS was prepared that included all the text of the draft, along with changes presented in the FEIS, plus responses to comments and the U.S. Fish and Wildlife Service’s “Biological Opinion.”)
- The *Elwha River Ecosystem Restoration Project Implementation: Final Supplement to the Final Environmental Impact Statement* (NPS, 2005) reexamined alternatives to mitigate the potential impacts to septic system users in the Lower Elwha Klallam tribal community, and potential impacts to municipal and industrial water users arising from changes that occurred since release of the Implementation EIS. These changes included requirements for the collection of wastewater on the reservation and conveyance to the Port Angeles wastewater treatment facility, the treatment of the City of Port Angeles’ municipal water supply, the need to keep the Washington Department of Fish and Wildlife (WDFW) Rearing Channel fully operational during dam removal, and the listing of two species of fish as threatened under the Endangered Species Act (ESA).

The Elwha River Ecosystem Restoration Project EISs addressed the overall large-scale plan for removal of the dams and river restoration. This EA is tiered to the previous EISs, which are incorporated by reference, and was prepared to address the measures needed to protect the City’s wastewater system from impacts related to the Elwha dam removal. This document provides additional information to that contained in the July 2005 EIS.

After the dams are removed, there will be higher surface water elevations and higher groundwater in the river’s flood plains, which include areas within the LEKT reservation. In turn, higher groundwater will increase the risk of septic system failures on the reservation. To protect the tribal community from this increased risk and provide for continued collection and treatment of the community’s wastewater, the NPS is constructing a wastewater collection system to transport untreated wastewater from the reservation to the City of Port Angeles’

existing wastewater treatment plant. In collaboration with the City of Port Angeles, the collected wastewater will be treated and discharged at the City's wastewater treatment plant.

Adding the collected wastewater to the City's sewer system would put additional pressure on the City's combined sewer system, and would contribute to increased combined sewer overflow (CSO) discharges. Existing CSO discharges are regulated under a National Pollution Discharge Elimination Permit (NPDES) issued by the Washington Department of Ecology (NPDES Phase II, January 17, 2007). Under an Agreed Order with Washington Department of Ecology, the City is not permitted to take any actions that increase the number or quantity of untreated (CSO) discharges.

The agreement between LEKT and the City addressing wastewater conveyance, treatment, and disposal services, is conditional on the LEKT providing facilities that are designed to limit flows into the City's collection system. The agreement originally included a provision for the LEKT to construct a storage tank sized to contain all flow during a CSO event. The evaluation of this alternative concluded that there would likely be substantial construction and long-term operating costs associated with the storage tank. Further, this alternative was found to reduce City wastewater flows only under certain storm events, and would not provide opportunities for future flow reductions. As a result of subsequent discussions between the City, the LEKT, and NPS, it was agreed that the City would examine alternatives to constructing storage as a means to mitigate the impact of the LEKT flows. Alternatives are discussed further on page 13 of this EA.

PROJECT PURPOSE AND NEED

The purpose of the project is to protect the City of Port Angeles' wastewater system from impacts associated with increased wastewater flows. The need for the project stems from the effects of dam removal under the Elwha River Ecosystem Restoration Project on LEKT septic systems, and the related agreement between LEKT and the City regarding the treatment of wastewater flows.

Relevant legislation, plans and guidance are included below.

Legislation, Plans, and Guidance

The NPS Organic Act of 1916 (16 U.S.C. 1, 2-4) and the General Authorities Act (16 U.S.C. 1a-8) direct the NPS to conserve the scenery, natural and historic objects, and wildlife; and to provide for the enjoyment of those resources in such a manner as to leave them unimpaired for future generations. The Redwood Act (March 27, 1978, 16 U.S.C. 1a-1) reaffirmed the mandates of the NPS Organic Act of 1916 and provided additional guidance on national park system management as follows:

The authorization of activities shall be construed and the protection, management, and administration of these areas shall be conducted in light of the high public value and integrity of the national park system and shall not be exercised in derogation of the values and purposes for which these various areas have been established.

Purpose and Significance of Olympic National Park

ONP was established by House Report No. 2247 of April 28, 1938. This report established the purpose of ONP, which is to:

Preserve for the benefit, use, and enjoyment of the people, the finest sample of primeval forests of Sitka spruce, western hemlock, Douglas-fir, and western red cedar in the entire United States; to provide suitable winter range and permanent protection for the herds of native Roosevelt elk and other wildlife indigenous to the area; to conserve and render available to the people, for recreational use, this outstanding mountainous country, containing numerous glaciers and perpetual snow fields, and a portion of the surrounding verdant forests together with a narrow strip along the beautiful Washington coast.

Management Policies 2006

NPS Management Policies (2006) include direction for preserving and protecting cultural resources, natural resources, processes, systems, and values (NPS 2006). Although management policies are not applicable to non-NPS lands, it is the goal of the NPS to avoid or minimize potential impacts to resources to the greatest extent practicable consistent with the management policies.

Related ONP Plans and Actions

The following park planning documents have relevance to Elwha River Ecosystem Restoration Project plans and the proposed stormwater separation project.

Statement of Management: Olympic National Park – 1996

This document includes information regarding the park's purpose, the natural and cultural resources found in the park and their significance, the legislative history, and the jurisdiction over ONP and the surrounding areas of the Olympic Peninsula (NPS 1996a).

Olympic National Park General Management Plan and Environmental Impact Statement

ONP recently completed a General Management Plan (GMP) to establish the overall park goals for the next 15 to 20 years (NPS 2008). The GMP provides overall planning guidance for protection of park resources.

Elwha River Ecosystem Restoration Project Plans

The 1995 Programmatic EIS, 1996 Implementation EIS, and 2005 Supplemental EIS evaluated alternatives for removing the dams and managing the accumulated sediments, alternatives for mitigation for LEKT septic system impacts, alternatives for water quality mitigation, and plans for revegetation of the reservoir areas and fish restoration (NPS 1995, 1996b, 2005). The approved plan is to remove both dams concurrently and implement revegetation and fish restoration plans following construction of water quality treatment facilities and other mitigation measures.

Scoping, Issues and Impact Topics

Scoping

Internal scoping was conducted between August 2009 and March 2010, and involved an interdisciplinary team of NPS and City staff who assessed site conditions and determined potential issues.

ONP conducted public scoping from March 30 to May 3, 2010 to gain additional information on issues and public concern about the project. One comment letter was received and was generally support of the project. More details on public scoping can be found in the Consultation and Coordination section.

Issues and Impact Topics

Specific impact topics were developed for discussion and to allow for comparison of the environmental consequences of each alternative. These impact topics were identified based on internal and external scoping; federal laws, regulations, and executive orders; *NPS Management Policies* 2006; and results of a site visit. A brief rationale for the selection of each impact topic is given in Table 1.

Table 1. Impact Topics Retained for Further Evaluation and Relevant Laws, Regulations, and Policies

Impact Topic	Reasons for Retaining Impact Topic	Relevant Laws, Regulations, and Policies
Soils	The project would involve excavation and manipulation of areas of soil for installation of the underground stormwater facilities. Therefore, impacts to soil will be further evaluated in this EA.	NPS Organic Act; NPS Management Policies; Resource Management Guidelines (NPS-77)
Water Quality	Stormwater discharge to Valley Creek would increase as a result of diverting stormwater. In addition, temporary negative effects to water quality are possible during construction of the stormwater facilities.	Clean Water Act; Executive Order 12088; NPS Management Policies 2006; NPS-77
Special Status Species	Threatened, endangered, and sensitive fish or marine mammal species could be affected during installation of stormwater facilities or from ongoing discharge.	Endangered Species Act; NPS Management Policies 2006; 16 U.S.C. 1535 Section 7(a)(2); Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267)

Impact Topics Dismissed from Further Analysis

The following impact topics or issues were eliminated from detailed analysis because the adverse impacts would be negligible or minor.

Floodplains

Executive Order (EO) 11988, *NPS Management Policies 2006*, and DO-77-2 require examination of impacts to floodplains and the potential risk involved in placing facilities within floodplains. Currently, commercial development in the western portion of Port Angeles is located in the floodplain over the culverted stream. The increased discharge to the Valley Creek storm drain would not result in increased flood risk; therefore this topic was eliminated from further evaluation in this EA.

Wetlands

Executive Order (EO) 11990, *NPS Management Policies 2006*, and DO-77-1 direct that wetlands be protected and that wetlands and wetland functions and values be preserved. These orders and policies further require that direct or indirect impacts to wetlands be avoided whenever there are practicable alternatives. The project area does not contain any wetlands; therefore, there would be no impact to wetlands from either alternative. Installation of the stormwater facilities under the Preferred Alternative would require excavation and temporary disturbance in downtown, developed areas. Potential effects to water quality are discussed in the Affected Environment and Environmental Consequences section of this EA. Permitting requirements for the Preferred Alternative are discussed in the section on Compliance with Federal and State Regulations. Because there would be no impact to wetlands under the No Action or Preferred Alternative, this topic was dismissed from further evaluation in this EA.

Wildlife

The existing and proposed stormwater facilities are located entirely within downtown, developed areas with limited habitat value for wildlife.

Because of the limited impacts to wildlife, this topic was dismissed from further evaluation in this EA. Fish and wildlife are addressed in the context of special status species and marine resources, which are discussed in the Affected Environment and Environmental Consequences chapter.

Prime and Unique Farmland

In 1980, the CEQ directed federal agencies to assess the effects of their actions on farmland soils classified as prime or unique by the United States Department of Agriculture, Natural Resources Conservation Service. Prime or unique farmland is defined as soil that particularly produces general crops such as common foods, forage, fiber, and oil seed; and unique farmland produces specialty crops such as fruits, vegetables, and nuts. There are no prime or unique farmlands associated with the project area; therefore, prime and unique farmland was dismissed from further evaluation in this EA.

Air Quality

Installation of the stormwater facilities under the Preferred Alternative would generate air emissions from equipment during construction, but the adverse effects would be short-term and negligible. Visibility, deposition, and other air quality-related values would not be affected. These emissions would be small and would not contribute to climate change. There would be no long-term change in air emissions following construction. For these reasons, this topic was dismissed from further evaluation in this EA.

Marine Resources

The project area is not located adjacent to the marine environment and potential impacts are primarily related to water quality. No adverse effects are anticipated to nearshore or offshore marine habitats. Special status marine species are discussed in this document under special status species due to the potential for indirect and cumulative effects to water quality from both the No Action and Preferred Alternatives.

Cultural Resources

There are no known cultural resources (archeological resources, historic structures, cultural landscapes, ethnographic resources, museum collections) in the area of potential effects (APE), which is the existing city street prism on First Street from Laurel to Valley Streets.

Historic buildings in the area will not be affected because the project will not extend past the sidewalk curbs. The City of Port Angeles Archeologist reviewed in-house files and the state's Department of Archeology and Historic Preservation (DAHP) database and determined that there are several historic structures near the APE; however, none of the structures are in the APE and the structures will be unaffected by construction activities.

Installation of the buried storm pipe and laterals would have no effect on the cultural landscape. Once the storm pipe and laterals are installed, the trenches would be backfilled and the street restored to its pre-construction contour and condition. Installation of the storm pipe and laterals would have no effect on the scale and visual relationships among landscape features, and the spatial arrangement, circulation features, and land use patterns of the area would be unaltered.

No archeological sites have been previously identified in the APE, its immediate vicinity, or in the general vicinity of the central business district of downtown Port Angeles. Tse-whit-zen village (45CA523/415) is the nearest documented archeological site on Port Angeles harbor but the site is located 1.2 miles west of the area of potential effects. Other nearby archeological sites on file at the state DAHP, none of which are in the vicinity of the area of potential effects, include 45CA617, an isolated find near Tse-whit-zen; 45CA235, an ethnographic report for Hollywood Beach; and 45CA468, the Ennis Creek Village site.

The proposed maximum depth of excavation for the storm drain is approximately 8-feet below the current street surface. Because all construction would occur within the fill material of the existing road prism, it is highly unlikely that ground disturbances would reach buried, historical ground surfaces where archeological sites could be present. However, due to the August 14, 2006 Settlement Agreement Among the State of Washington, Lower Elwha Klallam Tribe, City of Port Angeles, and Port of Port Angeles; the City Archeologist will be available to monitor

construction activities as necessary. In the unlikely event that significant archeological resources are discovered during construction, all work in the immediate vicinity of the discovery would be halted until the resources could be identified and documented and, if the resources cannot be preserved in situ, an appropriate mitigation strategy developed in consultation with the state historic preservation officer and, if necessary, the Lower Elwha Klallam Tribe.

There would be no direct, indirect, or cumulative impacts to cultural resources under the Preferred Alternative. For the purposes of Section 106 and the National Historic Preservation Act, the determination of effect would be no historic properties affected (see Appendix A). Therefore, cultural resources is dismissed as an impact topic in this environmental assessment.

Indian Trust Resources

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

Socioeconomic Resources

Socioeconomic effects include such things as patterns of consumption, the distribution of incomes and wealth, the way in which people behave (both in terms of purchase decisions and the way in which they choose to spend their time), and the overall quality of life. While construction would occur in a commercial area of downtown and would reduce the number and availability of on-street parking along the construction corridor, direct economic impacts to businesses located within the corridor would be difficult to quantify and would likely be negligible. Nearby on-street parking is available and access to businesses will be maintained. In addition, construction of the storm drain pipe would be completed in segments to limit the duration of construction impacts to any one area. As a result, socioeconomics will not be addressed in this environmental assessment.

Environmental Justice

Presidential Executive Order 12898, General Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing the disproportionately high and/or adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities.

According to the Environmental Protection Agency, environmental justice is the ...fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations and policies. Fair treatment means that no group of people, including a racial, ethnic, or socioeconomic group, should bear a disproportionate share of the negative environmental

consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies.

The goal of ‘fair treatment’ is not to shift risks among populations, but to identify potentially disproportionately high and adverse effects and identify alternatives that may mitigate these impacts.

Port Angeles and surrounding communities contain both minority and low-income populations; however, environmental justice is dismissed as an impact topic for the following reasons:

- The Park staff and planning team actively solicited public participation as part of the planning process and gave equal consideration to all input from persons regardless of age, race, income status, or other socioeconomic or demographic factors.
- Implementation of the proposed alternative would not result in any identifiable adverse human health effects. Therefore, there would be no direct or indirect adverse effects on any minority or low-income population.
- The impacts associated with implementation of the Preferred Alternative would not disproportionately affect any minority or low-income population or community.
- Implementation of the Preferred Alternative would not result in any identified effects that would be specific to any minority or low-income community.

Visitor Use and Recreation

The project is located outside of ONP in an urban area with no active recreation on the property. Nearby recreation resources include Valley Creek Estuary Park and the Waterfront Trail. Future recreational resources will include the Valley Creek Loop Trail, planned along the Valley Creek corridor.

Valley Creek Estuary Park is a City park located north of the project area between Valley Street and Cherry Street. The park was established through a combined effort between the City of Port Angeles and local organizations. Recreational amenities at the park include a pavilion, viewing tower, bridge, benches, access to the Waterfront Trail, and beach access.

The Waterfront Trail follows the waterfront of the Port Angeles Harbor and extends from the Coast Guard Station entrance gate on Ediz Hook to just west of the Old Rayonier mill site. The Waterfront Trail is part of a larger trail system, the Olympic Discovery Trail, planned to eventually run from Port Townsend to Forks, a distance of approximately 150 miles.

The No Action and Preferred alternatives would have no direct impacts on existing or planned recreation facilities or use of nearby recreation sites. Construction of the stormwater facilities under the Preferred Alternative would result in a temporary increase in noise from equipment operation; however, increased noise levels likely would be negligible because of the current ambient noise levels from downtown traffic and activity. Therefore, the increase in noise levels would not likely affect nearby recreation use. Because the Preferred Alternative would have

localized, short-term, and negligible adverse impacts on visitor use and recreation, this topic was dismissed from further evaluation in this EA.

Visual Resources

The project is located in downtown Port Angeles Central Business Core (CBC), along city streets, and in publicly accessible areas. Under the No Action Alternative, there would be no change in the existing visual quality to the site. Under the Preferred Alternative, installation of the pipeline would result in localized, short-term, and negligible adverse effects from construction equipment. Because the effect to visual resources would be negligible, this topic was dismissed from further evaluation in this EA.

Soundscapes

In accordance with *NPS Management Policies 2006* and Director's Order #47, Sound Preservation and Noise Management, an important part of the National Park Service mission is preservation of natural soundscapes associated with national park units. Natural soundscapes exist in the absence of human-caused sound. The natural ambient soundscape is the aggregate of all the natural sounds that occur in park units, together with the physical capacity for transmitting natural sounds. Natural sounds occur within and beyond the range of sounds that humans can perceive and can be transmitted through air, water, or solid materials. The frequencies, magnitudes, and durations of human-caused sound considered acceptable varies among NPS units, as well as potentially throughout each park unit, being generally greater in developed areas and less in undeveloped areas.

The project area, which is not within the boundaries of ONP, is in an urban setting where the protection of a natural ambient soundscape and/or the opportunity for visitors to experience natural sound environments is not an objective. Any construction associated with implementation of the Preferred Alternative could result in dissonant sounds, but such sounds would be temporary and not out-of-place in the setting of a downtown area. Because protection of a natural ambient soundscape and/or opportunity for visitors to experience natural sound environments is not a consideration during either construction or operation of the storm drain pipe, soundscape management was dismissed as an impact topic.

Lightscape Management

In accordance with *NPS Management Policies 2006*, the National Park Service strives to preserve natural ambient landscapes, which are natural resources and values that exist in the absence of human-caused light. While night construction may be considered as an option to minimize traffic disruption, no structures or outdoor lighting, other than possible short-term construction lighting, are proposed for the stormwater separation project. Because there would be no changes in lighting for either of the alternatives, this topic was dismissed from further consideration and is not evaluated in this document.

Wilderness

The project area occurs outside of the park and wilderness boundaries and, therefore, is not subject to Wilderness Act requirements. Because there would be no direct effect to wilderness resources and values, this topic was dismissed from further evaluation in this EA.

Climate Change and Energy Resources

Climate change refers to any significant changes in average climatic conditions (such as mean temperature, precipitation, or wind) or variability (such as seasonality and storm frequency) lasting for an extended period (decades or longer). Recent reports by the U.S. Climate Change Science Program, the National Academy of Sciences, and the United Nations Intergovernmental Panel on Climate Change provide evidence that climate change is occurring and could accelerate in the coming decades. While climate change is a global phenomenon, it manifests differently depending on regional and local factors. General changes that are expected to occur in the future as a result of climate change include hotter, drier summers; warmer winters; warmer water; and higher ocean levels, among other changes. Climate change is a far-reaching, long-term issue that could affect Olympic National Park, its resources, visitors, and management. Although some effects of climate change are considered known or likely to occur, many potential impacts are unknown. Much depends on the rate at which the temperature would continue to rise and whether global emissions of greenhouse gases can be reduced or mitigated. Climate change science is a rapidly advancing field and new information is being collected and released continually.

The Preferred Alternative would contribute to greenhouse emissions and require expenditures of energy, including natural and depletable resources, during construction of the stormwater facilities; however, the emissions and energy use would be short-term and have negligible impacts to climate change and energy resources. Because impacts would be no greater than negligible, climate change and energy resources were dismissed from further evaluation in this EA.

ALTERNATIVES

INTRODUCTION

A No Action Alternative and a Preferred Alternative (Stormwater Separation) are considered in detail. In addition, two other alternatives (Oak Street Alternative and Storage Alternative) were earlier considered, but dismissed from detailed analysis. The following section provide additional detail about the alternatives being evaluated.

No Action Alternative

Under the No Action Alternative, there would be no project to collect and divert stormwater in a portion of downtown Port Angeles from the City's combined sewer system to the Valley Creek drain. Stormwater from this area would continue to be treated by the City's wastewater treatment plant, or discharged during high flow events as combined sewer overflows (CSOs).

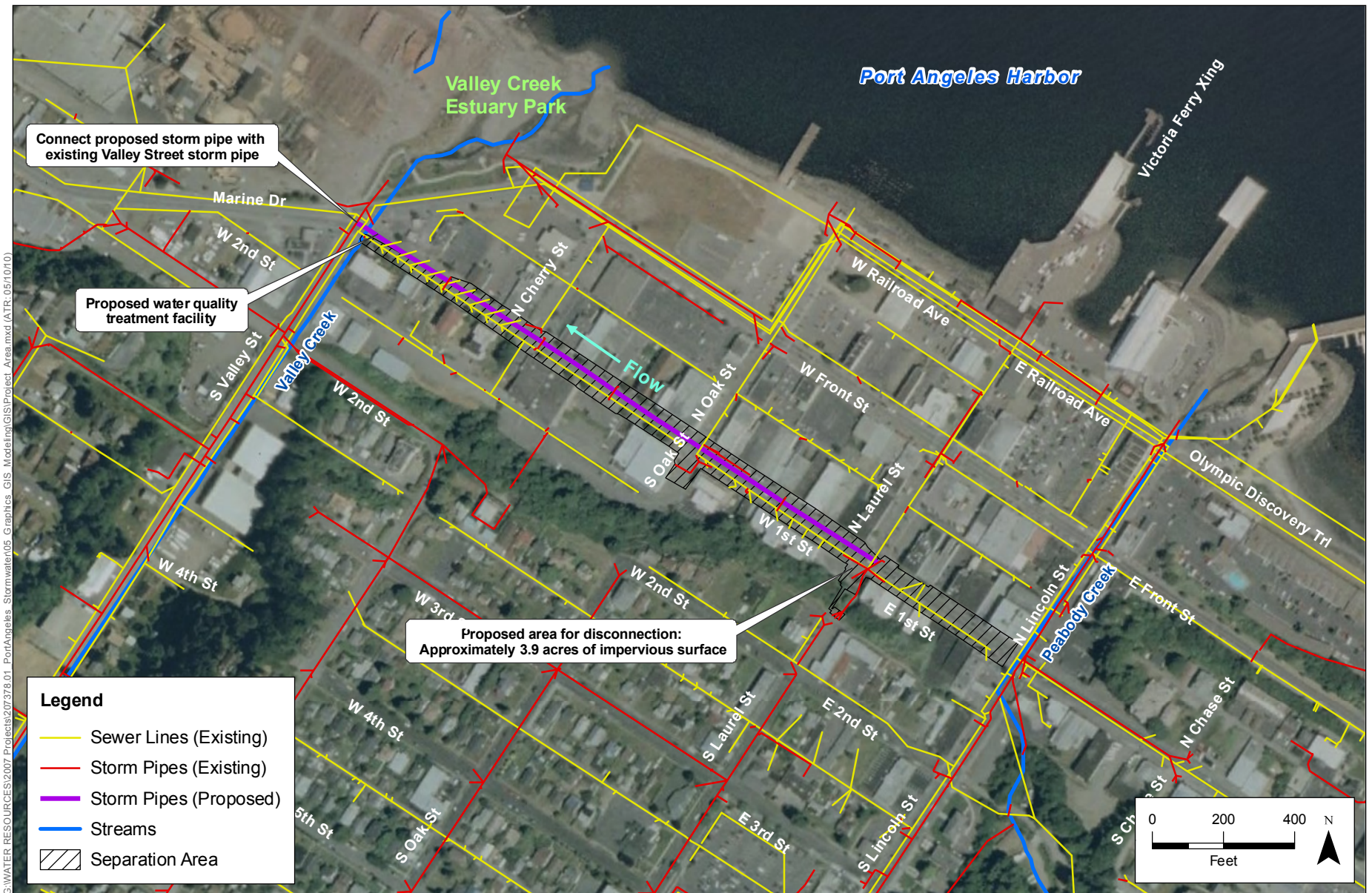
Additional flows to the City's collection system from the Lower Elwha Klallam tribal community (LEKT) would result in increased frequency and volume of CSO events. This would be in conflict with stipulations of the City's agreement with the Lower Elwha Klallam Tribe that the additional flows not cause or increase the frequency of CSOs. This would also result in violation of the Agreed Order from the Washington State Department of Ecology (Ecology) that does not allow the City to take any actions that increase the number or volume of untreated discharges.

The No Action Alternative does not include any new measures to collect or dispose of stormwater flows in downtown Port Angeles. NEPA requires that a no action alternative be analyzed in a NEPA document as a basis for comparison with the Preferred Alternative and its anticipated environmental consequences. Because the decision to remove the dams has already been made and the Lower Elwha Klallam Tribe has already received permission from the City of Port Angeles to connect to the City wastewater system, both the description of existing conditions and analysis of potential impacts under the No Action Alternative are for comparison purposes only and the No Action Alternative is not a viable option.

The Preferred Alternative

The Preferred Alternative includes collecting stormwater from impervious surfaces in a four-block area of downtown Port Angeles (a 3.9-acre area) and diverting the stormwater to an existing storm drain at Valley Street (Figure 2, Project Location). Currently, stormwater from this area is added to the City's combined sewers and is treated by the wastewater treatment plant, or is discharged directly to Port Angeles Harbor during CSO events

The Preferred Alternative includes construction of approximately 1,750 lineal feet of buried 18-inch diameter storm pipe on First Street from Laurel to Valley Street (see Figure 2). Shallow lateral pipes will be constructed within the street to connect the existing collection basins along First Street to the new storm drain pipe, which will discharge to the existing Valley Street storm drain. The Valley Street drain discharges to Valley Creek, which is currently piped through downtown Port Angeles. Valley Creek discharges into Port Angeles Harbor at Valley Creek Estuary Park. All construction would occur within existing City streets and there will be no in-water work associated with the project. See Figure 3, Project Area Photos.



SOURCE: Brown and Caldwell, 2010; ESRI, 2005; WDNR, 2008; NAIP (USDA), 2006 (Aerial)

Port Angeles Stormwater Separation Project.207378.01

Figure 2

Project Location

Port Angeles Stormwater Separation
Port Angeles, Washington



First St./Valley St./Marine Dr. intersection: location of proposed Valley St. drain connection



First St.: view to east



Valley Creek: view to south towards downtown Port Angeles



Valley Creek: view north towards Port Angeles Harbor

FILE NAME: Fig03_Photos.ai / EA
CREATED BY: JAB / DATE LAST UPDATED: 06/12/10

SOURCE: ESA Adolfson, 2010.

Port Angeles Stormwater Separation Project . 207387.01

Figure 3
Photos
Port Angeles, Washington

The stormwater separation alternative will remove approximately 300 gallons per minute (gpm), or greater, during CSO-causing rain events from the City's combined sewers. This additional stormwater flow to the Valley Street storm drain will result in an increase in Valley Creek flows of approximately 0.3 cubic feet per second (cfs) (1 to 3 percent of total creek flow) during 1-year storm events and approximately 1.9 cfs (less than 1 percent of total creek flow) during 25-year storm events. Outside of storm events, the project would result in negligible, or no change in flow within Valley Creek. A water quality treatment unit 'Ecostorm Plus' will be installed that will provide levels of treatment meeting or exceeding state stormwater requirements. The selected treatment unit will be able to treat up to 360-gpm and has a 5-year media replacement interval (concrete filter disk), oil storage (for gross spills), trash/floatables removal, and treatment for removal of total suspended solids (TSS), metals, nutrients, and hydrocarbons, consistent with Ecology requirements.

The proposed new storm drain pipe would be aligned within one traffic lane on First Street to minimize construction impacts. It will require a moving, one-lane bypass with traffic control as the work moves up the street.

Construction activities are currently planned for early 2011 and are expected to last for two to three months. The estimated cost for the proposed stormwater diversion is \$1.5 million.

ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED STUDY

In addition to the No Action and Preferred Alternatives, two other options were evaluated as potential alternatives.

Oak Street Alternative

The Oak Street Alternative was developed to avoid discharge to city creeks and instead to discharge directly to Port Angeles Harbor. This alternative would establish a discharge point to the north using Oak Street. A storm drain pipe would be constructed along Valley Street from the intersection of Valley Street and First Street to Oak Street, two blocks north.

The evaluation of this alternative concluded that there would likely be dewatering issues associated with tidally-influenced groundwater at this location (Brown and Caldwell, 2010). The Oak Street alternative would also require a new outfall be constructed through the seawall, which would present permissibility issues and likely impacts to aesthetic and recreational values of the beach. Results of the evaluation determined that the Oak Street alternative was not feasible based on consideration of environmental impacts, constructability, and costs. The estimated cost for the Oak Street option was \$ 2.5 million, approximately one million more dollars than the Preferred Alternative.

Storage Alternative

The agreement between LEKT and the City addressing wastewater conveyance, treatment, and disposal services, is conditional on the LEKT providing facilities that are designed to limit flows into the City's collection system. The agreement originally included a provision for the LEKT to install a storage tank sized to contain all flow during a CSO event. The storage alternative would

include constructing a storage facility at the LEKT reservation. The storage facility would contain all wastewater flow during a CSO event. Based on the results of modeling to predict flows, which included adjustments to include new City conveyance and storage facilities planned for compliance with state requirements, it was determined that the storage facility would need to provide a volume of 430,000 gallons to avoid impacting City CSO compliance. It was estimated that a tank of this size would cost \$3.5 million to construct and long-term annual operating costs would be significant.

The storage alternative would have required long-term maintenance requirements, right-of-way issues (for siting of the storage tank), and potential odor issues from the storage of untreated wastewater (Gray & Osborne, 2009; Brown and Caldwell, 2010). The evaluation of this alternative concluded that there would likely be substantial construction and long term operating costs. It reduces City wastewater flows only under certain storm events, and does not provide opportunities for future flow reductions

MITIGATION

Table 2. Mitigation Measures

Resource Area	Mitigation
General Considerations	<p>The construction zone would be identified and fenced with construction tape, fencing, or some similar material prior to any construction activity. The fencing would define the construction zone and confine activity to the minimum area required for construction. All protection measures would be clearly stated in the construction specifications, and workers would be instructed to avoid conducting activities beyond the construction zone. Disturbances would be limited to areas inside the designated construction limits. No machinery or equipment would access areas outside the construction limits.</p> <p>Construction equipment staging would occur on First Street, proceeding up the street as construction proceeds.</p> <p>Construction vehicle engines would not be allowed to idle for extended periods of time when not in use.</p> <p>All tools, equipment, barricades, signs, surplus materials, and rubbish would be removed from the project work limits upon project completion. The street will be restored to its previous condition following construction.</p>
Soils	<p>Best management erosion-control practices for excavation and trenching to install the pipeline would be implemented to minimize erosion on-site and soil tracking off-site.</p>

Resource Area	Mitigation
Water Quality	<p>Best management erosion-control practices for excavation and trenching to install the pipeline would be implemented to minimize turbidity.</p> <p>Prior to starting work each day, all machinery would be inspected for leaks (e.g., fuel, oil, and hydraulic fluid), and all necessary repairs would be made before commencing work. Hydraulic fluid utilized in machinery shall be bio-degradable. This measure is designed to avoid/minimize the introduction of chemical contaminants associated with machinery used in project implementation.</p> <p>Hazardous spill clean-up materials would be on-site at all times. This measure is designed to avoid/minimize the introduction of chemical contaminants associated with machinery (e.g., fuel, oil, and hydraulic fluid) used in project implementation because chemicals may have a toxic effect on aquatic organisms.</p>
Special Status Species	<p>Best management erosion-control practices for excavation and trenching to install the pipeline would be implemented to minimize turbidity that could have adverse impacts on local ecology and special status species.</p>

ENVIRONMENTALLY PREFERRED ALTERNATIVE

The CEQ defines the Environmentally Preferred Alternative as “...the alternative that will promote the national environmental policy as expressed in the National Environmental Policy Act § 101.” Section 101 states that, “...it is the continuing responsibility of the Federal Government to meet these goals:

1. Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
2. Assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings;
3. Attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;
4. Preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment, which supports diversity and variety of individual choice;
5. Achieve a balance between population and resource use, which will permit high standards of living and a wide sharing of life's amenities; and
6. Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.”

The identification of the “Environmentally Preferred Alternative” was based on an analysis that balances factors such as physical impacts on various aspects of the environment, mitigation measures to deal with impacts, and other factors including the statutory mission of the NPS and the purposes for the project.

The No Action Alternative would preserve existing conditions, but it would not address the effect the wastewater flows from the reservation would have on the City's sewer system. These increased flows would result in increased CSO events from the City's combined sewers, at the same time the City is undertaking projects to reduce CSO events. The No Action Alternative is not the Environmentally Preferred Alternative for the following reasons: (1) it would not satisfy the requirements of the Elwha Act, which requires protection of existing water quality for the City of Port Angeles against adverse impacts of dam removal, and (2) it would increase the frequency and volume of CSO events, which would not be in conformance with the City's Agreed Order with the Washington Department of Ecology. The No Action Alternative does not fully meet NEPA Section 101 goals.

The NPS determined that the Environmentally Preferred Alternative is to implement the stormwater separation project described for the Preferred Alternative because it surpasses the No Action Alternative in realizing the full range of goals as stated in Section 101 of NEPA. The stormwater separation project mitigates the effect of LEKT flows on the City's combined sewer system, and has the added benefit of contributing to reduction in CSO events, thereby producing water quality benefits to Port Angeles Harbor (goals 2, 3, and 4).

ALTERNATIVES COMPARISON TABLE

A comparison of the alternatives and the degree to which each alternative fulfills the need and objectives of the proposed project is summarized in Table 3.

Table 3. Alternatives Comparison

No Action	Preferred Alternative
Under the No Action Alternative, there would be no project to collect and divert stormwater in a portion of downtown Port Angeles from the City's combined sewer system to the Valley Creek drain. Stormwater from this area would continue to be treated by the City's wastewater treatment plant, or discharged during high flow events as combined sewer overflows.	Under the Preferred Alternative, stormwater would be collected from a four-block area of downtown Port Angeles and diverted from the City's combined sewer system to an existing storm drain at Valley Street.
Meets Project Objectives?	
The No Action Alternative does not fulfill the project objectives of mitigating the impact of LEKT wastewater flows on the City's combined sewer system.	The Preferred Alternative fulfills the project objectives by protecting existing water quality for the City of Port Angeles by mitigating the impact of the LEKT wastewater flows on the City's combined sewer system. In doing so, this alternative avoids impacting the City's CSO compliance. It reduces City wastewater flows under all storm events, it provides opportunity for future flow reductions, it does not require acquisition of new land, and it is more reliable than an electrical/mechanical dependent storage system.

IMPACT SUMMARY

A summary of potential environmental effects for the alternatives is presented in Table 4.

Table 4. Impact Summary

Impact Topic	No Action	Preferred Alternative
Soils	There would be no new impacts or cumulative impacts to soils under this alternative.	Direct, localized, short-term negligible adverse impacts to soils resources would occur in the immediate project area. The Preferred Alternative would contribute a short-term negligible adverse impact to the overall cumulative impact to soils.
Water Quality	The additional contribution to CSO events under the No Action Alternative would have a long-term, minor adverse effect to water quality in Port Angeles Harbor. Under the No Action Alternative, stipulations of the Agreed Order between the City of Port Angeles and Washington Department of Ecology for reducing CSO events would not be met. Contributions to cumulative effects would be minor in relation to the overall long-term beneficial effects associated with Elwha River restoration and cleanup of the Rayonier site.	<p>Implementation of the Preferred Alternative would result in a long-term beneficial effect to water quality in Port Angeles Harbor by reducing the volume and frequency of CSO discharges in the Harbor. The discharge of stormwater under the Preferred Alternative would have a long-term negligible adverse effect to water quality in a localized area of Valley Creek.</p> <p>Although the Preferred Alternative will have a long-term beneficial effect on water quality in Port Angeles Harbor, the overall long-term cumulative effect of past, present, and reasonably foreseeable actions will remain adverse due to the degradation from past events. As a result of past development and urban runoff, which have had adverse effects on water quality in Valley Creek, overall impacts from past, present, and reasonably foreseeable actions on water quality in Valley Creek will remain adverse. Stormwater contributions to Valley Creek under the Preferred Alternative would contribute a negligible amount to the overall long-term adverse cumulative effect.</p>
Special Status Species	The No Action Alternative would result in long-term minor impacts to special status species. As a result, the No Action Alternative may affect, but is not likely to adversely affect special status species in Port Angeles harbor and the Strait of Juan de Fuca. An increase in frequency of CSO events would	The Preferred Alternative may affect, but is not likely to adversely affect federally listed freshwater and marine species, including Puget Sound Chinook salmon, Puget Sound steelhead, coho salmon, and bull trout. There are no anticipated adverse effects to fish species that have EFH within Port Angeles Harbor. Over the long-term, the Preferred

Impact Topic	No Action	Preferred Alternative
	<p>contribute to the further degradation of water quality of Port Angeles Harbor and the greater Strait of Juan de Fuca. Contributions to cumulative effects would be minor in relation to the overall long-term degradation of water quality.</p>	<p>Alternative will contribute to reductions in CSO frequency and volumes within the City of Port Angeles thereby continuing efforts by the City to address degraded water quality conditions within Port Angeles Harbor, which would a long-term benefit to marine special status species. No adverse effect is anticipated to marbled murrelet, Pacific herring, Pacific eulachon, Steller sea lion, or killer whale because of the lack of suitable habitat or infrequent activity by these species in the project area. There would be no impact on federally listed plants in the project area because none are present.</p> <p>Although the Preferred Alternative will have a long-term beneficial effect on special-status species in Port Angeles Harbor, the overall long-term cumulative effect of past, present, and reasonably foreseeable actions will remain adverse due to the degradation from past events. Similarly, as a result of past development and urban runoff, which have had adverse effects on water quality in Valley Creek, overall impacts from past, present, and reasonably foreseeable actions on special-status species in Valley Creek will remain adverse.</p>

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

This section provides a description of the resources potentially impacted by the alternatives and the likely environmental consequences. It is organized by impact topics that were derived from internal NPS and external public scoping. Impacts are evaluated based on context, duration, intensity, and whether they are direct, indirect, or cumulative. In addition to determining the environmental consequences of the alternative, the NPS typically conducts an analysis of potential effects to determine if actions would impair park resources or cause unacceptable impacts. Neither NPS policies nor managerial determinations regarding impairment or unacceptable impacts apply to non-NPS lands or resources. Because the proposed action is located outside of ONP, no determination is made regarding impairment or unacceptable impacts to park resources.

GENERAL METHODS

This section contains the environmental impacts, including direct and indirect effects, and their cumulative impacts. The analysis is based on the assumption that the mitigation measures identified in the “Mitigation” section of this EA would be implemented for the Preferred Alternative. Overall, the NPS based these impact analyses and conclusions on the review of existing literature and park studies, information provided by experts within the park, the U.S. Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NMFS), Ecology, and other agencies, professional judgment, and public input.

Several terms are used within the “Environmental Consequences” section to assess the impacts of each alternative on each impact topic. The following terms were used to define the nature of impacts associated with project alternatives:

Type: Impacts can be beneficial or adverse.

Context: Context is the setting within which an impact would occur, such as local, parkwide, or regional.

Impact Intensity: Impact intensity is defined individually for each impact topic. There may be no impact, or impacts may be negligible, minor, moderate, or major.

Duration: Duration of impact is analyzed independently for each resource because impact duration is dependent on the resource being analyzed. Depending on the resource, impacts may last for the construction period, a single year, or other time period. For purposes of this analysis, impact duration is described as short- or long-term as defined for each resource.

Direct and Indirect Impacts: Effects can be direct, indirect, or cumulative. Direct effects are caused by an action and occur at the same time and place as the action. Indirect effects are caused by the action and occur later or farther away, but are still reasonably foreseeable.

Direct and indirect impacts are considered in this analysis, but are not specified in the narratives. Cumulative effects are discussed on page 29.

THRESHOLD FOR IMPACT ANALYSIS

The intensity and duration of effects vary by resource; therefore, the definitions for each impact topic are described separately. These definitions were formulated through the review of existing laws, policies, and guidelines; and with assistance from park staff, Denver Service Center NPS staff, and other resource specialists.

Soils

The area of consideration for this topic is the project area. Defining potential impacts is based on professional judgment and experience with similar actions. The thresholds of change for the intensity of an impact are defined as follows:

Table 5. Soils Impact and Intensity

Impact Intensity	Intensity Description
Negligible	The effects to soils would be below or at the lower levels of detection. Any effects on productivity or erosion potential would be slight.
Minor	An action's effects on soils would be detectable. It would change a soil's profile in a relatively small area, but it would not appreciably increase the potential for erosion of additional soil. If mitigation were needed to offset adverse effects, it would be relatively simple to implement and would likely be successful.
Moderate	An action would result in a change in quantity or alteration of the topsoil, overall biological productivity, or the potential for erosion to remove small quantities of additional soil. Changes to localized ecological processes would be of limited extent. Mitigation measures would probably be necessary to offset adverse effects and would likely be successful.
Major	An action would result in a change in the potential for erosion to remove large quantities of additional soil or in alterations to topsoil and overall biological productivity in a relatively large area. Key ecological processes would be altered, and landscape-level changes would be expected. Mitigation measures to offset adverse effects would be necessary, extensive, and their success could not be guaranteed.

Water Quality

Information on water quality in the project area was compiled from available data and recent studies. Potential impacts to water quality in Valley Creek and Port Angeles Harbor from the alternatives were based on analysis of the water quality of projected discharges, compliance with

state water quality standards, study results, and professional judgment. The thresholds of change for the intensity of impacts to water quality are defined in Table 6.

Table 6. Water Quality Impact and Intensity

Impact Intensity	Intensity Description
Negligible	An action that would result in a change to water quality, but the change would be so small that it would not be of any measureable or perceptible consequence.
Minor	An action that would result in a change to water quality parameters, but the change would be small, localized, and of little consequence.
Moderate	An action that would result in a change to water quality parameters; the change would be measurable and of consequence.
Major	An action that would result in a noticeable change to water quality parameters; the change would be measurable and would result in a severe adverse impact with regional consequences.

Short-term impact – recovers in less than 1 year

Long-term impact – takes more than 1 year to recover

Special Status Species

Section 7 of the Endangered Species Act (ESA) mandates all federal agencies to determine how to use their existing authorities to further the purposes of the ESA to aid in recovering listed species, and to address existing and potential conservation issues. Section 7(a)(2) states that each federal agency shall, in consultation with the Secretary of the Interior and Secretary of Commerce, ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. *NPS Management Policies 2006* state that potential effects of agency actions would also be considered for state or locally listed species (i.e., special status species). The thresholds of change for the intensity of impacts to special status species are defined in Table 7.

Table 7. Special Status Species Impact and Intensity

Impact Intensity	Intensity Description
Negligible	The action could result in a change to a population or individuals of a species, but the change would not be of any measurable or perceptible consequence and would be well within natural variability. In the case of federally listed species, this impact intensity equates to a USFWS/NMFS determination of “may affect, not likely to adversely affect.”
Minor	The action could result in a change to a population or individuals of a species. The change would be measurable, but small and localized, and not outside the range of natural variability. Mitigation measures, if needed, would be simple and successful. In the case of federally listed species, this impact intensity equates to a USFWS/NMFS determination of “may affect, not likely to adversely affect.”
Moderate	Impacts on special status species, their habitats, or the natural processes sustaining them would be detectable and would occur over a large area. Breeding species of concern are present, including species with particularly vulnerable life stages. Mortality or interference with activities necessary for survival could be expected on an occasional basis, but is not expected to threaten the continued existence of the species. Mitigation measures would be extensive and likely successful. In the case of federally listed species, this impact intensity equates to a USFWS/NMFS determination of “may affect, likely to adversely affect.”
Major	The action would result in noticeable effects to the viability of the population or individuals of a species. Impacts on special status species or the natural processes sustaining them would be detectable. Loss of habitat might affect the viability of at least some special status species. Extensive mitigation measures would be needed to offset any adverse effects and their success would not be guaranteed. In the case of federally listed species, the impact intensity equates to a USFWS/NMFS determination of “may affect, likely to jeopardize the continued existence of a species.”

Short-term impact – recovers in less than 1 year

Long-term impact – takes more than 1 year to recover

CUMULATIVE IMPACTS

Cumulative impacts are defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or nonfederal) or person undertakes such other actions” (40 CFR 1508.7). Cumulative effects can result from individually minor, but collectively significant, actions taking place over a period of time. The CEQ regulations that implement NEPA require assessment of cumulative impacts in the decision-making process for federal projects.

Methods for Assessing Cumulative Effects

To determine potential cumulative effects, actions and land uses that have occurred, are occurring, or are reasonably expected to occur near the project area were identified. Potential future actions were determined by reviewing the local plans and activities in the vicinity of the project study area. These actions were then assessed in conjunction with the impacts of the alternatives to determine if they would have any added adverse or beneficial effects on a particular natural, cultural, or socioeconomic resource. Cumulative effects are considered for each of the alternatives and are presented in the discussion of each impact topic.

Past Actions

Past actions include activities that have influenced and affected the current conditions of the environment near the project area. The Port Angeles downtown area has been established since around 1890. Roads, commercial and industrial facilities, urban developments, and other activities have affected the natural environment near the project area and contribute to stormwater runoff.

Several past actions have recently occurred to restore portions of the Valley Creek corridor. The Valley Creek Restoration Project was completed in 2003, which restored the Valley Creek estuary, and integrated the estuary into the Waterfront Trail. Prior to this project, this portion of the creek had been straightened and confined by road fill. Approximately 500 feet of the stream was restored and widened. Large woody debris and spawning gravel was placed in the creek and on its banks and native plants have been established in the riparian area. A culvert under Highway 101 was replaced with a fish-passable culvert by the Washington State Department of Transportation (WSDOT) and a 2,000 foot reach north of Highway 101 was restored to a more natural channel configuration and meander. This project also included the construction of a pedestrian trail that will eventually be linked to other trails along the corridor (West, 2010).

Current and Future Actions

Implementation of the Elwha River Ecosystem Restoration Project, which includes removal of two dams, is currently scheduled to begin in 2011. This project will increase the sediment discharges into the Strait about six miles west of Valley Creek.

As mitigation for the Elwha River Ecosystem Restoration Project, a project to construct a new wastewater collection system within the LEKT reservation area – the Wastewater Collection and

Conveyance Project – is currently planned. The project will convert tribal residences from septic tanks and leach field treatment systems to a reservation-wide collection system. Wastewater will be conveyed to the City’s treatment plant for treatment and discharge.

The City of Port Angeles has recently acquired property necessary to restore the upper Valley Creek channel. Approximately 300 feet of existing culvert will be removed and the stream channel restored. Fish passage to the upper reaches of the creek will be improved by the installation of ‘fishway baffles’ to provide for a reduced gradient and to provide resting areas for fish. Long-term objectives include conducting additional restoration projects along other segments of Valley Creek to recover populations of historic salmonids and to provide non-motorized recreational access through the Valley Creek corridor (West, 2010).

Since adopting its CSO Reduction Plan, the City of Port Angeles has constructed several projects to bring CSOs under control. Seven of the original 11 CSO discharges have been eliminated, and plans are underway to reduce discharges at the City’s four remaining CSO outfalls to an average of not more than one untreated discharge per year per outfall.

Plans are underway by the City of Port Angeles, Port of Port Angeles, Rayonier, and Ecology to clean up and redevelop the former Rayonier mill site located in the Port Angeles Harbor about 2.5 miles east of the Nippon mill (Ecology, 2010). The site is currently contaminated with dioxins/furans, polychlorinated biphenyls (PCBs), polyaromatic hydrocarbons (PAHs), metals, and other chemicals.

SOILS

Affected Environment

The proposed pipeline alignment is located in downtown Port Angeles, in a flat, developed area. No site-specific geologic surveys were performed for the proposed project due to construction taking place entirely within previously disturbed areas (i.e., the road right-of-way), which consists of fill material (Shannon & Wilson, Inc., 2006). The analysis in this section relies heavily on previous studies performed in the vicinity for associated pipeline projects, and on geologic maps of the area.

The project site is located within a low-lying area of downtown Port Angeles that was developed atop fill material. The geologic map of the Port Angeles and Ediz Hook Quadrangles (Schasse et al 2004) depicts the project strictly within the *Qf* (Differentiated Recent Fill) map unit. The *Soil Survey of Clallam County Area* (Hallowin, 1987) indicates native soils on the site include Beaches and Dystric Xerorthents, extremely steep. The majority of the project site is mapped within the Beach soils. Beach soils would be expected to underlie the fill associated with the 1914 grading of glacial till soils from the bluffs into the downtown area. In other areas, sorted beach sand is the typical fill where it was dredged from Port Angeles Harbor during later episodes of filling the downtown to its current elevation of about 18 feet above mean high tide. Recent archaeological monitoring in the vicinity of First and Cherry streets indicates that the fill is sandy and gravelly with shell and organics, overlaying native beach deposits that are interspersed among Valley Creek alluvium below 10 feet deep. As the project proceeds to the east, the sandy fill is replaced with the

cobbly glacial till silty sand that was removed from the bluff above Lincoln Street to depths of approximately 14 feet (City of Port Angeles, 2010).

Environmental Consequences

No Action Alternative

Direct and Indirect Impacts of the Alternative

Under the No Action Alternative, there would be no earth disturbance that would impact soils in the area.

Cumulative Impacts

Soils in the immediate project area are impacted from past activities, such as the past construction of downtown, which have permanently altered soils in the localized area. Ongoing projects in the downtown area, both public utility projects and private development projects, have the potential to disturb soils. Because the No Action Alternative would have no additional effect on soils, there would be no cumulative impacts on soil resources.

Conclusion

There would be no new impacts or cumulative impacts to soils under this alternative.

Preferred Alternative

Direct and Indirect Impacts of the Alternative

Installation of the proposed storm drain pipe will require trenching within the road right-of-way along 1,750 feet of First Street. Trenching will take place adjacent to the existing sanitary sewer line. As with all projects, erosion could occur as a result of construction activities, such as trenching. Soils temporarily exposed during construction could be eroded by stormwater runoff. Erosion control measures will be implemented to minimize these potential short-term impacts. As a result, erosion impacts from the installation of the proposed storm drain pipe are expected to be negligible.

The trench would be approximately eight feet deep and five feet wide. The total area of soil disturbance for the storm drain pipe corridor would be 8,750 sq. ft. (0.2 acres). Approximately 2,600 cubic yards (cy) of excavation (cut) and 1,000 cy of fill will be required. The excavated material will be reused when backfilling the trench, which will result in a net export of 1,600 cy of material off site. The existing pavement will be replaced after the completion of construction. There will be no change in the amount of impervious surface at the site. This alternative would result in direct, localized, short-term negligible adverse impact to soil resources in the project area.

Cumulative Impacts

Potential impacts to soils from the Preferred Alternative would be short-term construction impacts and would be minimized with the implementation of construction BMPs to negligible

levels. Soils in the project area have been permanently altered from the past and ongoing development of roads, utilities, and buildings. This project would require disturbance to these previously disturbed and imported fill soils. Therefore, the Preferred Alternative would contribute a short-term negligible adverse impact to the overall cumulative impact to soils.

Conclusions

Direct, localized, and short-term negligible adverse impacts to soils resources would occur in the immediate project area. This alternative would contribute slightly to the overall cumulative effects of soils within the downtown Port Angeles area.

WATER QUALITY

Affected Environment

Valley Creek is a small, independent drainage, which discharges to Port Angeles Harbor. It has been significantly altered to accommodate urban and industrial development in Port Angeles, with more than 2,000 feet of the lower channel contained in a continuous series of concrete culverts. At least 60 percent of the watershed is in urban land use, with 50 percent in impervious surfaces (CCDCCD, 2004). There are several long-standing untreated stormwater discharges to Valley Creek, collected from impervious surfaces within downtown areas of Port Angeles.

Data collected between January 2004 and September 2009 found water quality in Valley Creek to be generally good to excellent, with no evidence of significant pollution or water quality degradation. Chemical data indicated maximum water temperatures varying from 9.6 to 15.3c, water pH varying from a low of 7.0 to a high of 8.3, and dissolved oxygen saturations averaging about 98 percent (Clallam County Streamkeepers, 2009).

As part of the Clallam County Water Quality Index (CCWQI), water quality in Valley Creek was evaluated with respect to human health and fish and wildlife habitat needs, which included a comparison of data to existing and proposed state water quality standards. Valley Creek was rated under the CCWQI with a core rating of 5 “Healthy” (Clallam County, 2004). Valley Creek is currently listed as impaired by the State of Washington under Section 303(d) of the Clean Water Act (CWA) due to high bacterial (fecal coliform) levels (Ecology, 2008).

Port Angeles Harbor has been identified as a priority environmental cleanup and restoration project by Ecology as part of the Puget Sound Initiative. Ecology’s Toxics Cleanup Program has identified the Harbor for focused source control actions, sediment cleanup, and restoration efforts. Environmental investigations throughout the Harbor have indicated that chemicals of concern generated by intensive industrialization and urbanization activities exist within the Harbor (Ecology and Environment, Inc. 2008; CPAPWD 2006). The marine waters of Port Angeles Harbor are currently listed as impaired by the State of Washington under Section 303(d) of the CWA due to low dissolved oxygen levels and high fecal coliform levels (Ecology, 2008).

The Harbor receives direct surface water discharge from six freshwater creeks in the area, including Valley Creek, all of which have varying degrees of residential and commercial land-

use influences. Five of the creeks are listed as impaired in terms of water quality and biological quality by the Clallam County Streamkeepers (CCDCD 2004).

The city has an extensive stormwater system operating under an NPDES permit that drains approximately 6,900 acres of the Port Angeles watershed. Historically, there were eleven CSOs that discharged untreated sewer and stormwater discharge into the Harbor. Currently, four CSOs remain, discharging into the Harbor during heavy storms. CSO discharges have occurred an average of 64 times per year during the period 2003 and 2006 (CPAPWD 2006).

The Strait of Juan de Fuca (Strait) provides extraordinary water quality for aquatic life uses (Ecology, 2006). This high quality water provides for salmon and other fish migration, rearing, and spawning; clam, oyster, and mussel rearing and spawning; and crustaceans and other shellfish (e.g., crabs, shrimp, crayfish, and scallops) rearing and spawning. The extraordinary high quality of the water is based on temperature, turbidity, pH, and dissolved oxygen concentrations. Water quality in the Strait also provides for shellfish harvesting, primary and secondary recreation contact, and other miscellaneous uses.

Shellfish harvesting and fishing in the Harbor have historically been important commercial and subsistence activities in the Harbor, particularly for the LEKT who are subsistence-level consumers of fish and shellfish. Harbor fisheries have been impacted due to environmental quality issues (Clallam County Marine Resources Interactive Workshop 2001). Anthropogenic impacts from various sources, including wastewater pollution, industrial-based contaminants, and stormwater runoff, may have contributed to apparent declines in shellfish and fish populations, as well as the closure of historic shellfish tracts for commercial harvesting (WA DOH 2008).

Environmental Consequences

No Action Alternative

Direct and Indirect Impacts of the Alternative

Under the No Action Alternative, there would be no project to divert stormwater from the City's combined sewer system to the Valley Creek storm drain. Stormwater from this portion of downtown would continue to enter the City's combined sewer system and contribute to an increase in volume and frequency of CSO events into the Harbor.

Cumulative Impacts

Past actions such as industrial operations, urban runoff, and CSO discharges, all contribute to the cumulative effect on water quality in the vicinity of the project area. The No Action Alternative would result in an increase in CSO discharges to the Harbor, which would contribute slightly to the overall cumulative water quality concerns in the Harbor.

Conclusion

The additional contribution to CSO events under the No Action Alternative would have a long-term, minor adverse effect to water quality in the Harbor. Under the No Action Alternative,

stipulations of the Agreed Order between the City of Port Angeles and Washington Department of Ecology for reducing CSO events would not be met. Contributions to cumulative effects would be minor in relation to the overall long-term beneficial effects associated with Elwha River restoration and cleanup of the Rayonier site.

Preferred Alternative – Stormwater Separation

Direct and Indirect Impacts of the Alternative

In its present state, drainage from this area of downtown discharges to the City's combined sewer system, which is treated and discharged at the City's wastewater treatment facility under normal condition, or discharge untreated as combined sewage during CSO events into Port Angeles Harbor. Under the Preferred Alternative, stormwater runoff from this area will be separated from the combined sewer and discharged to Valley Creek storm drain and treatment unit.

Separating the stormwater from the combined sewer system will reduce CSO discharges to the Harbor beyond the amount needed to solely offset the LEKT flows. As a result, implementation of the Preferred Alternative would result in a long-term beneficial effect to water quality in Port Angeles Harbor by reducing the volume and frequency of CSO discharges in the Harbor. The main contribution of impacts on water quality would occur from new stormwater discharge to Valley Creek and short-term construction-related impacts as described below.

Stormwater runoff from urban areas typically contains sediment and solids (e.g., trash); petroleum hydrocarbons from automobiles; nutrients and pesticides from landscaping; viruses and bacteria from pet waste and other sources; heavy metals from roof shingles, automobiles, and other sources; and thermal pollution from dark impervious surfaces such as rooftops and pavement. Sediments and solids constitute the largest volume of pollutants loads to stormwater in urban areas (EPA, 2003). During project operation, treatment control BMPs, such as the proposed treatment unit, will remove pollutants to prevent degradation of water quality in compliance with Ecology's NPDES requirements and City stormwater requirements. The proposed treatment unit removes solids, heavy metals (zinc, copper, lead, cadmium, chromium, nickel), hydrocarbons (mineral oils, polycyclic aromatic hydrocarbons [PAHs]), and nutrients such as phosphorous and nitrates. As required by the City's NPDES Phase II permit, the City has developed a Stormwater Management Program (SWMP). As part of the SWMP, the City performs annual inspections of all municipally-owned or operated permanent stormwater treatment and flow control facilities to ensure their proper operation.

With the proposed treatment, the stormwater discharge is expected to be of the same or better quality than the current water quality of the creek. Potential impacts relate primarily to increased flow and potential for temperature changes to the stream. The stormwater separation alternative will remove approximately 300 gallons per minute (gpm), or greater, during CSO-causing rain events from the City's combined sewers. This additional stormwater flow to the Valley Street storm drain will result in an increase in Valley Creek flows of approximately 0.3 cubic feet per second (cfs) (1 to 3 percent of total creek flow) during 1-year storm events and approximately 1.9 cfs (less than 1 percent of total creek flow) during 25-year storm events. The increase in peak flow events is not expected to be of sufficient size or duration to create scour or contribute to erosion of streambanks; therefore, any increase in sedimentation/turbidity would be negligible.

Given the stormwater discharge would only increase overall stream flows by 1 to 3% during storm events, and the fact that stormwater discharges would primarily occur during the late fall and winter when temperatures are much cooler than during the summer, no appreciable difference between discharge and creek temperature at the localized area of discharge is anticipated. As a result, the stormwater diversion into Valley Creek would have a long-term negligible adverse effect to water quality in a localized area of Valley Creek.

During construction there would be an increased potential for contaminated runoff and turbidity impacts from the trench excavation required to bury approximately 1,750 feet of pipeline. BMPs would act as pollution prevention practices and physical barriers to prevent contaminated runoff from discharging from the project site. Because of the short-term nature of the disturbance in a localized area, and the implementation of appropriate BMPs, no adverse impact to water quality is expected to occur.

Overall, the effect of the stormwater separation project is expected to maintain or improve water quality in Port Angeles Harbor compared to existing conditions where existing runoff from this area of downtown is not treated during heavy storm events. To offset potential adverse impacts to Valley Creek water quality, the project is required to comply with the City's NPDES Phase II Permit issued by Washington Department of Ecology, which requires treatment of all stormwater discharges. Through compliance and in combination with BMPs, unwanted impacts on water quality will be addressed and effectively controlled.

Cumulative Impacts

Past actions such as urban development around Valley Creek, modifications to Valley Creek, stormwater contributions to Valley Creek, industrial and commercial developments along the Harbor, and CSO discharges to the Harbor, have had adverse impacts on water quality in Valley Creek and Port Angeles Harbor. Other projects, including CSO reduction projects and Valley Creek restoration projects (discussed on Pg 31) have had some beneficial effects on water quality in Port Angeles Harbor and Valley Creek.

Although the Preferred Alternative will have a long-term beneficial effect on water quality in Port Angeles Harbor, the overall long-term cumulative effect of past, present, and reasonably foreseeable actions will remain adverse due to the degradation from past events.

Stormwater contributions to Valley Creek under the Preferred Alternative would add to the overall stormwater inputs to the creek, which would contribute a negligible amount to the overall long-term adverse cumulative effect. As stated above, potential impacts would be mitigated with the implementation of treatment BMPs to remove major contaminant sources as required by Ecology's NPDES Phase II Permit (Ecology, 2007). As a result of past development and urban runoff, which have had adverse effects on water quality in Valley Creek, overall impacts from past, present, and reasonably foreseeable actions on water quality in Valley Creek will remain adverse.

Conclusion

Implementation of the Preferred Alternative would result in a long-term beneficial effect to water quality in Port Angeles Harbor by reducing the volume and frequency of CSO discharges in the

Harbor. The discharge of stormwater under the Preferred Alternative would have a long-term negligible adverse effect to water quality in a localized area of Valley Creek.

Although the Preferred Alternative will have a long-term beneficial effect on water quality in Port Angeles Harbor, the overall long-term cumulative effect of past, present, and reasonably foreseeable actions will remain adverse due to the degradation from past events. As a result of past development and urban runoff, which have had adverse effects on water quality in Valley Creek, overall impacts from past, present, and reasonably foreseeable actions on water quality in Valley Creek will remain adverse.

SPECIAL STATUS SPECIES

Affected Environment

Special status species include species listed as threatened or endangered under the ESA; state endangered, threatened, sensitive, or candidate species; U.S. Fish and Wildlife Service (USFWS) species of concern; and fish species with Essential Fish Habitat (EFH). The Washington Department of Fish and Wildlife (WDFW) state listed candidate species are fish and wildlife species that are under review for possible listings as state endangered, threatened, or sensitive. USFWS species of concern are those species for which conservation status is of concern to USFWS, but which requires additional information before listing. Federal and state listed species potentially occurring in the general region of the project area are shown in Table 9.

Table 8. Federal and State Special Status Species

Common Name	Scientific Name	Federal Status	State Status
Fish			
Puget Sound Chinook salmon	<i>Oncorhynchus tshawytscha</i>	Threatened	Candidate
Puget Sound steelhead	<i>O. mykiss</i>	Threatened	Candidate
Hood Canal summer chum	<i>O. keta</i>	Threatened	Candidate
Puget Sound/Strait of Georgia coho salmon	<i>O. kisutch</i>	Species of Concern	Candidate
Bull trout	<i>Salvelinus confluentus</i>	Threatened	Candidate
Pacific herring	<i>Clupea pallasii</i>	Species of Concern	Candidate
Southern DPS Pacific Eulachon/Smelt	<i>Thaleichthys pacificus</i>	Threatened	Candidate
Mammals			
Steller sea lion	<i>Eumetopias jubatus</i>	Threatened	Threatened
Southern resident killer whale	<i>Orcinus orca</i>	Endangered	Endangered
Birds			
Marbled Murrelet	<i>Brachramphus marmoratus</i>	Threatened	Threatened

The above listed species could potentially use the marine nearshore environment of Port Angeles Harbor and Valley Creek near the proposed Port Angeles Stormwater Separation Project's outfall into Valley Creek, potentially exposing species to degraded water quality conditions as a result of additional stormwater input into Valley Creek and Port Angeles Harbor.

Chinook Salmon

Chinook salmon in the Eastern Strait of Juan de Fuca includes two independent populations emanating from the Dungeness and Elwha River systems (Redman et. al, 2005). This includes the Dungeness River spring/summer Chinook stock, which is classified as a distinct stock based on geographic distribution and spawn timing (Haring, 1999). The Dungeness River is the only watershed in Water Resource Inventory Area 18 (WRIA 18) known to contain a spring Chinook stock (WDFW and WWTIT, 1994), although historically it was thought that both Morse and Ennis Creek supported spring/summer run Chinook stocks (personal communication from Les Sandison through Dick Goin in Haring, 1999). The Elwha/Morse Creek summer/fall Chinook are the only WRIA 18 summer/fall Chinook stocks and are a distinct stock based on their geographic distribution and spawn timing (Haring, 1999). Summer/fall Chinook using Morse Creek are thought to be strays from other drainages. The Elwha River summer/fall Chinook run is of native origin with natural spawning limited to the lower 4.9 miles due to the Elwha Dam. Hatchery Chinook are used to supplement these runs (Haring, 1999).

In general, fry emerge from February through March and rear along the stream margins for short period (throughout spring and into August) before outmigrating to the estuary; however, some fry may rear in their natal streams for up to a year and migrate out of the stream as yearlings (Haring, 1999).

There has been no documented use of Valley Creek by Chinook salmon (WDFW, 2010a; WDFW 2010b). However, it is likely that juvenile, sub-adult, and adult salmon from all Puget Sound stocks as well as adults from outside Puget Sound (Columbia River and Snake River) utilize the sub-basin's nearshore as a migratory corridor and foraging area (Redman et al., 2005).

The nearshore environment contains designated critical habitat for the Puget Sound Evolutionarily Significant Unit (ESU) Chinook salmon (70 Federal Register 170) Designated critical habitat for Puget Sound Chinook salmon in the vicinity of the proposed action includes all marine waters extending from the line of extreme high tide out to a depth of 30 meters (98 feet). No critical habitat has been identified in the freshwater portions of Valley Creek.

Bull Trout

The USFWS (2004) identifies six core areas (combination of core habitat and a core population) including the Quinault, Queets, Hoh, Dungeness, Elwha, and Skokomish River basins, that support the only known core populations of bull trout within the Olympic Peninsula Management Unit. They have also identified important areas for foraging, migration, and overwintering and areas where additional research is needed. The Strait of Juan de Fuca's estuaries and nearshore waters provide critical foraging, migration, and overwintering habitats for sub-adult and adult anadromous bull trout (USFWS, 2004). In this region, these types of habitats are crucial for maintaining the life history diversity for bull trout populations and they

also provide access to productive foraging areas (USFWS, 2004). In addition to the Elwha and Dungeness core areas, bull trout have been documented using Ennis Creek and other tributaries for foraging and overwintering, possibly using these smaller tributaries as “stepping stones” as they move along the marine shoreline and potentially as refuge from high flow events (Mongillo, 1993; USFWS, 2004; Freudenthal in litt. 2001a,b; WDFW, 1998; WDFW 2010a; WDFW 2010b). No bull trout use of Valley Creek has been documented (WDFW 2008). The marine nearshore areas of Port Angeles Harbor are known to contain forage fish including Pacific sand lance and Pacific herring, which are a primary prey species for bull trout in the marine environment.

The nearshore environment contains designated critical habitat for the Coastal Puget Sound Distinct Population Segment (DPS) bull trout (70 Federal Register 185). Critical habitat for the Coastal Puget Sound DPS bull trout includes the marine nearshore along the Strait of Juan de Fuca, including Port Angeles Harbor. No critical habitat has been designated within the freshwater portion of Valley Creek within the project vicinity.

Steelhead

There are three separate stocks of winter steelhead in WRIA 18 including the Dungeness River, Morse Creek/independent tributary, and Elwha River stocks (Haring, 1999). Each of these stocks is an independent stock based on the geographic isolation of spawning populations. Two summer steelhead stocks occur in WRIA 18 including the Elwha River and Dungeness river stocks. Both summer and winter steelhead have been documented within Valley Creek (WDFW, 2008 and 2010b); however, it is unknown whether or not they spawn within Valley Creek.

Winter steelhead typically enter streams in December and spawn from February through March. Summer steelhead generally enter streams from May through October and spawn from February through April (Haring, 1999). Juveniles may spend from one to three years rearing in their natal streams before outmigrating to marine waters (Busby et al., 1996).

Hood Canal Summer Chum Salmon

Two natal populations (Jimmy Comelately, Salmon/Snow) of the Hood Canal/Eastern Strait of Juan de Fuca summer chum ESU exist in the eastern Strait of Juan de Fuca sub-basin (Redman et. al, 2005). The Dungeness River is the westernmost drainage with summer chum salmon, located approximately 13 miles east of Valley Creek (Haring, 1999). Summer run chum salmon typically enter streams in August and September and spawn from September through October. Fry emerge in March and April and quickly migrate to the estuary to rear (Haring, 1999).

There is no documented use of Valley Creek by summer run chum salmon (WDFW, 2008; WDFW, 2010). However, it is likely that all populations of the Hood Canal/Eastern Strait of Juan de Fuca Summer chum utilize the marine nearshore environment as a migratory corridor (Redman et. al, 2005).

Coho Salmon

Coho salmon have been documented within Valley Creek. There are three stocks of coho salmon in WRIA 18, including the Elwha, Morse Creek, and Dungeness stocks. Morse Creek stocks

include those spawning in Valley Creek up to river mile (RM) 1.2 and are largely thought to be of hatchery origin (Haring, 1999). Juvenile coho rear in freshwater streams for up to 18 months before migrating to the marine waters. It is anticipated that juvenile coho salmon could be rearing in Valley Creek as well as along the marine nearshore environment.

Pacific Herring

Pacific herring provide important forage for a variety of fish, marine mammals, and avian species. While no documented spawning areas occur along the marine nearshore of Port Angeles Harbor (WDFW, 2009), they may be found throughout Port Angeles Harbor and the Strait of Juan de Fuca (Ecology and Environment, Inc., 2008).

Southern DPS Pacific Eulachon/Smelt

The NMFS 2010 status review of Pacific eulachon (commonly referred to as smelt) documents eulachon presence in the Elwha River in 2005 (WRIA 18) (Gustafson et.al., 2010). Pacific eulachon presence in the Elwha River is thought to be a remnant of historic stocks due to its relatively low abundance when compared with other documented northwest runs. Pacific eulachon are thought to occur in rare relative abundance in the Puget Sound and Skagit Bay regions (Monaco et al., 1990; Emmett et al., 1991). Washington coastal spawning grounds have been reported in the Wynoochee, Quinault and Queets Rivers.

Steller Sea Lion

There are no known rookeries of Steller sea lions in the state of Washington (Jeffries et. al, 2000). Steller sea lions use haulout sites primarily along the outer coast from the Columbia River north to Cape Flattery, as well as along the Vancouver island side of the Strait of Juan de Fuca. The closest sea lion haul-out area is on the Great Race Rock approximately 14 miles northwest of the project area in British Columbia waters. This haulout is used by harbor seals, California sea lions and Steller sea lions in numbers ranging from 100 to 500 individuals. Seal haulouts are located in the immediate project vicinity; however, these are all harbor seal haulouts. Given the small population and only occasional sightings of Steller sea lions, it is possible but not likely that they will be present in the project area.

Killer Whale

Four populations of killer whales are known to occur in Washington: the Northern Resident, the Southern Resident, the transient, and the offshore (Wiles, 2004). Three of these populations, the Southern Resident Population, Northern Resident Population and the transient population, periodically use the region around the San Juan Islands.

Based on information from the NMFS, critical habitat is present in the Strait of Juan de Fuca. All pods regularly use the Strait of Juan de Fuca for passage between their summer core area (San Juan Islands, U.S. portion of the Southern Strait of Georgia, and areas directly offshore of Skagit and Whatcom Counties) and Puget Sound to outside waters of the Pacific Ocean (71 Federal Register 229). The presence of migrating salmon in the Strait of Juan de Fuca suggests that whales may feed during their transition into and out of inland waters through the Strait of Juan de Fuca; however, the whales are not known to spend extended amounts of time in the Strait of

Juan de Fuca. Sightings of whales in the Strait are few; however, there is less observation effort occurring in this area. Therefore, it can be inferred that the whales are using this corridor.

Marbled Murrelet

No marbled murrelet use of the project area or vicinity has been documented (WDFW, 2008). It is likely that marbled murrelets may occasionally forage for small fish in the marine waters of Port Angeles Harbor. Marbled murrelet nesting habitat does not occur within several miles of the project location; however, murrelets may fly over the project area during flights to and from inland nesting areas and marine foraging habitat.

Essential Fish Habitat

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires Federal agencies to consult with the National Marine Fisheries Service on activities that may adversely affect Essential Fish Habitat (EFH). The Pacific Fisheries Management Council (PFMC) has designated EFH for the Pacific salmon fishery, federally managed ground fishes, and coastal pelagic fisheries (NOAA Fisheries 1999; PFMC 1999).

The EFH designation for the Pacific salmon fishery includes all those streams, lakes, ponds, wetlands, and other water bodies, currently or historically accessible to salmon in Washington, Oregon, Idaho, and California, except above the impassable barriers indentified by PFMC (1999). In estuarine and marine environments, proposed designated EFH extends from near-shore and tidal submerged environments within state territorial waters out to the full extent of the exclusive economic zone offshore of Washington, Oregon, and California north of Point Conception (PFMC 1999).

The Pacific salmon management unit includes Chinook, coho, and pink salmon. All three species use the marine nearshore environment for rearing as juveniles and migration for both adults and juveniles. Coho salmon are known to occur within Valley Creek and potentially spawn within the project area. In addition, Valley Creek also provides rearing, adult migration, and juvenile outmigration habitat for coho salmon.

In addition to Pacific salmon, EFH has been designated for groundfish and coastal pelagic species. EFH for Pacific coast groundfish is generally defined as the aquatic habitat from the mean higher high water line, and the upriver extent of saltwater intrusion in river mouths seaward. The *Coastal Pelagic Species Fishery Management Plan* describes the habitat requirements of five pelagic species: Northern anchovy, Pacific sardine, Pacific (chub) mackerel, jack mackerel and market squid (PFMC 1998). EFH for coastal pelagic species is generally defined as all marine and estuarine waters from the shoreline offshore above the thermocline.

The west coast groundfish management unit includes 83 species that typically live on or near the bottom of the ocean. Table 10 below indicates the species with designated EFH in the Port Angeles Harbor.

Table 9. Species of Fish with Designated EFH Occurring in Port Angeles Harbor

Groundfish Species			
Spiny dogfish	Quillback rockfish	Lingcod	Big skate
Redbanded rockfish	Kelp greenling	California skate	Redstriped rockfish
Sablefish	Longnose skate	Rosethorn rockfish	Pacific sanddab
Ratfish	Rosy rockfish	Butter sole	Pacific cod
Rougheye rockfish	Cuffin sole	Pacific whiting (hake)	Sharpchin rockfish
Dover sole	Black rockfish	Splitnose rockfish	English sole
Bocaccio	Striptail rockfish	Flathead sole	Brown rockfish
Tiger rockfish	Petrable sole	Canary rockfish	Vermillion rockfish
Rex sole	China rockfish	Yelloweye rockfish	Rock sole
Copper rockfish	Yellowtail rockfish	Sand sole	Darkblotch rockfish
Shortspine thornyhead	Starry flounder	Greenstriped rockfish	Cabazon
Arrowtooth flounder	Pacific ocean perch		
Coastal Pelagic Species			
Anchovy	Pacific sardine	Pacific mackerel	Market squid
Pacific Salmon Species			
Chinook salmon	Coho salmon	Pink salmon	

Environmental Consequences

No Action Alternative

Direct and Indirect Impacts of the Alternative

Under the No Action Alternative, the frequency of CSO events would increase over that which is currently occurring, potentially causing a further degradation of water quality within the marine environment of Port Angeles Harbor. This has the potential to result in long-term, minor adverse effects all special status species and fish species with EFH in the project area listed in Tables 9 and 10 above.

Cumulative Impacts

Past actions such as industrial operations, urban runoff, and CSO discharges, all contribute to the cumulative effect on water quality and habitat in the vicinity of the project area. The No Action Alternative would result in an increase in CSO discharges to Port Angeles Harbor, which would result in long-term, minor adverse impacts, contributing slightly to the overall cumulative effects to special status species occurring in the project area.

Conclusions

The No Action Alternative would result in long-term, minor adverse impacts to special status species. As a result, the No Action Alternative “may affect, but is not likely to adversely affect” special status species in Port Angeles Harbor and the Strait of Juan de Fuca. An increase in frequency of CSO events would contribute to the further degradation of water quality of Port Angeles Harbor and the greater Strait of Juan de Fuca. Contributions to cumulative effects would be minor in relation to the overall long-term degradation of water quality.

Preferred Alternative

Direct and Indirect Impacts of the Alternative

The Preferred Alternative would result in a reduction in CSO discharges to Port Angeles Harbor, which is anticipated to result in long-term beneficial affect to water quality and marine special status species. The main contribution of impacts on special status species would occur from new stormwater discharge to Valley Creek and short-term construction-related impacts as described below.

Stormwater impacts on aquatic species can be a result of chemical (e.g., increased pollutants; temperature changes) and physical (e.g., increased flow; scour/erosion), factors. Stormwater associated with urban runoff may contain low-levels of nutrients, sediments, metals (e.g., copper, zinc, cadmium, lead, chromium), and PAH compounds, which can harm aquatic species. Often these compounds are at or below levels that can be detected with current analytical methods and may be effectively filtered or settled out in stormwater BMPs prior to being discharged to nearby water bodies. Untreated stormwater discharges to fish-bearing creeks can harm fish and other aquatic life through a variety of pathways, but common adverse effects include reduced reproductive success, behavioral changes, impaired respiration, and depending upon the concentration of constituents, even death.

As part of the proposed project, all stormwater would be treated in accordance with the City’s NPDES Phase II Permit and Washington State Department of Ecology’s *2005 Stormwater Management Manual for Western Washington*. The location of the discharge would be in an existing discharge location (Valley Creek drain, which enters a piped section of Valley Creek in its lower reach). With the proposed treatment and the low relative volume of stormwater that would be discharged, it is expected that the additional stormwater would maintain water quality and habitat conditions in the localized area of discharge. Given the stormwater discharge would only increase overall stream flows by 1 to 3% during storm events, and the fact that stormwater discharges would primarily occur during the late fall and winter when temperatures are much cooler than during the summer, no appreciable difference between discharge and creek temperature at the localized area of discharge is anticipated. As a result, no effects of temperature on fish species is expected.

While the project is not expected to appreciably increase pollutant loads in Valley Creek, there may be a slight change in peak flows downstream of the outfall during storm events. The increase in peak flow events would be minimal (1 to 3%) and is not expected to be of sufficient size or duration to create scour or contribute to erosion of streambanks; therefore, impacts to aquatic species from increased flow would be negligible.

While the discharge point for stormwater from the 3.9-acre separated area will change under the Preferred Alternative (from the WWTP outfall / CSO outfall to the Valley Creek drain), stormwater pollution entering Port Angeles Harbor (e.g., TSS and metals) will decrease overall. This decrease is attributable to the fact that CSO events would be reduced in frequency and volume as a result of diverting the stormwater from the combined sewer system to the Valley Creek drain. Therefore, the Preferred Alternative is anticipated to have long-term, beneficial effects to special status species occurring in Port Angeles Harbor. No adverse effect is anticipated for marbled murrelet, Pacific herring, Pacific eulachon, Stellar sea lion, and killer whale, because of the lack of suitable habitat or infrequent activity by these species in the project area.

Direct effects of the Preferred Alternative are primarily related to soil disturbing activities necessary for the installation of the stormwater conveyance and treatment facility, and the potential for accidental spills from heavy equipment during installation of the facilities. Construction BMPs described in the Water Quality Section of the EA will be implemented to minimize or avoid impacts related to turbidity and sedimentation from erosion or from accidental spills. If appropriate measures are in place to control erosion and accidental spills, no adverse effects are anticipated to special status species.

The proposed action is also likely to result in a short-term increase in noise and human activity during construction; however, the types of equipment being used, the distance from the marine environment and special status species, and the short duration of construction activities would minimize these effects to discountable levels. No adverse effects are anticipated to special status species as a result of a short-term increase in noise and human disturbance during construction.

Cumulative Impacts

Past actions such as urban development around Valley Creek, modifications to Valley Creek, stormwater contributions to Valley Creek, industrial and commercial developments along the Harbor, and CSO discharges to the Harbor, have had adverse impacts on water quality and habitat conditions in Valley Creek and Port Angeles Harbor. Other projects, including past, present, and reasonably foreseeable CSO reduction projects and Valley Creek restoration projects (discussed on Pg 31) have had beneficial effects on water quality and habitat conditions in Port Angeles Harbor and Valley Creek.

The Preferred Alternative would provide a long-term beneficial effect to special status species in terms of water quality improvement, resulting in ecosystem food web and fish population enhancement. Although the Preferred Alternative will have a long-term beneficial effect on special-status species in Port Angeles Harbor, the overall long-term cumulative effect of past, present, and reasonably foreseeable actions will remain adverse due to the degradation from past events. As a result of past development and urban runoff, which have had adverse effects on water quality in Valley Creek, overall impacts from past, present, and reasonably foreseeable actions on special-status species in Valley Creek will remain adverse.

Conclusions

The potential increase in turbidity and sedimentation of Valley Creek during construction and the increase in stormwater discharge to Valley Creek may affect, but is not likely to adversely affect

federally listed freshwater and marine species, including Puget Sound Chinook salmon, Puget Sound steelhead, coho salmon, and bull trout. There are no anticipated adverse effects to fish species that have EFH within Port Angeles Harbor. Over the long-term, the Preferred Alternative will also contribute to reductions in CSO frequency and volumes within the City of Port Angeles thereby continuing efforts by the City to address degraded water quality conditions within Port Angeles Harbor, which would a long-term benefit to marine special status species. No adverse effect is anticipated to marbled murrelet, Pacific herring, Pacific eulachon, Steller sea lion, or killer whale because of the lack of suitable habitat or infrequent activity by these species in the project area. There would be no impact on federally listed plants in the project area because none are present.

The overall long-term cumulative effect of past, present, and reasonably foreseeable actions on Port Angeles Harbor and Valley Creek will remain adverse due to the degradation from past events.

CONSULTATION AND COORDINATION

SCOPING/CONSULTATION

ONP conducted public scoping from March 30 to May 3, 2010. Information about the project was posted on the park website and on the NPS Planning, Environment, and Public Comment (PEPC) website. A news release was faxed and e-mailed to a standard mailing list of approximately 100 individuals and interested groups, as well as approximately 75 media outlets along the Washington I-5 corridor and the Olympic Peninsula. In addition, the park notified 40 elected officials, organizations, area tribes, and agencies on the park's mailing list via a mailed letter. The purpose of public scoping was to gain input on the issues of concern related to the proposed project and identify potential projects in the area that could lead to cumulative impacts.

The NPS has initiated informal consultation with NMFS and USFWS on potential effects to federally listed species and EFH from the stormwater separation project. It is anticipated that the project will result in no adverse effect to listed species and fish species that have EFH within Port Angeles Harbor. The EA has been submitted to NMFS and USFWS for their concurrence that the project may affect, but is not likely to adversely affect listed species and that the project would have no adverse effects to EFH.

To meet the requirements of Section 106 of the NHPA, the Washington State Historic Preservation Office and Lower Elwha Kllalam Tribe were consulted and they concurred with the finding of no effect to historic properties.

Agencies and organizations contacted to assist in identifying issues and/or were provided an opportunity to review or comment on this EA include, but are not limited to, the following:

Federal Agencies

Department of Agriculture, Natural Resource Conservation Service, West Area Office
Department of Agriculture, U.S. Forest Service, Olympic National Forest
Department of Commerce, NOAA, National Marine Fisheries
Department of Commerce, Olympic Coast National Marine Sanctuary
Department of Interior, U.S. Fish and Wildlife Service, Western Washington Office

Congressional Representatives

Senator Patty Murray
Senator Maria Cantwell
State Senator Jim Hargrove
Rep. Norm Dicks
State Rep. Lynn Kessler
State Rep. Kevin Van De Wege

State Agencies

WA State Dept. of Ecology
WA State Dept. of Fish and Wildlife
WA State Dept. of Natural Resources
WA State Dept. of Archaeology and Historic Preservation

Local Agencies

Port Angeles Chamber of Commerce
Clallam County Commissioners
City of Port Angeles

American Indian Tribes

Lower Elwha Klallam Tribe
Jamestown S’Klallam Tribe

Organizations and Businesses

Port Angeles Downtown Association
Clallam Networks Economic Development Council
Clallam County Streamkeepers
Conservation Northwest
National Audubon Society
National Parks Conservation Association Northwest Regional Office
North Olympic Peninsula Resource Conservation & Development Council
Olympic Forest Coalition
Olympic Natural Resources Center
Olympic Park Associates
Olympic Peninsula Audubon Society
North Olympic Salmon Coalition
Protect the Peninsula’s Future
Sierra Club-Cascade Chapter
The Wilderness Society
Washington Environmental Council
Washington’s National Park Fund
Wilderness Watch

Area Libraries

North Olympic Library System
 Port Angeles Branch
 Sequim Branch
 Forks Branch
 Clallam Bay Branch

COMPLIANCE WITH FEDERAL AND STATE REGULATIONS

The NPS would comply with all applicable federal and state regulations when implementing the Preferred Alternative. Permitting and regulatory requirements are listed in Table 11.

Table 10. Compliance with State and Federal Regulations

Agency	Statute, Regulation, or Order	Purpose	Project Application
National Park Service	National Environmental Policy Act	Applies to federal actions that may significantly affect the quality of the environment.	Environmental review of proposed action and decision to prepare a FONSI or EIS.
	National Historic Preservation Act, Section 106	Protection of historic and cultural resources in coordination with the Washington State Historic Preservation Office.	No cultural resources were found. The Washington State Historic Preservation Office and Lower Elwha Tribe were consulted and concurred with the finding of no effect to historic properties.
	Executive Order 11990, Protection of Wetlands	Requires avoidance of adverse wetland impacts where practicable and mitigation, if necessary.	No wetlands present.
	Executive Order 11988, Floodplain Management	Requires avoidance of adverse floodplain impacts where practicable and mitigation, if necessary.	Coastal shoreline present, but no impact to coastal floodplains.
	NPS Order No. 77-2 Floodplain Management	Protection of natural resources and floodplains.	Coastal shoreline present, but no impact to coastal floodplains.
National Oceanic & Atmospheric Administration (NOAA)/NMFS and U.S. Fish and Wildlife Service	Endangered Species Act, Magnuson-Stevens Fishery Conservation Management Act, and Sustainable Fisheries Act	Protection of federally listed threatened and endangered species, and EFH.	The EA has been submitted to NMFS and USFWS for their concurrence with the NPS determination of not likely to adversely affect listed species and critical habitat, and no adverse effects to EFH.

Agency	Statute, Regulation, or Order	Purpose	Project Application
U.S. Army Corps of Engineers (Corps)	Clean Water Act – Section 404 Permit to discharge dredge and fill material	Authorizes placement of fill or dredge material in waters of the U.S. including wetlands.	No placement of fill or dredge material in waters of the U.S. is proposed.
	Section 10 of the Rivers and Harbors Act of 1899	Authorizes work under navigable waters of the U.S., which affects the course, location, condition, or capacity of such water.	No work in navigable waters is proposed.
Washington Department of Fish and Wildlife and Department of Ecology	Joint federal and state permit application for activities in aquatic habitat; addresses habitat protection, 401 water quality certification, 404 permitting, Section 10 – Rivers and Harbor Act permitting, Hydraulic Project Approval	Protection of aquatic habitat.	No in-water work is proposed.

LIST OF PREPARERS AND CONTRIBUTORS

NATIONAL PARK SERVICE, OLYMPIC NATIONAL PARK

Brian D. Winter, Ph.D., Elwha Project Manager
Paul Gleeson, Cultural Resources Division Chief
Dave Conca, Archaeologist

NATIONAL PARK SERVICE, DENVER SERVICE CENTER

Scott McCollough, PMP, Project Manager
Elaine Rideout, Natural Resource Compliance Specialist
Greg Cody, Cultural Resource Compliance Specialist

CITY OF PORT ANGELES

Glenn Cutler, P.E., Director of Public Works and Utilities
Stephen Sperr, P.E., City Engineer
Derek Beery, Archaeologist

BROWN AND CALDWELL

Michael O'Neal, P.E., Project Manager

ESA ADOLFSON

Karmen Martin, Project Manager
Steve Krueger, Aquatic Biologist
Ann Root, Senior Environmental Planner
Sharese Thompson, Planner
Aaron Raymond, GIS Analysis
Julie Bayer, Graphics Specialist

REFERENCES

- Beery, Derek A. 2010. *Cultural Resources Assessment for Stormwater Separation to Mitigate Lower Elwha Flows to City Of Port Angeles (Task Agreement No. 16 Mod 1)*, Clallam County, Washington. April 2010.
- Busby *et al.* 1996. *Status Review of West Coast Steelhead from Washington, Oregon, and California*. NOAA Technical Memorandum NMFS-NWFSC-27. Seattle, Washington.
- City of Port Angeles Public Works Department (CPAPWD). 2006. Maps of Stormwater System and Historic and Current Combined Sewer Outfalls. Port Angeles, WA.
- City of Port Angeles. 2009. *City of Port Angeles Draft Stormwater Management Plan – Latest Revision*, March 2009.
- Clallam County Department of Community Development (CCDCD). 2004. *State of the Waters of Clallam County. A report on the health of our streams and watersheds*, Streamkeepers of Clallam County, WA.
- Clallam County. 2004. Clallam County Water-Quality Index (CCWQI) March 2004.
- Clallam County Streamkeepers. 2009. Water Chemistry Data. September 8, 2009. Accessed online at http://www.clallam.net/streamkeepers/assets/applets/WtrChemSum_1-04--8-09.pdf
- Conca, David. 2006 *Revised Draft: Elwha River Ecosystem Restoration Archaeological Resources Treatment and Monitoring Plan*. Olympic National Park, Washington.
- Croes, Dale R. 1995. *The Hoko River Archaeological Site Complex*. WSU Press, Pullman, Washington.
- Ecology (Washington Department of Ecology). 2010. Agreed Order No. DE6815 (w/ Rayonier Properties LLC). March 25, 2010.
- Ecology (Washington Department of Ecology). 2008. *2008 Washington State Water Quality Assessment Report [Combined 303(d) & 305(b) Report]*. Accessed online at <http://www.ecy.wa.gov/programs/wq/303d/2008/index.html>
- Ecology (Washington Department of Ecology). 2007. *Phase II Western Washington Municipal Stormwater NPDES and State Discharge General Permit*. January 17, 2007.
- Ecology and Environment, Inc. 2008. *Port Angeles Harbor Final Summary of Existing Information and Identification of Data Gaps Report*. Prepared for: Washington State Department of Ecology Toxics Cleanup Program. April 2008
- Elwha-Dungeness Planning Unit. 2005. Elwha-Dungeness Watershed Plan, Water Resource Inventory Area 18 (WRIA 18) and Sequim Bay in West WRIA 17. Published by Clallam County. May 2005.

- Entrix. 2004. *Cultural Resources Technical Report: Port Angeles 8th Street Bridge Replacements*. Report prepared for Exeltech Consulting Inc. by Entrix, Seattle, Washington.
- Eysaman and Company Architecture. 2000. *Historic Property Survey Report of Downtown Port Angeles*. Report prepared for Merritt and Pardini for the City of Port Angeles and Clallam Transit. On file with the City of Port Angeles, Washington.
- Federal Register, Volume 70, Number 170. Friday, September 2, 2005. Endangered and Threatened Species; Designation of Critical Habitat for 12 Evolutionarily Significant Units of west Coast salmon and Steelhead in Washington, Oregon, and Idaho: Final Rule.
- Federal Register, Volume 70, Number 185. Monday, September 26, 2005. Endangered and Threatened Wildlife and Plants: Designation of Critical Habitat for the Bull Trout; Final Rule.
- Federal Register, Volume 71, Number 229. Wednesday, November 29, 2006. Endangered and Threatened Species: Designation of Critical Habitat for Southern Resident Killer Whale; Final Rule.
- Haring, D. 1999. *Salmon and Steelhead Limiting Factors. Water Resource Inventory Area 18*. Washington State Conservation Commission. Final report.
- Gray & Osborne, 2009. Preliminary Design Report for Sewage Collection System. Prepared for the City of Port Angeles. May 2009
- Gunther, Erna. 1927. *Klallam Ethnography*. University of Washington Publications in Anthropology 1(5): 171-314.
- Gustafson, R.G., M.J. Ford, D. Teel, and J.S. Drake. 2010 *Status Review of Eulachon (Thaleichthys pacificus) in Washington, Oregon, and California*. U.S. Department of Commerce, NOAA Technical Memo. NMFS – NWF SC-105.
- Halloin, L. J. 1987. *Soil Survey of Clallam County Area, Washington*. Washington Department of Natural Resources, Soil Conservation Service. 213 pages.
- Jeffries, S.J., P.J. Gearin, H.R. Huber, D.L. Saul, and D.A. Pruett. 2000. *Atlas of Seal and Sea Lion Haulout Sites in Washington*. Washington Department of Fish and Wildlife, Wildlife Science Division, 600 Capitol Way North, Olympia WA. pp. 150.
- Larson, Lynn L., ed. 2007. Revised Final Data Recovery Excavation and Archaeological Monitoring at the Tse-Whit-Zen Site (45CA523) Clallam County, Washington, Volume I: Report prepared for the Washington State Department of Transportation by Larson Anthropological Archaeological Services Limited, Gig Harbor, Washington.
- Martin, Paul J. 1983. *Port Angeles, Washington: A History. Volume I*. Pen Print Inc. Port Angeles, Washington.

- Mongillo, P.E., and M. Hallock. 1993. *Native trout and char investigations*. Federal Aid Project F107R. Annual report July 1, 1992-June 10, 1993. Submitted to the United States Fish and Wildlife Service Federal Aid in Fish Restoration Program. Washington State Department of Wildlife, Olympia.
- NPS (National Park Service). 1995. *Elwha River Ecosystem Restoration: Final Environmental Impact Statement*.
- NPS (National Park Service). 1996a. *Statement of Management: Olympic National Park*.
- NPS (National Park Service). 1996b. *Elwha River Ecosystem Restoration Implementation. Final Environmental Impact Statement*.
- NPS (National Park Service). 2005. *Elwha River Ecosystem Restoration Implementation. Final Supplement to the Final Environmental Impact Statement*.
- NPS (National Park Service). 2006. *National Park Service Management Policies*.
- NPS (National Park Service). 2008. *Olympic National Park General Management Plan*.
- PFMC (Pacific Fisheries Management Council). 1998. *The Coastal Pelagic Fishery Management Plan: Amendment 8*. Pacific Fishery Management Council.
- PFMC (Pacific Fisheries Management Council). 1999. *Amendment 14 to the Pacific Coast Salmon Plan. Appendix A: Description and Identification of Essential Fish Habitat, Adverse Impacts, and Recommended Conservation Measures for Salmon*. Pacific Fisheries Management Council.
- USFWS (United States Fish and Wildlife Service). 2004a. *Draft Recovery Plan for the Coastal-Puget Sound Distinct Population Segment of Bull Trout (Salvelinus confluentus). Volume II of (II): Olympic Peninsula Management Unit*. Portland, Oregon. 389 + xvii pp.
- Redman, S., D. Meyers, and D. Averill. 2005. *Regional Nearshore and Marine Aspects of Salmon Recovery in Puget Sound*. Delivered to Shared Strategy for Puget Sound for inclusion in their regional salmon recovery plan. June 28, 2005.
- Shannon & Wilson, Inc. 2006. *City of Port Angeles Frances Street CSO Project Draft Geotechnical Report*. October 10, 2006.
- Suttles, Wayne. 1990. *Central Coast Salish*. In: *Northwest Coast*, edited by Wayne Suttles. *Handbook of North American Indians, Volume 7*. William Sturtevant, general editor, Smithsonian Institute. Washington, D.C.
- USFWS (United States Fish and Wildlife Service). 2004a. *Draft Recovery Plan for the Coastal-Puget Sound Distinct Population Segment of Bull Trout (Salvelinus confluentus). Volume II of (II): Olympic Peninsula Management Unit*. Portland, Oregon. 389 + xvii pp.

- WDFW (Washington State Department of Fish and Wildlife). 2010a. SalmonScape interactive mapping tool. Available at: <http://wdfw.wa.gov/mapping/salmonscape/index.html>.
- WDFW (Washington State Department of Fish and Wildlife). 2010b. Priority Habitat and Species database. Olympia, Washington.
- WDFW (Washington State Department of Fish and Wildlife). 1998. *Washington Salmonid Stock Inventory; Appendix: Bull Trout and Dolly Varden*. Washington State Department of Fish and Wildlife. Olympia, Washington.
- WDFW and Western Washington Treaty Indian Tribes. 1994. *1992 Washington State Salmon and Steelhead Stock Inventory: Appendix One Puget Sound Stocks. South Puget Sound Volume*.
- West, Nathan. 2010. Personal Communication with Nathan West, City of Port Angeles Community and Economic Development Director. July 1, 2010.
- Wiles, G.J. 2004. *Washington State Status Report for the Killer Whale*. Washington Department of Fish and Wildlife, Olympia, WA.

APPENDIX A
AGENCY CONSULTATION LETTERS



STATE OF WASHINGTON

Department of Archaeology and Historic Preservation

1063 S. Capitol Way, Suite 106 • PO Box 48343 • Olympia, Washington 98504-8343

Phone (360) 586-3065 • Fax Number (360) 586-3067

<http://www.dahp.wa.gov>

March 9, 2010

Ms. Karen Gustin
Olympic National Park
600 East Park Avenue
Port Angeles, Washington 98362-6798

Re: Lower Elwha Wastewater Treatment Project
Log No: 022409-08-NPS

Dear Ms. Gustin;

Thank you contacting our department. We have reviewed the draft professional archaeological survey report you provide for the proposed Lower Elwha Wastewater Treatment Project on the Lower Elwha Indian Reservation as part of the Elwha River Restoration Project.

We concur with your determination of No Historic Properties Affected. Please provide a copy of both the final professional archaeological survey report and monitoring report when available.

We would appreciate receiving any correspondence or comments from concerned tribes or other parties that you receive as you consult under the requirements of 36CFR800.4(a)(4).

These comments are based on the information available at the time of this review and on the behalf of the State Historic Preservation Officer in conformance with Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations 36CFR800. Should additional information become available, our assessment may be revised. Thank you for the opportunity to comment and a copy of these comments should be included in subsequent environmental documents.

Sincerely,

Robert G. Whitlam, Ph.D.
State Archaeologist
(360) 586-3080
email: robw@cted.wa.gov

cc: B. White