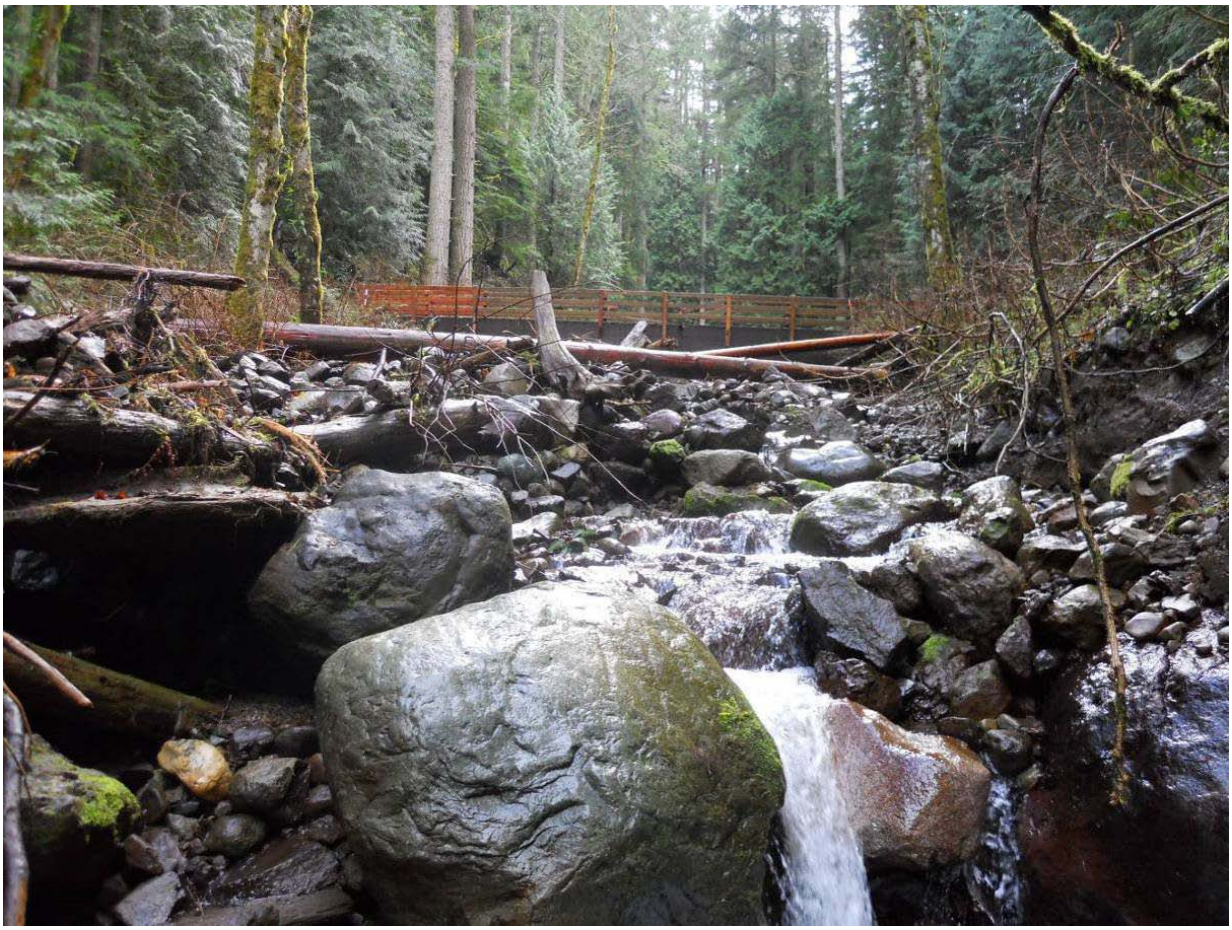

Draft Environmental Assessment

Tiger Mountain Trail Footbridge Project

King County, Washington

FEMA-1817-DR-WA (Public Assistance)

September 2010

U.S. Department of Homeland Security
FEMA Region X
130 228th Street SW
Bothell, WA 98021

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Prepared for:

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September 2010

[Cover Photo: View of damaged footbridge from 250' downstream, High Point Creek]

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Acronyms and Abbreviations

APE	Area of Potential Effect
ATV	all-terrain vehicle
BMP	best management practice
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
Corps	U.S. Army Corps of Engineers
CWA	Clean Water Act
DAHP	Washington Department of Archaeology and Historic Preservation
dB(A)	A-weighted decibel
DNR	Washington Department of Natural Resources
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
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
GIS	geographic information system
HPA	Hydraulic Project Approval
HUC	Hydrologic Unit Code
I-90	Interstate 90
KCC	King County Code
MBTA	Migratory Bird Treaty Act
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NAIP	National Agricultural Inventory Project
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NRCA	Natural Resource Conservation Area
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
OHWM	ordinary high water mark
ORV	off-road vehicle
PA	Public Assistance
PHS	Priority Habitats and Species
SEPA	State Environmental Policy Act
SHPO	State Historic Preservation Officer
SPCC	Spill Prevention Control and Countermeasures
TESC	Temporary Erosion and Sediment Control
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WRIA	Water Resource Inventory Area

1.0 Purpose and Need for Action

1.1 INTRODUCTION

Severe storms in January 2009 caused extensive flooding, landslides, and mudslides in western Washington. During the flooding, High Point Creek in the Tiger Mountain State Forest in King County, Washington (Figure 1.1-1), became a swift torrent, crashing into and severely damaging the High Point Creek trail footbridge, part of the Tiger Mountain trail system. The flooding event was declared by the President as a major disaster (FEMA 1817-DR-WA) on January 30, 2009, making federal funding available for emergency work and repair or replacement of disaster-damaged facilities. The Washington State Department of Natural Resources (DNR) has applied through the Washington State Emergency Management Division (EMD) to the Federal Emergency Management Agency (FEMA) for funding to replace and relocate the bridge.

This Draft Environmental Assessment (EA) has been prepared to assist FEMA in meeting 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 National Historic Preservation Act (NHPA), Executive Order (EO) 11988 (Floodplains), EO 11990 (Wetlands), and EO 12898 (Environmental Justice).

FEMA will use the findings in and public comments on this Draft EA to determine whether to prepare an Environmental Impact Statement (EIS). If the action is determined not to significantly affect the quality of the human and natural environments, then FEMA will make a Finding of No Significant Impact (FONSI), and preparation of an EIS will not be warranted.

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

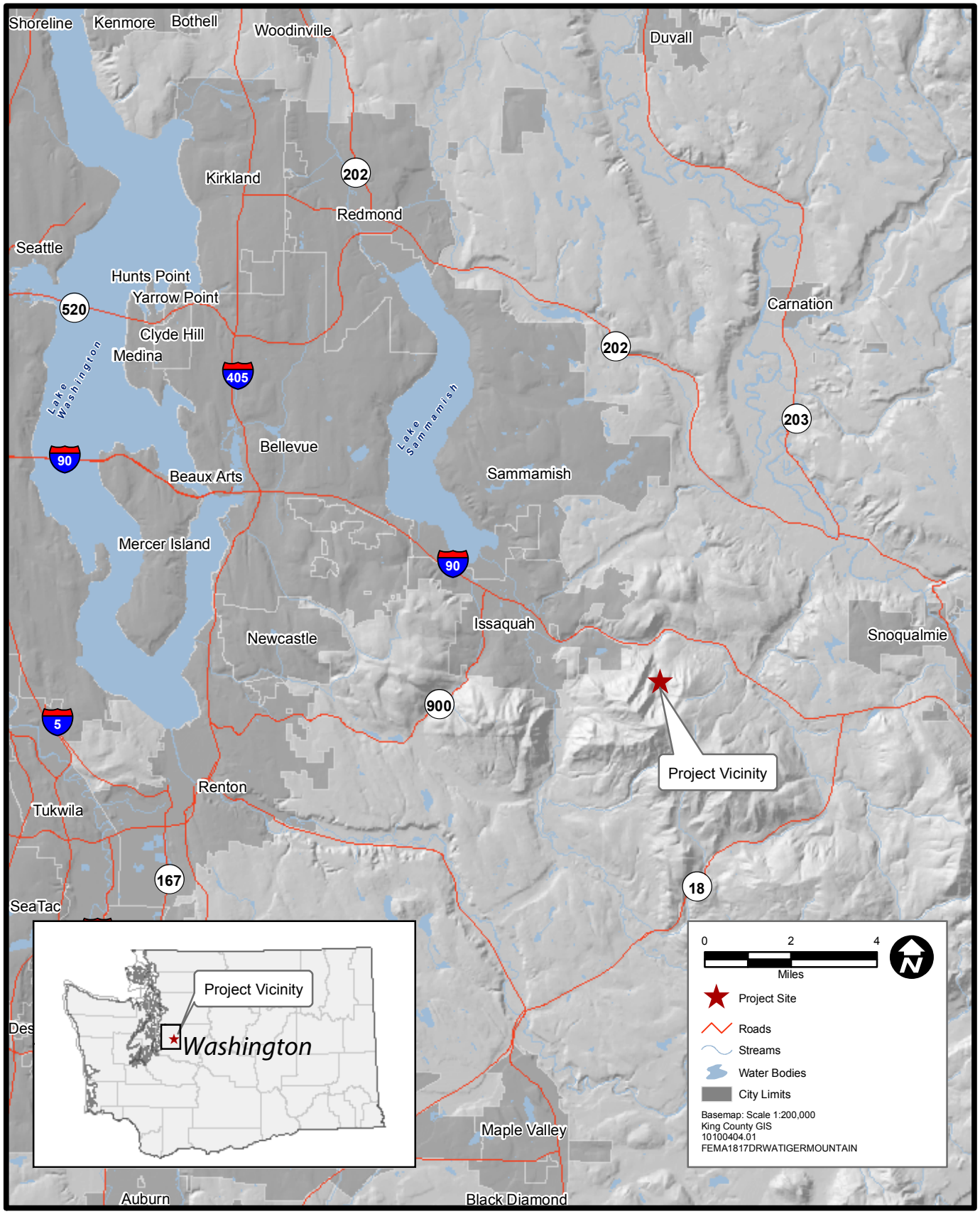
The project area is 1.2 miles southeast of the High Point Creek Trailhead, south of Interstate 90 (I-90). The project area is a part of the Tiger Mountain Trail system in the West Tiger Mountain Natural Resource Conservation Area (NRCA), which is within Tiger Mountain State Forest, managed by DNR (Figure 1.2-1). The NRCA is in a highly scenic segment of the Mountains to Sound Greenway, a recognized byway in the I-90 corridor that is a state and federally designated scenic and visual corridor (DNR 1997a). The area is part of the Cascade Range foothills known locally as the "Issaquah Alps." The legal description of the project area is Township 24 North, Range 6 East, and Section 36, Willamette Meridian. The project coordinates are 47.51943 N (latitude)/ -121.97396 W (longitude).

The damaged footbridge is 70 feet long and 6 feet wide, constructed of rough-sawn decking and cribbed deck stiffeners on each side (Figure 1.2-2). The abutments of the footbridge are small concrete foundation footings that are 8 feet wide by 8 feet long by 8 inches deep (EMD 2009). The flooding severely scoured and eroded the creek banks, compromising the abutment integrity, and debris deposits have raised the original creek bed by several feet (pers. comm., Jarrett 2010b).

During the 2009 flooding, the bridge deck was knocked free from the abutments (Figure 1.2-2). The deck is now free standing, slumped downstream, and perched on native soils. The deck surface is leaning downstream at a 15 degree angle and is currently 4 to 6 feet above the bed of High Point Creek. Because the damaged bridge is considered unsafe, DNR has officially closed this portion of the trail. However, unauthorized use likely occurs, with hikers scrambling over the eroded banks and fording the creek.

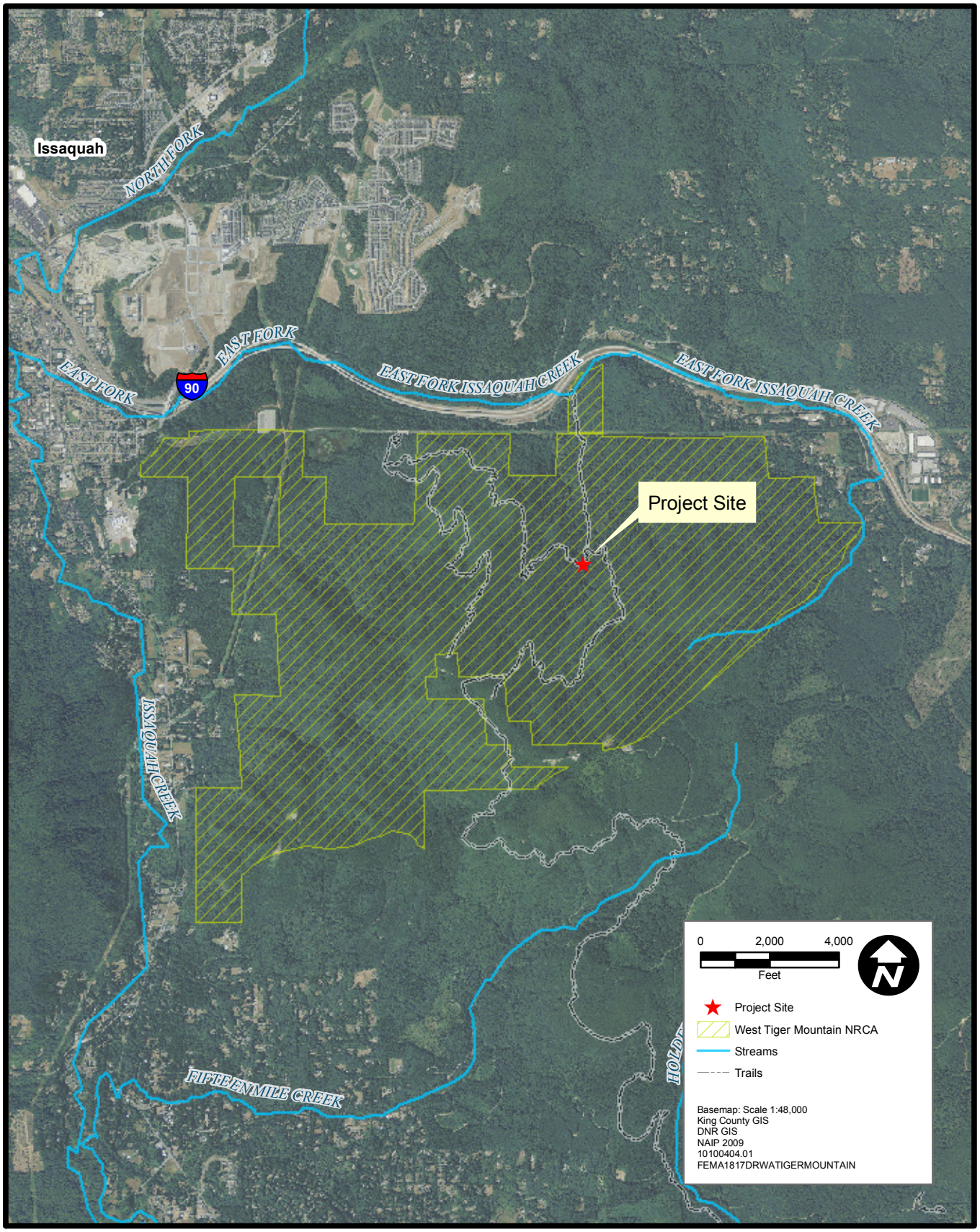
1.3 PURPOSE AND NEED

The purpose of FEMA's Public Assistance (PA) program is to provide financial assistance (grants) to local, state, and certain private non-profit entities with the response to and recovery from Presidentially declared disasters. The need for the FEMA action is to provide funds to DNR to restore the function that was lost with the damage of the High Point Creek footbridge. The January 2009 flood event rendered the footbridge unusable by hikers and other recreational users, disrupting the east/west trail system connection of this popular trail.



Project Vicinity **Figure 1.1-1**

Tiger Mountain Trail Footbridge
Environmental Assessment



Project Location **Figure 1.2-1**

Tiger Mountain Trail Footbridge
Environmental Assessment

Closed Trail and Footbridge Notice

Bridge Moved Off Concrete Footings

Bridge Moved 10 feet Downstream

Bridge Sliding Further into Floodway

Active Channel and Scoured Banks

Bridge Off of Footing and Hung Up on Berm

Photos of Damage

Figure 1.2-2

2.0 Alternatives, Including the Proposed Action

The following section describes the alternatives that are being considered for the Tiger Mountain Trail Footbridge Project, and the process that was used to develop these alternatives. This EA presents an analysis of three alternatives for the project: Alternative A (No Action Alternative), Alternative B (Proposed Action), and Alternative C (Restored Footbridge, near the original location).

2.1 ALTERNATIVES DEVELOPMENT

NEPA requires federal agencies to consider a reasonable range of alternatives that meet the purpose and need of a Proposed Action in their NEPA review.

2.2 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 applicable to FEMA funding under its PA program. These alternatives are listed and described below.

- **Eliminated Alternative 1 – Restore footbridge and trail in original configuration.** This alternative would restore the footbridge in its original location and the bridge structure to the original configuration. This eliminated alternative is somewhat different from Alternative C described later in Section 2.5. The eliminated alternative would have included rebuilding the creek bank and abutments and keeping the bridge length at 70 feet (the original length). Bank hardening and placement of riprap would be likely. This alternative was deemed impractical because of the high risk of repetitive damage and the changes in streambed configuration caused by the flooding.

- **Eliminated Alternative 2 – Relocate footbridge and trail upstream of original location**. This alternative would relocate the footbridge and trail upstream of the original location. The closest feasible location is approximately 1,000 feet upstream of the original location at a creek bend. This alternative was deemed impractical because of substantial trail re-alignment, substantial soil disturbance, and hydraulic conditions that may require bank armoring.

- **Eliminated Alternative 3 – Relocate footbridge and trail downstream of original location and replace with steel superstructure**. This alternative would relocate the footbridge and trail downstream of the original location using a 180-foot long steel superstructure. This alternative was deemed impractical because the costs for construction of the steel superstructure ($317,900) are significantly higher than that for the cable suspension superstructure ($229,025), and the cable suspension superstructure is better suited for the longer span necessary at this site. (These costs are preliminary estimates obtained by the applicant from Sahale LLC (2010) and used for comparison purposes only.)

2.3 ALTERNATIVE A – NO ACTION

Under the No Action Alternative, FEMA would not provide funding to DNR for construction of the Tiger Mountain Trail Footbridge Project. This portion of the trail would remain unusable, and recreational opportunities would continue to be disrupted. Access east and west along the Tiger Mountain Trail system would officially terminate at this location. Without the footbridge, many trail users would either cross the creek over the severely damaged bridge, or ford the stream, traversing steep banks and climbing over accumulated debris along High Point Creek. Both of these options would be unsafe, would create erosion problems, 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.

This alternative is not consistent with management goals set forth in the West Tiger Mountain NRCA Management Plan (DNR 1997a) (hereafter referred to as "Management Plan"). DNR could choose to move forward with replacement of the footbridge using non-FEMA funding. However, due to budget shortages and resource constraints, identifying alternate funding sources would significantly delay repairs.

2.4 ALTERNATIVE B – PROPOSED ACTION

Under the Proposed Action, FEMA would provide funding to DNR for construction of the Tiger Mountain Trail Footbridge Project. The Proposed Action includes design and construction for replacing the damaged 70-foot span with an approximately 180-foot span footbridge, in approximately the same vicinity as the original footbridge. The east abutment of the new footbridge would be built approximately 60 feet higher than the current location (pers. comm., Jarrett 2010a). The west abutment of the new footbridge would be relocated upslope and out of the active channel of High Point Creek.

By extending the length of the footbridge and increasing the clearance between the footbridge and the creek bed, the hydraulic capacity under the footbridge would be greater than the original placement of the footbridge (EMD 2009). This greater clearance would allow for large debris torrents and periodically high water volumes to pass under the new footbridge. Details of the necessary mobilization of equipment and use of materials have not been determined at this stage of design. However, the remote location of and limited access to the project area, and the large size of the bridge components (e.g., girders), would likely require a combination of mechanized wheel barrows or all-terrain vehicles with a possibility of helicopter transport for some components.

Proposed project elements include the following:

- Remove the existing bridge's 70-foot long by 6-foot wide footbridge and decking.
- Remove railings.
- Remove six galvanized steel braces.
- Clear area around new location of footbridge and trail approach.
- Construct approximately 30 feet of new trail on the east side of the creek and approximately 200 feet of new trail on the west side of the creek.

- Construct new concrete east and west abutments with approximately 14-foot tall steel I beam cable suspension supports.
- Install new footbridge cables, suspension superstructure, and wood decking.

The total estimated cost is approximately $235,000 (EMD 2009). The estimate includes engineering and design, materials, fabrication, and installation. Construction would last 2 to 6 weeks and would occur during the Washington Department of Fish and Wildlife (WDFW) in-water work window of July 1 to October 31 (WDFW 2010b).

In constructing this project, DNR would follow the provisions of the Management Plan (DNR 1997a). Under the Management Plan, DNR protects native ecosystems in the NRCA and provides controlled opportunities for low-impact public use.

DNR would adhere to federal and state regulations and permit conditions for construction of the proposed project. In addition, the following best management practices (BMPs) would be implemented during construction-related activities:

- **Trail Design and Construction:** The Management Plan (DNR 1997a) provides BMPs for trail design and construction**.**

- **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 and regulations. 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 Hydraulic Project Approval (HPA) (WDFW 2010b).

- **Riparian Area Revegetation:** The HPA (WDFW 2010b) requires the revegetation of disturbed riparian areas with native or other approved woody species. Riparian vegetation must be replaced in-kind and maintained as necessary for 3 years to ensure 80 percent survival.

- **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 2010b).

- **Clearing and Grubbing:** These specifications direct the contractor regarding clearing operations, including removing, preserving, and trimming of trees and other vegetation. This specification section also addresses grubbing operations, and provides 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 2010b).

2.5 ALTERNATIVE C – RESTORED FOOTBRIDGE

Under Alternative C, FEMA would provide funding to DNR for construction of the Tiger Mountain Trail Footbridge Project. Alternative C would include the replacement of the damaged 70-foot span, and placement of the structure in approximately the same location prior to the 2009 disaster. Because portions of the creek bank at the bridge abutments were washed out, new abutments would need to be constructed approximately 15 feet landward from the original footing locations (EMD 2009) to place the bridge outside of the active channel, as originally designed. Subsequently, the restored footbridge would need to be approximately 15 feet longer than the existing footbridge.

Proposed project elements include the following:

- Remove existing footbridge, including all railing and remnants as described in the Proposed Action.
- Construct new concrete east and west abutments slightly above and outside of the High Point Creek channel.
- Armor bank around abutments if necessary and if allowed by the HPA.
- Install a new 85-foot span prefabricated wooden footbridge aligned with the existing trail.

DNR would construct the project described under Alternative C during the WDFW in-water work window of July 1 to October 31 (WDFW 2010b). BMPs to include TESC and SPCC plans, and clearing and grubbing specifications similar to those described above in Section 2.4, would be implemented under Alternative C to minimize construction-related effects. Construction methods and equipment would be similar to those described for Alternative B. All federal, state, and local requirements and permit conditions would be implemented and observed.

2.6 SUMMARY OF EFFECTS

Table 2.6-1 provides a summary of 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 either non-detectable or if detected, would have effects that would be slight and local. Impacts would be well below regulatory standards, 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 standards, as applicable. Mitigation measures would reduce potential effects.

- **Moderate**: Changes to the resource would be measurable and have both localized and regional scale impacts. Impacts would be within or below regulatory standards, but historical conditions are being 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 standards. 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 significances used in the analysis are defined by resource in Chapter 3.

Table 2.6-1. Summary of Effects of the Project Alternatives.

Resource Area	Alternative A – No Action Alternative	Alternative B – Proposed Action	Alternative C – Restore Bridge
Geology and Soils	Minor effect.	Minor effect with disturbance of soils to construct new abutments and create new trail.	Minor effect with disturbance of soils to construct new abutments.
Hydrology, water quality, floodplains, and wetlands	Negligible effect on water quality from minor soil erosion.	Negligible effect due to soil erosion potential; negligible effect due to work near wetlands.	Minor effect; potential for flooding to damage bridge.
Vegetation	Minor effects on riparian vegetation from trampling.	Minor effect on upland vegetation from 1,500 square feet of clearing.	No effect.
Fish and Wildlife	Minor effects on habitat due to trampling, hiking through the creek bed.	Minor effect due to 1,500 square feet of upland habitat loss. Minor short-term effect due to construction noise (use of ATVs and/or helicopter).	Minor effect due to new bridge abutments, approx. 50 square feet. Minor effect due to construction noise (use of ATVs and/or helicopter).
Recreation and Visual Quality	Moderate effect on recreation due to lack of trail access.	Minor, short-term effect on hikers due to trail and bridge construction. Moderate beneficial recreation effect due to restoration of trail access.	Minor, short-term effect on hikers due to trail and bridge construction. Moderate beneficial recreation effect due to restoration of trail access.
Cultural Resources	No effect.	No effect.	No effect.
Noise	No effect.	Minor effect during construction.	Minor effect during construction.
Environmental Justice	No effect.	No effect.	No effect.
Climate change	No effect.	No effect.	No effect.
Cumulative Effects	No effect.	Negligible 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 three 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 on the south slope of a steep valley along the East Fork Issaquah Creek (Figure 3.1-1, *Topography*). The area is underlain by volcanic and sedimentary rocks that range in age from middle to late Eocene (about 50 to 38 million years) (DNR 1997a). Elevation ranges from approximately 500 feet at I-90 to 1,400 feet at the project location (USGS 1993; USDA 2001). Slope morphology is concave and convergent with a gradient of approximately 22 degrees (Sarikhan and Walsh 2007).

Soils in the West Tiger Mountain NRCA are formed from various combinations of glacial till, glacial outwash, glacial draft, volcanic ash, and igneous rock, and are gravelly sandy loams. Soils in the project area are mapped as Alderwood gravelly sandy loam, 15 to 30 percent slopes (AgD) and 6 to 15 percent slopes (AgC), Beausite gravelly sandy loam, 40 to 75 percent slopes (BeF), and Ovall gravelly loam, 15 to 25 percent slopes (OvD).

The Management Plan classifies soils within the NRCA as to their soil capability. The soils in the project area are defined by DNR as moderate capability (DNR 1997a), meaning that erosion potential, runoff, and compaction potential are low to moderate. There is also some potential for slope instability (landslides). Older landslides have been documented in vicinity of the project area (Sarikhan and Walsh 2007). No seismic hazards have been identified in the project area.

3.1.1.1 Regulatory Considerations

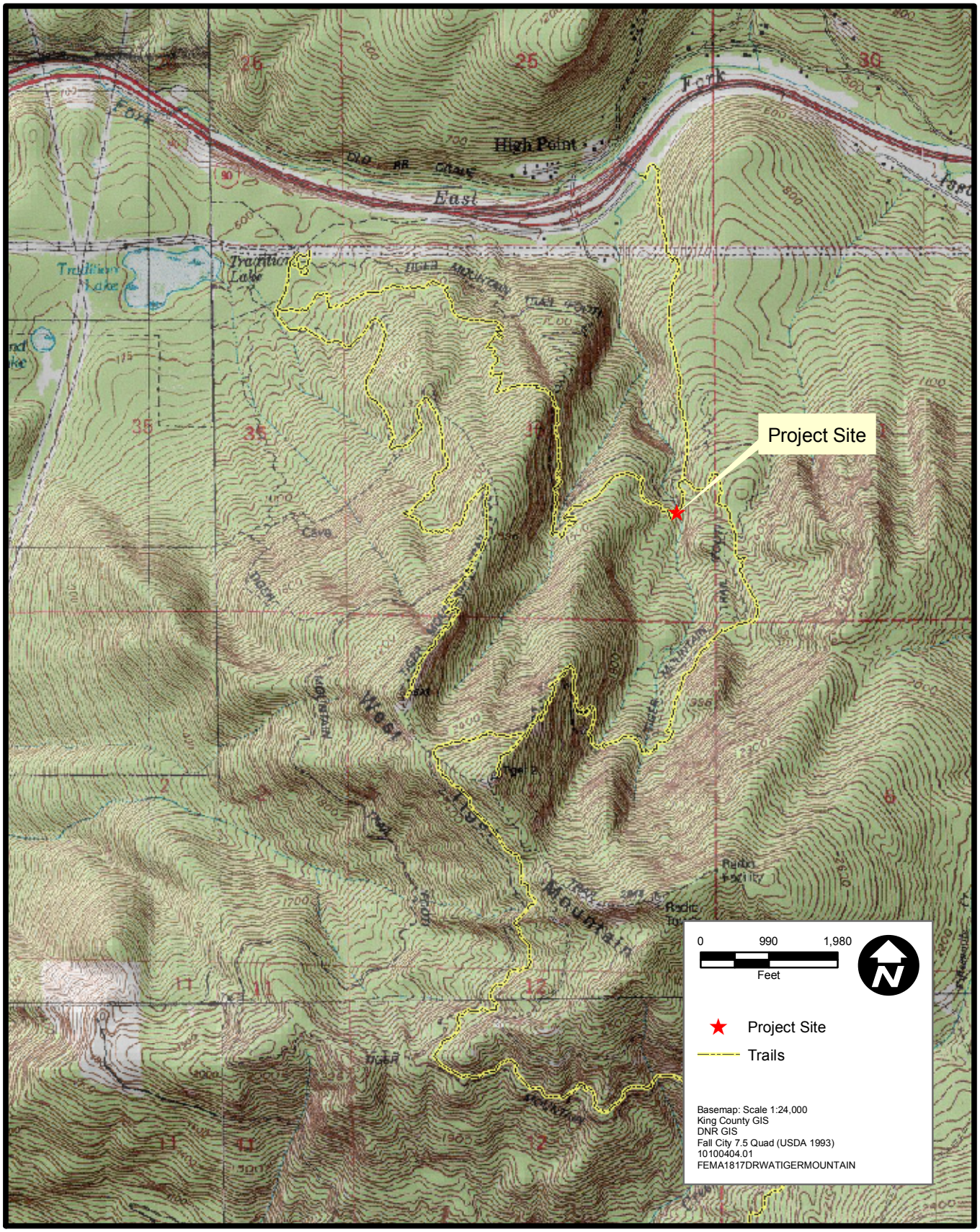
Applicable plans and regulations are described below.

<u>West Tiger Mountain Natural Resources Conservation Area Management Plan</u>

The Management Plan (DNR 1997a) describes NRCA geology and soils, as summarized above.

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.



Topography **Figure 3.1-1**

Tiger Mountain Trail Footbridge
Environmental Assessment

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 geology or soil resources if it would:

- Cause long-term erosion of soils that cannot be prevented by the implementation of erosion control measures, BMPs and sound design.
- Result in a substantial increase in sediment or slope failures.
- Substantially conflict with the Management Plan.

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 fund the replacement or restoration of the Tiger Mountain Trail Footbridge. Soil erosion and compaction would continue to occur from unauthorized hikers scrambling up and down the streambank. There would be no indirect or cumulative effects on geology and soils. 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 footbridge, as described in Section 2.4. Vegetation removal and soils disturbance would be minimized and would be restricted to that necessary for construction of the footbridge.

Temporary effects would include minor vegetation and soil disturbances during the construction of new trail approaches and the concrete abutments. Permanent effects may include the removal of up to 1,500 square feet of native vegetation to construct new trail approaches (1,450 square feet) and concrete abutments (50 square feet) at the east and west sides of the new footbridge. The new abutments would be constructed on relatively flat areas adjacent to moderate slopes. The Proposed Action would comply with applicable requirements and objectives of the Management Plan (DNR 1997a).

The new bridge abutments and trail approaches would be located 60 feet higher in elevation than the original location of these components, in terrain with a lower risk of landslides. The proposed locations for the abutments are on stable slopes. Long-term erosion of soils 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 and temporary, mainly resulting from the installation of the bridge abutments. Installation of the bridge would prevent the need for hikers to scramble up the streambank, thus providing a long-term erosion prevention benefit.

3.1.3.3 Alternative C: Restored Footbridge

Under Alternative C, the abutments would be moved approximately 7 feet upslope on each side of the creek from the original location, as described in Section 2.5. Temporary effects would include

minor soil disturbances during the construction of the concrete abutments and minor trail adjustments.

3.1.3.4 Mitigation Measures

For the action alternatives, BMPs as described in Section 2.4 would ensure that potential effects on geology and soil resources would be minimal. DNR would comply with all permit requirements; implementation of the TESC and SPCC plans, BMPs, and HPA would meet or exceed federal, state, and local requirements. No additional mitigation measures for geology and soils are proposed under any of the alternatives.

3.1.3.5 Significant and Unavoidable Adverse Effects

No significant or unavoidable effects on geology or soils are anticipated from any 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 aquatic resources are analyzed for each of the No Action, Proposed Action, and Restored Footbridge alternatives.

3.2.1 AFFECTED ENVIRONMENT

High Point Creek flows north from East Tiger Mountain Summit, one of six peaks present on Tiger Mountain. The creek is entirely contained within the West Tiger Mountain NRCA (Strahler 1957). High Point Creek meets Issaquah Creek approximately 1 mile downstream from the bridge, where East Issaquah Creek flows adjacent to the I-90 freeway before discharging into Lake Sammamish (Figure 3-1.1). Small streams and wetlands in the vicinity of the project are described below. These wetlands and streams are largely in their intact and natural states, with native vegetation and hydrology appropriate to their topography and soils.

High Point Creek

High Point Creek is a moderately steep, rocky-bottomed creek with seasonally variable flow in a clearly defined channel. The volume of flow is storm-event driven, and the recent flooding has left a large amount of coarse woody debris and large cobbles and boulders. Resident fish are present, but the gradient is steep, with typically low flows and does not provide anadromous fish habitat. The basin above the project area is forested and managed for forest conservation (DNR 1997a). Soils with low to moderate erosion and runoff potential dominate the banks of this stream (NRCS 1973), resulting in a system that carries high sediment loads during high flow periods. The average width of the active channel is approximately 65 feet and relatively consistent within the project area.

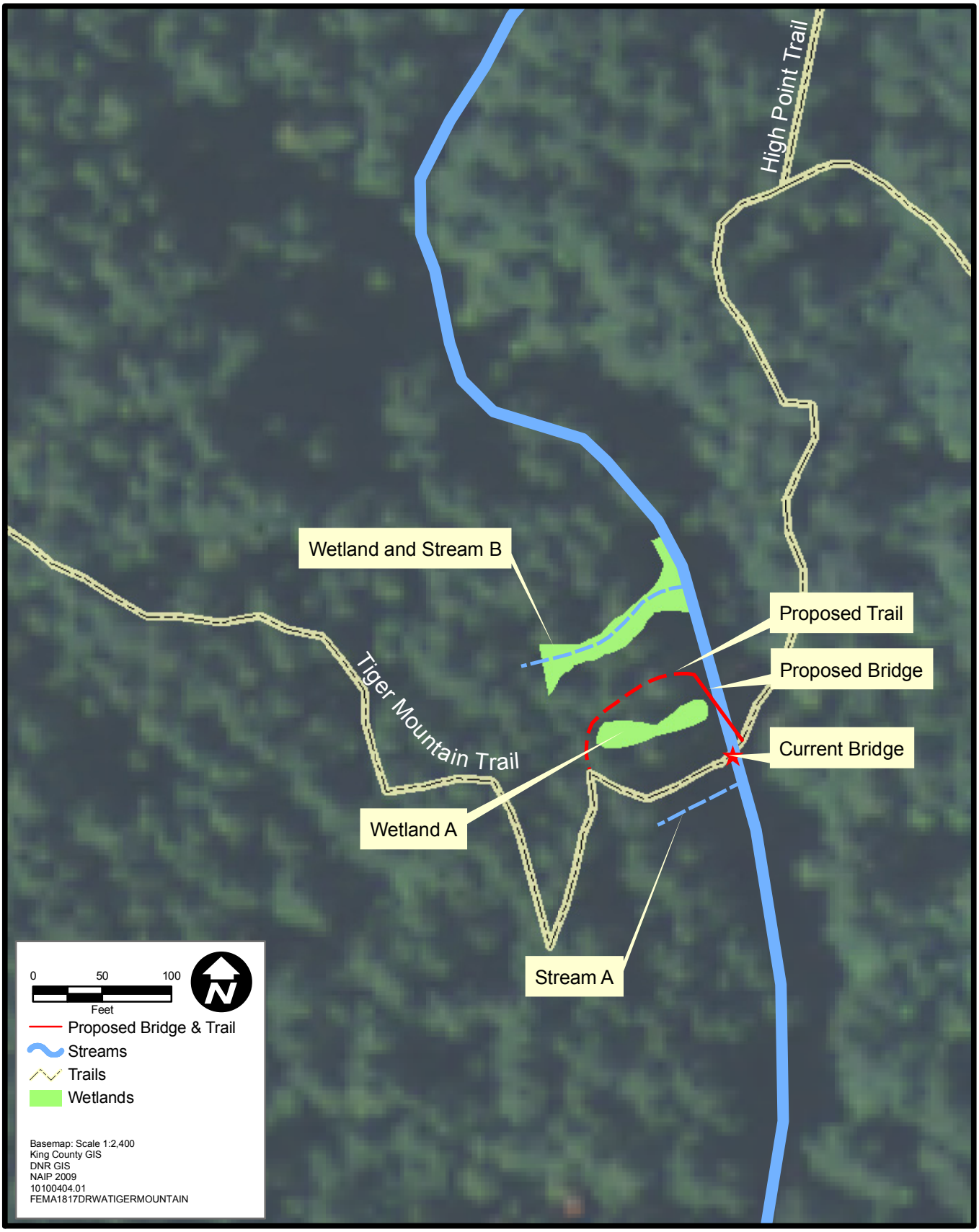
Non-Fish-Bearing Small Streams (Streams A and B)

Two small streams are located within the project area (Figure 3.2-1), with very narrow scoured active channels that range from 16 to 60 inches across. Both streams are seasonally intermittent, fishless, and gravel-bottomed, and each drains directly to High Point Creek. Stream A is located approximately 50 to 75 feet upstream and south of the west abutment of the proposed bridge location, and Stream B is located approximately 50 to 75 feet downstream and north of the west abutment of the proposed bridge location. Stream B is within the boundary of Wetland B.

The active channels of these streams are dynamic and subject to changes in width and depth (within their own small scale) each year in response to seasonal hydrology patterns and loose, unconsolidated gravelly substrates on steep topography.

Wetlands A and B

No wetlands are mapped in the National Wetlands Inventory (NWI) in the project area (USFWS 2010). During the site visit, however, two forested wetlands (called Wetlands A and B) were recorded that flank the proposed trail on the west bank of High Point Creek, within the general project area (Figure 3.2-1). Wetland A is approximately 20 feet south of the proposed bridge location, and Wetland B is located north and occurs along both banks of Stream B (see above). These wetlands are very small, totaling together approximately 0.1 acre. They are characterized by a rocky substrate intermixed with organic leaf litter and mineral soils beneath.



Wetlands and Streams **Figure 3.2-1**

Tiger Mountain Trail Footbridge
Environmental Assessment

Mosses overlay the understory in many places; ground cover plants are somewhat sparse, but consist of deer fern (*Blechnum spicant*) and swordfern *(Polystichum munitum)* on hummocks; devil's club (*Oplopanax horridus*) and salmonberry (*Rubus spectabilis*) comprise the shrub layer. Western red cedar (*Thuja plicata*) and red alder (*Alnus rubra*) make up the overstory, although gaps in tree cover are common. Soils immediately beneath the surface are either gleyed or show mottles and depletions, indicating saturation near the soil surface (Environmental Laboratory 2008).

Water seeps from the wetlands along the valley sidewalls down to approximately 25 feet upslope of the High Point Creek active channel, and slowly flows in a spreading fan down to the creek. These wetlands are classified as Palustrine Forested Wetlands (Cowardin et al. 1979), and their general configurations are depicted in Figure 3.2-1, *Wetlands and Streams*. The approximate areas of wetlands in the project area are listed in Table 3.2-1.

Table 3.2-1. Estimated Area of Wetlands in the Project Area.

Wetlands	Areas*	Classification
Wetland A	1,000 square feet	Palustrine Forested[1]
Wetland B	3,500 square feet	Palustrine Forested[1]

[1] Cowardin et al. 1979.
*All areas are estimates based on field measurements. Areas have not been delineated or surveyed and are not sufficient for regulatory uses.

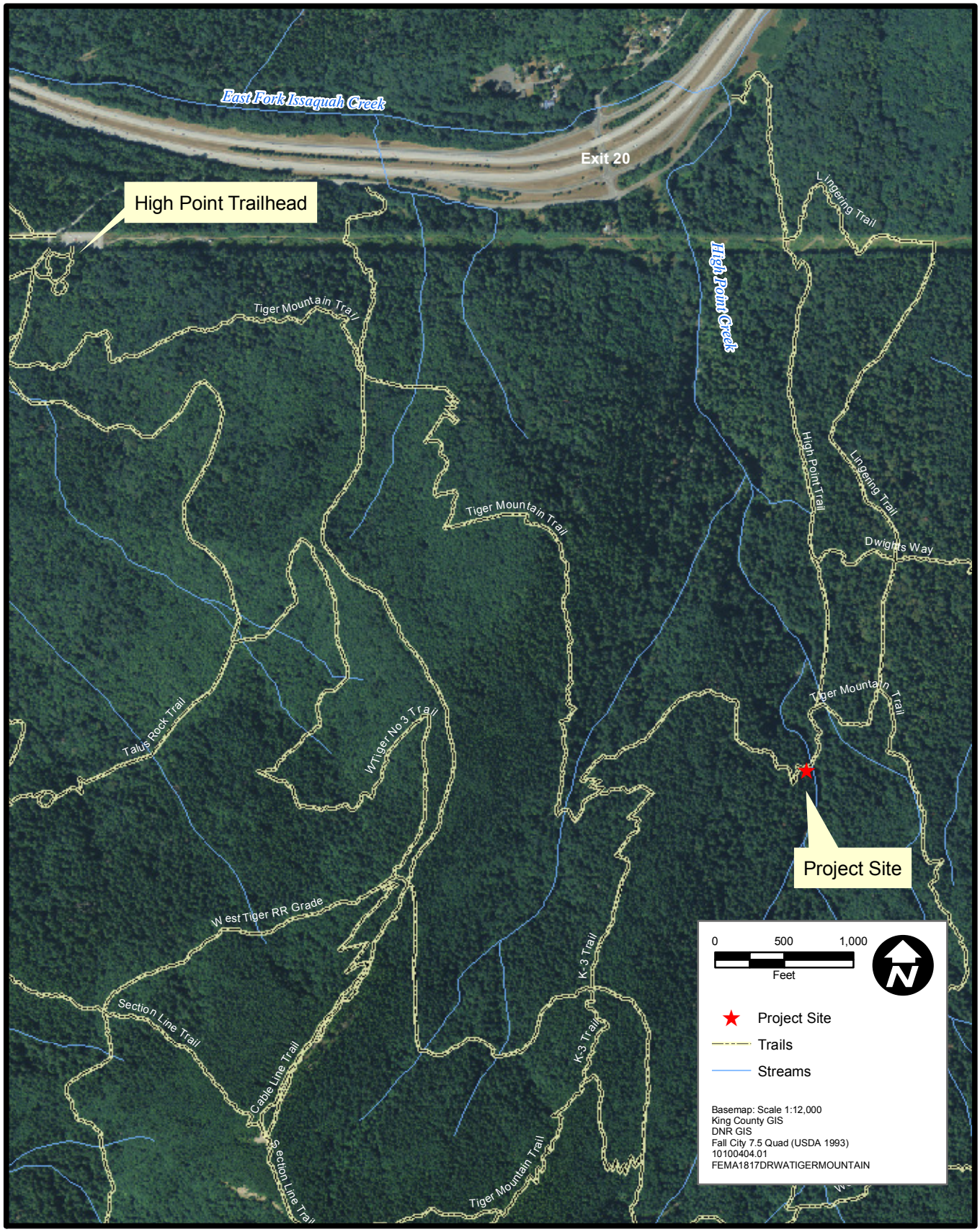
Hydrology and Watershed Characteristics

The project area is in the Cedar–Sammamish Watershed (Water Resource Inventory Area [WRIA] 8) and the U.S. Geological Survey (USGS) Lake Washington watershed, Headwaters Sammamish River sub-watershed (5th field Hydrologic Unit Code [HUC] 171100120201), and the 61 square mile (158km^2) Issaquah Creek basin (King County 1996).

The High Point Creek basin is a steep, narrow basin over low to moderately erodible soils. Hydrology is groundwater fed, and strongly affected by storm events. Due in part to the recent debris flows, much of the mainstem of the creek flows through the recently deposited debris and creek bed, rather than over it. All wetlands and streams are on slopes, and flow to High Point Creek. The stream network near the project area, and the forested character of the watershed, is depicted in Figure 3.2-2, *Project Area Streams and Trails.*

Water Quality

No water quality monitoring stations are located within High Point Creek, and monitoring stations below the confluence with the East Fork of Issaquah Creek are too distant to reflect the water quality of the project area. Water quality in the project area is primarily influenced by the erosion characteristics of the watershed soils and by storm events that lead to sedimentation and turbidity (personal observation, Pauley, 2010).



Project Area Streams and Trails **Figure 3.2-2**

Floodplains

The project area is not located in a floodplain. A floodplain is defined in FEMA floodplain regulations as "the lowland and relatively flat areas adjoining inland and coastal waters including, at a minimum, that area subject to a one percent or greater chance of flooding in any given year" (44 CFR 9.4). The locations of the original footbridge and the new footbridge under Alternatives B and C are mapped as "Zone X" on the FEMA Flood Insurance Rate Map (FIRM) (FIRM 53033C0715F), which is an area of minimal flood hazard (FEMA 1995).

Although not in a floodplain, the original footbridge was damaged by flooding of the active channel of High Point Creek. The active channel includes all areas that show signs of flow or scour, and in small basins like this one, is typically just a few feet above the ordinary high water mark (OHWM). One of the purposes of Alternative B (the Proposed Action) is to increase the bridge span to lessen the chance that future flooding might damage the structure.

3.2.1.1 Regulatory Considerations

Applicable federal and state requirements regarding water quality in the project area are described below.

Federal Requirements

Clean Water Act (Sections 401, 402, and 404)

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 Clean Water Act (CWA). The U.S. Army Corps of Engineers (Corps) has jurisdiction for Section 404 and is responsible for the issuance of 404 permits. Projects that involve work below the OHWM of surface water, or projects within wetlands, may require 404 permits. In its scoping comments on the project, the Corps indicated that the Proposed Action could likely be designed and built to avoid the need for a Section 404 permit (Corps 2010). DNR is responsible for contacting the Corps with the project design so that they may determine whether a Section 404 permit is required. If so, then DNR would obtain the permit.

A Section 401 water quality certification from the Washington State Department of Ecology (Ecology) would be part of that permitting process. Section 402 regulates point source discharges to surface water. A construction stormwater general permit under Section 402 would not be required because the area of disturbance is less than 1 acre.

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

EO 11988 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 the executive order, FEMA must evaluate the potential effects of actions it may take in a floodplain and consider alternatives to avoid adverse effects. Because the project area is not in a floodplain, no action under EO 11988 is required.

EO 11990, Protection of Wetlands, requires that federal agencies take actions to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial effects of wetlands. FEMA's responsibilities under this executive order are also found in FEMA

regulation 44 CFR Part 9. Although the Proposed Action is located outside the boundaries of the two small wetlands, it is in close proximity to project activities and may affect these wetlands. Therefore FEMA must complete an 8-step decision-making process as required under EO 11990 to evaluate impacts of the action.

The 8-step process as outlined in 44 CFR 9.6 requires that the public be notified of the intent to carry out the action, and to involve the affected and interested public. This Draft EA serves as that notification, and comments regarding the action can be submitted as part of the comment process for the EA. Alternatives to locating in this project area, required by EO 11990 to be considered, have been evaluated here. The 8-step process then requires FEMA to identify the adverse effects and to minimize them.

Potential adverse effects from the Proposed Action could be the inadvertent trampling of wetlands vegetation and soils, or runoff from operations that reach the wetlands. To avoid these effects, DNR will require in its contractor specifications for the work that wetlands be identified and avoided when designing and engineering the bridge and trail. Moreover, the project will employ BMPs for sediment and erosion control, for example, so that nearby work does not impact the wetlands.

Coastal Zone Management Act

Federal activities or projects proposed within any of Washington's 15 coastal counties (including King County) must comply with this federal requirement that is administered by the state. Certification is generally administered by Ecology in conjunction with the Shoreline Management Act. DNR would work with King County to ensure consistency with the shoreline master program and, in turn, with the Coastal Zone Management Act.

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 result in exceedances of this parameter, due to the use of BMPs. Any exceedances would be short term (during construction) and limited to a small area (mixing zone) within the stream.

West Tiger Mountain NRCA Management Plan

The Management Plan governs the use of the NRCA such that effects on wetlands, hydrology, water quality, and floodplains are minimized.

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 a Hydraulic Project Approval (HPA) from the Washington State Department of Fish and Wildlife (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. An

HPA for the Proposed Action has been issued, dated March 18, 2010, requiring the applicant to build any structures above the OHWM (WDFW 2010b).

DNR Habitat Conservation Plan and Forest Resource Plan

The DNR wetland policy (Forest Resource Plan policy #21[DNR 1992b]) states that there will be no net loss of wetland acreage or function on state trust lands. This policy is implemented through the Forest Resources Plan (DNR 1992b) and Habitat Conservation Plan (DNR 1997b). DNR wetland protection procedures do not require buffers for wetlands under 0.25 acre in size; the two wetlands in the project vicinity together are approximately 0.1 acre.

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, two AECOM ecologists assessed the affected environment through a site visit conducted on February 25, 2010, documenting watershed characteristics through field notes and photographs of notable features. Existing information was gathered from DNR, Ecology, and King County, and applicable scientific literature pertaining to hydrology, water quality, wetlands, and floodplains within the affected area was reviewed. A formal wetland delineation was not conducted.

A project alternative would reach the significance threshold for hydrology, water quality, wetlands, or floodplains if it would:

- Cause prolonged alterations to the historical baseline or desired water quality conditions.
- Exceed state chemical, physical, or biological water quality standards or criteria regulated and enforced by Ecology.
- Cause runoff that would measurably degrade water quality from baseline 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 the standards outlined in the Management Plan or exceed the standards of any required permit.

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.

3.2.3.2 Alternative B: Proposed Action

Under the Proposed Action, the new footbridge would be sited and constructed to avoid all streams and wetlands, and BMPs and the TESC plan would ensure that no stormwater runoff would be discharged to any water body during construction.

The new suspension bridge would be built outside the active channel of High Point Creek by the widest margin of the two action alternatives considered, allowing for flooding and debris flows to pass underneath without damaging the structure, and without being impounded by the bridge structure. Therefore, natural hydrologic and sedimentation processes of High Point Creek would be best maintained by this alternative.

The new trail alignment on the west side of the creek would be designed to avoid the two small forested wetlands.

The Proposed Action would have no effects, either temporary or permanent, on hydrology and floodplains. In addition, this footbridge design would restore trail access across the creek, reducing the erosion caused by undirected foot traffic across the creek.

Water quality would not be affected by the Proposed Action through use of BMPs in the TESC Plan, SPCC Plan, and the HPA.

3.2.3.3 Alternative C: Restored Footbridge

Under Alternative C, a wooden footbridge would be constructed as near as feasible to the footprint of the original footbridge. The new footbridge would be longer by necessity to span the newly formed High Point Creek streambed, which has been raised several feet in elevation from deposition and widened by the erosion.

Flooding deposited boulders and debris in the channel that reduced the hydraulic capacity of the creek. As a result, despite increasing the span of the new footbridge, the over-streambed clearance of this bridge design is far less than that of the Proposed Action. In addition, bank armoring might be needed to support the new abutments, which might trigger requirements under the HPA and might require a CWA Section 404 permit from the Corps of Engineers. The new bridge under Alternative C would be at risk from similar hazards of flooding and debris flow damage from future storm events.

Given the damage the original bridge sustained from flooding as well as the alterations in the topography and stream channel, the placement of the new bridge in essentially the same location under Alternative C would make it vulnerable to larger storm events.

Construction and the use of facilities under Alternative C would not affect Wetlands A and B, as they are not near the location of the existing or restored footbridge in this alternative.

3.2.3.4 Mitigation Measures

As part of the project, a wetland ecologist should be present when the DNR team is finalizing the west bridge abutment location during the design and construction phases to ensure that the trail and

abutment avoid the wetlands. The project would implement the BMPs and comply with the HPA. No mitigation measures for hydrology, water quality, floodplains, or wetlands are proposed under any of the three alternatives considered.

3.2.3.5 Significant and Unavoidable Adverse Effects

No significant unavoidable or adverse effects on hydrology, water quality, floodplains, or wetlands are anticipated from the Proposed Action, or from the other alternatives analyzed.

3.3 VEGETATION

Vegetation and riparian areas within the project area are described in this section, and each alternative is analyzed for potential effects on these resources.

3.3.1 AFFECTED ENVIRONMENT

3.3.1.1 Vegetation Communities and Dominant Species

Vegetation and plant communities in the West Tiger Mountain NRCA are primarily second-growth conifer and mixed coniferous-deciduous forests (Franklin and Dyrness 1988) with modestly developed understories. Two broad-scale plant communities are present, riparian forest and upland forest. Invasive species are not significant components of either the upland or riparian plant communities. Prior management activities that affected the vegetation in the project area included extensive logging in the early 20th century, construction of railroad lines that cut across Tiger Mountain, operation of small sawmills, and use of waterwheel electricity generation facilities on many of the perennial streams (DNR 1997a). The DNR has managed the forest surrounding the project area as an NRCA since 1995, with the conservation of native forests and understory vegetation as a primary management goal (DNR 1997a).

Riparian Plant Communities

The riparian forest is dominated by closed, single canopy, conifer, and hardwood stands 60 to 80 years old. Riparian areas are dominated by red alder and western red cedar, with an understory of devil's club, salmonberry, youth-on-age (*Tolmeia menziesii*), deer fern, and various mosses growing on the soil surface. Effects of the recent flooding are apparent in the riparian plant communities near High Point Creek, and both trees and understory plants are displaced from recent soil movement in many places. Two large alders near High Point Creek are uprooted and will fall into the creek soon.

Upland Plant Communities

Upland vegetation communities in the project area and in the surrounding areas are mixed stands of western hemlock *(Tsuga heterophylla)*, Douglas-fir (*Pseudotsuga menziesii),* and scattered alder. Most of the alder near the project area are approximately 80 years old, many of them clearly at the end of their lifespan. Alders found growing in wet conditions commonly have well-developed adventitious roots, as pictured in Figure 3.3-1 (*Photos of Representative Vegetation)*. Scattered western red cedar and western hemlock are the most common young trees, and the understory generally lacks diversity and structure. Understory species are dominated by sword fern, with some interspersed salal *(Gaultheria shallon)* and red huckleberry (*Vaccinium parvifolium*). Swordfern is ubiquitous, growing on hummocks in the wetter areas, and is widespread in drier soils.

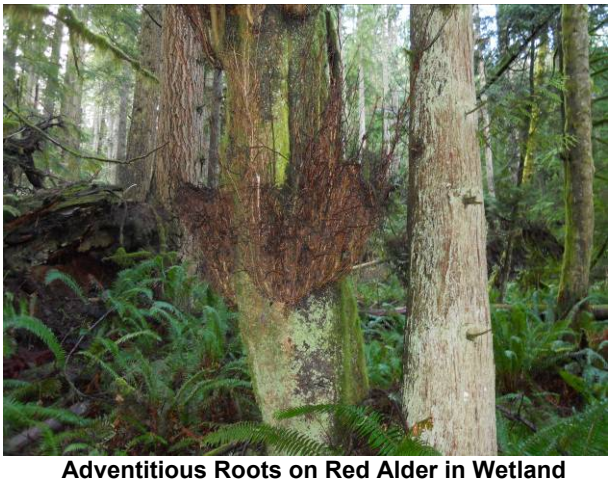
3.3.1.2 Special Status Plant Species

For the purposes of this EA, special-status plant species are defined as plants that are listed as either threatened or endangered under the ESA, or that are otherwise considered sensitive by Washington State resource conservation agencies. DNR is responsible for maintaining a database of current and historic locations of threatened, sensitive, and endangered plant species in Washington. No ESA-listed plant species are located in or near the project area.

Valley Wall Upland Vegetation

Valley Wall Upland Vegetation

Devil's Club Dominated Riparian Wetland



Adventitious Roots on Red Alder in Wetland

Riparian Vegetation Adjacent to High Point Creek

Active Channel and Riparian Vegetation Upstream of Damaged Bridge

Photos of Representative Vegetation

Figure 3.3-1

One non-ESA special status plant species has been documented within 5 miles of the site, tall bugbane (*Cimcifugia elata* var. *elata*) (DNR 2009b). No species-specific surveys for this plant have been conducted for this project.

Two AECOM ecologists conducted a site visit on February 25, 2010, to collect information on general site conditions, special habitat features, and vegetation communities. Tall bugbane or other sensitive plant species were not encountered.

3.3.1.3 Regulatory Considerations

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 standard specifications 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, and best professional judgment was employed.

A project alternative would reach the significance threshold for 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.

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, the damaged footbridge would remain in place and hikers would continue to use it in spite of the posted closure, or they would cross the creek bed without using the bridge. Vegetation, including small trees for future wood recruitment into High Point Creek, would continue to be trampled, and sediment would be released into the stream. No special status plants are likely to be affected.

3.3.3.2 Alternative B: Proposed Action

No short-term effects are anticipated on vegetation due to the Proposed Action; all access and materials transported to and from the project site would be via off-road vehicle (ORV) and all-terrain vehicle (ATV) on established trails, or by helicopter.

Trail building activities (clearing and brushing, grubbing and grading) would permanently displace approximately 1,500 square feet of upland vegetation to construct approximately 350 linear feet of new trail and the bridge abutments.

The current plan is to transport materials via ATVs on existing trails, but there is an option of transporting larger bridge components by helicopter. DNR anticipates that no more than two trees would need to be felled to make room for the bridge (pers. comm., Jarrett 2010b). The locations of these trees would be identified by the contractor, for DNR concurrence, following detailed plans and specification for the project. Any tree removal would be carefully considered by DNR, and the agency would seek approval and follow WDFW requirements, which may include that the felled trees be placed in High Point Creek to supplement existing large woody debris. Potential vegetation removal would be a negligible, long-term effect.

3.3.3.3 Alternative C: Restored Footbridge

Replacement in-kind of the footbridge would require a complete rebuild of the wooden structure to span the new streambed, created by the flooding event. The new bridge would displace a negligible amount of riparian habitat for placement of the bridge footings and re-alignment of the trail with the bridge, for a distance of approximately 50 feet.

3.3.3.4 Mitigation Measures

For the action alternatives, BMPs as described in Section 2.4 would ensure that potential effects on vegetation would be minimal. DNR would comply with all permit requirements, Implementation of the BMPs, HPA (WDFW 2010b), and Management Plan (DNR 1997a) provisions, including erosion-control and revegetation measures, and standard trail design and construction practices, would meet or exceed federal, state, and local requirements. No additional mitigation measures for vegetation are proposed under any of the alternatives.

3.3.3.5 Significant or Unavoidable Adverse Effects

Impacts on vegetation would be less than 0.1 acre for any alternative. In addition, no more than two trees would be felled. Therefore, there are no significant or unavoidable adverse effects resulting from the project under any alternative.

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, Proposed Action, and Restored Footbridge alternatives. No federally listed or proposed threatened or endangered species occur in the project area.

3.4.1 AFFECTED ENVIRONMENT

Riparian second-growth forests and a rocky-bottomed, steep, fish-bearing creek are the dominant habitat types within the project area (Figure 3.4-1).

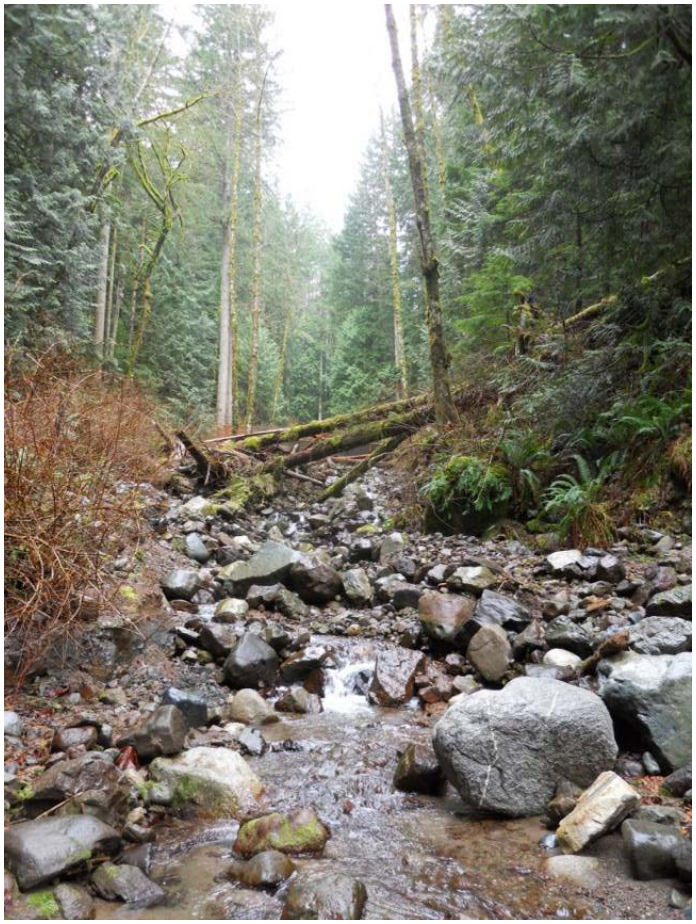


Figure 3.4-1. Riparian Zone of High Point Creek.

Terrestrial Wildlife

Mammal, bird, and amphibian species likely to occur in the project vicinity are those typical of mid-seral temperate coniferous forests. Common large mammals known to use the NRCA include black-tailed deer (*Odocoileus hemionus columbianus)*, coyote (*Canis latrans*), and occasionally elk (*Cervus elaphus)* (DNR 1997a). Other mammals include deer mice (*Peromyscus maniculatus)*, Douglas's squirrel (*Tamiasciurus douglasii*), and raccoon (*Procyon lotor)*. Wildlife diversity and visibility in the project area are somewhat limited due to high human use coupled with common mid-seral habitat and historic forestry. More reclusive species, those requiring old-growth structure, and those species intolerant of frequent human presence are unlikely to be present or detected.

No sensitive, threatened, or endangered wildlife species were encountered during a field reconnaissance and no unique habitats were observed. A search of the WDFW Priority Habitats and Species (PHS) database in a 1-mile radius from the project site (which includes the Bald Eagle Database for the project site) resulted in occurrence data for one wildlife species, the tailed frog (*Ascaphus truei*), a non-special status species (WDFW 2010a). In 1997, tailed frogs were documented in two locations 0.7 mile north of the project site. Additionally, Larry Fisher, WDFW Area Habitat Biologist, was contacted for information concerning fish and wildlife presence in the project area, and he confirmed that there are no threatened or endangered species in the project area (pers. comm., Fisher 2010).

Fish

High Point Creek is the only surface water in the project area that supports fish; fish present or likely to be present are listed in Table 3.4-1. A search of WDFW PHS database for the project site resulted in occurrence data for two fish species in High Point Creek near the project area: coho salmon (*Oncorhynchus kisutch*) and resident cutthroat trout (*Oncorhynchus clarki*) (WDFW 2010a).

Habitat

Coho salmon are documented in the East Fork Issaquah Creek (WDFW 2010a; StreamNet 2010) and in the lower reach of High Point Creek, about 0.5 mile downstream of the bridge relocation project. Under the ESA, coho salmon in the Puget Sound area are a "species of concern," not federally listed as threatened or endangered species. However, the Essential Fish Habitat (EFH) of coho salmon is protected under the MSA. Given the steep, incised nature of the High Point Creek channel at the project location, it is highly unlikely that coho would use this area; however, because there are no documented culvert, waterfall, or other physical barriers that would prevent the migration of coho salmon under certain extreme circumstances of high flow, the presence of EFH cannot be ruled out (pers. comm., Robel 2010); therefore we assume that this location is EFH (Rosenfeld 2003). This reach of the creek provides no spawning habitat for anadromous species, and the cobble and scoured creek does not provide suitable rearing habitat for juvenile salmonids.

Cutthroat trout, a federal species of concern under ESA, may be present in the project area. They require clean gravel and prefer cool water temperatures for spawning and incubation (Rosenfeld et al. 2000). Additionally, cutthroat trout are known to spawn in steeper gradients and lower flow areas than other species (Rosenfeld et al. 2000).

Sculpin (*Cottus* spp.), non-special status species, are ubiquitous in small streams such as High Point Creek, are adaptable to a variety of substrates and flow regimes, and are likely to be abundant in the rocky pools and riffles of the creek (Froese and Pauly 2010).

Table 3.4-1. Resident and Anadromous Fish Species likely to be using High Point Creek near the Project Area.

Common Name (*Scientific Name*)	Federal Status	WA Status	Habitat Association	Presence Documented	Habitat Use
Puget Sound ESU coho salmon (*Oncorhynchus kisutch*)	SOC (habitat is MSA protected)	None	Small streams	Yes, 0.5 downstream of project location	Spawning and Migration – 0.5 mile downstream
Coastal cutthroat trout (*Oncorhynchus clarki)*	SOC	None	Small streams	Yes	Migration, rearing, spawning
Sculpin (*Cottus* spp.)	None	None	Small streams	Observed	Rearing and spawning

SOC = Federal species of concern under ESA; ESU = evolutionarily significant unit, MSA = Magnuson-Stevens Act.
Sources: StreamNet 2010, WDFW 2010a.

3.4.1.1 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 Endangered Species Act (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; the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS). No federally listed fish or wildlife species or habitats occur on the project site (USFWS 2009; NMFS 2009).

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) prohibits persons, except by permit, "to pursue, take, or kill…any migratory bird, or any part, nest or egg of any such bird." Harassment and habitat modification are not included as prohibited acts, 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. The felling of two trees under Alternative 2 would likely be done outside of the nesting season and would not result in a "take." If migratory birds are identified as nesting in the project area, DNR will coordinate with USFWS and WDFW to identify appropriate avoidance 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 eagle sightings are relatively rare in western Washington. There are no documented occurrences of bald eagles within 1 mile of the project area.

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*). Coho use the lower reach of High Point Creek for adult spawning and migration.

3.4.2 Methodology and Thresholds of Significance

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

- Interfere substantially with the breeding, feeding, or movement of native resident or migratory fish, bird, amphibian, or mammal species.
- Substantially conflict with state or local regulations protecting fish, wildlife, or habitat, or 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.

3.4.3 Environmental Consequences

Potential effects of the No Action, the Proposed Action, and the Restored Footbridge 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 footbridge. Riparian habitats and landscape features important to fish and wildlife would remain unaltered from their current condition. Minor effects on fish and wildlife habitat would occur due to hikers trampling and hiking through the creek bed.

3.4.3.2 Alternative B: Proposed Action

Fish and wildlife habitat would be affected by the removal of 1,500 square feet of upland forested habitat for building of the new trail alignment and bridge abutments. This is considered a long-term, negligible effect. All construction would take place during the low-flow season, within the WDFW-approved fish window of July 1 – October 31.

Short-term effects caused by the construction of trails typically include potential for erosion, sedimentation, and run-off, as well as noise and activity from heavy equipment and construction personnel. All construction would take place during the dry season and in the upland forest habitat, minimizing these potential effects. BMPs, a TESC Plan, and HPA provisions would be applied as part of the project to prevent run-off and sedimentation from reaching streams and aquatic habitats. Although DNR estimates the entire project to last 2 to 6 weeks, heavy equipment use (e.g., motorized ATVs) would be the minimum necessary for transporting materials to and from the project area, and would be on site for less than one work week. Such equipment would be used to access the site from trails on each side of High Point Creek, as needed, rather than crossing the creek. If DNR decides to use a helicopter to deliver some large bridge components, there would be additional short-term disturbance to wildlife in the area. This is a short-term, minor adverse effect that would occur over the estimated 2-day period of transporting materials to the site by helicopter.

Long-term effects would result from vegetation removal to accommodate construction of the bridge, including the potential felling of two trees in the riparian zone to clear hazards from the suspension bridge deck area. These trees would be left on site, to add to the coarse woody debris habitat in the riparian zone. Additionally, these trees are at the end of their typical life-span, and the effects caused by felling them would be none or negligible for tree-nesting birds and beneficial to fish, small mammals, and amphibians (Harmon et al. 1986).

The Proposed Action would not impede fish passage in High Point Creek. Through use of BMPs, the project would avoid adverse effects on fish habitat.

3.4.3.3 Alternative C: Restored Footbridge

Fish and wildlife resources would incur minor effects due to the short-term construction activity at the project area within the riparian habitat zone and in High Point Creek.

Replacement of the bridge would reduce existing and ongoing effects on the stream bed and banks of High Point Creek compared to hikers crossing the creek without the use of a footbridge. A small

amount of upland vegetation would be permanently removed to accommodate trail approaches and bridge footings. Although armoring the stream bank to protect the bridge abutments of High Point Creek might be considered to prevent future erosion, this would be subject to the requirements of the MSA, the HPA, and a CWA Section 404 permit. However, the combined long- and short term effects on fish and wildlife caused by the Restored Footbridge alternative are minor.

3.4.3.4 Mitigation Measures

A detailed vegetation clearing avoidance plan will be developed by DNR and the construction contractor during the final design and placement phase of the project as part of the BMPs described in Section 2.4. These measures would minimize impacts from the project for fish and wildlife species and habitats and no mitigation measures are proposed.

3.4.3.5 Significant and Unavoidable Adverse Effects

No significant or unavoidable effects on fish and wildlife resources would arise from any of the alternatives considered for the project.

3.5 RECREATION AND VISUAL RESOURCES

This section describes existing recreational and visual resources in the vicinity of the High Point Creek area within the West Tiger Mountain NRCA. 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 West Tiger Mountain NRCA

One goal of the Management Plan is to maintain scenic landscapes by preserving visual and aesthetic resources (DNR 1997a). One of the management prescriptions of the plan is to protect on-site aesthetic qualities by using rustic materials and earth-tone colors in the design of public facilities. Another goal is to provide opportunities for low-impact public use, by accommodating recreational activities that do not diminish ecosystem quality and natural site characteristics. The management prescriptions for this goal include rehabilitating and improving trails where necessary to encourage trail use and discourage off-trail activities.

DNR has marked this damaged segment of the popular Tiger Mountain Trail as closed (Figure 1.2-2, *Photos of Damage*), but hikers have continued to use the trail and footbridge. Other segments of the trail are in use, but the lower elevation loop of the Tiger Mountain Trail that connects to loops on the western side of the drainage can only be reached by a loop trail farther up the High Point Creek drainage.

3.5.1.2 Visual Resources

The existing footbridge and trail are located within a densely forested riparian ravine. Because of the topography and extensive forest, views of the footbridge from long distances are hidden behind landforms and vegetation, with the only clear views available immediately above and below it from within the stream. The footbridge is visible from east and west of the trail at approximately 500 feet away. Light and glare are not reflected from the wooden footbridge, and the color and materials blend with the natural character of the landscape.

3.5.2 METHODOLOGY AND THRESHOLDS OF SIGNIFICANCE

Recreation resources were evaluated based on the February 2010 site visit and the Management Plan (DNR 1997a). A project alternative would reach the significance threshold for 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, no footbridge would connect the trail over High Point Creek, leaving the trail in its current state. The damaged structure might be dismantled for safety but would likely be left on site.

DNR might permanently close this section of the trail, but some continued use by hikers would be expected, since it is more direct than using the trail loop farther up the drainage to access other trail connections. This represents a moderate, long-term adverse effect for hikers. Remnants of the old bridge left in the area 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 installation of the new footbridge. Although DNR estimates that the entire project would last 2 to 6 weeks, temporary closure to currently open trails would be expected to total less than 10 days. Permanent positive effects on recreational resources include restoring predisaster recreation access and providing a sustainable bridge crossing and 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 of the new abutments. The new bridge would be suspended at a much greater elevation over the creek bed than the original bridge, and would offer more dramatic views of the creek below than the original structure.

3.5.3.3 Alternative C: Restored Footbridge

A new wooden footbridge would provide long-term benefits for recreation users by restoring access. This alternative would create no changes to views or the natural visual character of the area from the predisaster conditions, and would improve current conditions by replacing the damaged footbridge. Although the footbridge would span an extra 15 feet due to stream bed scouring and deposition from the floods, no substantial difference in visual character would occur due to this increase in length.

3.5.3.4 Mitigation Measures

DNR 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 other mitigation measures are proposed for recreational or visual resources under any of the alternatives.

3.5.3.5 Significant and Unavoidable Adverse Effects

No significant or unavoidable effects on recreational or visual resources would occur due to any of the three alternatives described. Both action alternatives would provide long-term recreation benefits by restoring trail access.

3.6 CULTURAL 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 (FEMA 2009; DNR 2009a).

3.6.1 AFFECTED ENVIRONMENT

Native peoples were the original inhabitants of the project area, living there for thousands of years before Euroamerican settlement, which began in the mid-1800s. Information regarding their lifeways exists in the form of oral histories and the ethnographic record, as well as in the archaeological record. Archaeological evidence in the Puget Lowland indicates use of the general area about 5,000 years before present for resource use (hunting, fishing, gathering, and root digging), as well as for habitation in cedar plank houses typically located at river and creek confluences and sheltered shorelines (Hudson and Nelson 1998). The Issaquah and broader Snoqualmie River Valley area were occupied during the ethnohistoric period of the 18th and 19th centuries by the Sammamish and Snoqualmie peoples.

According to DNR, public information regarding tribal use of the NRCA is limited, at least at the time the Management Plan was written. For the entire NRCA, one site of potential significance was identified for its historical use by tribes in the area (DNR 1997a). It is important to note that other areas within the NRCA are likely to contain archaeological sites, but due to vegetation patterns, weathering, human degradation (Robinson and Rice 1992), and lack of survey or ethnographic data, they are not known.

There is a history of timber harvesting and mining activities in a large area around the city of Issaquah, located west of the NRCA. Timber harvesting began during the 1870s and peaked in the 1930s. Flumes were also used on the creeks, specifically at High Point Creek (DNR 1986). Artifacts of these logging operations can still be found scattered throughout the NRCA (DNR 1997a).

3.6.1.1 Regulatory Considerations

Federal Requirements

National Historic Preservation Act

Section 106 of the National Historic Preservation Act (NHPA) requires that federal agencies conducting undertakings to consider their effects on properties on or eligible for the National Register of Historic Places (NRHP). Consultation with the State Historic Preservation Officer, Tribal Historic Preservation Officer, or tribes that have identified cultural or religious properties that may be affected by a federal undertaking, are required as part of the Section 106 process.

While FEMA retains the responsibility for Section 106 compliance, FEMA may authorize a grant subapplicant to be its federal representative to perform any required consultation with the State Historic Preservation Officer (SHPO) regarding identification and evaluation of historic properties. FEMA has authorized DNR to act in this capacity for this project. However, FEMA retains the responsibility of consulting with tribes on tribal lands, or on non-tribal lands to request tribes to identify any cultural or religious properties that may be on or eligible for the NRHP.

As federal representative, DNR designated the Area of Potential Effect (APE) based on the project footprint and area of disturbance and submitted this cultural resource information to the Washington State Department of Archaeology and Historic Preservation (DAHP), with a No Historic Properties Affected determination. DAHP concurred with the APE and the determination (DAHP 2010). DNR also consulted with the Snoqualmie Nation, the Tulalip Tribes, the Muckleshoot Indian Tribe, and the Puyallup Tribe of Indians. FEMA has included these Tribes in its scoping process for this Draft EA. The Muckleshoot Tribe provided comments on fisheries issues (see Appendix A). FEMA is consulting with the Tribes to help identify and evaluate properties of cultural or religious significance to them that could be affected by the project.

3.6.2 Methodology and Thresholds of Significance

A literature and records review was performed for archaeological or historic resources recorded within or near the project APE (FEMA 2009; DNR 2009a). A project alternative would reach the significance threshold for cultural resources if it would:

- Diminish or destroy the integrity of a property that is on, or eligible for, the National Register of Historic Places, for which effects are not resolved or mitigated.

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

There would be no effect on cultural resources under Alternative B. If any unanticipated archaeological finds occur during construction, all work would cease. FEMA, SHPO, and Tribes would follow inadvertent discovery protocols.

3.6.3.3 Alternative C: Restored Footbridge

There would be no effect on cultural resources in the project area. Similar precautions as described under Alternative B would be implemented during construction.

3.6.3.4 Mitigation Measures

No mitigation measures are proposed for any of the alternatives. As noted above, if unanticipated cultural resources are found during construction, all work would cease and appropriate actions would be taken.

3.6.3.5 Significant and Unavoidable Adverse Effects

No significant or unavoidable adverse effects on cultural resources are anticipated from any of the three 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 Proposed Action on environmental justice, the affected environment is defined as the King County population; statistics for the state of Washington are also provided for comparison. Table 3.7-1 presents the race and ethnicity of King 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 King County and Washington State.

Race/Ethnicity	King County (Percent)	Washington State (Percent)
White persons	75.3	84.3
Black persons	6.2	3.7
American Indian and Alaska Native persons	1.0	1.7
Asian persons	13.4	6.7
Native Hawaiians and Other Pacific Islanders	0.6	0.5
Persons reporting 2 or more races	3.4	3.1
Persons of Hispanic or Latino origin	7.7	9.8
White persons not Hispanic	68.7	75.5

Source: U.S. Census Bureau 2009; Consolidated Federal Funds Report 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 2007 (the most recent year for which data are available), median household income in King County is estimated at $66,969; for Washington as a whole, it was $55,628 (U.S. Census Bureau 2009). Approximately 9.9 percent of King County lived below the poverty threshold, compared to 11.4 percent of the population of Washington as a whole (U.S. Census Bureau 2009).

3.7.1.1 Regulatory Considerations

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(s) 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 King 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 populations or the general population would result from the alternative.

3.7.3.2 Alternative B: Proposed Action

Disproportionately high and adverse effects on minority or low-income populations would not occur through implementation of the project.

3.7.3.3 Alternative C: Restored Footbridge

Alternative C would not disproportionately affect minority or low-income populations.

3.7.3.4 Mitigation Measures

No mitigation measures are proposed for any of the alternatives.

3.7.3.5 Significant and Unavoidable Adverse Effects

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

3.8 NOISE

This section describes existing noise conditions in the project area (including noise-sensitive land uses and receivers, and applicable noise regulations), and the potential effects of the project alternatives on noise-sensitive receivers.

Noise-sensitive land uses are those where exposure would result in adverse effects on users or occupants and where quiet is an essential element of the intended purpose of the land use. Noise-sensitive land uses include residences, parks, hospitals, churches, libraries, and similar uses where low noise levels are essential. Noise-sensitive receivers are the users or occupants of these types of land uses and may include both humans and wildlife.

3.8.1 AFFECTED ENVIRONMENT

The project area is located in unincorporated King County on state lands managed primarily for conservation purposes and secondarily for low-impact recreational use (DNR 1997a). Ambient sound levels in the project area consist primarily of natural noises (e.g., streams, rustling leaves, birds) and recreational noise (e.g., people talking). Distant traffic noise may be audible under certain weather conditions, and aircraft flyovers would be an infrequent noise source in the project area. Rural areas typically have ambient sound levels of 35 to 40 dB(A) (described below) (EPA 1979).

Human noise-sensitive receivers in the project area consist primarily of hikers. No other human noise sensitive receivers (e.g., users or occupants of residences, hospitals, churches, libraries, etc.) are present in the project area. As described in Section 3.4 *(Fish and Wildlife)*, no federal or state-status fish or wildlife species are present in the project area that could be affected by noise generated by this project; however, other wildlife species may be present in the project area that could potentially be affected by project-generated noise, including migratory bird species.

3.8.1.1 Regulatory Setting

Noise in the project area is regulated by King County (pers. comm., Sant 2010 and Mainwaring 2010) and subject to King County Code (KCC) Title 12, which establishes the maximum sound levels for sources originating from one property and intruding into another person's property. Both the sound source and receiving property are defined as a "Rural District" by KCC Title 12. For Rural Districts, the maximum permissible sound level is 49 dB(A) between 7 a.m. and 10 p.m. on weekdays. The maximum permissible sound level is reduced by 10 dB(A) to 39 dB(A) between 10 p.m. and 7 a.m. on weekdays and between 10 p.m. and 9 a.m. on weekends.

During construction, the KCC allows sound levels to exceed the maximum permissible levels by 25 dB(A) at 50 feet from the source between 7 a.m. and 10 p.m. on weekdays and between 9 a.m. and 10 p.m. on weekends. KCC Chapter 12.94 exempts certain sounds, including those originating from aircraft in flight.

DNR does not have any additional policies or guidelines pertaining to noise emissions from silviculture or road and trail maintenance activities on DNR lands in the project area (pers. comm., Mainwaring 2010).

3.8.2 Methodology and Thresholds of Significance

Noise levels generated during construction and operation of the project alternatives were estimated and then compared with ambient sound levels in the project area to estimate changes in the ambient sound environment over the short and long term. Estimated changes in the ambient sound environment were evaluated for their potential short- and long-term effect on humans and wildlife in the project area.

When relating environmental noise to human sensitivity, an A-weighted decibel [dB(A)] scale is used to describe and quantify the noise levels experienced by a receiver. A 1-dB(A) increase is considered to be imperceptible, a 3-dB(A) increase is barely perceptible, a 6-dB(A) increase is clearly noticeable, and a 10-dB(A) increase is subjectively perceived as approximately twice as loud. A long-term noise level increase of 3-dB(A) or greater is generally considered to be a substantial degradation of the human noise environment (Egan 1988). No decibel scale has been developed specific to fish and wildlife because different species experience and are affected by noise differently.

A project alternative would reach the significance threshold for noise if it would:

- Cause substantial increases in noise levels on a permanent basis or for a prolonged period of time.

3.8.3 Environmental Consequences

The potential noise effects of the project alternatives are described below. Measures to avoid, reduce, or mitigate for any identified noise effects are also identified.

3.8.3.1 Alternative A: No Action

Under the No Action Alternative, FEMA would not fund the project, and there would be no repair or related construction activities, and thus no temporary noise effects related to construction or long-term noise effects related to operation of the project.

3.8.3.2 Alternative B: Proposed Action

Potential noise-related effects associated with the Proposed Action are related to short-term construction noise in the project area. There would be no long-term noise effects from operation of the project.

Construction activities would occur between 8 a.m. and 5 p.m. during the construction phase, and would likely occur outside of the nesting season for migratory bird species. If migratory birds are identified as nesting in project area, DNR will coordinate with USFWS and WDFW to identify appropriate avoidance measures and ensure compliance with the MBTA. Construction equipment at the project location would include a small excavator and hand tools. Because of the remote location of the project area, it is anticipated that motorized wheel barrows or ATVs would be used to transport some construction materials to the project site. It is also anticipated that transport by helicopter may be necessary for some bridge components, such as the abutments and stringer, due to their large size and the remoteness of the project site. Table 3.8-1 shows the estimated noise levels that would be generated by construction equipment (other than helicopters) and the approximate

distance from the source for noise levels to decrease to the regulatory threshold and ambient sound levels for construction in the project area. Helicopter use is addressed separately.

Table 3.8-1 Estimated construction noise levels and attenuation to regulatory thresholds for construction and ambient sound levels in the project area.

Construction Equipment	Noise Source Type[1]	Maximum Noise Level dB(A) at 50 feet from the source[2]	Distance to Regulatory Threshold for Construction [74 dB(A)]	Distance to Ambient Sound Levels [40 dB(A)[3]]
Excavator	Point	81 dB(A)	100 ft	400 ft
Motorized wheel barrow	Line	86 dB(A)	100 ft	800 ft
ATV/ORV	Line	105 dB(A)[4]	400 ft	1,600 ft
Sources: FHWA 2006; CDC 2005; EPA 1979.				

1. Point source noise levels decrease about 7.5 dB(A) for every doubling of distance from the source on soft sites (i.e., sites with ground cover or natural unpacked earth). Line source noise levels decrease about 4.5 dB(A) for every doubling of distance from the source on soft sites. A break in line of site between the source and receiver can reduce noise levels by 5 dB(A) and dense vegetation can reduce noise levels by 5 dB(A) every 100 ft.
2. Maximum sound levels in dB(A) for typical equipment.
3. Source: EPA (1979).
4. Maximum sound level for ATV/ORV assumed to be equivalent to the Washington State limit for ORV noise level.

Noise from the excavator would exceed the regulatory threshold for construction within about 100 feet from the point of use and attenuate to background levels within about 400 feet. Persons using trails within about 400 feet of the project site would experience increased noise levels (over ambient sound levels) during use of the excavator. However, excavator use would occur over a very short period of time, and while nearby hikers would experience a substantial increase in noise levels, the noise impact would be temporary. This is considered to be minor impact.

Noise from the use of motorized wheel barrows to transport materials to the project site would exceed the regulatory threshold for construction within about 100 feet from the route used to access the site and would attenuate to background levels within about 800 feet from the access route. Persons using trails within about 800 feet from the access route would experience increased noise levels (over ambient sound levels) during use of this equipment. However, motorized wheel barrow use would occur over a very short period of time, and while nearby hikers would experience a substantial increase in noise levels, the noise impact would be temporary. This is considered to be a minor impact.

Noise from ATV/ORV use would be greater and extend farther than noise from motorized wheel barrows. ORV noise would exceed the regulatory threshold within about 400 feet from the access route and would attenuate to ambient noise levels within about 1600 feet from the access route. The access route is anticipated to begin from a trail or DNR road access point along the south side of I-90, where the ambient noise level includes large volumes of traffic and is much greater than the surrounding forested area. Because of this, potential noise-sensitive receivers located near I-90 are not anticipated to experience noise levels greater than ambient noise levels in that area. Persons using trails within 1,600 feet of the access route farther from I-90 would experience noise levels above ambient sound levels during ORV use. However, ORV use would occur over a very short

period of time, and this noise impact would be very temporary. This is considered to be a minor impact.

A typical civilian helicopter generates noise levels of around 105 dB(A) at 100 feet (Newman and Rickley 1979). Helicopter use during construction is anticipated to last several hours during a maximum of 2 days, and noise emissions from helicopter use at the project site are anticipated to extend at least 1.5 miles, as the sound would not be attenuated by ground surfaces as for ground-based equipment. While the noise would be of short duration, persons using nearby trails would experience a substantial increase in noise level during helicopter use. A few residences along I-90 within a 1.5-mile radius of the project site may experience a small increase in noise level during helicopter use as well. KCC 12.94.010A excludes sounds originating from aircraft in flight from the maximum permissible noise level provisions contained in KCC Title 12, Sections 12.86 through 12.100. Helicopter noise during construction would be substantial, but would be of very short duration and would fall within regulatory standards. This is considered a moderate temporary noise impact.

Wildlife that would typically be present in the project area (refer to Section 3.4, *Fish and Wildlife)* would likely avoid the immediate area during construction due to the increased noise levels and activity. These effects would be short term and are considered minor. Because construction activities would likely take place outside of the nesting season for migratory birds that may nest in the project area, the increased noise levels would not result in nest abandonment. If migratory birds are identified as nesting in the project area, DNR will coordinate with USFWS and WDFW to identify appropriate avoidance measures and ensure compliance with the MBTA

3.8.3.3 Alternative C: Restored Footbridge

Potential noise-related effects associated with Alternative C are the same as for the Proposed Action.

3.8.3.4 Mitigation Measures

Due to the anticipated short duration of noise impacts related to construction of the project, no mitigation measures are proposed.

3.8.3.5 Significant and Unavoidable Adverse Effects

Sound levels generated during construction would result in temporary, minor noise impacts under either action alternative. These noise effects are unavoidable but are expected to be of short duration and are not considered significant.

3.9 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 January 2009 disaster cannot be attributed to climate change, changes in precipitation patterns and volatility in precipitation-driven systems, such as High Point 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 to the NRCA and would not contribute to greenhouse gas production. Nonetheless, construction and maintenance of the footbridge would result in short-term emissions from equipment operation and worker transportation; these would represent a negligible contribution to greenhouse gas emissions. King County has developed an Emissions Worksheet to estimate project greenhouse emissions, and DNR might be required to complete the worksheet as part of King County's review of project permits.

No mitigation measures are proposed for any of the alternatives.

3.10 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). Potential cumulative effects from the project alternatives added to other activities in the area could result from vegetation clearing and improvements to the trail system under the project alternatives area, as described below.

- **Vegetation Clearing –** Vegetation clearing and soil disturbance could have minor cumulative effects on the ecological resources (e.g., soils, hydrology, vegetation, and fish and wildlife) of the NRCA. Under the project alternatives, vegetation clearing would be less than 1,500 square feet. This is less than 0.01 percent of the total land in the NRCA. This incremental loss would be minor even when added to other activities in the area, and cumulative effects over the long term would be negligible.
- **Improvements to the Trail System** – In addition to the project alternatives, DNR plans on three other footbridge projects in the general vicinity. Each footbridge would be installed on DNR lands where existing trails over streams and small drainages are too difficult to safely cross. These improvements to the trail system could increase hiker use. DNR would continue to maintain these trail system in accordance with West Tiger Mountain NRCA Management Plan (DNR 1997a). The cumulative effects of the project alternatives added to these other footbridge projects would have an additive beneficial use on recreation use, as well as ecological resources, including minor increases in hydrologic capacity and stream bank protection.

4.0 Consultation & Coordination

4.1 PUBLIC INVOLVEMENT

FEMA sent a scoping letter to agencies, Tribes, and local interested parties on March 23, 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. The scoping letter and the comments received are included in Appendix A. These comments were considered and addressed in the preparation of this Draft EA.

4.1.1 COMMENTS ON 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 provided in the local newspaper and posted at the High Point Creek trailhead, and the Draft EA will be available for viewing at a library or other location accessible to the public in the local community. The Public Notice and Draft EA will be posted to the FEMA website, the web address of which will be included in the Public Notice.

There will be a 30 day comment period. Comments resulting from this public review will be reviewed and analyzed, and the document revised as appropriate. A Final EA, and a decision as to whether a FONSI or an EIS notice of intent is required, will be provided at the FEMA website.

4.2 AGENCIES AND TRIBES

FEMA is consulting with federal agencies, tribes, and local agencies and stakeholders throughout the EA process to gather valuable input and to meet regulatory requirements. This coordination was integrated with the analysis of project effects and the public involvement process.

Because there were no federally threatened or endangered species present under the Endangered Species Act, no consultation with USFWS and NMFS is required. Because FEMA made a “no adverse effect” determination regarding EFH under MSA, no consultation with NMFS is required.

FEMA is consulting with the SHPO and with the Snohomish, Tulalip, Muckleshoot, and Puyallup tribes requesting help in identifying cultural or religious properties that may be affected by the project.

5.0 Preparers

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Jim Keany, Project Manager
Jan Mulder, Senior Reviewer
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6.0 Distribution

FEDERAL AGENCIES

U.S. Army Corps of Engineers (Corps)
- Maryann Baird, Regulatory Branch, ESA Section 7 Coordinator
- Susan Powell, Central King County
- Patricia Robinson, Floodplain Management Program

Federal Emergency Management Agency (FEMA)
- Dennis Burton, Public Assistance Branch

U.S. Environmental Protection Agency (EPA)
- Christine Reichgott, NEPA Review Unit Mgr
- Lillian Herger, Office of Env Assessment, Fisheries Biologist
- Wendy Marshall, Office of Water and Watersheds

U.S. Fish and Wildlife Service (USFWS)
- Rowan Baker, Region 1 NEPA Coordinator
- John Grettenberger, Division Manager

U.S. Department of Commerce, National Marine Fisheries Service (NMFS)
- Kathe Hawe, NW NEPA Coordinator
- Matt Longenbaugh, Branch Chief, Central Puget Sound
- Tom Sibley, Branch Chief, Northern Puget Sound

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Snoqualmie Nation
- Ray Mullen, Cultural Resources
- Cindy Spiry, Natural Resources

Tulalip Tribes
- Hank Gobin, Director, Hibulb Cultural Center
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Muckleshoot Indian Tribe
- Laura Murphy, Cultural Resources
- Karen Walter, Watershed/Land Use Team Leader

Puyallup Tribe of Indians
- Judy Wright, Cultural Resources
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Northwest Indian Fisheries Commission
- Billy Frank, Jr.

STATE AGENCIES

Washington State Department of Archaeology and Historic Preservation (DAHP)
- Allyson Brooks, State Historic Preservation Officer
- Rob Whitlam, SHPO, Archaeologist

Washington Department of Ecology (Ecology)
- Chris Hempleman, Shorelands & Env Assistance
- Dave Rountry, Water Quality Program
- Peg Plummer, SEPA Register Coordinator
- Scott McKinney, Flood Program

Washington Department of Fish and Wildlife (WDFW)
- Russell Link, District 12 Wildlife Biologist
- Teresa Eturaspe, SEPA Review Specialist

Washington Department of Natural Resources
- Jason Mettler, Engineer, Engineering and General Services Division
- Sam Jarrett, Recreation Manager, South Puget Sound Region

Washington Military Department, Emergency Management Division
- Gary Urbas, Public Assistance
- Jonathan Holmes, Public Assistance Coordinator

LIBRARIES

King County Public Library, Issaquah Branch

VOLUNTEER ORGANIZATIONS

Issaquah Alps Trails Club
- Steve Williams, President
- Ed Vervoort, Tiger Mountain Advocate/ Member Board of Directors

Washington Trails Association
- Jonathan Guzzo, Advocacy Director

Mountains to Sound Greenway Trust
- Cynthia Welti, Executive Director
- Doug Schindler, Advocacy Director

7.0 References

CDC (Centers for Disease Control). 2005. Electronic Library of Construction Safety and Health website. Available online: http://www.cdc.gov/niosh/elcosh.html.

CEQ (Council on Environmental Quality). 2010. Memorandum for heads of Federal Departments and Agencies. Subject: Draft NEPA guidance on consideration of the effects of climate change and greenhouse gas emissions. Authored by: Nancy H. Sutley, Chair, Council on Environmental Quality. Issued February 18, 2010. Available online at URL = http://ceq.hss.doe.gov/nepa/regs/Consideration_of_Effects_of_GHG_Draft_NEPA_Guidance_FINAL_02182010.pdf.

Consolidated Federal Funds Report. 2009. Last Revised: Tuesday, 17-Nov-2009. Accessed January 12, 2010. URL=online at http://quickfacts.census.gov/qfd/states/53/53033.html.

Corps (U.S. Army Corps of Engineers). 2010. Scoping comment on the Tiger Mountain Trail Footbridge Project. Sent on March 24, 2010, as email from Susan Powell, Seattle District, U.S. Army Corps of Engineers, to Susan King, Federal Emergency Management Agency, Region X.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U. S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Jamestown, ND. December 1998 version. Available online at URL = http://www.npwrc.usgs.gov/resource/1998/classwet/classwet.htm.

DAHP (Washington State Department of Archaeology and Historic Preservation). 2010. Letter to the Washington State Department of Natural Resources dated January 13, 2010, RE: Five Tiger Mountain Trail Bridge Replacement Projects Log. No.: 011310-20-DNR. Robert G. Whitlam, Ph.D. State Archaeologist.

DNR (Washington State Department of Natural Resources). 1986. Tiger Mountain State Forest Management Plan. Final.

DNR. 1992a. Natural Resource Conservation Area Statewide Management Plan. DNR Division of Land and Water Conservation. 33 pp. Olympia WA. Available online at URL = http://www.dnr.wa.gov/Publications/amp_nrca_statewide_mgt_plan_9_1992_2.pdf.

DNR. 1992b. Forest Resource Plan; Policy Plan, final. Washington State Department of Natural Resources, Forest Land Management Division, Olympia, WA. 53pp.

DNR. 1997a. West Tiger Mountain Natural Resource Conservation Area Management Plan. 50 pp. Olympia WA. Available online at URL < http://www.dnr.wa.gov/Publications/amp_west_tiger_mt_nrca_mgt_plan_1997_2.pdf.

DNR. 1997b. Final Habitat Conservation Plan. Washington State Department of Natural Resources, Olympia, WA.

DNR. 2009a. Notice of Final Determination, Determination of Non-significance September 4, 2009 for this proposal under the State Environmental Policy Act and WAC 197-11-340(2), “Tiger Mountain State Forest Trail Bridge Installations” SEPA File No. 09-090404 dated September

24, 2009. Enclosures: Environmental Checklist. Randy Acker, South Puget Sound Region Manager.

DNR. 2009b. Natural Heritage Program current and historic rare plant GIS layers. Natural Heritage Program, Summer 2009. ArcView 9.x. Projected Coordinate System: NAD 1983 HARN State Plane Washington South FIPS 4602 Feet. Projection: Lambert Conformal Conic.

DNR. 2009c. DNR GIS data. King County Hydrology layer "dnrdec09_wc.shp" [ESRI shapefile]; Washington State DNR. ArcView 9.X. Summer 2009. Projected Coordinate System: NAD 1983 HARN State Plane Washington South FIPS 4602 Feet. Projection: Lambert Conformal Conic.

Ecology (Washington State Dept. of Ecology). 2008. Responding to the Climate Change Challenge; Focus: Preparing for Impacts. Factsheet prepared in cooperation with CTED (Community Trade and Economic Development). Available on line at URL = http://www.ecy.wa.gov/pubs/0801003.pdf. January 2008.

Egan, M. David. 1988. Architectural Acoustics. McGraw-Hill, Inc.

EMD (Emergency Management Division). 2009. Letter to Federal Emergency Management Agency dated October 4, 2009, RE: State No. E09-112; Disaster No. 1817-DR-WA; FEMA No. 000-UCM95-00; Applicant Washington State Department of Natural Resources; PW No. 1591. Gerard Urbas, Deputy State Coordinating Officer Public Assistance. Enclosures: JRRG038-Tiger Mountain Trail Footbridge Application. Washington Military Department.

Environmental Laboratory. 2008. U.S. Army Corps of Engineers Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region. 154pp. Available online at URL = http://www.ecy.wa.gov/programs/sea/wetlands/pdf/WestMt_April2008.pdf. Accessed March 29, 2010.

EPA (U.S. Environmental Protection Agency). 1979. Protective Noise Levels. Condensed Versions USEPA Levels Document. USEPA 550/9-79-100. November 1979.

FEMA (Federal Emergency Management Agency). 1995. National Flood Insurance Program Flood Insurance Rate Map for the King County Washington, Unincorporated Areas. Community Panel number 53033C0715F. Available online at URL = http://www.msc.fema.gov/webapp/wcs/stores/servlet/MapSearchResult?storeId=10001&catalogId=10001&langId=-1&panelIDs=53033C0715F$&Type=pbp&nonprinted=&unmapped=. Accessed August 2010.

FEMA. 2009. ENVAS mapping GIS, FEMA Region X. Report created on 12/3/2009.

FHWA (Federal Highway Administration). 2006. Construction Noise Handbook. Final Report. August 2006.

Franklin, J.F., and C.T. Dyrness. 1988. Natural vegetation of Oregon and Washington. USDA For. Serv. Gen. Tech. Rep. No. PNW-8.

Froese, R., and D. Pauly. Editors. 2010. FishBase. World Wide Web electronic publication. www.fishbase.org, version (05/2010). Cottidae species. Available online at URL = http://fishbase.sinica.edu.tw/summary/SpeciesSummary.php?id=4069.

Harmon, M.E., J.F. Franklin, F.J. Swanson, P. Sollins, S.V. Gregory, J.D. Lattin, N.H. Anderson, S.P. Cline, N.G. Aumen, J.R. Sedell, G.W. Lienkaemper, K. Cromack Jr., and K.W. Cummins. 1986. Ecology of coarse woody debris in temperate ecosystems. Advances in Ecological Research 15: 133-302.

Hudson, Lorelea, and Margaret A. Nelson. 1998. Final Cultural Resources Technical Report: Southeast Issaquah Bypass Environmental Impact Statement. Northwest Archaeological Associates, Seattle, Washington.

King County. 1996. Issaquah Creek Basin and Non-Point Source Action Plan. King County Water and Land Resources Division, Renton, WA. Summary text available online at URL = http://www.kingcounty.gov/environment/watersheds/sammamish/issaquah-basin-plan.aspx.

King County. 2009. King County Geographic Information System (GIS) Data. Department of Transportation, Road Services Division, Map and Records Center. Seattle, WA.

NAIP (National Agricultural Inventory Project). 2009. USDA/FSA - Aerial Photography Field Office. USDA-FSA-APFO Mr SID Mosaic. Salt Lake City, UT.

Newman, J. Steven, and Edward J. Rickley. 1979. Noise Levels and Flight Profiles of Eight Helicopters Using Proposed International Certification Procedures, March 1979. DOT-FAA-EE-79-03.

NMFS (National Marine Fisheries Service). 2009. *Endangered Species Act Status of West Coast Salmon and Steelhead*. Last Updated June 1, 2009. Available online at URL = http://www.nwr.noaa.gov/ESA-Salmon-Listings/upload/snapshot-7-09.pdf.

NRCS (Natural Resources Conservation Service). 1973. Soil Survey of King County Area, Washington (Manuscript). Formerly Soil Conservation Service, U.S. Department of Agriculture, in cooperation with the Washington Agricultural Experiment Station.

Robinson, J., and H.S. Rice. 1992. An Archaeological Survey of DNR's Tiger Mountain Property, King County, Washington.

Rosenfeld, J. 2003. Assessing the Habitat Requirements of Stream Fishes: An Overview and Evaluation of Different Approaches. Transactions of the American Fisheries Society. 132: 953–968.

Rosenfeld, J.S., M. Porter, and E. Parkinson. 2000. Habitat factors affecting the abundance and distribution of juvenile cutthroat trout (*Oncorhynchus clarki*) and coho salmon (*Oncorhynchus kisutch*). Canadian Journal of Fisheries and Aquatic Sciences 57:766–774.

Sahale, LLC. 2010. Cost estimate provided to DNR dated March 9, 2010, Tiger Mountain Suspension Bridge Schedule of Values Cable "Ultralight" Superstructure Variant Versus Steel Superstructure Variant. Carroll Vogel, Principal. Draft.

Sarikhan, I.Y., and T.J. Walsh. 2007. Landslide hazard zonation project--Mass wasting assessment--Tiger watershed, King County, Washington: Washington Department of Natural Resources, Forest Practices Division, 31 p., 2 plates, scale 1:24,000.

Strahler, A.N. 1957. Quantitative analysis of watershed geomorphology. *Transactions of the American Geophysical Union* **8** (6): 913–920.

StreamNet. 2010. GIS data for Pacific Northwest coho salmon fish distribution spatial data set in the vicinity of East Fork Issaquah Creek. Portland (OR): StreamNet, May 2003. Updated through January 2010. Available online at URL = http://www.streamnet.org/online-data/GISData.html.

U.S. Census Bureau. 2009. U.S. Census Bureau: State and County QuickFacts. Data derived from Population Estimates, Census of Population and Housing, Small Area Income and Poverty Estimates, State and County Housing Unit Estimates, County Business Patterns, Nonemployer Statistics, Economic Census, Survey of Business Owners, Building Permits.

USDA (U.S. Department of Agriculture). 2001. USDA-NRCS-NCGC Digital Raster Graphic (DRG) MrSID Mosaic. Enhanced DRG GIS background layer. National Cartography and Geospatial Center.

USFWS (U.S. Fish and Wildlife Service). 2009. Endangered, threatened, proposed and candidate species, critical species and critical habitat and species of concern in western Washington. Available online at URL = http://www.fws.gov/wafwo/pdf/species_list.pdf.

USFWS. 2010. National Wetlands Inventory. Available online at URL = http://www.fws.gov/wetlands/Data/Mapper.html.

USGS (U.S. Geological Survey). 1993. Fall City 7.5 Minute Quadrangle, King County, WA.

WDFW (Washington Department of Fish and Wildlife). 2010a. Priority Habitats and Species GIS data layers within one mile of Township 24 North, Range 6 East, and Section 36. ESRI shape file, Washington State Plane South Feet, North American Datum of 1983 (1991 Adjustment – HARN). Updated through March 2010. Information available at URL = http://wdfw.wa.gov/hab/phspage.htm.

WDFW. 2010b. Hydraulic Project Approval, Tiger Mountain State Forest Trail Bridges, Control Number 119878-1, Issue date March 18, 2010. North Puget Sound, Mill Creek, WA.

PERSONAL COMMUNICATIONS

Fisher, Larry. 2010. Washington Department of Fish & Wildlife. Phone conversation between Amberlynn Pauley and Area Habitat Biologist Larry Fisher discussing species and habitat in the High Point Creek watershed. AECOM, Seattle, WA. April 8, 2010.

Jarrett, Sam. 2010a.Washington State Department of Natural Resources, Recreation Manager for South Puget Sound Region, Snoqualmie Unit. Onsite statements at the project location by Sam Jarrett, made to the site reconnaissance party. February 25, 2010.

Jarrett, Sam. 2010b.Washington State Department of Natural Resources, Recreation Manager for South Puget Sound Region, Snoqualmie Unit. Emails with Amberlynn Pauley and Glen Mejia, Ecologists, AECOM, Seattle, WA. Discussion regarding project details and descriptions; and dissemination of project-related documents and GIS shapefiles. March 8, 9, and 30, 2010.

Mainwaring, Audrey, Management Forester, South Puget Sound Region, Department of Natural Resources. Phone conversation with Linda Howard, Environmental Planner, AECOM, Seattle, WA, August 30, 2010.

Pauley, Amberlynn. 2010. Personal observation of Amberlynn Pauley, Ecologist, AECOM, Seattle WA, during site visit on February 25, 2010.

Robel, Joe. 2010. FEMA Senior Fisheries Biologist. Discussion (regarding fisheries based on experience as area habitat biologist with WDFW) with Susan King, Environmental Specialist, FEMA, Bothell, WA, August 2010.

Sant, Fran, Noise Specialist, Shorelands and Environmental Assistance, Washington Department of Ecology. Phone conversation with Linda Howard, Environmental Planner, AECOM, Seattle, WA, August 5, 2010.

Appendix A

Correspondence and Consultation

U.S. Department of Homeland Security
Region X
130 228th Street SW
Bothell, WA 98021-9796

FEMA

March 23, 2010

RE: FEMA Proposal to Fund Tiger Mountain Trail Footbridge replacement
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 Department of Natural Resources (DNR) by providing partial funding to replace a significantly damaged footbridge over High Point Creek in the West Tiger Mountain Natural Resource Conservation Area trail system in King County, Washington.

The purpose of this notice is to invite you to participate in a NEPA scoping process by reviewing the initial proposal as outlined in this letter and providing comments to help FEMA prepare an Environmental Assessment (EA) under the National Environmental Policy Act (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 footbridge over High Point Creek; the original bridge was damaged beyond repair during a severe winter storm and flooding that took place between January 6 and January 16, 2009. The flooding event was declared by the President as a major disaster (FEMA 1817-DR-WA), making federal funding available for public infrastructure repairs.

During the flooding, High Point Creek became a swift torrent, carrying downstream trees, stumps, and downed woody materials that crashed into the wooden footbridge, severely damaging it and displacing it 10 feet off its concrete foundation. A 20 feet long by 8 feet wide by 8 feet deep section of the creek bank below the footbridge was washed out as well. The bridge is no longer safe for hikers to cross. This section of the trail provides a critical east-west trail system connection within the Conservation Area. The project area is 1.2 miles from the High Point Trailhead, south of Interstate 90 and in Township 24 North, Range 6 East, and Section 36, Willamette Meridian (see attached map).

DNR is proposing to remove the damaged bridge remnants and construct a new bridge, 200 to 300 feet downstream from its current location. Specifically, the damaged 70-foot-long, 6-foot-wide footbridge would be replaced with a footbridge approximately 180 feet long and 3 feet wide, 65 feet above High Point Creek. This additional length would minimize the risk of losing the bridge again in any future flooding events on High Point Creek. To tie into the new footbridge location, DNR would also construct approximately 30 feet of new trail on the east side and 200 feet of new trail on the west side of High Point Creek. The current design being considered is a cable-suspension pedestrian bridge, which is more cost effective and environmentally friendly than a traditional rigid steel or wood structure. Latitude/longitude coordinates for the new location are 47.51998 N, -121.97447 W.

An alternative to the proposed action involves replacement of the bridge in its current location. This alternative will be evaluated in the EA as well. We are also interested in any other alternatives you may have to restore this lost function.

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:

Susan King
Environmental Specialist
FEMA Region X
130 228th St. SW
Bothell, WA 98021
susan.king@dhs.gov

Please submit your comments by April 23, 2010.

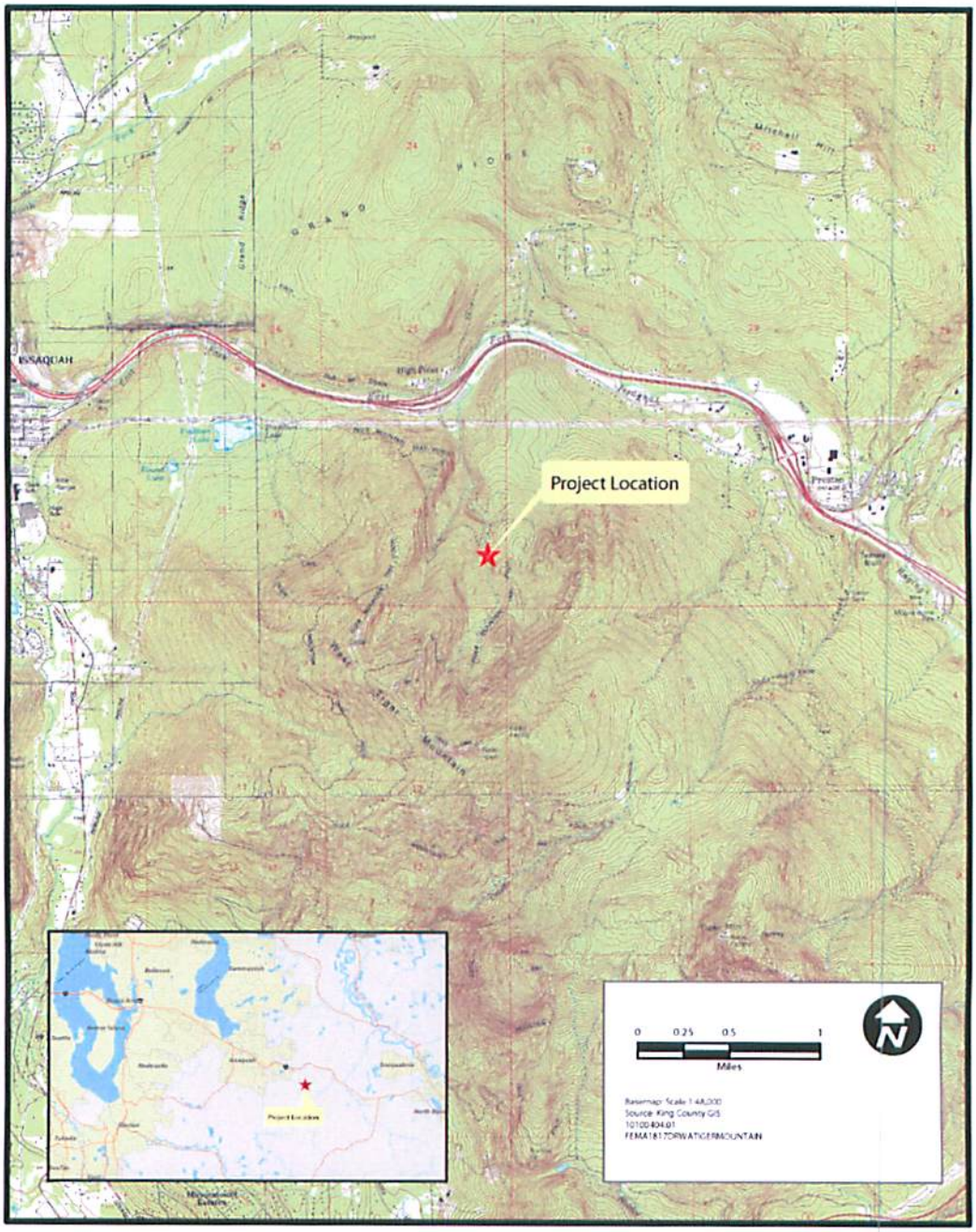
If you have questions about this letter, the project, or if you want to receive a copy of the Draft EA document for review and comment when it is released later during the public involvement process, please contact Susan via email (susan.king@dhs.gov) or phone (425-482-3729) or me via email (mark.eberlein@dhs.gov) or phone (425-487-4735).

Sincerely,

Mark G. Eberlein
Regional Environmental Officer
FEMA Region X

Enclosure: Project Vicinity Map

cc:Distribution List



Project Location

Distribution

FEDERAL AGENCIES

U.S. Army Corps of Engineers (Corps)
- Maryann Baird, Regulatory Branch, ESA Section 7 Coordinator
- Susan Powell, Central King County
- Patricia Robinson, Floodplain Management Program

U.S. Department of Homeland Security, Federal Emergency Management Agency (FEMA)
- Dennis Burton, Public Assistance Branch

U.S. Environmental Protection Agency (EPA)
- Christine Reichgott, NEPA Review Unit Manager
- Lillian Herger, Office of Env Assessment, Fisheries Biologist
- Wendy Marshall, Office of Water and Watersheds

U.S. Fish and Wildlife Service (USFWS)
- Rowan Baker, Region 1 NEPA Coordinator
- John Grettenberger, Washington Fish & Wildlife Office

U.S. Department of Commerce, National Marine Fisheries Service (NMFS)
- Kathe Hawe, NW NEPA Coordinator
- Matt Longenbaugh, Branch Chief, Central Puget Sound
- Tom Sibley, Branch Chief, Northern Puget Sound

STATE AGENCIES

Washington State Department of Archaeology and Historic Preservation (DAHP)
- Allyson Brooks, State Historic Preservation Officer
- Rob Whitlam, Archaeologist

Washington Department of Ecology (Ecology)
- Chris Hempleman, Shorelands & Env Assistance
- Dave Rountry, Water Quality Program
- Peg Plummer, SEPA Register Coordinator
- Scott McKinney, Flood Program

Washington Department of Fish and Wildlife (WDFW)
- Russell Link, District 12 Wildlife Biologist
- Teresa Eturaspe, SEPA Review Specialist

Washington Department of Natural Resources
- Jason Mettler, Engineer, Engineering and General Services Division
- Sam Jarrett, Recreation Manager, South Puget Sound Region

Washington Military Department, Emergency Management Division
Gary Urbas, Deputy State Coordinating Officer
Jonathan Holmes, Public Assistance Coordinator

TRIBES/TRIBAL ORGANIZATIONS

Snoqualmie Nation
Ray Mullen, Cultural Resources
Cindy Spiry, Natural Resources

Tulalip Tribes
Hank Gobin, Director, Hibulb Cultural Center
Danny Simpson, Natural Resources

Muckleshoot Indian Tribe
Laura Murphy, Cultural Resources
Karen Walter, Watershed/Land Use Team Leader

Puyallup Tribe of Indians
Judy Wright, Cultural Resources
Bill Sullivan, Natural Resources

Northwest Indian Fisheries Commission
Billy Frank, Jr.

VOLUNTEER ORGANIZATIONS

Issaquah Alps Trails Club
Steve Williams, President
Ed Vervoort, Tiger Mountain Advocate/ Member Board of Directors

Washington Trails Association
Jonathan Guzzo, Advocacy Director

Mountains to Sound Greenway Trust
Cynthia Welti, Executive Director
Doug Schindler, Advocacy Director

From: Powell, Susan M NWS
To: King, Susan
Subject: RE: EA Scoping for Tiger Mountain trail bridge replacement
Date: Wednesday, March 24, 2010 2:32:05 PM

Susan, I can't tell for sure from the description whether a Corps permit is required. A permit would be required if there would be fill placed below OHW of the creek or in wetlands. A project like this could probably be built so as to avoid our jurisdiction. Susan Powell

-----Original Message-----
From: King, Susan [mailto:Susan.King@dhs.gov]
Sent: Wednesday, March 24, 2010 9:59 AM
To: Allyson.Brooks@dahp.wa.gov; Rob.Whitlam@dahp.wa.gov; reichgott.christine@epa.gov; Herger.Lillian@epa.gov; Marshall.Wendy@epa.gov; kathe.hawe@noaa.gov; Powell, Susan M NWS; Baird, Maryann NWS; Powell, Susan M NWS; Dillon, Jeffrey F NWS; rowan_baker@fws.gov; john_grettenberger@fws.gov; matthew.longenbaugh@noaa.gov; Thomas.Sibley@noaa.gov; laura.murphy@muckleshoot.nsn.us; karen.walter@muckleshoot.nsn.us; bill.sullivan@puyalluptribe.com; judy.wright@puyalluptribe.com; ray@snoqualmienation.com; cindy@snoqualmienation.com; ibill@tulaliptribes-nsn.gov; hgobin@tulaliptribes-msn.gov; bfrank@nwifc.org; evervoort@comcast.net; chem461@ecy.wa.gov; sepaunit@ecy.wa.gov; russell.link@dfw.wa.gov; teresa.eturaspe@dfw.wa.gov; swilliams@comcast.net; cynthia.welti@mtsgreenway.org; doug.schindler@mtsgreenway.org
Cc: Burton, Dennis; Urbas, Gary (EMD); Holmes, Jonathan (EMD); Eberlein, Mark; jason.mettler@dnr.wa.gov; sam.jarrett@dnr.wa.gov; Carr, Peter J.; jim.keany@aecom.com; King, Susan
Subject: EA Scoping for Tiger Mountain trail bridge replacement

Interested Parties:

The Federal Emergency Management Agency (FEMA) is proposing to provide partial funding to the Washington Department of Natural Resources to replace a significantly damaged footbridge over High Point Creek in the West Tiger Mountain Natural Resource Conservation Area trail system in King County. This bridge was damaged during the Presidentially declared flooding event of January 2009 (FEMA-1817-DR-WA). As part of its compliance responsibilities under the National Environmental Policy Act (NEPA), FEMA is inviting you to participate in the scoping process for preparation of an environmental assessment (EA).

Your assistance will help to identify the scope of issues and concerns to be addressed in the analysis, develop viable alternatives to the proposed action, and identify potential impacts of implementing the project.

The attachment to this email provides additional information regarding the project. It also provides direction for submitting your written comments, which we are requesting be emailed by April 23, 2010. You may do so by responding to this email, which is being sent by Susan King of my staff; or by sending them via regular mail at the address provided in the attachment.

Mark Eberlein

From: Karen Walter
To: King, Susan
Subject: RE: EA Scoping for Tiger Mountain trail bridge replacement
Date: Thursday, April 22, 2010 4:14:50 PM

Susan,
Thank you for your email and for the scoping notice for the Tiger Mountain Trail bridge replacement project. The Muckleshoot Indian Tribe Fisheries Division has reviewed the scoping letter and offer the following comments.

The EA should identify and discuss how many trees may be removed within 200 feet of High Point Creek as a result of each of the proposed alternatives. Since High Point Creek is connected to the East Fork of Issaquah Creek, it is important to quantify and evaluate this potential impact to determine the potential for riparian functional impacts, particularly the future wood recruitment to both High Point Creek and the East Fork of Issaquah.

Coho and cutthroat are shown to use the lower portion of High Point Creek via the WRIA 8 fish distribution maps. These are available at: http://www.govlink.org/watersheds/8/reports/fish-maps/default.aspx
The EA should evaluate any potential direct or indirect impacts to salmonids as a result of the project's alternatives

Please let me know if you have any questions.

Regards,
Karen Walter
Watersheds and Land Use Team Leader

Muckleshoot Indian Tribe Fisheries Division
39015 172nd Ave SE
Auburn, WA 98092
253-876-3116

From: King, Susan [mailto:Susan.King@dhs.gov]
Sent: Wednesday, March 24, 2010 9:59 AM
To: Allyson.Brooks@dahp.wa.gov; Rob.Whitlam@dahp.wa.gov; reichgott.christine@epa.gov; Herger.Lillian@epa.gov; Marshall.Wendy@epa.gov; kathe.hawe@noaa.gov; Susan.M.Powell@usace.army.mil; Baird, Maryann NWS; Susan.M.Powell@usace.army.mil; jeffrey.f.dillon@usace.army.mil; rowan_baker@fws.gov; john_grettenberger@fws.gov; matthew.longenbaugh@noaa.gov; Thomas.Sibley@noaa.gov; Laura Murphy; Karen Walter; bill.sullivan@puyalluptribe.com; judy.wright@puyalluptribe.com; ray@snoqualmienation.com; cindy@snoqualmienation.com; ibill@tulaliptribes-nsn.gov; hgobin@tulaliptribes-msn.gov; bfrank@nwifc.org; evervoort@comcast.net; chem461@ecy.wa.gov; sepaunit@ecy.wa.gov; russell.link@dfw.wa.gov; teresa.eturaspe@dfw.wa.gov; swilliams@comcast.net; cynthia.welti@mtsgreenway.org; doug.schindler@mtsgreenway.org
Cc: Burton, Dennis; Urbas, Gary (EMD); Holmes, Jonathan (EMD); Eberlein, Mark; jason.mettler@dnr.wa.gov; sam.jarrett@dnr.wa.gov; Carr, Peter J.; jim.keany@aecom.com; King, Susan
Subject: EA Scoping for Tiger Mountain trail bridge replacement

Interested Parties:

The Federal Emergency Management Agency (FEMA) is proposing to provide partial funding to the Washington Department of Natural Resources to replace a significantly damaged footbridge over

High Point Creek in the West Tiger Mountain Natural Resource Conservation Area trail system in King County. This bridge was damaged during the Presidentially declared flooding event of January 2009 (FEMA-1817-DR-WA). As part of its compliance responsibilities under the National Environmental Policy Act (NEPA), FEMA is inviting you to participate in the scoping process for preparation of an environmental assessment (EA).

Your assistance will help to identify the scope of issues and concerns to be addressed in the analysis, develop viable alternatives to the proposed action, and identify potential impacts of implementing the project.

The attachment to this email provides additional information regarding the project. It also provides direction for submitting your written comments, which we are requesting be emailed by April 23, 2010. You may do so by responding to this email, which is being sent by Susan King of my staff; or by sending them via regular mail at the address provided in the attachment.

Mark Eberlein
Regional Environmental Officer
FEMA Region X

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

January 13, 2010

Mr. Maurice Major
Department of Natural Resources
PO Box 47000
Olympia, Washington 98504-7000

Re: Five Tiger Mountain Trail Bridge Replacement Projects
Log No.: 011310-20-DNR

Dear Mr. Major:

Thank you for contacting our department pursuant to Executive Order 05-05. We have reviewed the materials you provided for the proposed Five Tiger Mountain Trail Bridge Replacement Projects in King County, Washington.

We concur with your determination the proposed projects will have no effect upon cultural properties.

We would appreciate receiving any correspondence or comments from concerned tribes or other parties that you receive.

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 tribe's cultural staff and cultural committee and this department notified

These comments are based on the information available at the time of this review and on behalf of the State Historic Preservation Officer. Should additional information become available, our assessment may be revised, including information regarding historic properties that have not yet been identified. 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