



## **Final Environmental Assessment**

### **Willapa Hills Trail Project**

Willapa Hills Trail (managed by the Washington State Parks and Recreation Commission)

Lewis County, Washington

FEMA-1734-DR-WA (Public Assistance)

April 2012



# **FEMA**

**U.S. Department of Homeland Security**

FEMA Region X

130 228<sup>th</sup> Street SW

Bothell, WA 98021

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*April 2012*

*[Cover Photo: View of Willapa Hills Trail Embankment Washout and Rock Creek]*

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## Acronyms and Abbreviations

|         |  |
|---------|--|
| ACHP    | Advisory Council on Historic Preservation                      |
| APE     | Area of Potential Effect                                       |
| BMP     | best management practice                                       |
| BN      | Burlington Northern Railroad                                   |
| CEQ     | Council on Environmental Quality                               |
| CFR     | Code of Federal Regulations                                    |
| CWA     | Clean Water Act  |
| DAHP    | Washington Department of Archaeology and Historic Preservation |
| EA      | Environmental Assessment                                       |
| Ecology | Washington State Department of Ecology                         |
| EFH     | Essential Fish Habitat   |
| EIS     | Environmental Impact Statement                                 |
| EMD     | Washington Emergency Management Division (Military Department) |
| EO      | Executive Order  |
| EPA     | U.S. Environmental Protection Agency                           |
| ESA     | Endangered Species Act   |
| ESU     | Evolutionarily Significant Unit                                |
| FEMA    | Federal Emergency Management Agency                            |
| FIRM    | Flood Insurance Rate Map                                       |
| FONSI   | Finding of No Significant Impact                               |
| GIS     | geographic information system                                  |
| GLO     | General Land Office  |
| GMA     | Growth Management Act  |
| HPA     | Hydraulic Project Approval                                     |
| HRA     | Historical Research Associates                                 |
| HUC     | Hydrologic Unit Code   |
| JARPA   | Joint Aquatic Resources Permit Application                     |
| LCC     | Lewis County Code  |
| MBTA    | Migratory Bird Treaty Act                                      |
| MSA     | Magnuson-Stevens Fishery Conservation and Management Act       |
| NEPA    | National Environmental Policy Act                              |
| NHPA    | National Historic Preservation Act                             |
| NMFS    | National Marine Fisheries Service                              |
| NP      | Northern Pacific   |
| NPDES   | National Pollutant Discharge Elimination System                |
| NRCS    | Natural Resources Conservation Service                         |
| NRHP    | National Register of Historic Places                           |
| OHWM    | ordinary high water mark                                       |
| PA      | Public Assistance  |
| PHS     | Priority Habitats and Species                                  |
| PNP     | Private Non-Profit   |
| RCW     | Revised Code of Washington                                     |
| RM      | River Mile   |
| ROW     | Right-of-way   |
| SCS     | Soil Conservation Service                                      |

|             |   |
|-------------|---|
| SEPA        | State Environmental Policy Act  |
| SHPO        | State Historic Preservation Officer   |
| SPCC        | Spill Prevention Control and Countermeasures                                    |
| SR          | State Route   |
| State Parks | Washington State Parks and Recreation Commission                                |
| SW          | Southwest   |
| TESC        | Temporary Erosion and Sediment Control  |
| URW         | United Railroads of Washington  |
| USFWS       | U.S. Fish and Wildlife Service  |
| Y&PC        | Yakima and Pacific Coast Railroad Company                                       |
| WAC         | Washington Administrative Code  |
| WDFW        | Washington Department of Fish and Wildlife                                      |
| WISAARD     | Washington Information System for Architectural and Archaeological Records Data |
| WNHP        | Washington Natural Heritage Program   |
| WRIA        | Water Resource Inventory Area   |

# 1.0 Purpose and Need for Action

## 1.1 INTRODUCTION

Severe storms in December 2007 caused extensive flooding, landslides, and mudslides in southwestern Washington. During the 2007 winter flood, Rock Creek in Lewis County, Washington (Figure 1.1-1) overflowed its banks and eroded an approximately 500-foot section of the Willapa Hills Trail. The President declared the flooding event a major disaster (FEMA 1734-DR-WA), making federal funding available for emergency work and repair or replacement of disaster-damaged facilities. The Washington State Parks and Recreation Commission (State Parks) applied through the Washington State Emergency Management Division (EMD) to the Federal Emergency Management Agency (FEMA) for funding to replace and relocate the trail.

This Environmental Assessment (EA) has been prepared to help FEMA meet its environmental review responsibilities under the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality's (CEQ) implementing regulations (40 Code of Federal Regulations [CFR] Parts 1500 through 1508), and FEMA's implementing regulations (40 CFR Part 10). FEMA is also using the EA to document compliance with other applicable federal laws and executive orders, including the Endangered Species Act (ESA), the Magnuson-Stevens Fishery Conservation and Management Act (MSA), the Clean Water Act (CWA), the National Historic Preservation Act (NHPA), Executive Order (EO) 11988 (Floodplains), EO 11990 (Wetlands), and EO 12898 (Environmental Justice).

Based on the analysis presented in and public and agency comments received on the Draft EA, no significant impacts were identified on the quality of the human and natural environments. Therefore, FEMA has prepared a Finding of No Significant Impact (FONSI). See Section 4.1.1 for a summary of the process for review and comment on the Draft EA.

This document describes the purpose and need for the Proposed Action, the project alternatives, the affected environment and potential impacts on that environment resulting from the alternatives, cumulative effects, public involvement, and resources consulted.

## 1.2 BACKGROUND AND LOCATION

The project area is located approximately 2.9 miles southwest of the city of Pe Ell, Washington, adjacent to the intersection of Rock Creek Road and State Route (SR) 6 in rural western Lewis County, Washington. The project area is a part of the Willapa Hills Trail, a 56-mile long trail extending from Chehalis to Raymond along a former railroad line. The trail is managed by State Parks, administered through Rainbow Falls State Park (Figure 1.2-1). The trail runs through central-southwest Washington in the Chehalis River floodplain, through rolling agricultural lands, forest lands, and rural areas. The legal description of the project area is Township 12 North, Range 5 West, and Section 5. The project coordinates are 46.54956 (latitude)/ -123.34080 (longitude).

The damaged segment of trail is approximately 500 feet long, constructed on an approximately 12-foot wide and 15-foot tall earthen berm made of fill material and topped with gravel (Figure 1.2-2). The trail is a former railroad bed that has been converted to the gravel Willapa Hills Trail. As originally constructed for the railroad, the trail grade was aligned adjacent to the northern bank of Rock Creek. During the 2007

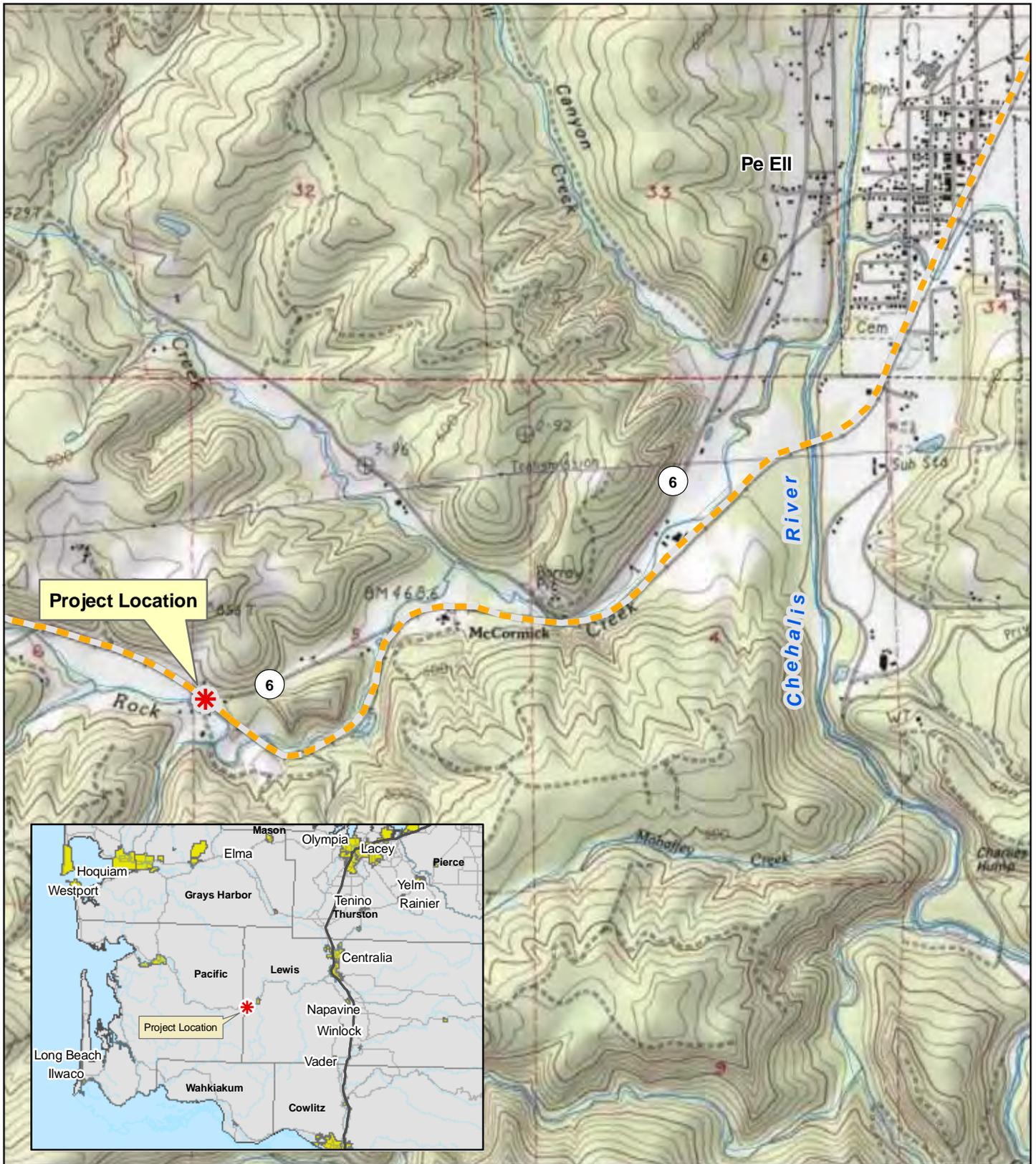
storm, Rock Creek flow increased in velocity and volume, eroding the 500 feet of trail at the project site (Figure 1.2-2). Currently, the trail is disrupted and the two segments do not connect through the washed out section. Because State Parks considers the damaged trail unsafe, this portion of the Willapa Hills Trail is closed.

### 1.3 PURPOSE AND NEED

The purpose of the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1973 (Stafford Act), as amended, is to provide a wide range of federal assistance for state and local governments to supplement efforts and resources in alleviating damage or loss from major disasters or emergencies or both. The objective of the FEMA Public Assistance (PA) Grant Program is to provide assistance to state, tribal, and local governments, and certain types of Private Non-Profit (PNP) organizations so that communities can quickly respond to and recover from major disasters or emergencies declared by the president. Through the PA Program, FEMA provides supplemental federal disaster grant assistance for debris removal, emergency protective measures, and the repair, replacement, or restoration or relocation of disaster-damaged, publicly owned facilities and the facilities of certain PNP organizations. The need for the FEMA action is to provide funds to State Parks to restore the function of the Willapa Hills Trail that was lost when it was damaged. The December 2007 flood event rendered the trail unusable by hikers, horseback riders, bikers, other recreational users, and maintenance and emergency vehicles and disrupted the east/west trail system connection.

To meet the project need, State Parks identified the following objectives:

- Provide safe, secure, and permanent public access to the Willapa Hills trail system, including access for hikers, horseback riders, bikers, other recreational users, and maintenance and emergency vehicles;
- Minimize construction-related environmental impacts;
- Minimize impacts on Rock Creek and the on-site wetland identified as Wetland A;
- Minimize the potential for additional trail damage during future storms;
- Minimize annual maintenance and construction-related costs; and
- Minimize right-of-way (ROW) acquisition and impacts on adjacent landowners.



**Project Location**

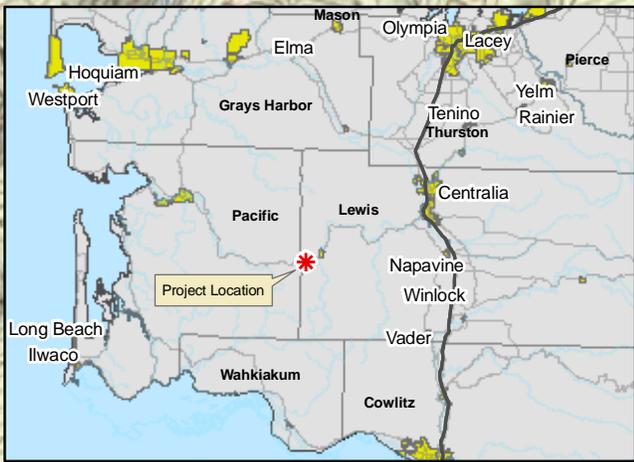
Pe Ell

Chehalis River

Rock

6

6

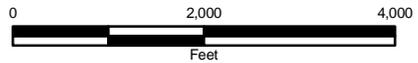


**Legend**

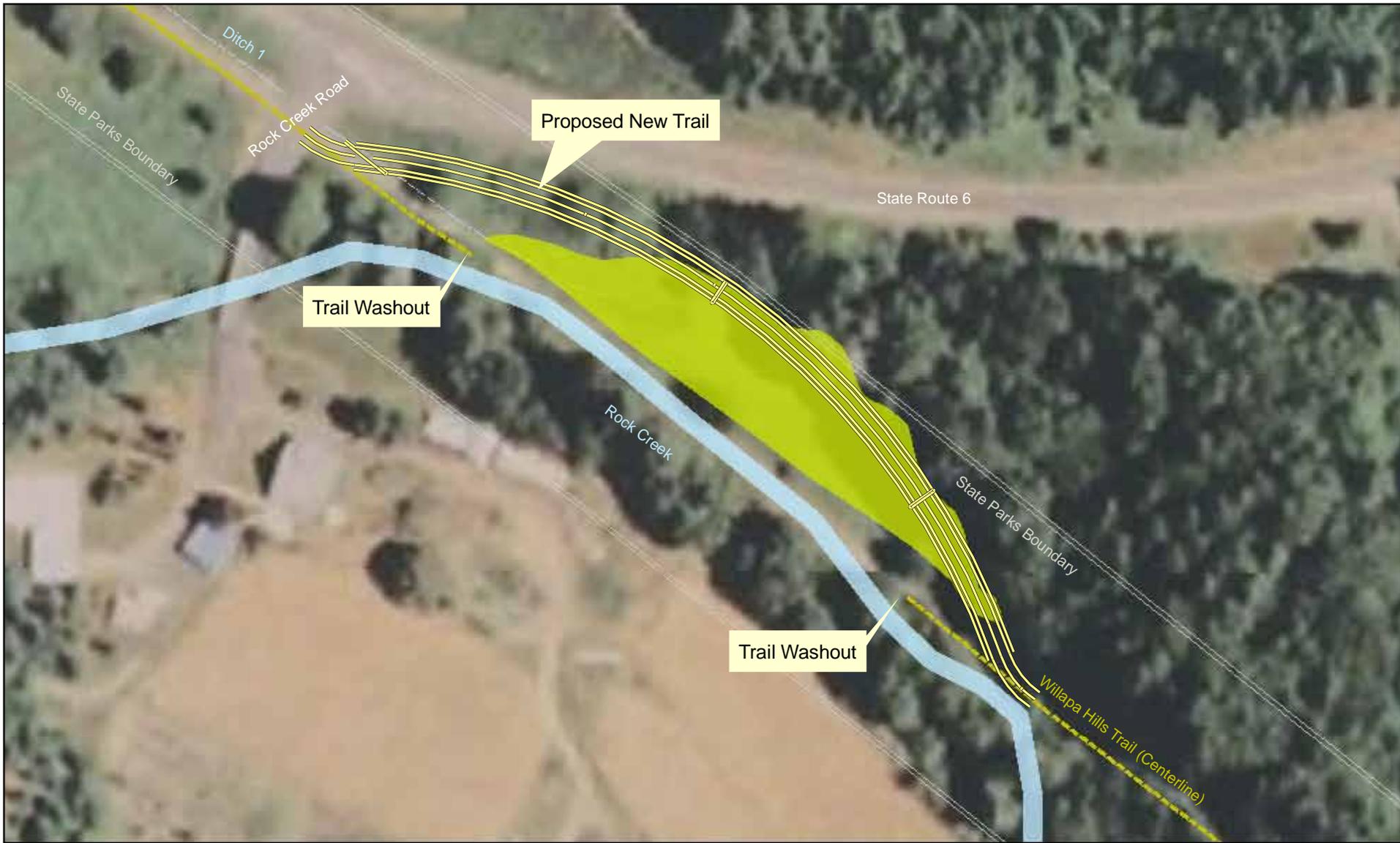
-  Project Location
-  Willapa Hills Trail

Figure 1.1-1. Project Vicinity

Washington State Parks  
Willapa Hills Trail Project



Basemap: 1 inch = 2,000 feet  
USGS Quad  
09100406.04 2/2011



**Legend**

-  Proposed New Trail
-  Willapa Hills Trail Centerline
-  Ditch 1
-  Wetland

Figure 1.2-1. Project Location  
 Washington State Parks  
 Willapa Hills Trail Project



Basemap: 1 inch = 100 feet  
 09100406.04 1/11



Damaged Segment of Trail on East End



Damaged Segment of Trail Middle



Damaged Culvert



Damaged Culvert and Embankment



View of Damage from Rock Creek



View of Damage from West to East

Figure 1.2-2. Photos of Damage.

## 2.0 Alternatives, Including the Proposed Action

CEQ regulations require federal agencies to consider a reasonable range of alternatives that meet the purpose and need of a proposed action in their NEPA review. Reasonable alternatives are alternative ways of meeting project need, but with varying degrees of environmental impact. Alternatives that would clearly result in substantially greater environmental impact than the Proposed Action do not require detailed analysis.

The following section describes the alternatives being considered for the Willapa Hills Trail Project, and the process that was used to develop these alternatives. This EA presents an analysis of two alternatives for the project: Alternative A (No Action Alternative), and Alternative B (Proposed Action). It also describes alternatives that were considered but not carried forward for further analysis.

### 2.1 ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD

Several alternatives were reviewed but eliminated from further consideration in this EA because they did not meet the project purpose and need, they were not practical, or they were not suitable for FEMA funding under its PA program. These alternatives are listed and described below.

**Alternative 1 – Restore trail in original configuration.** This alternative would restore the trail in its original location. Because the Rock Creek channel has widened and the creek now flows where the trail was originally located, this eliminated alternative would involve reconstructing the trail in the Rock Creek channel for approximately 500 feet (the original length). This would require filling the Rock Creek channel, armoring the bank and trail alignment, and redirecting Rock Creek. Although this alternative would not require additional ROW acquisition, it is not feasible because of the following issues:

- High risk of repetitive damage and likelihood for repeated closures resulting in a trail that is less likely than other alternatives to provide safe, secure, and permanent public access.
- Extensive fill and bank armoring in Rock Creek, potential temporary encroachment onto adjacent wetlands for rebuilding embankment, adverse impact on fish habitat (including Essential Fish Habitat [EFH]), and substantial environmental permitting and agency negotiation. The Washington Department of Fish and Wildlife (WDFW) has denied approval of this alternative due to adverse impacts on fish and fish habitat (State Parks 2009). In addition, EO 11988 (Floodplain Management) and FEMA Regulations (44 CFR Part 9) require selection of a location outside the floodplain if it is practicable.

**Alternative 2 – Rebuild the trail, in a new alignment, using a boardwalk.** This alternative would relocate the trail outside of the Rock Creek channel, along the same alignment as the Proposed Action. The closest feasible location to the original alignment traverses a wetland on the northeast side of Rock Creek and the damaged trail. The wetland, identified as Wetland A (AECOM 2011), is a small (0.55 acre) depressional wetland dominated by emergent vegetation (see Figure 1.2-1). A boardwalk was considered to minimize the impact on the wetland. This alternative would not require additional ROW acquisition. To meet the load bearing capacity for use by horseback riders and small emergency and maintenance vehicles, the boardwalk would need to be supported by a pinned steel pile foundation with numerous deep-seated piles driven into the wetland to support boardwalk decking of pressure-treated wood or

plastic composites (State Parks 2010b). This alternative was determined to be impractical because of the following issues:

- The proposed boardwalk would follow the terrain and would be only slightly elevated above the wetland and seasonal inundation. The boardwalk would be susceptible to repetitive damage during major flood events, which could result in temporary trail closures and unsafe access.
- The estimated cost of this type of boardwalk would be considerably higher than that of an earthen trail described for the Proposed Action (State Parks 2010b).
- Although built as a boardwalk, the proposed pinned steel pile foundation and required high density of piles would alter natural wetland hydrology. Engineers with State Parks determined that this type of foundation would have similar impacts on hydrology and soils when compared to the Proposed Action (State Parks 2010b).

**Alternative 3 – Relocate the trail on the south side of the creek, and construct a new bridge to connect the new alignment to the old trail alignment.** This alternative would relocate the trail to the south side of Rock Creek, south of the original trail location. This alternative would avoid impacts on the wetland north of Rock Creek. This alternative would require the use of an existing bridge and one new bridge over Rock Creek to connect the new trail segment with the existing trail alignment. The new bridge would require two abutments and two piers to support horseback riders and small emergency and maintenance vehicles. However, this alternative was deemed impractical because of the following issues:

- Rock Creek, including fish habitat and hydraulic conditions, would be adversely affected by in-water work to construct the new abutments and piers and possible bank armoring.
- The cost of bridge construction and ROW acquisition is substantially higher than the Proposed Action.
- Adjacent landowners have informed State Parks that they are not interested in a land exchange necessary for relocating the trail to the south side of Rock Creek.

## 2.2 ALTERNATIVE A - NO ACTION

Under the No Action Alternative, FEMA would not provide funding to State Parks for construction of the Willapa Hills Trail Project. This portion of the trail would remain unusable, and recreational opportunities would continue to be disrupted. Access east and west along the Willapa Hills Trail system would officially terminate at this location. Without connecting the trail segments, many trail users would either skirt the damaged section of the trail, balancing on steep banks and crossing the wetland, or they would traverse the steep banks to ford the creek. Both of these options would be unsafe, would create erosion, and could damage the surrounding ground surface and resources. The damaged and unstable portions of the trail would continue to erode, and future storms could wash out more of the trail. State Parks could choose to move forward with replacement of the damaged portion of the trail using non-FEMA funding. However, due to budget shortages and resource constraints, identifying alternative funding sources would significantly delay repairs. The No Action Alternative does not provide safe, secure, or permanent access to the Willapa Hills trail system.

## 2.3 ALTERNATIVE B - PROPOSED ACTION

Under the Proposed Action, FEMA would provide funding to State Parks for construction of the Willapa Hills Trail Project. The Proposed Action includes design and construction to replace the damaged 500-foot segment of washed out trail with an approximately 700-foot new earthen berm trail along a new alignment. The narrow State Parks' ROW (approximately 200 feet wide) between SR 6 and the current location of Rock Creek limits the options for relocating the damaged trail segment. As a result, the new trail would be aligned within the narrow strip of land north of the original trail alignment through portions of a wetland (State Parks 2010a and 2010c). The new trail would be built at approximately the same elevation as the existing trail, approximately 3 to 4 feet above the base elevation of the adjacent terrain. The new trail alignment would be located as far from Rock Creek as feasible, within the constraints of the narrow ROW. By aligning the new trail in this location away from Rock Creek, there is less likelihood of damage from large debris and seasonal high water events.

Proposed project elements were designed to meet the objectives identified in Section 1.3 and include the following:

- Clear vegetation along the new trail alignment.
- Install three 18" culverts dispersed along new trail alignment
- Place filter fabric to prevent weed invasion and to provide stability.
- Install a trail base layer of 5- to 6-inch rock.
- Construct an earthen trail prism (approximately 3 to 4 feet high by 12 feet wide) with fill material. Approximately, 5,670 square feet of new trail would encroach on Wetland A.
- Surface the trail with gravel.
- Remove the remaining portion of the damaged trail segment.
- Stabilize the creek bank by placing 15–20 large root wads (8- to 10-foot diameter with 20 to 30 trunks) and riprap to redirect the thalweg (i.e., deepest part of the channel) away from the bank, attenuate the flow, and encourage sediment accretion along the bank.
- Create juvenile fish habitat as a secondary benefit of root wad placement.

The total estimated cost is approximately \$92,705 (EMD 2009). The estimate includes the "base cost" for construction work and the applicant's project management and design costs (EMD 2009). According to the State Parks' (2010c) draft Joint Aquatic Resources Permit Application (JARPA), fair market value of the project is approximately \$200,000.

To comply with provisions of the WDFW Hydraulic Project Approval (HPA), construction work below the ordinary high water mark (OHWM) would occur between July 1 and September 15 of calendar years 2010 through 2012 (WDFW 2010). In addition, the project may require a Section 404 permit from the U.S. Army Corps of Engineers (Corps) for the discharge of fill material into wetlands or waters of the United States (as described in more detail in Section 3.2 of this EA). State Parks would adhere to these and any other state and federal regulations and permit conditions for construction and operation of the proposed project. State Parks will implement its standard trail design, and the following best management practices (BMPs) would be implemented during construction-related activities:

- **Erosion and Sediment Control:** These specifications require the contractor to implement a Temporary Erosion and Sediment Control (TESC) Plan to comply with federal, state, and local

laws, rules and regulations, and the National Pollutant Discharge Elimination System (NPDES) General Construction Permit regarding erosion prevention and sediment control for on-site construction activities. Erosion and sediment control specifications typically focus on soil and slope protection and stabilization measures, followed by site restoration methods (including planting materials). Additional erosion and sediment control BMPs are required in the provisions of the HPA issued by WDFW in July 2010 for the project (WDFW 2010). Provisions of the HPA include measures to avoid the potential release of project-related overburden soils, fill, and silt-laden water to Rock Creek (WDFW 2010).

- **Environmental Protection:** These specifications direct the contractor to implement measures and comply with laws and regulations designed to protect sensitive environmental resources. To ensure that all construction-related pollutants are controlled and contained, a project-specific Spill Prevention, Control, and Countermeasures (SPCC) Plan would be developed and implemented. This specification section addresses hazardous waste and hazardous substances management, pollution control, protection of plant and animal species, protection of wetlands, and protection of cultural resources, as well as other applicable safety, health, and human resource issues. Additional environmental protection BMPs are required in the provisions of the HPA (WDFW 2010). BMPs include ensuring that equipment used for this project would be free of external petroleum-based products while working around the stream and checked daily for leaks, and that any necessary repairs would be completed prior to commencing work along the stream (WDFW 2010).
- **Clearing and Grubbing:** These specifications direct the contractor regarding clearing operations, including removing, preserving, and trimming of trees and other vegetation. These specifications also address grubbing operations and provide limits on the contractor's area of approved activity and scope of actions. These specifications protect vegetation both inside and outside of approved work areas. Additional clearing and grubbing BMPs are required in the provisions of the HPA (WDFW 2010). BMPs include limiting alteration or disturbance of bank vegetation to that necessary to construct the project, restoring the banks and planting them within 1 year of completion with native or other approved woody species and vegetative cuttings, and maintaining the plantings for 3 years to ensure 80 percent survival (WDFW 2010).
- **Wetland Creation and Enhancement:** In addition to or in conjunction with any requirements associated with the Corps' Section 404 permit and as described in the State Parks State Environmental Policy Act (SEPA) environmental checklist, which is hereby incorporated by reference (State Parks 2010a), State Parks intends to enhance wetland vegetation conditions by removing the existing cover of invasive species such as Himalayan blackberry (*Rubus armeniacus*) and reed canarygrass (*Phalaris arundinacea*), replacing these with native species that provide better habitat, such as red alder (*Alnus rubra*) and willows (*Salix* spp.). State Parks also plans to create new wetlands, expand Wetland A, and restore connectivity to Rock Creek.

## 2.4 SUMMARY OF EFFECTS

Table 2.4-1 summarizes the effects described and analyzed in Chapter 3 (*Affected Environment and Environmental Consequences*). Levels of potential effect are defined as follows:

- **None/Negligible:** The resource area would not be affected, or changes would be non-detectable or if detected, effects would be slight and local. Impacts would be well below regulatory limits, as applicable.

- **Minor:** Changes to the resource would be measurable, although the changes would be small and localized. Impacts would be within or below regulatory limits, as applicable. Mitigation measures may be necessary to reduce potential effects.
- **Moderate:** Changes to the resource would be measurable and have localized and potentially regional scale impacts. Impacts would be within or below regulatory limits, but historical conditions would be altered on a short-term basis. Mitigation measures may be necessary to reduce potential effects.
- **Major:** Changes would be readily measurable and would have substantial consequences on a local and regional level. Impacts would exceed regulatory limits. Mitigation measures to offset the effects would be required to reduce impacts, although long-term changes to the resource would be possible.

The criteria and thresholds of significance used in the analysis are defined by resource in Chapter 3.

**Table 2.4-1. Summary of Effects of the Project Alternatives for the Willapa Hills Trail Project.**

| Resource Area                                       | Alternative A –<br>No Action Alternative  | Alternative B –<br>Proposed Action  |
|---|---|---|
| Geology and Soils                                   | Potentially substantial risk to hikers from unauthorized crossing of the damaged section of the trail.<br><br>Minor soil erosion and sediment contribution to Rock Creek from unstable slopes on damaged trail. | Minor short- and long-term effects from: clearing for 700 linear feet (0.25 acre) of new trail, moving 1,100 cubic yards of material from the damaged trail to the new trail alignment, and placing 7,800 cubic yards of fill material for building the new trail alignment.  |
| Hydrology, water quality, wetlands, and floodplains | Minor effects on hydrology and water quality in Rock Creek from continued erosion of damaged trail.   | Minor short- and long-term effects from impact on 5,670 square feet (0.13 acre) of wetlands and 40 linear feet of a roadside ditch. Minor short-term construction-related effects from required wetland mitigation.<br><br>Beneficial long-term effect on hydrology and water quality from required wetland mitigation that includes restoration of 34,700 square feet of Wetland A and 2,250 square feet along Rock Creek. |
| Vegetation  | Minor long-term effects on vegetation from unauthorized crossing of the damaged section of the trail.   | Minor short- and long-term effects from clearing 0.09 acre of disturbed uplands, 0.03 acre of forest, and 0.13 acre of wetland to construct 700 linear feet of new trail.<br><br>Moderate long-term beneficial effect from decommission of 500 linear feet of trail and restoration of riparian vegetation.   |

| Resource Area                 | Alternative A –<br>No Action Alternative  | Alternative B –<br>Proposed Action   |
|-------------------------------|---|--|
|                               |   | Minor long-term beneficial effect from removal of invasive plants such as Japanese knotweed, reed canarygrass, and Himalayan blackberry.   |
| Fish and Wildlife             | Minor effects on fish habitat from continued release of sediment and associated turbidity into Rock Creek.<br>No effect on wildlife | Minor, short-term construction-related effect resulting in fish and wildlife avoidance of the project area (3 acres) during construction.<br>Minor, long-term effect from 0.25 acre of wildlife habitat loss from vegetation clearing.<br>Long-term beneficial effect on fish habitat (2,250 square feet) from Rock Creek restoration.<br>Long-term beneficial effect on wildlife associated with wetlands from 34,700 square feet of wetland restoration. |
| Recreation and Visual Quality | Moderate adverse effect on recreation due to lack of trail access.<br>Minor adverse visual effect due to damaged trail section.     | Moderate beneficial effect on recreation due to restored east/west trail access.<br>Minor temporary adverse visual effect from trail construction, trail decommissioning, and Rock Creek restoration.  |
| Cultural Resources            | No effect.  | No effect.   |
| Environmental Justice         | No effect.  | No effect.   |
| Climate Change                | No effect.  | No effect.   |
| Cumulative Effects            | No effect.  | Negligible effect.   |

## 3.0 Affected Environment and Environmental Consequences

The following presents an analysis of the affected environment and potential effects from implementing the project alternatives. The level of detail provided in the analysis is commensurate with the potential of the project to cause impacts.

### 3.1 GEOLOGY AND SOILS

#### 3.1.1 AFFECTED ENVIRONMENT

The project area is within the Willapa Hills physiogeographic province (Hunting et al. 1961; Wells 1981). The project area is underlain by these late Eocene to Early Oligocene sedimentary formation (Lasmanis 1991). These marine sediments are prone to landslides and surface erosion (Kelley 1999). The project area includes a low terrace adjacent to Rock Creek and a small portion of Rock Creek (Figure 1.2-1, *Project Location*). The site is generally flat with a nearly vertical 20-foot drop off to the creek where the trail grade continues to be eroded (Figure 1.2-2, *Photos of Damage*).

Soils in the project area are mapped by the Web Soil Survey (NRCS 2009) and described in the Soil Survey of the Lewis County Area (SCS 1987) as: Newberg fine sandy loam, described as a very deep, well-drained soil formed in perennial river floodplains; and Galvin silt loam, 0 to 8 percent slopes, described as very deep, somewhat poorly drained soils on terraces adjacent to streams. The damaged trail embankment consists of fill material that is unstable and being eroded by flow from Rock Creek and subsurface flow from the project area wetlands.

##### 3.1.1.1 Regulatory Environment

No specific regulations or requirements directly target geological and soil resources within the project area.

#### 3.1.2 METHODOLOGY AND THRESHOLDS OF SIGNIFICANCE

The analysis of environmental effects is based on an assessment of available data and literature sources, combined with best scientific and professional judgment where quantitative data were unavailable.

The effect of the Proposed Action has been assessed in terms of its context and intensity. A project alternative would reach the significance threshold for effects on geology or soil resources if it would:

- Expose people or structures to major geologic hazards, such as landslides.
- Cause substantial long-term erosion of soils and unstable slope conditions.
- Result in accumulation of bedded sediment and siltation that would lead to substantial stream channel changes.

### **3.1.3 ENVIRONMENTAL CONSEQUENCES**

This section describes the potential effects of the project alternatives on soil resources within the immediate vicinity of the project. Mitigation measures to offset any identified effects are also described, as applicable.

#### **3.1.3.1 Alternative A: No Action**

Under the No Action Alternative, FEMA would not provide funding to State Parks for construction of the Willapa Hills Trail Project. This portion of the trail would remain unusable, and recreational opportunities would be disrupted. Access east and west along the Willapa Hills Trail system would officially terminate at this location. Without connecting the trail segments, many trail users would either skirt the damaged section of the trail, balancing on steep banks and crossing the wetland, or they would traverse the damaged banks to ford the creek. Both of these options would create erosion problems and could damage the surrounding ground surface and resources. Exposed soils on the damaged trail embankment would continue to erode into Rock Creek, and conveyance of sediment would impact fish habitat. This effect on soils would be minor, and no mitigation measures would be necessary under the No Action Alternative.

#### **3.1.3.2 Alternative B: Proposed Action**

Under the Proposed Action, FEMA would provide funds to support the construction of a new trail as described in Section 2.3. There are no known unique or protected geological resources or geological hazards within the project area. Minor short- and long-term effects on geology and soil resources would be limited to near surface impacts associated with vegetation clearing, soils exposure, and soil compaction for 700 linear feet (0.2 acre) of new trail, moving 1,100 cubic yards of material from the damaged trail to the new trail alignment, and placing 7,800 cubic yards of new fill material to build the new trail.

Long-term soil erosion is not anticipated, and BMPs included in the Proposed Action would reduce and mitigate minor, short-term soil erosion expected during construction. Effects on geology and soil resources are anticipated to be minor. Long-term beneficial effects include reducing stream bank erosion by relocating the trail and recreational use away from Rock Creek and stabilizing the actively eroding stream bank slopes.

#### **3.1.3.3 Mitigation Measures**

For the Proposed Action, BMPs as described in Section 2.3 would ensure that potential effects on geology and soil resources would be minimal. State Parks would comply with all permit requirements including the WDFW HPA and Corps Nationwide Permits; implementation of the TESC and SPCC plans and BMPs would meet or exceed federal, state, and local requirements. No additional mitigation measures for geology and soils are proposed under either of the alternatives.

#### **3.1.3.4 Significant Unavoidable Adverse Effects**

No significant unavoidable effects on geology or soils are anticipated from either of the alternatives.

## 3.2 HYDROLOGY, WATER QUALITY, FLOODPLAINS, AND WETLANDS

The following narrative describes the hydrology, water quality, floodplains, and wetlands in the project area. Project effects on these water resources are analyzed for the No Action and Proposed Action alternatives.

### 3.2.1 AFFECTED ENVIRONMENT

The project is located within Water Resource Inventory Area (WRIA) 23 (Upper Chehalis River) and the Jones Creek-Chehalis River subwatershed (6th Field Hydrologic Unit Code [HUC] 171001030108) (Wildrick et al. 1995). The main watercourse within the project area is Rock Creek, a perennial stream. Rock Creek originates on the east slope of the Willapa Hills and flows 8.9 river miles to the upper Chehalis River (Wildrick et al. 1995; WDFW 2009b). Hydrology, water quality, floodplains, and wetlands in the upper Chehalis River have been modified (e.g., dredging, filling, armoring) to accommodate commercial and residential development with few habitats undisturbed (Smith and Wenger 2001). Excess sediment delivery is a major problem throughout the Upper Chehalis River sub-basin. In those with moderate to steep slopes, landslides from roads are one of the greatest problems, and sidecast roads pose a notable risk. Characteristics of water resources in the vicinity of the project area are described below.

#### **Rock Creek**

The project area encompasses approximately 639 linear feet and 0.72 acre of Rock Creek (Figure 1.2-1, *Project Location*). Rock Creek is generally 30 to 40 feet wide (Figure 3.2-1, *Photos of Streams and Vegetation*). A perennial stream, Rock Creek flows into the project area from the northwest and exits the project area to the southeast. In the project area, Rock Creek has a relatively broad corridor when compared to the active base flow channel; a secondary terraced channel provides additional water storage. However, lateral movement of the active channel is limited by the remaining portions of the damaged trail embankment and a hillslope terrace adjacent to pasture. The stream substrate is primarily cobble and fine sediment with areas of gravel. Riparian trees provide partial shade to Rock Creek in the project area. During the high flows in Rock Creek in 2007, riprap that protected the trail embankment was washed out along with approximately 200 feet of trail. The damaged portion of the trail now has no protection against high flows and will likely continue to erode during moderate flow events in the future.

#### **Ditch 1**

The project area encompasses approximately 140 linear feet and 0.02 acre of Ditch 1 (Figure 1.2-1, *Project Location*). Ditch 1 is less than 1 foot wide. Ditch 1 is a roadside ditch that flows eastward and likely originates in sloped forested and residential areas to the south of SR 6. Ditch 1 enters the project area off site from the northwest via a culvert under Rock Creek Road (Figure 3.2-1, *Photos of Streams and Vegetation*). The lateral movement of the ditch channel is limited by the trail embankment and SR 6 and ends at Wetland A. The substrate in the ditch is silt-laden fine sediment.



Rock Creek



Ditch 1 Culvert



Wetland A (foreground)



Disturbed Uplands (foreground)



Mixed Conifer-Hardwood Forest (Left) Trail (Center)



Riparian Areas

Figure 3.2-1. Photos of Stream and Vegetation.

## **Wetlands**

The on-site wetland, identified as Wetland A, is a jurisdictional wetland that is approximately 0.55 acre (Figure 1.2-1, *Project Location*). Wetland A receives surface water from Ditch 1 and stormwater that flows off of SR 6. A 24-inch concrete culvert crosses through the damaged trail embankment. When water levels are higher than 18 inches, water flows from Wetland A through the culvert and discharges to Rock Creek.

Wetland plant species include a mix of panicled bulrush (*Scirpus microcarpus*), slough sedge (*Carex obnupta*), creeping buttercup (*Ranunculus repens*), Pacific water parsley (*Oenanthe sarmentosa*), stinging nettle (*Urtica dioica*), giant horsetail (*Equisetum telmateia*), and reed canarygrass (*Phalaris arundinacea*) (Figure 3.2-1, *Photos of Streams and Vegetation*). Early season saturation was based on observation of bare, wet soils among the clumps of plants during the end of the dry season, pooled water and saturated soils, and the perennial water source, Ditch 1.

Functions of Wetland A (water quality, hydrologic, and habitat) were evaluated using the *Washington State Wetland Rating System for Western Washington* (Hruby 2004). Based on the evaluation of data collected during field visits and review of existing information, Wetland A was determined to provide a moderate level of function for both water quality and hydrology, and a low level of habitat functions (AECOM 2011). Wetland A provides a moderate level of water quality function by intercepting untreated stormwater coming off of SR 6 prior to discharge into Rock Creek, a fish-bearing stream and a moderate level of hydrologic function because the wetland has the opportunity to reduce flooding and erosion for a stream, Rock Creek, that has flooding problems. Based on the rating system, Wetland A is considered to be an Ecology Category III wetland.

## **Water Quality**

Washington's Water Quality Assessment lists the status of water quality for a particular location in one of five categories recommended by the U.S. Environmental Protection Agency (EPA) and Section 303(d) of the Clean Water Act. The 303(d) list reports on Category 5 waters, which are impaired waters of the state. Waters placed on the 303(d) list (Category 5) require the preparation of a plan to improve water quality by limiting pollutant loads. No waters in the project vicinity are 303(d) listed as an impaired water of the state (Ecology 2008).

## **Floodplains**

The southern portion of the project area associated with Rock Creek is mapped as Zone A and is in a floodplain (Flood Insurance Rate Map [FIRM] Panel No. 5301020405B, December 15, 1981)(FEMA 1981). A floodplain denotes the area that is subject to a one percent or greater chance of flooding in any given year (40 CFR 9.4). In the project area, the side slopes and banks of Rock Creek are unstable. Flooding has carved away at the armored trail embankment. The damaged trail embankment is actively eroding into the Rock Creek and the trail is susceptible to future flood events. Wetland A provides a low level of hydrologic functions for the project vicinity and limited flood storage and reduction in water velocity prior to discharge to Rock Creek (AECOM 2011).

### 3.2.1.1 Regulatory Environment

Applicable federal, Washington State, and Lewis County regulations and requirements regarding water quality in the project area are described below.

#### Federal Requirements

##### Clean Water Act

Projects funded by FEMA must comply with permit requirements for the Corps under the CWA. Actions affecting waters of the United States and the discharge of dredged or fill material into U.S. waters, including wetlands, are regulated by Section 404 of the CWA. State Parks, in preliminary discussion with the Corps, plans to apply for coverage under Corps Nationwide Permits for Maintenance (3) and Bank Stabilization (13). It is anticipated that the Corps will require mitigation for temporary and permanent impacts on Wetland A, Ditch 1, and/or Rock Creek.

State Parks has proposed a mitigation plan that would include approximately 34,700 square feet of Wetland A restoration/enhancement, 4,250 square feet of wetland creation/enhancement, and 2,250 square feet of Rock Creek restoration/enhancement (State Parks 2010c). The mitigation plan could offset limited permanent impacts on Wetland A and Ditch 1 by re-establishing wetland function and connectivity between Rock Creek and Wetland A, and improving water quality and hydrology. This mitigation is not in-kind, but it is on site and likely represents a net benefit in habitat function and value relative to the anticipated impacts on a small area of low quality Category III wetlands.

Section 401 of the Clean Water Act requires that activities permitted under Section 404 meet state water quality standards. The Washington State Department of Ecology (Ecology) is designated by statute as the state agency responsible for issuing this water quality certification in Washington, and the agency is required to review and certify that proposed projects meet state standards. The federal permit is not valid unless it has been certified by Ecology. This certification is required on all Corps permits.

##### Executive Orders 11988 (Floodplain Management) and 11990 (Protection of Wetlands)

EO 11988 (Floodplains) requires federal agencies to reduce the risk of flood loss; minimize the impact on human health, safety, and welfare; and restore the natural and beneficial values served by floodplains. Under FEMA's implementing regulations at 44 CFR Part 9, FEMA must evaluate the potential effects of any actions it may take in a floodplain and consider alternatives to avoid adverse effects (Appendix B, Executive Order 11988 – Floodplain Management, Eight-Step Decision Making Process). Similarly, EO 11990 (Wetlands) requires that federal agencies take action to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial effects of wetlands. In planning their actions, federal agencies are required to consider alternatives to wetland sites and limit potential damage if an activity affecting a wetland cannot be avoided. Federal agencies are also required under 44 CFR Part 9 to provide public notice and review of plans for actions in floodplains and wetlands. The public notice for this disaster and public review of the Draft EA meet FEMA's public notice and review obligations.

The Proposed Action would incorporate avoidance, minimization, and mitigation measures into the project design and location to meet EO 11988 (Floodplains). The southern portion of the project area is located in the floodplain of Rock Creek. Portions of the old trail would be removed from the floodplain,

and the new trail section would be located outside of the mapped floodplain, as far from the creek as possible within the State Parks ROW. The eroding creek bank would be stabilized with riprap and large woody debris, which would provide future flood protection of the new trail segment. The re-use of large woody debris is a “fish friendly” bank stabilization technique, and would provide a secondary benefit to EFH.

To comply with EO 11990 (Wetlands), FEMA first considered alternatives to locate the new trail segment outside of Wetland A (Section 2.1, *Alternatives Considered but Not Carried Forward*). FEMA identified no practicable alternative that could avoid impacting Wetland A. Impacts on Wetland A would be avoided and minimized to the extent practicable by skirting the outer edge of the wetland. Impacts on Wetland A would be offset through the creation of new wetland area that expands the boundary of Wetland A and enhancement of the remaining portions of Wetland A.

### **State Requirements**

#### **Washington State Water Quality Standards (Washington Administrative Code [WAC] 173-201A)**

Ecology’s standards are the basis for protecting and regulating the quality of surface waters in Washington. They include numeric limits for various pollutants, including turbidity. Short-term increases in turbidity as a result of any alternative would not be expected to exceed this parameter due to use of BMPs. Exceedances, if any, would be short term (during construction).

#### **Washington State Parks Resource Stewardship**

The mission of the State Parks is to “acquire, operate, enhance and protect a diverse system of recreational, cultural, historical and natural sites” in an effort to leave a valued legacy to future generations. To safeguard the public lands in its trust, the State Parks resource stewardship program administers a broad range of conservation activities, including the inventory and assessment of natural and cultural resources, management planning, applied research, stewardship training, and special topics of statewide significance such as salmon recovery.

#### **Washington Department of Fish and Wildlife – Hydraulic Project Approval**

Any form of work that uses, diverts, obstructs, or changes the natural flow or bed of any fresh water or saltwater of the state requires an HPA from WDFW. To protect water quality and stream habitat, HPA permits specify conditions under which work can be performed in and near stream habitats, and provide site- and project-specific conditions and timing restrictions for performing this work.

#### **Washington State Growth Management Act**

The Growth Management Act, or GMA (Chapter 36.70A Revised Code of Washington [RCW]), requires state and local governments to manage Washington’s growth by identifying and protecting critical areas and natural resource lands, designating urban growth areas, preparing comprehensive plans, and implementing them through capital investments and development regulations. Lewis County Code, Title 17, Land Use and Development Regulations (Lewis County Code [LCC] 17.35A.720-.790) defines criteria for identification and protection of Fish and Wildlife Habitat Conservation areas, which largely adopts the WDFW Priority Habitats and Species (PHS) program recommendations for wildlife and habitats. Lewis County has developed a Critical Areas Ordinance that provides requirements for

maintaining buffers for wetlands and streams based on their characteristics and compensatory mitigation requirements. These elements would be addressed by Lewis County during the permit process. Mitigation for impacts on the buffer area for Wetland A would need to be coordinated with Lewis County.

### 3.2.2 METHODOLOGY AND THRESHOLDS OF SIGNIFICANCE

Potential environmental consequences of each alternative on hydrology, water quality, wetlands, and floodplains were considered from both regulatory and ecological perspectives. To conduct the analysis, AECOM ecologists assessed the affected environment through site visits conducted on September 9, 10, and 25, 2009, documenting watershed characteristics through field notes and photographs of notable features. Existing information was gathered from State Parks, Ecology, and Lewis County, and applicable scientific literature pertaining to hydrology, water quality, floodplains, and wetlands within the affected area was reviewed. A project alternative would reach the significance threshold for effects on hydrology, water quality, floodplains, or wetlands if it would:

- Violate water quality standards or cause prolonged alteration to baseline water quality conditions.
- Cause adverse effects on wetlands that are not minimized in accordance with FEMA's standards in 44 CFR 9.11.
- Alter the existing drainage pattern of streams or wetlands in a manner that would violate or exceed the standards of any required permits.
- Violate any local, state, or federal regulations concerning hydrology, water quality, wetlands, or floodplains.

### 3.2.3 ENVIRONMENTAL CONSEQUENCES

This section describes the potential effects of the project alternatives on water quality, hydrology, wetlands, and floodplains within the project area. Mitigation measures to offset any identified adverse effects are provided as applicable.

#### 3.2.3.1 Alternative A: No Action

Under the No Action Alternative, no vegetation clearing would occur; there would be no project-related effects on water quality or hydrology. No work would occur in or near wetlands, and floodplains would remain in their current condition. However, the damaged trail embankment would continue to actively erode and increase sedimentation and turbidity in Rock Creek, resulting in a long-term minor effect on water quality. In addition, trail users may scramble around the damaged area most likely trampling portions of wetland vegetation, resulting in a long-term minor effect on Wetland A.

#### 3.2.3.2 Alternative B: Proposed Action

The Proposed Action would directly impact Wetland A. Permanent impacts would include the construction of 350 linear feet of new trail (Figure 3.2-2, *Project Impacts*). The trail would permanently occupy approximately 5,670 square feet (0.13 acre) of Wetland A. The Proposed Action would directly impact Ditch 1. Approximately 40 linear feet of Ditch 1 would be filled to construct the trail; an 18-inch culvert would be installed to convey flows in Ditch 1 through the fill.

Indirect impacts on Wetland A and Ditch 1 would include minor alterations in existing topography and hydrology regimes, disruptions to native seed banks from ground disturbance, and the colonization of nonnative/invasive plant species. Other indirect effects would include an increase in the amount of compacted or modified surface that, if not controlled, could increase the potential for surface runoff, increased erosion, and sediment deposition within wetlands beyond the proposed project footprint. These potential impacts would be avoided by implementing erosion control measures during construction.

State Parks would be required to mitigate for permanent impacts on Wetland A and Ditch 1, ensuring that there would be no net loss of wetland function. The mitigation would include 34,700 square feet of restoration/enhancement to Wetland A (Figure 3.2-3, *Draft Wetland Planting Plan*), which includes removing invasive species and planting native trees and restoring 2,250 square feet within the OHWM of Rock Creek. Restoration would occur along approximately 500 linear feet of the damaged trail and include bank excavation and the installation of boulder riprap, log piling, and log jams with a root ball (Figure 3.2-4, *Draft Stream Restoration Plan*). The amount of work below the OHWM is not precisely known. However, it is estimated that a working width of approximately 10 feet below and parallel to the OHWM along the lower bank of Rock Creek would be temporarily affected during the installation of erosion control features; a conservative estimate of 500 linear feet by 10 feet working width would constitute approximately 0.11 acre or 5,000 square feet of temporary disturbance to non-wetland waters of the U.S. Rock Creek restoration/enhancement would be designed to preserve natural floodplain values.

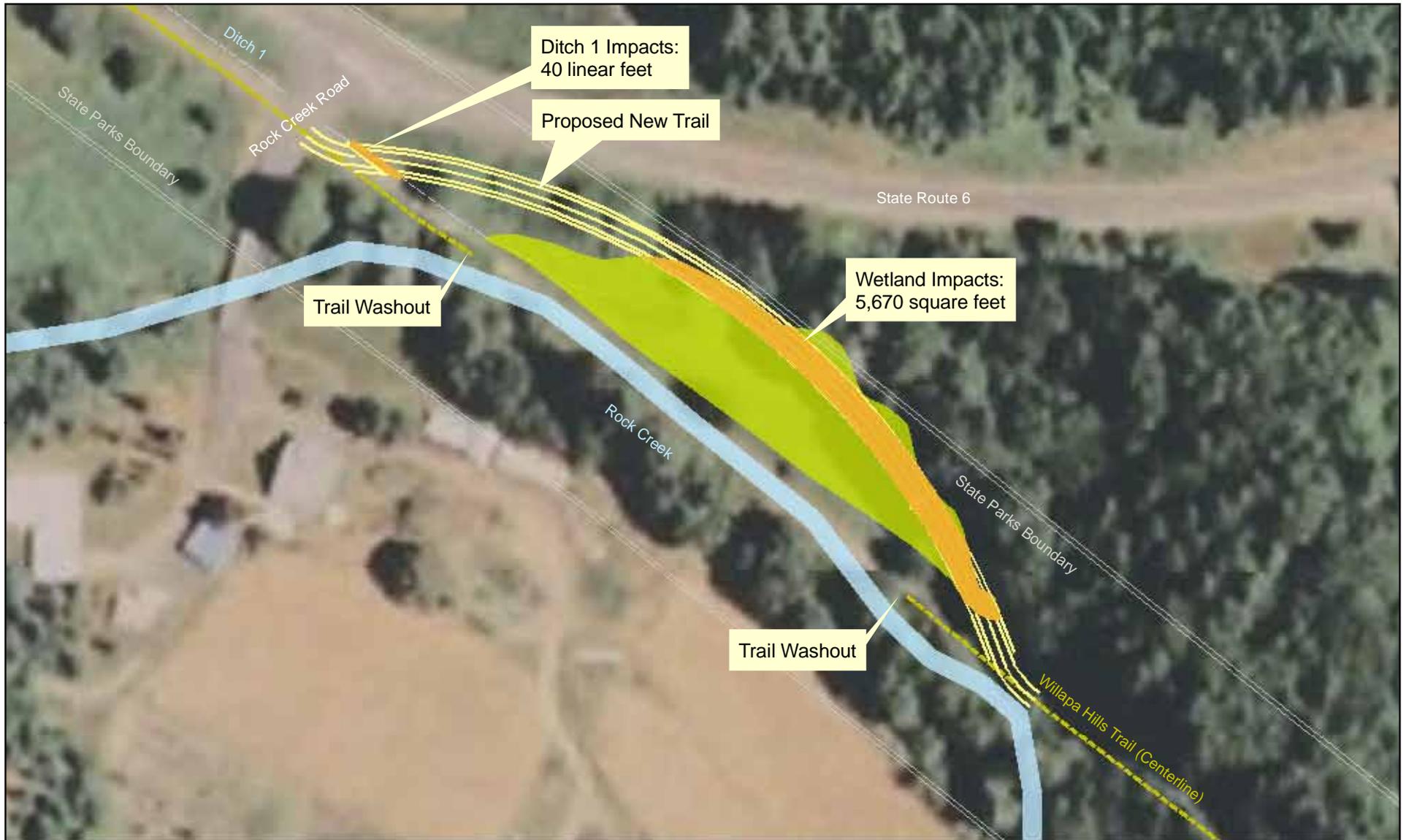
Overall, the Proposed Action would have moderate short-term construction-related effects and minor long-term effects on hydrology, water quality, floodplains, and wetlands. Restoration of Rock Creek would be a minor long-term beneficial effect on hydrology, water quality, and floodplains.

### **3.2.3.3 Mitigation Measures**

Mitigation measures to compensate for the effects on Wetland A, Ditch 1, and Rock Creek will be developed during the CWA Section 404, Section 401, and HPA processes with the Corps, Ecology, and WDFW. In addition, the project will be required to meet the compensatory mitigation requirements of the Lewis County Critical Areas Ordinance for effects on the wetland buffer.

### **3.2.3.4 Significant Unavoidable Adverse Effects**

No significant unavoidable effects on hydrology, water quality, floodplains, or wetlands are anticipated from either of the alternatives.

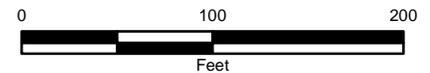


**Legend**

-  Proposed New Trail
-  Willapa Hills Trail Centerline
-  Ditch 1
-  Wetland
-  Impacts to Wetland and Ditch 1

Figure 3.2-2. Project Impacts

Washington State Parks  
Willapa Hills Trail Project



Basemap: 1 inch = 100 feet  
09100406.04 1/11

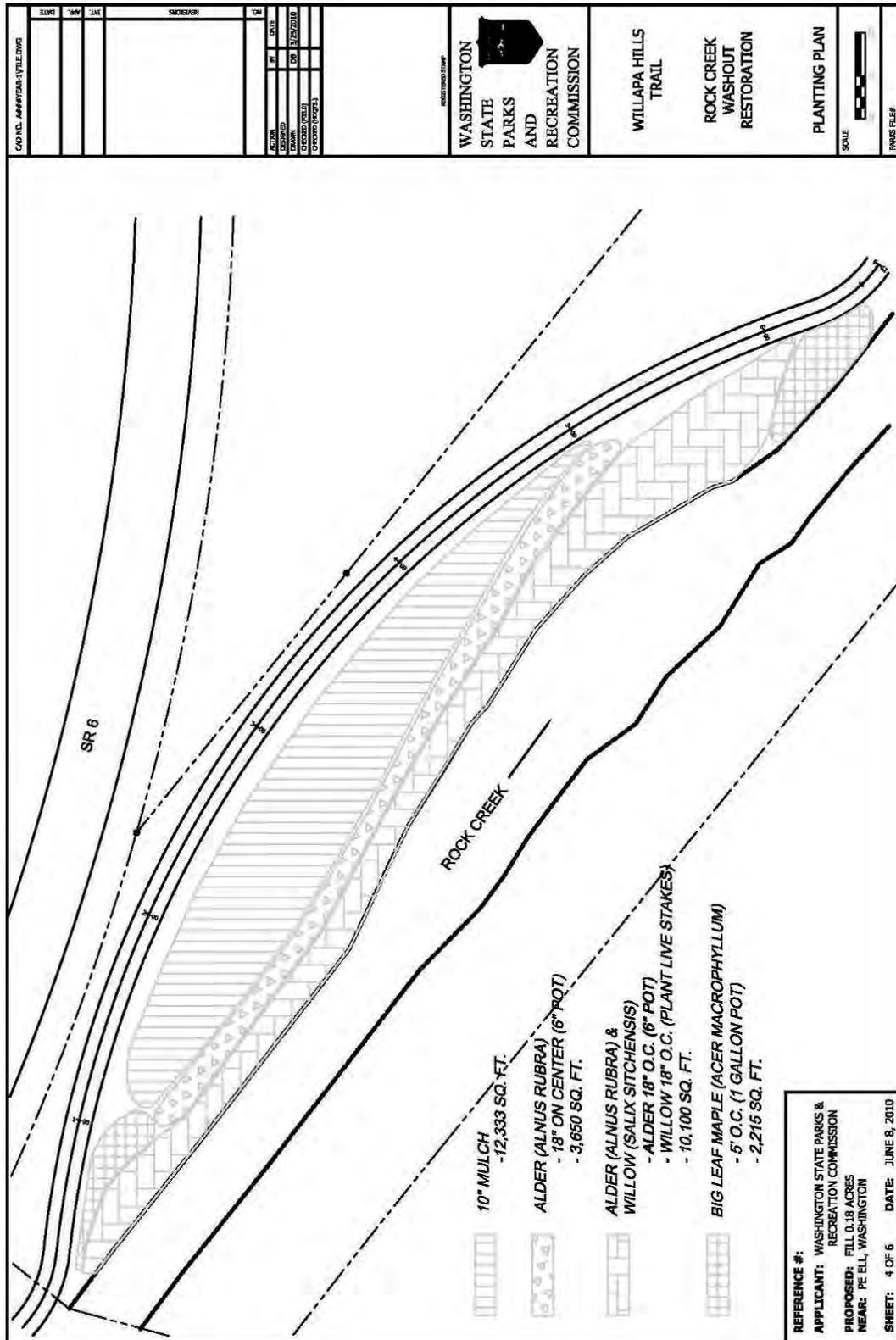


Figure 3.2-3. Draft Wetland Planting Plan.

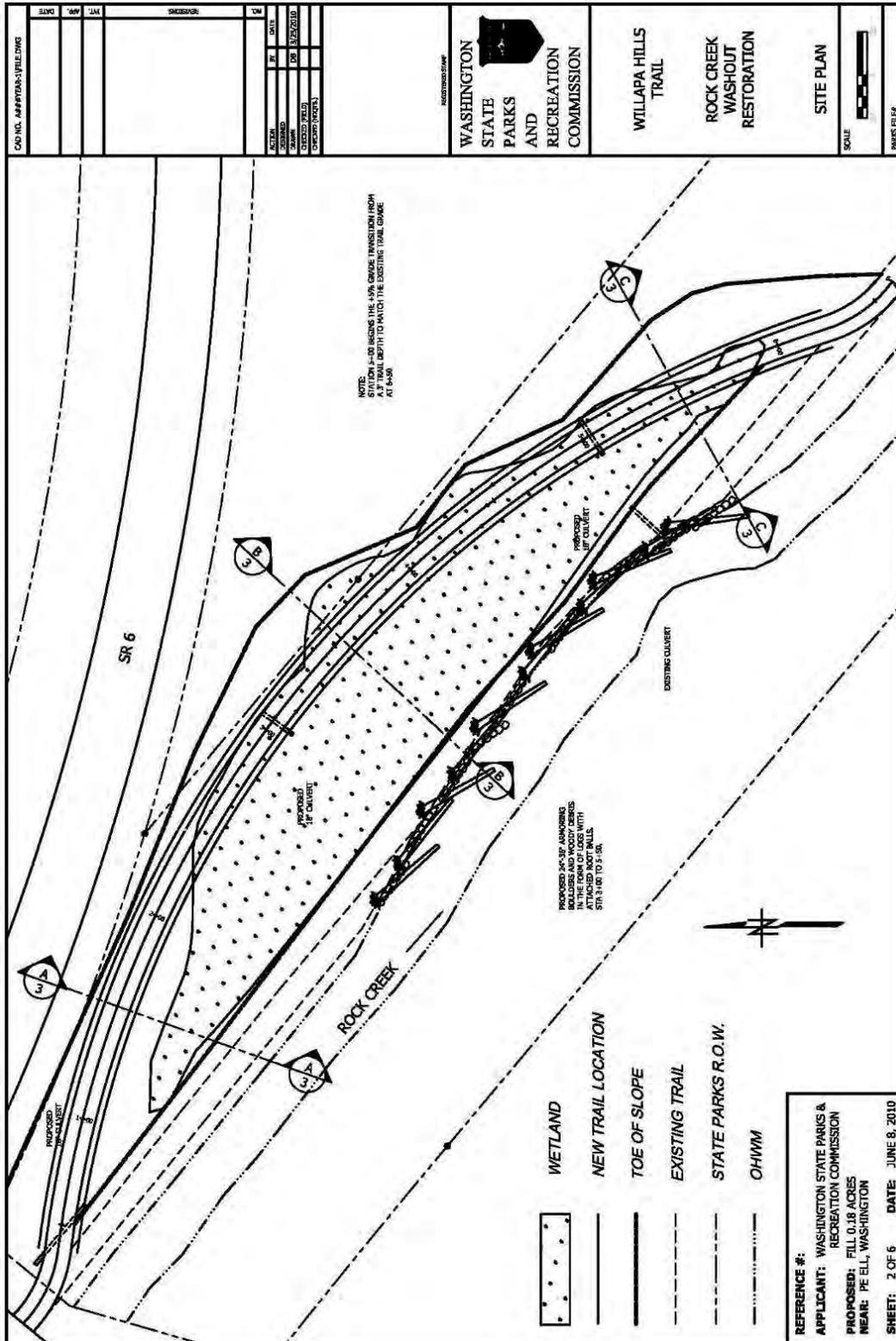


Figure 3.2-4. Draft Stream Restoration Plan.

## 3.3 VEGETATION

In this EA analysis, vegetation includes plant communities and special status plant species in the project area and vicinity. This section describes the potential effects on vegetation from each alternative.

### 3.3.1 AFFECTED ENVIRONMENT

#### 3.3.1.1 Plant Communities

The project area is located within the upper Chehalis River valley, which is dominated by rural residential and agricultural development and remnant patches of primarily upland vegetation. The upland vegetation consists of disturbed uplands, mixed conifer-hardwood forest, and riparian areas.

#### Disturbed Uplands

Disturbed uplands are limited to the northwest portion of the project area near SR 6. The dominant species include fireweed (*Epilobium angustifolium*), evergreen blackberry (*Rubus laciniatus*), and trailing blackberry (*Rubus ursinus*) (Figure 3.2-1, *Photos of Streams and Vegetation*).

#### Mixed Conifer-Hardwood Forest

Mixed conifer-hardwood forest is located in the northeast portions of the project area and continues off site. These areas include a closed canopy of red alder (*Alnus rubra*), big-leaf maple (*Acer macrophyllum*), and Douglas-fir (*Pseudotsuga menziesii*) (Figure 3.2-1, *Photos of Streams and Vegetation*). The understory consists of moderately open tall shrubs that include vine maple (*Acer circinatum*), hazelnut (*Corylus cornuta*), and Indian plum (*Oemleria cerasiformis*) and low shrubs that include trailing blackberry. The herbaceous layer is composed of swordfern (*Polystichum munitum*) and bracken fern (*Pteridium aquilinum*).

#### Riparian Areas

The riparian area is limited to vegetation adjacent to Rock Creek (Figure 3.2-1, *Photos of Streams and Vegetation*). Various hydrophytic grass and forb species form a sparse vegetation cover on the fresh alluvial gravel surfaces scoured during high flows in 2007. The more mature vegetation remaining on the creek banks is a narrow band of riparian forest dominated by red alder, big-leaf maple, and scattered Douglas-fir and western hemlock (*Tsuga heterophylla*). Reed canarygrass forms the dominant understory vegetation along the banks.

#### 3.3.1.2 Special-Status Plant Species

For the purposes of this EA, special-status plant species are defined as plants that are listed as either threatened or endangered under the federal ESA, or that are otherwise considered sensitive by Washington State resource conservation agencies (WNHP 2009). The Washington Natural Heritage Program (WNHP) is responsible for maintaining a database of current and historic locations of threatened, sensitive, and endangered plant species in Washington. WNHP geographic information system (GIS) data indicated no rare plant occurrences in the project area (WNHP 2010).

However, State Parks indicated that *Polemonium carneum*, Great Polmonium (state threatened) may be present in the general area (State Parks 2010a). The nearest known element occurrence is approximately 13 miles away and last observed in 1980 (WNHP 2010).

AECOM ecologists conducted a site visit September 9, 10, and 25, 2009, to collect information on general site conditions, special habitat features, and vegetation communities. No sensitive plant species were observed.

### **3.3.1.3 Regulatory Environment**

Regulatory requirements applicable to the project are described below.

#### **Federal Requirements**

##### **Executive Order 13112 – Invasive Species**

EO 13112 requires federal agencies to prevent the introduction of invasive species, provide for their control, and minimize the economic, ecological, and human health effects that invasive species cause. The environmental protection BMPs direct the contractor to implement measures to prevent the spread of invasive species.

### **3.3.2 METHODOLOGY AND THRESHOLDS OF SIGNIFICANCE**

Field notes and measurements were taken to assess species and relative abundances of vegetation, and photos were taken to represent specific features and characteristics of the project area. Where quantitative measurements could not be taken, scientific literature was consulted based on qualitative characteristics of the project area.

An alternative would reach the significance threshold for effects on vegetation if it would:

- Substantially disturb or degrade sensitive natural communities such as riparian habitats.
- Directly or indirectly substantially alter the habitat or populations of sensitive, threatened, or endangered plant species.
- Conflict with applicable state and federal regulations.

Each of the alternatives was evaluated against these thresholds in the context of the existing conditions and regulatory environment.

### **3.3.3 ENVIRONMENTAL CONSEQUENCES**

This section describes the potential effects of the project alternatives on vegetation resources in the project area. Mitigation measures to offset any identified impacts are also provided.

#### **3.3.3.1 Alternative A: No Action**

Under the No Action Alternative, no vegetation clearing would occur; there would be no project-related effects on vegetation. No work would occur in or near wetlands or riparian vegetation. However, the damaged trail embankment would continue to actively erode and unstable soils would impair riparian vegetation from re-establishing. In addition, trail users may scramble around the damaged area, most likely trampling portions of wetland vegetation. These would be minor, long-term effects on vegetation.

### **3.3.3.2 Alternative B: Proposed Action**

Implementation of the Proposed Action would result in both direct and indirect effects on vegetation within the project area. Direct impacts would occur as a result of the removal of vegetation during construction-related activities. These ground-disturbing construction-related activities would include clearing and grading, increased human presence, and increased vehicle traffic. Trail building activities (clearing and brushing, grubbing and grading) would permanently clear approximately 0.09 acre of disturbed uplands and 0.03 acre of mixed conifer-hardwood forest. In addition, the project would decommission 500 linear feet of trail adjacent to Rock Creek. The decommissioned trail would be restored to native riparian vegetation.

Indirect impacts on existing vegetation communities could include alterations in existing topography and hydrology regimes, disruptions to native seed banks from ground disturbance, and the colonization of nonnative/invasive plant species. Other indirect effects include an increase in the amount of compacted or modified surface that, if not controlled, could increase the potential for surface runoff, increased erosion, and sediment deposition within vegetation beyond the proposed project footprint. These potential impacts would be avoided by implementing erosion control measures during construction.

Overall, these would be minor short-term and long-term effects on vegetation. Restoration/enhancement of Rock Creek and adjacent riparian areas would be a minor, long-term beneficial effect on vegetation.

### **3.3.3.3 Mitigation Measures**

A detailed vegetation clearing avoidance plan will be developed by State Parks and the construction contractor during the final design and placement phase of the project.

### **3.3.3.4 Significant Unavoidable Adverse Effects**

No significant unavoidable effects on vegetation are anticipated from either of the alternatives.

## 3.4 FISH AND WILDLIFE

The following narrative describes the fish and wildlife resources of the project area and the effects of the No Action and Proposed Action alternatives. No federally listed or proposed threatened or endangered species or habitats occur in the project area.

### 3.4.1 AFFECTED ENVIRONMENT

#### Wildlife

The interspersed wetland and upland habitats (mixed conifer-hardwood forest and riparian areas) include areas for nesting and foraging, cover, and connectivity to the larger Rock Creek watershed. Common birds in the vicinity include the northern flicker (*Colaptes auratus*), dark-eyed junco (*Junco hyemalis*), American robin (*Turdus migratorius*), and black-capped chickadee (*Poecile atricapillus*). The seasonally ponded portions of Wetland A that include a mosaic of thin-stemmed emergent vegetation and woody debris provide limited amphibian and aquatic invertebrate habitat. Amphibian species in the project area may include the northern red-legged frog (*Rana aurora*) and Pacific treefrog (*Pseudacris regilla*).

#### Fish

Rock Creek is a fish-bearing stream that supports a community of native aquatic species, including but not limited to anadromous and resident fish species. The Southwest Washington (SW) Evolutionarily Significant Unit (ESU) of coho salmon (*Oncorhynchus kisutch*) (SW coho) and the distinct population segment of winter steelhead (*O. mykiss*) (SW steelhead) are documented in Rock Creek (StreamNet 2009; WDFW 2009a). The National Marine Fisheries Service (NMFS) has determined that the SW coho and SW steelhead do not warrant listing as federally threatened or endangered under the ESA (NMFS 2010).

SW coho salmon are documented from river mile (RM) 0 to RM 1.71 (WDFW 2009b). A fish barrier near RM 2 is a culvert that likely blocks access to coho salmon (WDFW 2009b). However, SW coho salmon EFH does exist in the project area and is described in the Special Status Species section. SW steelhead are documented spawning and rearing in Rock Creek from RM 0 to RM 4.07, and these habitats occur in the project area (approximately at RM 2.4) (WDFW 2009b). During higher flows, SW steelhead are able to migrate past the fish barriers at RM 2 downstream of the project area.

Resident species that potentially occur in Rock Creek include prickly sculpin (*Cottus asper*), speckled dace (*Rhinichthys osculus*), redbelt shiner (*Richardsonius balteatus*), and three-spine stickleback (*Gasterosteus aculeatus*). Warm water nonnative species such as bass (*Micropterus* spp.), sunfish (Centrarchidae), and warm water minnows (Cyprinidae) are likely present only downstream of the project area in the mainstem upper Chehalis River in degraded areas with fragmented riparian zones, sparse shade, and sluggish water.

#### Special Status Species

Information on special status species and priority habitats potentially occurring in the project area was obtained from the WDFW PHS Program, NMFS, and U.S. Fish and Wildlife Service (USFWS). No ESA-listed threatened or endangered species or habitats were mapped or observed within the project area.

(WDFW 2009a). No sensitive threatened or endangered fish or wildlife species were encountered during a field reconnaissance and no unique habitats were observed.

Under the ESA, SW coho salmon are not listed as threatened or endangered. However, SW coho salmon EFH does exist in the Rock Creek portion of the project area and is protected under the Magnuson-Stevens Fishery Conservation and Management Act.

### **3.4.1.2 Regulatory Environment**

Applicable federal, state, and local requirements regarding fish and wildlife and their habitat in the project area are described below.

#### **Federal Requirements**

##### **Endangered Species Act**

The ESA serves as the primary federal protection for species and habitat, by providing a formal designation and implementing programs through which the conservation of both populations and habitats may be achieved. Two agencies are responsible for the administration of the ESA: USFWS and NMFS. No federally listed fish or wildlife species or habitats occur on the project site. Therefore, the Proposed Action would have no effect on federally listed species, and no consultation with USFWS or NMFS would be required.

##### **Migratory Bird Treaty Act**

The Migratory Bird Treaty Act (MBTA) prohibits persons, unless by permit, “to pursue, take, or kill...any migratory bird, or any part, nest or egg of any such bird.” Direct and indirect acts are prohibited under this definition, although harassment and habitat modification are not included unless they result in the direct loss of birds, nests, or eggs. The current list of species protected by the MBTA includes all native birds, including many commonly found in western Washington forested habitats. Any tree removal would be done outside of nesting season and would not result in a “take.” If any special-status and/or species covered under the MBTA are nesting within the construction footprint, State Parks shall coordinate with the USFWS and/or WDFW to determine appropriate avoidance or minimization measures and ensure compliance with the MBTA.

##### **Bald and Golden Eagle Protection Act**

Administered by the USFWS, this law provides for the protection of the bald eagle (*Haliaeetus leucocephalus*) and the golden eagle (*Aquila chrysaetos*) by prohibiting, except by permit, the taking, possession, and commerce of such birds. Golden eagles are not likely to occur within the project area, are extremely rare in the general area, and there are no documented occurrences within 1 mile of the project area (WDFW 2009a). Bald eagle foraging habitat is in the general area, but there are no documented occurrences of bald eagles, no bald eagle buffer zones, and no suitable nesting habitat within 1 mile of the project area (WDFW 2009a). The Proposed Action would not impact protected bald eagle habitat.

##### **Magnuson-Stevens Act – Essential Fish Habitat**

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) mandates federal agencies that fund activities that may adversely affect the EFH of federally managed fish species to consult with NMFS regarding the potential adverse effects of their actions on EFH. The habitat of three species of

Pacific salmon are protected by MSA: Chinook (*Oncorhynchus tshawytscha*), coho, and pink salmon (*O. gorbuscha*). SW coho salmon EFH occurs in Rock Creek.

Under the Proposed Action, enhancement and restoration of Rock Creek and SW coho salmon habitat would result in long-term, beneficial effects within the scale of this reach of creek. Construction-related effects would be short term and minimized through the implementation of BMPs. No direct loss of EFH is anticipated. Therefore, the Proposed Action would have a “no adverse effect” determination regarding EFH under MSA, and no consultation with NMFS would be required.

### 3.4.2 METHODOLOGY AND THRESHOLDS OF SIGNIFICANCE

A field reconnaissance, review of existing information, and professional judgment were used to evaluate project effects. An alternative would reach the significance threshold for effects on fish or wildlife if it would:

- Interfere substantially with the breeding, feeding, or necessary life-cycle movement of any native resident or migratory fish, bird, amphibian, or mammal species.
- Substantially conflict with any state or local regulations protecting fish, wildlife, or habitat.
- Substantially conflict with the provisions of an applicable species or habitat management plan.
- Result in the long-term degradation of streams or riparian forested habitat in the project area or vicinity.

### 3.4.3 ENVIRONMENTAL CONSEQUENCES

Potential effects of the No Action and the Proposed Action alternatives on fish and wildlife within the project area are described below.

#### 3.4.3.1 Alternative A: No Action

Under the No Action alternative, FEMA would not provide funding for the replacement of the trail. Terrestrial and aquatic habitat elements important to fish and wildlife would remain unaltered from their current condition. However, the damaged trail embankment would continue to actively erode and increase sedimentation and turbidity in Rock Creek and result in a minor long-term effect on fish habitat. In addition, trail users may scramble around the damaged area most likely trampling portions of wetland, resulting in a minor long-term effect on wildlife associated with wetlands.

#### 3.4.3.2 Alternative B: Proposed Action

##### Wildlife

Short-term effects on wildlife caused by construction of trails typically arise from erosion, sedimentation, and run-off, as well as noise and activity from heavy equipment and construction personnel. Noise and other disturbances caused by construction crews may cause wildlife to move away from the construction area. Since the habitats found in the project area are connected to other similar habitats, many species would temporarily relocate in these nearby areas during construction. In the long term, wildlife species would return to the area.

Construction would take place during the dry season, reducing the likelihood of run-off and sedimentation during construction. BMPs and a TESC plan would be implemented to prevent run-off and sedimentation from reaching streams and aquatic habitats.

Wildlife habitat would be affected by trail building activities (clearing and brushing, grubbing and grading) would permanently clear approximately 0.09 acre of disturbed uplands, 0.03 acre of mixed conifer-hardwood forest, and 0.13 acre of wetland. These are considered a minor, long-term effect on wildlife. However, the project would decommission approximately 500 linear feet of trail. The decommissioned trail would be restored to native riparian habitat associated with Rock Creek and considered a minor, long-term beneficial effect on wildlife.

### **Fish**

It is anticipated that portions of Rock Creek would need to be dewatered during construction and slope stabilization along the creek. Dewatering a portion of Rock Creek could include fish handling and exclusion of juvenile SW steelhead. Fish handling can stress fish and cause mortality and would have a direct effect on species that inhabit the creek. Construction-related aquatic noise and vibration from slope stabilization and the placement of rootwads would be below fish injury thresholds because of the shallow water depth, the topography and roughness of the stream bottom, and river sinuosity, blocking the spread of underwater noise (Burgess and Blackwell 2003). In addition to these factors and the short duration of time necessary to place the rootwads, the impact distance is estimated to be the stream channel width.

In addition, construction practices would increase turbidity and sedimentation in Rock Creek. Sedimentation and turbidity are primary contributors to the degradation of salmonid habitat (Bash et al. 2001). High levels of turbidity can reduce feeding efficiency and food availability, clog gillrakers, and erode gill filaments of salmonids (Bash et al. 2001). All construction activities would occur during the recommended WDFW in-water work window of August 1 to 31 (WDFW 2010), when the abundance of outmigrating and rearing juvenile SW steelhead in Rock Creek would be at its lowest for the year.

The Proposed Action would decommission approximately 500 linear feet of trail adjacent to Rock Creek. The decommissioned trail would be restored to native riparian vegetation. Overall, this would be minor long-term beneficial effects on vegetation; restoration/enhancement of Rock Creek and adjacent riparian areas would be a minor long-term beneficial effect on fish habitat.

Overall, the Proposed Action is expected to have a minor beneficial effect on EFH in the long term by improving fish habitat in Rock Creek. Because construction-related impacts on EFH are expected to be temporary and/or beneficial, the project would not adversely affect EFH for the Pacific Salmon Fishery.

#### **3.4.3.3 Mitigation Measures**

As described in Section 2.3, The Proposed Action incorporates avoidance, minimization, and mitigation measures into the project design and implementation. No additional mitigation measures are proposed for fish and wildlife under either of the alternatives beyond what has been described herein.

#### **3.4.3.4 Significant Unavoidable Adverse Effects**

No significant unavoidable effects on fish or wildlife are anticipated from either of the alternatives.

## 3.5 RECREATION AND VISUAL RESOURCES

This section describes existing recreational and visual resources in the vicinity of the Rock Creek area on the Willapa Hills Trail. It also addresses the potential effects of the project alternatives on existing recreation and viewing opportunities in the project area.

### 3.5.1 AFFECTED ENVIRONMENT

#### 3.5.1.1 Recreation Resources

State Parks has designated this damaged segment of the Willapa Hills Trail as closed (Figure 1.2-2, *Photos of Damage*), but hikers, bikers, and horse-back riders have continued to use the trail sporadically. Other segments of the trail are in use, but with the break in the trail at Rock Creek, the continuous 56 mile East-West connection is not fully available for use.

#### 3.5.1.2 Visual Resources

The overall visual character of the site is defined by the landforms, vegetative patterns, and existing man-made modifications that give the site its distinguishing visual qualities. The existing trail is located within a vegetated riparian corridor. While the trail bed is raised from the flow of Rock Creek, because of the flat topography of the area and thick vegetation near the trail, views of the trail from long distances are hidden behind berms and vegetation, with the only clear views available from travelling on the trail, or from SR 6 directly adjacent to Rock Creek. The trail segment at Rock Creek is visible from east and west of the trail at approximately 500 feet away. Light and glare are not reflected from the earthen trail surface, and the color and materials blend with the natural character of the landscape.

### 3.5.2 METHODOLOGY AND THRESHOLDS OF SIGNIFICANCE

Recreation and visual resources were evaluated based on site visits and information from State Parks. A project alternative would reach the significance threshold for effects on recreation or visual resources if it would:

- Increase the use of existing recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.
- Have a substantial direct or indirect effect on the quantity or quality of recreational activities in the vicinity.
- Substantially alter views or the natural visual character of the area.

### 3.5.3 ENVIRONMENTAL CONSEQUENCES

Potential effects of each alternative on recreation and visual resources within the project area are described below. Mitigation measures to offset any identified effects are also identified.

#### 3.5.3.1 Alternative A: No Action

Under the No Action Alternative, there would be no new trail to reconnect the damaged segment. The damaged segment of trail would continue to erode into Rock Creek. State Parks might permanently close this section of the trail, but some continued use by hikers would be expected. This represents a moderate, long-term adverse effect for hikers and other recreational users. The 500 linear feet of damaged trail

would continue to be a scar in the landscape. However, visitors and residents nearby would be focused on Rock Creek and the intact pastoral setting on the edge of forested hillsides where the damaged trail is a minor element to the overall visual character of the landscape. Therefore, the damaged trail would be a minor, long-term visual intrusion.

### **3.5.3.2 Alternative B: Proposed Action**

Temporary effects on recreational access might occur due to closure of the trail during the construction of the new trail. State Parks estimates that the entire project would last 6 weeks. Permanent beneficial effects on recreational resources include providing safe and secure public access to the Willapa Hills trail system, including access for hikers, horseback riders, bikers, and other recreational users. This is a long-term recreation user benefit. Temporary, minor effects on visual resources might occur due to vegetation removal for the new trail re-alignment, and clearing for construction. The decommissioned trail segment, enhancement and restoration of Wetland A, riparian vegetation, and Rock Creek would result in a long-term beneficial effect on the scenic quality of the project area.

### **3.5.3.3 Mitigation Measures**

State Parks will direct the contractor to minimize trail disruptions and to install signs that inform hikers in advance of trail closures, if any, and of alternate routes. No additional mitigation measures are proposed for recreational or visual resources under either of the alternatives.

### **3.5.3.4 Significant Unavoidable Adverse Effects**

No significant unavoidable effects on recreational or visual resources would occur due to either of the alternatives. The Proposed Action would provide long-term recreation benefits by restoring trail access.

## 3.6 CULTURAL RESOURCES

This section describes cultural resources in the project vicinity, including historic and archaeological resources, the regulatory framework governing cultural resources management, and the potential effects of the project alternatives on these resources. Cultural resources include properties of historical, cultural, and/or archaeological significance. No prehistoric, ethnographic, or historic-era cultural sites, features, artifacts, or culturally sensitive properties have been documented within or in the immediate vicinity of the project (State Parks 2010a).

### 3.6.1 AFFECTED ENVIRONMENT

A review of files maintained by the Washington State Department of Archaeology and Historic Preservation (DAHP) indicated that no archaeological sites, historical resources, or traditional cultural properties have been documented in the immediate project area (State Parks 2009). The project is situated within a region traditionally occupied by probably three Southwestern Coast Salish groups based largely on three related Salishan languages: the Upper Chehalis, Lower Chehalis, and Cowlitz groups (Hajda 1990). At the time of Euro-American contact, the Upper Chehalis and Cowlitz most likely occupied the project region and to a certain extent shared their territories in this area. The Chehalis and Skookumchuck rivers, closest to the project, would have been especially important to the people living in and near the project. Seasonal salmon runs were especially critical to their subsistence patterns, and to some degree tribal territories were centered on these major waterways (Hajda 1990). The earliest documented Euro-American contact with native peoples in the Lewis County region occurred when Lewis and Clark led their expedition into the Northwest and camped along the Cowlitz River in March of 1806.

The Willapa Hills Trail is a former rail line initially conceived as a branch line of the Northern Pacific (NP). Planned to extend from North Yakima to South Bend, with a connection to the NP main line at Chehalis, construction began following the establishment of the Yakima and Pacific Coast Railroad Company (Y&PC) in May of 1890. The Y&PC constructed the line from Chehalis to Dryad before ownership of the line was transferred to the United Railroads of Washington (URW) in February of 1892. The URW completed the line to South Bend later that year, and the line was put into operation by the NP in 1893. The earlier companies were both established by prominent NP employees and were eventually absorbed into the larger company. The line never extended to Yakima as originally planned, and was known as the South Bend Branch under NP ownership (McMurry 2009).

While this rail line was in active use with passenger service until 1954, its primary purpose was freight. In 1970, the NP along with other national railroads merged to create the Burlington Northern Railroad (BN). The South Bend Branch was designated under the BN system as the 23<sup>rd</sup> Subdivision of the Pacific Division. By 1990, BN had classified the line for abandonment and the rails and ties were subsequently removed (McMurry 2009). The line was transferred to Washington State Parks in 1993 and then converted to recreational use.

### 3.6.1.1 Regulatory Environment

#### Federal Requirements

##### National Historic Preservation Act (NHPA)

Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on properties on or eligible for the National Register of Historic Places (NRHP), and afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment. The historic preservation review process mandated by Section 106 is outlined in regulations (36 CFR 800) issued by ACHP.

FEMA Region X has in place a Programmatic Agreement with the DAHP and the EMD to streamline Section 106 review for FEMA-assisted actions within the state (FEMA et al. 2007, 2011). FEMA has consulted with the State Historic Preservation Officer (SHPO) within DAHP in accordance with the process and timeline in the Programmatic Agreement. DAHP provided concurrence regarding the area of potential effects (APE) and Determination of No Historic Properties Affected in a letter dated August 2, 2011 (Appendix A). FEMA has also provided a description and map of the APE to the Chehalis, Shoalwater Bay, and Cowlitz Tribes, requesting information regarding potential effects on cultural or religious resources in the project area.

#### State Requirements

##### Indian Graves and Records (RCW 27.44)

RCW 27.44 protects Native American graves, cairns, and glyptic markings by imposing criminal and civil fines and penalties for disturbing these sites, as well as the possession and sale of artifacts.

##### Abandoned and Historic Cemeteries and Historic Graves Act (RCW 68.60)

This act protects cemeteries and historic graves from mutilation, injury, destruction, or removal. Deliberate desecration of these cultural resources is a Class C felony.

### 3.6.2 METHODOLOGY AND THRESHOLDS OF SIGNIFICANCE

Review of literature and records, as well as a predictive model for archaeological resources potential, was completed. The statewide predictive model (the Washington Information System for Architectural and Archaeological Records Data [WISAARD], developed by the DAHP) is based on statewide information, using large-scale factors. Information on geology, soils, site types, landforms, and General Land Office (GLO) maps was used to establish or predict probabilities for prehistoric cultural resources throughout the state.

A project alternative would reach the significance threshold if it would diminish or destroy the integrity of a property that is on or eligible for the NRHP, for which effects cannot be resolved or mitigated.

When there are no historic properties present, or the action will have no impact on historic properties, the action is considered to have no effect.

### **3.6.3 ENVIRONMENTAL CONSEQUENCES**

#### **3.6.3.1 Alternative A: No Action**

Under the No Action Alternative, FEMA would not fund the project and there would be no repair or related activities. No ground disturbance or clearing would occur. Therefore, the No Action Alternative would not have an effect on cultural resources.

#### **3.6.3.2 Alternative B: Proposed Action**

Approximately 1,100 cubic yards of material would be excavated to decommission portions of the damaged trail embankment, and numerous root wads would be placed in Rock Creek for fisheries restoration and enhancement. This excavation would be primarily within the embankment for the railroad, which is disturbed. According to State Parks Preservation Planner Alex McMurry, the Willapa Hills Trail, as an abandoned rail line, is generally not considered eligible for the NRHP. The exceptions to this are the iron and steel truss bridges along the length of the trail, many of which have either been determined eligible for listing or are eligible for listing as representative examples of their type, period, and method of construction. No significant historic features (bridges) are located in the project area, and as such the project has no potential to affect significant historic properties (McMurry 2009).

The Corps determined that there was little likelihood of impinging on any cultural resources in a permit dated July 8, 2010 (Appendix A). Historical Research Associates (HRA) is assisting FEMA with their Section 106 responsibilities and has reviewed DAHP's WISAARD database as well as historic maps. Although the APE is located near Rock Creek, which is sensitive for archaeological resources, it is also located in a narrow corridor between the railroad grade and SR 6. This area has been disturbed by construction of the grade and the highway; therefore, the archaeological potential of the APE is considered low.

FEMA has consulted with the SHPO; DAHP provided concurrence regarding the APE and Determination of No Historic Properties Affected in a letter dated August 2, 2011 (Appendix A). In addition, FEMA has consulted with the Chehalis, Shoalwater Bay, and Cowlitz Tribes on the Proposed Action. If archaeological resources are discovered during construction, all work would cease and FEMA would follow inadvertent discovery protocols.

#### **3.6.3.4 Mitigation Measures**

No mitigation measures related to cultural resources are proposed for either of the alternatives. As noted above, if unanticipated cultural resources are found during construction, all work would cease and appropriate actions would be taken, including consultation with the SHPO and the Tribes.

#### **3.6.3.5 Significant Unavoidable Adverse Effects**

No significant unavoidable adverse effects on cultural resources are anticipated from either of the alternatives.

## 3.7 ENVIRONMENTAL JUSTICE

### 3.7.1 AFFECTED ENVIRONMENT

Environmental justice is the fair and meaningful involvement in the development and implementation of environmental laws, regulations, and policies, of all people regardless of race, color, national origin, or income.

For the purpose of evaluating the effects of the alternatives on environmental justice, the affected environment is defined as the Lewis County population; statistics for the state of Washington are also provided for comparison. Table 3.7-1 presents the race and ethnicity of Lewis County and Washington State residents based on the 2000 population estimates as reported by the U.S. Census Bureau (2009).

**Table 3.7-1. Race/Ethnicity in Lewis County and Washington State.**

| <b>Race/Ethnicity</b>                        | <b>Lewis County<br/>(Percent)</b> | <b>Washington State<br/>(Percent)</b> |
|--|-----------------------------------|---------------------------------------|
| White persons                                | 94.9                              | 83.8                                  |
| Black persons                                | 0.7                               | 3.9                                   |
| American Indian and Alaska Native persons    | 1.5                               | 1.8                                   |
| Asian persons                                | 0.8                               | 7.0                                   |
| Native Hawaiians and Other Pacific Islanders | 0.3                               | 0.5                                   |
| Persons reporting 2 or more races            | 1.8                               | 3.1                                   |
| Persons of Hispanic or Latino origin         | 8.2                               | 10.3                                  |
| White persons not Hispanic                   | 87.3                              | 74.6                                  |

Source: U.S. Census Bureau 2009

Low-income households are defined by the U.S. Census Bureau as those households with incomes at or below 80 percent of area median household income. For 2008 (the most recent year for which data are available), median household income in Lewis County is estimated at \$42,947; for Washington as a whole, it was \$58,081 (U.S. Census Bureau 2009). Approximately 13.4 percent of the Lewis County population is defined as low-income, compared to 11.3 percent of the population of Washington state as a whole (U.S. Census Bureau 2009).

#### 3.7.1.1 Regulatory Environment

Executive Order 12898 requires federal agencies to identify and address disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations. Potential effects are evaluated by examining the demographics of the area affected by the Proposed Action and the potential of those actions to have adverse effects on minority and low-income populations.

### **3.7.2 METHODOLOGY AND THRESHOLDS OF SIGNIFICANCE**

The methodology used to evaluate effects on environmental justice included a review and comparison of minority and low-income populations in the Lewis County with Washington State minority and low-income populations, as shown above. A project alternative would reach the significance threshold for environmental justice if it would:

- Have unmitigated disproportionately high and adverse environmental and health impacts on low-income or minority populations.

### **3.7.3 ENVIRONMENTAL CONSEQUENCES**

#### **3.7.3.1 Alternative A: No Action**

Under the No Action Alternative, no construction activities would take place, resulting in no change to economic or other opportunities in the project area. No disproportionate effects on either minority or low-income populations would result from the alternative.

#### **3.7.3.2 Alternative B: Proposed Action**

Construction under the Proposed Action would generate short-term economic activity in the area; however, there would be no disproportionately high and adverse effects on minority or low-income populations.

#### **3.7.3.3 Mitigation Measures**

No mitigation measures related to environmental justice are proposed for either of the alternatives.

#### **3.7.3.4 Significant Unavoidable Adverse Effects**

No significant unavoidable adverse effects on environmental justice are anticipated from implementation of either of the alternatives.

### 3.8 CLIMATE CHANGE

The CEQ has issued a draft NEPA guidance document encouraging federal agencies to improve their consideration of the effects on greenhouse gas emissions and climate change in their evaluations of proposals subject to NEPA documentation (CEQ 2010).

Governor Gregoire committed Washington State to prepare for and adapt to the impacts of climate change as part of Executive Order 07-02. A new focus sheet entitled “Preparing for Impacts” is available from Ecology’s website (Ecology 2008).

Although the cause of the December 2007 disaster cannot be attributed to climate change, changes in precipitation patterns and volatility in precipitation-driven systems, such as Rock Creek, cannot be ruled out for potential damage in the future due to events associated with climate change. As part of the project’s standard design, the Proposed Action has incorporated features that will provide greater resilience and function in the face of potential effects brought on by climate change, relative to predisaster conditions.

Restoring access for hikers would not increase vehicle trips along the Willapa Hill Trail system and would not contribute to greenhouse gas production. Nonetheless, construction and maintenance of the new trail segment would result in short-term emissions from equipment operation and worker transportation; these would represent a negligible contribution to greenhouse gas emissions.

No mitigation measures are proposed for the Proposed Action.

### 3.9 CUMULATIVE EFFECTS

Cumulative effects are those that result from the incremental effect of a Proposed Action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other action (40 CFR 1508.7). The Proposed Action involves the construction and operation of a small 700 linear foot segment of trail within the 56-mile Willapa Hills Trail system. Most of the potential impacts of the Proposed Action are associated with the short-term construction activity rather than operational phase use and are localized and are of relatively short duration. Areas with the potential for cumulative impacts under the Proposed Action include biological resources and recreation. The potential impacts of other resource areas either did not result in any impact or are not significant and would not incrementally contribute to a significant cumulative impact associated with the other past, present, or planned projects. Potential cumulative effects from the Proposed Action added to other activities in the area could result from vegetation clearing and improvements to the trail system under the Proposed Action, as described below.

- **Biological Resources** – Vegetation clearing and soil disturbance could have minor cumulative effects on the ecological resources (e.g., soils, hydrology, wetlands, vegetation, and fish and wildlife) in the Upper Chehalis basin. Under the Proposed Action, vegetation clearing would be approximately 0.25 acre. This incremental loss would be minor even when added to other activities in the area and along the 56-mile Willapa Hills Trail system, and cumulative adverse effects over the long term would be negligible. The cumulative effect of restoring the stream bank would have an additive beneficial effect on biological resources, including minor increases in hydrologic capacity and stream bank protection.
- **Recreation** – In addition to the Proposed Action, State Parks plans other improvements to the trail system that could increase hiker use. State Parks would continue to maintain the trail system in accordance with State Parks Comprehensive Natural Resource policy. The cumulative effects of the Proposed Action added to other future improvements would have an additive beneficial effect on recreation use.

## 4.0 Consultation & Coordination

### 4.1 PUBLIC INVOLVEMENT

FEMA sent a scoping letter to agencies, Tribes, and local interested parties on November 30, 2010. The letter provided a description of the proposed project and requested comments on issues and concerns, the range of alternatives, and potential effects regarding the project. Comments were received from the Washington Department of Natural Resources, NMFS, and Washington State Department of Transportation; the scoping letter and the comments received are included in Appendix A. These comments were considered and addressed in the preparation of this EA.

#### 4.1.1 COMMENTS ON THE DRAFT EA

The Draft EA was released for public review on December 11, 2011. Copies were sent directly to those agencies, Tribes, and stakeholders that participated in scoping and are listed in Chapter 6, *Distribution*. A Public Notice announced its availability to the general public for comment, and the Draft EA was available for viewing at the Vernetta Smith Chehalis Timberland Library as well as at Rainbow Falls State Park. The Public Notice and Draft EA were posted to both the FEMA and State Parks websites, the web addresses of which were included in the Public Notice.

During the 30-day comment period (December 11, 2011 to January 12, 2012), NMFS forwarded a copy of their December 2010 scoping comments. No additional or new comments were received. Based on the analysis presented in the Draft EA and the lack of comments received, no substantive changes have been made to the Final EA.

The Final EA and FONSI are available on the FEMA website.

### 4.2 AGENCIES AND TRIBES

FEMA has consulted with the SHPO; DAHP provided concurrence regarding the APE and Determination of No Historic Properties Affected in a letter dated August 2, 2011 (Appendix A). FEMA has consulted with the Chehalis, Shoalwater Bay, and Cowlitz Tribes regarding the APE, requesting help in identifying cultural or religious properties that may be affected by the project. FEMA has received no other specific information from the Tribes on traditional cultural properties in the project area.

## 5.0 Preparers

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Chehalis River Basin Land Trust

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Lewis County Community Trails

Northwest Motorcycle Association

Washington Trails Association

Ryan Ojerio, Southwest Regional Director

Friends of the Earth

Washington State Parks Foundation

Washington Environmental Council

The Nature Conservancy

### **LIBRARIES**

Vernetta Smith Chehalis Timberland Library

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# **Appendix A**

## **Consultation and Coordination**



**FEMA**

November 30, 2010

RE: FEMA Proposal to Fund Willapa Hills Trail Washout Replacement, Lewis County  
FEMA-1734-DR-WA, PW 533  
NEPA Scoping for Environmental Assessment

Dear Interested Party:

The U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) is proposing to support the Washington State Parks and Recreation Commission by providing partial funding to rebuild a trail washout on the Willapa Hills Trail adjacent to Rock Creek, near Pe Ell in Lewis County, Washington. The project area can be accessed via Rock Creek Road, south of State Route 6 in Pe Ell, Washington. The project area is located in Section 05, Township 13N, and Range 06W (see the attached map).

The purpose of this notice is to invite you to participate in a National Environmental Policy Act (NEPA) scoping process by reviewing the initial proposal as described in this letter and providing comments to help FEMA prepare an Environmental Assessment (EA) under NEPA. The EA will evaluate the impacts of this proposed action on the natural and cultural environment. We are asking your assistance in identifying the scope of issues and concerns to be addressed in the analysis, developing viable alternatives to the proposed action, and identifying potential impacts of implementing the project.

The proposed project is to construct a new trail segment to bypass the original trail segment that washed out during a severe winter storm and flooding event on December 3, 2007. The President declared the flooding event a major disaster (FEMA 1734-DR-WA), making funds available for public infrastructure repairs.

During the 2007 winter flood, Rock Creek overflowed its banks and eroded an approximately 500-foot-long section of the Willapa Hills Trail and adjacent grade. The Willapa Hills Trail is a 56-mile long trail extending from Chehalis to Raymond along a former railroad line. The lost trail segment has disrupted the east-west trail connection through southwest Washington.

For the proposed action, the remaining damaged segment of the existing trail would be removed. This material would be used to construct the new 500-foot section of trail. The trail would be topped with imported gravel. The new trail alignment would begin on grade with the existing trail and then diverge, to avoid as much of a Category III wetland as possible, while staying within the Willapa Hills Trail park boundaries. The 3,900 square feet of wetland impact would be offset with 2,400 square feet of wetland creation and 34,700 square feet of wetland enhancement.

The new trail alignment is proposed to protect the trail during future high flow events. The project is intended to improve the aquatic environment of this area by enhancing the stream bank and wetland with native trees. The eroded stream bank would be stabilized with rip rap and engineered log jams. The logs would redirect and attenuate stream flows, and encourage sediment accretion along the bank.

Designs for the new trail segment and stream bank stabilization could be revised based on comments and other alternatives identified through the scoping process or the environmental review process.

Other alternatives to the proposed action include placing the trail on a boardwalk crossing the wetlands. This alternative will be evaluated in the EA as well. We are also interested in other alternatives you may have to restore the lost function of the trail.

### **Submittal of Comments**

Please submit your written comments on this proposal (or, if you represent an agency, a written confirmation of receipt of this notice stating that your agency has no comments to contribute) to FEMA via a reply to the email forwarding this notice. Or you may submit written comments via regular mail to:

Janet Curran  
Environmental Specialist  
FEMA Region X  
130 228<sup>th</sup> St. SW  
Bothell, WA 98021  
Janet.curran@dhs.gov

Please submit your comments by January 3, 2010.

If you have questions about this letter, the project, or if you want to receive a copy of the Draft EA document for review and comment when it is released later during the public involvement process, please feel free to contact Janet via email ([janet.curran@dhs.gov](mailto:janet.curran@dhs.gov)) or phone (425-482-3709) or me via email ([mark.eberlein@dhs.gov](mailto:mark.eberlein@dhs.gov)) or phone (425-487-4735).

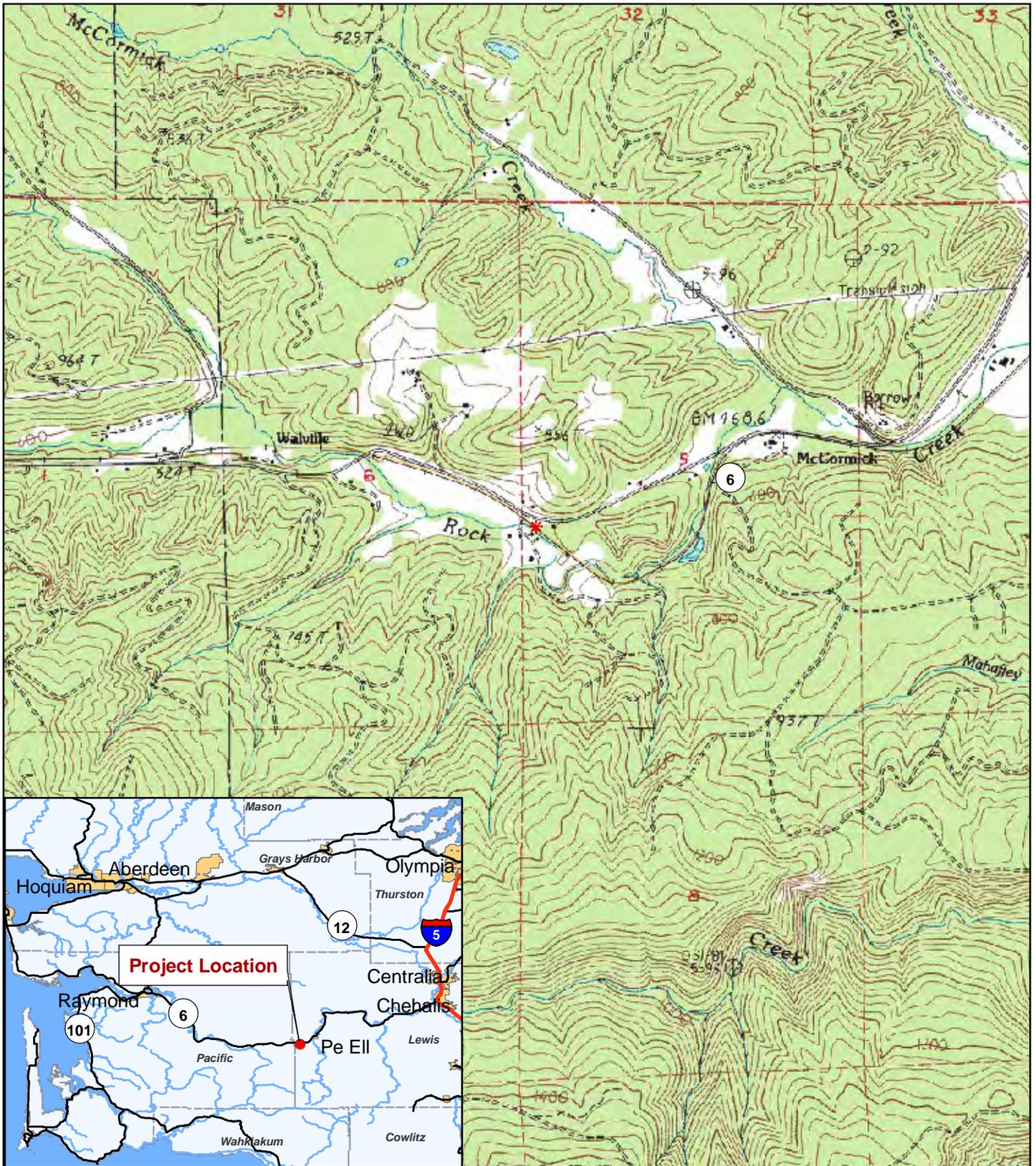
Sincerely,



For

Mark Eberlein  
Regional Environmental Officer

Enclosure

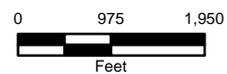


**Legend**

-  Project Site
-  Willapa Hills Trail

**Project Vicinity**

Washington State Parks  
Willapa Hills Trail Rock Creek Washout



Basemap: 1 inch = 2,000 feet  
USGS Quad  
09100406.04 7/10

**From:** [Curran, Janet](#)  
**To:** [Mejia, Glen](#)  
**Subject:** FW: NEPA Scoping Notice for Willipa Hills Trail Replacement  
**Date:** Friday, December 03, 2010 11:17:16 AM

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For your files

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**From:** Newell, Colin [mailto:NewellC@wsdot.wa.gov]  
**Sent:** Wednesday, December 01, 2010 6:49 AM  
**To:** Zimmerman, Sharon  
**Cc:** Curran, Janet  
**Subject:** RE: NEPA Scoping Notice for Willipa Hills Trail Replacement

Well, now that I've reviewed the location, I find our Bridge project is to the east of this project. With that, they do not adjoin.

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**From:** Newell, Colin  
**Sent:** Wednesday, December 01, 2010 6:45 AM  
**To:** Zimmerman, Sharon  
**Cc:** 'Curran, Janet'  
**Subject:** FW: NEPA Scoping Notice for Willipa Hills Trail Replacement

Sharon,  
I'm thinking this needs to go to you. I'll review as well as we have a Bridge replacement project on Rock Creek that we are designing now.  
Thanks

*Colin Newell, P. E.  
WSDOT Chehalis Area Engineer  
1411 Rush Road, Chehalis, WA. 98532  
Office # 740-8603 or PEX 8603*

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**From:** Curran, Janet [mailto:Janet.Curran@dhs.gov]  
**Sent:** Tuesday, November 30, 2010 3:38 PM  
**To:** president@bchw.org; kjacobson@esd113.k12.wa.us; cbftf@reachone.com; Lnapier@co.grays-harbor.wa.us; bellon@chehalistribe.org; mcstrong@techline.com; crc@crcwater.org; Brooks, Allyson; Gretchen.Kaehler@dahp.wa.gov; Rob.Whitlam@dahp.wa.gov; reichgott.christine@epa.gov; Hayslip.Gretchen@epa.gov; Herger.Lillian@epa.gov; Marshall.Wendy@epa.gov; Burton, Dennis; bob.amrine@wa.usda.gov; Keith.Muggoch@lewiscountywa.gov; kplien@co.lewis.wa.us; info@lewiscountytrails.org; kathe.hawe@noaa.gov; dan.guy@noaa.gov; edavis@shoalwaterbay-nsn.gov; nma@nmaoffroad.org; Patricia.a.robinson@usace.army.mil; rowan\_baker@fws.gov; brian\_peck@fws.gov; Grettenberger, John; chem461@ecy.wa.gov; drou461@ecy.wa.gov; sepaunit@ecy.wa.gov; Smck461@ecy.wa.gov; Smen461@ECY.WA.GOV; mcli461@ecy.wa.gov; sepacenter@dnr.wa.gov; bob.burkle@dfw.wa.gov; Scott.Brummer@dfw.wa.gov; manloswm@dfw.wa.gov; stusscns@dfw.wa.gov; SEPAdesk@dfw.wa.gov; g.urbas@emd.wa.gov; McNamara, Cheryl; Combs, Ernie; Newell, Colin; Regan, Chris; ryan@wta.org; peter.carr@aecom.com; Eberlein, Mark; King, Susan; Mejia, Glen  
**Cc:** Curran, Janet  
**Subject:** NEPA Scoping Notice for Willipa Hills Trail Replacement

Dear Interested Parties:

Please submit your written comments on the attached proposal (or, if you represent an agency, a written confirmation of receipt of this notice stating that your agency has no comments to contribute) to FEMA via a reply to the email forwarding this notice. Or you may submit written comments via regular mail to:

Janet Curran  
Environmental Specialist  
FEMA Region X  
130 228<sup>th</sup> St. SW  
Bothell, WA 98021  
Janet.curran@dhs.gov

Please submit your comments by January 3, 2010.

\*\*\* eSafe2 scanned this email for malicious content \*\*\*  
\*\*\* IMPORTANT: Do not open attachments from unrecognized senders \*\*\*

**From:** [Curran, Janet](#)  
**To:** [Mejia, Glen](#)  
**Subject:** FW: NEPA Scoping Notice for Willipa Hills Trail Replacement  
**Date:** Friday, December 03, 2010 10:17:41 AM

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[For your files](#)

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**From:** Knust, Rochelle (DNR) [mailto:[Rochelle.Knust@dnr.wa.gov](mailto:Rochelle.Knust@dnr.wa.gov)]  
**Sent:** Friday, December 03, 2010 10:06 AM  
**To:** Curran, Janet  
**Subject:** NEPA Scoping Notice for Willipa Hills Trail Replacement

Ms. Curran,

Thank you for the opportunity to comment on the Willapa Hills Trail Replacement project. The Department of Natural Resources has reviewed this scoping notice and has no comments at this time. However, we do want to bring to your attention that the map and the cover memo seem to give to different locations for the proposal. The cover memo says Section 5, Township 13 North, Range 6 West, but the map appears to show Section 5, Township 12 North, Range 6 West.

Thank you,

**Rochelle Knust**  
SEPA Center Manager  
Environmental Review and Analysis  
Washington State Department of Natural  
Resources (DNR)  
360-902-2117  
[rochelle.knust@dnr.wa.gov](mailto:rochelle.knust@dnr.wa.gov)  
[www.dnr.wa.gov](http://www.dnr.wa.gov)

**From:** [Curran, Janet](#)  
**To:** [Mulder, Jan](#); [Mejia, Glen](#)  
**Subject:** FW: Willapa Hills Trail, FEMA 1734-DR-WA, PW 533  
**Date:** Monday, December 27, 2010 7:48:27 AM  
**Attachments:** [NMFS Willapa Hills Trail Comments.doc](#)

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For your files

-----Original Message-----

From: Nick.Jeremiah [<mailto:Nick.Jeremiah@noaa.gov>]  
Sent: Friday, December 17, 2010 10:41 AM  
To: Curran, Janet  
Subject: Willapa Hills Trail, FEMA 1734-DR-WA, PW 533

Mrs. Curran,

Attached is a response letter from NMFS regarding the Willapa Hills Trails Washout replacement project. Thank you for involving NMFS in the scoping process. I look forward to working with you on this project in the future.

Regards,  
Nick Jeremiah

17 December 2010

To: Janet Curran, Environmental Specialist, FEMA

From: Nick Jeremiah, Fish Biologist, NMFS

SUBJ: Willapa Trails Washout Replacement

FEMA 1734 DR WA, PW 533

Mrs. Curran,

Thank you for sending us the letter regarding the Willapa Trail replacement project. Per your request, the National Marine Fisheries Service (NMFS) has identified the following project issues/concerns, alternatives, and potential impacts we would like evaluated/considered for the project as proposed.

Issues/concerns: Increased sedimentation, filling/loss of stream channel, loss of/disturbance to riparian area, channel bank alteration/armoring, aquatic noise, use of rip rap (size, volume), fish exclusion/capture, and in-water work/dewatering. Additionally, NMFS would be interested in knowing your analysis of downstream effects to the stream and stream channel, such altered velocity and channel migration, as a result of this project.

Alternatives: Greater detail of the existing trail and proposed trail alignments is required to provide viable alternatives. The NMFS would favor any portion of new trail to be set back from the river as far as possible to avoid or minimize a similar situation from recurring in the future.

Impacts: The potential long term impacts that may arise from this project may include bank armoring and the resultant loss of terrestrial inputs to the stream as well as altered downstream hydrology. Additionally, long term impacts may include the loss of salmon spawning habitat, the loss of benthic habitat and associated primary production, and channel restriction. Short term impacts may include increased suspended sediment from the stream bed and bank disturbance in the water column, loss of riparian vegetation (short term if replanted), and an increase in ambient aquatic noise.

Wetlands: Concerning the associated Category III wetland mentioned in your letter, we would prefer the existing wetland remain intact and functioning as opposed to creating wetlands. With this in mind, we currently would favor a boardwalk to be constructed over these wetlands in order to minimize impacts.

Again, thank you for involving NMFS in the scoping process. Please keep us informed as this project develops and moves forward.

Regards,

Nick Jeremiah  
Fish Biologist, NMFS  
510 Desmond Dr, SE  
Lacey Wa 98503  
nick.jeremiah@noaa.gov  
360-753-9090



STATE OF WASHINGTON

**DEPARTMENT OF ARCHAEOLOGY & HISTORIC PRESERVATION**

1063 S. Capitol Way, Suite 106 • Olympia, Washington 98501  
Mailing address: PO Box 48343 • Olympia, Washington 98504-8343  
(360) 586-3065 • Fax Number (360) 586-3067 • Website: [www.dahp.wa.gov](http://www.dahp.wa.gov)

August 2, 2011

Mr. Mark G. Eberlein  
FEMA – Region X  
130 – 228<sup>th</sup> Street SW  
Bothell, Washington 98021-9796

RE: Willapa Hills Trail Repair Project  
FEMA# : 1734-DR-WA/PW-533  
Log No: 080111-29-FEMA

Dear Mr. Eberlein:

Thank you for contacting our Department. We have reviewed the materials you provided for the proposed Willapa Hills Trail Repair Project near Rock Creek, Lewis County, Washington.

We concur with your definition of the Area of Potential Effect and your Determination of No Historic Properties Affected.

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).

In the event that archaeological or historic materials are discovered during project activities, work in the immediate vicinity must stop, the area secured, and the concerned tribes and this department notified.

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 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: [rob.whitlam@dahp.wa.gov](mailto:rob.whitlam@dahp.wa.gov)



NHPA REVIEW (The Blue Sheet)

Project Manager: Jerry Gregory Date: 7/8/10  
first and last name

Applicant: WASHCO STATE PARKS & REC. Project Name: WYUWA HTUS TRAIL

Lead Agency- if not the USACE FEMA - HAS NOT COMPLETED REC YET

Type of permit:  Section 10  Section 404 Ref #: NWS- 2010-871  
 NWP# 3,13  RGP#  LOP  SP  JD only  Unauth.

Work location: County: Lewis at/near: PEEU Waterway: Rock Creek

Project latitude: 46.5496 Project longitude: -123.3406

Project - Section: 5 Township: 12N Range: 5W

Mitigation site location:  on-site (include plans)  off-site (include plans)  N/A

Mitigation site latitude: 46.5496 Mitigation site longitude: -123.3406

Mitigation - Section: \_\_\_\_\_ Township: \_\_\_\_\_ Range: \_\_\_\_\_

Provide comprehensive project/work description: PLACE APPROXIMATELY 907 CUBIC-YARDS OF ROCK AND GRAVEL TO CONSTRUCT A PUBLIC TRAIL THROUGH AN EXPOSED WETLAND AND PLACE ROCK AND LARGE WOODY DEBRIS ALONG ROCK CREEK TO STABILIZE THE CREEK BANK (APPROXIMATELY 250 L.F.)

Map of vicinity with project area indicated **and** one of the following:  
 Project Plans **or**  Public Notice **or**  IARPA

Has the applicant supplied any of the following documentation?

- Photo(s) of the project area(s)
- Information about houses, buildings, structures, etc. (including estimated construction dates)
- Previous Cultural Resources Work (predetermination reports, survey reports, etc.)
- Correspondence (SHPO concurrence, tribal letters, etc.)
- Cultural Resources Survey Report / EIS / SEPA

To be completed by cultural resources reviewer

Date received by reviewer: 7/12/10

No Potential or little likelihood to cause effects to Historic Properties.

NHPA process completed

For rationale, see reverse side: I.C.B.B.3

A potential to cause effects to historic properties. \_\_\_\_\_  
date

Information needs include: \_\_\_\_\_

No Historic Properties Affected (No Effect)

Report completed  Consultation completed  Special conditions (Y/N)  NHPA process completed

No Adverse effect.

Report completed  Consultation completed  NHPA process completed.

Adverse Effect-Requires MOA to address effects

Report completed  Consultation completed  MOA completed  NHPA process completed.

Findings based upon Reference: \_\_\_\_\_

Initial AD Report \_\_\_\_\_  
Cultural Resources Reviewer(s)

7/12/10  
NHPA Process completion date

**Rationales for “No Potential or little likelihood to cause effects to Historic Properties”, NHPA process completed.**

Based upon the following clarifications, it has been determined that the nature, scope, and magnitude of the work, and/or structures to be permitted are such that there is little likelihood that a historic property exists or may be affected

**1) Archaeological Resources:**

- Appendix C (3) (b) (1): Areas that have been extensively modified by previous work.  
Examples include:
  - 1) Activities are limited to areas where past disturbance was so severe as to preclude the existence of intact cultural deposits, and no known properties are present.
  - 2) Replacement or restoration actions are within the demonstrated vertical and horizontal limits of previous construction or disturbance.
  
- Appendix C (3) (b) (2): Areas which have been created in modern times.
  
- Appendix C (3) (b) (3): Certain types of work or structures that are of such limited nature and scope that there is little likelihood of impinging upon a historic property even if such properties were to be present within the affected area.  
Examples include:
  - 1) Activities are limited to incidental or low volume disturbance.
  - 2) Activities are limited to a land form or waterway with low probability for intact cultural deposits.
  
- Other rationale: \_\_\_\_\_

**2) Historic Buildings & Structures:**

- There are no historic structures adjacent to the undertaking, or within immediate view sheds that are eligible for the National Register.
  
- Appendix C (3) (b) (3): Certain types of work or structures that are of such limited nature and scope that there is little likelihood of impinging upon a historic property even if such properties were to be present within the affected area.  
Examples include:
  - 1) The proposed work area is not visually prominent or has minimal visual exposure.
  - 2) The proposed action applies to a feature, material, or aspect that does not contribute strongly to potential historic, architectural, or engineering values.
  - 3) The work applies to sacrificial elements that are to be replaced “in kind.”
  - 4) Installation of new or replacement of an existing storm water outfall structure within an earthen levee
  
- Other rationale: \_\_\_\_\_



---

**From:** Nick Jeremiah [<mailto:nick.jeremiah@noaa.gov>]  
**Sent:** Monday, December 19, 2011 8:18 AM  
**To:** Jeff Fisher  
**Cc:** [mark.eberlein@dhs.gov](mailto:mark.eberlein@dhs.gov)  
**Subject:** Fwd: Willapa Hills Trail - NEPA Draft Environmental Assessment

Jeff,

Received this email concerning a trail repair I commented on. A little over one year ago, NMFS received a request to provide comments on the proposed project, which I did. Seems the project is moving forward and FEMA is providing another opportunity for comments. I've attached the 2010 comment letter I wrote along with the 2010 scoping letter and map of the project FEMA provided as reference.

I am forwarding this to you so the project may be re-assigned as you see fit. There should be a total of five attachments, please let me know if any do not get through. Hope you had a good weekend, thanks very much.

Regards,  
Nick J.

## **Appendix B**

### **Executive Order 11988 – Floodplain Management, Eight-Step Decision Making Process**

# Willapa Hills Trail Project

## EXECUTIVE ORDER 11988 – FLOODPLAIN MANAGEMENT EIGHT-STEP DECISION MAKING PROCESS

Executive Order 11988 (Floodplain Management) requires federal agencies “to avoid to the extent possible the long and short term adverse impacts associated with the occupancy and modification of the floodplain and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative.” FEMA’s implementing regulations are at 24 CFR Part 9, which includes an eight-step decision making process for compliance with this part.

The process includes a preliminary evaluation of whether a proposed action has the potential to affect floodplains or their occupants, or is subject to potential harm by location in floodplains. Although the Willapa Hills Trails Proposed Action would have a net beneficial effect from the proposed setback of the new trail alignment from Rock Creek, there is a potential for an adverse effect on the floodplain from construction. The Proposed Action would not support floodplain development. The location of the recreational trail is adjacent to SR 6 within Washington State Parks right-of-way (ROW) where there is no area for development.

The Proposed Action would not be adversely affected by being in the floodplain. One of the purposes of the project is to locate the new trail alignment as far from Rock Creek as feasible, within the constraints of the narrow ROW. By aligning the new trail in this location away from Rock Creek, there is less likelihood of damage from large debris and seasonal high water events. The restored floodplain area would be replanted with native riparian species, and bank stabilization with large rootwads would redirect the channel to its natural course away from the new banks and attenuate flow and sediment transport.

This eight-step process was applied to the proposed Willapa Hills Trail Project because the southern portion of the project area is located in the floodplain of Rock Creek and construction could potentially affect floodplains. The steps in the decision making process is as follows:

### **STEP 1: DETERMINE IF THE PROPOSED ACTION IS LOCATED IN THE BASE FLOODPLAIN.**

The southern portion of the project area associated with Rock Creek is mapped as Zone A (Areas of 100-year flood, base flood elevation and flood hazard factors not determined)(Flood Insurance Rate Map [FIRM] Panel No. 5301020405B, December 15, 1981)(FEMA 1981). In the project area, the side slopes and banks of Rock Creek are unstable. Flooding has carved away at the armored trail embankment. The damaged trail embankment is actively eroding into Rock Creek, and the trail is susceptible to future flood events. Under the project, portions of the old trail would be removed from the floodplain, and the new trail section would be located outside of the mapped floodplain, as far from the creek as possible within the State Parks ROW.

### **STEP 2: EARLY PUBLIC NOTICE (PRELIMINARY NOTICE).**

FEMA sent a scoping letter to agencies, Tribes, and local interested parties on November 30, 2010. The letter described the proposed project and requested comments on issues and concerns, the range of

alternatives, and potential effects regarding the project. Comments were received from DNR, NMFS, and WSDOT. These comments were considered and addressed in the preparation of the Draft EA.

The Draft EA will be released for public review. Copies will be sent directly to those agencies, Tribes, and stakeholders that participated in scoping and are listed in Chapter 6, *Distribution*. A public notice announcing its availability to the general public for comment will be posted along the Willapa Hills Trail at main access points in the vicinity of the trail washout (including a notice at Rainbow Falls State Park). The Draft EA will be available for public review at the Timberland Library (Chehalis branch). The Public Notice and Draft EA will be posted to the FEMA and State Parks websites, the web addresses of which will be included in the Public Notice.

### **STEP 3: IDENTIFY AND EVALUATE ALTERNATIVES TO LOCATING IN THE BASE FLOODPLAIN.**

Several alternatives were reviewed but eliminated from further consideration in the EA because they did not meet the project purpose and need, they were not practical, or they were not suitable for FEMA funding under its PA program. There was no practicable alternative outside of the floodplain. Alternatives are described in Chapter 2.1, *Alternatives Considered But Not Carried Forward* of the EA. The alternatives include:

- Eliminated Alternative 1 – Restore trail in original configuration.
- Eliminated Alternative 2 – Rebuild the trail, in a new alignment, using a boardwalk.
- Eliminated Alternative 3 – Relocate the trail on the south side of the creek, and construct a new bridge to connect the new alignment to the old trail alignment.

The project is location dependent, as the new trail segment must connect with the existing Willapa Hills Trail alignment within the State Parks ROW. The construction of the new trail segment and stream and wetland restoration do not lend themselves to alternatives outside of the floodplain.

### **STEP 4: IDENTIFY IMPACTS OF THE PROPOSED ACTION ASSOCIATED WITH OCCUPANCY OR MODIFICATION OF THE FLOODPLAIN.**

The Proposed Action would not affect the functions or values of the 100-year floodplain. The Proposed Action would not place structures within the 100-year floodplain that would impede flood flows but does propose to stabilize the damaged banks with large rootwads, which would redirect the channel to its natural course away from the new banks and attenuate flow and sediment transport.

The southern portion of the project area is located in the floodplain of Rock Creek; portions of the trail would be relocated as far from the creek as possible within the State Parks ROW. Short-term, construction-related impacts on the floodplain would be avoided by implementing best management practices (described below under Step 5).

The new trail alignment would be located as far from Rock Creek as feasible, within the constraints of the narrow ROW. By aligning the new trail in this location away from Rock Creek, there is less likelihood of damage from large debris and seasonal high water events. There would be a net beneficial effect from the proposed setback of the new trail alignment from Rock Creek. The new trail alignment restores 34,700

square feet of wetland to the natural floodplain and riparian area of Rock Creek. The Proposed Action would also increase flood storage and detention for the Upper Chehalis River basin, which has been prone to flooding. The Proposed Action would not support additional floodplain development and would not facilitate an increase in population or housing. The location of the recreational trail is adjacent to SR 6 within Washington State Parks ROW where there is no area for development.

#### **STEP 5: DESIGN OR MODIFY THE PROPOSED ACTION TO MINIMIZE THREATS TO LIFE AND PROPERTY AND PRESERVE ITS NATURAL AND BENEFICIAL FLOODPLAIN VALUES.**

As described in Chapter 1.3, *Purpose and Need* of the EA, the Proposed Action has been designed to minimize threats to life and property and preserve natural and beneficial floodplain values through the following objectives:

- Provide safe, secure, and permanent public access to the Willapa Hills Trail system, including access for hikers, horseback riders, bikers, other recreational users, and maintenance and emergency vehicles.
- Minimize construction-related environmental impacts.
- Minimize impacts on Rock Creek and the on-site wetland identified as Wetland A.
- Minimize the potential for additional trail damage during future storms.

As described in Chapter 2.3, *Alternative B – Proposed Action* of the EA, State Parks will implement its standard trail design, and the following BMPs would be implemented during construction-related activities:

- **Erosion and Sediment Control:** These specifications require the contractor to implement a Temporary Erosion and Sediment Control (TESC) plan to comply with federal, state, and local laws, rules and regulations, and the National Pollutant Discharge Elimination System (NPDES) General Construction Permit regarding erosion prevention and sediment control for on-site construction activities. Erosion and sediment control specifications typically focus on soil and slope protection and stabilization measures, followed by site restoration methods (including planting materials). Additional erosion and sediment control BMPs are required in the provisions of the HPA issued by WDFW in July 2010 for the project (WDFW 2010). Provisions of the HPA include measures to avoid the potential release of project-related overburden soils, fill, and silt-laden water to Rock Creek (WDFW 2010).
- **Environmental Protection:** These specifications direct the contractor to implement measures and comply with laws and regulations designed to protect sensitive environmental resources. To ensure that all construction-related pollutants are controlled and contained, a project-specific Spill Prevention, Control, and Countermeasures (SPCC) Plan would be developed and implemented. This specification section addresses hazardous waste and hazardous substances management, pollution control, protection of plant and animal species, protection of wetlands, and protection of cultural resources, as well as other applicable safety, health, and human resource issues. Additional environmental protection BMPs are required in the provisions of the HPA (WDFW 2010). BMPs include ensuring that equipment used for this project would be free of external petroleum-based products while working around the stream and checked daily for leaks, and that any necessary repairs would be completed prior to commencing work along the stream (WDFW 2010).

- **Clearing and Grubbing:** These specifications direct the contractor regarding clearing operations, including removing, preserving, and trimming of trees and other vegetation. These specifications also address grubbing operations and provide limits on the contractor's area of approved activity and scope of actions. These specifications protect vegetation both inside and outside of approved work areas. Additional clearing and grubbing BMPs are required in the provisions of the HPA (WDFW 2010). BMPs include limiting alteration or disturbance of bank vegetation to that necessary to construct the project, restoring the banks and planting them within 1 year of completion with native or other approved woody species and vegetative cuttings, and maintaining the plantings for 3 years to ensure 80 percent survival (WDFW 2010).
- **Wetland Creation and Enhancement:** In addition to or in conjunction with any requirements associated with the Corps' Section 404 permit and as described in the State Parks State Environmental Policy Act (SEPA) environmental checklist (State Parks 2010), State Parks intends to enhance wetland vegetation conditions by removing the existing cover of invasive species such as Himalayan blackberry (*Rubus armeniæcus*) and reed canarygrass (*Phalaris arundinacea*), replacing these with native species that provide better habitat, such as red alder (*Alnus rubra*) and willows (*Salix* spp.). State Parks also plans to create new wetlands, expand Wetland A, and restore connectivity to Rock Creek.

#### **STEP 6: RE-EVALUATE THE PROPOSED ACTION.**

As previously stated, the project is location dependent. The construction of the new trail segment and stream and wetland restoration do not lend themselves to alternatives outside of the floodplain. The Proposed Action will not increase flood hazards because the Proposed Action would not place structures within the 100- year floodplain that would impede flood flows but does propose to stabilize the damaged banks with large rootwads, which would redirect the channel to its natural course away from the new banks and would not expose any segment of the population to flood hazards. The Proposed Action would also increase flood storage and detention and enhance riparian habitat in the floodplain.

Construction in the floodplain would occur between July 1 and September 15, typically the driest time of year, and would minimize actual work in the wet and reduce the potential for adverse effect on floodplains.

Therefore, it is practicable to construct the proposed project within the floodplain. Alternatives consisting of locating the project outside the floodplain or taking "no action" are not practicable.

#### **STEP 7: FINDINGS AND PUBLIC EXPLANATION (FINAL NOTIFICATION).**

Public notice will occur after the final decision has been determined.

#### **STEP 8: IMPLEMENT THE ACTION.**

The Proposed Action will be constructed in accordance with applicable floodplain regulations. Oversight responsibility will be built into the implementation and post-implementation phases.

**REFERENCES**

FEMA (Federal Emergency Management Agency). 1981. Flood Insurance Rate Map (FIRM), Lewis County, Washington (unincorporated areas). Panel 405 of 800. Community Panel Number 530102 02405 B. Effective Date December 15, 1981.

State Parks. 2010a. Determination of Non-Significance, Environmental Checklist. Prepared by Randy Kline. June 9, 2010.

WDFW. 2010. Hydraulic Project Approval, Willapa Hills Trail Reconstruction and Restoration, Control Number 120887-1, Issue date July 02, 2010. Project expiration date September 15, 2012. Southwest, Vancouver, WA.