Draft Environmental Assessment

Stemilt Basin and Scout-A-Vista Fuels Reduction Projects

HMGP-WA-5182-08 and HMGP-WA-5100-05

Chelan County, Washington

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FEMA

Federal Emergency Management Agency
Region X
Department of Homeland Security
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Acronyms and Abbreviations

BMP	best management practice
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
DAHP	Washington Department of Archaeology and Historic Preservation
DBH	diameter at breast height
EA	environmental assessment
EFH	Essential Fish Habitat
EMD	Washington State Emergency Management Division
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FONSI	finding of no significant impact
HMGP	Hazard Mitigation Grant Program
MBTA	Migratory Bird Treaty Act
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHMP	Natural Hazard Mitigation Plan
NRCS	Natural Resources Conservation Service
NRD	Natural Resource Department
NRF	Nesting, roosting, and foraging habitat
NRHP	National Register of Historic Places
NSO	Northern spotted owl
OHWM	Ordinary high-water mark
SAV	Scout-A-Vista
SHPO	State Historic Preservation Office

U.S.C.	United States Code
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WDNR	Washington Department of Natural Resources
WUI	wildland-urban interface

Glossary

Canopy: The cover provided by the crowns of trees. A closed canopy occurs when the crowns of adjacent trees touch to form a continuous cover over the forest floor. An open canopy occurs when trees are more widely spaced so that their crowns do not touch or where there are gaps in the canopy.

Hazardous Fuels Reduction: Includes thinning vegetation, removing ladder fuels, reducing flammable vegetative materials, and replacing flammable vegetation with fire-resilient vegetation for the protection of life and property. Vegetation may include excess fuels or flammable vegetation.

Ladder Fuels: Includes shrubs, small trees, down wood or brush, and low limbs that may provide a route for a fire to climb from ground fuels up into the forest canopy.

Limbing: Removal of tree limbs to reduce fuel loads and ladder fuels.

Loam: Well-drained soils composed of sand, silt, and clay in relatively even proportions.

Slash: Vegetative debris created by hazardous fuels reduction and other forest management activities.

Suppression: Response to wildland fire that results in the curtailment of fire spread and elimination of all identified threats from the fire; wildland fire suppression requires a variety of unique tactics to successfully curtail fires.

Thinning: Removal of some trees, branches, or shrubs from a forest stand.

Wildfire: Any uncontrolled fire that spreads through vegetative fuels such as forests, shrubs, or grasslands, exposing and possibly consuming structures.

Wildland-Urban Interface: the geographical area where buildings and structures and other human development meet or intermingle with wildland or vegetative fuels (U.S. Department of Agriculture [USDA] and U.S. Department of Interior 2001).

SECTION 1. Introduction

Chelan County Natural Resource Department (NRD) proposes to implement hazardous fuels reduction work in the Stemilt and Squilchuck sub-basins near Wenatchee, Washington. Chelan County applied to the Federal Emergency Management Agency (FEMA) through the Washington State Emergency Management Division (EMD) for grants under FEMA's Hazard Mitigation Grant Program (HMGP). Washington State EMD is the direct recipient for the grant, and Chelan County NRD is the subrecipient. Chelan County NRD applied for two grants that will be considered together in this environmental assessment (EA)—the Stemilt Basin Fuels Reduction project (5182-08) and the Scout-A-Vista Wildfire Fuels Reduction project (5100-05).

The HMGP is authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act. Under the HMGP, federal funds pay 75 percent of the project cost, and the remaining 25 percent comes from nonfederal funding sources. The HMGP funds were made available via Fire Mitigation Assistance Grant (FMAG) declarations made by FEMA in 2015 related to the Chelan Fire Complex (FM-5100), and in 2017 related to the Spromberg Fire (FM-5182) for projects that reduce the increased risk of future wildfires.

The proposed action would occur in Chelan County, Washington in the Stemilt and Squilchuck sub-basins near Wenatchee, Washington (**Figure 1-1**). The four treatment areas include a buffer along Upper Wheeler Road (Section 16 and Section 20 treatment areas), an area south of the Forest Ridge subdivision and Squilchuck State Park (Section 19 treatment area), and the wooded slopes in the southern portion of the Scout-A-Vista (SAV) Boy Scout camp that borders the west side of the Forest Ridge subdivision (Section 18 treatment area) (**Figure 1-2**). All of the treatment areas are in Township 21 North, Range 20 East. The Upper Wheeler treatment areas are located on state land in Sections 16 and 20, and the Section 19 and Section 18 treatment areas are located on privately owned land. In this EA, the treatment areas will be referred to by the section number that each is in, though none of the treatment areas encompass more than a small portion of each section (**Figure 1-2**).

The proposed action would implement fuels reduction work to reduce the intensity of wildfires that may occur in this area and to create areas along Upper Wheeler Road and along the edges of the Forest Ridge subdivision where firefighters may more safely manage a wildfire. Hazardous fuels would be reduced by removing some trees to create spacing in the forest canopy and removing shrubs and small trees to reduce the potential for wildfires to climb into the canopy of remaining trees.

This draft EA was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969; the President's Council on Environmental Quality (CEQ) regulations to implement NEPA (40 Code of Federal Regulations [CFR] Parts 1500 to 1508); U.S. Department of Homeland Security DHS Instruction 023-01-001; and FEMA Instruction 108-01-1, NEPA implementing procedures. FEMA is required to consider potential environmental impacts before funding or approving actions and projects. The purpose of this draft EA is to analyze the potential environmental impacts of the proposed projects. FEMA will use the findings in this draft EA to determine whether to prepare an environmental impact statement or to issue a finding of no significant impact (FONSI).

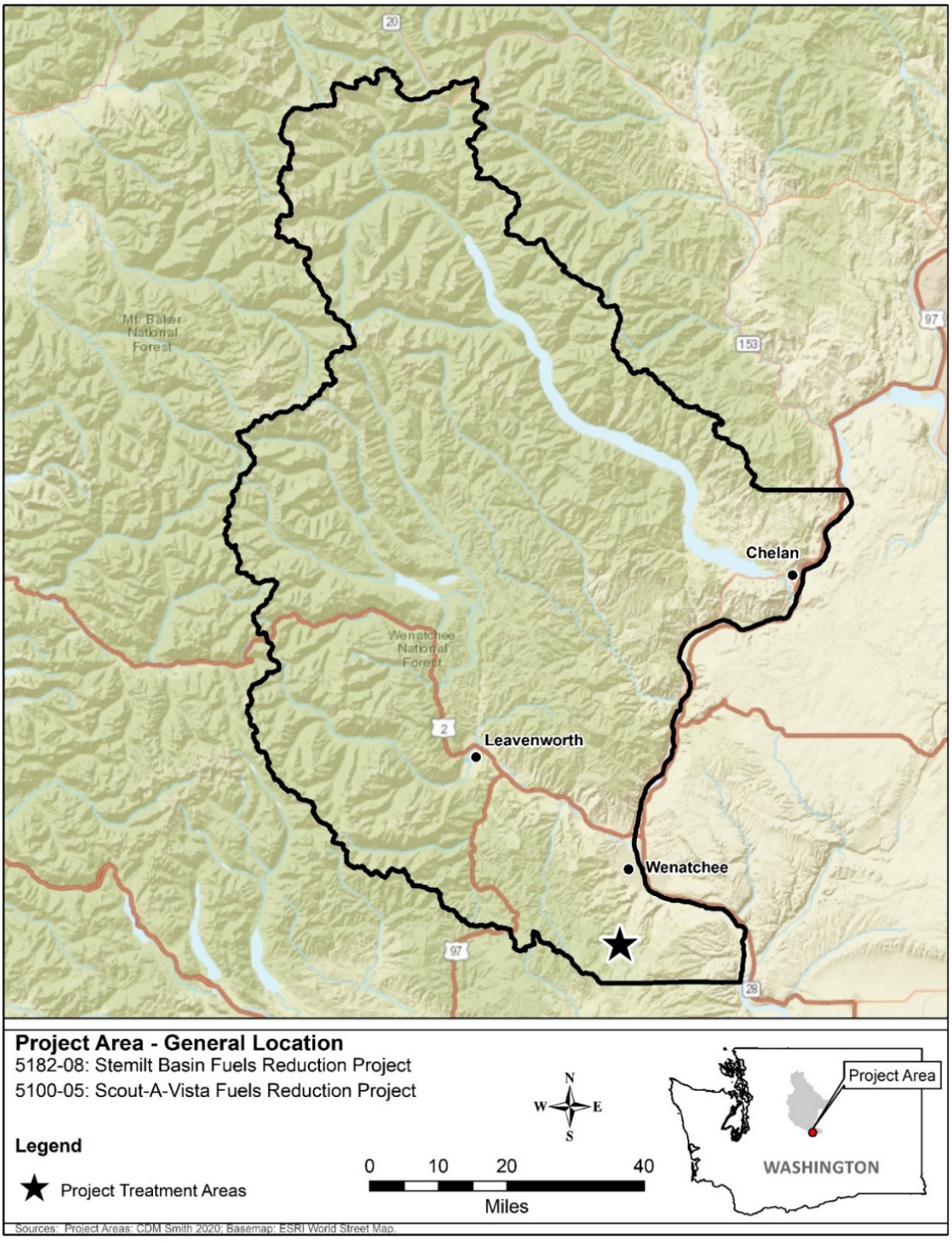

Figure 1-1. Project Vicinity

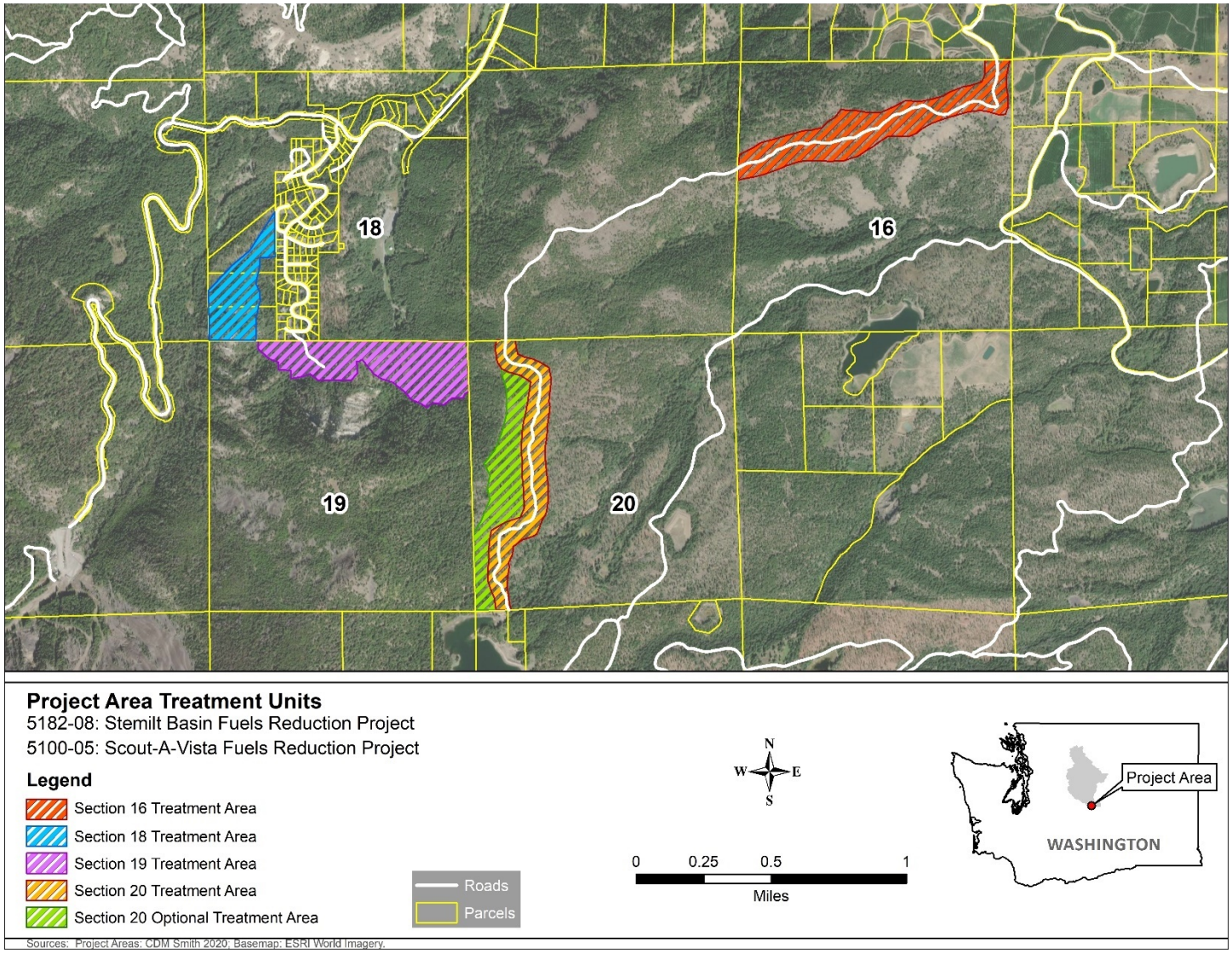

Figure 1-2. Project Treatment Areas

SECTION 2. Purpose and Need

FEMA's HMGP provides funds to eligible state and local governments, federally recognized tribal governments, and nonprofit organizations to help implement long-term hazard mitigation measures after a presidential major disaster declaration. The purpose of the HMGP is to reduce the loss of life and property caused by natural disasters and to enable risk mitigation measures to be implemented during the recovery from a declared disaster. Specifically, the purpose of the proposed HMGP projects is to protect life and property from damage associated with the spread of wildfire in the wildland-urban interface (WUI). Treating areas of the WUI with hazardous fuels reduction activities would reduce the risk of wildfire spread and help prevent loss of life and damage to homes and infrastructure.

According to data by the National Interagency Fire Center, the average wildfire size in the United States has increased from less than 40 acres in the 1980s and early 1990s to more than 120 acres in 2017 and 2018. Climate change is also contributing to the increased risk of wildfire spread in the United States as temperatures and drought events increase, warming and drying out vegetation (Chelan County 2019). The project area vicinity was threatened in recent years by large-scale wildfires that resulted in evacuation orders and property damage. The 2012 Wenatchee Complex burned up to the ridge separating Squilchuck from Mission Creek and would have been catastrophic had the spread of fire not been slowed significantly by thinning treatments implemented by the U.S. Forest Service (USFS) in previous years on the ridge between Squilchuck drainage and Mission Creek. That ridge is similar in topography to the ridge in the proposed project area that separates Squilchuck Valley from Stemilt Basin along Upper Wheeler Road.

A landscape evaluation was completed for the Stemilt and Squilchuck basins to assess landscape condition and the future potential conditions and, in turn, identify and prioritize treatments across the landscape in keeping with the Washington Department of Natural Resources (WDNR) 20-year Forest Health Strategic Plan: Eastern Washington (WDNR 2017a), Washington State Wildland Fire Protection 10-year Strategic Plan (WDNR 2019b), and Forest Action Plan (WDNR 2017b). As part of the Stemilt-Squilchuck Landscape Evaluation (Washington Conservation Science Institute 2019), risk mapping was completed for the planning area, which encompasses the proposed project areas. The areas around the Forest Ridge development emerged as high priorities for treatment, considering the existing forest structure, the fire severity risk, and the presence of homes and infrastructure. The proposed action addresses some of the priority issues identified in the landscape evaluation and would reduce the risk of loss of life and property.

According to the 2019 Chelan County Natural Hazard Mitigation Plan (NHMP), the treatment areas are within a "very high wildfire risk" area in south Chelan County (**Figure 2-1**) that has had a history of high wildfire occurrence (**Figure 2-2**). The NHMP includes wildfire mitigation action items that provide direction on specific activities that the Chelan County Emergency Management Council and its member organizations can undertake to reduce risk and prevent loss from wildfire events. The top priority is to reduce risk of wildfire hazards and damage through implementation of wildfire prevention and mitigation activities, including employing thinning to

reduce hazardous fuel loads and abate the risk of catastrophic fire and restore the more natural regime of high-frequency, low-intensity, smaller fires.

Areas with a high density of trees are at risk of crown fires. Crown fires are difficult to control as they burn out of reach of firefighters and can sweep over large areas quickly. Crown fires have very large flame lengths allowing the fire to reach other vegetation and structures and they may produce more flaming embers that can ignite fires far ahead of the main fire front. Thinning of the forest canopy as suggested in the NHMP creates breaks in the canopy and can force a fire down to the ground where fire crews can more safely and easily manage it.

The Section 16 and Section 20 treatment areas approximately follow the ridgeline between the Squilchuck sub-basin and Stemilt sub-basin where fire behavior may be expected to change. Fires tend to climb up hills quickly, driven by hot rising winds, and then sometimes pause at the ridgeline. At that point, a break in the fuel load and canopy spacing can provide firefighters an opportunity to manage a fire. Fuel reduction treatment along Upper Wheeler Road is needed to take advantage of this topographic feature and fire behavior to help prevent the spread of wildfires from one basin to the other and to protect an important access route. The County has no right-of-way maintenance requirements for primitive roads, such as Upper Wheeler Road, which might otherwise provide fuels reduction along the ridgeline road.

Historically, a buffer of thinned forest was maintained near the boundary of Section 19 and the Forest Ridge development and Squilchuck Park, but it has since grown in and no longer provides benefits to slowing wildfire spread. The Section 18 treatment area is heavily forested with high tree densities far above optimum levels for managing wildfires and forest health. The treatment area is also steeply sloped, which can increase fire risk. Both the Section 19 and the Section 18 treatment areas are immediately adjacent to the Forest Ridge development where existing homes are interspersed with forest vegetation.

Furthermore, exposure to wildfire smoke can impact human health by exacerbating respiratory health issues, such as asthma and chronic obstructive pulmonary disease. Wildfire smoke may contribute to respiratory infections and possibly cardiovascular concerns, although more research is needed to confirm these associations (Reid et al. 2016). Wildfire smoke could have adverse economic impacts on communities near the project area by reducing recreation, such as camping and hiking.

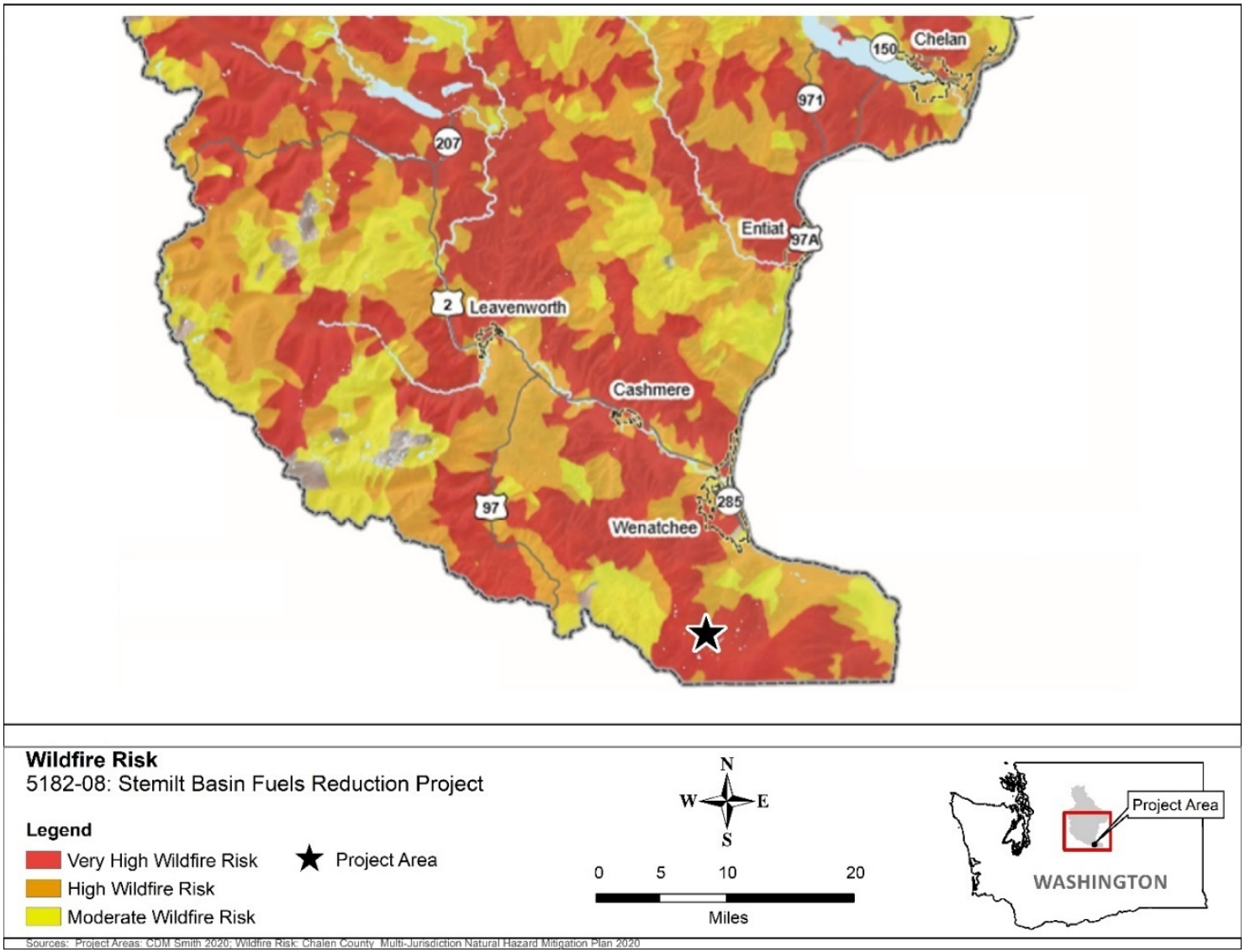

Figure 2-1. Wildfire Risk Map

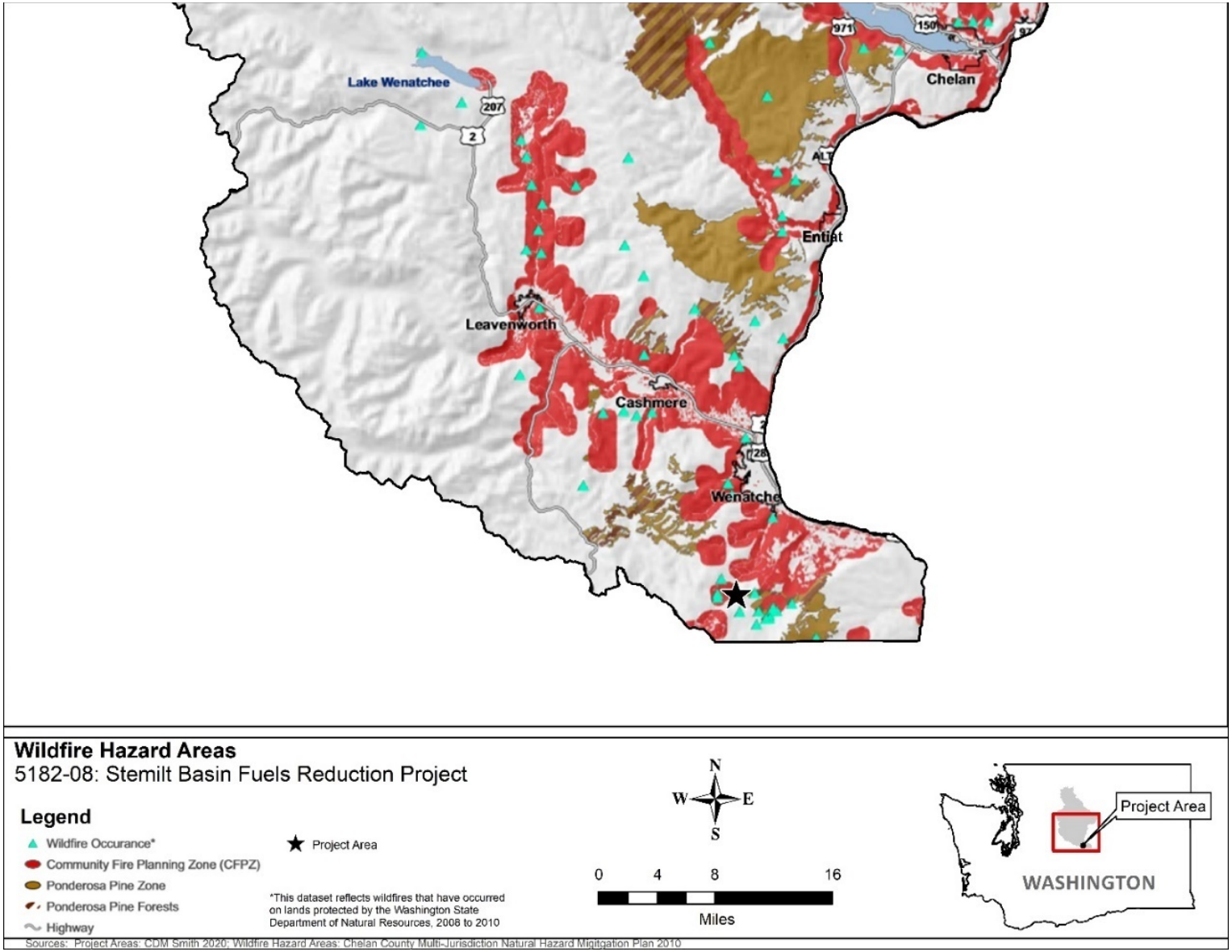

Figure 2-2. Wildfire Hazard Areas

SECTION 3. Alternatives

This section describes the no action alternative, the proposed action, and alternatives that were considered but dismissed.

3.1. No Action Alternative

The no action alternative is included to describe potential future conditions if no action is taken to reduce wildfire hazards. Under this alternative, no FEMA-funded fuels reduction work would be conducted on the four treatment areas. Hazardous fuels reduction work might still occur within the four treatment areas but would likely be conducted over a longer period of time and in a less comprehensive way than the proposed action. The existing conditions, including the very high wildfire risk conditions, would remain largely the same, threatening residents of rural neighborhoods near the proposed treatment areas with the associated potential for loss of life and property.

3.2. Proposed Action

The proposed action would implement fuels reduction work in four treatment areas to reduce the spread of wildfire: (1) approximately 100 acres of land located along the Upper Wheeler Road (Section 16 and Section 20) and an optional 49 acres in Section 20 if funding allows, (2) approximately 75 acres of land south of Squilchuck State Park and the Forest Ridge neighborhood (Section 19), and (3) approximately 29 acres of land within the southern portion of the Scout-A-Vista property west of the Forest Ridge subdivision (Section 18) (see **Figure 1-2**).

The proposed action would achieve the project purpose by providing breaks in the forest canopy that can force a fire to the ground where fire crews can more safely and easily manage it and by reducing ground fuels and ladder fuels that can allow a fire to climb up into the canopy. While some untreated forests would remain in the area, hazardous fuels reduction in the treatment areas may contribute to containment efforts, reducing the intensity and extent of wildfires, which ultimately reduces the risks to people living near the project areas.

There are five principles for creating fire-resilient forests (Fitzgerald and Bennett 2013):

1. Reduce surface fuels
2. Increase the height to the base of tree crowns
3. Increase spacing between tree crowns
4. Keep larger trees of more fire-resilient species
5. Promote fire-resilient forests at the landscape level

Crown fires are much less likely to occur if trees are widely spaced; generally, with crowns spaced more than one dominant tree crown width apart. Factors that tend to increase the required crown spacing include steep slopes, locations with high winds, and the presence of tree species (e.g., grand fir) with dense compact foliage. Tree spacing does not have to be even. Small patches of trees can be left at tighter spacing, benefiting some wildlife (Fitzgerald and Bennett 2013). The key is to reduce surface fuels and ladder fuels and create openings.

The proposed action would reduce fuels to establish a shaded fuel break along Upper Wheeler Road and would occur in portions of Sections 16 and 20 (see **Figure 1-2**). Work in Sections 16 and 20 would include the removal of branches on trees greater than 8 inches diameter at breast height (DBH) as high up as 8 to 10 feet from the ground; however, no more than 40 percent of the live green crown would be removed. Trees in the first 33 feet from each side of the road would be thinned to provide 40 feet of space between crowns to allow the treatment area to be seen from the air and improve firefighter safety on the road itself. Trees in the remaining portion of the treatment area would be spaced at least 20 feet between crowns. Large, dominant trees would be left where feasible. Ponderosa pine (*Pinus ponderosa*) would be the preferred species left on-site because mature trees are fire-adapted and generally resistant to low ground fires. The Section 16 and Section 20 treatment areas would be accessed from Upper Wheeler Road.

Current conditions in the Section 16 treatment area are characterized by a uniform stand of dense 10- to 14-inch diameter trees with very few small trees or understory shrubs. Therefore, the majority of the vegetation that would be removed in Section 16 would be medium-sized trees of this size. Trees would be removed with mechanical equipment such as feller bunchers, harvesters, and skidders to skid cut trees out of the treatment area. Cut trees would be collected into slash piles and burned. Slash piles are expected to be no larger than 10 feet by 10 feet by 10 feet, in accordance with the WDNR burn rules. Trees that are 10 to 14 inches in diameter cannot be chipped without large equipment; therefore, the cut material would need to be burned.

The Section 20 treatment area contains more small trees and brush by comparison. The majority of the trees that are planned to be removed in Section 20 would be 6 to 15 inches DBH and range in height from 35 to 55 feet. Non-coniferous vegetation over 3 feet tall within 50 feet of the road would be masticated. Smaller cut material would likely be chipped and spread thinly over the treatment area. Because there is very little material greater than approximately 6 inches DBH that would need to be cut, it is unlikely that there would be any burning of cut material in Section 20. An optional 49 acres located within Section 20 may be treated using the same methods as the proposed Section 20 treatment area. Access improvements along the Upper Wheeler Road may be needed to access the Section 20 treatment area. Road improvements would not be funded under the HMGP grant, but they are analyzed as a connected action to the proposed action.

The Section 19 treatment area has a much denser crown canopy than can be addressed through normal hazardous fuels reduction techniques. Therefore, the County would implement a commercial thin to remove larger trees and open up the canopy prior to the hazardous fuels reduction work. The commercial thin would be conducted with ground crews using hand tools, skidders to transport large felled trees to access roads, mechanized equipment to load logs onto trucks, and trucks to transport logs to a sawmill. Slash would be left on the project site to be removed later by the hazardous fuels reduction work. No burning would occur as part of this action. The commercial thin would likely take one season to implement; therefore, it would be separated by the FEMA-funded treatment by one season, as work could only occur in the spring and fall seasons. The commercial thin would not be FEMA-funded and would only occur in the western half of the parcel and in the areas of unsuitable Northern spotted owl (NSO) habitat within the eastern half of the parcel. Suitable NSO nesting, roosting, and foraging (NRF) habitat would only by treated by fuels reduction thinning, and more than 60 percent of the existing

canopy coverage would be maintained in these areas. Although the commercial thin would not be FEMA-funded, it is analyzed in this EA as a connected action to the proposed action.

The County proposes to apply the HMGP grant to remove smaller hazardous fuels and ladder fuels from within the Section 19 treatment area, thus focusing on shrubs and on trees less than 6 inches DBH. Most of the work would be conducted using mechanical masticators. Where slopes are too steep for mechanical equipment, hand crews would be used. Slash would be hand-piled. Brush and understory trees would be removed from within the dripline of conifers retained after the commercial thinning. Any clumps of noncommercial trees would be thinned to reduce fuel loads. Target spacing for clumps of trees would be based on a grid approximately 15 feet by 15 feet. Preferred species (e.g., western larch [*Larix occidentalis*] and ponderosa pine) could be left on a tighter grid, while less-desirable and more-flammable species (e.g., Douglas fir [*Pseudotsuga menziesii*] and grand fir [*Abies grandis*]) would be thinned more heavily. Retained trees would be pruned up to 8 to 10 feet from the ground. In stands identified as potential NSO dispersal habitat, thinning would maintain more than 40 percent of the existing canopy coverage. Brush and shrub species (e.g., ocean spray [*Holodiscus discolor*], vine maple [*Acer circinatum*], willows [*Salix*] and maple [*Acer*] species) would be masticated, especially in areas close to homes in the Forest Ridge community or retained conifers. The Section 19 treatment area would be accessed through the adjacent Squilchuck State Park. Minor road improvements may be needed to allow access to the treatment area (analyzed as a connected action).

Proposed fuels reduction in the Section 18 treatment area would include the removal of trees up to 11 inches DBH. The treatment would leave the largest and healthiest crowned trees with a 25 to 30 foot spacing for a total of 50 to 70 trees per acre. The current density of trees is approximately 200 to 500 trees per acre. The healthiest ponderosa pine, western larch, and disease-free Douglas fir trees would be retained. All remaining trees would be pruned to ensure limb tips are 8 feet above the ground vegetation or 15 feet above the ground vegetation on steep slopes. Dead brush that poses ladder fuel threats would be removed. The treatment area is steep, with slopes up to 60 percent; therefore, all cut material would be hand-piled in small piles and burned. Slash piles would be organized in open areas far enough away from remaining trees to avoid scorching and would be burned the following winter after snowfall. Slash piles would be no more than 10 feet by 10 feet by 10 feet. Logs larger than 6 inches in diameter would be left on the ground and cut into one to three pieces to increase ground contact and decomposition rate. Two slash piles per acre would be left for wildlife habitat. There is a small chance some of the work could be completed using new technology (logging equipment with self-leveling cabs and a mastication/chipper head), but most of the work would occur with hand crews. The Section 18 treatment area would likely be accessed through the adjacent Forest Ridge neighborhood rather than from the Boy Scout facilities. Any access through Forest Ridge would be coordinated and agreed upon prior to implementation and would be voluntary in nature.

3.2.1 Burning

Piles would be burned once dry and only in accordance with state regulations and requirements (Washington Administrative Code [WAC] 332-24-205). In accordance with WAC 332-24-211, burn permits would not be required if burning occurs when there is no burn ban and certain

restrictions apply, including but not limited to: burning of only natural vegetation, limiting burn piles to 10 feet by 10 feet when burning occurs between October 16 and June 30, burning only one pile at a time, and extinguishing each pile before lighting another (WDNR 2020). Regardless of whether a burn permit is needed, permission is required from the local fire district prior to the burn. The fire must be kept 50 feet from any structure and 500 feet from forest slash, be attended at all times, and an extinguisher must be nearby (WDNR 2020). The work would also follow any general instructions or advisories associated with fire danger instructions issued by WDNR. Burning for this project would not be conducted during the dry summer or early fall season.

3.2.2 Avoidance and Minimization Measures for Listed Species

The following measures would be incorporated into the treatment approach to avoid and minimize potential harm to Endangered Species Act-listed species and their habitat.

- No treatment work would occur in the Section 19 treatment area or Section 20 treatment area and optional treatment area during the critical breeding period for NSO (March 1st through July 30th).
- For NSO nesting, roosting, and foraging habitat (NRF) occurring within the Section 19 treatment area, project actions would only thin small undersized trees that are densely packed in the understory, and no mature trees providing canopy coverage would be removed.
- For NSO dispersal habitat occurring within the Section 20 treatment area and optional area, at least 40 percent canopy coverage would be retained.
- Vehicles would be kept on pre-existing roads.
- Potential noise effects to on NSO behavior would be mitigated by implementing project actions during the day.
- Vegetation buffers would be retained along waterways to maintain stream shading and filtration of surface water runoff:
    - Maintain a 75-foot buffer around perennial streams; ladder fuels may be removed at 40 feet from the stream.
    - Maintain a 30-foot buffer around intermittent streams; ladder fuels may be removed at 15 feet from the stream.
- Habitat piles would be built with five layers and would be 20 feet in diameter, and 6 feet high. One to three piles would be created per acre.

The following measure would be implemented to reduce impacts on elk (*Cervus elaphus*):

- During migration, cows give birth to their calves and rear them in suitable habitat scattered throughout the treatment areas. To avoid impacts on calves, fuels reduction work would not occur between March 15th and July 15th within the Section 16 treatment area and Section 20 treatment area and optional treatment area.

Additional guidelines developed by the Woodland Fish and Wildlife Group (Strong and Bevis 2016) address snags and logs, old growth trees, work timing, and pruning to maintain wildlife

habitat features during fuels reduction work. These suggestions would be incorporated when applicable and where possible and may include the following options:

- Establish 6 foraging snags per acre and 1 to 2 cavity nesting snags per acre. Strive for snags and logs greater than 15 feet long and greater than 12 inches DBH.
- When cutting trees ranging from 15 to 20 inches DBH, habitat snags may be retained by high stumping the trees (cutting at a height of approximately 20 feet).
- Keep any large trees (>16 inches DBH), including defective trees.
- Openings can vary from 0.1 to 5.0 acres in size and can comprise 5 to 15 percent of the landscape and have irregular shapes.
- Patches can be 30 to 50 feet across, 100 to 300 feet in length, and comprise 10 to 20 percent of the landscape.
- Maintain the shrub species that are most valuable for wildlife habitat and keep them in clumps beyond overhanging limbs from adjacent trees.
- Schedule activities during the fall when it is the best time to avoid wildlife nesting and denning and insect outbreaks.
- When pruning, retain one-third of the total live branches to maintain tree vigor. Prune trees during October through March when they are dormant to avoid insect infestation.

3.2.3 Schedule and Maintenance Activities

Fuels reduction work on the four treatment areas would occur over a period of approximately 18 months. Fuels reduction work requires maintenance over time to remain effective. The Section 16, Section 20, and Section 19 treatment areas would be part of a landscape-scale fuels reduction and maintenance plan managed by the County. These units would be burned and/or thinned every 10 to 15 years following initial treatment, with funding identified through future forest health initiatives.

An Operation and Maintenance Plan would be developed for the Section 18 treatment area and signed by the Scout-A-Vista landowner prior to the initiation of work.

3.3. Additional Action Alternatives Considered and Dismissed

An alternative to the proposed action would be to create defensible space around the homes in the Forest Ridge neighborhood and other structures in the vicinity of Squilchuck State Park. This approach would attempt to protect structures and lives by reducing fuels immediately adjacent to structures to create a buffer from potential fires that may approach through the surrounding forestland. Creation of defensible space in accordance with the standards outlined by the National Fire Protection Association could reduce risks to structures from approaching wildfire.

This alternative would require approximately 300 structures to implement defensible space standards, which would require robust landowner engagement. There are no restrictive covenants requiring the maintenance of defensible space in the Forest Ridge community. Many Forest Ridge residents have started creating defensible space around their homes, but there are still hundreds of structures in the area that currently do not maintain defensible space. Cascadia

Conservation District, Chelan County Fire District 1, and WDNR administer several voluntary programs that provide technical and financial assistance to landowners interested in creating defensible space. Achieving 100-percent defensible space implementation in this area may not be possible and would likely take several years to accomplish.

The Chelan County Code Title 15 Chapter 15.40 defines requirements for development and maintenance in moderate, high, and extreme wildfire-risk areas. The Fire Marshal imposes standards when reviewing development permit applications for subdivisions, planned developments, binding site plans, or other similar development permits. Requirements include using Class A/noncombustible roofing as defined in the Uniform Building Code and other measures required by the Fire Marshal for development projects in the WUI. The County Code does not currently mandate establishment or maintenance of defensible space around structures or in subdivision common areas in the WUI. Additionally, this alternative would not address the greater issue of the adjacent overstocked forests that have hazardous fuel accumulations caused by past fire suppression and a changing climate. These forests are capable of carrying high severity fires directly into neighborhoods that, even with defensible space treatments, would still be vulnerable to this type of fire. Therefore, this alternative would not meet the project purpose and need.

SECTION 4. Affected Environment, Potential Impacts, and Mitigation

This section describes the environment potentially affected by the alternatives, evaluates potential environmental impacts, and recommends measures to avoid or reduce those impacts. When possible, quantitative information is provided to establish potential impacts, and the potential impacts are evaluated qualitatively based on the criteria listed in **Table 4.1.** The study area generally includes the treatment areas and access and staging areas needed for the proposed action. If the study area for a particular resource category is different from the treatment areas, the differences will be described in the appropriate subsection.

Table 4.1. Evaluation Criteria for Potential Impacts

Impact Scale	Criteria
None/Negligible	The resource area would not be affected, or changes or benefits would be either nondetectable 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 or benefits would be within or below regulatory standards, as applicable. Mitigation measures would reduce any potential adverse effects.
Moderate	Changes to the resource would be measurable and have either localized or regional scale impacts/benefits. Impacts would be within or below regulatory standards, but historical conditions would be altered on a short-term basis. Mitigation measures would be necessary, and the measures would reduce any potential adverse effects.
Major	Changes would be readily measurable and would have substantial consequences on a local or regional level. Impacts would exceed regulatory standards. Mitigation measures to offset the adverse effects would be required to reduce impacts, though long-term changes to the resource would be expected.

4.1. Resources Not Affected and Not Considered Further

The following resources would not be affected by either the no action alternative or the proposed action because they do not exist in the project area or the alternatives would have no effect on the resource. These resources were removed from further consideration in this EA.

Table 4.2. Resources Eliminated from Further Consideration

Resource Topic	Reason for Elimination
Geology	Hazardous fuels reduction work is a surface-level activity that would have no effect on geology.

Resource Topic	Reason for Elimination
Wild and Scenic Rivers	According to the National Wild and Scenic Rivers System website (National Wild and Scenic Rivers 2020), the closest wild and scenic river, the Middle Fork Snoqualmie River, is located approximately 60 miles west of the project area. The alternatives would have no effect on wild and scenic rivers.
Sole Source Aquifers	According to the U.S. Environmental Protection Agency's (EPA) sole source aquifer map (EPA 2020c), there are no sole source aquifers designated in Chelan County; therefore, the alternatives would have no effect on sole source aquifers.
Coastal Resources	This project area is not located within the Coastal Zone Boundary designated by the State of Washington (Washington Department of Ecology 2020) or within a Coastal Barrier Resources Unit (U.S. Fish and Wildlife Service [USFWS] 2019a).
Land Use and Zoning	This proposed action would not change existing land use and is consistent with the current zoning. The alternatives would have no effect on land use and zoning.

4.2. Soils, Farmland Soils, and Topography

The proposed treatment areas are located within the East Cascades ecoregion of central Washington, which averages between 3,000 and 7,000 feet in elevation with the highest peak (Mount Adams) rising above 12,000 feet (LandScope 2020). The proposed treatment areas range in elevation from 3,400 to 4,200 feet. The topography varies from very steep slopes in Sections 19 and 18 to gentler slopes along the ridgeline in Sections 16 and 20. Large rock outcrops are prominent portions of Sections 19 and 18.

According to the Natural Resources Conservation Service (NRCS), soils in the Section 16, Section 20, and Section 19 treatment areas primarily consist of Stemilt silt loams, ranging from 0 to 45 percent slopes (2020). The Section 18 treatment area primarily contains Loneridge very stony loam with 25 to 65 percent slopes (**Table 4.3**).

Table 4.3. Soils and Topography in the Treatment Areas

Treatment Area	Soil Type	Average Slope
Section 16	Stemilt silt loam Stemilt silt loam Colockum silt loam Colockum boulder silt loam	0 to 25 percent slopes 25 to 45 percent slopes 15 to 20 percent slopes 25 to 45 percent slopes
Section 20 (including optional area)	Stemilt silt loam Stemilt silt loam	0 to 25 percent slopes 25 to 45 percent slopes
Section 19	Stemilt silt loam Stemilt silt loam Loneridge very stony loam Rock Outcrop	0 to 25 percent slopes 25 to 45 percent slopes 25 to 65 percent slopes NA
Section 18	Stemilt silt loam Loneridge very stony loam Rock Outcrop	25 to 45 percent slopes 25 to 65 percent slopes NA

Source: NRCS 2020

The Farmland Protection Policy Act requires federal agencies to minimize the unnecessary conversion of farmland into nonagricultural uses. According to the NRCS (2020), approximately 47.4 percent of the total treatment areas comprise farmland of statewide importance (Stemilt silt loam) and 4.8 percent of the total treatment areas comprise farmland of unique importance (Colockum silt loam). The majority of farmland soils are located in the Section 16 and 20 treatment areas.

No Action Alternative

Under the no action alternative, some hazardous fuels reduction work might still occur in the treatment areas, resulting in no effect on topography and negligible soil disturbance from occasional hazardous fuels reduction and vegetation removal activities. However, in the event of a major wildfire, there would be a significant loss of vegetation. Vegetation loss would lead to an increase in erosion, especially on steep slopes, including those in the treatment areas. Loss of vegetation may result in higher soil temperatures, increased evaporation, and reduced soil moisture. High intensity wildfires can alter the physical and chemical properties and the moisture, temperature, and biotic characteristics of soils, including farmland soils (USFS 2005).

Heat from wildfires can cause soils, including farmland soils, to form hydrophobic layers that repel water, resulting in decreased stormwater infiltration. Hydrophobicity occurs when plants burn in wildfires, releasing a gas into the soil that cools and solidifies into a waxy, water-repelling substance that coats soil particles. Large-pored soils, such as sandy or coarse-textured soils, are more vulnerable to becoming hydrophobic because they transmit heat more easily than heavily textured soils such as clays (USFS 2005). The treatment areas primarily contain silt loams that are dominated by intermediate-sized particles and stony loams that contain larger stones; these soils contain larger pore sizes that are susceptible to hydrophobicity.

Following a severe wildfire, the resultant soil conditions could result in decreased agricultural potential until the soils are able to recover. In this semi-arid climate, the accumulation of organic matter that facilitates soil formation is relatively slow and may take years (USDA 2005).

Under the no action alternative, there would be no effect on topography. In the absence of a wildfire, the no action alternative would have negligible effects on soils. Farmland soils would not be converted by forestry and occasional hazardous fuels reduction treatments. In the event of a wildfire, there could be minor to moderate adverse impacts on soils, including farmland soils, depending on the intensity and scale of a wildfire.

Proposed Action

The proposed action and connected actions would have no effect on topography. Under the proposed action, heavy equipment, such as feller bunchers, skidders, and masticators, may be used in flatter areas of the Section 16, Section 20, and Section 19 treatment areas. Commercial thinning in the Section 19 treatment area prior to the FEMA-funded action would primarily be conducted with hand tools, skidders to skid larger logs to access roads, mechanical equipment to load logs onto trucks, and trucks to haul trees. Heavy equipment would not be used in steeper areas of the Section 18 and Section 19 treatment areas; in these areas, ground crews with hand tools would conduct treatments that would reduce the risk of soil erosion from vegetation

removal. Soils could be disturbed from the skidding of logs into slash piles. Soil compaction could occur if the equipment were driven or logs were skidded over any given area many times. Generally, this would not occur due to the short duration of activities in a given area; however, the commercial thin would have a higher risk of soil compaction as large trees would be dragged along the ground. Thus, there would be minor, short-term impacts on soils, including farmland soils, from equipment use for the proposed action and possible moderate short-term impacts from equipment use for the Section 19 commercial thin.

Pile burning in the Section 16 and 18 treatment areas would not have harmful effects on the underlying soil, as piles would be small and would burn quickly.

Hazardous fuels reduction activities would not convert farmland soils to a nonagricultural use, nor would they prevent the future use of the soils for farmland purposes. The proposed action would likely have minor long-term beneficial effects on soils and prime farmland by reducing the risk of soil damage from wildfires and the consequences of that described under the no action alternative.

4.3. Visual Quality and Aesthetics

Because hazardous fuels reduction projects have the potential to alter forest cover, they have the potential to affect visual quality. The analysis of visual quality is a qualitative analysis that considers: (1) the visual context of the treatment area, (2) the potential for changes in character and contrast, (3) whether the project areas include any places or features that were designated for protection, and (4) the number of people who can view the site and their activities, including the extent to which those activities are related to the aesthetic qualities of the area.

The treatment areas are primarily located in rural forested landscapes with some rural residential, commercial, and recreational land uses nearby. The Section 16 and Section 20 treatment areas are located on a ridge along Upper Wheeler Road. Current conditions in Section 16 include uniform stands of dense 10- to 14-inch-diameter trees with very few small trees or understory shrubs. The Section 20 treatment area contains more small trees and brush than the Section 16 treatment area. The Section 19 treatment area has a dense crown canopy and is located on a steep slope south of the Forest Ridge neighborhood and Squilchuck State Park (**Figure 4-1**). The Section 18 treatment area includes a high density of trees and is located on a steep slope west of the Forest Ridge neighborhood (**Figure 4-2**).

No Action Alternative

Under the no action alternative, the change in appearance and visual quality of the treatment areas as a result of scattered hazardous fuels reduction work may not be perceptible overall. Areas that receive hazardous fuels treatment would undergo a slight visual change that could be perceived as cleaner and safer looking on a localized scale. However, a major wildfire would be more likely to spread through the treatment areas, which could have a minor to major adverse impact on the visual quality of the treatment areas, depending on the extent of the fire damage.

Figure 4-1. Vegetation Conditions in the Section 19 Treatment Area

Figure 4-2. Vegetation Conditions in the Section 18 Treatment Area

Proposed Action

Vegetation removal, including the commercial thin prior to the FEMA-funded work, tree pruning, and slash chipping and burning, would likely affect the visual quality and aesthetics of the treated areas. These changes would open up the forest canopy and create an open, somewhat park-like appearance from the access roads through the stands. Nearby residents and forest users may find this a positive attribute. Thinning has occurred near the treatment areas in recent years, such as within Squilchuck State Park and along Upper Wheeler Road south of the proposed treatment areas. The proposed action may blend cohesively with these thinning activities and not result in obvious visual contrasts. The Section 16 and Section 20 treatment areas run along the primitive Upper Wheeler Road, and changes may be detectable to drivers. Portions of the Section 18 and Section 19 treatment areas are located adjacent to the Forest Ridge neighborhood and the Section 19 treatment area also borders Squilchuck State Park; residents, recreationists, and campers may detect visual changes. Depending on how residents and visitors perceive the visual effects of treatment, the proposed action could have negligible impacts or benefits on visual quality and aesthetics in all treatment areas.

In the long-term, the risk of wildfire spread in the vicinity of the treatment areas would be reduced, which would have minor long-term beneficial effects on visual quality and aesthetics by reducing the chance that vegetation and properties are burned and damaged in a wildfire.

4.4. Air Quality and Climate

The Clean Air Act, amended in 1990, requires EPA to set National Ambient Air Quality Standards (NAAQS) for six pollutants harmful to human and environmental health: ozone, particulate matter, nitrogen dioxide, carbon monoxide, sulfur dioxide, and lead (EPA 2016). According to EPA's Green Book, Chelan County is in attainment for all six criteria pollutants (EPA 2020a).

Air quality is negatively affected by everyday activities (e.g., vehicle use) and major events (e.g., wildfires). Wildfire smoke is composed of carbon dioxide, water vapor, particulate matter, carbon monoxide, nitrogen oxides, organic chemicals such as hydrocarbons, and trace minerals that affect air quality (EPA et al. 2019). Air quality can also be affected by fugitive dust, which is considered a component of particulate matter. Fugitive dust is released into the air by wind or human activities and can have human and environmental health impacts (California EPA Air Resources Board 2007).

The Cascade Mountains serve as a topographic and climatic barrier in Chelan County; air warms and dries as it descends the eastern slopes of the mountains (Chelan County 2019). Wenatchee is located in lower elevation area in the east Cascades. The temperature in Wenatchee, Washington ranges from an average low of 25 degrees Fahrenheit in December and January to an average high of 88 degrees Fahrenheit in July and August (U.S. Climate Data 2020). Wenatchee receives an average of approximately 9 inches of rain and 16 inches of snow annually (U.S. Climate Data 2020). Most of the precipitation occurs in the fall, winter, and spring. Summer precipitation is very low, which increases the risk of wildfire spread.

Global and regional climate conditions are changing. "Climate change" refers to changes in the Earth's climate caused by a general warming of the atmosphere. Its primary cause is emissions of greenhouse gases, including carbon dioxide (CO_2) and methane (CH_4). Climate change is capable of affecting species distribution, temperature fluctuations, and weather patterns. The CEQ *Final NEPA Guidance on Consideration of Greenhouse Gas Emissions and the Effects on Climate Change* (CEQ 2016) suggests that quantitative analysis should be done if an action would release more than 25,000 metric tons of greenhouse gases per year.

Estimates indicate that average annual temperatures in the Pacific Northwest region will increase by 2.0 degrees Fahrenheit by the 2020s, 3.2 degrees Fahrenheit by the 2040s, and 5.3 degrees Fahrenheit by the 2080s. Warmer temperatures would decrease mountain snowpack, resulting in higher winter and lower summer stream flows. Earlier spring snowmelt and higher temperatures also increase the risk of wildfires in the region—North American wildfires increased in intensity and frequency over the past 50 years (USFWS 2011).

No Action Alternative

Some hazardous fuels reduction work may still occur in the project area under the no action alternative. This could potentially result in negligible short-term impacts on air quality from vehicle and equipment use (e.g., chainsaws). However, under this alternative, the risk of wildfire spread would remain high. Wildfire smoke can deteriorate air quality and expose vulnerable populations, such as the young and elderly, to harmful pollutants (EPA et al. 2019). Particulate matter, specifically, can have many harmful effects, including eye and respiratory tract irritation, reduced lung function, asthma, and heart failure (EPA et al. 2019). An ongoing study in Montana is finding that prolonged exposure to wildfire smoke can result in long-term health effects even several years after exposure (Houghton 2020). In addition to particulate matter in smoke, a fire in an urban area will also emit a variety of other toxins produced as building materials and the contents burn.

Smoke from large wildfires can affect air quality over large areas. Additionally, major wildfires can emit high levels of greenhouse gases into the atmosphere, thus contributing to climate change and exacerbating the risk of wildfires. In the event of a wildfire, the no action alternative could have a minor to major impact on air quality and regional climate, depending on the intensity and scale of the wildfire.

Proposed Action

The proposed action and connected actions would also have minor, localized impacts on air quality from equipment and vehicle use. The commercial thinning in Section 19 would extend the duration of the effect by a season and would involve more vehicle use because the logs would be hauled away on trucks. Vehicle use in all treatment areas would be short-term, localized, and involve a small number of vehicles. Vehicles and equipment would be gas-powered and would be kept running as little as possible. Ground disturbance would be minimal, as explained in **Section 4.2**, limiting the release of fugitive dust. Rehabilitation work on access roadways has the potential to generate dust that would have localized impacts. The short duration and limited extent of this activity would minimize potential impacts on air quality.

Pile burning would occur in the Section 16 and the Section 18 treatment areas. Pile burning would extend the duration of air quality effects to another season within those treatment areas. Once dry, piles would be burned in accordance with state regulations and requirements (WAC 332-24-205). Burn permits may be required for burning in the Section 16 treatment area but are not anticipated for the burning at Section 18 treatment area because the burning would likely meet the no-permit requirements described in **Section 3.2.1**. The work would follow any general instructions or advisories associated with fire danger instructions issued by WDNR. Burning for this project would not be conducted during the dry summer or early fall season. Thus, impacts from pile burning would be short-term and minor because of the limited extent of burning and implementation of measures described in **Section 3.2.1**.

By reducing the risk of wildfire spread, hazardous fuels reduction activities would have minor, long-term beneficial impacts on air quality and climate change.

4.5. Surface Waters and Water Quality

The Clean Water Act of 1977, as amended, establishes requirements for states and tribes to identify and prioritize water bodies that do not meet water quality standards.

Some smaller ephemeral or intermittent creeks or unnamed drainages may occur within the treatment areas (WDNR n.d.); however, there are no perennial waterbodies within the treatment areas. The closest water bodies include the Upper Wheeler Reservoir, located south of the Section 20 treatment area; Orr Creek, a fish-bearing stream that drains the Upper Wheeler Reservoir and extends through Section 20 and Section 16 downslope and to the east of the treatment areas; and Squilchuck Creek, a fish-bearing stream that crosses Section 18 north of the treatment area (WDNR n.d.). None of these streams are listed as impaired (EPA 2020b).

No Action Alternative

Under the no action alternative, some scattered hazardous fuels reduction work could still occur in the treatment areas. No perennial streams would be affected as none exist in the treatment areas. A 30-foot equipment limitation zone would be applied to any work around non-fish-bearing and seasonal streams in conformance with WAC 222-30-022, Eastern Washington Riparian Management Zones. Thus, in the absence of a wildfire, there would be no impacts on surface waters and water quality. However, the risk of wildfire spread would not be substantially reduced. If a wildfire occurs and spreads, the loss of vegetation would impact surface water quality through increased soil erosion and sedimentation and increased temperatures from the loss of shade along riparian zones. Additionally, intense, lasting heat from major wildfires can cause soils to form hydrophobic layers, as described in **Section 4.2**, which would decrease infiltration of stormwater and aquifer recharge while increasing runoff, erosion, sedimentation, and stream discharges. Increased stream discharges, which could include mudflows, in the short- and long-term could cause damage to downstream infrastructure such as bridges and culverts. The no action alternative could have a minor to major impact on surface waters and water quality, depending on the scale and intensity of the wildfire.

Proposed Action

The proposed action and connected actions would not directly affect water resources or quality in the short-term. The treatment areas do not contain any perennial surface waters. No in-water work would occur, no vegetation would be removed from riparian zones, and no herbicides would be used. No work would occur within a 30-foot vegetative buffer from the ordinary high water mark (OHWM) of any intermittent streams that may occur in the treatment areas, except that ladder fuels may be removed by ground crews up to 15 feet from an intermittent stream.

The proposed action and connected actions would reduce the risk of wildfire spread into the treatment area vicinity and would thus reduce the risk of impacts associated with wildfires on water resources in and near the project area. Therefore, there could be a minor long-term beneficial effect on surface waters and water quality in and near the project area.

4.6. Wetlands

Executive Order (EO) 11990, Protection of Wetlands, requires federal agencies to consider alternatives to work in wetlands and limits potential impacts on wetlands if there are no practicable alternatives. FEMA Regulation 44 CFR Part 9, Floodplain Management and Protection of Wetlands, sets forth the policy, procedures, and responsibilities to implement and enforce EO 11990 and prohibits FEMA from funding activities in a wetland unless no practicable alternatives are available.

The USFWS's National Wetlands Inventory Mapper indicates that a number of narrow stream channels intersect with each of the treatment areas (USFWS 2020a). Based on a review of aerial imagery and contour data, the treatment areas are generally characterized by moderate to steep slopes that are not conducive to conditions that support wetlands. A field reconnaissance conducted on July 16, 2020 confirmed the absence of wetlands within the treatment areas.

No Action Alternative

In the absence of a major wildfire, the no action alternative would not affect wetlands because there are no wetlands located in the project area. However, this alternative would not substantially reduce the risk of a major wildfire, which could destroy or deteriorate vegetation in wetlands beyond the treatment areas. Vegetation destruction in surrounding wetlands would damage habitat for wildlife and would reduce impacted wetlands' capacity to filter pollutants and maintain water quality in areas located downslope. However, because the landscape surrounding the treatment areas tends to lack topography conducive to wetland development and any wetlands present are likely to be small, the potential for wetland impacts would be minor.

Proposed Action

Because there are no wetlands present in the treatment areas, there would be no effect on wetlands from the proposed action. However, the proposed action would reduce the risk that a major wildfire would spread and damage wetland vegetation in surrounding areas; therefore, there would be minor, long-term beneficial effects on wetlands in the general vicinity of the treatment areas.

4.7. Floodplains

EO 11988, Floodplain Management, requires federal agencies to avoid, to the extent possible, short- and long-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practical alternative. FEMA Regulation 44 CFR Part 9.7 uses the 1-percent floodplain as the minimal area for floodplain impact evaluation. Based on Flood Insurance Rate Map panel 5300150650A, effective February 4,1981, none of the treatment areas are located within or near the 1-percent floodplain.

No Action Alternative

In the absence of a major wildfire, the no action alternative (including any limited hazardous fuels treatment work performed without FEMA funding) would not affect floodplains because the treatment areas are not located within floodplains. Although some hazardous fuels treatments may still occur, this alternative does not substantially reduce the risk of wildfire spread, which could damage or eliminate existing vegetation beyond the proposed treatment areas. If a wildfire were to occur, vegetation would be destroyed, which would lead to increased stormwater runoff following precipitation events. Loss of vegetation would adversely affect natural floodplain functions outside of the project area by contributing to increased stormwater runoff and sedimentation within the basins. If severe enough, additional sedimentation, such as from flash flood mudflows, could lead to an increase in the base flood elevation of downstream floodplains and thus greater flood hazard risks to structures in those floodplains in the long-term. Therefore, the no action alternative would have a minor to moderate impact on floodplains in surrounding areas, depending on the intensity and scale of a wildfire.

Proposed Action

There are no floodplains within the proposed treatment areas; therefore, the proposed action would have no impact on floodplains. The proposed action would reduce the risk of wildfire spread and subsequent damage to vegetation that could lead to increased stormwater runoff and sedimentation in the basins. Therefore, there would be minor, long-term beneficial effects on floodplains in surrounding areas.

4.8. Vegetation

The treatment areas are in the East Cascades ecoregion. Predominant vegetation occurring within the treatment areas consists of Douglas fir, grand fir, western larch, and ponderosa pine, with an understory community that includes oceanspray, willows, and maple.

Current conditions in the Section 16 treatment area are characterized by uniform stands of dense 10- to 14-inch-diameter trees with very few small trees or understory shrubs. The Section 20 treatment area contains more small trees and brush by comparison, while the Section 19 treatment area exhibits a relatively dense crown canopy (**Figure 4-1**). The Section 18 treatment area is heavily forested and also exhibits a dense canopy (**Figure 4-2**). Federally listed plant species that may occur near the proposed treatment areas are discussed in **Section 4.10**.

Invasive Species

EO 13112 requires federal agencies to prevent the introduction of invasive species and provide for their control to minimize the economic, ecological, and human health impacts that invasive species cause. Invasive species currently constitute approximately 18 percent of plant species in the Squilchuck State Park, located near the treatment areas (Washington Native Plant Society 2004). The bark beetle (*Scolytinae*) is present in the basins and is a concern throughout the forested areas.

No Action Alternative

Under the no action alternative, some hazardous fuels reduction work may still occur over time resulting in negligible to minor impacts on vegetation. However, the risk of wildfire spread would likely remain high. While fire is a natural component of the ecosystems in and near the project areas, years of fire suppression and historic timber management practices have increased fuel densities, which could exacerbate the extent and intensity of future wildfires in the area. Depending on the intensity and scale of wildfire, there could be partial or complete loss of vegetation in and around the project area. In addition, a major wildfire could result in changes to the soil characteristics (described in **Section 4.2**) that would prevent regrowth of forest vegetation for many years following the fire. In the event of a major wildfire, non-native and/or invasive species could become established over large areas. Invasive species are often fire-tolerant grass species that spread and contribute to greater fire risk than areas dominated by native vegetation (U.S. Department of the Interior 2020). Depending on the intensity and scale of a wildfire, there could be minor to major adverse impacts on vegetation under the no action alternative.

Proposed Action

The hazardous fuels treatment work would include selective thinning trees up to 14 inches DBH, pruning selected trees, and removing brush and slash. The proposed action would generally retain fire-resilient trees, such as large, healthy ponderosa pine and western larch. In the Section 16 and 18 treatment areas slash would be organized into piles positioned to avoid scorching any retained trees and then burned. Where slash is not burned, smaller cut material would likely be chipped or cut and spread thinly over the treatment area to promote desiccation, thereby discouraging potential colonization by bark beetles, which feed on the moist layer of phloem within trees (DeGomez et al. 2008). In the Section 18 treatment area, two slash piles per acre would be retained to provide supplemental wildlife habitat. Measures to retain canopy coverage for NSOs, as described in **Section 3.2.2**, would also be implemented.

The proposed action would remove and therefore impact individual trees and shrubs. However, the proposed action would have a minor beneficial effect on existing vegetation communities as the project would reduce overcrowded dense thickets of conifers and shrubs, creating more open stand conditions conducive to the development of larger individual trees that are more fire-resilient. In the long-term, the proposed action would have minor beneficial effects because the risk of wildfire spread, and associated vegetation damage and invasive species spread, would be reduced.

4.9. Fish and Wildlife

The project area is in the East Cascades ecoregion. Mammal species typically associated with forested habitats in the region include mule deer (*Odocoileus hemionus hemionus*), Rocky Mountain elk (*Cervus canadensis*), black bear (*Ursus americanus*), and cougar (*Puma concolor*) (LandScope America 2020).

The Migratory Bird Treaty Act (MBTA) of 1918, as amended, provides protection for migratory birds and their nests, eggs, and body parts from harm, sale, or other injurious actions except under the terms of a valid permit issued pursuant to federal regulations. All native birds are protected by the MBTA and existing habitat within the treatment areas has the potential to support a variety of native bird species. Species associated with woodland habitats that could occur in the treatment areas include Lewis's woodpecker (*Melanerpes lewis*), Olive-sided flycatcher (*Contopus cooperi*), White-headed woodpecker (*Picoides albolarvatus)*, and Williamson's Sapsucker (*Sphyrapicus thyroideus*) (USFWS 2020b). The nesting season for migratory birds is generally March through August, depending on the species and location.

The Bald and Golden Eagle Protection Act of 1940 prohibits the take, possession, sale, or other harmful action, of any bald or golden eagle, alive or dead, including any part, nest, or egg. Although bald eagles (*Haliaeetus leucocephalus*), and golden eagles (*Aquila chrysaetos*) are known to occur regionally, both species are unlikely to occur within treatment areas because of the lack of breeding and foraging habitat. Federally listed bird species that may occur within or near the proposed project area are discussed in **Section 4.10**.

Aquatic habitats in the general vicinity of the project area are known to support a number of fish species such as rainbow trout (*Oncorhynchus mykiss*) and federally listed salmonids such as bull trout (*Salvelinus confluentus*). Additionally, wetland and riparian areas associated with regional aquatic habitats are occupied by various amphibian species, including Columbia spotted frog (*Rana luteiventris*) and western toad (*Anaxyrus boreas*). However, based on available information, no surface water features, wetlands, or riparian vegetation communities occur within the treatment areas; therefore, no fish or amphibian species have the potential to occur.

No Action Alternative

In the absence of a major wildfire, the no action alternative would have no effect on common wildlife species occurring within or near the project area. Some hazardous fuels reduction work would still be expected to be conducted within the treatment areas, and some vegetation and habitat would be removed. However, any treatment work under the no action alternative is expected to be limited in area and would result in negligible potential impacts on wildlife. Similarly, impacts on migratory birds would be negligible if work is avoided during the nesting season. There would be no effect on fish because there are no streams that support fish in the project areas and the work is distant enough from streams that there would be no effect on fish. A major wildfire would be more likely to spread under the no action alternative that could result in the destruction of terrestrial and aquatic habitats. Additionally, under the no action alternative, there is a higher potential for widespread postfire conditions that could lead to increased erosion, sedimentation, and flooding that would further degrade fish and wildlife habitats in the basins.

Therefore, the no action alternative could result in minor to moderate adverse effects on wildlife and their habitats.

Proposed Action

The proposed action has the potential to impact common wildlife species and associated habitats occurring within the treatment areas because of the removal of understory vegetation and individual trees. Implementation of the project would generate noise and activity that could affect wildlife using the project area; however, these effects would be temporary and localized. Within the Section 18 treatment area, two slash piles per acre would be retained to provide supplemental wildlife habitat. Elk are an essential component of the ecosystems within the basins. The elk within the treatment areas are a subpopulation of the Colockum elk herd and are known to migrate annually from their wintering grounds near the Columbia River to higher elevation summer habitat in the same basins. During migration, cows birth their calves and rear them in suitable habitat scattered throughout the treatment areas. To avoid impacts during calving, the elk measure in **Section 3.2.2** would be implemented. The fish and wildlife habitat measures described in **Section 3.2.2** would be implemented where possible and applicable. Thus, the project would have short-term and minor impacts on common wildlife species.

The proposed action would have no effect on aquatic habitats or associated fish and amphibian species because no aquatic resources occur within the treatment areas.

The proposed action could affect migratory birds if work were to occur during the nesting season. The disturbances in the project area could cause inadvertent nest destruction, abandonment of nesting activities, and displacement of birds from preferred foraging areas. Ground-nesting and shrub-nesting birds would be impacted to a greater extent than birds that nest in the upper canopy of trees. Thus, the vegetation management activities would have minor localized and temporary impacts on migratory birds if the work were to be conducted during the breeding season. Under these circumstances, the project would be subject to the prohibitions of the MBTA and the County would be responsible for obtaining and complying with any necessary permits from USFWS and for documenting this on the associated project parcel assessment/treatment plan. To avoid impacts on migratory birds and Endangered Species Act (ESA) listed species (see **Section 4.10**), vegetation clearing would not occur during the breeding season for NSOs from March 1 through July 31 in the Section 19 and 20 treatment areas. Therefore, the proposed action is expected to have a negligible effect on migratory birds.

The proposed action would likely have a negligible effect on bald and golden eagles and their habitat because treatments would take place in areas where eagles are unlikely to occur.

In the long-term, there would be minor beneficial effects on fish, wildlife, migratory birds, and eagles because the risk of wildfire spread and associated widespread vegetation loss (including ecologically sensitive vegetation) would be reduced.

4.10. Threatened and Endangered Species and Critical Habitat

The ESA of 1973 gives USFWS and the National Marine Fisheries Service authority for the protection of threatened and endangered species. This protection includes a prohibition of direct take (e.g., killing, harassing) and indirect take (e.g., destruction of habitat).

The action area for potential effects on listed species is defined as "all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action" (50 CFR § 402.02). Of the disturbances that would occur in association with the proposed action, noise generated by hand tools (e.g., chainsaws) and mechanical equipment (e.g., masticators, feller bunchers, and harvesters) is expected to have the farthest reaching effects. To account for potential noise impacts, the action area would include a buffer zone of 0.25 mile around the project area. This distance is derived from existing impact analysis documents that indicate that no impacts on NSO are expected when habitat occurs more than 0.25 mile away from heavy equipment operation (including chainsaws) (USFWS 2014).

The USFWS Information for Planning and Consultation was used to identify proposed, threatened, and endangered species that may occur in the action area (USFWS 2020b). In addition, information available from the National Marine Fisheries Service was consulted to identify the federally listed fish species that may occur in the action area. All federally listed species that may be near the action area are listed in **Table 4.4** and are briefly discussed below. A biological assessment of effects on listed species was completed and is available upon request.

Table 4.4. Federally Listed Species near the Project Area

Common Name	Scientific Name	Status
Fish		
Bull trout	*Salvelinus confluentus*	Threatened
Birds		
Marbled murrelet	*Brachyramphus marmoratus*	Threatened
Northern spotted owl	*Strix occidentalis caurina*	Threatened
Yellow-billed cuckoo	*Coccyzus americanus*	Threatened
Mammals		
Canada lynx	*Lynx canadensis*	Threatened
Gray wolf	*Canis lupus*	Endangered
North American wolverine	*Gulo gulo luscus*	Proposed Threatened

Source USFWS 2020b

Bull trout: Bull trout have stringent requirements for cold water and clean gravel to reproduce and rear young. Bull trout spawning generally occurs in mountain streams fed by snowmelt or springs fed by snow fields (Goetz et al. 2004). Bull trout are known to occur in the Columbia River, which is designated as critical habitat for the species. However, the Columbia River is more than 5 miles from the action area. Therefore, the species is not expected to occur in the action area and is not considered further in this EA.

Marbled murrelet: The marbled murrelet spends much of its life in marine waters, but nests inland in large conifer trees. In Washington, the species may travel 40 to 70 miles from coastal waters to nest in mature, older growth forests (175- to 600-year-old trees) with mossy branches or other vegetative features that create platform-like areas where nests are constructed (WDNR 2017c, USFWS 2017a). The nearest designated critical habitat for the species occurs on the western slopes of the Cascade Mountains. There is no suitable nesting or foraging habitat (e.g., freshwater lakes) for the species within the action area. Furthermore, the action area occurs outside of the current known range of the species. For these reasons, the species is not expected to occur within the action area and is not considered further in this EA.

Northern spotted owl: NSO generally inhabits forests containing dense, closed canopies of mature and old-growth trees, abundant logs, standing snags, and live trees with broken tops. NSO nesting and roosting habitat typically consists of contiguous forest (greater than 5 acres) with moderate to high canopy closure (60 to 90 percent), including several tree species of varying sizes and ages (multilayer canopy), with trees greater than 20-inch DBH for nesting, large overstory trees, and sufficient open spaces among the lower branches to allow for flight under the canopy (Buchanan 1993, Washington Department of Fish and Wildlife [WDFW] 2005, USFWS 2019b). NSO dispersal habitat is broadly characterized as stands of timber with a mean DBH of 11 inches or greater and with at least 40-percent canopy closure (Thomas et al. 1990).

Portions of the action area occur within a 1.8-mile radius of two documented NSO activity centers. Because the actual configuration of a home range is rarely known, a 1.8-mile circle centered on an owl activity center (i.e., activity circle) is used to identify the area approximating the home range for NSO occurring in the Cascades (USFWS 2007). Additionally, a 0.7-mile radius circle centered upon an NSO activity center (i.e., core area) is generally used to delineate the area most heavily used by NSO during the nesting season (USFWS 2007). The core area of one activity circle was previously removed as a result of clear-cutting conducted on private land; however, the activity circle still retains enough habitat to support the associated nesting pair. The second activity circle is based on a sighting of an individual NSO that was not confirmed as a resident and is therefore not considered for effects analysis.

The Section 16 and Section 18 treatment areas are completely outside of the activity circle. Approximately half of the Section 19 treatment area lies within the activity circle but is completely outside of the core zone. The Section 20 treatment area as well as the optional Section 20 treatment area are entirely within the activity circle and partially overlap with the core zone. Where the action area overlaps with the activity circle, the overlap was evaluated for NSO habitat suitability based on a review of aerial imagery and modeled NSO habitat data layers from the *2016 Status and Trends of Northern Spotted Owl Habitats* (Davis et al. 2016). A site visit was conducted in July 2020 to verify and adjust findings of the desktop analyses to accurately reflect existing habitat conditions. These efforts concluded that a total of 12.3 acres of nesting/resting/foraging (NRF) habitat and 0.7 acres of dispersal habitat occur within the portions of the action area overlapping with the NSO activity circle. There is no NSO designated critical habitat within or adjacent to the project area. The nearest NSO designated critical habitat is approximately 1.5 miles northwest of the action area.

Yellow-billed cuckoo: Yellow-billed cuckoos are a migratory species that historically travel to Washington in the spring to breed. However, no documented nesting of this species has been reported since about 1940, and it is assumed to be declining or extirpated from the state. Habitat preferred by the species for nesting and breeding consists of riparian vegetation typically composed of continuous stands of willows and cottonwood. The nearest designated critical habitat for the yellow-billed cuckoo is in southeast Idaho. Given the lack of suitable habitat, the species is not expected to occur within the action area and is not considered further in this EA.

Canada lynx: Habitat for Canada lynx in Washington State typically consists of boreal or conifer forests that receive a large quantity of snow sufficient to support their main food source, snowshoe hares (USFWS 2005, USFWS 2017b, Lewis 2016). Washington State issued a Lynx Recovery Plan in 2001, indicating that lynx in Washington are primarily found in high elevation forests across northern Washington, including northern Chelan County. The nearest designated critical habitat for Canadian lynx is north of Lake Chelan. Based on the treatment area elevations and work timing, the Canada lynx is not expected to occur in the action area and is not considered further in this EA.

Gray wolf: Gray wolves typically inhabit areas that support large ungulates (e.g., deer and elk), and show some tolerance for occasional human presence (Wiles et al. 2011). Gray wolves travel over large areas to seek out prey, and the action area is potentially within the range of the Naneum Pack (WDFW 2017). The nearest designated critical habitat for the species occurs in northeastern Minnesota. Although the action area contains suitable habitat, it is likely that the majority of Naneum Pack activity would be concentrated well outside the action area in the less-developed western or central areas of their known pack range. Furthermore, because of the species' ability to inhabit a wide range of Washington ecosystems, fuel reduction actions would not be expected to decrease habitat suitability for the species within treated areas. Therefore, because of the expected absence of gray wolves during project implementation and the lack of impact on potential wolf habitat, the species is not considered further in this EA.

North American wolverine: North American wolverine inhabit remote areas in the boreal forest, taiga, or tundra where snow is deep and remains well into the warm season. There is no designated critical habitat for the species. Wolverines tend to avoid areas of human activity and development and in Washington are known to prefer high-elevation areas associated with alpine vegetation and climate (alpine and subalpine forests) (WDFW 2015, USFWS 2017c). Therefore, the species is not expected to occur in the action area, and is not considered further in this EA.

Essential Fish Habitat: The Magnuson-Stevens Fisheries Conservation and Management Act (16 U.S.C. § 1801 et seq.) designates Essential Fish Habitat (EFH) for certain commercially managed marine and anadromous fish species and is intended to protect the habitat of commercially managed fish species, including anadromous fish species, from being lost because of disturbance and degradation. The project area occurs within the Upper Columbia-Entiat Watershed, which is identified as EFH. Pacific salmon species of interest related to EFH that occur in the general vicinity of the action area are Chinook and Coho salmon, which occur in the Columbia River. Because of fish passage barriers in the lower reaches of the Squilchuck and

Stemilt Creeks, close to their confluences with the Columbia River, salmonid species do not occur in the vicinity of the action area.

No Action Alternative

In the absence of a major wildfire, the no action alternative would have no effect on federally listed species or their habitats. Some hazardous fuels reduction treatments may still occur in the treatment areas. These treatments may not be as extensive as the proposed action, nor include conservation measures to avoid or minimize impacts on federally listed species that may be present. Thus, NSO may be adversely affected if less prescriptive fuels reduction activities were to occur within the Sections 19 and 20 activity circles. Additionally, under the no action alternative, if a major wildfire were to occur it would be more likely to spread, which could have minor to major impacts on federally listed species and their habitats both within the project area and in the surrounding watershed depending on the intensity and scale of the wildfire.

Proposed Action

The proposed action would not involve any in-water work; however, to generally avoid and minimize potential project impacts to existing aquatic habitats downstream, the project would implement a vegetative buffer of 30 feet around the Ordinary High-Water Mark (OHWM) of any intermittent streams that exist within the action area. There are no perennial streams within the action area. This buffer would limit the potential for fine sediment conveyed by surface runoff to enter existing stream channels. As a result, the proposed action would have negligible impacts on aquatic habitats occurring within or downstream of the action area. Additionally, the proposed action would have no effect on EFH.

There is the potential that noise impacts associated with the proposed action could affect NSO behavior if NSO are present in the action area during project implementation. The potential for noise-related disturbances to impact NSO nesting activity occurring within the action area would be of primary concern. While fuels reduction treatments are proposed for areas that provide NRF and dispersal habitats in the Section 19 and Section 20 treatment areas, thinning activities conducted in these areas would be implemented such that existing canopy coverage is retained. Therefore, the total amount of functional NRF and dispersal habitat in the action area would not change as a result of the proposed action. It is anticipated that, in addition to reducing the risk of NSO habitat loss resulting from wildfire, the reduction of vegetative fuels within NRF habitat would increase flight space below limbs and among tree trunks, thereby improving foraging conditions for NSO. The proposed action would have no effect on NSO-designated critical habitat as the nearest designated critical habitat for the species is approximately 1.5 miles northwest of the action area. With implementation of the NSO-related measures described in **Section 3.2.2**, the project may affect, but would be not likely to adversely affect, NSO. Informal consultation with USFWS was completed on September 24, 2020, which concurred with the "may affect, but not likely to adversely affect" determination for NSO (Appendix A).

4.11. Cultural Resources

This section provides an overview of potential environmental effects on cultural resources, including historic properties. Section 106 of the National Historic Preservation Act of 1966, as

amended, requires that activities using federal funds undergo a review process to consider potential effects on historic properties that are listed in or may be eligible for listing in the National Register of Historic Places (NRHP). Cultural resources include prehistoric or historic archeology sites, historic standing structures, historic districts, objects, artifacts, cultural properties of historic or traditional significance—referred to as Traditional Cultural Properties that may have religious or cultural significance to federally recognized Indian Tribes—or other physical evidence of human activity considered to be important to culture, subculture, or community for scientific, traditional, religious, or other reasons.

Pursuant to 36 CFR 800.4(a)(1), an Area of Potential Effects (APE) was defined to include the areas within which the undertaking may directly or indirectly affect cultural resources. Within the APE, impacts on cultural resources were evaluated for both historic structures (aboveground cultural resources) and archaeology (belowground cultural resources).

The Squilchuck Creek area is the traditional homeland of the Wenatchi Tribe and is in the ceded territory of the Yakama Nation, per its 1855 treaty with the United States. There are descendants of the Wenatchi enrolled with the Yakama Nation and the Confederated Tribes of the Colville Reservation (Miller 1998; Scheuerman 1982). The traditional economy of the Wenatchi is based on a seasonal cycle of root digging, fishing, hunting, trapping, and berry picking. Icicle Creek and the Wenatchee River were, and continue to be, an important fishery for the Wenatchi people and other regional tribes (Miller 1998). There are two culturally significant places associated with recorded traditional stories important to the Wenatchi people—the "Owl Sisters" near the mouth of the Squilchuck Creek and "Saddle Rock," which is located closer to Wenatchee and approximately 7 miles from the treatment areas (Scheuerman 1982).

The first non-Natives to settle in Chelan County were gold prospectors, including a large population of Chinese miners. The Chinese community contributed greatly to the early economy of the Wenatchee area and were responsible for mining, the development of area businesses, and establishment of early irrigation technology in the valley (Brown 2007). The anti-Chinese movement accelerated during the 1870s and resulted in the intentional destruction of Chinese communities by European Americans (Schwantes 1997).

Land Acts, such as the Homestead Act of 1862, spurred the settlement of European American families in Chelan County and resulted in increased displacement of Native Peoples. The Wenatchee Trading Post, post office, and Wenatchee Improvement Company were established in the late 1800s and the Northern Pacific decided on a new rail route in the area in 1892. The Northern Pacific established a new town site to accommodate the rail line and paid residents for their moving expenses (Arksey 2008; Gellatly 1962; Kirk and Alexander 1990; Meinig 1995). In the early 1900s, the Highline Canal was constructed along the Wenatchee River and provided the Wenatchee Valley with widespread and reliable irrigation. By the 1900s, the majority of land in the project vicinity was owned by the Peshastin Lumber and Box Company and by the mid-1900s, the *Metsker's Atlas of Chelan County* depicts the development of Scout-A-Vista Lodge and the Ski Bowl at Squilchuck State Park. Map and record review suggest that the current project locations remained undeveloped throughout the historic period.

Willamette CRA completed a cultural resources survey for the proposed SAV and Stemilt Basin fuel reduction projects (the report may be available upon request). The survey addressed approximately two-thirds of the project locations, with steep slopes and dense understory precluding survey of some areas. The survey identified two surface scatters of historic-period debris dating to the early to mid-twentieth century. There is no historical record that associates either scatter to a specific household or historic-period occupation. The sites likely reflect casual or incidental discard of debris associated with transient activities such as hunting or a common practice in the past of disposing of refuse on unoccupied public lands. Therefore, both refuse scatters were recommended as not eligible for listing on the NRHP as they do not meet any of the four NRHP criteria.

On May 21, 2020, consultation was initiated with Confederated Tribes of the Colville Reservation and the Confederated Tribes and Bands of the Yakama Nation about the proposed action to solicit their comments and request any additional information about cultural resources that may be impacted. No comments were received from the tribes. On September 17, 2020, FEMA sent the cultural resources report to the tribes for their review. The Confederated Tribes of the Colville Reservation responded on September 20, 2020 with edits to the report, which was revised. Consultation with Washington Department of Archeology and Historic Preservation (DAHP) was completed on October 1, 2020, with their concurrence with a No Historic Properties Affected determination. Appendix A contains all agency and tribal correspondence.

No Action

Under the no action alternative, there is the potential for some scattered hazardous fuels reduction activities to occur, and there would be no effect on cultural resources because no archaeological or historic structures exist or are expected to exist within the APE. However, the risk of wildfire spread would remain high and a wildfire could have minor to moderate adverse impacts on known and unknown archeological resources and/or historic structures outside of the project area, depending on the scale and intensity of the fire.

Proposed Action

The proposed fuels reduction activities would result in limited ground disturbance from the movement of mechanical equipment in some areas. In addition, no areas were identified during the survey with evidence of alluvial, colluvial, or aeolian deposition that might indicate the possible presence of archaeological resources at shallow depths. The proposed action would have no effect on cultural resources as there are no historic sites or archeological resources present in the treatment areas nor are there expected to be. In the event that any archeological resources are discovered during project implementation, work would immediately cease, the area would be secured, and the Chelan County NRD would notify DAHP and FEMA for further evaluation.

4.12. Environmental Justice

Environmental justice is defined by EO 12898 (59 Federal Register 7629) and CEQ guidance (1997). Under EO 12898, demographic information is used to determine whether minority populations or low-income populations are present in the areas potentially affected by the range of project alternatives. If so, a determination must be made whether implementation of the

program alternatives may cause disproportionately high and adverse human health or environmental impacts on those populations.

This environmental justice analysis is focused at the local (i.e., block group) level. The local area included in this analysis is where project-related impacts would occur, potentially causing an adverse and disproportionately high effect on neighboring minority and low-income populations. Minority or low-income census tracts are defined as meeting either or both of the following criteria:

- The census tract contains 50 percent or more minority persons or 25 percent or more low-income persons.
- The percentage of minority or low-income persons in any census tract is more than 10 percent greater than the average of the surrounding county.

The treatment areas are within a single, large, rural census block group in Chelan County, Washington that contains a variety of neighborhood types. The Forest Ridge neighborhood is not represented by the statistics of the block group as a whole. **Table 4.5** provides the percent minority population and percentage of the population below poverty level for the block group, City of Wenatchee, and Chelan County for comparison. There are no residents within the treatment areas and only the residents of the Forest Ridge neighborhood would be within the zone of influence for most of the potential effects of the proposed action.

Table 4.5. Demographics of Treatment Areas

Area	Percent Minority Population (%)	Percentage of Population below Poverty Level (%)
Block Group 530079612001	37	21
City of Wenatchee	36	35
Chelan County	32	34

Source: EPA 2019

Minority Populations

CEQ (1997) defines the term "minority" as persons from any of the following groups: Black, Asian, Pacific Islander, American Indian or Alaskan Native, and Hispanic. According to EPA's Environmental Justice Screening tool (EPA 2019), the minority population in the block group that encompasses the treatment areas is 37 percent. The minority population for the City of Wenatchee is 36 percent and Chelan County is 32 percent. The treatment areas would not be considered to contain an environmental justice minority population because they do not meet the criteria listed above.

Low-Income Populations

Residents of areas with a high percentage of people living below the federal poverty level may be considered low-income populations. In the block group encompassing the treatment areas, the low-income population is 21 percent; the City of Wenatchee is 35 percent, and the County is 34 percent (EPA 2019). Therefore, the block group would not be considered to contain a low-

income environmental justice population because it does not meet the criteria listed above. In addition, homes within the Forest Ridge neighborhood are valued at approximately two to three times more than the average home value in Wenatchee. It is unlikely that the Forest Ridge neighborhood would be considered a low-income population.

No Action Alternative

Under the no action alternative, there is the potential for some scattered hazardous fuels reduction activities to occur. There would be no effect on environmental justice populations because no environmental justice populations are present and the activities would be limited in scope and unlikely to be observed beyond the Forest Ridge neighborhood. Under the no action alternative, the risk of wildfire spread would remain high, despite some anticipated fuels reduction work. In the event of a wildfire, adverse health impacts from smoke, such as those mentioned in **Section 2,** and/or loss of property could extend far beyond the treatment areas. This would have the potential to adversely affect low-income populations farther away from the treatment areas. A low-income population could be disproportionately affected by a wildfire because of their limited resources to recover from losses. Therefore, depending on the intensity and scale of a wildfire, minor to moderate impacts may occur and affect low-income populations farther away from the treatment areas.

Proposed Action

The proposed action and connected actions would take place in treatment areas that do not contain environmental justice populations or any residents. Short-term impacts, such as noise and increased traffic, would impact those proximate to the work locations, which do not include environmental justice populations. However, the benefits of reduced risk of wildfire spread would be applicable to a broader geographic area that may include low-income populations. Therefore, no disproportionately high and adverse impacts on environmental justice populations, including low-income populations, would result from the proposed action.

4.13. Hazardous Materials

Hazardous materials are those substances defined by the Comprehensive Environmental Response, Compensation, and Liability Act, as amended by the Superfund Amendments and Reauthorization Act, and the Toxic Substances Control Act. The Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA), which was further amended by the Hazardous and Solid Waste Amendments, defines hazardous wastes. In general, both hazardous materials and waste include substances that, because of their quantity, concentration, physical, chemical, or infectious characteristics, may present substantial danger to public health or to the environment when released or otherwise improperly managed.

Hazardous materials may be encountered in the course of a project or they may be generated by the project activities. To determine whether any hazardous waste facilities exist in the vicinity or upgradient of the proposed treatment areas or whether there is a known and documented environmental issue or concern that could affect the proposed treatment areas, a search for Superfund sites, toxic release inventory sites, industrial water dischargers, hazardous facilities or

sites, and multiactivity sites was conducted using EPA's NEPA Assist website (EPA 2020d). No hazardous sites are present within one mile of the proposed treatment areas.

No Action Alternative

Under the no action alternative, existing conditions would remain largely the same; some hazardous fuels reduction might still occur and there would be a limited potential for release of hazardous materials from equipment, and thus very localized and negligible site contamination from leaks or spills. Under this alternative, the risk for wildfire spread would not be effectively reduced. In the event of a wildfire, there could be damage to hazardous material sites farther from the project areas and fire-retardant materials from suppression activities might be applied to the forest in and near the project area. Fire retardants are generally considered to be nontoxic, but there may be risks to small mammals and other wildlife from concentrated exposures (Modovsky 2007). However, exposures would likely be short-term as the application "footprint" of these chemicals is quite limited in terms of foraging areas and species habitat for any individual animal and the ingredients generally degrade in the environment (Modovsky 2007). A major wildfire could also burn residences in the project vicinity that may contain small amounts of hazardous materials, thus resulting in releases to the environment, onsite and potentially down-gradient and into nearby surface waters. Therefore, the no action alternative would have a negligible to moderate impact related to hazardous materials depending on the intensity and scale of a wildfire.

Proposed Action

Under the proposed and connected actions, no hazardous waste sites would be affected from project implementation. In the event that site contamination or evidence of contamination is discovered during implementation of the proposed action, the Chelan County DNR would manage the contamination in accordance with the requirements of the governing local, state, and federal regulations and guidelines.

The proposed and connected actions would involve the use of mechanical equipment such as feller bunchers, harvesters, and skidders in the Section 16 treatment area and also masticators in the Section 20 and Section 19 treatment areas. There is always a minor threat for leakage of oils, fuels, and lubricants from the use of such equipment. The short-term use of equipment in good condition would reduce any potential effect to a negligible level. All equipment, actions, and operations would adhere to local regulations to reduce the risk of hazardous leaks and spills. Any spills during implementation would be contained and immediately cleaned up. Thus, there would be a negligible, short-term contamination threat from vehicle and equipment use.

4.14. Noise

Sounds that disrupt normal activities or otherwise diminish the quality of the environment are considered noise. Noise events that occur during the night (10 p.m. to 7 a.m.) are more annoying than those that occur during normal waking hours (7 a.m. to 10 p.m.). Assessment of noise impacts includes the proximity of the proposed action to sensitive receptors. A sensitive receptor is defined as an area of frequent human use that would benefit from a lowered noise level. Typical sensitive receptors include residences, schools, churches, hospitals, nursing homes, and

libraries. Chelan County restricts unreasonable noise that disturbs the public (Chelan County Code 7.35.030), but there are exemptions for construction noise between 7 a.m. and 10 p.m.

Typical noise events in the project area are presently associated with climatic conditions (e.g., wind, rain), motorized vehicles, and with occasional timber harvest activities. The Section 16 and Section 20 treatment areas are along a rural roadway with no nearby noise receptors. Portions of the Section 19 and Section 18 treatment areas are in close proximity to the Forest Ridge neighborhood. The closest homes are within 100 feet of the treatment areas and Forest Ridge road, the primary road serving this neighborhood, which would be used to access these treatment areas.

No Action Alternative

Under the no action alternative, some hazardous fuels reduction work may occur over time; thus, there would be very little change in existing noise levels that could affect sensitive receptors in the project area.

Proposed Action

Under the proposed and connected actions, noise would be generated by the operation of equipment, such as masticators, chainsaws, and trucks. Chainsaws can produce noise levels up to 85 dB when perceived from approximately 50 feet away (Federal Highway Administration 2017). The proposed work in the Section 16 and Section 20 treatment areas would not generate noise impacts as there are no nearby noise receptors. Portions of the Section 18 and Section 19 treatment areas are in close proximity to homes in the Forest Ridge neighborhood and would experience increased noise levels from the use of equipment and vehicles to transport crews. Haul trucks used during the commercial thinning of Section 19 would be operated through Squilchuck State Park, which would avoid impacts on residences. Additionally, road improvements would be conducted in Squilchuck State Park to allow for access to the Section 19 treatment area and along Upper Wheeler Road for access to the Section 20 treatment area (connected actions). Increases in noise levels would be temporary, would occur during normal waking hours, and vehicle and equipment run times would be kept to a minimum. In addition, all project activities would meet applicable regulations, including Chelan County Code Chapter 7.35. Therefore, impacts from noise on receptors near the project area would be negligible to minor, depending on the location. No long-term noise impacts would occur.

4.15. Traffic and Transportation

The treatment areas are located in a remote area with relatively little transportation infrastructure. The Section 16 and Section 20 treatment areas are only accessible by Upper Wheeler Road, which has few daily users. Upper Wheeler Road is a rural dirt roadway that forms a north-south loop and connects to the Upper Reservoir loop road. The Section 19 treatment area would be accessed through the Squilchuck State Park, which contains one road (Squilchuck Road). The Section 18 treatment area would likely be accessed via the Forest Ridge Road in the Forest Ridge neighborhood.

No Action Alternative

Under the no action alternative, limited hazardous fuels reduction efforts would be unlikely to affect transportation in the project area. However, the potential for a major wildfire to spread would continue to be high. Roads in the general vicinity are narrow and often only provide one way in or out of the canyons. Wildfire may encroach upon roadways and smoke may inhibit the ability to see roadways clearly and inhibit travel throughout the project area, thus endangering residents and firefighters.

Proposed Action

Generally, treatment activities would require a small number of vehicles for a short duration; therefore, there would be negligible impacts on traffic and transportation. The County is proposing minor roadway improvements along Squilchuck Road to improve access to the Section 19 treatment area and potentially along Upper Wheeler Road to improve access to the Section 20 treatment area; this action would not be funded by FEMA, but would enable the FEMA-funded action in these treatment areas. If road improvements are completed in conjunction with forest management activities, gates and/or signage would be installed to mitigate potential traffic impacts. Seasonal road closures would be considered through late spring to reduce damage to the roads from off-road vehicles when snowmelt and runoff are high. Thus, there would be minor short-term impacts from this connected action. In the long-term, the proposed action as well as the commercial thinning in Section 19 (connected action), would have minor beneficial impacts on transportation by reducing the risk of wildfire spread and increasing access through roadway improvements at Squilchuck State Park and on Upper Wheeler Road. Increased access would improve the ability for firefighters to respond if a wildfire occurs.

4.16. Utilities

Public services and utilities in the general vicinity of the project area are provided by the Chelan County Public Utilities District (PUD). The Chelan County PUD offers rural Wenatchee electric, water, and wastewater services; however, the diverse terrain, low population density, and strict regulations on rural water systems mean that many residents have individual wells and on-site septic systems.

The Section 16 and Section 20 treatment areas along Upper Wheeler Road do not have any overhead powerlines present nor are there structures present that would indicate a need for other public services or utilities. There are overhead power lines present at the northern border of the Forest Ridge subdivision and they pass to the northwest of the Section 18 treatment area. Structures in the Forest Ridge subdivision do not appear to be served by overhead powerlines. Water services in the Forest Ridge neighborhood are provided by the Chelan County PUD; however, wells may also be present. Wastewater is treated using underground septic systems. There is a water tank within the Section 19 treatment area that provides water to the Forest Ridge neighborhood; however, it is within a fenced and cleared area. The SAV structures in Section 18 are not served by the Chelan County PUD. It is likely served by an individual well and septic system.

No Action Alternative

Under the no action alternative, the proposed action would not occur. Although some scattered hazardous fuels reduction may occur over time, the risk of wildfire spread would remain high. Electrical services provided via overhead power lines would continue to be at risk of damage from wildfires. Water wells could also be physically damaged by wildfires or experience microbial contamination due to loss of pressure during a fire (Montana Department of Environmental Quality 2012). Ash, sediment, and debris from wildfires may contaminate uncovered wells or storage tanks. Intense heat from wildfires could adversely impact water system components on the surface and underground. If intense heat modifies the chemical properties of water system components, chemicals might leach into the water, causing contamination (FEMA 2019). Most of the functional components of a septic system are several feet belowground and therefore typically resistant to fire damage. However, it is possible that firefighting activities, such as digging fire breaks, may damage septic systems (Montana Department of Environmental Quality 2012). Thus, impacts on public and private utilities could be minor to major, depending on the intensity and scale of a wildfire.

Proposed Action

The proposed action would not directly affect utilities. The water tank within the Section 19 treatment area is within a cleared, fenced area and would not be affected by the vegetation removal from either the proposed action or the connected action. In the long-term, the proposed action would reduce the risk of damage to public and private utilities from wildfire spread. Therefore, the proposed action could have minor, long-term beneficial effects on utilities.

4.17. Public Health and Safety

As described in **Section 2,** the project area vicinity has been threatened by large-scale wildfires resulting in evacuation orders and property damage in recent years. The Stemilt and Squilchuck basins were part of a risk-mapping evaluation in which the Forest Ridge development emerged as a high priority for wildfire treatment. Climate change is also contributing to the increased risk of wildfire spread in the United States as temperatures and drought events increase, warming and drying out vegetation (Chelan County 2011).

Chelan Fire and Rescue (Chelan County Fire Protection District 1) serves the project areas and surrounding communities. Although this fire district does utilize full-time career firefighters, a significant portion of the membership is volunteers. Emergency medical services are provided by LifeLine Ambulance and Ballard Ambulance, both independently run from other City of Wenatchee services.

No Action Alternative

Under the no action alternative, some scattered hazardous fuels reduction work could occur over time; however, the risk of wildfire spread would remain high. In the event of a wildfire, there is an increased risk to public health and safety, as well as to services provided to protect public safety, such as firefighters. Wildfires can generate substantial amounts of particulate matter, which can affect the health of people breathing smoke-laden air. This is a particular concern for

vulnerable populations, such as the young and elderly, as discussed in **Section 4.4**. Wildfires can also generate substantial amounts of carbon monoxide, which can pose a health concern for frontline firefighters. During a major wildfire, emergency personnel would not be available to respond to other emergencies in their service area, potentially resulting in indirect impacts on health and property. Heavy rain conditions following wildfires can contribute to sediment and debris in nearby waterways, which can affect downstream water quality and damage structures, roads, and utilities critical to the safety and well-being of citizens. Therefore, there could be minor to major impacts from the no action alternative should a wildfire occur depending on its intensity and scale.

Proposed Action

Under the proposed action, the hazardous fuels reduction activities, as well as the commercial thinning in Section 19 (connected action), would help to reduce the spread of wildfires and provide a break against crown fires, which would create a safer environment for firefighters. Squilchuck road improvements (connected action) would improve access for firefighters and allow them to more easily control the spread of a wildfire in and near Section 19. Similarly, improvements to Upper Wheeler Road (connected action) would also improve access for emergency personnel in Sections 16 and 20. Hazardous fuel reduction would not prevent wildfires but could contribute to containment, reducing the intensity and frequency of wildfires, which would ultimately reduce the health and safety risk factors for people living near the project areas. In addition, when wildfires are controlled more quickly, a smaller area is burned, and less sediment and debris may be transported downstream during future precipitation events that could potentially affect water quality. The proposed action could reduce the probability that emergency services would be focused on firefighting and would allow emergency responders to remain available to respond to other emergencies throughout the Wenatchee area. Therefore, the proposed action would have a minor to moderate, long-term beneficial effect on public health and safety.

4.18. Summary of Effects and Mitigation

Table 4.6 provides a summary of the potential environmental effects from implementation of the proposed action and connected actions, any required agency coordination efforts or permits, and any applicable proposed mitigation or BMPs.

Table 4.6. Summary of Impacts

Affected Resource Area	Impacts	Agency Coordination or Permits	Mitigation/BMPs
Soils, Farmland Soils, and Topography	Minor short-term impact on soils and farmland soils from equipment use and possible moderate short-term impacts from equipment use for the commercial thin in	NA	• Heavy equipment would not be used in steeper areas to reduce potential erosion issues. • Equipment and skidded logs would not be driven or pulled frequently over the same area to reduce soil compaction.

Affected Resource Area	Impacts	Agency Coordination or Permits	Mitigation/BMPs
	Section 19; no effect from pile burning. Minor, long-term benefit on soils, including farmland soils, by reducing the risk of wildfire spread. No effect on topography.		• Burn piles would be kept small and would therefore burn quickly and not impact soils. • Some vegetation would be retained according to the fuels prescription for each treatment area (**Section 3.2**), helping to prevent significant erosion from vegetation removal.
Visual Quality and Aesthetics	Negligible impacts or benefits depending on how changes are perceived; minor long-term beneficial effects as a result of reduced damage from wildfire.	NA	NA
Air Quality and Climate	Minor short-term impacts from vehicle and equipment use and pile burning; minor long-term beneficial effects by reducing the risk of wildfire spread.	Compliance with WAC 332-24-205 and WAC 332-24-211 is required.	• Vehicles and equipment would be kept running as little as possible. • Piles would be burned once dry and only in accordance with state regulations and requirements (WAC 332-24-205 for rules on all fires and WAC 332-24-211 if burning does not require a permit). Burning would not be conducted during the dry summer or early fall season.
Surface Waters and Water Quality	No short-term effects; minor long-term beneficial effect on water quality and resources in and near the project area from reduced risk of wildfire spread.	NA	• 30-foot vegetative buffer would be maintained around the OHWM of any intermittent streams that may occur in the treatment areas. Within this buffer, ladder fuels may be removed up to 15 feet from intermittent streams. • No perennial streams exist within the treatment areas.
Wetlands	No short-term impact; minor, long-term beneficial effects on wetlands in surrounding areas from the reduced risk of wildfire spread.	NA	NA

Affected Resource Area	Impacts	Agency Coordination or Permits	Mitigation/BMPs
Floodplains	No short-term effect; minor, long-term beneficial effects on floodplains in surrounding areas from the reduced risk of wildfire spread.	N/A	N/A
Vegetation	Minor short-term impact on removed vegetation; minor long-term beneficial effects by reducing the risk of wildfire spread and vegetation loss.	N/A	• Slash burn piles would be small and kept away from retained vegetation to avoid scorching residual trees. • Thinning activities would reduce inter-tree competition, thereby improving conditions for residual trees.
Fish and Wildlife	Minor, short-term impacts on wildlife and migratory birds from vegetation-clearing activities; negligible short-term impact on eagles; minor long-term beneficial effects by reducing the risk of wildfire spread and vegetation loss; no effect on fish species.	N/A	• Within the Section 18 treatment area, two slash piles would be retained per acre to provide supplemental wildlife habitat. • To avoid impacts on migratory birds as well as ESA-listed species, vegetation clearing would not occur during the peak breeding season from March 1 through July 31 in Sections 19 and 20. • Additional measures to maintain wildlife habitat features and protect elk calves during fuels reduction work, as described in **Section 3.2.2** may be implemented to the extent feasible. • Additional fish and wildlife habitat measures described in **Section 3.2.2** would be implemented where possible and applicable.
Threatened and Endangered Species	Project would have no effect on the following species: bull trout, marbled murrelet, yellow-billed cuckoo, Canada lynx, gray wolf, and North American wolverine. Project may affect, but would not likely adversely affect, NSO. There would be no effect on designated critical habitat for the NSO.	Informal consultation with USFWS	• With implementation of the NSO-related measures described in **Section 3.2.2,** the project may affect, but would be not likely to adversely affect, NSO. • Additional measures to maintain wildlife habitat features during fuels reduction work as described in **Section 3.2.2** may be implemented to the extent feasible.

Affected Resource Area	Impacts	Agency Coordination or Permits	Mitigation/BMPs
Cultural Resources	No historic properties affected.	Consultation with tribes and DAHP.	In the event that any archeological resources are discovered during project implementation, work would immediately cease, the area would be secured, and the Chelan County NRD would notify the DAHP and FEMA for further evaluation.
Environmental Justice	No effect.	N/A	N/A
Hazardous Materials	Negligible, short-term contamination threat from equipment use.	N/A	• Any spills during construction would be contained and cleaned immediately. • Equipment would be kept in good condition. • All equipment, actions, and operations would adhere to local regulations to reduce the risk of hazardous leaks and spills.
Noise	Negligible to minor temporary impacts from increased noise levels within the project area and the immediate vicinity of the work. No long-term impacts.	N/A	• Vehicle and equipment runtimes would be kept to a minimum. • All machinery used would meet applicable regulations, including Chelan County Code Chapter 7.35. • Noise-producing equipment would occur during less sensitive, waking hours (7 a.m. to 10 p.m.).
Transportation	Minor short-term impacts. Minor long-term beneficial effects by reducing the risk of wildfire spread.	NA	• If road improvements are completed in conjunction with forest management activities, gates and/or signage would be installed to mitigate potential traffic impacts. • Seasonal road closures would be considered through late spring to reduce damage to the road from off-road vehicles using the road when snowmelt and runoff are high.
Utilities	No short-term impact; minor long-term benefit from reduced risk of wildfire spread.	N/A	N/A
Public Health and Safety	No short-term impact; minor to moderate long-term beneficial effects by reducing the risk of wildfire spread.	N/A	N/A

SECTION 5. Cumulative Impacts

This section addresses the potential cumulative impacts associated with the implementation of the proposed action. Cumulative impacts can be defined as the impacts of a proposed action when combined with impacts of past, present, or reasonably foreseeable future actions undertaken by any agency or person. CEQ's regulations for implementing NEPA require an assessment of cumulative effects during the decision-making process for federal projects. Cumulative impacts can result from individually minor but collectively significant actions.

A cross-boundary planning and implementation effort has already begun in the upper Stemilt and Squilchuck basins, with over 640 acres treated for fuels reduction on County and Washington Department of Fish and Wildlife (WDFW) lands in 2018 and 2019. Approximately 48 acres of precommercial fuels reduction work in Squilchuck State Park was also completed in 2019. Prescribed burning is planned in the following areas: approximately 250 acres of WDFW lands in Section 25 and the Colockum Plateau, approximately 244 acres of WDFW land in Sections 20 and 28 where timber harvests were completed in 2019, approximately 175 acres of land in Chelan County land in Sections 27 and 29 that were precommercially thinned in 2018, and 592 acres on USFS land near Beehive Reservoir. Through these ongoing efforts, approximately 1,700 acres of land in the basins is currently treated or is planned for treatment (**Figure 5-1**).

The Shared Stewardship Memorandum of Understanding establishes a framework for Washington State and USDA Forest Service to work collaboratively towards goals, coordinate investments, and implement projects on a landscape scale across the state. Under this strategy, agencies are focusing on forest and watershed restoration projects that support priorities, such as improving ecosystem health, benefiting fish and wildlife habitat, and reducing wildfire risks. This agreement also supports Washington State plans, such as the WDNR's 20-Year Forest Health Strategic Plan, which aims to restore forest health on 1.25 million acres of federal, state, private, and tribal forests (WDNR 2019a). The proposed action is in line with this agreement.

The Chelan County Hazard Mitigation Plan (2019), developed in partnership with local governments within the County, aims to reduce risk from disasters, such as wildfires, and recommends area-wide mitigation actions. The plan encourages local government planners, residents, and business owners within Chelan County to implement fire safety measures, such as maintaining defensible space and fuel-free areas around structures, using fire-resistant roofing materials and maintaining adequate water supplies and ingress and egress routes for emergency responders. Many Forest Ridge residents have started creating defensible space around their homes.

A ski resort expansion (Mission Ridge Expansion) is being planned south of the Section 19 treatment area. This expansion would include additional ski lifts and area for skiing, and an outdoor concert venue, several parking areas, and approximately 900 residential units (Kneedler 2020). This development would increase the risk of fire danger in the area as structures would be added to the WUI and additional residents and users offer additional sources of ignition. The development may also reduce the risk of wildfire spread if vegetative fuels are removed for construction of the development.

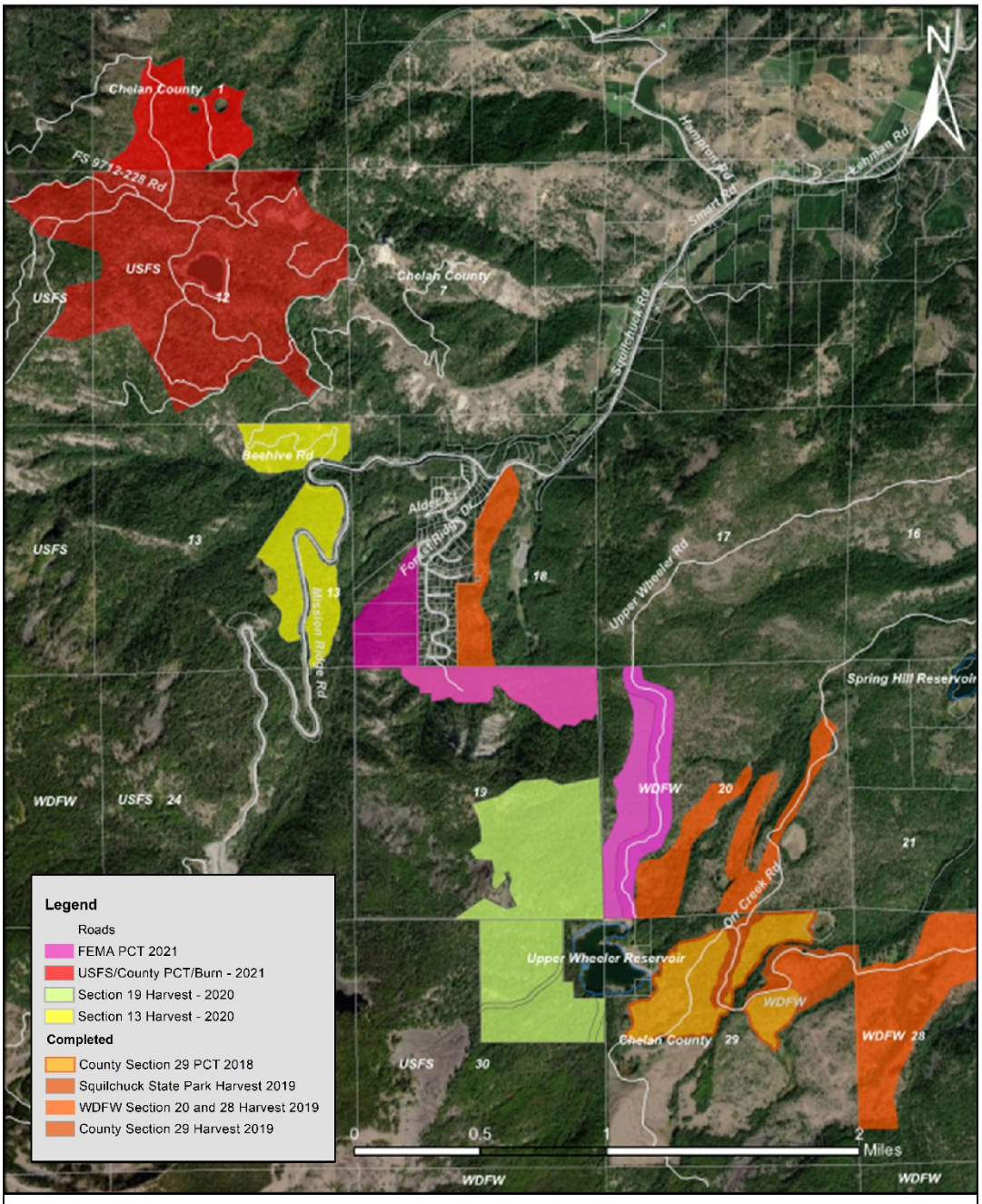

Figure 5-1. Forest Health Treatments in the Proposed Action Vicinity

New development in Chelan County must meet the Chelan County Code Title 15 Chapter 15.40 that defines requirements for development and maintenance of wildfire risk reduction measures in moderate, high, and extreme wildfire-risk areas. The Fire Marshal imposes standards when reviewing development permit applications for subdivisions, planned developments, binding site plans, or other similar development permits. Requirements include using Class A/ noncombustible roofing as defined in the Uniform Building Code and other measures required by the Fire Marshal.

There is a potential for these forest management and wildfire mitigation activities and the Mission Ridge Expansion to compound with potential effects of the proposed action with respect to soils, visual quality and aesthetics, air quality and climate, vegetation, fish and wildlife, hazardous materials, noise, and transportation. However, it is unlikely that there would be significant cumulative impacts because in most cases there would be temporal and spatial separation between activities. Past, present, and future wildfire mitigation activities occurring in the Stemilt and Squilchuck basins would result in long-term net beneficial effects and would complement the proposed action by reducing the risk of wildfire spread in the upper Stemilt and Squilchuck basins and increasing resilience of at-risk communities in the WUI. Therefore, there would be long-term beneficial cumulative effects from the combination of these initiatives and the proposed action.

SECTION 6. Agency Coordination, Public Involvement, and Permits

This section provides a summary of the agency coordination efforts and public involvement process for the proposed Chelan County, Stemilt Basin, and Scout-A-Vista Fuels Reduction Projects. In addition, an overview of the permits that would be required under the proposed actions are included.

6.1. Agency and Tribal Coordination

Consultation with the Confederated Tribes of the Colville Reservation and the Confederated Tribes and Bands of the Yakama Nation was initiated on May 21, 2020. On September 17, 2020, FEMA sent the cultural resources report to the tribes for their review. The Confederated Tribes of the Colville Reservation responded on September 20, 2020 with edits to the report. Consultation with DAHP was initiated on September 17, 2020 and completed on October 1, 2020. A copy of the cultural resources report may be available upon request.

On August 3, 2020, informal consultation with USFWS was initiated for NSO, which responded on September 24, 2020. The biological assessment of effects is available upon request. Appendix A provides a copy of all agency and tribal correspondence.

6.2. Public Participation

In accordance with NEPA, this draft EA will be released to the public and resource agencies for a 30-day public review and comment period. Comments on this draft EA will be incorporated into the final EA, as appropriate. This draft EA reflects the evaluation and assessment of the federal government, the decision maker for the federal action; however, FEMA will take into consideration any substantive comments received during the public review period to inform the final decision regarding grant approval and project implementation. If no substantive comments are received from the public and/or agency reviewers, this draft EA will be assumed to be final and a FONSI will be issued by FEMA.

A public scoping notice was published in the Wenatchee World newspaper and on the County's website on August 23, 2020 to notify and provide the public with an opportunity to comment on the proposed action, potential alternatives, and preliminary identification of environmental issues. The scoping notice was sent to the following state agencies for comment: Washington State Department of Agriculture, Washington Department of Ecology, WDFW, WDNR - Natural Heritage Program, WDNR - Wildfire Division, WDNR - Forestry Health and Resiliency, Washington Department of Transportation, DAHP, Washington State Conservation Commission, and WDEM. The scoping notice was sent to the following U.S. government agencies: Bureau of Land Management - Oregon/Washington, Department of the Interior, National Interagency Fire Center, Federal Highway Administration - Washington, Federal Housing and Urban Development Region 10, National Marine Fisheries Service and Pacific Fishery Management Council, National Park Service, U.S. Army Corps of Engineers, NRCS, EPA Region 10, USFWS, USFS Region 6, and U.S. Geological Survey. The scoping notice was sent to the following tribes for comment: Confederated Tribes and Bands of the Yakama Nation,

Confederated Tribes of the Colville Reservation, Nez Perce Tribe, Samish Indian Nation, and the Wanapum Band of Priest Rapids. The comment period on scoping closed on September 23, 2020 and three comments were received, including one public comment that proposed new terminology for the treatment areas, one comment from WDFW that concerned multiple issues related to wildlife, and one comment from WDNR that described how this project supports and is in line with state plans and ongoing forest health actions in the state.

Chelan County NRD will make the draft EA available on their website at: https://www.co.chelan.wa.us/natural-resources/pages/stemilt-squilchuck-forest-health-restoration. The draft EA will also be available on FEMA's website. Hard copies of the draft EA will be made available at 411 Washington St., Suite 201, Wenatchee, WA 98801. The comment period for the draft EA will start when the public notice of EA availability is published and extend for 30 days. Comments on the draft EA may be submitted to FEMA-R10-EHP-Comments@fema.dhs.gov. Please include "Stemilt Basin" and/or "Scout-A-Vista" in the subject line. Comments may also be submitted via mail to:

Science Kilner
Regional Environmental Officer
FEMA Region 10
130 228th Street SW
Bothell, WA 98021

6.3. Permits

Chelan County will be responsible for obtaining any necessary local, state, or federal permits needed to conduct the proposed action. A WDNR burn permit may be required for pile burning and a Washington State Forest Practices Act permit may be required for implementation of the project.

SECTION 7. List of Preparers

The following is a list of preparers who contributed to the development of the Stemilt Basin and Scout-A-Vista Fuels Reduction Projects draft EA for FEMA. The individuals listed below had principal roles in the preparation of this document. Many others, including senior managers, administrative support personnel, and technical staff, had significant roles and contributions, and their efforts were no less important to the development of this EA.

Preparers	Experience and Expertise	Role in Preparation
Argiroff, Emma[1]	Environmental Planner	NEPA Documentation
Bankston, Sam[1]	Biologist	NEPA Documentation
Ellis, Dave[2]	Senior Archaeologist	Cultural Resources
Kramer, Stephenie[2]	Senior Archaeologist	Cultural Resources
Shepard, Brian[1]	GIS Specialist	GIS
Stenberg, Kate PhD[1]	Senior Biologist, Senior Planner	Project Manager, Technical Review
Weddle, Annamarie[1]	Environmental Planner	NEPA Documentation

[1] *CDM Smith*
[2] *Willamette Cultural Resource Associates*

Federal Emergency Management Agency

Reviewers	Role in Preparation
Fisher, Philip	NHPA Consultations
Kilner, Science	Technical Review and Approval
Parr, Jeffrey	ESA/BA

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Appendix A

Agency and Tribal Coordination

U.S. Department of Homeland Security
FEMA, Region X
130 228th Street, SW
Bothell, WA 98021-8627

FEMA

May 21, 2020

Rodney Cawston, Chairman
Confederated Tribes of the Colville Reservation (CTCR)
P.O. Box 150
Nespelem, Washington 99155

Re: FEMA HMGP 5182-8-R Chelan County Stemilt Fuels Reduction
and HMGP 5100-5-R Chelan County Scout-A-Vista Fuels Reduction

Dear Chairman Cawston:

The U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) has received a funding request from the Chelan County Natural Resources Department (CCNRD), through the Washington Emergency Management Division (EMD), for two wildfire fuels reduction projects (Undertakings). Funding is available from FEMA's Hazard Mitigation Grant Program (HMGP) from 2015 and 2017 wildfire events. The need for this action is to enhance protection for residents and firefighters and reduce risks of a catastrophic wildfire. The proposed Undertakings are being reviewed pursuant to Section 106 of the National Historic Preservation Act, as amended. Additionally, FEMA is preparing an Environmental Assessment for these Undertakings per the National Environmental Policy Act.

Proposed Undertakings
The proposed Undertakings will reduce and manipulate live and dead fuels across 165 acres in three treatment units within the Upper Stemilt-Squilchuck watershed near Wenatchee. These units will tie together previous and ongoing fuels treatments in the area to complete buffers and fire breaks.

Two of the three treatment units are located within the 5182-8-R Stemilt fuels reduction Undertaking. These include a pre-commercial thin on Mission Ridge/Forest Ridge property bordering the housing development of Forest Ridge and a shaded fuel break along Upper Wheeler Road (a county road) (see Figure 1). Upper Wheeler Ridge separates the Stemilt and Squilchuck sub-basins. The Mission Ridge/Forest Ridge Unit is located in the Squilchuck sub-basin and borders the southern boundary of Squilchuck State Park. Specifically, the Mission Ridge/Forest Ridge Unit is bound as follows: NE corner latitude 47.30396, longitude -120.37595, NW corner latitude 47.30395, longitude -120.38555, SW corner latitude 47.30269, longitude -120.38536, SE corner latitude 47.30249, longitude -120.37589 (T21N R20E Section 19).

Proposed fuels reduction within the Mission Ridge/Forest Ridge Unit will include the removal of branches on trees over 8 inches diameter at breast height (DBH) up to 6 feet in height from the ground and shrubs will be cut and either scattered or hand piled. Typically, a 14-foot spacing will be

utilized to determine the quantity of trees to remove, and no trees greater than 8 inches DBH will be cut, unless a less desirable species occurs within the dripline of a larger desirable species, in which case the undesirable tree will be cut up to a DBH of 10 inches. After cutting, fuels will be either scattered or hand piled for burning.

The Upper Wheeler Road Unit is located in the Stemilt sub-basin and runs along the crest of the ridge before dropping down to Upper Wheeler Reservoir, crossing two Sections belonging to Washington Department of Fish and Wildlife (WDFW), and one Section owned by Stemilt Growers. Specifically, the Upper Wheeler Road Unit is from latitude 47.31889, longitude -120.32541 to latitude 47.28928, longitude -120.36378 (T21N R20E Sections 16, 17, and 20). Working within the County road right-of-way and on WDFW and Stemilt Growers property will allow for a large, strategic treatment area with three willing landowners. The treatment will provide a strategic buffer for fire spreading from either side of the ridge, effectively protecting irrigation district infrastructure, homes, and orchards.

Proposed fuels reduction within the Upper Wheeler Road Unit will include the removal of branches on trees over 8 inches DBH up to 8 feet to 10 feet from the ground and shrubs over 3-foot-tall will be cut a minimum of 50 feet on each side of the road and either scattered or hand piled. Trees in the first 33 feet of half chain on each side of the road shall be spaced 40 foot between crowns to allow the fuel break to be seen from the air and improve firefighter safety on the road itself. Trees in the remaining portion of the fuel break should be spaced at least 20 foot between crowns. Large, fire resilient, dominant trees shall be left where feasible. Ponderosa pine will be the preferred species left on site. Any woody material under 8 inches at the small end shall be mulched. Large down and woody debris over 8 inches at the small end shall be lopped of any branches and have all other vegetation masticated from around it. The majority of the trees that are planned to be removed in the unit are between 6 inches to 15 inches DBH and range in height from 35 to 55 feet. The most cost-effective way to accomplish this prescription is to use a feller buncher or harvester, and a skidder to skid cut trees out of the unit to a slash pile, then be burned.

The 5100-5-R Scout-A-Vista fuels reduction Undertaking located in the Squilchuck sub-basin and borders the western boundary of the Forest Ridge housing development and the northern boundary of the proposed Mission Ridge/Forest Ridge Unit (Figure 2). Specifically, the project area is bound as follows: NE corner latitude 47.31037, longitude -120.38218, NW corner latitude 47.30654, longitude -120. 38748, SW corner latitude 47.30432, longitude -120.38748, and SE corner latitude 47. 30432, longitude -120.38394 (T21N R20E Section 18).

Proposed fuels reduction within the Scout-A-Vista Unit will include the removal of trees 8 inches DBH, leaving the largest, healthiest crowned trees in a 25 to 30 foot spacing for a total of 50 to 70 trees per acre. The current load of trees per acre is approximately 200 to 500. The healthiest Ponderosa Pine, Western Larch, and disease-free Doug fir will be kept. All trees to 8 foot, or 14 foot on uphill steep slopes, in height will be pruned and live as well as dead brush that poses ladder fuel threats will be removed. The project area is steeply sloped, up to 60%, limiting options for slash disposal such as removing the slash from the project area. Therefore, all materials slashed in this process will be piled and burned. Slash piles will be organized in open areas far enough away from remaining trees to avoid scorching and will be burned the following winter after snowfall. Two slash piles per acre will be left for wildlife habitat.

Area of Potential Effects
FEMA has determined that there are three Areas of Potential Effects (APE) for the proposed Undertakings that are illustrated in Figures 1 and 2. The Mission Ridge/Forest Ridge Unit APE is approximately 36 acres in size and is delineated above. The Upper Wheeler Ridge Unit APE is approximately 100 acres in size and is delineated above. The Scout-A-Vista Unit and APE is approximately 29 acres in size and is delineated above.

Historic Property Identification and Evaluation
A review of the Washington Department of Archeology and Historic Preservation's WISAARD system found that there are no documented historic properties within the APEs. A single cultural resources survey from 2004 crosses a portion of the Upper Wheeler Road Unit near its western end. No cultural resources were identified during the survey. The APEs are located primarily in Low Risk with minor Moderately Low Risk and occasional Moderate Risk for archaeological probability areas based on the WISAARD Predictive Model. However, due to the nature of the Undertakings in the involved units including the use of tracked vehicles a cultural resources survey is planned to further identify and evaluate cultural resources that may be impacted by the proposed Undertakings. In the interim, the Tribe is invited to share further information regarding cultural resources of religious and or cultural significance in or near the APEs that may be impacted by the Undertakings. Any information provided would be subject to Tribe-requested dissemination restrictions and may be used to further inform identification and evaluation efforts and help determine project effects.

To assist your review please find enclosed project maps. Once the survey is complete, we will provide the Tribe an opportunity to review and comment on the findings. Should you have any questions, please contact Philip Fisher at (425) 971-9018 or philip.fisher@fema.dhs.gov. Thank you.

Sincerely,

MARK G EBERLEIN Digitally signed by MARK G EBERLEIN
Date: 2020.05.21 11:28:01 -07'00'

Mark G. Eberlein
Regional Environmental Officer

Enclosures

cc: Guy Moura, Tribal Historic Preservation Officer (via email)
Robert Sloma, Cultural Resources (via email)

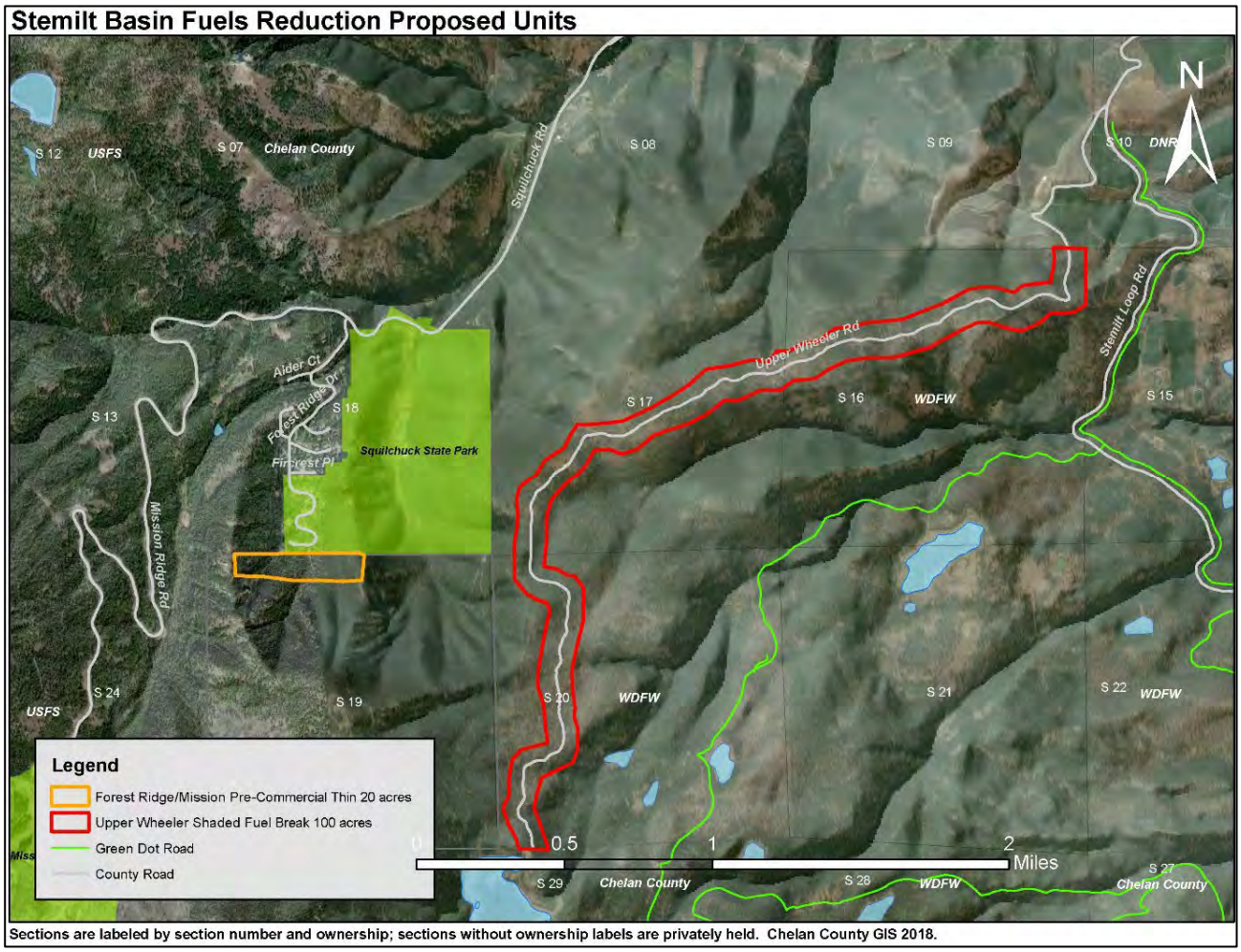

Figure 1: HMGP 5182-8R Stemilt Fuels Reduction APEs for Forrest Ridge and Upper Wheeler in Chelan County.

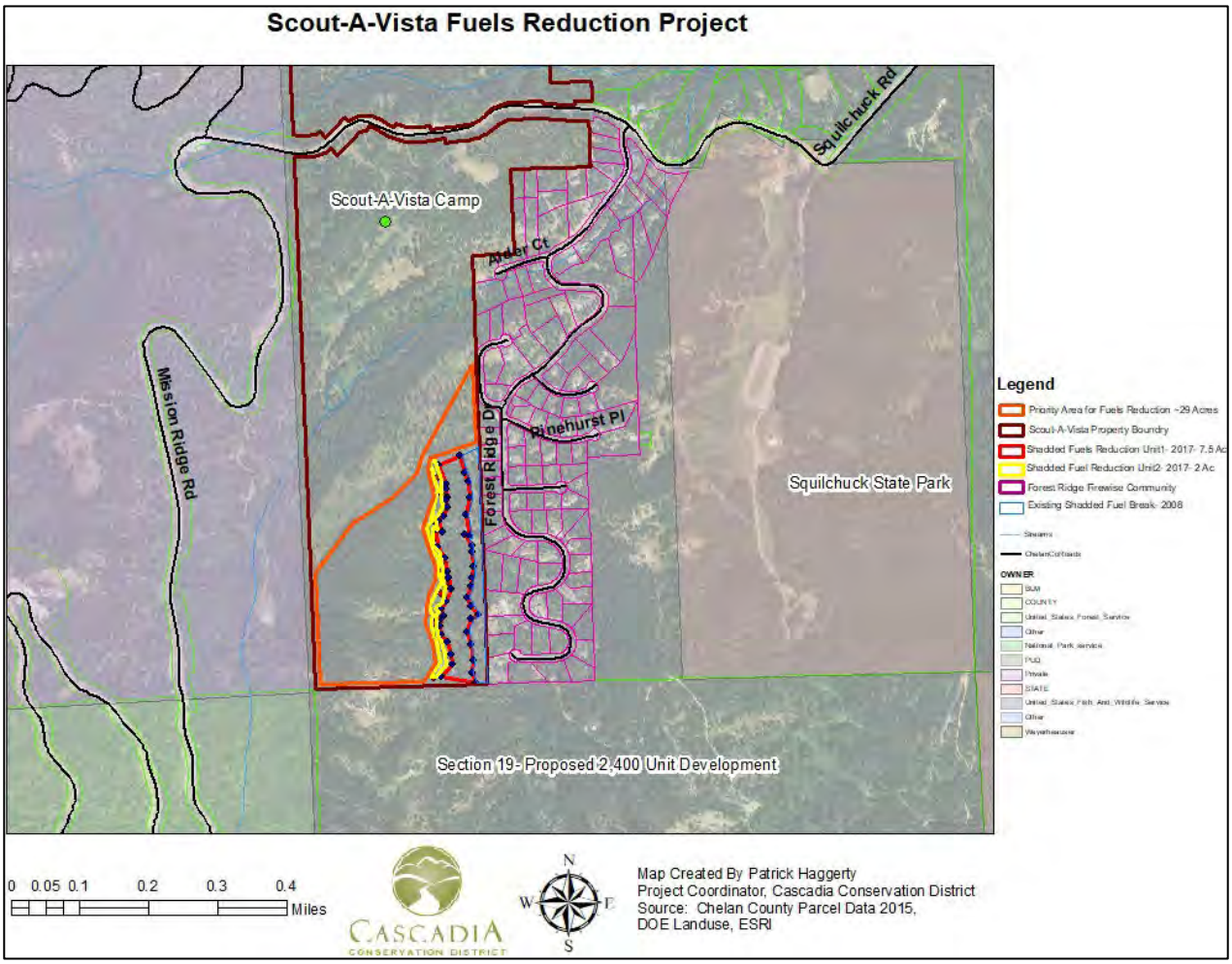

Figure 2. HMGP 5100-5-R Chelan County Scout-A-Vista Fuels Reduction APE, in orange, located in Chelan County.

U.S. Department of Homeland Security
FEMA, Region X
130 228th Street, SW
Bothell, WA 98021-8627

FEMA

May 21, 2020

Delano Saluskin, Chairman
Confederated Tribes and Bands of the Yakama Nation
P.O. Box 151
Toppenish, Washington 98948
(via email)

Re: FEMA HMGP 5182-8-R Chelan County Stemilt Fuels Reduction
and HMGP 5100-5-R Chelan County Scout-A-Vista Fuels Reduction

Dear Chairman Saluskin:

The U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) has received a funding request from the Chelan County Natural Resources Department (CCNRD), through the Washington Emergency Management Division (EMD), for two wildfire fuels reduction projects (Undertakings). Funding is available from FEMA's Hazard Mitigation Grant Program (HMGP) from 2015 and 2017 wildfire events. The need for this action is to enhance protection for residents and firefighters and reduce risks of a catastrophic wildfire. The proposed Undertakings are being reviewed pursuant to Section 106 of the National Historic Preservation Act, as amended. Additionally, FEMA is preparing an Environmental Assessment for these Undertakings per the National Environmental Policy Act.

Proposed Undertakings
The proposed Undertakings will reduce and manipulate live and dead fuels across 165 acres in three treatment units within the Upper Stemilt-Squilchuck watershed near Wenatchee. These units will tie together previous and ongoing fuels treatments in the area to complete buffers and fire breaks.

Two of the three treatment units are located within the 5182-8-R Stemilt fuels reduction Undertaking. These include a pre-commercial thin on Mission Ridge/Forest Ridge property bordering the housing development of Forest Ridge and a shaded fuel break along Upper Wheeler Road (a county road) (see Figure 1). Upper Wheeler Ridge separates the Stemilt and Squilchuck sub-basins. The Mission Ridge/Forest Ridge Unit is located in the Squilchuck sub-basin and borders the southern boundary of Squilchuck State Park. Specifically, the Mission Ridge/Forest Ridge Unit is bound as follows: NE corner latitude 47.30396, longitude -120.37595, NW corner latitude 47.30395, longitude -120.38555, SW corner latitude 47.30269, longitude -120.38536, SE corner latitude 47.30249, longitude -120.37589 (T21N R20E Section 19).

Proposed fuels reduction within the Mission Ridge/Forest Ridge Unit will include the removal of branches on trees over 8 inches diameter at breast height (DBH) up to 6 feet in height from the

ground and shrubs will be cut and either scattered or hand piled. Typically, a 14-foot spacing will be utilized to determine the quantity of trees to remove, and no trees greater than 8 inches DBH will be cut, unless a less desirable species occurs within the dripline of a larger desirable species, in which case the undesirable tree will be cut up to a DBH of 10 inches. After cutting, fuels will be either scattered or hand piled for burning.

The Upper Wheeler Road Unit is located in the Stemilt sub-basin and runs along the crest of the ridge before dropping down to Upper Wheeler Reservoir, crossing two Sections belonging to Washington Department of Fish and Wildlife (WDFW), and one Section owned by Stemilt Growers. Specifically, the Upper Wheeler Road Unit is from latitude 47.31889, longitude -120.32541 to latitude 47.28928, longitude -120.36378 (T21N R20E Sections 16, 17, and 20). Working within the County road right-of-way and on WDFW and Stemilt Growers property will allow for a large, strategic treatment area with three willing landowners. The treatment will provide a strategic buffer for fire spreading from either side of the ridge, effectively protecting irrigation district infrastructure, homes, and orchards.

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Area of Potential Effects
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To assist your review please find enclosed project maps. Once the survey is complete, we will provide the Tribe an opportunity to review and comment on the findings. Should you have any questions, please contact Philip Fisher at (425) 971-9018 or philip.fisher@fema.dhs.gov. Thank you.

Sincerely,

MARK G EBERLEIN
Digitally signed by MARK G EBERLEIN
Date: 2020.05.21 11:27:16 -07'00'

Mark G. Eberlein
Regional Environmental Officer

Enclosures

cc: Johnson Meninick, Cultural Resources Program Manager (via email)

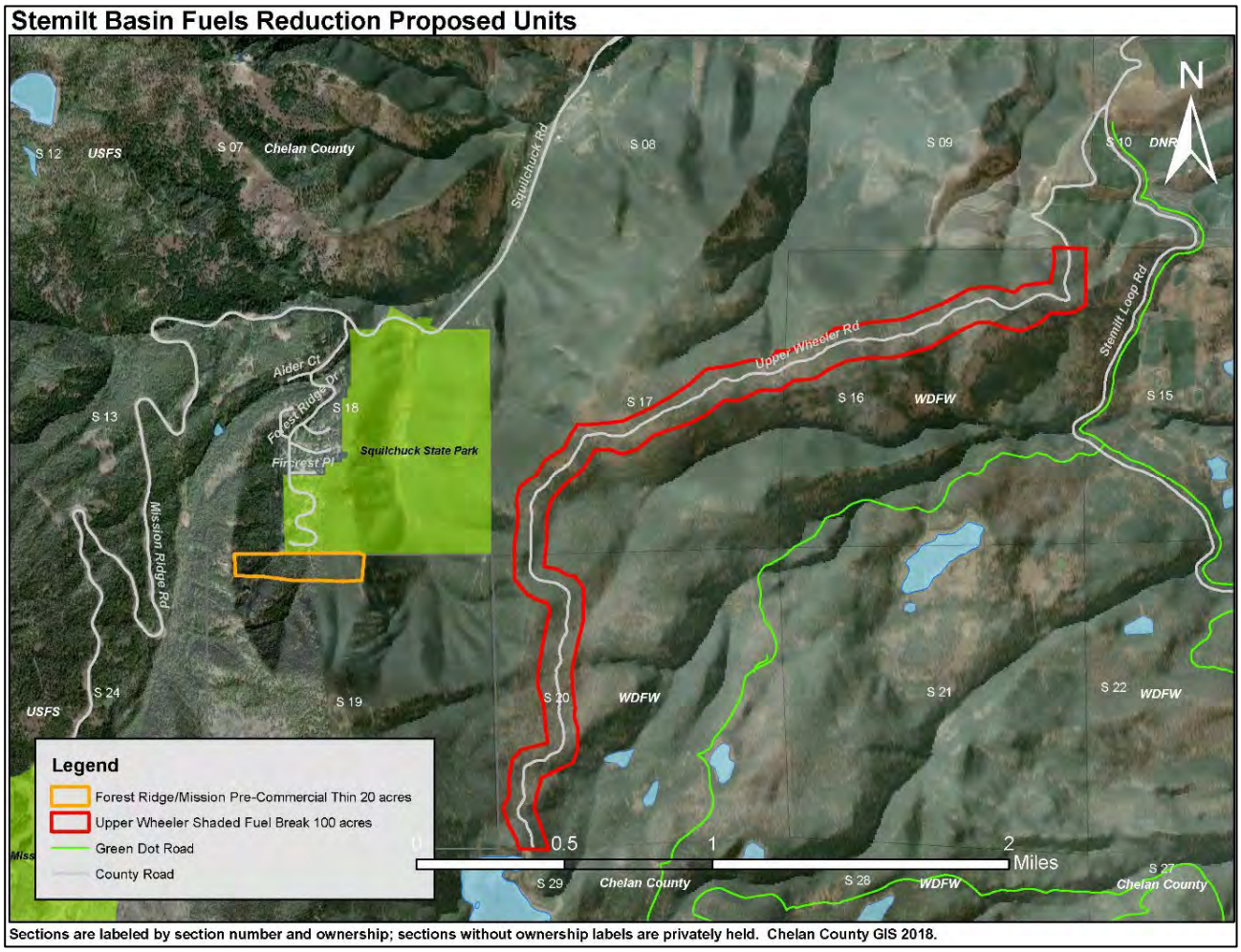

Figure 1: HMGP 5182-8R Stemilt Fuels Reduction APEs for Forrest Ridge and Upper Wheeler in Chelan County.

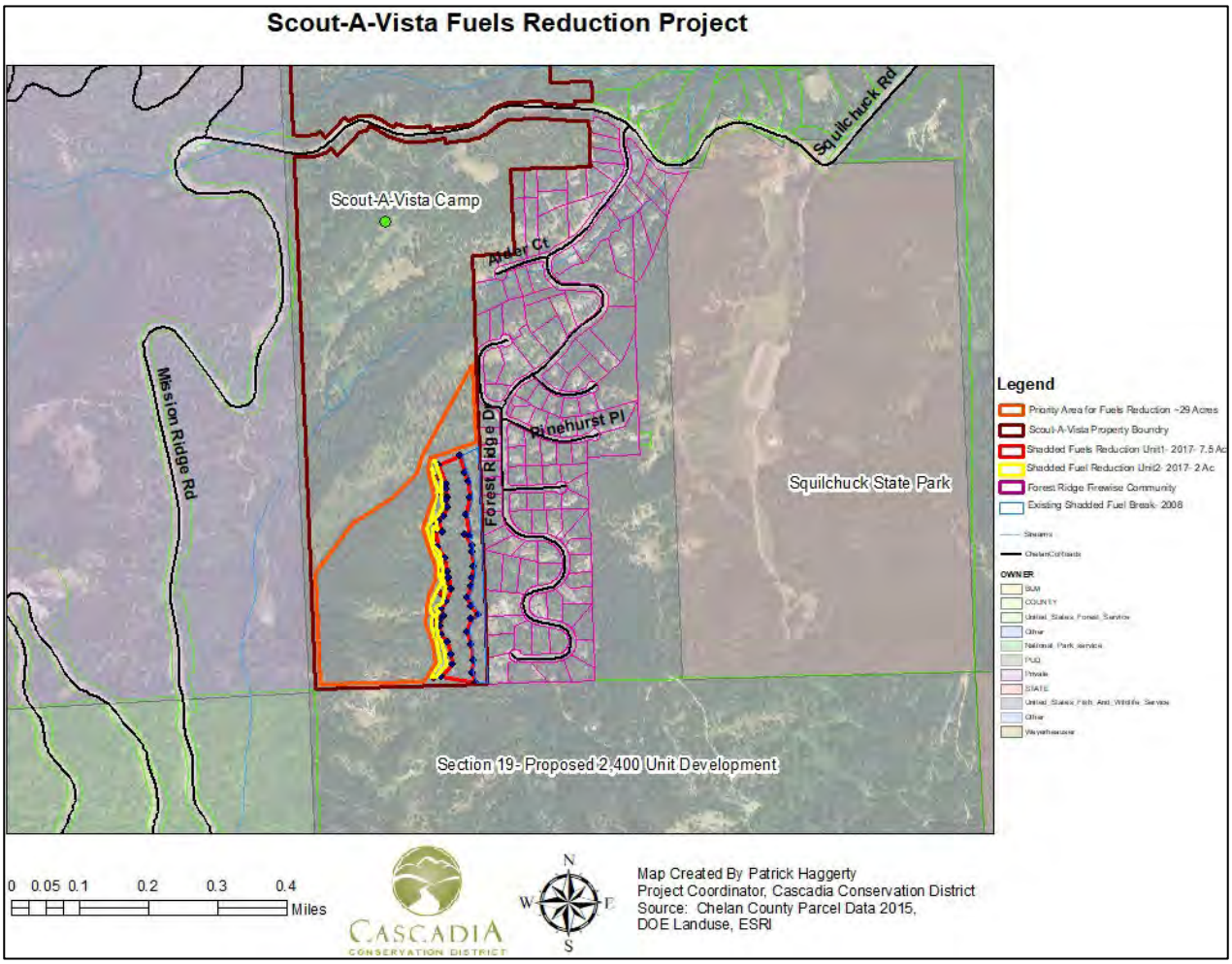

Figure 2. HMGP 5100-5-R Chelan County Scout-A-Vista Fuels Reduction APE, in orange, located in Chelan County.

U.S. Department of Homeland Security
FEMA, Region X
130 228th Street, SW
Bothell, WA 98021-8627

FEMA

September 17, 2020

Allyson Brooks, Ph.D.
Washington State Historic Preservation Officer
Department of Archaeology and Historic Preservation
P.O. Box 48343
Olympia, Washington 98504-8343
Via 106@dahp.wa.gov

Re: FEMA Hazard Mitigation Grant Program 5100-5-R Scout-A-Vista and 5182-8-R Chelan Stemilt Basin Fuels Reduction, DAHP Project Number: 2020-07-04788

Dear Dr. Brooks:

The U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) proposes to fund Chelan County (Applicant), through the Washington Emergency Management Division (EMD), for wildfire fuels reduction project (Undertaking). Funding is available from FEMA's Hazard Mitigation Grant Program (HMGP) from 2015 and 2017 wildfire events. The proposed Undertaking is being reviewed pursuant to Section 106 of the National Historic Preservation Act, as amended and the Programmatic Agreement in effect with your office and EMD. The cultural resources assessment, prepared by WillametteCRA (WCRA), for this Undertaking has been submitted via WISAARD (Project #2020-07-04788). The survey on Washington Department of Fish and Wildlife (WDFW) land was conducted under WDFW Cultural Resources Research Permit No. 20200603-001 (FRP).

Proposed Undertaking
The proposed Undertaking involves the removal and/or reduction of wildfire fuels in Chelan County, WA (Figure 1 of WCRA's Report). The Scout-A-Vista Unit is located on lands owned by the Grand Columbia Council of the Boy Scouts of America in Section 18, T. 21N, R. 20E, Willamette Meridian while the Mission Ridge/Section 19 is on lands owned by Tamarack Saddle LLC in Section 19, T. 21N, R. 20E. Units WDFW/Section 16 and WDFW/Section 20 are on lands managed by the WDFW in Sections 16 and 20, T. 21N, R. 20E.

Proposed work includes the removal of trees up to 8 inches in diameter to maintain a14-foot spacing between trees to maintain more fire resistant and healthier trees such as ponderosa pine, western larch, and Douglas fir. In addition, branches up to 6 to 10 feet from the ground on trees more than 8 inches in diameter and shrubs will also be removed. Along the Upper Wheeler Road shrubs more than three feet high will be removed from an area at least 50 feet on each side of the road. Tree spacing of at least 40 feet between crowns will be established through removal of smaller trees within 33 feet on each side of Upper Wheeler Road, with 20-foot spacing between 33 and 66 feet of the road. Trees removed for spacing requirements will typically be between 6 and 15 inches in diameter. Branches up to 8 to 10 feet from the ground will be removed from trees more than 8 inches in diameter. Woody debris will be scattered on the ground or placed in slash piles and burned after winter snowfall.

Area of Potential Effects
FEMA has determined that there are two Area of Potential Effects (APE) for the Undertaking, the Scout-A-Vista Unit APE and the three units of the Chelan Stemilt Basin APE, as illustrated on the aerial in Figure 1 of WCRA's report totaling approximately 300 acres. The Scout-A-Vista Unit APE totals 36.8 acres while the Chelan Stemilt Basin APE is comprised of the Mission Ridge/Section 19 Unit totaling 75.3 acres and the WDFW/Sections 16 and 20 Units totaling 187.3 acres.

Historic Property Identification and Evaluation
FEMA's contractor, WCRA, conducted a pedestrian survey of approximately 191.6 acres of the proposed 300 acres making up the APE (WCRA Report Figures 7-11). The approximately 108.4 acres not surveyed were places with dense vegetation and slopes too steep to safely traverse, generally exceeding 30°. Transects were spaced at 20 meters but in some areas varied between 10 to 25 meters. During the survey, no areas were identified with evidence of alluvial, colluvial, or aeolian deposition that might indicate the possible presence of archaeological resources at shallow depths. Therefore, no exploratory subsurface probes were conducted during the survey.

Two historic sites (WCRA-20-1 and WCRA-20-2) dating to the early to mid-20th century were identified in the WDFW/Section 16 and 20 Units of the Chelan Stemilt Basin APE. Both sites are small historic surface scatters. Site WCRA-20-1 dates to the early to mid-20th century and is composed mainly of crushed metal cans and an aqua glass Coca-Cola bottle neck. Site WCRA-20-2 dates to the mid-20th century and is composed mainly of metal cans including hole-in-top, sanitary, tobacco tin, gas, and oil cans, metal buckets, one 12-inch diameter water boiler, colorless glass fragments, earthenware sherds, and a single red brick fragment. WCRA recommends that both sites are ineligible for listing in the National Register of Historic Places.

Consultation was also initiated with Tribes in May 2020 to determine if the Undertaking may affect historic properties of religious and or cultural significance to them. The Tribes include: The Confederated Tribes of the Colville Reservation, and The Confederated Tribes and Bands of the Yakama Nation. The Colville responded supporting the archaeological survey. FEMA also followed up with the Tribes, providing a copy of WCRA's report for review.

Determination of Effects
Barring further information from your office or Tribes and based on the assessment results, FEMA has determined the Undertaking will result in No Historic Properties Affected. We respectfully request your review of WCRA's report submitted in WISAARD and, if appropriate, your concurrence with FEMA's findings or additional comment. Should you have any questions, please contact Philip Fisher at (425) 471-9018, philip.fisher@fema.dhs.gov. Thank you.

Sincerely,

SCIENCE A KILNER
Digitally signed by SCIENCE A KILNER
Date: 2020.09.17 16:07:48 -07'00'

Science Kilner
Acting Regional Environmental Officer

U.S. Department of Homeland Security
FEMA, Region X
130 228th Street, SW
Bothell, WA 98021-8627

FEMA

September 17, 2020

Guy Moura, Tribal Historic Preservation Officer
Confederated Tribes of the Colville Reservation
PO Box 150
Nespelem, Washington 99155
Via email

Re: FEMA Hazard Mitigation Grant Program 5100-5-R Scout-A-Vista and 5182-8-R Chelan Stemilt Basin Fuels Reduction, DAHP Project Number: 2020-07-04788

Dear Mr. Moura:

Please consider this a follow up to the consultation we initiated with the Tribe in a letter dated May 21, 2020. The U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) proposes to fund Chelan County (Applicant), through the Washington Emergency Management Division (EMD), for wildfire fuels reduction project (Undertaking). Funding is available from FEMA's Hazard Mitigation Grant Program (HMGP) from 2015 and 2017 wildfire events. The proposed Undertaking is being reviewed pursuant to Section 106 of the National Historic Preservation Act.

Proposed Undertaking
The proposed Undertaking involves the removal and/or reduction of wildfire fuels in Chelan County, WA (Figure 1 of WCRA's Report). The Scout-A-Vista Unit is located on lands owned by the Grand Columbia Council of the Boy Scouts of America in Section 18, T. 21N, R. 20E, Willamette Meridian while the Mission Ridge/Section 19 is on lands owned by Tamarack Saddle LLC in Section 19, T. 21N, R. 20E. Units WDFW/Section 16 and WDFW/Section 20 are on lands managed by the WDFW in Sections 16 and 20, T. 21N, R. 20E.

Proposed work includes the removal of trees up to 8 inches in diameter to maintain a14-foot spacing between trees to maintain more fire resistant and healthier trees such as ponderosa pine, western larch, and Douglas fir. In addition, branches up to 6 to 10 feet from the ground on trees more than 8 inches in diameter and shrubs will also be removed. Along the Upper Wheeler Road shrubs more than three feet high will be removed from an area at least 50 feet on each side of the road. Tree spacing of at least 40 feet between crowns will be established through removal of smaller trees within 33 feet on each side of Upper Wheeler Road, with 20-foot spacing between 33 and 66 feet of the road. Trees removed for spacing requirements will typically be between 6 and 15 inches in diameter. Branches up to 8 to 10 feet from the ground will be removed from trees more than 8 inches in diameter. Woody debris will be scattered on the ground or placed in slash piles and burned after winter snowfall.

Area of Potential Effects
FEMA has determined that there are two Area of Potential Effects (APE) for the Undertaking, the Scout-A-Vista Unit APE and the three units of the Chelan Stemilt Basin APE, as illustrated on the aerial in Figure 1 of WCRA's report totaling approximately 300 acres. The Scout-A-Vista Unit APE totals 36.8 acres while the Chelan Stemilt Basin APE is comprised of the Mission Ridge/Section 19 Unit totaling 75.3 acres and the WDFW/Sections 16 and 20 Units totaling 187.3 acres.

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FEMA's contractor, WCRA, conducted a pedestrian survey of approximately 191.6 acres of the proposed 300 acres making up the APE (WCRA Report Figures 7-11). The approximately 108.4 acres not surveyed were places with dense vegetation and slopes too steep to safely traverse, generally exceeding 30°. Transects were spaced at 20 meters but in some areas varied between 10 to 25 meters. During the survey, no areas were identified with evidence of alluvial, colluvial, or aeolian deposition that might indicate the possible presence of archaeological resources at shallow depths. Therefore, no exploratory subsurface probes were conducted during the survey.

Two historic sites (WCRA-20-1 and WCRA-20-2) dating to the early to mid-20th century were identified in the WDFW/Section 16 and 20 Units of the Chelan Stemilt Basin APE. Both sites are small historic surface scatters. Site WCRA-20-1 dates to the early to mid-20th century and is composed mainly of crushed metal cans and an aqua glass Coca-Cola bottle neck. Site WCRA-20-2 dates to the mid-20th century and is composed mainly of metal cans including hole-in-top, sanitary, tobacco tin, gas, and oil cans, metal buckets, one 12-inch diameter water boiler, colorless glass fragments, earthenware sherds, and a single red brick fragment. WCRA recommends that both sites are ineligible for listing in the National Register of Historic Places. Consultation has been initiated with the Washington Department of Archaeology and Historic Preservation (DAHP).

Determination of Effects
Barring further information from the Tribe or DAHP and based on the assessment results, FEMA has determined the Undertaking will result in No Historic Properties Affected. We respectfully request your review of WCRA's report and, if appropriate, your concurrence with FEMA's findings or additional comment. Should you have any questions, please contact Philip Fisher at (425) 471-9018, philip.fisher@fema.dhs.gov. Thank you.

Sincerely,

SCIENCE A KILNER Digitally signed by SCIENCE A KILNER Date: 2020.09.17 16:15:47 -07'00'

Science Kilner
Acting Regional Environmental Officer

Enclosure

cc Robert Sloma, Cultural Resources (via email)

U.S. Department of Homeland Security
FEMA, Region X
130 228th Street, SW
Bothell, WA 98021-8627

FEMA

September 17, 2020

Johnson Meninick, Cultural Resource Program Manager
Confederated Tribes and Bands of the Yakama Nation
PO Box 151
Toppenish, Washington 98948
Via email

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Sincerely,

SCIENCE A KILNER Digitally signed by SCIENCE A KILNER Date: 2020.09.17 16:16:51 -07'00'

Science Kilner
Acting Regional Environmental Officer

Enclosure

cc Jon Shellenberger, Tribal Archaeologist/Federal Reviewer (via email)

Allyson Brooks Ph.D., Director
State Historic Preservation Officer

October 1, 2020

Ms. Science Kilner
FEMA – Region X
130 – 228th Street SW
Bothell, Washington 98021-9796

Re: Scout-A-Vista and 5182-8-R Chelan Stemilt Basin Fuels Reduction Project
FEMA Hazard Mitigation Grant Program 5100-5-
Wisaard No: 2020-07-04788-FEMA

Dear Ms. Kilner:

Thank you for contacting our Department. We have reviewed the professional cultural resources survey report you provided for the proposed Scout-A-Vista and 5182-8-R Chelan Stemilt Basin Fuels Reduction Project in Chelan County, Washington.

We concur with your proposed Area of Potential Effect (APE). We concur with your Determination of No Historic Properties Affected with the stipulation an unanticipated discovery plan.

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

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

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

Sincerely,

Robert G. Whitlam, Ph.D.
State Archaeologist
(360) 890-2615
email: rob.whitlam@dahp.wa.gov

From: Kilner, Science
To: Stenberg, Kate
Cc: Fisher, Philip; Argiroff, Emma L.
Subject: FW: FEMA HGMP5100-5 Scout-A-Vista and HMGP5182-8 Chelan Co Stemilt Fuels Reduction CR Report
Date: Monday, September 21, 2020 8:08:13 AM

Hi Kate – Here's some feedback for Willamette from the Colville. Can you please coordinate report updates with Willamette, thanks.

Science

From: Guy Moura (HSY) <Guy.Moura@colvilletribes.com>
Sent: Sunday, September 20, 2020 4:46 PM
To: Fisher, Philip <philip.fisher@fema.dhs.gov>; Kilner, Science <Science.Kilner@fema.dhs.gov>
Cc: Guy Moura (HSY) <Guy.Moura@colvilletribes.com>
Subject: RE: FEMA HGMP5100-5 Scout-A-Vista and HMGP5182-8 Chelan Co Stemilt Fuels Reduction CR Report

Phil,

I am just sending this. I have worked with the Principals and staff of WCRA for decades. I have only the highest regard for their work. I really only focused on tribal cultural information and scanned the rest. I kind of tripped over these minor typo type things (in red font) .

Page 5, "The Wenatchee River run**s** through the center …"

Page 6, "... conducted on both communal and individual bases **(basis?)** in the summer and fall,..."

Page 6, "2. Stemilt: This is the anglicization of a Salish name, not shown on this map, but just downstream of #1 **(? - no #1 on map?)** on the Columbia."

Page 9, should, " She thinking only made grizzly Bear all the madder...", be, **Her** thinking only made **G**rizzly Bear all the madder..."? I understand it is a quote, but not all of Layman's quotes are precise. Should also be mention that the Owl Sisters and Sparrow Hawk legend was recently expanded on as

Then there was this - Page 32, Fig. 25 caught my eye, what is the traditional plant pictured and will these wetlands be protected? Which launched me on this train of thought - What about stands or patches of significant traditional plants there doesn't really seem to be a tie-in sentence or two between the ***Natural Setting*** of the projects and the ethnography? Went back to Figure 1 and couldn't tell if there were wetlands? But there were lots of ridges. There was no mention of particular effort to look for hilltop, crest, and ridgeline rock features, although I am sure there was.

And Figure 31 looks like a harvestable stand of arrowleaf balsam root, again, needs some tie-in with ***Natural Setting*** and ethnography.

Please have these addressed and forward revised report.

Guy Moura
Tribal Historic Preservation Officer

From: Fisher, Philip [philip.fisher@fema.dhs.gov]
Sent: Friday, September 18, 2020 8:55 AM
To: Guy Moura (HSY)
Cc: Robert Sloma (HSY)
Subject: FEMA HGMP5100-5 Scout-A-Vista and HMGP5182-8 Chelan Co Stemilt Fuels Reduction CR Report

Good Morning Mr. Moura,

I hope this finds you well. I wanted to provide you with a copy of the cultural resources survey report for the Scout-A-Vista and Chelan Stemilt Fuels Reduction project originally consulted on 5/21/2020. Please let me know if you need anything else. Have a great day.

Best,
Phil

U.S. Department of Homeland Security
FEMA Region 10
130 – 228th Street, SW
Bothell, Washington 98021-8627

FEMA

August 3, 2020

Mr. Brad Thompson
U.S. Fish and Wildlife Service
215 Melody Lane
Wenatchee, Washington 98801

Re: FEMA Hazard Mitigation Grant Program WA-5182-08 Stemilt Basin and WA-5100-05 Scout-A-Vista Fuels Reduction Projects, Chelan County Natural Resources Department.

Dear Mr. Thompson:

The U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) requests informal consultation under Section 7 of the Endangered Species Act (ESA) of 1973 regarding the Chelan County Department of Natural Resources (County) proposed Stemilt Basin and Scout-A-Vista Fuels Reduction Projects (Project). These sites are located near the Forest Ridge housing development and Squilchuck State Park, southwest of Wenatchee Washington. The grant funding comes from FEMA's Hazard Mitigation Grant Program (HMGP), which is authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, with funds provided following wildfire in 2018. The enclosed Biological Assessment (BA) was prepared to evaluate proposed action effects to ESA listed species. The ESA-listed species that may occur within the action area is the Northern Spotted Owl (*Strix occidentalis caurina*) (NSO).

The purpose of the HMGP is to help communities implement hazard mitigation measures following a Presidential major disaster declaration. To this end, the County is proposing to conduct fuels reduction operations on 204 acres (with an optional 49 acres) on up to five distinct parcels within the wildfire urban interface (WUI). These parcels are located in Township 21N, Range 20E, sections 16,18,19, and 20. The Chelan County Wildfire Prevention Plan assesses the Wenatchee area and Squilchuck Valley as having a moderate to extreme risk of incurring wildfires. The existing forest stands in Chelan County, having been logged in the past, are mostly young forests with individual regeneration stands of over-crowded young conifer trees or slightly less dense young forest stands with have taller medium sized trees.

There is a known NSO activity circle in the area, the 1.8-mile home range buffer intersects with three of the parcels. As a result, most of the Project actions will be conditioned to occur outside of the critical nesting window. The Project will target mostly <8-inch diameter at breast height (DBH) trees across all the parcels. There is the expectation that a few select medium trees (6 to 15-inch DBH) adjacent to an important access road may also being removed, but this will be occurring in unsuitable NSO habitat or outside of the NSO activity circle.

FEMA has determined, as described in the enclosed BA, that the proposed actions may affect NSO, FEMA has made the following determinations:

ESA Effects Determinations:

Northern Spotted Owl	May Affect, Not Likely to Adversely Affect

Critical Habitat Determinations:

Northern Spotted Owl	No Critical Habitat is present

Additionally, avoidance and minimization measures for potential effects on listed species will be part of the action's implementation and are detailed in the BA. We have been working with Ms. Riggs and Ms. Munzing regarding a review of the draft BA and consultation coordination. We request your concurrence with our effects determination or additional comments. If you have any questions, please contact me or Jeffrey Parr (jeffrey.parr@fema.dhs.gov; 425-471-9164).

Sincerely,

SCIENCE A KILNER

Digitally signed by SCIENCE A KILNER
Date: 2020.08.03 09:35:42 -07'00'

Science Kilner
Acting Regional Environmental Officer

Enclosure

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Central Washington Field Office
215 Melody Lane, Suite 103
Wenatchee, Washington 98801

September 24, 2020

In Reply Refer To:
01EWFW00-2020-I-1524

Science Kilner
Acting Regional Environmental Officer
U.S. Department of Homeland Security
FEMA Region 10
130 – 228th Street
SW Bothell, Washington 98021-8627

Dear Ms. Kilner:

This responds to your request for informal consultation on the proposed Federal Emergency Management Agency (FEMA) Hazard Mitigation Grant Program WA-5182-08 Stemilt Basin and Scout-A-Vista Fuels Reduction Projects (Projects) located in Chelan County, Washington. Your cover letter and biological assessment (BA) were received in the U.S. Fish and Wildlife Service (Service) Central Washington Field Office on August 3, 2020.

The U.S. Department of Homeland Security, FEMA Region 10, has requested Service concurrence with the determination of "may affect, not likely to adversely affect" northern spotted owl (*Strix occidentalis caurina*), in accordance with section 7(a)(2) of the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1532 *et seq*.).

Action Area

The Projects are located near the Forest Ridge housing development, seven miles southwest of Wenatchee, Washington, in Chelan County (Figure 1). The Projects will treat 253 acres (Project area) on five sites, however one of the sites, 1x (Wheeler Road Optional), will only be included if funding allows. Figure 1 shows the extent of the Projects and Action areas and the five sites proposed for treatment. The Action Area is all areas to be affected directly or indirectly by the federal action and is the greatest identified extent of potential impacts outside the Projects area.

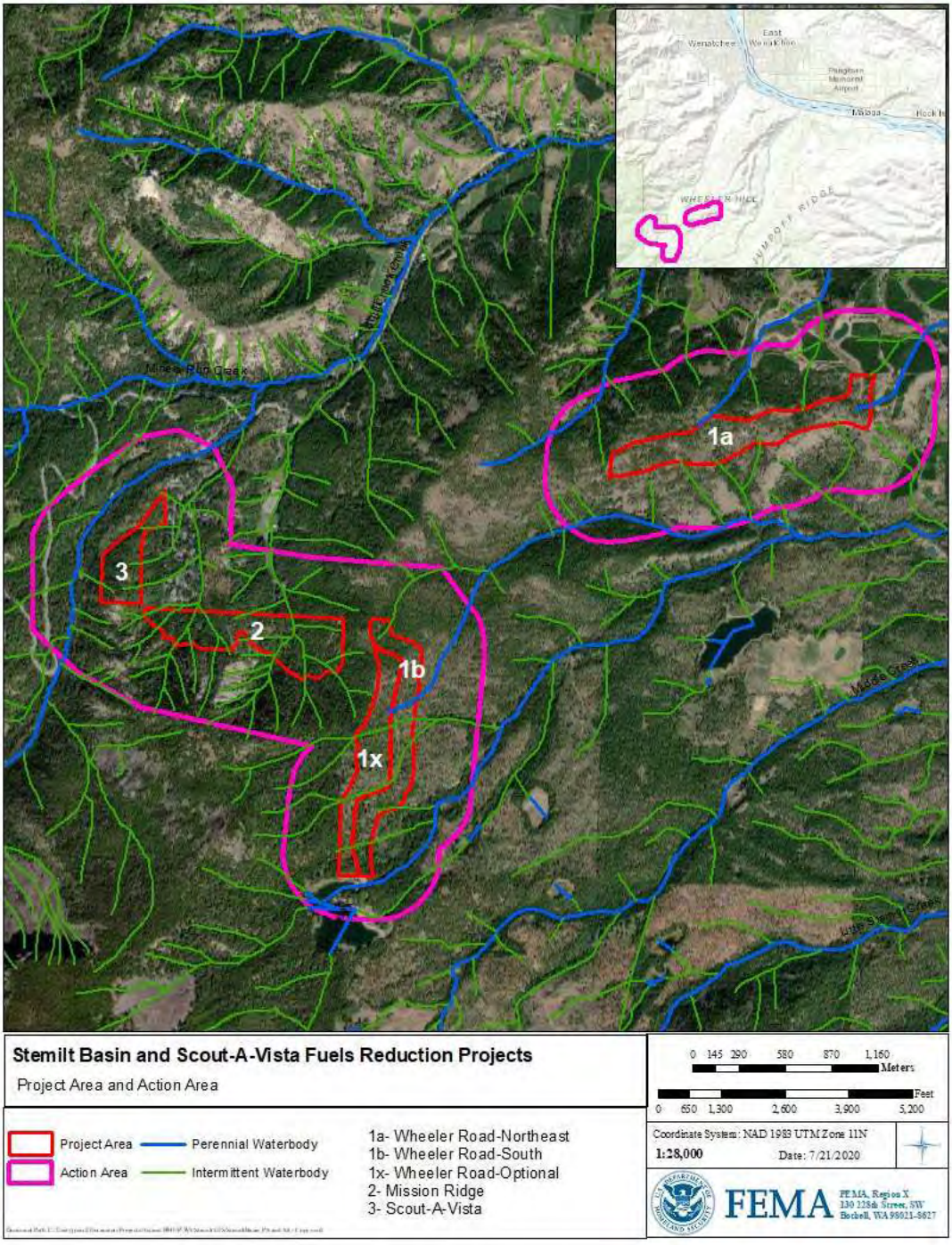

Figure 1. Map of action area and Projects area, showing all five parcels for proposed treatment in the Stemilt Basin, Chelan County.

Project Description

The proposed action will implement fuels reduction work in the five parcels of the Projects area. The Projects purpose is to apply forestry treatments in a way that will provide a break in the canopy that may force a fire to the ground where fire crews can more safely and easily manage it. While some untreated forest will remain, the goal of hazardous fuels reduction in the treatment areas is to contribute to containment efforts, reduce the intensity and extent of wildfires, and ultimately reduce the risks to people living near the Project area.

While the proposed action aims to create breaks in the canopy, tree spacing will not consistently be even. Small patches of trees will be left at tighter spacing, benefiting some wildlife (Fitzgerald and Bennett 2013). The key is to reduce surface and ladder fuels and create openings.

Where there was an overlap of the Projects with the 1.8-mile Northern Spotted Owl (NSO) activity circle, the overlap zone was evaluated based on the modeled conditions and field reconnaissance. Modeled conditions are shown in Figure 2. If the overlap contained modeled marginal habitat, the assumption is that there is Dispersal habitat, which will be impacted by Project actions. If the overlap contained modeled suitable or highly suitable habitat, the assumption is that there is nesting, roosting, foraging (NRF) habitat, which will be impacted by Project actions. A site visit was conducted in July 2020 to confirm the actual habitat conditions in these overlaps between the Project areas and the 1.8-mile NSO activity circle. Following, is a description of each of the five parcels and their treatments.

The Wheeler Road Optional (Figure 2, parcel 1x) includes a proposed fuels reduction to establish a shaded fuel break and will include the removal of branches on trees greater than eight inches diameter at breast height (DBH) as high up as 10 feet. Canopy cover will not be reduced below 40 percent. Trees in the first 33 feet from each side of the road will be thinned to provide 40 feet of space between crowns to allow the treatment area to be seen from the air and improve firefighter safety on the road itself. Trees in the remaining portion of the treatment area will be spaced at least 20 feet between crowns. Large, fire-resilient, dominant trees will be left where feasible. Ponderosa pine (*Pinus ponderosa*) is the preferred species left on-site because they are shade intolerant and fire adapted.

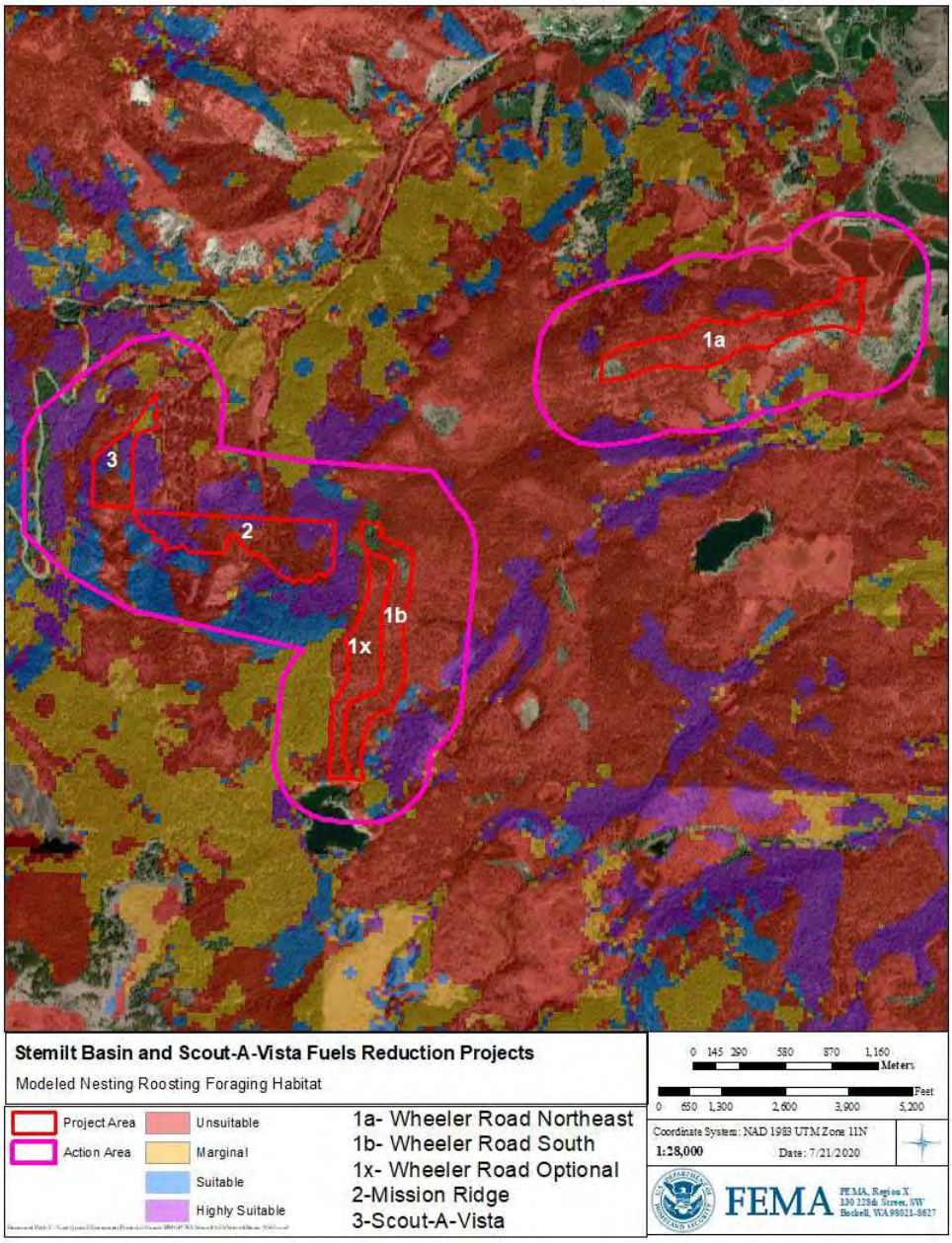

Figure 2. Modeled NSO Habitat Suitability and Action Area.

Wheeler Road-Northeast (Figure 2, parcel 1a) is a uniform stand of tree 10 to 14 inches DBH, with very few small trees or understory shrubs. Therefore, much of the vegetation that will be removed in this parcel will be trees in the aforementioned size class. Trees will be removed with mechanical equipment such as feller bunchers, harvesters, and skidders to skid cut trees out of the treatment area. Cut trees will be collected into slash piles and burned. Slash piles are expected to be no larger than 10 x 10 x 10 feet, in accordance with the Washington Department of Natural Resources burn rules.

The Wheeler Road-South (Figure 2, parcel 1b) parcel has a higher proportion of small trees and brush compared to parcel 1a. The majority of the trees that are planned to be removed are located near the access road and will be six inches DBH and range in height from 35 to 55 feet, though there will be some trees up to 15 inches DBH that will be cut as well. Non-coniferous vegetation over three feet tall will be masticated within 50 feet of the road. Smaller cut material will likely be chipped and spread thinly over the treatment area. Because there is very little material greater than 6 inches DBH that will need to be cut, it is unlikely that there will be any burning of cut material. The Wheeler Road-Optional (Figure 1-1, parcel 1x) is adjacent to the Wheeler Road-South parcel. This parcel will be treated using the same methods proposed for the Wheeler Road-South parcel.

The Mission Ridge (Figure 2, parcel 2) parcel has a much denser canopy than can be addressed through normal hazardous fuels reduction techniques. Therefore, Chelan County will implement a commercial thin to remove larger trees and open up the canopy prior to the fuels reduction work. The commercial thin will not be FEMA-funded and will only occur in the western half of the parcel, which is outside the 1.8-mile NSO circle, and includes modeled suitable and unsuitable NSO habitat (Figure 1). The suitable NSO habitat in the eastern portion of parcel 2 that is within the 1.8-mile NSO circle will be treated by fuels reduction thinning, maintaining the existing 60 percent canopy cover, along with snags, large downed wood, and large, old trees. Work in this parcel will be conducted using mechanical masticators. Where slopes are too steep, hand crews will be utilized. Slash will be hand-piled. Brush and understory trees will be removed from within the dripline of retained conifers after the commercial thin to reduce ladder fuels. Clumps of noncommercial trees will be thinned to reduce fuel loads; however, this will not be uniform across the parcel. Some clumps will be left untouched to retain vertical structure for NSO. Target spacing for clumps of trees will be based on a grid approximately 15 by 15 feet. Preferred species (e.g., western larch [*Larix occidentalis*] and ponderosa pine) will be left on a tighter grid, while less desirable and more-flammable species (e.g., Douglas-fir [*Pseudotsuga menziesii*] and grand fir [*Abies grandis*]) will be thinned more heavily. Retained trees will be pruned eight to 10 feet from the ground. Brush and shrub species (e.g., ocean spray [*Holodiscus discolor*], vine maple [*Acer circinatum*], willows [*Salix*] and maple [*Acer*] species) will be masticated, especially in areas in close proximity to home sites of the Forest Ridge community or retained conifers. The Mission Ridge treatment area will be accessed through the Squilchuck State Park.

The Scout-A-Vista (SAV; Figure 2, parcel 3) parcel is a proposed fuels reduction that will include the removal of trees up to eight inches DBH; a few select eight to 11-inch DBH trees that specifically add to crown fire risk will also be removed. This parcel is entirely outside the 1.8-mile NSO circle. Modeling did show a portion of the area to be highly suitable habitat and marginal. However, field reconnaissance revealed the highly suitable area was modeled as such due to the high stocking of the stand but did not have the characteristics of NRF habitat. The treatment in parcel three aims to retain the largest and healthiest crowned trees in a 25 to 30 foot spacing for a total of 50 to 70 trees per acre. The Service also recommends, for habitat purposes, some dense patches be retained, especially where snags or large downed wood is present. The current density of trees is approximately 200 to 500 trees per acre. The healthiest Ponderosa pine, western larch, and disease-free Douglas fir trees will be retained. All remaining trees will be pruned to ensure limb tips are 8 feet above the ground vegetation or 15 feet above the ground

vegetation on steep slopes. Brush that poses a ladder fuel threat, a vector for wildfire to climb into the canopy, will be removed. The Project area is steep, with slopes up to 60 percent; therefore, all cut material will be hand-piled and burned. Slash piles will be placed in open areas far enough away from remaining trees to avoid scorching and will be burned the following winter after snowfall. Slash piles will be no more than 10 by 10 by 10 feet. Logs larger than six inches diameter will be left on the ground. Two slash piles per acre will be left for wildlife habitat. There is a small chance some of the work could be completed using logging equipment with self-leveling cabs and a mastication/chipper head. The SAV treatment area will likely be accessed through the adjacent Forest Ridge neighborhood rather than from the Boy Scout facilities.

Specific conservation measures have been discussed with the Service, outlined below and are included as part of the Project action.

Summary of Conservation Measures for Listed Species

- No Project actions will occur in parcels within the 1.8-mile circle during the critical early breeding period for NSO (March 1 through July 31).
- In the suitable (NSO NRF) habitat outside the 1.8-mile circle, particular attention will be given to leaving the largest trees with the healthiest crowns, retaining snags and large downed wood, and varying the thinning so that patches of uncut trees and shrubs are retained.
- 40 percent canopy cover (where present) in marginal habitat (NSO dispersal) will be retained.
- Vehicles will stay on pre-existing roads.
- Large trees, greater than 16 inches DBH, including those with defect will be retained.
- If any trees that contribute to canopy cover are removed in the areas of habitat inside the NSO circle, measures will be taken to ensure canopy cover is not reduced.
- Five to 10 percent of the trees will be left unpruned.
- Where openings are created, they will vary in size and shape across the landscape.
- Riparian buffers will be retained around perennial and intermittent streams found in the area.
- One to three slash piles per acre will remain to provide some habitat, heavy slash (larger diameter) as the base layer, with piles about 20 feet in diameter and six feet high.
- When seeding disturbed soils or areas of burned soil, only native and certified weed free seed mixes will be used.

Effects to Northern Spotted Owl

The primary potential effect from the Project in the action area will be short-term noise generated by chainsaws and mechanical equipment (masticators, feller-bunchers, and harvesters). The Washington Department of Fish and Wildlife NSO data shows overlap of the area with one, 1.8-mile radius NSO home range. Potential effects to NSO and their prey include, noise disturbance through use of chainsaws, masticators, and chippers.

The circle overlaps with portions of three of the five parcels including Mission Ridge, Wheeler Road-South and Wheeler Road-Optional. The latter two have some overlap with the 0.7-mile NSO early breeding season timing restriction area. All activities within the aforementioned parcels (including those outside the 0.7-mile timing restriction area) will occur outside the timing restriction for NSO (March 1- July 31). This will significantly reduce the likelihood of noise disturbance to nesting or dispersing NSO and is expected to keep noise effects to discountable levels.

There will be indirect effects to NSO as a result of treatment in NRF and dispersal habitat as part of the Project actions (Table 1). Specifically, there will be a degrade of 12.3 acres of NRF and 0.7 acres of dispersal due to thinning of small understory trees and shrubs. This type of thinning may reduce cover and forage for NSO and their prey in the short-term. However, the function of NRF and dispersal habitat will be maintained with the treatment and therefore effects are expected to be insignificant. Over the long-term, the treatments will likely benefit NSO and their prey by releasing the overstory and potentially increasing vigor of retained trees and reducing the chances for a stand replacing fire. In both cases, canopy closure will be retained, classifying the impacts as a degrade, not a downgrade.

Table 1. Parcels that overlap the 1.8-mile NSO Circle

Parcel	Acres/Type within overlap	Treatment	Conditions for retaining habitat
Wheeler Road South (1b)	0.7/marginal	Targets trees <8-inch DBH, <55 feet tall	Will maintain 40 percent canopy closure
Wheeler Road Optional (1x)	75/unsuitable	NA	NA
Mission Ridge	12.3/highly suitable	Understory gap creation	Retain existing canopy cover

Conclusion

The Service agrees that implementation of the Project will result in insignificant and discountable effects to the northern spotted owl. Therefore, the Service concurs with the determination of "may affect, not likely to adversely affect" for these species based on the information provided in the BA. Our concurrence is based on the Project being implemented as described in the BA.

This concludes informal consultation pursuant to the regulations implementing the Act, 50 C.F.R. § 402.13. This should be reanalyzed if new information reveals effects of the action may affect listed or proposed species or designated or proposed critical habitat in a manner or to an extent not considered **in** this consultation; if the action is subsequently modified in a manner that causes an effect to a listed or proposed species or designated or proposed critical habitat that was not considered **in** this consultation; and/or, if a new species is listed or critical habitat is designated that may be affected.

Section 7(a)(1) of the Act requires Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

Thank you for your assistance in the conservation of listed species. If you have any questions regarding this letter or our joint responsibilities under the Act, please contact Danielle Munzing at the Central Washington Field Office in Wenatchee at (509) 665-3508 (ext. 7765), or via e-mail at danielle_munzing@fws.gov.

Sincerely,

SIERRA FRANKS

Digitally signed by SIERRA FRANKS
Date: 2020.09.24 10:30:52 -07'00'

for Brad Thompson, State Supervisor
Washington Fish and Wildlife Office

cc:
FEMA, Bothell, WA (J. Parr)

LITERATURE CITED

Fitzgerald, S. and M. Bennet. 2013. A Land Manager's Guide for Creating Fire-Resistant Forests. 14 pp.