Draft Environmental Assessment

Illinois Valley Fire Safety and Resiliency Project

HMGP 5195-15

Josephine County, Oregon

October 2022

FEMA

Federal Emergency Management Agency
Region X
Department of Homeland Security
130 – 228th Street SW
Bothell, WA 98021

Cover photograph: Ramsey Canyon Fire, Oregon Department of Forestry (2018)

This document was prepared by

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Contract No.: 70FA6020D00000003

Task Order: 70FA6021F00000060

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Acronyms and Abbreviations

°F	degrees Fahrenheit
APE	Area of Potential Effect
BLM	Bureau of Land Management
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CWA	Clean Water Act
CWPP	Community Wildfire Protection Plan
dB	decibels
DBH	diameter at breast height
DHS	Department of Homeland Security
EA	Environmental Assessment
EFH	Essential Fish Habitat
EO	Executive Order
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FMAG	Fire Mitigation Assistance Grant
FONSI	Finding of No Significant Impact
HMGP	Hazard Mitigation Grant Program
IPaC	Information for Planning and Consultation
IRS	Internal Revenue Service
IVCDO	Illinois Valley Community Development Organization
JCC	Josephine County Code
MBTA	Migratory Bird Treaty Act
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NLAA	not likely to adversely affect
NRHP	National Register of Historic Places
NO_2	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
O_3	ozone
OAR	Oregon Administrative Rules
ODF	Oregon Department of Forestry
ODFW	Oregon Department of Fish and Wildlife
OEM	Oregon Office of Emergency Management
OHWM	Ordinary High-Water Mark
ORSC	Oregon Residential Specialty Code
Pb	lead
PM_{10}	particulate matter with diameter less than 10 microns
SHPO	State Historic Preservation Office
SO_2	sulfur dioxide
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
WSDOT	Washington State Department of Transportation
WUI	wildland-urban interface

Glossary

Brush: A collective term that refers to stands of vegetation dominated by shrubby, woody plants, or low growing trees.

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.

Conifer Trees: Conifer trees are types of common softwood trees that are identified by pine-like needle leaves and seed-producing cones.

Crown Fuels: All combustible materials (e.g., branches and leaves) in the canopy of a tree.

Clump: A small group of plants or trees growing together.

Defensible Space: Area around a structure where fuels and vegetation are treated, cleared, or reduced to slow the spread of wildfire towards the structure. It also reduces the chance of a structure fire moving from the building to surrounding forest. Defensible space provides room for firefighters to do their jobs.

Diameter at Breast Height (DBH): DBH is the standard for measuring trees. DBH refers to the tree diameter measured at approximately 4.5 feet above the ground.

Ground Fuel: All combustible materials below the surface litter, including duff, tree or shrub roots, punchy wood, peat, and sawdust, that normally support a glowing combustion without flame.

Hardwood Trees: Trees with broad, flat leaves as opposed to conifer or needled trees.

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.

Lopper: A cutting tool, especially for pruning trees.

Sedimentation: The process of silt, clay, sands, and other fine particles settling to the bottom of a body of water.

Slash: Debris left after logging, pruning, thinning, or brush cutting; includes logs, chips, bark, branches, stumps, and broke understory trees or brush.

Glossary (Cont.)

Smoke Management: Application of fire intensities and meteorological processes to minimize degradation of air quality during prescribed 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.

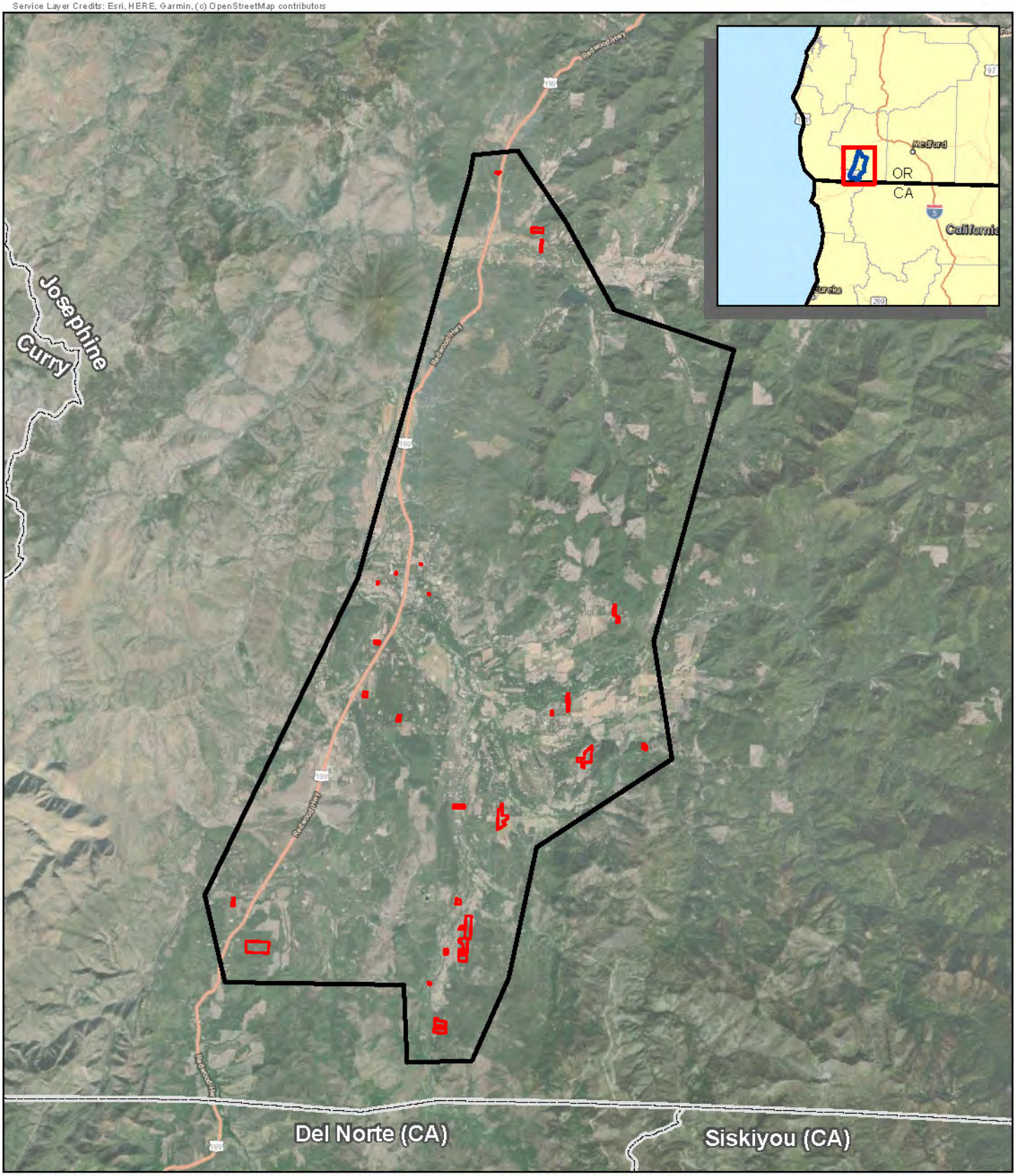
SECTION 1. INTRODUCTION

In April 2019, the Illinois Valley Community Development Organization (IVCDO) applied to the Federal Emergency Management Agency (FEMA) through the Oregon Office of Emergency Management (OEM) for a wildfire mitigation grant under FEMA's Hazard Mitigation Grant Program (HMGP). OEM would be the direct recipient of the grant, and IVCDO would be the subrecipient. IVCDO proposes to establish defensible space and reduce hazardous fuels on up to 31 privately owned properties, including a total of up to 202 acres of treatment. Additionally, IVCDO proposes to install ignition resistant metal roofing on up to 21 primary residences within the proposed treatment areas. Property owner participation in IVCDO's proposed project is voluntary. These fire safety and resiliency measures would be implemented by a project team led by IVCDO with support from Josephine County Emergency Management, Oregon Department of Forestry (ODF), and regionally recognized specialized contractors, who have collaborated to assess and design the treatment areas.

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 is obtained from nonfederal funding sources. The HMGP funds were made available following a Fire Mitigation Assistance Grant (FMAG) declaration by FEMA in 2017 for firefighting costs related to the Pipeline Fire in Klamath County, Oregon.

Photograph 1. *The Slater Fire burned over 157,000 acres and burned within one mile or less of many of the proposed treatment areas.*

The proposed treatment areas are located in the geographic area known as the Illinois Valley, which is located in southwest Oregon within Josephine County. The Illinois Valley covers approximately 1,600-square miles including mountainous terrain as well as rivers and associated floodplains. The canyons and steep drainages within Illinois Valley are densely forested, while the majority of lands located at lower elevations along road systems are more regularly managed or maintained. The treatment areas are located throughout the Illinois Valley as far north as the community of Selma and as far south as the community of O'Brien, along U.S. Highway 199. However, the majority of the treatment areas are concentrated in the City of Cave Junction and the community of Selma. **Figure 1-1** depicts the parcel boundaries owned by the participating landowners; however, most treatment activities (e.g., defensible space treatments occurring within a 100-foot radius from existing residences or other infrastructure) would occur within a small portion of the larger parcels and only occur within the entirety of the boundary within the smaller parcels.



wood.

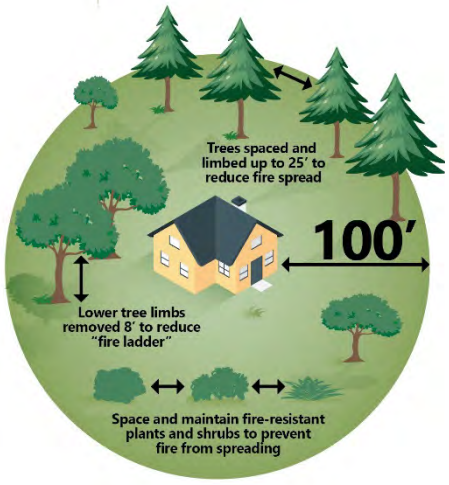
FIGURE 1-1

Proposed Treatment Activities
Illinois Valley Fire Safety and Resiliency Project
Josephine County, OR

All of the proposed treatment areas are within highly vulnerable Wildland-Urban Interface (WUI) areas, immediately adjacent to, or proximate to federally managed forest lands (e.g., Siskiyou National Forest). The proposed treatment areas range in size from 0.25 to 40 acres and are characterized by a mixture of conifer and hardwood tree species at higher elevations, and intermixed oak/pine woodlands and ceanothus brush fields at lower elevations. Understory vegetation includes grasses, forbs, and other herbaceous (i.e., leafy) ground cover.

Many of the lower elevation brushy areas have demonstrated the most dangerous wildfire behavior. The proposed treatments are intended to reduce the likelihood of a wildfire originating from, or traversing, forest lands that would impact or otherwise cause loss and damage to private residences, businesses, and community assets.

Figure 1-2. Defensible Space and Hazardous Fuel Reduction Treatments



The proposed treatments would include the establishment of defensible space up to 100 feet from existing residences or other infrastructure and the installation of ignition resistant metal roofing at a subset of the properties (see **Figure 1-2**). Additionally, the proposed treatments would include prescriptive landscape hazardous fuels reduction on lands more than 100 feet from existing residences or other infrastructure. These proposed treatments would reduce ladder fuels, provide canopy increase stand diversity. The proposed treatments would be in alignment with the *2011 Illinois Valley Community Wildfire Protection Plan (CWPP*) (Illinois Valley Rural Fire Protection District 2011), the *2019 Rogue Valley Integrated CWPP* (Josephine and Jackson Counties 2019), and the *2017 Josephine County Multi-Jurisdictional Hazard Mitigation Plan* (Josephine County Emergency Management 2017). The proposed treatments would also follow accepted National and State of Oregon forestry recommendations.

This Draft Environmental Assessment (EA) was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500-1508)[1], 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

[1] CEQ is responsible for developing procedures for the implementation of NEPA by federal agencies. These procedures were initially promulgated in 1971 as guidelines and were then issued as regulations in 1978. In May 2022, the CEQ issued a final rule to amend certain provisions of its regulations for implementing NEPA addressing the purpose and need of a proposed action, agency NEPA procedures for implementing CEQ's NEPA regulations, and the definitions of "effects." For more information visit: https://ceq.doe.gov/laws-regulations/regulations.html.

Proposed Action and its alternatives. 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).

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 disaster declaration. The purpose of the HMGP is to reduce the loss of life and property resulting from natural disasters and to enable risk mitigation measures to be implemented during the recovery from a declared disaster. Under the FMAG-triggered HMGP, FEMA provides funds to assist with activities that help reduce the risk of future damage hardship, loss, or suffering in any area affected by a wildfire. Specifically, the purpose of the proposed fire safety and resiliency measures is to reduce the wildfire hazard within the 1,600 square miles of the Illinois Valley community. The need for these measures is driven by the increase in wildfire hazards that has resulted from the combination of long-term changes in environmental conditions, dry fire seasons, rugged terrain, and an uptick in urban development in or near wildlands, which increases the risk of fires in the WUI (Josephine County Emergency Management 2017; Josephine and Jackson Counties 2019).

According to the *2017 Josephine County Multi-Jurisdictional Hazard Mitigation Plan*, the probability of Josephine County experiencing a wildfire is "high," meaning a significant incident is likely to occur within the next 10 to 35 years. Josephine County identifies Illinois Valley as one of the top eight communities at risk in the County (Josephine County Board of County Commissioners 2004). The *2019 Rogue Valley Integrated CWPP* identifies a large portion of both Josephine and Jackson counties, including Illinois Valley, as a community at risk as well as a WUI area adjacent to forested federal lands (Josephine and Jackson Counties 2019). Additionally, the Illinois Valley is comprised of low-income communities that are financially unable to implement substantial fire mitigation activities in the absence of funding assistance.

The influence and effects of fire have changed as attempts have been made to suppress it. With the consequent accumulation of more continuous, dense wildland fuels, historic burn mosaics were lost.[2] Uninterrupted (continuous) fuels have led to larger, more intense wildfires, which are increasingly difficult and expensive to suppress, especially during periods of very dry and/or windy weather, or episodes of widespread lightning activity. These conditions can quickly overwhelm local, state, and federal firefighting resources (Josephine and Jackson Counties 2019).

In 2017, southwestern Oregon experienced $2.83 million in spending losses, $1.03 million in lost earnings, $31.7 million in local tax losses, and $104.5 million in state tax losses from economic impacts from wildfires. Additional losses were experienced from smoke in 2018 when Southern Oregon experienced some of the worst air quality in the U.S. (FEMA 2021). At the end of the 2020 wildfire season more than 1.1 million acres had burned in Oregon, affecting more than 4,300 homes. This included the Slater Fire, which burned more than 157,229 acres in Josephine County (Northwest Interagency Coordination Center 2022). By mid-August in the 2021 wildfire season, Oregon wildfires

[2] Landscapes with burn areas ranging in time since fire (e.g., ranging from recently burned to unburned) can be more resilient to future wildfire events than large patches of similar unburned vegetation.

burned over a million more acres than they had by that time the prior year (Northwest Interagency Coordination Center 2022).

The recent wildfire history for Josephine County suggests that the risk of destructive wildfire remains elevated. A total of 19 significant recent fires (greater than 100 acres) have recently burned in Josephine County (see **Table 2-1**).

Table 2-1. Recent Wildfire History for Josephine County

Fire	Year	Burned Area
Slate Creek Fire	2012	153 acres
Beacon Hill Fire	2013	123 acres
Stratton Creek Fire	2013	155 acres
Pacifica Fire	2013	500 acres
Labrador Fire	2013	2,022 acres
Dads Creek Fire	2013	24,457 acres
Farmers Gulch Fire	2013	248 acres
Brimstone Fire	2013	2,204 acres
Big Windy Fire	2013	24,271 acres
Reeves Creek Fire	2014	187 acres
Onion Mountain Fire	2014	4,109 acres
Buckskin Fire	2015	5,343 acres
Gold Canyon Fire	2016	120 acres
Chetco Bar Fire	2017	191,125 acres
Miller Complex	2017	39,715 acres
Klondike Fire	2018	175,258 acres
Taylor Creek Fire	2018	52,839 acres
Garner Complex	2018	25,000 acres
Slater Fire	2020	157,229 acres

Sources: Josephine County Emergency Management 2017; U.S. Department of Agriculture (USDA) and Bureau of Land Management (BLM) 2017; Northwest Interagency Coordination Center 2020

The *2011 Illinois Valley CWPP* and the *2019 Rogue Valley Integrated CWPP* were developed to identify wildfire hazards and propose ways to mitigate the risk. These CWPPs identify fuel hazards, values at risk from wildfire, and fire history for the area. The proposed fire safety and resiliency measures would be in alignment with the *2011 Illinois Valley CWPP* (Illinois Valley Rural Fire Protection District 2011), the *2019 Rogue Valley Integrated CWPP* (Josephine and Jackson Counties 2019), and the *2017 Josephine County Multi-Jurisdictional Hazard Mitigation Plan* (Josephine County Emergency Management 2017). In particular, these measures would align with mitigation action WF-3 of the *2017 Josephine County Multi-Jurisdictional Hazard Mitigation Plan*, which calls for "…hazard fuel reduction on county-owned forest land adjacent to communities at risk." These measures would align with the 2021 Oregon Residential Specialty Code (ORSC). Section R327, *Wildfire Hazard Mitigation* provides minimum standards for dwellings and their accessory structures located in or adjacent to vegetated areas subject to wildfire, to reduce or eliminate hazards. Section R902, *Fire Classification*, sets forth requirements for the application of roof covering materials. Additionally, these measures would align with Josephine County Code (JCC) Section 19.76.030(B), which provides site development and construction standards.

The proposed fire safety and resiliency measures would complement treatment activities conducted under a U.S. Forest Service (USFS) Community Assistance Grant, which provided defensible space and landscape fuels reduction to over 180 acres of private land immediately along the WUI of Rogue-Siskiyou National Forest in the Page Creek area. This community assistance work was coupled with additional USFS fuels treatment work on over 300 acres, with more treatment currently underway. Natural Resources Conservation Service (NRCS) funding has been obtained for hazardous fuels treatments in the Takilma area. Additionally, NRCS funding is also being sought for hazardous fuels treatments to hundreds of acres of private property throughout the Illinois Valley including the City of Cave Junction and the unincorporated communities of O'Brien and Selma.

SECTION 3. ALTERNATIVES

This section describes the No Action Alternative and 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 FEMA would not fund the proposed establishment of defensible space, hazardous fuels reduction, and/or the installation of ignition resistant roofs in the Illinois Valley. Neither IVCDO nor Josephine County has a program which financially supports property owners in achieving fire mitigation goals on their property. Individual landowners may decide whether or not to conduct fuels reduction to mitigate their risks on their own property with their own resources. However, there would be no guarantee of consistent or measurable fuels reduction work under this alternative. Given that the proposed treatment areas identified are located within the 20 poorest zip codes in the State of Oregon according to Internal Revenue Service (IRS) data (Campuzano 2019), it is unlikely that these fire mitigation activities would be implemented to the same extent in the absence of the proposed funding assistance. The IVCDO would continue to pursue federal and state assistance for mitigation; however, because current wildfire hazards in the treatment areas may not be substantially reduced under the No Action Alternative, the risk to residential properties, infrastructure, forest resource damage, and human life in highly vulnerable WUI areas would remain and continue to compound based on other environmental factors (e.g., increasing temperatures, continued drought, accumulation of fuels, etc.). Additionally, many properties would continue not to meet current wildfire-related building code regulations provided in the 2021 ORSC and the JCC.

3.2 Proposed Action

The Proposed Action would establish defensible space and reduce hazardous fuels on 31 properties, including up to 202 acres of private lands scattered throughout the 1,600-square-miles of Illinois Valley. Additionally, the Proposed Action would involve the installation of ignition-resistant metal roofing on up to 21 primary residences within the proposed treatment areas. The proposed treatment parcels range in size from less than 0.25 acre to 40 acres and are characterized by a mixture of Douglas fir (*Pseudotsuga menziesii*), ponderosa pine (*Pinus ponderosa*), California black oak (*Quercus kelloggii*), and Pacific madrone (*Arbutus menziesii*). The proposed treatment activities would begin with the development of property-specific treatment prescription plans, during which time parcel specific conditions would be assessed on the ground and applicable avoidance and minimization measures would be memorialized.[3] IVCDO would complete all HMGP grant closeout activities, which includes property-specific treatment prescription completion assessments. The proposed treatments would achieve the purpose of reducing

[3] IVCDO has worked with property owners and local foresters to develop conceptual treatments in order to facilitate the development of grant application materials and the NEPA-compliant environmental impact analysis.

the likelihood of a wildfire causing loss and damage to private residences, businesses, and community assets and potential risks to human life.

The Proposed Action would include three phases:

- Phase 1A would include defensible space treatments up to 100 feet from existing residences or other infrastructure (see **Section 3.2.1**);
- Phase 1B would include installation of ignition resistant metal roofing on primary residences (see **Section 3.2.2**); and
- Phase 2 would involve the prescriptive landscape hazardous fuels reduction (same treatment as defensible space) and burning of collected fuel debris (slash piles) on lands more than 100 feet from existing residences or other infrastructure (see **Section 3.2.3**).

Photograph 2. *Treatment areas would include stands that are overly dense, characterized by ladder fuels that could support a crown fire in the future.*

Both defensible space treatment and prescriptive landscape hazardous fuels reduction would provide a break in the forest canopy, which can force a fire to the ground where wildland firefighters can more safely and easily manage it. While untreated forest would remain within and adjacent to each of the treatment areas, defensible space treatment and prescriptive landscape hazardous fuels reduction within the treatment areas may contribute to containment by reducing the intensity and extent of wildfires, which would ultimately reduce the risks to people living in the wider vicinity of the treatment area. Together these treatments would change the composition (i.e., species mix), density (i.e., trees per acre), and increase the structural diversity of the woodlands. The proposed treatment methods would favor healthier and larger trees as well as more unique and rare species. All of these factors would contribute to reduced wildfire danger in the Illinois Valley.

3.2.1 Phase 1A: Defensible Space Treatment Prescription

Creating defensible space involves managing vegetation within 100 feet of homes by removing flammable materials and vegetation, including removing ladder fuels, such as shrubs, small trees, brush, or low limbs, that may provide a route for a fire to climb up from ground fuels to the forest canopy. Defensible space provides a buffer that limits the spread of wildfire immediately surrounding a structure and establishes an area in which wildland firefighters can more safely protect homes. The proposed defensible space treatments would be applied where specific structures are threatened by wildfires to prevent direct contact of flames and radiant heat that can cause ignition of structures. In addition to areas within 100 feet of residences, defensible space treatments would also be

applied along driveways and other infrastructure (e.g., utility lines, etc.). This defensible space has been incorporated in the total proposed treatment of up to 202 acres.

Photograph 3. *Defensible space treatments are proposed in areas where tree limbs are located in close proximity to or are overlying existing structures.*

Defensible space treatments would require ground crews for manual treatment. All work would be done by hand using chainsaws, brushcutters, and/or loppers. No heavy equipment (e.g., track hoes, skidders, log loaders, etc.) would be used. Vegetation spacing would be identified on a property-by-property basis but would typically be between 25 feet and 45 feet. These actions will also apply to the landscape fuels treatment (see **Section 3.2.3**). The targeted fuels for removal include the following specifications:

- **Shrubs**: The proposed defensible space treatment would target thin shrub species less than 4 inches in diameter at breast height (DBH) within the treatment areas.
    - In areas where no conifers or hardwoods are present, vegetation spacing for clumps of brush would typically be between 25 feet to 45 feet for habitat health and stand diversity, dependent on location on slope or near structures.
    - Clumps would not be less than 50 feet from the property boundary and 25 feet from other reserve vegetation (e.g., no clumps would be left within 25 feet of a hardwood or conifer).
    - Where conifers are not present, the clumps of brush with no greater than a 15-foot canopy width would be left in place.
- **Hardwoods**: Hardwood species targeted under the defensible space treatment would include trees less than 4 inches DBH, with less than 25-foot spacing, leaving space for habitat health and stand diversity.
    - The proposed defensible space treatment would leave clumps of 2 to 3 multi-stems per stump with 25-foot spacing.
- **Conifers**: Conifers targeted under the proposed defensible space treatment would include trees less than 6 inches DBH, with less than 25-foot spacing, with space for habitat health and stand diversity.
- **Hazard Tree Removal**: Some trees over the 6 inches DBH may be removed. The proposed defensible space treatment would involve cutting hazard trees (i.e., dead or dying trees) that could pose a risk/hazard to landowners or workers.

- **Pruning/Limbing**: The proposed defensible space treatment would include pruning up to 8 feet above the ground level (or no more than half of the tree height) on all remaining conifer and hardwood trees.

The following criteria would be considered when choosing vegetation for removal:

1. The largest, healthiest, best-formed trees/shrubs would be retained based on the following criteria:

    1) Has no apparent damage to the main bole (i.e., the main stem of the tree)

    2) Is not chlorotic (i.e., no abnormal reduction or loss of normal green coloration of leaves)

    3) Demonstrates good vigor and is disease free

    4) Has at least 40-percent crown ratio (i.e., at least 40 percent of the total tree height is covered by live branches)

2. Based on site characteristics, in areas with multiple species of conifers, the preference would be to retain:

    1) Sugar pine (*Pinus lambertiana*) or ponderosa pine (south and west slopes, with appropriate soil types)

    2) All other conifers, cedars, and firs (north and east slopes, with appropriate soil types)

3. Based on site characteristics, in areas with multiple species of hardwoods, the preference would be to retain:

    1) Unique or minor species

    2) California black oak or white oak (*Quercus alba*)

    3) Pacific madrone

    4) Other species

4. Based on site characteristics, in areas with multiple species, the preference would be to:

    1) Retain yew (*Taxus brevifolia*), alder (*Alnus rubra*), maple (*Acer* spp.), and Pacific dogwood (*Cornus nuttallii*), then other indicator species

    2) Identify and remove invasive species – including Scotch broom (*Cytisus scoparius*) and yellow star thistle (*Centaurea solstitialis*)

5. In areas with multiple species of shrubs, the preference would be to retain:

    1) Unique or uncommon species shall have preference

2) Manzanita (*Arctostaphylos manzanita*) and ceanothus (*Ceanothus* spp.), depending on habitat and fire variables

3) Hazelnut (*Corylus cornuta*), elderberry (*Sambucus* spp.), Oregon myrtle (*Umbellularia californica*)

4) Oceanspray (*Holodiscus discolor*) or others

5) Common species would be selected for retention in proportion to their original ratio

Disposal of vegetative material would involve the following:

1. Residual slash (i.e., vegetation debris) created by thinning, pruning, and slashing would be disposed on site. Slash would be reduced by being chipped, swamper burned, and/or hand piled and burned at a later date (with the burn time depending on environmental conditions and specific treatment locations) (see **Section 3.2.4**, *Burning and Smoke Management*).

2. Firewood chunks would be left on the ground upon approval of landowner or organized into piles where feasible for pickup at a later date.

3. Poles (i.e., branch free logs) would be stockpiled along access points and left for potential salvage, or other use. Otherwise, poles would be cut up, then burned or chipped.

4. Where feasible, slash would be used to construct habitat piles.

Where feasible and where access allows, residual slash would be chipped (the chips would be spread out on the forest floor) or hand piled for subsequent burning (see **Section 3.2.4**, *Burning and Smoke Management*). Hand piles should be created no less than 4 feet high and no more than 7 feet wide. Hand piles would be located away from standing trees, on downed logs or stumps, roads, ditches, channel bottoms, and perennial, intermittent, or riparian buffer areas. Additionally, piles would be located more than 15 feet from the external boundary of treatment areas or from perennial, intermittent, or riparian buffer areas.

All hand piles would be at least 80 percent covered with polyethylene 4-milimeter thick plastic film or polycarbonate or wax paper alternatives. Coverings would be secured on piles by placing no more than 25 percent of total material piled on top of plastic. All unused/cut material would be carried out of the treated property if no longer needed to cover piles.

3.2.2 Phase 1B: Installation of Ignition Resistant Metal Roofing

In addition to defensible space treatments, a subset of participating property owners would install ignition resistant metal roofing on primary residences to greatly reduce the risk of loss or major damage to residences and potential fatalities. Replacing existing roofs with ignition resistant metal roofing would be done by experienced contract roofers, who would likely use typical roofing tools such as hammers, power drills, and nail-guns.

Installation of metal roofing does not require a permit and would meet or exceed building code requirements (i.e., 2021 ORSC, specifically Section R327, *Wildfire Hazard Mitigation* and Section R902, *Fire Classification* as well as JCC Section 19.76.030[B]).

3.2.3 Phase 2: Prescriptive Landscape Hazardous Fuels Reduction

Landscape hazardous fuels reduction includes thinning, removing ladder fuels, reducing flammable vegetation more than 100 feet from residences and structures. This treatment would be used where the forest has large amounts of highly flammable fuels (more than 5 dead trees per acre) mixed with healthy conifers. Under the Proposed Action, prescriptive landscape hazardous fuels reduction would involve the same treatment activities and specifications for targeted fuels as described for the proposed defensible space treatment (refer to **Section 3.2.1**); however, the proposed prescriptive landscape hazardous fuels reduction would occur in areas outside of the 100-foot defensible space zone around residences and other structures. Hazardous fuels reduction would create separation between ground fuels and crown fuels as well as a discontinuous crown layer that would prevent wildfire ignitions from spreading tree-to-tree; however, hazardous fuel reduction does not involve thinning trees within the entire stand.

3.2.4 Burning and Smoke Management

Pile burning for defensible space treatment and landscape fuels reductions under 2 acres, would be completed under burn permits issued by the Illinois Valley Fire District, which includes requirements for burn pile size, distance to structures, firefighting equipment and tools, etc. (Illinois Valley Fire District 2022). The burn permits would be submitted by the contractors hired by IVCDO. Pile burning would occur during the burn season when conditions are wet or rainy with little or no wind, during daylight hours, and when air quality conditions permit (Josephine County 2022).

For pile burning on treatment areas greater than 2 acres, a burn permit would be required from ODF. Burning would comply with all local ODF District and fire department burning restrictions, as necessary (ODF 2020). Contractors would complete Smoke Management Registration and Accomplishment Forms from ODF prior to and following all burning. Smoke activities would be restricted to dates allowed by ODF and contractors must immediately contact ODF if any burning activities escape the project area.

3.2.5 Project Timing and Duration

Phase 1A, Phase 1B, and Phase 2 of the Proposed Action could occur simultaneously and take up to 3 years to complete, though work at any one property would only take a few days to a few weeks depending on the specific treatment area. Hazardous fuels reduction during Phase 2 would avoid the months of August, September, and depending on weather conditions, portions of January. Additionally, the burning of fuel piles would occur during Phase 2 and would target the months of November through April (avoiding the dry months of May through October). Bird nesting may occur within the project area and may require property specific timing modifications (such as March 1 to July 15 “no

work" for those properties identified with northern spotted owl zones) or other avoidance steps (such as migratory bird nests) (see **Section 4.9**, *Fish and Wildlife*).

The burning season for hand piles in interior Southern Oregon is normally during November and December. However, conditions permitting, burning may occur at any time from the middle of October through June.

Project work could start in the Fall of 2022. During discussions with IVCDO, properties located near northern spotted owl activity centers have been identified and all project-related work would occur outside nesting season to the maximum extent feasible, since the overall project is expected to take a few years to complete.

3.2.6 Maintenance Activities

Follow-up maintenance is not part of the proposed federal grant funding; however, it is a requirement of the grant award and may be considered an effect of the Proposed Action. Long-term maintenance would be the responsibility of participating landowners, and a maintenance agreement would be in place before fuels treatment would be conducted on a specific parcel. Maintenance work could be accomplished annually with typical landscaping tools already owned by many landowners. Maintenance may include pruning hardwood sprouts, removing dead material, limbing trees, mowing, and raking. Long-term maintenance would be required for a minimum of 10 years to ensure the effectiveness of fuels reduction treatments.

In conjunction with the National Fire Protection Association Firewise USA staff, ODF, and Illinois Valley Rural Fire District, IVCDO would schedule Firewise campaigns in the spring and fall targeting the properties served by the grant award (as well as prior grant funded projects from USFS-CA in 2017). All project participants would work directly with local Firewise USA staff to develop individual maintenance plans for their properties.

3.3 Additional Action Alternatives Considered and Dismissed

Aside from the Proposed Action and the No Action Alternative presented above, no other viable action alternatives were identified for detailed analysis.

One potential alternative that would be similar to the Proposed Action, would reduce the scope of treatment to 100 feet around primary residences. However, this alternative would substantially reduce the total treatment area from up to 202 acres down to approximately 72 acres. This smaller treated area (less than half of that described for the Proposed Action) would not be sufficient to achieve the necessary landscape-level effects on fire behavior and spread. Although this alternative would provide defensible space around primary residences, this alternative would not be as effective at reducing the risk of wildfire spread within the region as compared to the Proposed Action. Therefore, this alternative, eliminating landscape hazardous fuels reduction, would not meet the purpose and need for the Proposed Action.

Another alternative to the Proposed Action would be treatment through prescribed burns within the proposed treatment areas, which would also reduce fuel loads. This approach

would help to reduce the severity and consequences of wildfire spread; however, it was dismissed from further consideration because prescribed burning is less effective in areas with heavy fuel loads, such as dense underbrush, because these loads increase the risk that the prescribed fire would escape. Extensive burn protocols for fire crews, equipment, and aircraft would be required to ensure the prescribed fire is contained. However, the close proximity of structures within the proposed treatment areas would increase the risk of damage or destruction of an escaped prescribed burn. Finally, prescribed burns are used for large acreage or landscape-scale fuels management, rather than for establishing defensible space.

SECTION 4. AFFECTED ENVIRONMENT, POTENTIAL IMPACTS, AND MITIGATION

This section describes the existing setting for each of the resource categories, evaluates the potential impacts for each of the alternatives identified in **Section 3**, *Alternatives*, and identifies appropriate avoidance and minimization measures to avoid or reduce potential adverse impacts. Potential impacts are evaluated based on the criteria listed in **Table 4-1**. The study area generally includes the treatment areas and access and staging areas necessary to implement the Proposed Action (refer to **Section 3.2**, *Proposed Action*). If the study area for a particular resource category is different from the proposed treatment area, the differences are described in the appropriate subsection.

Table 4-1. Evaluation Criteria for Potential Impacts

Impact Scale	Criteria
None/Negligible (No Impacts or No Change is often used in the discussion to indicate None/Negligible)	The resource category would not be affected, or changes would be either nondetectable or, if detected, would have effects that would be slight and local. Impacts would be well below applicable regulatory thresholds.
Minor	Changes to the resource category would be measurable, although the changes would be small and localized. Impacts would be within or below applicable regulatory thresholds. Avoidance and minimization measures would reduce any potential adverse effects.
Moderate	Changes to the resource category would be measurable and would have either localized or regional-scale effects. Impacts would be within or below applicable regulatory thresholds, but historical conditions would be altered on a short-term basis. Avoidance and minimization measures would reduce any potential adverse effects. However, mitigation measures may also be necessary.
Major	Changes would be readily measurable and would have substantial consequences on a local or regional level. Impacts would exceed applicable regulatory thresholds. 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 resource categories identified in **Table 4-2** would not be affected by either the No Action Alternative or the Proposed Action because they do not occur in the proposed treatment areas or the proposed treatment activities would have no impacts on them. These resources were eliminated from further consideration in this EA.

Table 4-2. Resources Eliminated from Further Consideration

Resource Topic	Reason for Elimination
Geology	The proposed establishment of defensible space and hazardous fuels reduction activities are surface-level activities that would not affect the underlying geology (e.g., bedrock) within any of the proposed treatment areas. Issues related to surface soils and topography are discussed in **Section 4.2**, *Soils*
Topography	The proposed establishment of defensible space and hazardous fuels reduction activities would not involve grading or any other activities that would affect topography of the proposed treatment areas. Issues related to soil erosion are discussed in **Section 4.2**, *Soils*.
Wild and Scenic Rivers Act	According to the National and Wild and Scenic Rivers System (National Wild and Scenic Rivers 2020), the closest wild and scenic river, the Illinois River, is located more than 4 miles north of the nearest proposed treatment area. Therefore, the proposed establishment of defensible space and hazardous fuels reduction would have no visual or other physical impacts on any wild and scenic rivers.
Sole Source Aquifers	According to the U.S. Environmental Protection Agency's (USEPA's) sole source aquifer map (USEPA 2022d), there are no sole source aquifers designated in or near the Illinois Valley region. Therefore, the alternatives would have no impacts on sole source aquifers.
Coastal Resources	The treatment areas are not located in the Coastal Zone Boundary designated by the State of Oregon (Oregon Coastal Program 2020) or within a Coastal Barrier Resources Unit (USFWS 2019a). Therefore, the proposed establishment of defensible space and hazardous fuels reduction would have no impacts on coastal resources.
Land Use and Zoning	The proposed establishment of defensible space and hazardous fuels reduction activities would not change existing land uses designation and is consistent with the current zoning within the affected communities. Therefore, the proposed establishment of defensible space and hazardous fuels reduction would have no impacts on land use and zoning.

4.2 Soils

As described in **Section 1**, *Introduction*, the Illinois Valley covers approximately 1,600-square miles including mountainous terrain as well as rivers and associated floodplains. The elevation ranges from 1,240 feet above sea level along the Illinois River to 7,055 feet above mean sea level on Grayback Mountain (Southern Oregon 2013). The majority of the proposed treatment areas are characterized by slopes measuring less than 20 percent (NRCS 2022).

There are many soil map units – more than 40 – within the proposed treatment areas (NRCS 2022).[4] Most soil map units are gravelly loams and clay loams. The steeper slopes within the proposed treatment areas tend to have thinner soil layers that are primarily composed of rock fragments, as organic matter erodes down the slope (Williams 2018).

The Farmland Protection Policy Act requires federal agencies to minimize the unnecessary conversion of farmland into nonagricultural uses. According to the NRCS (2022), there are several prime farmland soils in the proposed treatment areas. However, all of the proposed treatment areas are located on or immediately adjacent to rural residential properties that are not under active agricultural operations.

4.2.1 No Action Alternative

Under the No Action Alternative, some at-risk property owners may still implement limited wildfire mitigation activities, ranging from the establishment of defensible space to long-term vegetation maintenance. These sporadic and geographically scattered activities would result in short-term, *negligible adverse impacts on soils* as a result of ground disturbances that are limited in area, but could involve the use of heavy equipment. Additionally, these activities would have short-term, *negligible adverse impacts on farmland soils*. While wildfire mitigation activities may result in some potential for erosion, they would not take any active farmland out of production or otherwise result in the removal of farmland soils.

However, as described in **Section 3.1**, *No Action Alternative*, it is unlikely that these limited fire mitigation activities would be implemented to the same extent in the absence of the proposed funding assistance. In the event of a major wildfire, there would be a substantial loss of vegetation (see **Section 4.8**, *Vegetation*). 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, including the moisture, temperature, and biotic characteristics of soils (USFS 2005). Additionally, the loss of vegetation could result in substantial increases in soil erosion. The amount of erosion after a burn depends on the magnitude and timing of each storm event, the severity of the burn, the slope, soil type and condition of the watershed before the burn. Erosion may be

[4] A soil map unit is a collection of areas defined and named the same in terms of their soil components (e.g., series) or miscellaneous areas or both.

fast or may continue to occur over several years after a burn, as the root systems of burnt vegetation decay, further decreasing soil stability (Barkley 2005).

Extreme heat generated from wildfires can cause soils, including farmland soils, to form hydrophobic layers that repel water, resulting in decreased 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). Following a severe wildfire, the resulting soil conditions could lead to decreased agricultural potential until the soils are able to recover. In drier areas, the accumulation of organic matter that facilitates soil formation is relatively slow and may take years (USFS 2005).

4.2.2 Proposed Action

Based on the proposed treatment activities, the implementation of the Proposed Action would have short-term, *negligible adverse impacts on soils*. The establishment of defensible space and hazardous fuels reduction would be conducted by hand – using chainsaws, brushcutters, and/or loppers – due to the steep slopes in the proposed treatment areas. No heavy equipment (e.g., track hoes, skidders, log loaders, etc.) would be required. No large root balls would be disturbed, and many trees and shrubs would be retained according to the individualized treatment prescriptions. As described in **Section 3.2.1**, *Phase 1A: Defensible Space Treatment Prescription*, where feasible and where existing access allows, residual slash would be chipped. Spreading chipped wood material on steep slopes would further reduce the potential for soil erosion. Piles would be hand built, small, and generally scattered/discontinuous in arrangement. Previous studies have shown that dispersed pile burning does not result in extreme soil heating (unless large wood is the dominant fuel type), substantial soil erosion, or detrimental changes in soil fertility around the burn pile (Hubbert et al. 2013). Over the long-term, the risk of wildfire spread in the proposed treatment areas would be reduced, thereby reducing the potential for substantial soil erosion during future storm events. This would result in a long-term, *minor to moderate beneficial impacts on soils*.

The proposed establishment of defensible space and hazardous fuels reduction would not remove farmland soils or otherwise convert active farmland to nonagricultural uses. Further the proposed treatment activities would not prevent the future use of farmland soils for agricultural purposes. Given the negligible risk of soil erosion, the implementation of the Proposed Action would have short-term, *negligible adverse impacts on farmland soils* and would likely have a long-term, *minor to moderate beneficial impacts on farmland soils* by reducing the risk of soil damage and soil erosion related to wildfires.

4.3 Visual Quality and Aesthetics

As described in **Section 1**, *Introduction*, the Illinois Valley region covers approximately 1,600-square miles of mountainous terrain, including canyons and steep drainages that

are densely forested. The proposed treatment areas are characterized by a mixture of densely spaced Douglas fir, ponderosa pine, California black oak, and Pacific madrone. The rugged terrain of the Illinois Valley is generally considered to be visually appealing and aesthetic.

The proposed establishment of defensible space and hazardous fuels reduction activities would alter the vegetation within the proposed treatment areas. Additionally, the installation of ignition-resistant roofing would alter the visual appearance of affected residential structures. As such, these proposed treatment activities have the potential to affect the visual character of the area. The assessment of impacts to visual character is a qualitative analysis that considers the visual context of the proposed treatment areas, assessment of whether the proposed treatment areas include any scenic places or features designated for protection, the number of people who can view the affected areas and their activities, and the extent to which those activities are related to the aesthetic qualities of the area.

4.3.1 No Action Alternative

Under the No Action Alternative, limited wildfire mitigation activities, if implemented, would not result in perceptible changes in the appearance and visual quality of the area overall. Properties that are treated with wildfire mitigation measures by at-risk property owners on their own initiative would undergo a visual change, which could be similar to that described for the Proposed Action, resulting in *negligible adverse impacts on visual quality*. However, given the lack of coordinated hazardous fuels reduction activities, the changes would occur slowly and would be limited in geographic area. Additionally, under the No Action Alternative a major wildfire would be more likely to spread through the area, which could have long-term, *moderate to major adverse impacts* on the visual quality the community. Depending on the extent and location of the fire damage, there could be significant burn scars and loss of vegetation on a landscape scale. This damage could be visible from a distance, thereby diminishing the aesthetic qualities of the valley.

4.3.2 Proposed Action

Individual properties that receive defensible space and hazardous fuels reduction treatments would undergo a visual change, from a dense and overgrown understory to a more open understory, which could be perceived as a visually cleaner landscape. These proposed treatment activities would open up the forest canopy allowing for light to better penetrate the stands and creating views through the stands. Nearby residents and forest users may find this a positive attribute. However, the proposed treatment areas are located on privately owned properties within rural residential areas that are surrounded by a rugged, mountainous, and forested landscapes. The proposed establishment of defensible space and hazardous fuels reduction would occur in strategic locations within the proposed treatment areas adjacent to existing residences and along driveways, which would not be readily visible from heavily trafficked public roadways, trails, or scenic viewpoints. Further, given that up to 202 acres for treatment are scattered across the 1,600-square-mile Illinois Valley, the vast majority of the region would remain unchanged in terms of visual character.

In addition to the proposed establishment of defensible space and hazardous fuels reduction, the implementation of the Proposed Action would result in the installation of ignition-resistant metal roofing on up to 21 primary residences within the proposed treatment areas. The metal roofing could change the appearance of the structure and result in an increase in glare as compared to shingle or shake roofs. However, the affected primary residences are surrounded by forested lands and would not be readily visible to the public or otherwise affect public views.

As such, the implementation of the Proposed Action would have *negligible adverse impacts on visual quality and aesthetics* in all treatment areas. Over the long-term, the risk of wildfire spread in the proposed treatment areas would be reduced, which would have long-term, *minor to moderate beneficial impacts* on visual quality and aesthetics by reducing the chance that a damaging high-intensity wildfire occurs.

4.4 Air Quality and Climate

The Clean Air Act, amended in 1990, requires the USEPA to set National Ambient Air Quality Standards (NAAQS) for six pollutants harmful to human and environmental health, including ozone (O_3), particulate matter, nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), and lead (Pb) (USEPA 2022c). According to the USEPA's Green Book (2022a), Josephine County is currently in maintenance for CO and particulate matter with diameter less than 10 microns (PM_{10}) and is in attainment status for all other criteria pollutants.[5]

Air quality is negatively affected by everyday activities such as vehicle use and major events such as wildfires. Wildfire smoke is composed of carbon dioxide (CO_2), water vapor, particulate matter, carbon monoxide, nitrogen oxides, organic chemicals such as hydrocarbons, and trace minerals, which affect air quality (USEPA et al. 2019). Air quality can also be affected by fugitive dust, particulate matter that is released into the air by wind or human activities and can have human and environmental health impacts.

Illinois Valley is located in the Klamath Mountain Ecoregion, which has a mild and sub-humid climate that supports conifer and hardwood forests in the Pacific Northwest and Northern California (Thorson et al. 2003). Temperatures in the City of Cave Junction range from an average low of 33 degrees Fahrenheit (°F) in December and January to an average high of 94 °F in July and August (U.S. Climate Data 2022). The City of Cave Junction receives an average of 62.87 inches of rain annually (U.S. Climate Data 2022). Most of the precipitation occurs in the fall, winter, and spring. Summer precipitation is very low, which increases the risk of wildfire spread. However, because of the significant range in elevation and the influence of the mountains, portions of Illinois Valley may often be colder and wetter.

[5]Areas where air pollution levels consistently stay below these standards are designated "attainment." Areas where air pollution levels persistently exceed these standards are designated "nonattainment". If an area was in nonattainment, but now attains the standard and has an USEPA approved plan to maintain the standard, it is designated a "maintenance" area.

"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 CO_2 and methane (CH_4). Climate change is capable of affecting species distribution, temperature fluctuations, and weather patterns. Estimates indicate that average annual temperatures in the Pacific Northwest will increase by 2 °F in the 2020s, 3.2 °F by the 2040s, and 5.3 °F by the 2080s (USFWS 2011). Warmer temperatures could decrease mountain snowpack, resulting in higher winter and lower summer stream flows (USFWS 2011). Earlier spring snowmelt and higher temperatures also increase the risk of wildfires in the region, and North American wildfires have increased in intensity and frequency over the past 50 years (USFWS 2011).

4.4.1 No Action Alternative

Limited wildfire hazard mitigation activities by at-risk property owners on their own initiative would have short-term, *negligible adverse impacts on air quality* from vehicle and equipment use. 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 (USEPA et al. 2019). Particulate matter, specifically, can have many harmful effects, including eye and respiratory tract irritation, reduced lung function, asthma, and heart failure (USEPA et al. 2019). In addition to particulate matter in smoke, a fire in developed areas produces a variety of other toxins when buildings and their contents burn.

Smoke from major wildfires can affect air quality over large areas, impacting people far from the fire, even several states away. Additionally, major wildfires can emit high levels of greenhouse gases into the atmosphere, thus contributing to climate change, which exacerbates the risk of wildfires. In the event of a wildfire, the No Action Alternative could have long-term, *major adverse impacts on air quality and regional climate*, depending on the intensity and scale of the wildfire.

4.4.2 Proposed Action

The Proposed Action would have short-term, *negligible adverse impacts on air quality* from the additional vehicle and equipment use. Contractors would primarily use hand-operated power tools, such as chainsaws, as well as light-duty vehicles during the implementation of the Proposed Action. Vehicle use on dirt or gravel roadways, such as those in the proposed treatment areas, can contribute to fugitive dust while gas-powered equipment can produce particulate matter. Vehicles would primarily be used to transport crews to the treatment areas and in some circumstances (e.g., where chipping or pile burning is not or cannot be implemented) to haul wood to firewood donation facilities.[6] Therefore, ground disturbance and associated release of fugitive dust would be limited.

[6] The National Forests of Oregon and Washington in Region 6 of the USDA Forest Service are transitioning their firewood program to become a free use firewood program to the public. Free use firewood will be granted to individuals for personal use without regard to race, creed, color, national origin, age, handicap, or sex, and without restrictions regarding the wealth or residency of the recipient. Those who receive free use firewood permits may use firewood for cutting, manufacturing, handling, or other processing, but not for resale (MyCentralOregon.com 2022).

Vehicles and equipment running times would also be kept to the minimum extent possible.

Pile burning would be conducted under burn permits issued by the Illinois Valley Fire District (for treatment areas less than 2 acres) or an ODF burn permit (for treatment areas greater than 2 acres) (refer to **Section 3.2.4**, *Burning and Smoke Management*). Additionally, based on the small and scattered/discontinuous nature of burn piles for slash disposal and the proposed approach to allow vegetation to dry out so that it burns cleaner, the smoke released from burn piles would be limited. Piles would not be all burned concurrently; therefore, there would be very brief and localized adverse impacts on air quality. The Proposed Action would have short-term, *minor adverse impacts on air quality* from vehicle and equipment use, pile burning, and other related activities. Since the Proposed Action does not include any new permanent air emissions and pile burning would be geographically and temporally scattered, no detailed analysis of impacts on climate change is warranted. However, by reducing the risk of wildfire spread, the proposed establishment of defensible space and hazardous fuels reduction activities would have long-term, *minor beneficial impacts on air quality and climate change*.

4.5 Surface Waters and Water Quality

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

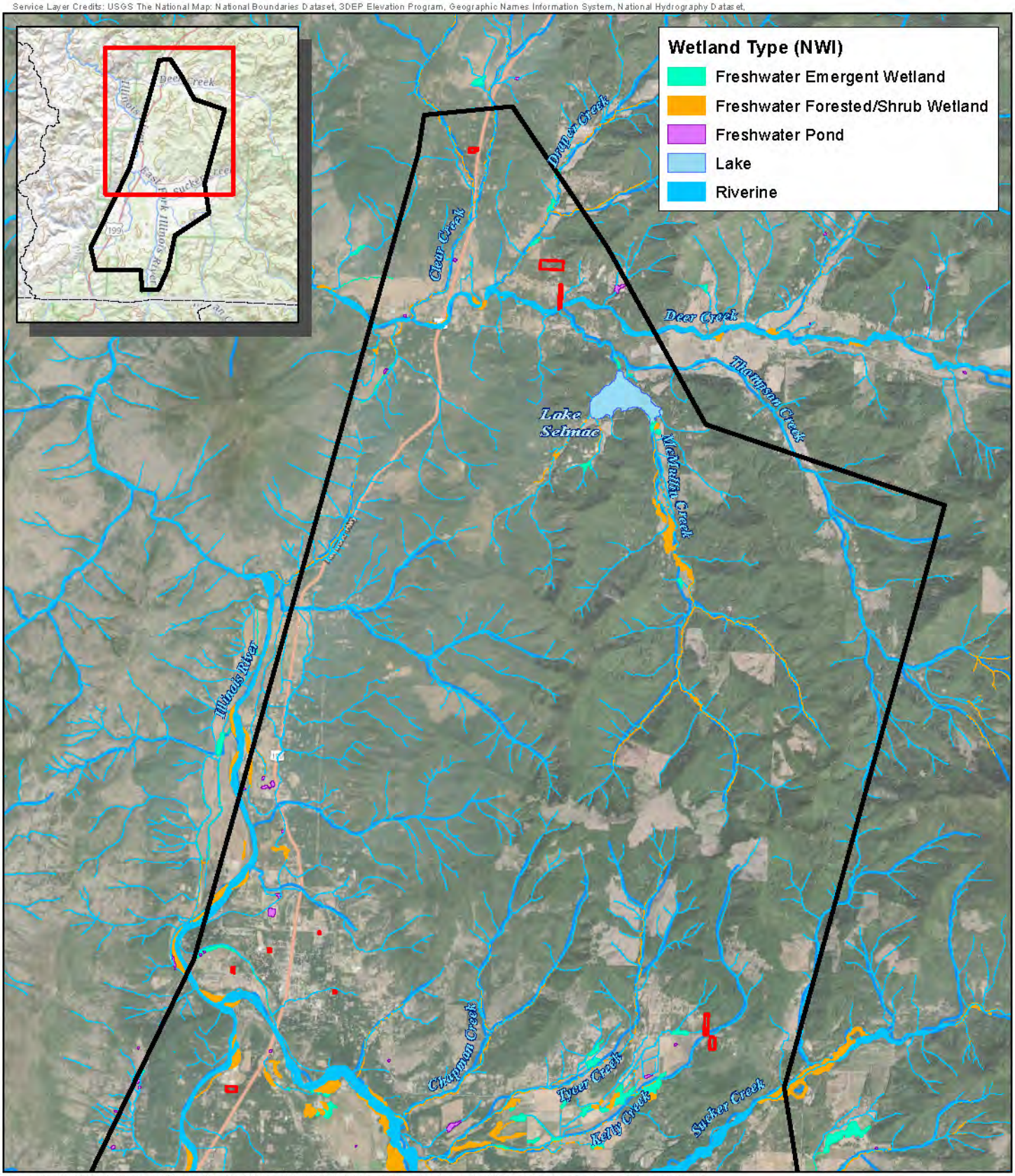
The proposed treatment areas are located in the Illinois Watershed. According to Oregon Department of Environmental Quality (DEQ) many of the waterbodies in the Illinois Watershed, including the Illinois River, are impaired for fish and aquatic life (DEQ 2020).

The Illinois River includes two major forks that merge just outside of Cave Junction, Oregon. The east fork flows west, while the west fork flows north originating south of Obrien, Oregon. According to National Oceanic and Atmospheric Administration (NOAA) Fisheries documents, there are several ephemeral and intermittent streams in the area, including Clear Creek, Deer Creek, McMullen Creek, Chapman Creek, Woodcock Creek, Parker Creek, and Wood Creek (NOAA Fisheries 2021) (refer to **Figure 4-1** and **4-2**).

4.5.1 No Action Alternative

Under the No Action Alternative, limited wildfire mitigation activities may be implemented by at-risk property owners on their own initiative. However, given the lack of coordination and the scattered/discontinuous nature of these wildfire mitigation activities, there would be short-term, *negligible adverse impacts on surface waters and water quality* (e.g., indirect impacts from erosion, refer to **Section 4.2**, *Soils*).

Service Layer Credits: USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset,



Path: \\sdg1-fs1\GIS\3551_Planning\FEMA_HMTAP_IllinoisValley_3270SW9002\MXD\ReportFigures\Fig4_1_SurfaceWaters_Wetlands_N.mxd, aaron.johnson 9/12/2022

1 inch = 1.5 miles

0 0.75 1.5 Miles

wood.

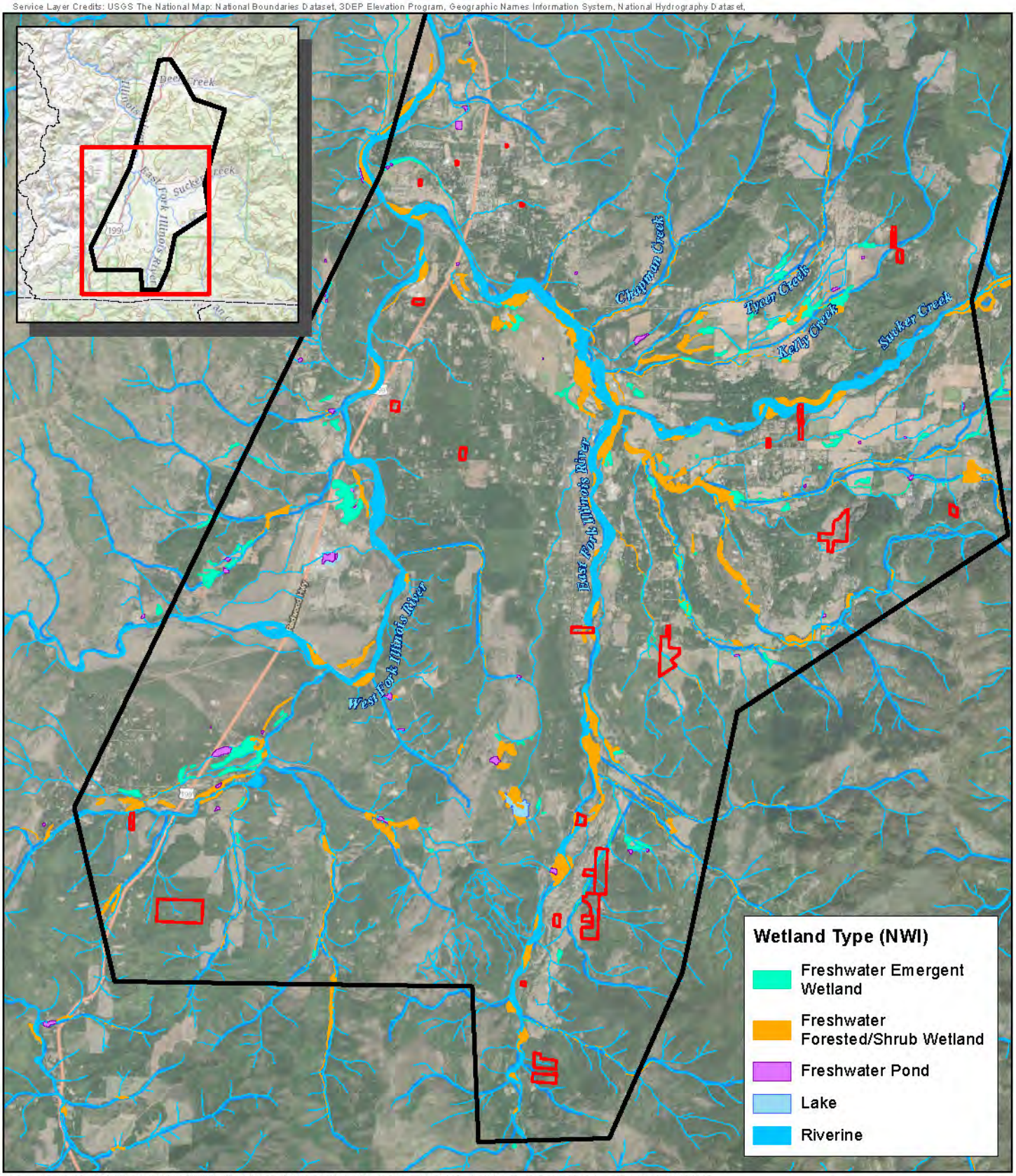
Parcels Owned by Participating Landowners*

Area of Influence

*Note that most treatment activities (e.g., defensible space treatments occurring with a 100-foot radius from existing residences or other infrastructure) could occur within the entire parcel for the smaller properties, but otherwise only occurs within a smaller portion of most depicted parcels.

FIGURE 4-1

Surface Waters and Wetlands
Illinois Valley Fire Safety and Resiliency Project (North)
Josephine County, OR



*Note that most treatment activities (e.g., defensible space treatments occurring with a 100-foot radius from existing residences or other infrastructure) could occur within the entire parcel for the smaller properties, but otherwise only occurs within a smaller portion of most depicted parcels.

FIGURE 4-2

Surface Waters and Wetlands
Illinois Valley Fire Safety and Resiliency Project (South)
Josephine County, OR

Under the No Action Alternative, 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 substantial increases in soil erosion and sedimentation. Sedimentation is when water velocity slows down to the point where fine sediments (e.g., clays, silt, and sand) can settle out of the water column, often resulting in these small particles filling in the spaces between larger substrates (e.g., gravels, cobbles, etc.). There may also be increased temperatures from the loss of shade along riparian zones outside of the treatment areas. As described in **Section 4.2**, *Soils*, intense lasting heat from major wildfires can cause soils to form hydrophobic layers, which could decrease infiltration and aquifer recharge while increasing runoff, erosion, sedimentation, and stream discharges. The No Action Alternative could have long-term, *major adverse impacts on surface waters and water quality*, depending on the scale and intensity of a wildfire.

4.5.2 Proposed Action

While the Proposed Action would not involve in-water work, the establishment of defensible space and hazardous fuels reduction activities in the upland could still indirectly affect water quality, as these activities would involve the removal of vegetation and could increase the potential for erosion and sedimentation issues in aquatic systems. Riparian protection zones would be maintained to a distance of 120 feet for perennial streams and 50 feet for intermittent and wetlands as outlined by similar fuels reduction projects in the region (NOAA Fisheries 2020).

- Inner Buffer (0-60 feet): Maintain a 60-foot inner buffer from the ordinary high-water mark (OHWM) of perennial streams with no fuels reduction or vegetation management.

- Outer Buffer (60-120 feet): Maintain an additional 60-foot buffer from the OHWM of perennial stream, where 50 percent canopy cover and a minimum of 60 trees per acre would be maintained.

- Intermittent streams/wetlands would have a 50-foot vegetation management zone, retaining 60 trees per acre and 50 percent canopy. No tree above 8-inch DBH shall be cut.

- Except to address erosion concerns, no slash or pile slashed material would be located within the combined 120-foot buffer zones for perennial streams or the 50-foot vegetation management zone for intermittent streams/wetlands.

The proposed riparian buffer from any streams or waterbodies within treatment sites would help retain stream shade and filter surface water runoff.

The use of ground crews and hand-operated power tools (e.g., chainsaws, brushcutters, and/or loppers) rather than the operation of heavy equipment would result in negligible soil disturbance and mobilization of fine sediments. All gas-powered equipment would be maintained in good repair and fueling would take place at least 50 feet from waterbodies.

Root balls would not be disturbed, and some vegetation would be retained according to the treatment specifications (refer to **Section 3.2.1**, *Treatment Methods*), which would help prevent substantial erosion from vegetation removal. Herbicides would not be used to manage vegetation. Burning would be conducted in compliance with local and state regulations, as described in **Section 3.2.4**, *Burning and Smoke Management*. Therefore, the implementation of the Proposed Action would have short-term, *negligible adverse impacts on surface waters and water quality*.

Over the long-term, the implementation of the Proposed Action would reduce the risk and severity of wildfire spread in the treatment vicinity, and therefore would reduce the risk of impacts associated with wildfires on water resources as described in the No Action Alternative. Therefore, the Proposed Action would have long-term, *moderate beneficial impacts on waterbodies* within the vicinity of the treatment areas.

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. Wetlands are defined by the U.S. Army Corps of Engineers (USACE) and the USEPA as, "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR §328.3[b]). The USACE has the authority to regulate jurisdictional wetlands as Waters of the U.S. under Section 404 of the CWA; however, EO 11990 provides guidance concerning how to mitigate or minimize any net loss of both jurisdictional and non-jurisdictional wetlands.

According to the U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps, there are several potential wetlands that occur throughout the Illinois Valley near the proposed treatment areas, including riverine wetlands associated with the Illinois River and its tributaries and Lake Selmac and the Esterly Lakes.[7] Wetland classifications within the area include lake, freshwater emergent, freshwater forested/ shrub wetland riverine, freshwater pond, and riverine (USFWS 2022b).

ODF requires riparian management areas of 100 feet around significant wetlands (larger than 8 acres) and bogs. Less than 3 acres of the proposed treatment area overlaps with potential wetlands as identified in the NWI and that area is scattered among several sites. Therefore, there are no "significant wetlands" within the treatment area. Other wetlands would be protected by Oregon Administrative Rules (OAR) 629-655, which requires

[7] The NWI integrates aerial imagery, digital map data, and other resource information to produce current information on the status, extent, characteristics and functions of wetlands, riparian, and deepwater habitats. However, there is no attempt to define the limits of proprietary jurisdiction of any federal, state, or local government, or to establish the geographical scope of the regulatory programs of government agencies.

operators to minimize disturbance to understory vegetation and soils in and around wetlands and retain downed wood and snags in wetlands.

4.6.1 No Action Alternative

In the absence of a major wildfire, the No Action Alternative would have a short-term, *negligible adverse impacts on wetlands*. Any wildfire mitigation activities implemented by at-risk property owners would be unlikely to be regulated by the state. These small-scale activities could affect wetlands if clearing of vegetation occurs around or within a wetland. Additionally, this alternative would not substantially reduce the risk of wildfire spread through the treatment areas, which could destroy or deteriorate vegetation in wetlands near the treatment areas. Destruction of vegetation in nearby wetlands would damage habitat for wildlife and lessen the effectiveness of wetlands to filter pollutants and maintain water quality. Therefore, the No Action Alternative would have long-term, *minor to moderate adverse impacts on wetlands*, depending on the scale and intensity of a wildfire.

4.6.2 Proposed Action

As described in **Section 4.5**, *Surface Waters and Water Quality*, the Proposed Action would not involve in-water work. Riparian protection zones would be maintained to a distance of 120 feet for perennial streams and 50 feet for intermittent streams and wetlands as outlined by similar fuels reduction projects in the region (NOAA Fisheries 2020). Work in the immediate vicinity of the wetlands would involve the use of ground crews and hand-operated power tools (e.g., chainsaws, brushcutters, and/or loppers). The IVCDO would implement, monitor, and maintain best management practices to control soil erosion and sedimentation, minimize spills and pollution from construction equipment and activities (refer to **Section 4.5**, *Surface Waters and Water Quality*), and provide protection for any protected species habitat (see **Section 4.10**, *ESA-Listed Species and Designated Critical Habitat*). Therefore, the implementation of the Proposed Action would result in short-term, *negligible adverse impacts on wetlands*. Additionally, the Proposed Action would reduce the risk that a major wildfire would spread through the proposed treatment areas and damage nearby wetland vegetation; therefore, there would be long-term, *minor beneficial impacts on nearby wetlands*.

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 practicable alternative. FEMA regulations (44 CFR Part 9.7) use the 1-percent annual chance flood (i.e., 100-year floodplain) as the minimal area for floodplain impact evaluation. Floodplains are environmentally sensitive, ecologically diverse, and hydrologically important areas within a watershed. Naturally functioning floodplains help moderate flood events through storage and infiltration of runoff, as well as filtering some of potential nutrients and pollutants therein before reaching surface waters. Similarly, floodplains also help reduce sedimentation of surface waters.

Floodplains slow surface water flow allowing pollutants and fine sediments to settle out before entering a watercourse (e.g., creek, river, etc.).

Based on the relevant FEMA Flood Insurance Rate Maps (FIRMs), the following two treatment areas are located in the 1-percent annual chance special flood hazard zone:

- 1207 Deer Creek Road
- 4727 Waldo Road

The following two treatment areas are located in an Area with Reduced Flood Risk due to Levee (Zone X):

- 560 Schumacher Street
- 120 Ken Rose Lane

The residence at 1531 Thompson Creek Road is in an area of undetermined flood hazard (Zone D). No floodplains are present within the remaining treatment areas.

4.7.1 No Action Alternative

In the absence of a major wildfire, the No Action Alternative would have short-term, *negligible adverse impacts on floodplains* result from individual wildfire mitigation activities carried out by at-risk property owners on their own initiative. As described for the Proposed Action, some of these activities may occur within a mapped 100-year floodplain. However, this alternative would not meaningfully reduce the risk of wildfire spread, which could damage or eliminate existing vegetation beyond the treatment areas, depending on the scale and intensity of a wildfire. Loss of vegetation would adversely affect natural floodplain functions. The additional sedimentation in the long-term could lead to an increase in the base flood elevation (i.e., 100-year flood elevation) and thus greater flood hazard risks to improved property in the affected floodplain. Therefore, the No Action Alternative could have long-term, *minor to moderate adverse impacts on floodplains* in surrounding areas, depending on the intensity and scale of a wildfire.

4.7.2 Proposed Action

Under the Proposed Action, some hazardous fuels reduction treatments would occur in the mapped 100-year floodplain of Deer Creek and the West Fork of the Illinois River. However, the Proposed Action would not cause an increase in base flood elevations or modify existing floodplains. Implementation of the Proposed Action would result in short-term, *negligible adverse impacts on floodplains* related to the potential for erosion and sedimentation (refer to **Section 4.5**, *Surface Waters and Water Quality*).

The Proposed Action would help reduce the risk of wildfire spread and associated erosion, surface runoff, and flooding that could adversely affect floodplains. Therefore, there would be long-term, *minor beneficial impacts on floodplains* in and around the proposed treatment areas.

4.8 Vegetation

Illinois Valley is located within the in the Rogue/Illinois Valleys ecoregion in the Klamath Mountains Ecoregion of Oregon. Dominant forest tree species are Douglas fir, ponderosa pine, California black oak, and Pacific madrone. Riparian zones also include western red cedar (*Thuja plicata*), big leaf maple (*Acer macrophyllum*), cottonwood (*Populus* spp.), manzanita (*Arctostaphylos* spp.), alder (*Alnus* spp.), birch (*Betula* spp.), and willow (*Salix* spp.). Illinois Valley has experienced dramatic vegetation change after the initial settlers pre-1900, the most significant factors are agricultural modifications, widespread logging and fire suppression. Fire suppression in particular has resulted in dense, overgrown vegetation stands, which result in high risk of fire hazards (BLM 2001).

The proposed treatment areas are located on private properties within rural residential areas that are surrounded by a rugged, mountainous, and forested landscapes.

Invasive Species

EO 13112, *Invasive Species*, 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 plant species, such as Canada thistle (*Cirsium arvense*), yellow tuft (*Alyssum murale* and *A. corsicum*), purple loosestrife (*Lythrum salicaria*), and wooly distaff thistle (*Carthamus lanatus*), may be present in the Illinois Valley (Oregon Department of Agriculture 2020).

4.8.1 No Action Alternative

Under the No Action Alternative, some limited wildfire hazard mitigation activities 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 treatment 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 treatment areas. In addition, a major wildfire could result in changes to the soil characteristics (refer to **Section 4.2**, *Soils*) 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. Depending on the intensity and scale of a wildfire, there could be long-term, *major adverse impacts on vegetation* under the No Action Alternative.

4.8.2 Proposed Action

The Proposed Action would remove small conifers and shrubs and would therefore have short-term, *minor adverse impacts on vegetation*. However, because coniferous trees have a large amount of sap in their branches, they can burn quickly and support fast-moving wildfires. Coniferous tree needles and branches are usually distributed

continuously from ground to treetop, and therefore, they ignite and burn easily (Alberta Government 2012). Reducing shrub density and ladder fuels would help reduce the ability of a fire to climb into the crowns of the remaining trees. The implementation of the Proposed Action would create a more fire-resilient vegetation community by providing openings for hardwood species regeneration to become established and reducing the intensity of wildfires that occur in the proposed treatment areas. Therefore, the Proposed Action would have long-term, *minor beneficial impacts on existing vegetation communities*.

Pile burning would be conducted in compliance with local and state regulations, as necessary (refer to **Section 3.2.3**, *Burning and Smoke Management*), including burning outside of the fire season and when conditions are wet or rainy with little or no wind (to minimize the risk of fire spread and associated vegetation damage). Burn piles would be positioned to avoid harming retained trees and shrubs. Therefore, pile burning would have short-term, *negligible adverse impacts on vegetation*. Where slash is not burned, smaller cut material would likely be chipped or cut and spread thinly over the treatment areas to promote desiccation, thereby discouraging potential colonization by bark beetles, which feed on the moist layer of phloem within trees (DeGomez et al. 2008).

The implementation of the Proposed Action would result in short-term, *negligible adverse impacts on vegetation* resulting from the removal of individual trees and shrubs and low-intensity slash pile burning. However, the Proposed Action would have long-term *minor to moderate beneficial impacts on existing vegetation communities* as the proposed treatments would reduce overcrowded dense thickets of hardwoods, conifers, and shrubs, creating more open and multi-layer stand conditions conducive to the development of larger individual trees that are more fire resilient. Over the long-term, the Proposed Action would have *major beneficial impacts on vegetation* because the risk of wildfire spread and associated vegetation damage and invasive species spread would be reduced.

4.9 Fish and Wildlife

As described in **Section 4.8**, *Vegetation*, the Illinois Valley is located in the Rogue/Illinois Valleys ecoregion in the Klamath Mountains Ecoregion of Oregon, which covers much of southwestern Oregon, including the Umpqua Mountains, Siskiyou Mountains and interior valleys and foothills between these and the Cascade Range. Several rivers run through the ecoregion, including: the Umpqua, Rogue, Illinois, and Applegate. Within the ecoregion, there are wide ranges in elevation, topography, geology, and climate. This variation supports a climate that ranges from the lush, rainy western portion of the ecoregion to the dry, warmer interior valleys and cold snowy mountains (ODFW 2006). Examples of common mammals and amphibians in the Klamath Mountains Ecoregion include Columbian white-tailed deer (*Odocoileus virginianus leucurus*), red tree vole (*Aborimus longicaudus*), and several bat species, such as California myotis (*Myotis californicus*), fringed myotis (*Myotis thysanodes*), long-legged myotis (*Myotis volans*), pallid bat (*Antrozous pallidus*), silver-haired bat (*Lasionycteris noctivagans*), and Townsend's big-eared bat (*Corynorhinus townsendii*) (ODFW 2006).

The Migratory Bird Treaty Act (MBTA) (16 U.S. Code [USC] §§703-711), 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 migratory birds are protected by the MBTA and existing habitat in the proposed treatment areas have the potential to support a variety of native migratory bird species. The proposed treatment areas are generally within the Pacific Flyway. Dozens of There are 9 migratory bird species could nest within in the treatment areas: Cassin's finch (*Carpodacus cassinii*), Clark's grebe (*Aechmophorus clarikii*), evening grosbeak (*Coccothraustes vespertinus*), oak titmouse (*Baeolophus inornatus*), olive-sided flycatcher (*Contopus cooperi*), rufous hummingbird (*Selasphorus rufus*), and short-billed dowitcher (*Limnodromus griseus*), western grebe (*Aechmophorus occidentalis*), and wrentit (*Chamaea fasciata*) (USFWS 2022a). The nesting season for these migratory birds is generally March 15 through August 31, depending on the species.

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 (16 USC §668[a]). Bald and golden eagle nesting may also occur within the vicinity of the treatment areas (January 1 to September 30). Additionally, bald and golden eagles could occasionally pass through the proposed treatment areas while foraging.

The Illinois River and its tributaries, which run along the borders of several treatment areas, are perennial and fish-bearing, containing fish such as fall Chinook salmon (*Oncorhynchus tshawytscha*), Coho salmon (*Oncorhynchus kisutch*), and winter steelhead trout (*Oncorhynchus mykiss*) (Native Fish Society 2016). According to NOAA Fisheries Essential Fish Habitat (EFH) Mapper, the entire region is located within EFH for Chinook salmon and Coho salmon (NOAA Fisheries 2021).

4.9.1 No Action Alternative

In the absence of a major wildfire, the No Action Alternative would have short-term, *negligible adverse impacts on fish and wildlife*. Limited wildfire mitigation activities conducted by at-risk property owners would remove some vegetation and habitat. However, impacts on fish and wildlife would be negligible due to the limited extent and uncoordinated nature of these treatments. However, a major wildfire would be more likely to spread under the No Action Alternative and could result in the destruction of terrestrial and aquatic habitat, depending on the scale and intensity of the fire (refer to **Section 4.5**, *Surface Waters and Water Quality* and **Section 4.8**, *Vegetation*). Therefore, the No Action Alternative could result in long-term, *minor to moderate impacts on fish and wildlife and their habitats*.

4.9.2 Proposed Action

Prior to implementation, each of the proposed treatment areas would be inspected for sensitive wildlife habitat (e.g., wetlands, streams, etc.) during the development of the treatment prescription plan and treatment areas/types would be adjusted based on identified conditions, as necessary. As described in **Section 4.5**, *Surface Waters and Water Quality*, there would be no in-water work or herbicide application as part of the Proposed Action. Due to the partial and no-cut riparian buffers, which would preserve

existing shading conditions and would continue to filter/trap any surface sediment inputs, there would be *no impacts to fish or other aquatic species*.

The Proposed Action has the potential to impact common wildlife species and associated habitats occurring within the Illinois Valley due to the removal of understory vegetation and individual small trees. Additionally, short-term noise from hand-operated power tools (e.g., chainsaws) during vegetation removal and the installation of ignition-resistant metal roofing could disturb wildlife and cause individuals to move from their preferred areas or temporarily change their behavior. Smoke from pile burning could similarly result in temporary, localized disturbance to wildlife. However, given the scale of the proposed treatments and proximity to rural residential homes, the implementation of the Proposed Action would result in short-term, *minor adverse impacts to wildlife*. Given that the Illinois Valley is comprised of several heavily forested areas and the Proposed Action would not significantly remove vegetation from each of the proposed treatment areas, local wildlife would be able to return to normal behavior relatively quickly.

Additional best management practice guidelines for implementation during the proposed treatment activities have been developed by the Woodland Fish and Wildlife Group (Strong and Bevis 2016) that address snags and logs, old growth trees, work timing, pruning, and seeding to maintain wildlife habitat features during defensible space and fuels reduction work. These suggestions would also be incorporated when applicable and where possible per parcel and include the following:

- Keep any old growth trees, including defective trees and strive for 2 to 3 old growth trees per acres.
- 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 in width, 100 to 300 feet in length, and comprise 10 to 20 percent of the landscape.
- Maintain the best shrub species 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.
- Leave 5 to 10 percent of the trees unpruned. 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.
- When seeding disturbed soils or areas of burned soil use only native and certified weed free seed mixes.

The Proposed Action could affect migratory birds if work were to occur during the breeding season (March 15 to August 31). The disturbances in the proposed treatment areas could result in inadvertent nest destruction, birds abandoning nesting activities, and

their displacement 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. Cavity-nesting birds such as woodpeckers and nuthatches could also be disproportionally affected by the removal of snags (i.e., dead or dying trees). However, treatments occurring within the breeding season would be subject to the prohibitions of the MBTA. Migratory birds nesting may occur within the proposed treatment areas ranging from March 15 to August 31; if working within these time frames cannot be avoided an avian survey for active nests would be required prior to treatment. If present, avoidance measures would be implemented during the proposed treatments and all appropriate permits would be secured from the USFWS Migratory Bird Treaty Act (MBTA) office. Therefore, the Proposed Action could have short-term, *minor adverse impacts on migratory birds*.

The implementation of the Proposed Action would have a short-term, *negligible adverse impact on bald and golden eagles* and their habitat because defensible space and hazardous fuels reduction treatments would primarily take place near residential structures and along driveways, where eagles are unlikely to occur or previously acclimated to typical rural anthropogenic noises. Conducting treatment activities within 660 feet of an occupied eagle nest would require IVCDO and its contractor(s) to coordinate with the local USFWS office.

The proposed treatment activities would result in overall short-term, *minor adverse impacts to fish and wildlife populations* within the treatment areas. However, over the long-term, there would be *minor beneficial impacts on fish, wildlife, and birds* due to the reduction of wildfire intensity and spread, and the associated widespread vegetation loss (including ecologically sensitive vegetation).

4.10 ESA-Listed Species and Designated Critical Habitat

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

The ESA defines the action area 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). Therefore, the action area where effects on federally listed species must be evaluated may be larger than the proposed treatment areas. Noise impacts have the potential to extend the farthest based on the maximum noise generation of a chainsaw (85 decibels [dB]). The potential physical and biological disturbance effects of the proposed treatments could extend up to 0.25 miles from the edges of proposed treatment areas. This distance is derived from existing impact analysis documents that indicate no impacts on northern spotted owls are expected when habitat occurs more than 0.25 miles away from heavy equipment operation. For example, the Washington State Department of Transportation (WSDOT) has a *Programmatic Biological Opinion for Northern Spotted Owl (Strix occidentalis caurina) (NSO) in the Western Washington Lowlands Province* (WSDOT 2014). This Biological Opinion indicates that no effect is expected when the

nesting, roosting, and foraging habitat is more than 0.25 miles away from heavy equipment operation (including chainsaws).

The USFWS Information for Planning and Consultation (IPaC) database was used to identify proposed, threatened, and endangered species that may occur within the region. There are two federally listed plants, one mammal, and one bird species that occur within the region (USFWS 2022a; see **Table 4-3**). However, due to the best available spatial information provided by Oregon Biodiversity Information Center (ORBIC 2022), only the northern spotted owl is believed to be present within the Action Area. Additionally, there is one federally listed fish species managed by NOAA Fisheries (NOAA Fisheries 2022; see **Table 4-3**) that also may occur within the Action Area.

Table 4-3. Federally Listed Species within the Action Area

Common Name	Scientific Name	Federal Status	Presence within Action Area	
			Species	Critical Habitat
Plants				
McDonald's Rock Cress	*Arabis macdonaldiana*	FE	No	N/A
Cook's Lomatium	*Lomatium cookii*	FE	No	No
Mammals				
Pacific Marten, Coastal	*Martes caurina*	FT	No	N/A
Birds				
Northern spotted owl	*Strix occidentalis caurina*	FT	Yes	Yes
Fish				
Southern Oregon / Northern California Coast Coho Salmon	*Oncorhynchus kisutch*	FT	Yes	No

Northern Spotted Owl

The northern spotted owl range includes most of the Southern Oregon Cascade Mountains (USFWS 2019b). Based on their range, there is a potential for noise generated from the proposed treatments – including the establishment of defensible space, hazardous fuels reduction treatments, and installation of ignition-resistance metal roofing - to affect individuals if they are present within the treatment areas. Designated critical habitat for the northern spotted owl occurs adjacent to but not within two of the proposed treatment areas. There are also several documented northern spotted owl activity centers surrounding the proposed treatment areas. Six of the proposed treatment areas either occur within the documented 0.5-mile northern spotted owl core zones,

and/or occur within a 0.25-mile radius of nesting, roosting, and foraging habitat located within the home range.

Southern Oregon / Northern California Coast Coho Salmon

Southern Oregon / Northern California Coast Coho salmon is an Evolutionarily Significant Unit (ESU) of Coho salmon that occurs in coastal streams from the Elk River (near Cape Blanco, Oregon) to the Mattole River (near Punta Gorda, California) (NOAA Fisheries 2022).[8] There are 40 populations of Southern Oregon / Northern California Coast Coho salmon, including the Illinois River population. The only estimate available to assess the status of Coho salmon in Southern Oregon is from the Rogue River, which includes the Lower Rogue River, Illinois River, Middle Rouge River, and Applegate River. Over the past 35 years these populations have experienced a slight negative trend (NOAA Fisheries 2016). None of the proposed treatment activities include in-water work; however, treatment activities may be located near but not adjacent tributaries that support Southern Oregon / Northern California Coast Coho salmon.

4.10.1 No Action Alternative

In the absence of a major wildfire, the No Action Alternative would have *no impacts on ESA-listed species and designated critical habitats*. Limited wildfire mitigation activities conducted by at-risk property owners on their own initiative could result in small areas of vegetation removal, likely focused around primary residential structures. These treatments may not be as prescriptive as the Proposed Action and would likely not include the same conservation measures to avoid or minimize impacts on federally listed species that may be present. However, a major stand replacement wildfire would be more likely to spread under the No Action Alternative, which could have long-term, *major adverse impacts on ESA-listed species and designated critical habitat*, depending on the scale and intensity of a fire.

4.10.2 Proposed Action

Northern Spotted Owl

The implementation of the Proposed Action would involve the establishment of defensible space and hazardous fuels reduction. Creating defensible space involves managing vegetation within 100 feet of homes by removing flammable materials and vegetation (refer to **Section 3.2.1**, *Phase 1A: Defensible Space Treatment Prescription*). Landscape hazardous fuels reduction includes thinning, removing ladder fuels, reducing flammable vegetation more than 100 feet from residences and structures (refer to **Section 3.2.3**, *Phase 2: Prescriptive Landscape Hazardous Fuels Reduction*). Noise generated from the establishment of defensible space and the installation of ignition-resistant metal roofing would be short-term and localized to the primary residence. This noise would generally be similar in nature to existing household noise on the rural residential property

[8] NOAA Fisheries considers a group of populations to be an ESU if it is substantially reproductively isolated from other populations and represents an important component in the evolutionary legacy of the biological species.

(e.g., vehicles, lawnmowers, etc.). There is the potential for slightly increased noise from hand-operated power tools (e.g., chainsaws) operated outside of typical frequencies and durations. Additionally, the operation of light-duty vehicles (e.g., twice a day to arrive and depart to the treatment area) would create additional noise. However, in general, the operation of hand-operated power tools and light-duty truck trips would not producing exceptionally loud or high-pitched noise. Typical hours for work crews would be during the day, which would also reduce noise impacts to potential northern spotted owl foraging behavior.

Theoretically, noise from machinery and human presence could cause individuals to abandon potential nests during proposed treatment activities and possibly even after the treatment activities are complete. However, noise effects to nesting behavior would be avoided by not conducting treatment activities between March 1 and July 15 (critical nesting season) for project areas located within a 0.5-mile radius northern spotted owl core zones or within a 0.25-mile radius of nesting, roosting, and foraging habitat.

USFWS acknowledges the minimal impact of noise to adult northern spotted owls in a Letter of Concurrence (USFWS 2017) for a similar type of project, which states: *"[s]potted owls, however, are relatively tame in regard to human activity, leading the USFWS to expect that the frequency of displacement or missed foraging would likely be insignificant and discountable, especially given that Project-related disturbances will be intermittent, localized, and occur during daylight hours when spotted owls are roosting."* And *"If disturbances were to occur, we expect that the behavioral and physiological consequences would be insignificant, because the magnitude of the area subject to disturbance will represent a small portion of the home range, and spotted owls will be able to move away from Project activities easily and avoid repeated disturbances."*

Therefore, implementation of the Proposed Action would have short-term, *minor adverse impacts on northern spotted owl roosting behavior* since adult and juvenile northern spotted owls can grow accustomed to noise and would be capable of moving away to suitable habitat nearby.

Most of the proposed treatment activities would occur in the densest younger forests stands near residential structures and driveways and some treatment of under-canopy in mid-aged stands, which are not suitable for northern spotted owl nesting. The Proposed Action would predominantly thin small, undersized (less than 6 in DBH) trees that are densely packed. A limited number of 6 to 10 in DBH trees would be selectively removed. No mature trees (more than 10 in DBH) would be removed. As previously described, the avoidance and minimization measures associated with the Proposed Action stipulate the retention of 40 percent canopy coverage for dispersal habitat and 60 percent canopy coverage for nesting, roosting, and foraging habitat. Ladder fuels (limb pruning) would only extend to 8-foot height. Pruning would be irregularly, resulting in variable density, which will retain low height roosting branches.

While the proposed treatments may result in limited habitat modification through under-canopy vegetation removal, the implementation of the Proposed Action would maintain canopy coverage in northern spotted owl habitat (60 percent for nesting, rooting, and

foraging habitat and 40 percent for dispersal habitat). Further, the thinning of crowded small undersized young trees and over developed shrubs would help reduce the risk of wildfires developing into catastrophic fire that would completely destroy large sections of forest and delay species recovery times. Ladder fuel reduction would not be uniform across the proposed treatment areas. A few (approximately 5 percent) well-spaced larger tree limbs would be retained within the 8-foot ladder fuels treatment zone for roosting and foraging. This proper under-thinning would also encourage better growth for mature trees and remaining smaller trees, and typical understory shrubs and vegetation would regenerate within a few seasons.

There is no designated critical habitat for northern spotted owl located within the proposed treatment areas. Therefore, the implementation of the Proposed Action would result in no impacts to designated critical habitat. Due to under thinning on adjacent treatment areas, the existing designated critical habitat would remain contiguous with existing habitat on the treatment sites.

The Proposed Action would result in short-term, *minor adverse impacts to northern spotted owl* due to noise and limited habitat modification. However, the Proposed Action would ultimately result in *long-term major benefits to northern spotted owl* by reducing risks for stand replacing fire, improve tree growth, and improving canopy complexity. Additionally, the proposed treatment activities would open up the constrained understory and would improve gaps for northern spotted owl flight corridors and foraging opportunities. Where appropriate based on proximity to northern spotted owl habitat and site-specific conditions, some project generated vegetative material would be used to build habitat piles. Piles would be 20 feet in diameter, 6 feet high, and would generally consist of 5 layers with larger material on the bottom. These piles would be placed in open areas away from existing mature trees with between 1 and 3 piles per acre.

Under section 7 of ESA, FEMA determined that the project may affect, but not likely to adversely affect (NLAA) northern spotted owl due to noise and the limited (<50 acres) downgrade (under thinning, but retaining 60 percent canopy) of nesting, roosting, and foraging habitat and 0 acres of dispersal habitat removal. Informal consultation with USFWS was completed on July 19, 2022 with their concurrence to this determination (see Appendix D).

Southern Oregon / Northern California Coast Coho Salmon

As previously described in **Section 4.5**, *Surface Waters and Water Quality* and **Section 4.6**, *Wetlands*, the implementation of the Proposed Action would not involve any in-water work. Riparian protection zones would be maintained to a distance of 120 feet for perennial or intermittent streams (including a 60-foot no work zone from either bank). This would retain existing conditions that provide shade and allow for existing streamside vegetation to act as filtration for surface water runoff. Due to the proposed methods for the work (upland vegetation under-thinning), and retaining the riparian buffer around waterbodies, the Proposed Action would have *no impacts on Southern Oregon / Northern California Coast Coho salmon*.

4.11 Cultural Resources

This section provides an overview of potential environmental impacts on cultural resources, including historic properties. Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (16 USC §470f), requires that activities using federal funds undergo a review process to consider potential impacts 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 archaeology 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 treatment 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 (i.e., aboveground cultural resources) and archaeology (i.e., below ground cultural resources).

Regional Setting

The presence of the Takelma people in the region is documented by the Oregon Caves Nation Monument (National Park Service 2015):

> *"For thousands of years the Takelma people lived in what is now called the Illinois and Rogue River valleys. Their villages were mostly concentrated along the Rogue River, where seasonal salmon runs, deer, and small game provided a protein-rich diet. Salmon fishing was a large-scale, coordinated effort. Men caught the fish with spears and nets, while women cleaned and dried the meat. The Takelma supplemented their diet with carbohydrates from plants. They gathered the root of the Camas plant, which is in the asparagus family, as well as acorns from native oaks. The Takelma are known to have cultivated a native tobacco plant, but otherwise relied on the fruits of the wilderness for their survival..."*
>
> *"The Hudson's Bay Company first encountered the Takelma around 1829, and they tried unsuccessfully to establish a fur trade in the region… Settlement of the Illinois Valley began in the 1830s, as farmers and cattlemen began moving north from California towards fertile land in the Willamette Valley. Gold was discovered near Jacksonville, Oregon in the Rogue Valley in 1850. In 1851, the precious metal was found near Waldo in the Illinois Valley. These discoveries encouraged more European settlers to enter the area, some by way of the Oregon Trail. More settlers increased pressure on Native Americans in the area. The first 5 years of contact between incoming miners and previous residents quickly degenerated into chaos and open war)."*

The Cave Junction community website (Cave Junction 2022) includes additional information of the Takelma people.

> *"In 1850 the Takelma Indians made a treaty, but with continued anxieties and hostilities they were removed from the Illinois Valley to a reservation at Table Rock in 1853. Two years later settlers from Jacksonville attacked the reservation and the Rogue Indian Wars began. The wars only lasted until July of 1856 when Chief John finally surrendered and the surviving Indians were sent to the Siletz Reservation on the central Oregon Coast then later on to the Grande Ronde Reservation)."*

The Oregon Caves Nation Monument provides addition information of the Takelma transition to the reservation (National Park Service 2015):

> *"The Takelma were joined on the reservations by their neighbors, the Athapaskans and the Shasta, as well as tribes from even farther away, such as the Coos and Tillamook. The lower numbers of Takelma people relative to other Native American groups, exacerbated by smallpox epidemics, warfare, and relocation, is a major contributing factor to a traditionally limited knowledge of their culture. It is reported that by 1906 less than 10 Takelma were alive and able to speak their native language."*

Josephine County was established as a county in the Oregon Territory on January 22, 1856. The namesake of the county was the first white woman, Josephine Rollins, to establish a local home along the Illinois River when she came to the region with her gold mining father (Cave Junction 2022).

Historic Built Resources

Of the 31 properties identified for treatment, seven properties include buildings are 45 years old or older. Based on the age of these buildings, they were evaluated for historical significance using criteria for listing in the NRHP.

- 201 Smith Sawyer Road, Cave Junction, OR 97523 (1950)
- 27562 Redwood Highway, Cave Junction, OR 97523 (1947)
- 5321 Caves Highway, Cave Junction, OR 97523 (1945)
- 6365 Rockydale Road, Cave Junction, OR 97523 (1971)
- 120 Ken Rose Lane, Cave Junction, OR 97523 (1948)
- 420 W River Street, Cave Junction, OR 97523 (1972)
- 861 Hummingbird Road, Cave Junction, OR 97523 (1976)

All seven buildings do not meet NRHP eligibility criteria and therefore would not be considered historic properties.

4.11.1 No Action Alternative

Under the No Action Alternative, some at-risk property owners may implement wildfire mitigation activities, including the establishment of defensible space and the installation

of ignition-resistant metal roofing, which could disturb the ground or alter the appearance of affected structures. These activities could potentially affect previously unknown cultural resources that may be present. Additionally, the risk of wildfire spread would remain high, despite the potential for some scattered wildfire mitigation activities to occur. A wildfire could have long-term, *minor to moderate adverse impacts* on archaeological resources or historic structures within the wider Illinois Valley depending on the scale and intensity of the fire.

4.11.2 Proposed Action

Hazardous fuels work would be conducted with ground crews using hand-operated power tools (e.g., chainsaws), and no heavy mechanical equipment would be operated off road. No ground disturbing activities (e.g., excavation, grading, etc.) are included in the proposed treatment activities. If any previously unknown archaeological resources are present within any of the proposed treatment areas, they would be unlikely to be affected given the low-impact nature of the work. Therefore, the Proposed Action would result in *no impacts to archeological resources.* . In the event that any archaeological resources are discovered during project implementation, work would immediately cease, the area would be secured, IVCDO and its contractor(s) would notify the FEMA and the Oregon SHPO for further evaluation.

Given that none of the properties proposed for treatment include structures eligible for listing in the NRHP, installation of ignition-resistant metal roofing under the Proposed Action would result in *no impacts to historic structures*. Further, the establishment of defensible space and hazardous fuels reduction activities would not pose indirect impacts to eligible historic structures as they would not change any potential character defining features of the structures.

Under Section 106 of NHPA, FEMA determined that there would be no adverse effect to historic properties. The Oregon SHPO concurred with FEMA's the determination of No Historic Properties Affected on April 12 and April 14, 2021 (see Appendix C).

4.12 Environmental Justice

Environmental justice is defined by EO 12898, *Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations* and *Environmental Justice Guidance Under the National Environmental Policy Act* (CEQ 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 on the local level (i.e., census block group). The local area included in this analysis is where project-related impacts would occur, potentially causing an adverse and disproportionately high impact on neighboring minority and low-income populations. Minority or low-income census tracts are defined as meeting either or both of the following criteria:

- Census block group contains 50 percent or more minority persons or 25 percent or more low-income persons.
- 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 8 census block groups in Josephine County, Oregon. **Table 4-4** depicts the percentage of minority and low-income population for these census block groups as compared to Josephine County.

Table 4-4. Environmental Justice Demographics by Treatment Area

Census Block Group(s)	Minority Population	Low-Income Population
5001	9%	31%
6003	23%	56%
6001	7%	78%
6002	8%	69%
6004	2%	27%
6007	13%	68%
6006	7%	32%
6005	7%	24%
Josephine County	13%	44%

Source: USEPA 2019

Minority Populations

CEQ (1997) defines the term "minority" as persons from any of the following groups: Black, Asian or Pacific Islander, American Indian or Alaskan Native, and Hispanic. According to USEPA's Environmental Justice Screening tool (USEPA 2022e), the minority population in the census block groups encompassing the treatment areas is as high as 23 percent. Census Block Group 6003, containing three treatment areas, may be considered to contain minority populations because this percentage is 10 percent more than the Josephine County average of 13 percent. The remaining seven census block groups do not contain minority populations 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. As shown in **Table 4-4**, the low-income population in the census block groups encompassing the treatment areas are as low as 24 percent and as high as 78 percent (USEPA 2022e). Census Block Group 6005 remains just below the threshold for containing minority populations given the criteria listed above. The remaining census block groups encompassing the treatment areas (i.e., 5001,

6001, 6002, 6003, 6004,6006, and 6007) are considered to contain low-income populations because the low-income population is greater than 25 percent.

4.12.1 No Action Alternative

Under the No Action Alternative, limited wildfire mitigation activities may be implemented by at-risk property owners on their own initiative. However, given that the proposed treatment areas identified are located within the 20 poorest zip codes in the State of Oregon according to IRS data (Campuzano 2019), it is unlikely that these fire mitigation activities would be implemented to the same extent in the absence of the proposed funding assistance. Therefore, under the No Action Alternative, the risk of wildfire spread would remain high. In the event of a wildfire, the populations within the census blocks listed above, including low-income populations, may experience adverse economic and health impacts due to damage or loss of property and assets as well as wildfire smoke (see **Section 4.17**, *Public Health and Safety*). Due to their low income, this population could be disproportionately and adversely affected by a wildfire because of their limited resources to recover from losses. Therefore, long-term, *minor to moderate adverse impacts on minority and low-income populations* may occur in the Illinois Valley, depending on the scale and intensity of a fire.

4.12.2 Proposed Action

The Proposed Action would implement defensible space and hazardous fuels reduction treatments to reduce the risk of wildfire spread in the proposed treatment areas. Short-term and localized impacts from the Proposed Action, such as air quality, noise, etc. would affect those proximate to the work location, including minority and low-income populations. However, these negligible impact are vastly outweighed by the long-term beneficial impacts resulting from a reduction potential wildfire size and intensity, that could otherwise potentially result in the loss of life, medical bills, and/or the loss of hard to replace property. . Therefore, implementation of the Proposed Action would result in short-term, *negligible adverse impacts on all demographic groups* represented in the proposed treatment areas and no disproportionate adverse impacts on minority and/or low-income populations.

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, 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 the 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 USEPA's NEPA Assist website (USEPA 2022b).

According to the database, several hazardous waste sites and water dischargers are present within 1 mile of the proposed treatment areas (see **Table 4-5**).

Table 4-5. Hazardous Materials Sites within 1 Mile of Treatment Areas

Treatment Area	Address	Nearest Distance to Treatment Area (miles)
Hazardous Waste Sites (RCRA)		
Laidlaw Transit Inc	520 W River St	0.34
Three Rivers School District Illinois Valley H.S.	625 E River St	0.53
Lobo Ent	272 N Old Stage Rd	0.92
The Denali Fund	250 N Old Stage Rd	0.97
Oregon Caves Chevron Ss 92934	409 S Redwood Hwy	0.68
DEQ Drug Lab Caves 2021 2416	6221 Caves Hwy	0.80
William Ott	237 Logan Cut Dr	0.92
CP National	33110 Redwood Hwy	0.44
Citizens Telecommunications Co	8399 Takilma Rd	0.19
Water Dischargers (NPDES)		
Laurel Pines Subdivision	Cave Junction	0.45
Cave Junction Wastewater Treatment Facility	1300 N Sawyer Ave	0.36
Siskiyou Pines	0 N Sawyer Ave	0.11
Grocery Outlet	Redwood Hwy and Caves Hwy	0.52
Cave Junction City Water System	S Junction Ave	0.75

Source: USEPA 2022b

4.13.1 No Action Alternative

Under the No Action Alternative, existing conditions would not substantially change. At-risk property owners may implement some wildfire mitigation activities on their own initiative, which could pose a negligible threat of release of hazardous materials from equipment and potentially localized site contamination from minor leaks or spills. The risk of wildfire spread would not be effectively reduced under this alternative. In the

event of a major wildfire, fire-retardant materials could be applied to the forest. 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 limited in terms of foraging areas and species habitat for any individual animal, and the ingredients generally degrade in the environment (Modovsky 2007). Therefore, the potential for adverse impacts is likely to be negligible. Wildfire damage in residential areas also directly releases hazardous materials into the air, soil, and water as plastics burn and materials that are otherwise safely stored are damaged and released (CalRecycle 2020). Because of the low residential density in this area, the potential for the burning homes to produce hazardous materials, even in the event of a large-scale fire, would be expected to be minor. Therefore, there would be a potential for long-term, *minor adverse impacts related to hazardous materials*.

4.13.2 Proposed Action

No hazardous materials sites are present within or immediately adjacent to the proposed treatment areas so there would be no impacts on hazardous sites from implementation of the Proposed Action. The Proposed Action would include the use of mechanical equipment such as chainsaws and trucks, which would pose the threat of leaks and spills. However, all gas-powered equipment would be maintained in good repair and fueling would take place at least 50 feet from waterbodies. Additionally, the short-term use of equipment at any individual treatment area would limit the potential for leaks and spills. Any inadvertent spills would be small and would be immediately contained and cleaned. Therefore, implementation of the proposed Project Action would result in short-term, *negligible adverse impacts related to hazardous materials*.

However, by reducing the risk of wildfire spread – including to areas that include contamination, above ground storage tanks (e.g., diesel tanks), or other hazardous materials storage areas – the proposed establishment of defensible space and hazardous fuels reduction activities would have long-term, *moderate beneficial impacts related to hazardous materials*.

4.14 Noise

Within this discussion "noise" is generally defined as sounds that disrupt normal human activities or otherwise diminish the quality of the human environment. (Indirect noise issues related to wildlife are addressed in **Section 4.9**, *Fish and Wildlife* and **Section 4.10**, *ESA-Listed Species and Designated Critical Habitat*.) Noise that occurs during the night (10 p.m. to 7 a.m.) is more annoying to humans than noise that occurs during normal waking hours (7 a.m. to 10 p.m.). The assessment of noise impacts considers the proximity of noise generating activities to sensitive receptors, which are defined as areas of frequent human use that benefit from a lowered noise level. Typical sensitive receptors include residences, schools, churches, hospitals, nursing homes, and libraries.

Sensitive receptors near the proposed treatment area consists of residences, including those which would receive treatment, as well as nearby residences. Schools, churches,

hospitals, and libraries are located at a much greater distance (e.g., generally 0.25 miles or more) from the proposed treatment areas and are unlikely to experience noise from the implementation of the Proposed Action.

4.14.1 No Action Alternative

Under the No Action Alternative, some limited wildfire mitigation activities may still be implemented by at-risk property owners on their own initiative. The tools and equipment used for these activities would be similar to those already in use for general landscape maintenance around these rural residences, including chainsaws and other hand-operated power tools. There would be short-term, *negligible adverse impacts on noise* experienced by sensitive receptors in area.

4.14.2 Proposed Action

Under the Proposed Action, noise would be generated by the operation of hand-operated power tools, such as chainsaws. The loudest equipment likely to be used would be chainsaws, which can produce noise levels up to 85 dB when perceived from approximately 50 feet away (Federal Highway Administration 2017).

The implementation of the Proposed Action would increase noise levels within the immediate vicinity of the work for the duration of the work. The proposed establishment of defensible space work would occur within 100 feet of primary residences within the proposed treatment areas; hazardous fuels reduction would occur more than 100 feet from the primary residence within the parcel boundaries. Temporary increases in noise levels would result in short-term, *minor adverse impacts* on noise at any one location. Additionally, the proposed treatment activities would occur during normal waking hours and would not generate nighttime noise. Equipment runtimes and vehicle trips would be kept to a minimum. Following the completion of the proposed treatment activities, there would be no long-term change to the ambient noise environment.

4.15 Transportation

Access to the proposed treatment areas include Redwood Highway 25 (Highway 199) and Caves Highway (Highway 46) and residential roadways throughout Josephine County. Many of the sites are located on local residential streets; therefore, there are paved routes or well-maintained dirt roads for residents, visitors, and emergency responders. However, portions of many of these roadways, particularly dirt driveways, are narrow and provide limited access for residents and firefighters in the event of a fire.

4.15.1 No Action Alternative

Under the No Action Alternative, some limited wildfire mitigation activities may be implemented by at-risk property owners on their own initiative. The increase in traffic resulting from these activities would result in short-term, *negligible adverse impacts on transportation* given that the timing of the activities would not be coordinated. Additionally, even with the implementation of these activities, the potential for a major wildfire to spread would remain high. Wildfire may encroach upon roadways and

wildfire smoke may inhibit the ability to see roadways clearly. In recent years, fires in Josephine County have required the closure of highways due to reduced visibility from smoke, debris hazards, and fire safety concerns. For example, law enforcement temporarily closed Highway 199 between Gasquet and Cave Junction to remove hazardous trees affected by the 2019 Slater Fire (Wild Rivers Outpost 2020).

Furthermore, with limited options for emergency vehicle and escape route access, the spread of wildfire could inhibit the ability for evacuation or increase the risk for firefighters.

4.15.2 Proposed Action

Under the Proposed Action, crews would access scattered treatment areas from existing roads and driveways. Work on each of the proposed treatment areas would require a small number of vehicles for a short duration. There may be short-term, *negligible adverse impacts on transportation and traffic* from vehicle staging on roadsides. The work may require several crews to be working at any given time and would require vehicle staging at several points along roadsides in the road network. However, no road closures or detours would be expected.

Over the long-term, the coordinated treatment activities would reduce the risk of wildfire spread, which would reduce potential impacts of wildfire smoke and damage to transportation infrastructure. In addition, the Proposed Action would improve safety and access for residents and emergency responders in the event of a fire. Therefore, there would be long-term, *minor beneficial impacts* on transportation and traffic.

4.16 Utilities

The treatment areas are within the electrical utility service area for Pacific Power (PacifiCorp) and the natural gas service area for Avista. The Josephine County Water Department provides water services for unincorporated areas in Josephine County. The cities of Cave Junction, Selma, and O'Brien offer water, wastewater, storm water, and sanitation services for their respective cities.

4.16.1 No Action Alternative

Although limited wildfire mitigation activities may be implemented by at-risk property owners, the risk of wildfire spread would remain high. For example, electrical services provided via overhead power lines and above ground natural gas infrastructure would continue to be at risk of damage or loss from wildfires. 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, contaminates could potentially leach into the water, causing contamination (FEMA 2019). Damage to drinking water utilities from wildfires may include difficulty reaching the drinking water utility during or after the fire because of road closures, fire hazards, or debris in the road, as well as the water utility losing power as a result of the wildfire, long-term reduction in source water quality, short-term contamination of drinking water sources, need for additional water sampling, loss of source water, and water demand in excess of water

production. Therefore, there would be long-term *minor to major adverse impacts on utilities*, depending on the intensity and scale of a wildfire.

4.16.2 Proposed Action

Since the proposed treatment areas are largely located far away from existing utility structures, and professional arborists would be conducting the work, and would be able to properly avoid utilities when present on a treatment site, there would be *no impact on utilities*. Some of the proposed defensible space and hazardous fuels treatments could provide protection to utilities infrastructure; although, tree trimming to protect power lines or other aboveground utility infrastructure is not the purpose of the Proposed Action. Nevertheless, over 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 long-term, *minor beneficial impacts* on utilities.

4.17 Public Health and Safety

As described in **Section 2**, *Purpose and Need*, Josephine County has a high risk and documented history of wildfires. Wildfire smoke can exacerbate respiratory health issues, such as asthma and chronic obstructive pulmonary disease. Wildfire smoke may contribute to respiratory infections and cardiovascular concerns (refer to **Section 4.4**, *Air Quality and Climate*).

Firefighting and emergency medical services are provided by Illinois Valley Fire District, with eight fire stations located in Cave Junction, Selma, and O'Brien. Communities within or near the proposed treatment areas have a moderate to high wildfire hazard risk because residences and public facilities are interspersed with large tracts of rugged, mountainous, forested lands and wildfires can spread directly from vegetation to structures.

4.17.1 No Action Alternative

Without the implementation of coordinated hazardous fuels reductions, current conditions would not substantively change, and the risk of increased intensity and wildfire spread would remain high. In the event of a wildfire, there is an increased risk to public health and safety and 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 youth and elderly, as described in **Section 4.4**, *Air Quality and Climate*). Wildfires can generate substantial amounts of CO, which can pose a health concern for frontline firefighters. In addition, fires that are burning residences can release toxic materials into the air, soils, and water, posing health risks to populations both during the fire and later during cleanup and recovery (CalRecycle 2020).

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. Under the No Action Alternative,

there could be long-term, *minor to major adverse impacts on public health and safety* depending on the scale and intensity of the fire.

4.17.2 Proposed Action

Implementation of the Proposed Action would result in short-term, *negligible adverse impacts to public health and safety*. As previously described in **Section 4.8**, *Vegetation* slash burn piles would be small and kept away from retained vegetation. In fact, under the Proposed Action, the reduction of hazardous fuels would help to reduce the spread of wildfire in the proposed treatment areas. This would create a safer environment for firefighters and allow them to more easily control the spread of a wildfire. The proposed treatment activities would not prevent wildfires but could contribute to containment, reducing the intensity and frequency of wildfires, which would ultimately reduce the risks for people living in and near the proposed treatment areas. In addition, when wildfires are controlled more quickly, a smaller area may be 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 Josephine County. Therefore, the Proposed Action would have long-term, *moderate beneficial impacts on public health and safety*.

4.18 Summary of Impacts and Avoidance and Minimization Measures

Table 4-6 provides a summary of the potential environmental impacts from implementation of the Proposed Action, any required agency coordination efforts or permits, and any applicable proposed mitigation or best management practices.

Table 4-6. Summary of Impacts and Avoidance and Minimization Measures

Affected Resource Area	Impacts	Agency Coordination of Permits	Avoidance and Minimization Measures
Soils and Farmland Soils	• Short-term, negligible adverse impacts on soils and farmland soils. • Long-term, minor to moderate beneficial impacts on soils by reducing the risk of soil damage from wildfires.	N/A	• Treatment work would be conducted with ground crews using hand-operated power tools due to steep conditions in the proposed treatment areas. • Root balls would not be disturbed during project implementation and some shrubs and trees would be

Affected Resource Area	Impacts	Agency Coordination of Permits	Avoidance and Minimization Measures
			retained according to the individualized fuels prescriptions. • Some vegetation would be retained according to the fuels prescription for each treatment area, helping to prevent significant erosion from vegetation removal. • Spreading of chipped wood material would reduce the potential for soil erosion. • Burn piles would be kept hand built, small, and generally scattered/discontinuous in arrangement.
Visual Quality and Aesthetics	• Negligible adverse impacts on visual quality and aesthetics. • Long-term, minor to moderate beneficial impacts as a result of reduced damage from wildfire.	N/A	• The proposed establishment of defensible space and hazardous fuels reduction would occur in strategic locations within the proposed treatment areas adjacent to existing residences and along driveways, which would not be readily visible from heavily trafficked public roadways, trails, or scenic viewpoints.
Air Quality and Climate	• Short-term, minor adverse impacts on air quality from vehicle and equipment use, pile burning, and other	N/A	• Hand-operated power tools would be used to implement defensible space and hazardous fuels reduction treatments.

Affected Resource Area	Impacts	Agency Coordination of Permits	Avoidance and Minimization Measures
	related activities. • Long-term, minor beneficial impacts by reducing the risk of wildfire spread.		• Vehicles and equipment running times would be kept to the minimum extent possible. • Pile burning would be conducted in compliance with all local and state requirements, as necessary.
Surface Waters and Water Quality	• Short-term, negligible adverse impacts related to the potential for erosion and sedimentation. • Long-term moderate beneficial impacts by reducing the risk of wildfire spread and associated vegetation loss and sedimentation.	N/A	• Hand-operated power tools would be used to implement defensible space and hazardous fuels reduction treatments. • Riparian protection zones would be maintained to a distance of 120 feet for perennial streams and 50 feet for intermittent streams and wetlands. • Herbicides would not be used to manage vegetation. • Pile burning would be conducted in compliance with all local and state requirements, as necessary.
Wetlands	• Short-term, negligible adverse impacts related to the potential for erosion and sedimentation. • Long-term minor beneficial impacts by reducing the risk of wildfire spread and associated vegetation	N/A	• Refer to the avoidance and minimization measures described for Surface Waters and Water Quality.

Affected Resource Area	Impacts	Agency Coordination of Permits	Avoidance and Minimization Measures
	loss and sedimentation.		
Floodplains	• Short-term, negligible adverse impacts related to the potential for erosion and sedimentation. • Long-term, minor beneficial impacts on floodplains by reducing the risk of wildfire spread and associated vegetation loss.	N/A	• Refer to the avoidance and minimization measures described for Surface Waters and Water Quality.
Vegetation	• Short-term, minor adverse impacts resulting from vegetation removal and pile burning. • Long-term, major beneficial impacts 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 remaining trees and other vegetation. • Thinning activities would reduce overcrowding and inter-tree competition for light and nutrients, thereby improving conditions for the remaining trees.
Fish and Wildlife	• No impacts to fish with the retention of a riparian buffer. • Short-term, minor adverse impacts to wildlife resulting from vegetation removal and indirect disturbance (e.g., noise, smoke, etc.). • Short-term, minor adverse impacts to migratory birds resulting from	N/A	• Treatments occurring within the breeding season would be subject to the prohibitions of the MBTA. • Conducting treatment activities within 660 feet of an occupied eagle nest would require IVCDO and its contractor(s) to coordinate with the local USFWS office.

Affected Resource Area	Impacts	Agency Coordination of Permits	Avoidance and Minimization Measures
	vegetation removal and indirect disturbance (e.g., noise, smoke, etc.). • Short-term negligible adverse impacts on eagles resulting from vegetation removal and indirect disturbance (e.g., noise, smoke, etc.). • Long-term, minor beneficial impacts to fish, wildlife, and birds due to the reduction in wildfire intensity.		•Treatment work would be conducted with ground crews using hand-operated tools due to steep conditions in the proposed treatment areas. • Riparian protection zones would be maintained to a distance of 120 feet for perennial streams and 50 feet for intermittent and wetlands. • Some vegetation would be retained according to the fuels prescription for each treatment area. • Herbicides would not be used to manage vegetation. • Vehicles and equipment running times would be kept to the minimum extent possible. • Pile burning would be conducted in compliance with all local and state requirements, as necessary. • Best management practice guidelines developed by the Woodland Fish and Wildlife Group (Strong and Bevis 2016) that address snags and logs, old growth trees, work timing, pruning, and

Affected Resource Area	Impacts	Agency Coordination of Permits	Avoidance and Minimization Measures
			seeding to maintain wildlife habitat features during defensible space and fuels reduction work.
ESA-listed Species and Designated Critical Habitat	• Short-term, minor adverse impacts on northern spotted owl roosting behavior due to indirect noise disturbance and vegetation limited habitat modification. • No impacts on Southern Oregon / Northern California Coast Coho Salmon. • Long-term, major beneficial impacts by opening up the constrained understory and reducing the risk of wildfire spread.	USFWS Informal Consultation	• Work would not occur between March 1 and July 15 if within the 0.5-mile radius northern spotted owl core zone or within up to 0.25 miles of nesting, roosting, and foraging habitat. • Retain more than 60 percent canopy coverage in existing nesting, roosting, and foraging habitat, and more than 40 percent dispersal habitat. • Ladder fuel reduction would not be uniform; some well-spaced larger tree limbs would be retained. • Vehicles would stay on pre-existing roads. • Where appropriate based on proximity to northern spotted owl habitat and site-specific conditions, some project generated vegetative material would be used to build habitat piles.
Cultural Resources	• No impacts on cultural resources, including archaeological or	Oregon SHPO Informal Consultation	• In the event that any archeological resources are discovered during

Affected Resource Area	Impacts	Agency Coordination of Permits	Avoidance and Minimization Measures
	historic structures.		project implementation, work would immediately cease, the area would be secured, and IVCDO would notify the FEMA and the Oregon SHPO for further evaluation.
Environmental Justice	• Short-term negligible adverse impact on all demographic groups represented in the proposed treatment areas.	N/A	• No disproportionately adverse impacts on minority and low-income populations.
Hazardous Materials	• Short-term, negligible adverse impact related to contamination threat from equipment use. • Long-term, moderate beneficial impacts due to the reduction in wildfire loss of residential property that may contain hazardous materials (appliances, fuel tanks, paint, cleaners, vehicles, etc.).	N/A	• Equipment would be kept in good condition. • Any spills or leaks from equipment would be contained and cleaned up right away. • All equipment and project activities would adhere to local regulations to reduce the risk of hazardous leaks and spills.
Noise	• Short-term, minor adverse impacts on noise from the use of hand-operated power tools within the vicinity of the work area.	N/A	• Noise-producing equipment use would occur during less-sensitive, waking hours (7 a.m. to 10 p.m.). • Vehicle and equipment runtimes would be kept to a

Affected Resource Area	Impacts	Agency Coordination of Permits	Avoidance and Minimization Measures
			minimum.
Transportation	• Short-term, negligible adverse impacts on transportation and traffic from vehicle traffic, staging, and road-side work. • Long-term minor beneficial impacts resulting from improved safety and access for residents.	N/A	N/A
Utilities	• No impacts on utilities. • Long-term, minor beneficial impacts by reducing the risk of wildfire spread.	N/A	N/A
Public Health and Safety	• Short-term negligible impacts on public health and safety during fuels reduction activities. • Long-term, minor beneficial impacts 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 impacts during the decision-making process for federal projects. Cumulative impacts can result from individually minor but collectively significant actions.

As described in **Section 2**, *Purpose and Need*, the proposed fire safety and resiliency measures would complement treatment activities conducted under a USFS Community Assistance Grant, which provided defensible space and landscape fuels reduction to over 180 acres of private land immediately along the WUI of Rogue-Siskiyou National Forest in the Page Creek area. This community assistance work was coupled with additional USFS fuels treatment work on over 300 acres, with more treatment currently underway. NRCS funding has been obtained for hazardous fuels treatments in the Takilma area. Additionally, NRCS funding is also being sought for hazardous fuels treatments to hundreds of acres of private property throughout the Illinois Valley including the City of Cave Junction and the unincorporated communities of O'Brien and Selma.

There is the potential for these various wildfire mitigation efforts to combine potential impacts with the Proposed Action with respect to impacts on soils, visual quality and aesthetics, air quality and climate, surface waters and water quality, wetlands, 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. Similar to the Proposed Action, these cumulative projects would be required to implement avoidance and minimization measures to prevent potential impacts to sensitive habitat, listed species, and cultural resources. These activities would result in long-term cumulative beneficial impacts and would complement the Proposed Action by reducing the risk of wildfire spread in the treatment areas and vicinity.

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 Illinois Valley Fire Safety and Resiliency Project. In addition, an overview of the permits that would be required under the Proposed Action is included.

6.1 Agency Coordination

Consultation with the Oregon State Historic Preservation Office regarding Built Environment Resources was initiated via email on April 12, 2021 and received a response on April 14, 2021. Consultation with the Oregon State Historic Preservation Office, the Confederated Tribes of the Grand Ronde, the Confederated Tribes of the Siletz Indians of Oregon, the Cow Creek Band of Umpqua Tribe of Indians, and the Tolowa Dee-ni' Nation regarding Archaeological Resources was initiated via email on July 22, 2022 and a response was received by the Confederated Tribes of the Grand Ronde on September 14, 2022 and the Cow Creek Band of Umpqua Tribe of Indians on July 28, 2022. All agency correspondence is provided in Appendix A and all tribal correspondence is provided in Appendix B. Consultation materials pursuant to Section 106 of the NHPA and Section 7 of the ESA are provided in Appendix C and Appendix D, respectively.

FEMA conducted an informal consultation with the USFWS regarding potential project impacts to northern spotted owl. This consultation was initiated on June 14, 2022 and completed with a letter of concurrence on July 19, 2022 (see Appendix D).

6.2 Public Participation

In accordance with NEPA, this Draft EA has been released to the public, resource agencies, and Tribes for a 30-day public review and comment period. The Draft EA is available on FEMA's website at: https://www.fema.gov/emergency-managers/practitioners/environmental-historic/nepa-repository. Hard copies of the Draft EA are available at IVCDO's office located at 341 E Cottage Park Dr #4., Cave Junction, OR 97523 and the Illinois Valley Public Library Branch located at 209 West Palmer, Cave Junction, OR 97523. Comments on the Draft EA should be submitted to fema-r10-ehp-comments@fema.dhs.gov or submitted via mail to:

FEMA Region 10
Attention: Regional Environmental Officer
130-228th Street SW
Bothell, WA 98021

A notice of the Draft EA's availability has been published in the *Illinois Valley News* (see Appendix A). The notice has also been e-mailed to the following federal and state agencies:

- U.S. Forest Service (Wild River Ranger District)
- U.S. Forest Service Rogue River-Siskiyou National Forest

- U.S. Forest Service Pacific Northwest Region 6
- U.S. Bureau of Land Management
- U.S. Department of Interior
- National Interagency Fire Center
- Federal Highway Administration-Oregon
- National Park Service
- U.S. Army Corps of Engineers-Northwest Division & Portland District
- Natural Resources Conservation Service-Oregon
- U.S. Environmental Protection Agency-Region 10
- U.S. Geological Service Oregon Office
- Oregon Department of Agriculture
- Oregon Department of Environmental Quality
- Oregon Department of Fish and Wildlife
- Oregon Department of Forestry
- Oregon Department of Land Conservation and Development
- Oregon Department of State Lands
- Oregon Department of Transportation
- Oregon Office of Emergency Management
- Oregon State Parks and Recreation Department
- Oregon Watershed Enhancement Board

The notice has also been sent to the Confederated Tribes of the Grand Ronde, the Confederated Tribes of the Siletz Indians of Oregon, the Cow Creek Band of Umpqua Tribe of Indians, the Tolowa Dee-ni' Nation, and area residents. The notice invites the public and agencies to submit their comments about the proposed action, potential impacts, and proposed mitigation measures so that they may be considered and evaluated. The comment period begins when the public notice is published and extend for 30 days. At this time, a public meeting is not planned.

6.3 Permits

IVCDO, and participating landowners, would be responsible for obtaining any necessary local, state, or permits needed to conduct the proposed work..

SECTION 7. LIST OF PREPARERS

The following is a list of third-party consultant preparers and FEMA reviewers who contributed to the development of the *Environmental Assessment for the Illinois Valley Fire Safety and Resiliency Project*. The individuals listed below had principal roles in the preparation of this document. Many others, including senior managers, administrative support personnel, and technical staff, contributed and their efforts were no less important to the development of this EA.

Table 7-1. Third-Party Consultant Preparers

Preparers	Role in Preparation
Doug McFarling	Program Manager
Nick Meisinger	Project Manager
Matthew Sauter	QA/QC Manager
Sydnie Margallo	Lead Environmental Analyst
Ashlyn Navarro	Environmental Analyst
Mia Claridy	Environmental Analyst

Table 7-2. FEMA Reviewers

Reviewers	Role in Preparation
Science Kilner	Program Manager
Owen Coskey	NEPA Documentation Review
Jeffery Parr	Section 7 Consultation

SECTION 8. REFERENCES

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LIST OF APPENDICES

The Federal Emergency Management Agency (FEMA) has worked to ensure that this Environmental Assessment (EA) is accessible to persons with disabilities, in compliance with Section 508 of the Rehabilitation Act of 1973. Regarding the appendices, this EA has reported what was done and how those results affect the decision that will be made based on the totality of the findings provided in the EA. In case any of these appendices poses a challenge to be read electronically by persons with disabilities, each appendix is briefly described and summarized below, rather than being simply listed.

Appendix A. Public Notice and Agency Correspondence. This appendix includes a public notice of availability to be published as a legal advertisement in the *Illinois Valley News*. The notice announces that the Draft EA is available for public review in electronic format on FEMA's website and in hardcopy at the Illinois Valley Community Development Organization (IVCDO) office and the Illinois Valley Public Library Branch. The notice of availability describes that comments on the Draft EA should be either mailed to Science Kilner, Regional Environmental Officer, Region X, 130 228th Street SW, Bothell, WA 98021 or submitted via email to fema-r10-ehp-comments@fema.dhs.gov.

Appendix B. Tribal Coordination. This appendix includes an e-mail response from the Cow Creek Band of Umpqua Tribe, indicating that the tribe does not have any cultural concerns at this time. The e-mail, which is dated July 28, 2022, was sent by Brandi Knutzen, Cultural Specialist, Cow Creek Band of Umpqua Tribe and addressed to Philip Fisher, Archaeologist, FEMA, Region 10. No other responses were received from the Confederated Tribes of the Grand Ronde, Confederated Tribes of the Siletz Indians of Oregon, or Tolowa Dee-ni' Nation.

Appendix C. Section 106 Consultation. This appendix includes two letters and one e-mail from the Oregon State Historic Preservation Office (SHPO) regarding the three no effect determinations made by FEMA for historic built resources and buried archeological resources. The first letter is 1 page long and dated April 12, 2021. The Oregon SHPO concurred that six of the seven buildings are not eligible for listing in the National Register of Historic Places, but requested additional information on one property located at 27562 Redwood Hwy. The second letter is 1 page long and dated April 14, 2021. This letter concurred that all seven identified properties are not eligible for listing in the National Register of Historic Places. Both of these letters were signed by Jason Allen, Historic Preservation Specialist, Oregon SHPO and addressed to Jessica Stewart, FEMA, Region 10. The e-mail was sent by the Oregon SHPO to Philip Fisher, Archaeologist, FEMA Region 10 on August 14, 2022. This e-mail confirmed that the Oregon SHPO received a clearance submission for the project relating to potential buried archaeological resources.

Appendix D. Section 7 Consultation. This appendix includes the Letter of Concurrence from the U.S. Fish and Wildlife Service (USFWS) regarding the northern spotted owl (*Strix occidentalis caurina*). This letter is 3 pages long and dated July 19, 2022. It was written by Jim Thrailkill, Field Supervisor, USFWS, Roseburg Field Office and addressed to Science Kilner, Regional Environmental Officer, FEMA, Region 10. It describes the Action Area, the Proposed Action, justification for the action, and the anticipated effects and avoidance and minimization measures. Due to timing restrictions, and because the direct effects of the proposed vegetation

management activities would not remove existing habitat for the northern spotted owl, nor would the future development of its habitat be precluded by the treatment, the Service concurred with FEMA's determination that the subject action may affect, but is not likely to adversely affect the spotted owl.

APPENDIX A
PUBLIC NOTICE AND AGENCY CORRESPONDENCE

Public Notice of Availability
Federal Emergency Management Agency
Draft Environmental Assessment
Illinois Valley Fire Safety and Resiliency Project

The U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) is proposing to fund the Illinois Valley Community Development Organization (IVCDO) – through the Oregon Office of Emergency Management (OEM) – for implementation of the proposed Illinois Valley Fire Safety and Resiliency Project (Project). Funding would be provided by the Hazard Mitigation Grant Program (HMGP) as authorized by Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act. FEMA has prepared a Draft Environmental Assessment (EA) for the proposed Project pursuant to the National Environmental Policy Act of 1969 and FEMA's implementing instruction. The Draft EA evaluates alternatives for compliance with applicable environmental laws, including Executive Orders 11990 (Protection of Wetlands), 11988 (Floodplain Management), and 12898 (Environmental Justice). The Draft EA evaluates the Proposed Action, which includes: 1) establishment of defensible space and hazardous fuels reduction on 31 properties, including up to 202 acres; and 2) the installation of ignition-resistant metal roofing on up to 21 primary residences. Consistent with Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (40 Code of Federal Regulations Parts 1500-1508), the Draft EA also evaluates the No Action Alternative, which describes future conditions if FEMA would not fund the proposed establishment of defensible space, hazardous fuels reduction, and/or installation of ignition-resistant roofs in the Illinois Valley.

The Draft EA is available on FEMA's website at: https://www.fema.gov/emergency-managers/practitioners/environmental-historic/nepa-repository. Hard copies of the Draft EA are available at IVCDO's office located at 341 E Cottage Park Dr #4., Cave Junction, OR 97523 and the Illinois Valley Public Library Branch located at 209 West Palmer, Cave Junction, OR 97523.

If no significant issues are identified during the comment period on the Draft EA, FEMA will finalize the Draft EA, issue a Finding of No Significant Impact (FONSI), and fund the proposed Project. The FONSI will be posted to FEMA's website. Unless substantive comments on the Draft EA are received, FEMA will not publish another public notice for this project. The deadline for submitting written comments on the Draft EA is 30 days from the publication and/or receipt of this notice. Comments should be either mailed to Science Kilner, Regional Environmental Officer, Region X, 130 228th Street SW, Bothell, WA 98021 or submitted via email to fema-r10-ehp-comments@fema.dhs.gov or submitted via mail to: FEMA Region 10, Attention: Regional Environmental Officer, 130-228th Street SW, Bothell, WA 98021. Please include "Illinois Valley" in the subject line of any correspondence.

APPENDIX B
TRIBAL COORDINATION

From: THPO
To: Fisher, Philip
Subject: RE: [EXTERNAL EMAIL] FEMA HMGP 5195-15 Illinois Valley Fuels Reduction Consultation
Date: Thursday, July 28, 2022 8:32:42 AM

Thank you for contacting the Cow Creek Tribe. At this time we don't have any cultural concerns. If cultural material becomes present during ground disturbances please contact the Cow Creek Tribe within one business day.

Thank You.

Brandi Knutzen

Wik'uuyà'mhan, Wokíthʰ Kʰay' laàpʰa, ƛ̓weteyɬƛ̓
Nahankuotana eyithe'
My friend, Frog Woman, is my name,
I am of the Cow Creek People.

WITHOUT CULTURE WE CANNOT EXIST AS DISTINCT AND SOVEREIGN PEOPLES. AND WE LOSE OUR WAY.

Brandi Knutzen, Curatorial Specialist
Cow Creek Band of Umpqua Tribe
2371 NE Stephens
Roseburg, Or 97470

Email bknutzen@cowcreek.com
Phone (541) 677-5575 ext. 5228
Fax (541) 691-2920

In our every deliberation, we must consider the impact of our decisions on the next seven generations.
—Iroquois maxim

Regular business hours are Monday thru Thursday, 7am-5pm. The office is closed on Fridays. Emails and messages received on Fridays will be returned during the next available business day. For emergent issues please contact the Tribe's reception desk at 541-677-5575 and they will direct you to the appropriate staff.

From: Fisher, Philip <philip.fisher@fema.dhs.gov>
Sent: Friday, July 22, 2022 8:18 PM
To: Dan Courtney <DCourtney@cowcreek-nsn.gov>
Cc: THPO <thpo@cowcreek-nsn.gov>; Jennifer J. Bryant - GO \ Cultural Resources Program Manager <JBryant@cowcreek-nsn.gov>
Subject: [EXTERNAL EMAIL] FEMA HMGP 5195-15 Illinois Valley Fuels Reduction Consultation

Dear Chairman Courtney,

Please see the attached consultation letter and APE shapefile for a proposed FEMA funded fuels reduction project in Josephine County. Thank you for your time and please let me know if you need anything else.

Best,
Phil

Philip Fisher
Archaeologist | Environmental & Historic Preservation | Region 10
Mobile: (425) 471-9018
philip.fisher@fema.dhs.gov

APPENDIX C
SECTION 106 CONSULTATION MATERIALS

Oregon
Kate Brown, Governor

Parks and Recreation Department
State Historic Preservation Office
725 Summer St NE Ste C
Salem, OR 97301-1266
Phone (503) 986-0690
Fax (503) 986-0793
www.oregonheritage.org

April 12, 2021

Ms. Jessica Stewart
FEMA Region X
130 228th St SW
Bothell, WA 98021

RE: SHPO Case No. 21-0484
FEMA HMGP-5195-15_Illinois Valley
Replace multiple roofs with ignition resistant material
Multiple, Cave Junction, Josephine County

Dear Ms. Stewart:

Thank you for submitting information on these seven properties for Section 106 review associated with the effort to improve fire resistance to these buildings. We concur that six of the seven buildings are not eligible for listing in the National Register of Historic Places, which are:

1. **120 Ken Rose Lane** - concur, not eligible/no effect
2. **201 Smith Sawyer Rd**. - concur, not eligible/no effect
3. **420 W. River Rd.** - concur, not eligible/no effect
4. **861 Hummingbird Rd.** - concur, not eligible/no effect
5. **5321 Caves Highway** - concur, not eligible/no effect
6. **6365 Rockydale Rd**. - concur, not eligible/no effect

We request additional information regarding the final property, **27562 Redwood Hwy**. Although the house has clearly had two additions, without some sense of the period during which these were added, it is difficult to know whether they may have attained significance in their own right. We note that the main body of the house appears to retain a relatively high level of integrity. We would also like more information on the investigation into potential significance under Criterion B, such as the identity of early owners of the house, and what investigation was made to reach the conclusion that there is no significance under Criterion B.

Sincerely,

Jason Allen, M.A.
Historic Preservation Specialist
(503) 986-0579
jason.allen@oregon.gov

Oregon
Kate Brown, Governor

Parks and Recreation Department
State Historic Preservation Office
725 Summer St NE Ste C
Salem, OR 97301-1266
Phone (503) 986-0690
Fax (503) 986-0793
www.oregonheritage.org

April 14, 2021

Ms. Jessica Stewart
FEMA Region X
130 228th St SW
Bothell, WA 98021

RE: SHPO Case No. 21-0484
FEMA HMGP-5195-15_Illinois Valley
Replace multiple roofs with ignition resistant material
Multiple, Cave Junction, Josephine County

Dear Ms. Stewart:

We have reviewed the materials submitted on the project referenced above, and we concur with the determination that all seven identified properties are not eligible for listing in the National Register of Historic Places. We also concur that there will be no historic properties affected for this undertaking.

This concludes the requirement for consultation with our office under Section 106 of the National Historic Preservation Act (per 36 CFR Part 800) for above-ground historic properties. Local regulations, if any, still apply and review under local ordinances may be required. Please feel free to contact me if you have any questions, comments or need additional assistance.

Sincerely,

Jason Allen, M.A.
Historic Preservation Specialist
(503) 986-0579
jason.allen@oregon.gov

From: CLEARANCE ORSHPO * OPRD
To: Fisher, Philip
Subject: RE: FEMA HMGP 5195-15 Illinois Valley Fuels Reduction Arch. Consult (SHPO Project# 21-0484)
Date: Sunday, August 14, 2022 9:59:49 PM

Have a great week Philip!! ~mbgrover

THIS E-MAIL CONFIRMS RECEIPT OF AN ELECTRONIC SUBMISSION FOR AN HISTORIC RESOURCE/106 REVIEW
THIS E-MAIL DOES NOT REPRESENT CONCLUSION OF THE REVIEW/106 CONSULTATION.....

We received a clearance submission on your above referenced project. Thank you.

The assigned SHPO Case Number is 21-0484 . Refer to this case number on all future correspondence or submitting any change to the scope of work for review using the provided SHPO case number. Please retain this email for your records.

If the SHPO chooses to not respond within 30 calendar days from receipt of this submittal your responsibilities under Section 106 of the National Historic Preservation Act of 1966 as amended, Oregon Revised Statute 358.653, local permitting process, and/or other similar request are complete and the project may proceed as described in the submitted scope of work. The 30-day SHPO response period for this project ends after 8/20/2022 . Federal and state laws protecting cultural resources, local permitting requirements; and necessary consultation with Native American Indian Tribes for federal, state and local government projects still apply. See https://www.oregon.gov/oprd/OH/Pages/lawsrules.aspx .

Do not respond to this email.

From: Fisher, Philip <philip.fisher@fema.dhs.gov>
Sent: Friday, July 22, 2022 11:13 AM
To: CLEARANCE ORSHPO * OPRD <ORSHPO.Clearance@oprd.oregon.gov>
Subject: FEMA HMGP 5195-15 Illinois Valley Fuels Reduction Arch. Consult (SHPO Project# 21-0484)

Good morning Mary Beth,

Please see the attached cover letter, submittal form, and shapefile for a proposed FEMA funded fuels reduction project in Josephine County. Please let me know if you need anything else. Have a great weekend.

Best,
Phil

Philip Fisher
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APPENDIX D
SECTION 7 CONSULTATION MATERIALS

United States Department of the Interior

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Reply To: 2022-I-0006
File Name: FEMA Illinois Valley Project_LOC.docx
TS Number: 22-474
Ecosphere: 2022-0064647
Doc Type: WORD

July 19, 2022

Science A. Kilner, Regional Environmental Officer
Federal Emergency Management Agency
Region 10
Department of Homeland Security
130-228th Street SW
Bothell, WA 98021

Subject: Informal Consultation on the FEMA Hazard Mitigation Grant Program FM-5195-15-OR Illinois Valley Hazardous Fuels Treatment Project, Josephine County, OR.

Dear Ms. Kilner:

This document transmits the U.S. Fish and Wildlife Service's (Service) Letter of Concurrence (Letter) addressing the Illinois Valley Hazardous Fuels Treatment Project (Project or proposed action), as proposed by the Federal Emergency Management Agency (FEMA). At issue are the effects of the proposed action on the threatened northern spotted owl (*Strix occidentalis caurina*) (spotted owl). This Letter was prepared in accordance with the requirements of Section 7 of the Endangered Species Act (ESA) of 1973, as amended (16U.S.C. 1531 et seq.).

The Letter is based on information provided in the FEMA's Biological Assessment (FEMA 2022; Assessment) dated June 2022 and received in our office on June 13, 2022. A complete decision record for this consultation is on file at the Service's Roseburg Field Office.

The action area for the FEMA's Project is located within the Illinois Valley, part of the fire-prone Rogue Basin. This portion of Southwest Oregon has experienced multiple wildfire events during the past couple decades. The private properties located within the Wildland Urban Interface (WUI) of the Project are considered at risk to the effects of potential wildfire events.

The FEMA proposal would contribute to wildfire risk reduction within the WUI by establishing defensible space and reducing hazardous fuels across up to 31 treatment areas, totaling up to 201.6 acres of private lands.

The Assessment describes a proposal whereby 100 feet of defensible space will be established around residential structures, driveways, and other infrastructure (e.g., utility lines). This will involve removal of shrubs and hardwoods less than 4 inches in diameter at breast height (DBH), conifers less than 6 inches DBH (some larger hazard trees may be removed), and pruning/limbing up to 8 ft above ground level on remaining trees. Slash will be chipped or piled and later burned during wet conditions; 40 and 60 percent canopy cover will be retained when treating in spotted owl dispersal-only and nesting, roosting, foraging (NRF) habitat, respectively. Landscape hazardous fuels reduction in areas beyond 100-foot defensible space zones would follow the same treatment specifications.

McDonald's rock-cress (*Arabis macdonaldiana*) and Cook's lomatium (*Lomatium cookii*) are not known to occur within the project area, and neither have designated critical habitat (DCH) within or adjacent to targeted parcels. FEMA has determined no effect to either species.

The Pacific marten (*Martes caurina*) coastal distinct population segment (coastal marten) is not known to occur within the project area of the proposed action. Proposed DCH for coastal marten borders two treatment properties but is not within the project area. Since critical habitat has not been designated to date for coastal marten, and due to no expectation of being present in the project area, FEMA has determined no effect to this species.

The project area does not overlap spotted owl critical habitat; therefore, no further analysis of critical habitat is warranted.

Of the 31 properties proposed for treatment, landscape fuels reduction is proposed on six properties that occur within spotted owl home ranges or have NRF habitat located within the project area. These six properties were not surveyed for occupancy, so potential spotted owl presence is presumed. Four of the parcels extend into spotted owl core-use areas: three parcels into the same core area, while one separate parcel extends into a different core area. The two remaining parcels are located within two overlapping spotted owl home ranges. Across all six parcels, the proposed action would result in a total maximum of 34.3 acres of NRF impacts due to under-thinning, whereby the quality may be reduced; however, 60 percent canopy cover will be retained, resulting in 0 acres of NRF Downgrade or Removal. As such, post-treatment function of the treated stands is expected to be similar to pre-treatment (treat and maintain) condition.

The Service believes the proposed action will result in discountable effects to the spotted owl for the following reasons. First, a work timing restriction will be implemented on any project areas located within spotted owl core areas or within 0.25 mi of NRF habitat. Noise effects to nesting behavior will be avoided in these areas by conducting work outside of the March 1 – July 15 critical nesting season. Project actions will be implemented during the day to reduce potential impacts to foraging behavior. For this reason, disturbance and disruption impacts are expected to be avoided. Working outside of this time period will also avoid any physical impacts to any spotted owls that may be utilizing this area/habitat during the critical nesting period.

Second, 60 percent canopy coverage will be retained in all NRF habitat. Only small, densely packed understory trees (<6 inches DBH) will be targeted for removal. Ladder fuel reduction will extend up to 8 ft or 1/3 of tree height and will retain some low height roosting branches. This will retain a low height canopy of larger trees, while improving understory flight lines, reducing risks of wildfires reaching the canopy, improving tree growth by reducing competition to smaller trees, and facilitating multi-layer canopy complexity. Because habitat canopy and

other features of spotted owl habitat elements will be maintained, the project is expected to have insignificant effects.

As mentioned above, the project area does not overlap spotted owl critical habitat. Therefore, impacts of the proposed action are not anticipated; FEMA determined no effect to spotted owl critical habitat.

In summary, due to these timing restrictions, and because the direct effects of the proposed vegetation management activities will not remove existing habitat for the listed species at issue, nor will the future development of its habitat be precluded by the treatment, the Service concurs with FEMA's determination that the subject action may affect, but is not likely to adversely affect the spotted owl.

In 2019 the Service and National Marine Fisheries Service revised their regulations implementing Section 7 of the Endangered Species Act (84 FR 44976). The Service has reviewed this letter of concurrence under the current set of regulations and the previous regulations (81 FR 7214) and found no difference in our conclusions. Therefore, this letter of concurrence would be equally valid under the section 7 regulations in place prior to the 2019 regulation revisions as under the revised regulations.

This concludes informal consultation pursuant to section 7 of the Act. Reinitiation of consultation on this action may be necessary if: (1) new information reveals effects of the action that may affect species or critical habitat in a manner or to an extent not considered in the Assessment; (2) the action is subsequently modified in a manner that causes an effect to species or critical habitat that was not considered in the analysis; or (3) a new species is listed or critical habitat designated that may be affected by the proposed action.

This consultation remains valid for the term of the action as discussed in these documents. If you have any questions about this consultation, please contact Trinity Harvey of the Service's Roseburg Field Office at (541-957-3474).

Sincerely,

Jim Thrailkill
Field Supervisor

cc: Office Files, FWS-RFO, Roseburg, Oregon
Michael Asch, USFWS, Roseburg, Oregon (e)

Literature Cited

FEMA. 2022. Biological Assessment, Illinois Fire Safety and Resiliency Project, Hazard Mitigation Grant Program HMGP-5195-15.