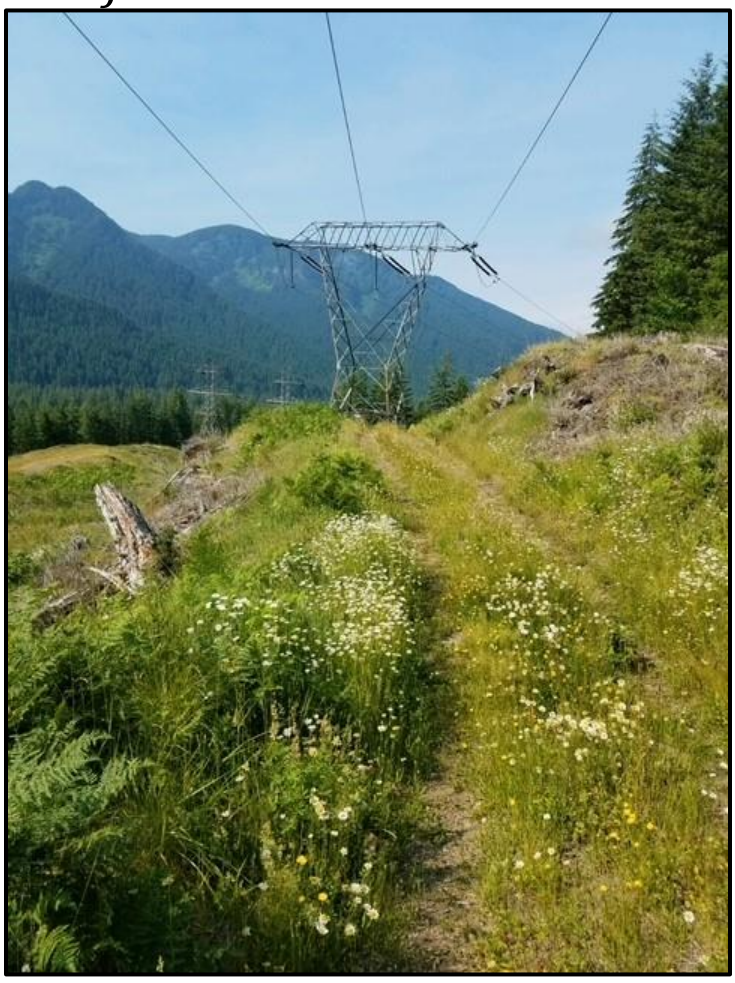
Big Eddy-Ostrander Conductor Replacement Project

Draft Environmental Assessment



March 2025

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Table of Contents

Figures and Tables

ACRONYMS

AGL	Above Ground Level
AKWA	Area of Known Wolf Activity
APE	Area of Potential Effect
BLM	Bureau of Land Management
BMP	Best Management Practices
BPA	Bonneville Power Administration
BRWMU	Bull Run Watershed Management Unit
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
Corps	U.S. Army Corps of Engineers
CRGNSA	Columbia River Gorge National Scenic Area
DBH	Diameter at Breast Height
DEQ	Oregon Department of Environmental Quality
DOE	Department of Energy
DOGAMI	Oregon Department of Geology and Mineral Industries
DSL	Oregon Department of State Lands
EA	Environmental Assessment
EFH	Essential Fish Habitat
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
GWMA	Groundwater Management Area
kV	Kilovolt
LCR	Lower Columbia River
LSR	Late Successional Reserve
MBTA	Migratory Bird Treaty Act
MPH	Miles Per Hour
NEPA	National Environmental Policy Act
NESC	National Electric Safety Code
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NRF	Nesting, Roosting, Foraging

NRHP	National Register of Historic Places
ODFW	Oregon Department of Fish and Wildlife
ODOT	Oregon Department of Transportation
ORBIC	Oregon Biodiversity Information Center
PBO	Programmatic Biological Opinion
PCB	Polychlorinated Biphenyls
PCT	Pacific Crest Trail
SHPO	State Historic Preservation Officer
SLOPES	Standard Local Operating Procedures for Endangered Species
TMDL	Total Maximum Daily Load
USC	United States Code
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service

1 INTRODUCTION

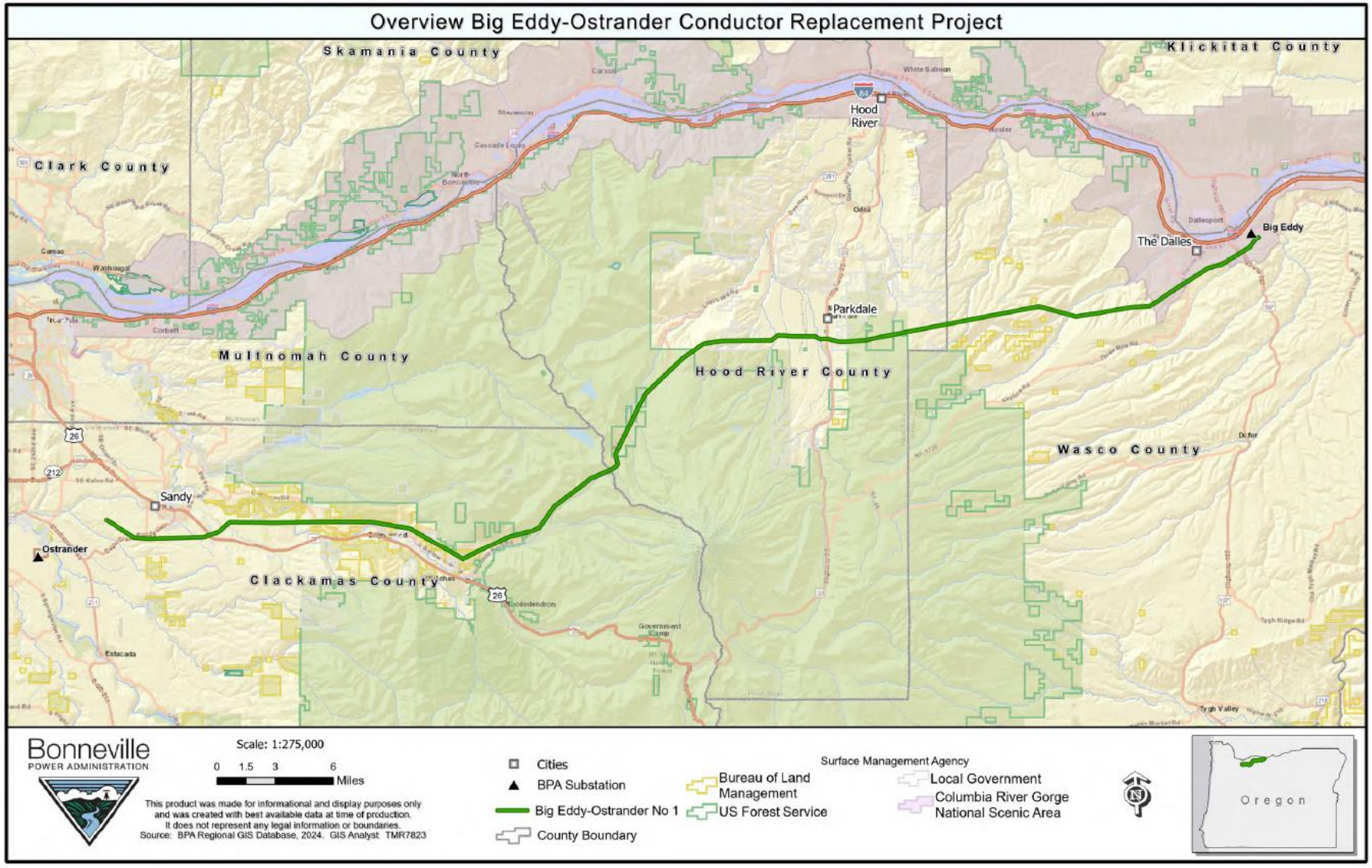
Bonneville Power Administration (BPA) is a federal agency that owns and operates more than 15,000 circuit miles of high-voltage transmission lines. The transmission lines move most of the Northwest's high-voltage power from facilities that generate the power to users throughout the region.

One of these existing BPA-owned transmission lines is the Big Eddy-Ostrander No. 1 transmission line, which runs generally east to west from the Big Eddy Substation in The Dalles, Oregon, to the Ostrander Substation, near Eagle Creek, Oregon (Figure 1-1). Portions of the conductor (wires) on this 71-mile-long, 500-kilovolt (kV) transmission line are in poor condition due to normal deterioration and aging. In addition, some of the existing roads used to access the existing line are in poor condition. BPA is proposing the Big Eddy-Ostrander Conductor Replacement Project (Proposed Action or project) to replace the conductor, replace or install other line components, install fall protection hardware on transmission structures, correct impairments (areas where the distance between the ground and the conductor do not meet standard guidelines), and improve portions of the access roads used to access transmission line structures.

BPA prepared this environmental assessment (EA) pursuant to regulations implementing the National Environmental Policy Act (NEPA) to assess the potential impacts of this proposal on the environment. This EA will be used to determine if this proposal would cause effects of a magnitude that would warrant preparing an Environmental Impact Statement, or whether it is appropriate to prepare a Finding of No Significant Impact.

This section of the EA further describes the need for action that has led to the proposal, identifies the purposes (i.e., goals) that BPA is attempting to achieve while meeting the need, and summarizes the public scoping process that was conducted for the EA.

Figure 1. Project Overview Map



1.1 Need for Action

The Federal Columbia River Transmission System Act directs BPA to construct improvements, additions, and replacements to its transmission system that are necessary to maintain electrical stability and reliability, as well as to provide service to BPA's customers (16 United States Code [U.S.C] § 838b(b-d)). BPA needs to ensure the integrity and reliability of the Big Eddy-Ostrander transmission line that serves BPA's utility customers and communities in northern Oregon. The transmission line consists of structures, insulators, conductors (electrical wires), and other equipment used to transmit power.

The Big Eddy-Ostrander transmission line was constructed in 1964. The line has a 2.5-inch-diameter expanded conductor on 66.5 miles of the line from Big Eddy Substation to structure 68/4. Vendors are no longer providing replacement materials for this conductor and the spare stock is becoming unavailable. In the event of a failure, it would be difficult to restore the line's electrical service in a timely manner. In structural clearance and loading analysis, it was determined that the structures are not able to support a three-conductor bundle that could be used as a replacement; the three-conductor bundle would not meet the required ground-to-conductor clearance standards regarding electrical effects. BPA is proposing to replace the existing single conductor along the first 66.5 miles of the existing transmission line with a twin Plover bundle. The conductor on the remainder of the transmission line has already been replaced. Additionally, insulators and transmission structure hardware are at the end of typical service life and in need of replacement.

Furthermore, the transmission structures do not currently have modern safety features to protect transmission line workers when climbing structures; therefore, fall protection equipment would be installed on each structure.

BPA also needs safe and reliable access to the transmission line for transporting line crews, material, and equipment to replace the conductor and for ongoing maintenance and emergency repairs. Portions of the existing road system that BPA uses to access the transmission line are in poor condition and need upgrading.

1.2 Purpose

In meeting the need for action, BPA has identified the following purposes:

- Ensure that transmission system public safety and reliability standards set by the National Electric Safety Code (NESC) and North American Electric Reliability Corporation are met.
- Continue to meet BPA's contractual and statutory obligations to supply safe, reliable power to serve its customers.
- Minimize impacts on the human environment.
- Improve structure climbing safety features for transmission line maintenance workers.

1.3 Public Involvement

To help determine the issues to be addressed in the EA, BPA conducted public scoping outreach. The public comment period began on June 17, 2022, and BPA accepted public comments on the project until July 18, 2022. On June 17, 2022, BPA mailed letters to potentially interested and affected persons, agencies, Tribes, and organizations. The public letter provided information about the project and requested comments on issues to be addressed in the environmental review process, and described how to comment (mail, email, fax, telephone, and the BPA project website). The public letter was also posted on the project website to provide information on the Proposed Action and the environmental review process: www.bpa.gov/nepa/Big-Eddy-Ostrander.

Consistent with the Council on Environmental Quality's (CEQ) November 30, 2022, Memorandum and Guidance for Federal Departments and Agencies on Indigenous Knowledge, BPA engaged Tribes and Indigenous Peoples for information and perspectives regarding environmental, cultural, and community impacts. BPA determined that six American Indian tribes (Tribes) have a potential interest in this project— Confederated Tribes and Bands of the Yakama Nation, Confederated Tribes of the Grand Ronde, Confederated Tribes of the Siletz Indians, Confederated Tribes of the Umatilla Indian Reservation, Confederated Tribes of the Warm Springs Reservation of Oregon, and Nez Perce Tribe. BPA requested comments on the Proposed Action from the Tribes, as well as on potential cultural resources to help shape the field investigations.

BPA received eight comments during the public scoping period. Comments were focused on the following requests:

- Avoid a water spring used for livestock on right-of-way.
- Provide more specific project information and timelines for areas where the project crosses the Pacific Crest Trail.
- Allow solar farms in right-of-way and study non-wire alternatives.
- Reduce conductor noise.
- Restrict unauthorized off-road access to right-of-way.
- Determine if local land use review may be applicable.
- Assess human resource, safety, and economic impacts to orchard workers and operators.
- Provide more information on construction activities, timing, coordination, safety, and weed management.
- Select conductor that allows for more clearance; the commentor provided information on their orchard operations, including irrigation, pesticide application timing, and harvest season.
- Install nesting platforms for red tailed hawks.

The public scoping comments are addressed in the appropriate sections of the EA.

2 PROPOSED ACTION AND ALTERNATIVE

This section describes the existing transmission line, the Proposed Action, and the No Action Alternative. It also compares how the Proposed Action and the No Action Alternative meet the project purposes and summarizes the potential environmental effects of the alternatives. Figure 1-1 in Section 1 shows the location of the Big Eddy-Ostrander transmission line.

2.1 Existing Transmission Line

The existing 71-mile-long, 500-kV Big Eddy-Ostrander transmission line begins at BPA's Big Eddy Substation in The Dalles, Oregon and continues to the southeast through Mt. Hood National Forest and the cities of Parkdale and Sandy. The line terminates at BPA's Ostrander Substation near Eagle Creek, Oregon. Substations are the fenced sites that contain the terminal switching and transformation equipment needed at the ends of a transmission line. The transmission line and access roads cross through Clackamas, Hood River, and Wasco counties. The transmission line crosses U.S. Highway 197 near the Big Eddy Substation, Highway 35 in Parkdale, Highway 26, and Highway 211 in the Sandy area.

The transmission line is in a right-of-way corridor that is shared with two to three 230-kV transmission lines and varies in width from 250 to 700-feet-wide (average 500 feet wide) in locations. The right-of-way crosses approximately 18 miles of federally-owned land, 3 miles of state- or county-owned land, with the remainder being on private property. BPA has easements (authorization to use land owned by another) or other authorizations with underlying landowners and land managers for all of the transmission line right-of-way and access roads. Most of the line crosses land that is in agricultural production (orchards, livestock pastures) or is forested timberland managed by the U.S. Forest Service (USFS) or Bureau of Land Management (BLM). A small portion of the existing transmission line on USFS-managed land is also within the Bull Run Watershed Management Unit, which is managed by the City of Portland Water Bureau.

The existing transmission line consists of lattice steel structures. A photo of the existing transmission structures in the right-of-way is shown in Figure 2-1. The existing line has three conductors, except for the last five miles into Ostrander Substation, where the conductor has been previously replaced with six smaller diameter conductors. Structures within 0.5 mile of Big Eddy Substation and Ostrander Substation have overhead ground wire (protective wire strung above the conductors to protect electrical equipment from lightning strikes).

Figure 2. Big Eddy-Ostrander Right-of-Way

Note: The transmission lines pictured from left to right are Big Eddy-Troutdale No. 1, Big Eddy-Chemewa No. 1, Big Eddy-McLoughlin No. 1, and Big Eddy-Ostrander No. 1.

2.1.1 Ongoing Maintenance and Vegetation Management

BPA conducts routine periodic inspections, maintenance, and vegetation management of the 15,000 circuit-mile federal transmission system in the Pacific Northwest. When transmission line, access road, or vegetation maintenance is required for a BPA transmission line, BPA conducts an environmental review process for those site-specific maintenance activities, as needed.

BPA has operated and maintained the Big Eddy-Ostrander transmission line since the line was built in 1964. This ongoing operation and maintenance will continue whether or not the Proposed Action is implemented. However, because the Proposed Action is essentially a non-routine maintenance project and includes replacements of worn parts of the existing transmission line and improvements to the access roads, the need for future maintenance and repairs would be expected to be less frequent and on a smaller scale than currently required.

BPA typically conducts vegetation management along the Big Eddy-Ostrander transmission line right-of-way every three years to keep vegetation a safe distance from the conductor, maintain access to structures, and to control noxious weeds. Vegetation management is guided by BPA's Transmission System Vegetation Management Program. Depending on the vegetation type, environment, and landowner, several different vegetation management methods could be used: manual (e.g., hand-pulling, clippers, chainsaws); mechanical (e.g., roller-choppers, brush hog); or chemical (e.g., herbicides) (BPA 2000).

Vegetation in the transmission line right-of-way is managed to ensure that tall growing species do not grow into or near conductors, and to remove select "danger trees" (trees adjacent to the right-of-way that have the potential to grow or fall into the line and to cause flashovers or line outages). Identifying danger trees includes determining tree height and growth potential, how the tree leans, stability, and health (e.g., root pathogen damage), and whether they are located in areas with severe storm damage potential. Sapling red alder (*Alnus rubra*), big-leaf maple (*Acer macrophyllum*), and seedling conifers are routinely removed from the Big Eddy-Ostrander right-of-way to prevent establishment of tall-growing woody vegetation. Shrubs that are less than about 20-feet-tall are allowed to grow, along with herbaceous species. Vegetation management in the right-of-way was most recently conducted in 2023.

2.2 Proposed Action

Under the Proposed Action, BPA would replace the conductors and hardware on the Big Eddy-Ostrander transmission line, increase the heights of 65 transmission structures, and upgrade the access road system that allows BPA access to the line. The project area includes the existing transmission line and right-of-way, access roads, substations, and other temporary construction areas.

The Proposed Action would include the following:

- Replace conductors
- Increase the heights of certain structures
- Ground excavation in certain spans to increase ground-to-conductor clearance for safety and reliability
- Steel member replacements
- Install fall protection on the transmission structures
- Upgrade the access road system
- Remove danger trees and other vegetation

Tables 2-1 through 2-3 summarize the project activities under the Proposed Action. All activities are described in detail in the following subsections.

Table 2-1 Transmission Line Work

Transmission Line Work [1, 2]	**Quantity**
Structure Raises	65
Structures Needing Steel Member Replacements	118
Fall Protection	294
Ground Clearance Excavations	8

1 See Appendix G for work occurring on USFS-managed Land.

2 There are 294 transmission structures on the Big Eddy-Ostrander transmission line.

Table 2-2 Access Road Activities

Access Road Activities [1,2]	**Quantity**
New Construction	0.3 mile
Reconstruction	7 miles
Improvement	42.5 miles
Decommissioned Roads	0.3 mile
Landings (repairs and new)	11 repairs, 13 new
Gates (repairs and new)	6 repairs, 24 new
Cattle Guards (repairs)	1
Fords (repairs and new)	9 repairs, 7 new
New cross drain culverts	5
Replace cross drain culverts	2
New stream culverts	2
Replace stream culverts	1
Culvert cleaning	15
Permanent bridges	3 new
Temporary bridges	5-10, as needed

[1] See Appendix G for work occurring on USFS-managed Land.
[2] Direction of travel roads are existing roads that would be used in their current condition without any upgrades and are not included in this table.

Table 2-3 Vegetation Removal

Vegetation Removal [1]	Quantity
Removal or disturbance of low-growing vegetation in the transmission line right-of-way for structure work and landings	Approximately 140 acres
Removal of danger trees adjacent to the transmission line right-of-way	Up to 2,300[2]
Removal of orchard trees around structures	Up to 210

[1] See Appendix G for work occurring on USFS-managed Land.
[2]Trees would be left onsite, unless otherwise directed by the underlying landowner.

2.2.1 Transmission Structures

The transmission line structures are individually numbered by line mile and structure in the line mile (e.g., structure 5/2 is the second structure in the fifth mile of the transmission line). Structure 1/1 is at the Big Eddy-Ostrander Substation and the project area continues to structure 68/4, approximately four miles from the Ostrander Substation. The distance between structures is called a span. Spans between individual structures range from 400 to 3,000 feet, with about 3 to 6 structures in each line mile.

The Proposed Action would increase the height of approximately 65 structures. During the design phase of the project, models were analyzed to determine the ground-to-conductor clearance based on the physical characteristics of the new conductor. Ground-to-conductor clearances have increased over the years due to changes in industry standards to provide for safety and reliability for personnel and equipment.

Transmission structure height increases would range from 2 feet to 36 feet. To increase the height of a steel lattice structure, a new structure base would be constructed either in-place, or 50-feet-ahead or 50-feet-behind the existing structure, and within the same alignment of the existing structure. Structure footings would require approximately a 12-foot-wide by 12-foot-long by 10-foot-deep excavations for each leg. Footings would be backfilled with the excavated soil. The additional structure height needed would then be built on the new structure base. Once the new structure base and height increase is built, the existing structure would be removed from its base and moved over to the new structure base, where it would then be re-attached. Cranes would be used to move the detached structure. The old structure footings would be cut two to five feet below ground level and retired in-place.

During project planning, it was determined that approximately 118 existing structures on the transmission line have overstressed cross members and that these structures would require installation of approximately 20 new pieces of structural steel on each structure to remediate the overstressed members. In general, the old steel cross members would be removed and replaced with new steel cross members. The work would be done using cranes, bucket trucks or line trucks.

To protect transmission line workers, BPA proposes to install fall protection equipment on each lattice transmission structure in the project area. Fall protection flanges are pieces of steel that attach to the structure at the existing step bolt locations. Fall protection flanges allow

transmission line maintenance workers to clip a safety lanyard to an anchor point as they climb. The fall protection flanges would be installed on every step bolt that is installed on the structure. It would take about two days per structure for installation activities.

2.2.2 Ground Excavation

In some cases, the ground-to-conductor clearance standards can be met by excavating areas where there are small topographical features between structures, generally near the middle of a span. There are approximately eight locations where soil excavation would be conducted to meet ground-to-conductor clearance standards. The average excavation area would be 463 square feet (0.01 acre), with the maximum excavation area being 1,490 square feet (0.03 acre). The cumulative excavation area would be about 5,100 square feet (0.1 acre). An excavator would be used to perform this work and excavated soil would be redistributed within areas cleared for environmental resources. The soil disposal locations would be recontoured to match the pre-existing topography and then revegetated.

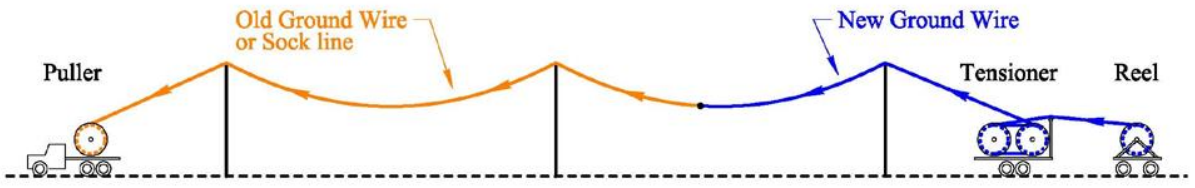
2.2.3 Replacement of Conductor

Conductors are the wires on the structures that carry the electrical current. The transmission line currently has three conductors on it. The existing conductor is 2.5 inches in diameter. It would be replaced with a smaller diameter conductor, which would be 1.3 inches in diameter. The smaller diameter conductor would replace the three existing conductors with six new conductors. The NESC and BPA specify the minimum conductor height above the ground surface and other features (e.g., streetlights, electrical distribution lines, etc.). Additional conductor-to-ground clearance would be provided over roadway and river crossings.

In addition, dampers may be added to the conductors. Dampers suppress wind-induced vibrations on taut conductors for better protection against storms. If needed, dampers would be located within 15 feet of the insulators and would help protect the conductors from wear and premature fatigue failures.

The existing conductors would be removed by reeling the wires on to large spools using a large truck called a puller. The puller would be set up with empty reels to hold the old conductors as they are reeled in. After the equipment (puller and tensioner) is set up, a sock line (usually a rope) would be temporarily strung through all structures on the section (Figure 2-2). The sock line would be strung using a helicopter or by workers on the ground. Helicopters would be used to string the conductor and overhead ground wire, except when timing restrictions would require avoiding sensitive areas (e.g., Northern spotted owl habitat, residences, and orchards) or where prohibited by the Federal Aviation Administration (FAA). The sock line would be connected to a hard line (typically a small, stranded steel wire), which would be connected to the new conductor and pulled through the structures. Once the new conductor is pulled into place, it would be tensioned and sagged in place and secured to all the structures.

Figure 3. Typical Stringing Operation



Helicopter flight paths would follow BPA's right-of-way when in close proximity to the project corridor. If needed, an FAA congested area plan including the use of flaggers would be required where the line crosses these highways in Oregon: Highway 197 in The Dalles, Highway 35 in Parkdale and Highway 26 in Sandy. Once removed, the old conductors would be delivered to a metal salvage location and recycled.

Guard structures are temporary wood-pole structures with cross arms placed on either side of a facility (distribution lines, roads, railroad crossings, navigable rivers) to catch conductors or ground wire in the unlikely event that the conductors/wires fall while being removed or installed. Guard structures installed where the conductors cross highways 197, 35 and 26 would be removed after the conductors were strung.

2.2.4 Establishment of Temporary Staging, Helicopter Landing Zones, and Pulling/Tensioning Sites

Temporary staging areas, usually placed outside of the transmission line right-of-way, would be used to store, and stockpile materials, trucks, and other equipment during construction. One staging area for material storage is proposed at BPA's Celilo Maintenance Headquarters in The Dalles. Additional staging areas in previously disturbed or cleared areas may be identified during construction. Each staging area would occupy approximately 5 acres, based on the area needed to accommodate steel for the structures that would be increased in height, conductor, and other materials.

About five helicopter landing zones would be identified along the line in previously cleared areas.

The conductor would be installed by establishing pulling/tensioning sites at the beginning and end of each identified pulling section. These sites are used for pulling and tightening the conductor to the correct tension once they are mounted on the transmission line structures. The tensioner is a large piece of equipment with drums that the new conductor is fed through to set the proper tension. Sites selected can accommodate pulling and tensioning equipment but may need to be cleared of interfering vegetation (using a chainsaw, mowers, brushing machines, heavy equipment, or hand tools) to position pulling and tensioning equipment. These sites would be in the right-of-way where possible; of the 27 sites needed, approximately six sites would be partially located outside of the right-of-way where the transmission line makes a sharp turn or angle. Most of the pulling and tensioning sites would use an area about 250-feet-long by 125-feet-wide either behind or ahead of a structure (about 0.7 acre or up to 1.4 acre if both sides are used). Ground disturbance would occur from leveling and grading of the sites.

2.2.5 Access Roads

Most of the existing transmission line structures are currently accessible by existing access roads, located both within and outside of the right-of-way. The access roads that lead to the right-of-way are generally multi-use roads, including residential access roads, county roads and farm roads. Some access roads are on public lands, including lands managed by BLM or USFS.

BPA transmission line access roads are unpaved roads designed to be 14 feet wide for the roadbed and associated grading. In sensitive areas, the road width could be decreased to 12 feet wide. An additional 3-foot-wide area on each side of the road prism may be disturbed by the installation of drainage features, or by management activities to control roadside vegetation. The total permanent disturbance width for typical BPA access roads is 20 feet. Additional widths would be disturbed during access road construction in areas with curves or on steep slopes because cut and fill would be required.

In specific wetland and other sensitive areas, the access road widths would be reduced to 12 feet and the offsets on either side reduced to 2 feet for a total area of permanent disturbance of 16 feet to minimize impacts. In sensitive areas (e.g., wetlands or higher quality habitat areas), staking, flagging, or equivalent means would be installed where needed to keep traffic to designated routes and minimize impacts.

Although access to transmission line structures currently exists for most of the length of the existing transmission line, some access road work would be needed to allow for better access to structure sites during construction and for ongoing and emergency maintenance of the project. Roadwork would occur prior to and concurrent with conductor replacement. Based on the presence and condition of existing access roads, project activities in specific locations would involve reconstructing or improving existing access roads or constructing new roads. Roadwork on existing access roads and new access roads would ensure that access roads are suitable for construction vehicles and equipment for the conductor replacement, and for routine transmission line maintenance activities in the future.

The condition of the existing access roads serving the project varies considerably. In some locations, the roadbed is relatively intact, while in other locations vegetation is growing within a degraded roadbed. Existing access roads would be reconstructed where the road prism is in poor condition and may or may not be drivable. Construction activities in this situation would include the same activities identified below for new roads. In this case, existing vegetation would be cleared as needed for widening outside of the existing road prism or for slope stabilization work (or a combination of both).

There would be a total of about 180 miles of access roads used for the project. This includes improvements to existing access roads, reconstruction of existing access roads, new construction of access roads, and decommissioning unused roads, as well as use of existing access roads where no improvement is proposed. Each category is described in more detail below:

Access road construction – Approximately 0.3 mile of new access roads would be constructed in line miles 9, 16, 18, 19, 21, 27 and 29 to provide access to individual structures in the right-of-way that do not currently have a defined road and to re-route an access road around a residential house. Construction activities may include vegetation removal, shaping the road prism, grading, gravelling, and installing drainage features and access control gates as well as seeding and mulching.

The 0.3 mile of new access road would be constructed of crushed rock and would not result in the creation of any new impervious surfaces. Construction of the new access road spurs to the existing structures would include surface preparation to remove existing vegetation; grading of

existing soil to form the roadway cross-section; leveling of depressions and rises; construction of ditches as necessary to convey runoff; constructing a granular drive course; and finally, seeding and mulching side slopes. The typical road section is a "shed section" which allows runoff to move across native surfacing conditions adjacent to the roadway and infiltrate. If conditions do not allow a shed section, roadside ditches and cross-drains would help maintain natural drainage patterns, routing runoff into existing vegetated areas. The gravel road would be 6 inches thick, be above the surrounding grade in most cases, and be composed of durable gravel (base and surface rock). Depending on subgrade condition, a geotextile fabric would be installed between the road section and the subgrade. The road would be 14 feet wide with widening at curves and vehicle turnouts. An additional 10-foot-wide offset from each side of the roadway has been assumed to be disturbed by construction, giving a total disturbance width of approximately 34 feet. As required by project specifications, disturbed areas (within 10 feet of the road) would be re-vegetated with a native seed mixture or seed mixture as specified by the landowner upon completion of construction.

Access road reconstruction – Approximately 7 miles of existing access road that has deteriorated to the point of being unusable by construction equipment would be reconstructed (e.g., vegetation removal, road prism reconstruction, grading, widening to pre-existing conditions, gravelling, installing drainage features and crossings, and installing access control gates). Reconstruction includes approximately 1.2 miles of access road on USFS-managed land and 0.9 mile on BLM-managed land.

Access road improvements – Approximately 42 miles of existing access roads would be improved with minor adjustments (e.g., cleaning, shaping, and compacting existing road surface, widening to pre-existing conditions, gravelling, or installing drainage features and access control gates). This includes approximately 8 miles of access road improvements on USFS-managed land, approximately 5 miles on BLM-managed land.

Direction of travel – Approximately 133 miles of direction of travel road would be accessed for the construction activities. This category includes existing access roads sufficient for construction activities and land that can be accessed without temporary access road construction (e.g., Lolo Pass Road). Direction of travel roads are existing roads that would be used in their current condition without any improvements or upgrades. This includes approximately 35 miles of direction of travel road on USFS-managed land. There are no direction of travel roads on BLM-managed land.

Decommissioning – Approximately 0.3 mile (1,320 feet) of BPA's existing access roads would no longer be needed and would be decommissioned. BPA would install permanent barriers (boulders) at the ingress and egress points on these decommissioned roads to prevent further access. Passive restoration techniques, such as utilizing the existing seedbank in the topsoil and allowing establishment of native plants through natural seed dispersal processes, would be used to revegetate the decommissioned roads without creating disturbance to the wetlands on these roads.

Approximately 12 landings would be created by clearing vegetation, grading, and installing gravel at the base of the lattice structures to provide safe parking and turnarounds for transmission line maintenance staff. Another 11 existing landings would be improved by clearing

vegetation, grading, and adding gravel. Landings range in size from 25 feet by 25 feet to 50 feet by 50 feet.

2.2.6 Culverts, Fords and Bridges

Eight cross drain culverts and eight stream culverts would be replaced, installed, or repaired. New and replacement culverts for fish-bearing streams are designed and sized to satisfy USFS and National Marine Fisheries Service (NMFS) standards, as well as Oregon Department of Fish and Wildlife (ODFW) fish passage requirements. Replacement or new stream culverts would be sized greater than 1.5 times the bank full width or 1.2 times the active channel width plus 2 feet (ODFW requirements), whichever is greater. The culverts would be embedded and would reflect the longitudinal profile of the stream reach. Culvert approaches would then be re-graveled. Three existing stream culverts would be replaced with three permanent pre-fabricated bridges to improve fish passage at those locations. Two of these bridges would be 16-feet-wide by 40-feet-long and one would be 16-feet-wide by 45-feet-long.

Six new fords would be installed, and eight existing fords would be repaired. Additionally, to minimize construction impacts associated with construction vehicle crossings at fords, BPA would install temporary construction bridges over the fords. The temporary construction bridges may consist of portable steel bridges, railcar bridges, or equivalents, with footings placed above the ordinary high-water mark. Temporary construction bridges would remain in place for the duration of project construction. Upon bridge removal, existing ford repairs and new ford installations would be implemented. The existing fords would be improved, resulting in "at-grade" stream simulation ford crossings. Ford improvement design would maintain the same longitudinal profile and cross-sectional volume, minimizing potential changes to channel flow conditions and flow dynamics, while maintaining existing fish passage. Specifically, each existing crossing would have a hardened surface (rock) buried sub-grade (below the surface of the natural stream substrate) with salvaged or imported stream simulation materials placed over the top of the buried subgrade rock allowing for appropriate bedload transport. Ford approaches would then be re-graveled.

Culvert installation and ford improvements for fish-bearing streams would occur during the ODFW in-water work windows (and approved extensions) after fish salvage operations, dewatering and diversion as needed. Some intermittent streams would be dry when the replacement or new culverts and fords would be installed and would not require salvage, dewatering, and diversion. After culvert and ford work has been completed, temporarily disturbed areas would be returned to pre-construction contours, then seeded with a native seed mix or landowner or manager requested mix.

2.2.7 Removal of Trees and Other Vegetation

Vegetation would be removed or disturbed at structure sites and in temporary work areas to facilitate construction and ensure safe operation of the line. Approximately 70 acres (including about 5 acres at staging areas) of vegetation in these areas would be crushed, removed, or cut for project activities. Along access roads, trees identified for removal would be directionally felled away from the roads. Removal of trees as described in this EA represents tree cutting or topping;

trees are typically left onsite as large woody debris, unless the underlying landowner or land manager directs BPA to remove cut trees.

About 2,250 danger trees would require cutting adjacent to the transmission line right-of-way with about 800 of these trees located on federal lands. The majority of danger trees identified for removal are Douglas fir, grand fir, and big leaf maple ranging from 8 to 44 inches in diameter. Additional tree removal in the pulling and tensioning sites would be avoided.

All areas disturbed by tree and vegetation clearing along the edges of the transmission line right-of-way and in pulling and tensioning sites would be reseeded following construction (trees would be allowed to regrow in areas located off the right-of-way). If available, BPA would use a seed mix with a diversity of native species from a source close to the project corridor. A seed mix approved by USFS would be used for revegetating disturbed areas on USFS-managed land.

2.2.8 Construction Activities

Access road work and landing construction would occur prior to and concurrent with transmission line work. The construction crew would consist of approximately 45 people, including transmission line and access road construction workers, inspectors, administrative personnel, surveyors, and other support personnel.

The existing transmission line would be taken out of service temporarily in phases over a period of four years. The existing conductors, insulators, and attachment hardware would then be removed. The timing of when the outage would occur would be dictated by the need to keep power on to local customers (customers would not be affected by temporary outages of the transmission line).

Construction vehicles required for conductor replacement could include a bucket truck, a dump truck, an excavator, cranes, and helicopters. Equipment used for access road work would include dump trucks, rollers, graders, bulldozers, and excavators.

Any materials removed during construction (hardware, conductors, disconnect switches, culverts, and gates) would be trucked off site for recycling or disposal at an appropriate facility. If any damage to crops, timber, or property occurs because of BPA's construction activities, BPA would compensate landowners for the damage as appropriate.

2.2.9 Anticipated Construction Schedule

The construction schedule would depend on the completion and outcome of the environmental review process, including the duration of regulatory agency reviews, consultations with Tribes, and timing of permit and consultation approvals. Construction work would be done in phases, over a period of four years. Transmission line work would conincide with electrical outages taken in the spring or fall, when electrical demand is lower. The current schedule calls for access road work and transmission line work to begin in the spring of 2026, and danger tree removal to begin in the late summer or early fall of 2026.

The following seasonal construction restrictions would be implemented for the Proposed Action to avoid or minimize impacts on fish and wildlife (see Table 2-5):

- In-water work: in-water work timing varies at each location, typically July 15-August 31.
- Northern Spotted Owl: tree removal, access road work and transmission line work would not be allowed within ¼ mile of suitable habitat between March 1 to July 15. Blasting would not be allowed between March 1 and September 30 within one mile of suitable habitat. Helicopter use would not be allowed between March 1 and September 30 within 0.25 to 0.50 mile vertical distance above suitable habitat for small and large transport helicopters, respectively.
- Streaked Horned Lark: if pre-construction nest surveys determine there are active nests within or adjacent to the project area, construction activities would be postponed within 100 feet of the nest, until after the young have fledged. Additionally, speed limits within 100 feet of the nest would not exceed 20 miles per hour (mph).
- Migratory birds: Tree removal would not occur between March 1 to July 15.

2.3 No Action Alternative

Under the No Action Alternative, BPA would not replace the conductor on the transmission line, correct transmission line impairments, or upgrade access roads as a single coordinated project. Construction activities described under the Proposed Action would not occur. However, the reliability and safety concerns that prompted the need for the Proposed Action would remain. BPA would continue to operate and maintain the existing transmission line in its current condition, replacing failed conductor fittings, correcting impairments, and maintaining access roads to allow access to structures on an as-needed basis, and managing vegetation for safe operation.

Given the current poor condition of the conductor on the transmission line, the No Action Alternative would likely cause more frequent and more disruptive maintenance activities than has been required in the past. It might be possible to plan some repairs, but many would likely occur on an emergency basis as the transmission line continues to deteriorate and could lead to extended unplanned outages.

The overall scale and scope of the repairs that would be done under the No Action Alternative would be smaller than what is planned under the Proposed Action. The maintenance program addresses immediate needs to keep the transmission line functioning and would likely not include more comprehensive improvements such as access road work to improve water runoff, fish-passable culvert replacements, or conductor replacement. Access road work under the No Action Alternative would be limited to enhancements necessary to allow access to specific structures for as-needed repairs and maintenance.

2.4 Comparison of Alternatives

The potential environmental impacts of the Proposed Action and No Action Alternative, based on the analysis presented in Section 3 for visual quality, land use, recreation and transportation, soils and geologic hazards, vegetation, water resources, floodplains and fish, wetlands, wildlife, and cultural resources are summarized in Table 2-4. The remaining resources were determined not applicable to the Proposed Action, or there would be no impact or only an extremely small, insignificant impact on the resource, as described in Chapter 3.

Table 2-4 Comparison of the Potential Environmental Impacts by Alternative

Resource	Alternative	Potential Impacts
Land Use, Recreation, and Transportation	Proposed Action	The Proposed Action would have a **low** impact on forestry and agricultural land uses because disruptions to existing forestry activities would be temporary and short, and there would be no conversion of agricultural lands to another land use. Construction would require recreational users to use alternate recreational areas for a short duration (on average up to one week total per structure height increase, and 3 to 4 weeks per mile of access road work), so impacts to recreational uses would be **low**.

Resource	Alternative	Potential Impacts
Land Use, Recreation, and Transportation	No Action Alternative	The No Action Alternative would result in fewer impacts per entry because the disturbance area would be limited to the area needing maintenance or emergency repairs; however, the impacts in that area could be greater if there is an inadequate road system in place to reach the transmission line. These types of disruptions could be more frequent than under the Proposed Action; however, overall impacts to land uses, recreation, and transportation would still be anticipated to be **low-to-moderate** depending on the nature of the maintenance or emergency repairs needed**.**
Visual Quality	Proposed Action	Overall, the project would have **low** impacts to the visual quality of the project area because no new hard forest edges would be created, construction would be of short duration and changes to structure heights would not be visible from key viewing areas of the Columbia River Gorge National Scenic Area or other scenic areas.
Visual Quality	No Action Alternative	Emergency repairs could potentially have similar impacts as those described in the Proposed Action; however, they would likely be conducted individually over time. Overall, the visual impacts from the No Action alternative would be **none-to-low**.
Soils and Geologic Hazards	Proposed Action	Impacts to soils would be **low-to-moderate** during transmission structure work including burying counterpoise ground rods; reconstruction or improvement of roads; compaction in areas used as staging areas and pulling/tensioning sites; or potential contamination from accidental equipment spills. About 155 acres of soils would be temporarily disturbed during structure work. About 0.7 acre of soil would be permanently impacted due to landing construction at the base of structures. New road construction would permanently impact 0.6 acre of soil.
Soils and Geologic Hazards	No Action Alternative	Impacts would be similar to the Proposed Action (**low-to-moderate**) but spread out over time as emergency repairs are needed. Emergency repairs during wet seasons could increase the risk of erosion and soil compaction.
Vegetation	Proposed Action	Impacts would be **low-to-moderate** during construction that requires clearing and crushing of vegetation. About 80 acres of vegetation could be impacted at structure sites and another 35 to 40 acres of vegetation could be temporarily disturbed at pulling and tensioning sites. Access road work and landing installations would permanently remove 80 acres of vegetation. About 2,300 danger trees would be removed along the right-of-way. There is a low-to-moderate potential for special-status plants to be impacted by compaction of soils during construction activities. Construction activities would increase the potential for the spread of invasive plants.
Vegetation	No Action Alternative	Impacts would be similar to the Proposed Action (**low-to-moderate**) during maintenance activities because they would likely increase as conductor repair or replacement and road work are

Resource	Alternative	Potential Impacts
		required. Emergency maintenance, especially during the wet season, could limit the ability to avoid sensitive plant species or sensitive habitats. Emergency repair activities could also require unplanned vehicle use through existing noxious weed infestations, potentially allowing the spread of noxious weeds.
Water Resources, Floodplains, and Fish	Proposed Action	Impacts to water resources would be **low** during construction; temporary disturbance of vegetation and soils would occur during the dry season. Twenty-three structure work areas would be located within 100 feet of streams. Eight structures within 50 to 100 feet of streams would be replaced in already disturbed areas and would not be moved closer to streams. Since only a small number of trees would be removed and no new structures or roads would be constructed in floodplains, floodway storage capabilities would be unchanged, resulting in **none-to-low** impacts. Access road improvements including replacement or installation of culverts, fords or bridges would occur in already disturbed areas. Approximately, six undersized or non-functional culverts would be replaced with fish passage culverts or bridges. Impacts to fish would be **low** because Best Management Practices would be followed, and work would be conducted during approved in-water-work-windows.
Water Resources, Floodplains, and Fish	No Action Alternative	Impacts would be **low-to-moderate** depending on timing and location of actions. As existing conductor and access roads continue to deteriorate, and emergency conductor repair and replacement or road work in streams is required, greater impacts could occur when emergency work needs to be done outside of the designated in-water work window.
Wetlands	Proposed Action	Impacts would be **low-to-moderate** depending on timing and location of actions. Work would occur during the dry season, to the extent possible. Wetland mats would be utilized to reduce the potential for soil compaction. Native and non-native wetland vegetation would be temporarily disturbed. Approximately, 40 different wetlands would be impacted to varying degrees, resulting in 1.35 total acres of permanent wetland loss.
Wetlands	No Action Alternative	Impacts would be similar to the Proposed Action (**low-to-moderate**) because conductor and access roads would continue to deteriorate and require repairs or road improvements. Unplanned emergency repairs could require driving vehicles and equipment over wetlands. Unauthorized vehicle access through wetlands would continue in locations where gates are not installed.
Wildlife	Proposed Action	Impacts would be **low** during construction. Danger tree removal could affect common wildlife species and Northern spotted owl. A small amount of habitat would be converted from forested to non-forested. Northern spotted owls assumed present in suitable habitat (line miles 22-24, 27-29, 32-56) could be disturbed during the

Resource	Alternative	Potential Impacts
		nesting season (March 1 through September 30). Timing restrictions would be implemented during construction to reduce impacts to the Northern spotted owl. Eighty-two trees over 18-inch in diameter at breast height in Northern spotted owl designated critical habitat and federally designated late successional reserves would be topped and girdled to create habitat trees. Pre-construction surveys would occur for streaked horned lark on the far western end of the project, if construction activities are planned during the nesting season. Where required, surveys for federal Survey and Manage species would be conducted prior to the start of construction.
Wildlife	No Action Alternative	Depending on the timing of normal or emergency activities, impacts could be **low-to-moderate**. Vegetation removal or heavy equipment use could result in disturbance to nesting birds especially during Northern spotted owl critical nesting/breeding periods.
Cultural Resources	Proposed Action	Impacts would be **none-to-low** during construction. Replacement conductor would be similar to existing conductor, the line's visual uniformity would remain, and its integrity would remain intact. Avoidance measures would be implemented during construction. A cultural monitor would be onsite during construction at certain locations to avoid impacts from construction activities. Unknown cultural resources could be inadvertently discovered; however, a Post-Review Discovery Procedure would be in place to stop work and to notify the appropriate parties.
Cultural Resources	No Action Alternative	Impacts would be similar to the Proposed Action (**none-to-low**) from ongoing maintenance and emergency repairs; but there may not be time to implement avoidance measures and have a cultural monitor onsite when needed, which could result in a **high** effect if a cultural site were damaged.

2.5 Best Management Practices

Best management practices (BMP) and mitigation measures have been identified for the Proposed Action (Table 2-5). Some of these measures are design features that have been incorporated into the original design of the proposed project, as well as BMPs that are typically used by BPA. Other measures were identified during project planning and are intended to reduce or eliminate potential impacts from the Proposed Action on resources discussed in this EA.

Table 2-5 Best Management Practices and Mitigation Measures for the Proposed Action

Land Use, Recreation and Transportation
• Provide a construction schedule to all potentially affected landowners. • Coordinate the construction schedule for work on USFS-managed lands with USFS recreation specialists to post alerts for construction activities that may impact users of recreational facilities.

- Provide a construction schedule for work that would result in disruptions to the Pacific Crest Trail to the Pacific Crest Trail Association as early as practicable, for posting on their website.
- Post a construction schedule at Pacific Crest Trail crossing, Surveyor's Ridge, French's Dome, Barlow Trail County Park, and Sandy Ridge Trail System.
- Use a flagger at the Pacific Crest Trail (PCT) crossing to stop construction to allow hikers to cross through work areas safely, to minimize delays to hikers to no more than one to two hours.
- Cut stumps as low to the ground as practicable for hazard tree removal within 150 feet of the PCT to lessen visual impacts. All stumps should be cut to a maximum of 12-inch height on the uphill slope in visually sensitive areas allocated to retention or where visible in the immediate foreground from the PCT trail.
- Maintain existing access to residences, businesses and recreation areas during construction.
- Coordinate with commercial timber landowners to ensure that access road enhancements, gates, and construction and maintenance activities would minimize disruptions to commercial forestry operations.
- Compensate landowners for the value of any property damaged by construction activities, as appropriate.
- Coordinate with local agencies to time construction activities so that project construction does not conflict with land management agency construction activities.
- Coordinate with Oregon Department of Transportation (ODOT) and obtain a permit for conductor stringing activities across state highways.
- Coordinate with ODOT to obtain any permits that may be required for new approaches to ODOT managed state right-of-way, work within the state highway right-of-way, or use of oversized or overweight vehicles.
- Coordinate with Clackamas, Hood River and Wasco Counties Public Works to obtain any right-of-way permits that may be required for project activities, including hauling, within Clackamas, Hood River and Wasco Counties roadways and right-of-way.
- Coordinate construction schedule with agricultural landowners to limit impacts to farming and orchard operations.
- Require construction workers to use designated restroom facilities and dispose of trash in approved receptacles.
- Cover excavated areas at the end of the workday to prevent injuries to farm workers and livestock.
- Use traffic safety signs and flaggers to inform motorists and manage traffic during construction activities on affected roads.
- Install permanent gates at selected locations to minimize unauthorized use of BPA access roads and unauthorized entry to BPA right-of-way.
- Provide traffic control to ensure traffic safety where existing rural roadways are narrow.
- Follow the applicable state, county, and city requirements for traffic control and lane closures.

Soils and Geologic Hazards

- Stabilize permanent disturbance areas by applying a weed-free gravel (if available) top layer to the roadways.
- Conduct project construction, including tree removal, during the dry season when rainfall, runoff, and stream flow are low to minimize erosion, compaction, and sedimentation, to the extent practicable.

- Identify and implement remediation measures if geotechnical issues, such as new landslides, arise during construction.
- Install appropriate erosion-control devices where needed to minimize soil transport.
- Retain vegetative buffers where possible to prevent sediments from entering waterbodies.
- Include water control structures on new, reconstructed, and improved access roads using low grades, water bars, and drain dips to help control runoff and prevent erosion.
- Properly space and size culverts on access roads.
- Apply water from water trucks on an as-needed basis to minimize dust and reduce erosion due to wind.
- Revegetate disturbed areas to help stabilize soils as soon as work in that area is completed and appropriate environmental conditions exist, such as moderate temperatures and adequate soil moisture.
- Inspect revegetated areas to verify adequate growth and implement contingency measures as needed.
- Inspect and maintain access roads and cross-drains to ensure proper function and nominal erosion levels after construction.
- Drive vehicles at low speeds (less than 5 miles per hour) on access roads and in the BPA right-of-way to minimize dust.

Vegetation

- Use the existing road system as much as practicable to access structure locations.
- Minimize the construction area and disturbance to vegetation to the extent practicable, especially in Northern spotted owl habitat, wetlands, and waterbody crossings.
- Flag sicklepod rockcress (*Boechera atrorubens*) rare plant populations between structures 20/2 to 20/4 for avoidance during access road work.
- Perform work around structure 22/2 and road reconstruction on access road 019-05-2 in late summer and fall, after rare plant sicklepod rockcress (*Boechera atrorubens*) has senesced.
- Locate materials storage and staging areas in previously disturbed areas as practicable.
- Conduct as much work as possible, including tree removal during the dry season to minimize erosion and soil compaction.
- Conduct tree removal in a manner that minimizes disruption to remaining trees and shrubs.
- Cut trees and leave existing root systems intact to help prevent erosion.
- Return temporarily disturbed areas to their original, pre-construction contours and conduct site restoration and revegetation measures before or at the beginning of the first growing season following construction.
- Revegetate disturbed areas with grasses, forbs, or shrubs to ensure appropriate vegetation coverage and soil stabilization.
- Locate pulling/tensioning equipment inside the transmission line right-of-way for pulling/tensioning sites located within the right-of-way.
- Conduct post-construction site restoration monitoring once a month until site stabilization is achieved.
- Prior to construction, identify noxious weed infestation areas for avoidance (as practicable) and treat noxious weeds adjacent to access roads and structure sites (if necessary).
- Perform follow-up monitoring until final stabilization criteria have been met.
- Conduct weed treatment in disturbed areas after construction, if needed.

- Implement measures to minimize noxious weed spread such as inspecting vehicles before entering construction areas; installing and using weed wash stations; and washing vehicles before entering or leaving work areas or using other appropriate equipment cleaning measures.

Water Resources, Floodplains, and Fish

- Conduct soil-disturbing activities during the dry season and culvert work when streams are dry, where practicable.
- Fell all trees in riparian reserves towards the waterway on USFS managed lands.
- Conduct in-water work during ODFW approved in-water work windows or ODFW, NMFS, U.S. Army Corps of Engineers (Corps), and Division of State Lands approved in-water work extension periods.
- Conduct fish and aquatic organism salvage according to NMFS/ODFW requirements.
- Comply with applicable Clean Water Act and Oregon Removal/Fill law permits for work in streams.
- Divert stream flow around the work area and maintain downstream flow if construction occurs during times when streams are flowing.
- Isolate in-water work areas prior to culvert installations, dewater work areas as necessary for construction and to minimize turbidity, and do not discharge turbid water to streams.
- Return temporary disturbance areas for culvert and road work to pre-construction contours: mulch, seed, and plant as per plans and specifications.
- Restrict construction vehicles and equipment to access roads and designated work areas.
- Use temporary bridges or steel plates for waterway crossings at existing fords to protect water quality.
- Store, fuel, and maintain all vehicles and other heavy equipment (when not in use) in a designated upland staging area located a minimum of 150 feet away from any stream, waterbody, or wetland or where any spilled material cannot enter natural or manmade drainage conveyances.
- Dispose of waste material generated from access road work in a stable upland site approved by the BPA environmental lead, smooth to match adjacent grades, and seed for stability. In steep terrain or near waterbodies or wetlands, haul waste material offsite.
- Design culverts (non-fish drainages) for the 100-year storm event plus debris to minimize future maintenance needs.
- Develop and implement a spill prevention and spill response plan.
- Confirm equipment is clean (e.g., power-washed) and that it does not have fluid leaks prior to contractor mobilization of heavy equipment to site; inspect equipment and tanks for drips or leaks daily and make necessary repairs within 24 hours.
- Contain petroleum product spills immediately, eliminate the source, and deploy appropriate measures to clean and dispose of spilled materials in accordance with federal, state, and local regulations.
- Maintain emergency spill control materials, such as oil booms and spill response kits, on-site at each ford or culvert replacement site at all times and ready for immediate deployment.
- If fertilizer is needed, use a slow-release fertilizer.
- To minimize adverse effects on stream channel stability, all water used for construction must come from a permitted source.
- Install culverts in accordance with ODFW fish passage requirements for streams that potentially contain fish.

- Limit the placement of fill for access road work in floodplains to the minimum required.
- Install erosion-control measures prior to work in or near floodplains.
- Prepare and implement an Erosion and Sediment Control Plan.
- Construct access roads to slope (e.g. 2 to 5 percent) away from the center of the road, to maintain natural drainage patterns and minimizing interceptions and concentration of up gradient runoff when practicable.
- Plant 201 native shrubs near locations where 67 danger trees are proposed for removal within 100 feet of streams bearing fish listed under the Endangered Species Act.

Wetlands and Groundwater

- Protect wetlands from compaction and disturbance by using temporary equipment mats, timing the work to take place when soils are not saturated (during the dry season), or by using low ground-pressure equipment.
- Comply with applicable Clean Water Act regulations and removal/fill permit requirements for all work in wetlands.
- Install erosion-control measures prior to work in or near wetlands (e.g., silt fences, straw wattles, and other sediment control measures)
- Avoid depositing excavated material in wetland areas.
- Avoid locating construction staging, equipment or materials storage, or vehicle fueling within 150 feet of wetland areas.
- Use existing roads to access structure locations.
- Clearly mark road sections to be decommissioned before construction.
- Remove any temporary equipment mats and revegetate.
- Restore all temporary disturbance areas to original contours and decompact soils, if necessary.
- Reseed all temporary disturbance areas in wetlands with native species and monitor revegetated wetland areas until 70 percent of pre-project vegetative cover is achieved. .
- Limit the placement of fill for access road work in floodplains to the minimum required.
- Prepare and implement a storm water pollution prevention plan for construction activities with potential stormwater discharges in accordance with the National Pollutant Discharge Elimination System permit administered by the State of Oregon under the 1200-CA Stormwater General Discharge Permit program.

Wildlife

- Restore areas disturbed by construction to pre-construction condition.
- Avoid tree removal between March 1 and July 15 to minimize displacement of nesting migratory birds.
- Provide maps of areas to be avoided by helicopters to minimize impacts on wildlife.
- Schedule work as late in the Northern spotted owl nesting season as possible, while still ensuring road work is completed prior to the start of the wet season.
- Schedule work within 0.25 mile of suitable Northern spotted owl habitat, including danger tree removal, to occur outside of the critical nesting season (March 1 to July 15). Locations within 0.25 mile of suitable habitat are at or between structures 22/1 to 24/4, 27/5-29/4, 32/1-51/4, 52/4-56/1, 56/3-56/5.
- Within 0.50 mile of suitable Northern spotted owl habitat, restrict Type 1 large transport helicopters (Chinook 47d, Blackhawk UH-60) use below 995 feet Above Ground Level (AGL)

during the critical Northern spotted owl breeding period (March 1-July 15), and below 500 feet AGL during the late breeding period (July 16-September 30).

- Within 0.25 mile of suitable Northern spotted owl habitat, restrict Type 2 medium transport helicopters (Boeing Vertol 107, Sikorsky S-64) use below 650 feet AGL during the critical Northern spotted owl breeding period (March 1-July 15), and below 350 feet AGL during the late breeding period (July 16-September 30).
- Within 0.25 mile of suitable Northern spotted owl habitat, restrict Type 3 small helicopters (K-Max, Bell 206 L4, Hughes 500) use below 530 feet AGL during the critical Northern spotted owl breeding period (March 1-July 15), and below 350 feet AGL during the late breeding period (July 16-September 30).
- Restrict blasting within 0.25 mile of Northern spotted owl suitable habitat during entire Northern spotted owl nesting season (March 1-September 30).
- Top and girdle 82 hazard trees in Late Successional Reserve Northwest Forest Plan land use allocation areas on USFS-managed land to provide habitat/structure for wildlife, particularly Northern spotted owls, small mammals, and amphibians. All 82 trees are ≥18" in diameter at breast height and are on USFS-managed land.
- Conduct pre-construction surveys for streaked horned lark between structures 67/1 to 68/4 at least 2 weeks prior to construction commencing for any work occurring between March 1 and July 30. If active nests are found, reduce speed limits to 20mph and avoid working within 100 feet of nest for duration of breeding season.
- Remove all food scraps and food packaging of any kind from the project sites and transport off-site after each workday; food cannot be left exposed and unattended for any amount of time; no food may be fed to or left for wildlife.
- Waste generated during all phases of the project would be properly managed and disposed of at permitted facilities.

Cultural Resources

- Locate transmission structures, equipment and material storage areas, and access roads to avoid known cultural resource sites and limit ground disturbance near known cultural resource sites.
- Conduct cultural resource monitoring at BPAS-181A (near 24/4), BPAS-192, BPA-195a and BPA-195b (between 20/5 and 21/1), BPAS-232B (near 12/2), 35HR137, 35HR137.4 and 35HR137.5
- Place avoidance flagging at BPAS-192, BPAS-232B, 35HR137, 35HR137.4, 35HR137.5
- Follow BPA's Post-Review Discovery Procedure which requires that if an inadvertent discovery of cultural resources is made all work in the vicinity would stop immediately and the BPA archaeologist, Oregon Historic Preservation Office (SHPO), affected Tribes, and BLM or USFS, if applicable, would be notified immediately.
- Stop all operations immediately within 200 feet of the inadvertent discovery of human remains, suspected human remains, or if any items suspected to be related to a human burial are encountered during project construction; secure the area around the discovery and immediately contact local law enforcement, the BPA archaeologist, the Oregon SHPO, the affected Tribes, and BLM or USFS, if applicable.
- Provide cultural resources awareness training to explain cultural resource-related avoidance and mitigation measures to the construction contractors and inspectors during preconstruction meetings.
- Depict cultural sites as sensitive areas to avoid in construction documents, on construction maps, and in the field.

Visual Quality
• Locate construction staging and storage areas away from locations that would be clearly visible from residences and recreation facilities, when practicable. • Focus security lighting at staging areas and the material storage yard inward to minimize spillover of light and glare. • Maintain a clean construction site and remove all construction debris.
Socioeconomics and Public Health
• Maintain access to all businesses, residences, and public facilities during construction. • Notify local agencies, residents, and business owners of upcoming construction activities and potential disruptions associated with the Proposed Action. • Coordinate with utility providers that share BPA right-of-way to determine the exact locations of utilities and minimize service disruptions to other utility lines. • Compensate landowners at market value for any new land rights required for new, temporary, or permanent access roads on private lands and apply for applicable permits to obtain new access rights on public lands.
Noise, Public Health, and Services
• Use sound-control devices on construction equipment with gasoline or diesel engines and limit construction noise to daylight hours (typically 7:00 a.m. to 7:00 p.m.) to reduce noise impacts.
Other Resources
• Keep all vehicles in good operating condition to minimize exhaust emissions. • Turn off construction equipment during prolonged periods of non-use. • Locate staging areas as close to construction sites as practicable to minimize driving distances between staging areas and construction sites. • Encourage the use of the proper size of equipment for the job to maximize energy efficiency. • Recycle or salvage non-hazardous construction and demolition debris where practicable.

3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter describes the existing environmental resources that could be affected by the Proposed Action and no action alternative. It also describes the potential impacts on these resources and the cumulative impacts that could result from implementation of the action alternative. The impact levels are characterized as high, medium, low, or no impact. The impact levels are based on the analysis provided, which incorporates the considerations of context and intensity defined in Council on Environmental Quality Regulations (40 Code of Federal Regulations [CFR] 1501.3(d)). Mitigation measures and best management practices (BMPs) that would help reduce or avoid impacts are identified in Table 2-5 in Chapter 2.

Table 3-1 identifies resources initially considered for impact analysis. Some of the resources present in the project corridor would either not be impacted by the project or the impact would be insignificant. These resources are not evaluated further in this EA.

Table 3- 1 Resources Initially Considered for Impact Analysis

Resource	Resource Status	Resource Evaluation
Land Use, Recreation, Transportation	Present, Affected	Impacts are further disclosed in Section 3.1.2
Visual Quality	Present, Affected	Impacts are further disclosed in Section 3.2.2
Soils and Geologic Hazards	Present, Affected	Impacts are further disclosed in Section 3.3.2
Vegetation	Present, Affected	Impacts are further disclosed in Section 3.4.2
Water Resources, Floodplains and Fish	Present, Affected	Impacts are further disclosed in Section 3.5.2
Wetlands	Present, Affected	Impacts are further disclosed in Section 3.6.2
Wildlife	Present, Affected	Impacts are further disclosed in Section 3.7.2
Cultural Resources	Present, Affected	Impacts are further disclosed in Section 3.8.2
Greenhouse Gases	Present, Low Effect	Temporary, localized emissions from construction equipment would occur. Removal of individual danger trees would likely cause a small loss of greenhouse gas sequestration potential because many of the trees are currently dead or dying. Carbon dioxide equivalent emissions for construction are estimated to be about 8,000 metric tons, which is the equivalent of about 1,904 gasoline-powered passenger vehicles driven for 1 year (EPA 2024a).

Resource	Resource Status	Resource Evaluation
Socioeconomic and Public Services	Present, Small Effect	Public services would not be affected in the project corridor. Most of the project corridor is on federal lands or on lands used for agricultural purposes (orchards on the east end of the project, and pastures on the west end of the project). Landowners and agricultural businesses would be compensated for any crop damage that occurs during project activities. Construction labor would likely be supplied from the Portland Metro area. There would likely not be a positive impact on hotels or motels in the Project area as laborers would likely travel to and from their home each day. Project construction would provide employment and would have a positive, but very small, impact relative to the macro regional economy. Anyone affected by this project would experience the same low impacts from either alternative. These impacts would be low because construction would be short-term with temporary inconveniences to the residences located adjacent to the project corridor.
Noise, Public Health and Safety	Present, Small Effect	Noise disturbance would be limited to general construction equipment activities, would be for a short-duration, and would occur during daylight hours. No hazardous conditions are known or expected and thus, would likely not result in significant impacts to public health and safety.

For each resource, existing information from previous studies, reports, and plans, in combination with site visits was used to describe the affected environment, and maps showing the location and extent of the Proposed Action were used to assess impacts. Field surveys for wetlands and cultural resources began in late summer 2021 and continued into fall 2021. In spring of 2022, fieldwork for vegetation, wildlife, wetlands, and cultural resources began and continued through the summer. Most of the fieldwork was completed in late summer to early fall 2022.

3.1 Land Use, Recreation, and Transportation

3.1.1 Affected Environment

The transmission line is in Clackamas, Hood River, and Wasco counties, beginning at the Big Eddy Substation in The Dalles, Oregon and continuing to just southwest of Sandy, Oregon. There are no transmission structures or access roads within any city limits and urban growth boundaries. Line miles 22, 23, 31 through 36, and 38 through 45 are located either partially or entirely within the boundaries of Mount Hood National Forest—totaling approximately twelve

miles of project length. Line miles 13, 47 through 51, and 54 through 56 are either partially or entirely on Bureau of Land Management property, totaling approximately six miles of the project length.

The transmission line generally runs east to southwest from US Highway 197 to just west of Oregon Highway 211. The transmission line crosses the East Fork Hood River, West Fork Hood River and the Sandy River between structures 24/6-25/1, 27/1-27/2, 57/2-57/3, respectively.

The predominant land uses crossed by the transmission line and access roads are agricultural and forestry. The agricultural areas are largely fruit orchards in The Dalles to Parkdale areas, with pastureland for livestock, and hay production being the main agricultural use to the west between Welches and the Sandy area. See Table 3-2 below.

Table 3- 2 Land Use Cover in Project Area

Type	Clackamas County	Hood River County	Wasco County
Forestland	210 acres	225 acres	105 acres
Agricultural	80 acres	25 acres	13 acres
Residential	10 acres	5 acres	<5 acres

Land ownership crossed by the transmission line and access roads is a mix of public and private land ownership. Publicly-owned parcels include federal- and county-owned parcels managed by Hood River County, Clackamas County, USFS, and BLM (See Table 3-3 below). Some of the privately-owned parcels crossed by the transmission line are owned by private timber companies.

Table 3- 3 Landowner and Land Use in Project Area

Owner/Manager	Land Use	Acreage in Right-of-Way	Scope of Activities
Hood River County	Primary Forest	54 acres	Structure work, tree removal and access road improvements
Clackamas County	Timber District	1 acre off right-of-way	Access road improvements
BLM	Recreation, Timber Production	70 acres	Structure work, tree removal and access road improvements
USFS	Recreation, Timber Production	190 acres	Structure work, tree removal and access road improvements

The USFS-managed parcels crossed by the transmission line and access roads are part of the Mt. Hood National Forest. These lands are managed by the Forest Service under the 1990 Land and Resource Management Plan for the Mt. Hood National Forest, as amended by the 1994 Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl, also known as the Northwest Forest

Plan (USFS 1990, USFS 1994a). The Forest Plan designates four types of land allocations on federal lands the project area crosses: Late Successional Reserves, Matrix, Administratively Withdrawn Areas, and Riparian Reserves. They are managed with the following objectives:

- Late Successional Reserves: These areas provide habitat (ecological area inhabited by a particular species) for Northern spotted owl, as well as other species associated with late successional and old growth habitat. About 3 miles of the transmission line and 4.5 miles of access roads cross through this type of managed land.
- Matrix: These areas provide a sustainable supply of timber and other forest commodities; provide connectivity between late successional reserves; provide early successional habitat; and provide important ecological functions. About 6 miles of the transmission line and six miles of access roads cross through this type of managed land.
- Administratively Withdrawn Areas: These areas are managed as recreational and visual areas, backcountry, and other areas not scheduled for timber harvest. Less than a mile of transmission line and about 0.5 mile of access road crosses through Administratively Withdrawn Areas around Lolo Pass Road in Mt. Hood National Forest.
- Riparian Reserves: These areas provide habitat for special-status (threatened or endangered species under the ESA, proposed threatened or endangered species under the ESA, candidate species [species not yet listed under the ESA], state listed species, Forest Service sensitive species) and other terrestrial species; these are a component of the Northwest Forest Plan's Aquatic Conservation Strategy.

Existing developments in Late Successional Reserves such as campgrounds, recreation residences, ski areas, utility corridors, and communication sites are considered existing uses with respect to Late Successional Reserve objectives, and may remain, consistent with other standards and guidelines. Routine maintenance of existing facilities is expected to have less effect on current old-growth conditions than development of new facilities. Maintenance activities may include felling hazard trees along utility rights-of-way, trails, and other developed areas (USFS and BLM 1994a).

In addition, the Mt. Hood Forest Plan outlines the primary goals for Special Use Permit Areas as follows: provide safe and efficient sites for permitted facilities and improvements to promote the public welfare in an environmentally sound manner; and to maximize consistency of permitted uses with surrounding land uses. The desired future condition is a pattern of special uses established to provide services in the public interest in a manner that reflects environmental sensitivity to other resource values. Examples of such special uses include railroad and State highway rights-of-way, communication structures, and power transmission lines. These general types of uses are recognized as fulfilling special needs for public convenience (U.S. Forest Service 1990).

The majority of the portion of the Project that crosses BLM-managed land is congressionally designated as National Conservation Land under the Oregon Resource Conservation Act of 1996 (Oregon Resource Conservation Act). It requires BLM to manage their land that is viewable from Highway 26 within the Mt. Hood Corridor “for the protection and enhancement of scenic qualities” and directs the BLM “management prescriptions for other resource values associated

with these lands to be planned and conducted for purposes other than timber harvest, so as not to impair scenic qualities in the Corridor."

The transmission line is visible from several park and trail facilities that either cross the transmission line right-of-way or are located adjacent to the right-of-way, as described in Table 3-4. The Pacific Crest Trail (PCT) spans 2,650 miles from southern California to northern Washington. This popular trail is used by equestrians, and long-distance and day-use hikers. (PCTA 2024). The project area crosses the PCT at one location in line mile 39, near Lolo Pass Road on USFS-managed land. There are no other public uses, such as libraries and town halls, located within or adjacent to the right-of-way.

Table 3-4 Park and Trail Facilities in or Adjacent to Project Area

Name	County	Use in Project Area
Oregon National Historic Trail	Clackamas	Crosses private property and a small portion of BLM-managed lands. Historic trail is not used by the public in this area.
Oregon National Historic Trail	Wasco	Crosses private property. Historic trail is not used by the public in this area.
Surveyor's Ridge Trailhead	Hood River	Trailhead is adjacent to project area. Used by the public for hiking and mountain biking.
Pacific Crest Trail	Clackamas	Crosses project area. Used by the public for hiking.
French's Dome Trailhead	Clackamas	Trailhead and parking lot are adjacent to project area. Used by the public for hiking and rock climbing.
Sandy Ridge Trail System	Clackamas	Trailhead and parking lot are approximately 0.25 mile south of right-of-way. Used by the public mostly for mountain biking.
Barlow Wayside Park	Clackamas	Trail adjacent to the project area but does not cross it. Used by public for hiking.

Source: NPS 2024

The project crosses the Mt. Hood Railroad between structures 25/3 to 25/4 in the Parkdale area. The Mt. Hood Railroad offers scenic railroad passenger tours and some freight services within the Hood River Valley.

3.1.2 Environmental Consequences—Proposed Action

Forestry Use

Although the transmission line corridor traverses forested areas and federal lands, the transmission line right-of-way is managed and generally kept clear of tall growing vegetation that could threaten the lines as a part of BPA's routine vegetation management. The majority of the trees, about 2,050 trees, to be removed would be merchantable (7 inches or greater in diameter). Landowners would be permitted to keep trees cut from their property, including merchantable trees.

There are approximately 200 danger trees proposed for removal on USFS-managed lands in Northwest Forest Plan land use allocations classified as late successional reserve (LSR). LSR trees proposed for removal range between 6- and 38-inches diameter at breast height (dbh). Trees that are greater than or equal to 18 inches dbh would be turned into habitat trees by topping or removing the portion of the tree that poses a threat to the transmission line and then girdled at the base of the trunk to facilitate decomposition. Per the NW Forest Plan Standards and Guidelines, hazard tree removal along utility rights-of-way in LSR is allowed, but topping is recommended, rather than felling (USFS 1994b). Approximately, 550 trees are proposed for removal from matrix lands on USFS-managed land. There would be no change to the land use allocation designations for the NW Forest Plan on USFS-managed land. Approximately 300 danger trees are proposed for removal in areas designated as riparian reserve. Per direction from USFS, these trees would be felled towards the streams for large woody debris recruitment.

Approximately, 80 danger trees are proposed for removal on BLM-managed lands spread out over 5.5 miles within the Mt. Hood Corridor which is designated as National Conservation Land. Due to topography, distance and adjacent forested areas, the transmission right-of-way is not visible from Highway 26; therefore, tree removal in this area would not impact the Mt. Hood Corridor.

Disruptions to existing forestry activities would primarily be in the form of potential schedule conflicts if harvesting or other forestry management activities were occurring at the same time as construction of the Proposed Action. These forestry activities could be disrupted by tree removal; temporary access changes to properties; access road work, and use of roads during project construction. However, tree removal along the corridor through forested public or privately owned lands would not differ from BPA's typical vegetation management activities along the line and would not result in a substantial change to ongoing forestry activities. Property owners would be allowed to keep felled trees. Access changes to properties would be short-term, and BPA would coordinate with property owners in advance to ensure access to properties would be maintained during construction (see Section 2.5). Some of the planned access roads are also used for forestry activities, so traffic for forestry activities could experience delays during construction of the Proposed Action. In addition, forestry workers could experience temporary noise, dust, and air quality impacts during construction activities.

The enhanced access road network could potentially increase public access to USFS-managed land or other public or private forested lands. Unauthorized use of BPA's access roads could result in activities such as off-road vehicle use, illegal dumping, and trespassing on private properties. However, BPA would install or replace 30 gates at the entrance to access roads to deter unauthorized access.

While construction would be completed in phases over several years, individual private forest landowners would likely be affected for only a few months when nearby construction segments of the Proposed Action are underway. The Proposed Action would have a **low** impact on forestry land uses because disruptions to existing forestry activities would be temporary and short-term; and landowners would be able to keep or sell merchantable trees removed from their lands.

Commercial Use

The main commercial use in the project area is agricultural cropland and pastures in the Sandy area and orchards in The Dalles and Parkdale areas. BPA would coordinate with the landowners to limit impacts to farming and orchard operations, be it pesticide applications or harvesting (see Table2-5). Construction workers would be required to use designated restroom facilities while on agricultural lands and to dispose of trash in approved receptacles. Excavated areas would be required to be covered overnight to prevent injuries to farm workers and livestock. Dust from construction activities would be controlled using water trucks onsite. In the unlikely event of a petroleum spill on agricultural lands, chemical spill kits would be required onsite during all construction with clear instructions on how to prevent and cleanup spills. Orchard tree removal would occur where structures are proposed to be moved to increase heights (structures 4/1, 4/2, 5/3, 5/4, 6/1, and 26/1). Orchard owners would be fairly compensated for the loss of orchard trees. Agricultural landowners would also be compensated for crop damage during construction. Impacts to commercial uses on agricultural lands would be **low** because there would be no conversion of agricultural lands to another land use, and best management practices would be implemented to reduce impacts to crops and farmworkers.

Residential Use

In some locations, the project area is in and adjacent to rural residential homes. Impacts to residences adjacent to the transmission line would be limited to temporary noise, dust, and access disruptions due to construction activities. Construction hours would adhere to local requirements. The impacts would be short-term, and would not change the use of the land, the Proposed Action would have a **low** impact on residential uses.

Recreational Use

Impacts to recreation would be limited to temporary disturbances near the transmission line and access roads. The Proposed Action would result in temporary construction-related impacts to parks and trails adjacent to or within the transmission line right-of-way. These park and trail facilities include the Oregon National Historic Trail, Surveyor's Ridge, Pacific Crest Trail, French's Dome Trailhead, Sandy Ridge Trail System and Barlow Wayside Park, as described in Table 3-2. These impacts may include temporary closures of portions of the facilities to ensure the safety of recreational users during replacement of the conductor, hardware, and insulators, structure height increases, access road improvements and tree removal. Other impacts could include traffic delays to access the parks from public roadways, and dust and noise from construction activities. Surveyor's Ridge, French's Dome, Sandy Ridge Trail System and Barlow Wayside Park include picnic areas, restrooms, and a mountain biking area where visitors might experience noise disturbances during their stay. The road to the Surveyor's Ridge trailhead would be closed for approximately four hours during tree removal activities. During project implementation, PCT hikers would be impacted at different times by temporary delays during tree removal, access road improvements and the stringing of the conductor. A flagger would be present on either end of the PCT when construction work is occurring at that location. The flagger would coordinate with construction work crews, to safely pause work, while hikers pass through. PCT hikers would need to wait while the conductor is being strung by helicopters and attached to the towers. This typically takes 15 to 30 minutes per conductor strand. There are nine

structures in the section in the vicinity of the PCT crossing in the project area. Delays to PCT hikers would be minimized as much as possible, typically not more than an hour or two, over a period of three to four separate days total. For most trail facilities, visitors would only be temporarily disturbed while they are using the portion of the trail near and crossing through the transmission line right-of-way.

Park and recreation facilities adjacent to access roads could experience an increase in traffic volumes and noise during construction. Impacts to park and recreation facilities located within one mile of the project, but not within or adjacent to the transmission line right-of-way, would be limited to minor noise and dust impacts. Construction disturbances due to noise, dust, and traffic delays to recreation users would be of short duration (on average up to 1 week total per structure height increase, 1 to 2 hours during conductor installation, and 3 to 4 weeks per mile of access road work). These disturbances would be minimized through the application of the mitigation measures identified in Section 2.5, so impacts to recreational uses would be **low**.

Traffic

At roadway and rail crossings, conductor replacement and structure raises could temporarily affect traffic flow. Traffic control and lane closure would follow the applicable state, county, city, and railroad requirements.

During project construction there would be a temporary increase in traffic on nearby roads from construction vehicles delivering equipment and materials. Deliveries of equipment and materials to construction areas could cause short-term traffic delays along nearby roads and state highways. Temporary traffic impacts from traffic delays are anticipated along local streets adjacent to the transmission line in The Dalles, Parkdale and Sandy. See Table 3-5 below.

Table 3-5 Roads Adjacent to Transmission Line That Would Have Temporary Increases in Traffic

County	Roads
Clackamas	US Hwy 197, Old Dufur Road, Three Mile Road, Dry Hollow Road, Skyline Road, Orchard Road, Mill Creek Road, Ketchum Road
Hood River	Highway 35, Pinemont Road Cooper Spur Road, Dee Highway, Old Parkdale Road, Red Hill Road, National Forest (NF) [Road]-18, NF-100
Wasco	Lolo Pass Road, E. Snowden Road, E. Barlow Trail Road, Marmot Road, SE Coleman Road, US Hwy 26, SE Trubel Road, Eagle Creek-Sandy Hwy and Tickle Creek Road

The improvement or reconstruction of access roads, and construction of new access roads, would result in short-term impacts to transportation from construction related delays and detours; however, most access roads are currently gated and not used by the public, or would be gated if requested by the underlying landowner. Construction equipment would be parked adjacent to local roads and highways to avoid blocking access, where feasible.

The access road that crosses the Mt. Hood Railroad provides access to one structure where only conductor replacement activities would occur. Construction activities in the vicinity of the Mt. Hood Railroad crossing would not impact train schedules.

Overall, impacts to the transportation system would be **low** because the increase in traffic and traffic delays would be temporary. Local residents and businesses would be notified of upcoming construction activities and potential delays; traffic control plans would be implemented to protect the public on roadways; and BPA would coordinate with ODOT on highway crossings.

3.1.3 Environmental Consequences—No Action Alternative

Under the No Action Alternative, impacts to land uses, recreation, and transportation associated with the conductor replacement, structure raises, access road improvements, and tree removal would not occur at this time. However, as existing conductor continues to deteriorate, line repairs could increase, resulting in more frequent disruptions to landowners and intermittent traffic increases from maintenance vehicles accessing the areas of repair. Potential impacts to landowners could be similar to the Proposed Action (disturbance of area near individual structure sites and access road work areas, interference of access to individual properties, and noise and dust), but spread out over time. Emergency repairs could be needed and if conditions prevent access along existing access roads, new impacts to land use and recreation, such as vegetation removal and traffic delays, could occur. Temporary closures and periodic disruptions to traffic flow from continued maintenance of the line could occur as additional maintenance requirements are needed or when emergency repairs are needed. Although the No Action Alternative would result in fewer impacts per entry because the disturbance area would be limited to the area needing maintenance or emergency repairs, the impacts in that area could be greater if there is an inadequate road system in place to reach the transmission line. The disruptions could also be more frequent than under the Proposed Action; therefore, overall impacts to land uses, recreation, and transportation would still be anticipated to be **low-to-moderate** depending on the nature of the maintenance or emergency event**.**

3.2 Visual Quality

3.2.1 Affected Environment

The transmission line is in the far eastern portion of the Willamette Valley, the central Cascade Mountain Range and the western portion of the Columbia River Plateau. The transmission line is situated in three general visual environments: agricultural, forested, and rural residential areas.

The transmission line crosses agricultural visual environments in The Dalles, Parkdale and south of Sandy, Oregon. The topography varies from flat to rolling hills on the eastern end of the project with few forested areas, while the western end of the project area is in agricultural areas or flanked by forests.

The Big Eddy-Ostrander transmission line shares a right-of-way corridor with two to three other transmission lines throughout most of the project area. There is minimal light and glare associated with the existing transmission line.

The portion of the project that crosses BLM- and USFS-managed lands are in forested visual environments, where the topography is rugged, and the vegetation primarily consists of dense stands of mature evergreen trees. The forested visual environment is very sparsely populated, as approximately 12 miles of the transmission line right-of-way and access road areas are located

within the boundaries of the Mt. Hood National Forest and another six miles is on BLM-managed land. Some private land is also in forested areas, where timber harvesting occurs. A combination of paved and unpaved roads provides access to portions of the transmission line right-of-way. In addition, the rugged topography and the dense stands of evergreen trees obscure much of the transmission line right of way in most of the forested visual environment. However, the right-of-way and transmission line is prominent along Lolo Pass Road on Mt. Hood National Forest, where the public road weaves in and out of the right-of-way. Portions of the right-of-way along Lolo Pass Road on Mt. Hood National Forest are classified as a scenic viewshed under the NW Forest Plan; however, under the management plan existing transmission rights-of-ways that predate the NW Forest Plan are not subject to the same viewshed management standards and guidelines as new facilities.

The transmission line crosses the PCT on the Mt. Hood National Forest, between structures 39/3 and 39/4. The trail's crossing location within the existing right-of-way weaves between existing transmission structures from four transmission lines, including Big Eddy-Ostrander. Existing access roads are also present throughout the right-of-way in this area.

Portions of the transmission line right-of-way adjacent to forested areas are visible from the Parkdale area, due to Parkdale's position in a valley. Likewise, the right-of-way is visible eight miles from the Surveyor's Ridge viewpoint, which itself is immediately adjacent to the right-of-way. For the short sections the right-of-way is visually prominent because the right-of-way is cleared of vegetation, which creates a contrast with the forested landscape. In this visual environment, access roads wind through forested areas adjacent to or within the transmission line right-of-way.

About 4.5 miles of the project area between line mile 1 and 7, are within the Columbia River Gorge National Scenic Area (CRGNSA), in urban and General Management Area large-scale agricultural land use designation zones. The existing right-of-way in this area contains four transmission lines, including Big Eddy-Ostrander, and is largely in rural residential and agricultural fields with limited tree coverage.

3.2.2 Environmental Consequences-Proposed Action

During construction, there would be temporary impacts to the viewshed from construction equipment, staging, material storage, structure moves, and helicopter use. Staging areas and material stockpiles would be removed after construction.

Access road work would typically take 3 to 4 weeks per mile of work, depending on the level of work proposed. Most of the proposed access road work would occur on existing roads, except for a new road on private property and several spur roads to access structure locations. In some locations, new permanent landings would be installed at the base of structures. Many of the access road improvements are behind gates and not accessible to the public. The roadwork improvements would have minimal visual impacts because the work with construction equipment present would take place over a short duration of time, and the existing access roads are mostly located away from populated areas where the work areas would not be visible to sensitive viewers.

Conductor, hardware replacement and installation of fall protection on each structure would take 2 to 3 days to complete per structure. The number of conductor wires on the transmission line would increase from three to six; however, the new conductor would be almost half the diameter of the existing conductor and overall would be less visible from the ground compared to the existing conductor. Replacement hardware and the addition of fall protection on structures would have insignificant visual impacts because the changes would be visually consistent with the existing hardware and transmission structures.

Five structures within the CRGNSA are proposed to be increased in height by 13 to 25 feet more than the existing structure heights; these structures would also be moved approximately 50 feet from the structure's existing locations. Minor access road improvements within the CRGNSA are proposed on existing access roads. Structures that would be raised could take 5 to 7 days to complete. The structures that are proposed to have a height increase within the CRGNSA are not currently visible from CRGNSA designated key viewing areas. Structure height increases may be more visible to local viewers in the CRGNSA in some locations; however, the structures would be similar in height to other taller structures within the right-of-way. There would be no structure height increases in the scenic viewsheds, designated by the NW Forest Plan on USFS- or BLM-managed lands.

One structure that is proposed to be increased in height is on USFS-managed land; however, it is not within a scenic viewshed or visible from any trailheads. It is near National Forest Road 18, which is paved, and a well-traveled road used by the public. This structure would be increased in height by 34 feet but would also be moved 50 feet back from its current location, and away from the road. The area in the vicinity of this structure height increase is generally driven through and not a point of interest for hikers or visitors to the Mt. Hood National Forest. Additionally, the structure would be set back further from the road than it is now.

The other 60 structure height increases include structures that may be visible from public roads and residential housing; however, the height increases would be small (2- to 36-feet) and would not create a drastic change to the visual quality of the surrounding area because the taller structures would be similar in height to other structures within the existing right-of-way.

Some permanent ground disturbance would occur in areas where excavation of soils is proposed to correct impairments. Excavation would remove small topographical areas to level the ground out. Excavated soils would be spread out nearby. These are generally small areas, ranging in size from 180 square feet to 1,527 square feet. All bare-ground soil would be revegetated. In general, these areas are not located in areas that are accessible or visible to the public and would blend in with existing topography and vegetative conditions upon revegetation.

Tree removal would not create any new hard edges in forests that are adjacent to the right-of-way. Select tree removal would result in a more undulating forest edge in some locations. Only four non-native trees and up to 175 orchard trees are proposed for removal in the CRGNSA. Additionally, about ten trees would be removed from these scenic viewsheds, and the stumps would be required to be less than 12-inches-tall. Approximately ten trees are proposed for removal within 150 feet of the PCT; the stumps of these trees would be 12 inches or less on slopes and six inches or less on flat ground to retain the viewshed quality for hikers.

Overall, the project would have **low** impacts to the visual quality of the project area because no new hard forest edges would be created, the new conductor would be less visible, construction equipment presence would be temporary, and changes to structure heights would not impact key viewing areas of the CRGNSA or scenic areas on Federal lands. Moreover, the elevated structures outside of those areas would remain consistent with the other transmission structures in the right-of-way. Finally, BMPs would be used to minimize impacts to visual quality, such as locating staging areas away from residences and recreational areas, when practicable and construction areas would be required to be clean and clear of construction debris (see Table 2-5).

3.2.3 Environmental Consequences-No Action Alternative

Under the No Action alternative, there would be no change in the visual impacts of the transmission line at this time. Emergency repairs could potentially have similar impacts as those described in Section 3.2.2; however, they would likely be conducted individually over time. Overall, the visual impacts from the No Action alternative would be **none-to-low**.

3.3 Soils and Geologic Hazards

3.3.1 Affected Environment

The transmission line is in the Deschutes-Columbia Plateau, and the Western Cascades physiographic provinces (Oregon Department of Geology and Mineral Industries [DOGAMI] 2024a). Elevation ranges in the project area from 400 to 700 feet on the far eastern and western ends of the project to 3,600 feet at structure 30/3, approximately nine miles north of Mt. Hood. Soils are primarily silt loams that formed on steep, hilly topography. Approximately four percent of soil in the project area is classified as prime farmland and about 40 acres are classified as farmland of statewide importance. Soils on Mount Hood National Forest represent 31 percent of the project area but have not been inventoried (USDA 2022).

On slopes less than 8 percent, soils are susceptible to slight-to-moderate levels of erosion when exposed to water and wind. Erosion hazard areas, with slopes greater than 8 percent, are susceptible to severe levels of erosion when exposed to water or wind (USDA 2022). Approximately, 14% of soil in the project corridor has a slight to moderate erosion potential. About 55 percent of soil in the project corridor has a severe erosion hazard rating (USDA 2022).

The project corridor crosses approximately 14 miles and 16 miles of lands mapped as having a very high and high susceptibility (respectively) to landslides (DOGAMI 2024c). Areas with a very high susceptibility are where the DOGAMI has mapped pre-historic and historic landslides and high susceptibility areas are where landslides are likely where slopes are greater than 17% (DOGAMI 2024b).

3.3.2 Environmental Consequences—Proposed Action

Impacts on soils would occur during construction of landings; soil excavation to correct impairments; removal of vegetation; temporary soil piling; compaction or rutting from heavy equipment; reconstruction or improvement of roads; compaction in areas used as staging areas and pulling/tensioning sites; or accidental equipment spills. Ground that has been cleared of

vegetation would be susceptible to erosion and establishment of invasive plants (see Section 3.4.2). The erosion potential for disturbed soils would be greatest during and immediately after construction before disturbance areas are revegetated. Ground compaction degrades the soil structure and reduces soil productivity and the soil's ability to absorb water. Reduced soil productivity in "prime farmland" and "farmland of statewide importance" areas crossed by the project corridor likely occurred when the line and roads were constructed, and trees were removed. Soils have likely recovered adjacent to these facilities since 1964 and would recover from the proposed project as vegetation becomes reestablished, organic matter is naturally added over time, and the soils' capacity to absorb water is regained.

At the 282 structure sites, the use of construction equipment would temporarily disturb a maximum of 155 acres of soil. In sensitive habitats, such as wetlands, the disturbance area could be reduced by using temporary equipment mats to provide ground stabilization under the weight of large construction equipment (see Section 3.6.2).

Soil compaction from the use of heavy machinery at each structure site would be limited to a 150-foot by 150-foot area, or less, around the structures that are not increasing in height. For the 54 structures that are moving 50 feet from the original structure location, to increase the structure height, there would be 200-feet by 150-feet of potential soil compaction. Excavation to correct midspan impairments would result in soil removal and could result in minor soil compaction where there are no roads to the excavation sites.

New landing installation at structures would permanently compact a total of about 0.77 acre of soil.

Prompt mulching and seeding of exposed soils would help reduce the potential for erosion from disturbed sites. Until vegetation becomes reestablished, soil erosion could occur; however, once vegetation is established erosion would be unlikely. With the use of BMPs (Table 2-5) and conducting peak construction work during the dry season, impacts from structure replacement and landing construction would be low due to the small acreage affected.

Improvement of about 42 miles of the existing access road system and reconstruction of about 7 miles of existing access roads would disturb soil but would not result in a new permanent impact on soils because the roads already exist, and soils are already compacted or covered with gravel. However, erosion associated with their use would have the greatest impact in areas where roads are on soil with a severe erosion hazard rating and slopes greater than 8 percent.

Construction of eight new access roads would permanently disturb a total of 0.6-acre of soil on previously undeveloped ground. Seven of these roads are spur roads off the main access roads in the right-of-way and range in length from 50-feet-long to 250-feet-long. These locations likely have some extent of soil compaction from the original development of the transmission line and from routine maintenance and annual inspection activities. One 850-foot-long road is proposed off right-of-way because the previous access route was developed with a residential house and the landowner requested that BPA build a new access road around their house and septic field.

Access road work would occur during the dry season and would include installing water bars and drain dips, and new gravel surfacing. These features are designed to reduce erosion and minimize

impacts on soil and adjacent water bodies. Additionally, erosion and sediment control measures would be installed prior to and used during road work but there would still be a **low** risk of erosion on slopes 8 percent or less and a **moderate** risk of erosion on slopes greater than 8 percent.

Approximately 13 miles of access road improvement and reconstruction work is in areas that are rated by the Oregon Department of Geology as very high risk landslide hazard areas and another 16 miles of access road improvements are proposed on areas mapped as high risk for landslide potential, which could increase the risk of landslides in line miles 7-15, 17-18, 22-24, 28-39, 41-46-50, 52-53, 56, 59, and 63. However, BPA would follow geotechnical BMPs and would repair slumps during construction to avoid overburdening unstable areas. Cleaning of clogged culverts and replacement of undersized culverts would improve drainage on slopes and reduce water impoundment during high-precipitation events that could lead to saturated soils that set off landslides. Therefore, there is a **low** risk for landslides to occur from access road improvement.

Soil compaction could occur where staging areas and pulling/tensioning sites are located. A material storage yard and staging area is proposed at BPA's Celilo Maintenance Headquarters in an area that was previously used as an electrical substation where all electrical equipment has been removed. Soil disturbance and compaction also would occur within pulling/tensioning sites from grading and use of the puller, tensioner and reel equipment. The likelihood for disturbance at helicopter landing zones would be slight but could include wind erosion during landings. Use of BMPs prior to and after use of these temporary sites would result in a **low** impact from staging and pulling and tensioning activities.

Impacts from danger tree removal could include soil erosion and dust generation. Stumps would be left in place to minimize impacts on soil. Impacts would be **low** with the use of BMPs (Table 2.5) and because they would be short-term, in a relatively small area, and adjacent vegetation would be left in place.

3.3.3 Environmental Consequences—No Action Alternative

Under the No Action Alternative, the existing conductor would not be replaced, and access roads would not be improved so impacts related to construction would not occur. As existing conductor deteriorates, conductor fittings fail, and access road work is needed, soil would be disturbed. Although roads would be repaired as needed to access structures, comprehensive road improvements to improve drainage and increase culvert size would not likely be made, increasing the risks for slumping and erosion. If emergency repairs to the transmission line were required during storm events (when conductor is more likely to fail), saturated soil conditions would increase site-specific erosion risk and compaction. Overall, impacts on soils from the No Action Alternative would be **low** for planned activities during the dry-season work; however, should work occur during the wet season under emergency conditions, impacts would likely be **moderate**.

3.4 Vegetation

3.4.1 Affected Environment

General Vegetation

Vegetation in the project area has been extensively modified by forest practices, agricultural use, road and transmission construction and maintenance, and rural residential development. The existing right-of-way and access roads are managed annually to maintain low-growing plant communities. Woody plants that have a potential to grow into the conductor are removed from the right-of-way regularly; except in steep ravines, where trees are unlikely to encroach on the transmission line. Typical vegetation in the project corridor includes vine maple (*Acer circinatum*), snowberry (*Symphoricarpos albus*), Oregon grape (*Mahonia aquifolium*), sword fern (*Polystichum munitum*), bracken fern (*Pteridium aquilinum*) in the western portion of the project area, while balsam root (*Balsamorhiza sagittata*), barestem biscuitroot (*Lomatium nudicaule*) and buckwheat (*Eriogonum* spp.) plants are typical in the eastern portion of the project area.

Sensitive Plant Species

Sensitive plant species that have a potential to occur in the project area, include state listed plants and federally designated sensitive, threatened and endangered species (Appendix C). Rare plant surveys were conducted in the project area in the spring and summer of 2022 (PNNL 2023c). Golden paintbrush (*Castilleja levisecta*), Willamette daisy (*Erigeron decumbens*), Kincaid's lupine (*Lupinus sulphureaus* ssp. *kincaidii*), White-bark pine (*Pinus albicaulis*), and Nelson's checker-mallow (*Sidalcea nelsoniana*), are federally listed as threatened or endangered under the ESA. None of these species were documented during surveys. Two previously-recorded rare plant populations have been documented in the project area on USFS-managed land: sicklepod rockcress (*Boechera atrorubens*) and Watson's desert parsley (*Lomatium watsonii*). Sicklepod rockcress was documented at four locations within the project area on non-federal lands. One population of approximately 30 individual plants was recorded around structure 22/2 and three smaller populations with less than ten plants each were noted near existing access roads in line miles 19 and 20. Watson's desert parsley was not documented during the 2022 survey, but a large population was recorded in the project area on USFS-managed land in 2024. This population extends outside of the project area and contains more than 400 individuals. One individual common moonwort (*Botrichium lunaria*) plant was also documented on USFS-managed land in the survey area. No other sensitive plants were documented during surveys.

Undesirable Plant Species

Throughout the project area, many populations of invasive and noxious weeds were identified along access roads and within the right-of-way (PNNL 2023b). At these sites, ground disturbance and altered soil characteristics often create habitat that favors undesirable, often introduced plants in areas otherwise dominated by natives or innocuous weeds. The state of Oregon classifies noxious weeds as described in Table 3-6 below.

Table 3-6 Oregon Weed Classifications

Classification	Definition	Recommendation
A	"A weed of known economic importance which occurs in the state in small enough infestations to make eradication or containment possible; or is not known to occur, but its presence in neighboring states make future occurrence in Oregon seem imminent."	"Infestations are subject to eradication or intensive control when and where found."
B	"A weed of economic importance, which is regionally abundant, but which may have limited distribution in some counties."	"Limited to intensive control at the state, county, or regional level as determined on a site specific, case-by-case basis. Where implementation of a fully integrated statewide management plan is not feasible, biological control (when available) shall be the primary control method."

The most abundant weed species in the project area by classification are Class A: orange and yellow hawkweed (*Hieracium aurantiacum, H. floribundum*); Class B: false brome (Brachypodium sylvaticum), diffuse knapweed, meadow knapweed, spotted knapweed (*Centuarea diffusa*, *C. pratensis*, *C. stoebe*), Scotch broom (*Cytisus scoparius*), Himalayan blackberry (*Rubus armeniacus*), and tansy ragwort (*Senacio jacobaea*)). Noxious weeds of special concern to BLM, Portland Water Bureau and USFS that were observed in the project area are false brome, and orange and meadow hawkweed.

3.4.2 Environmental Consequences—Proposed Action

General Vegetation

Transmission line conductor replacement would require clearing and crushing of vegetation causing damage to plants, including some plant roots. Compaction of soils by heavy equipment would disturb plant roots. The extent of impacts at each structure site would depend on the quality of existing vegetation, the size of the disturbance area, soils, and topography.

At the individual structure site work areas and structure move locations, vegetation in the 0.5-acre temporary disturbance area would be cleared or crushed (about 80 acres total). At pulling and tensioning sites, vegetation would be crushed or removed to create a level site to set up equipment (about 35 to 40 acres would be temporarily disturbed). Access road construction, reconstruction, and landing installations would permanently convert approximately 50 acres of vegetation, where vegetated surfaces are replaced with compacted gravel or rock. Culvert and ford improvements/replacements and bridge installations in wetter areas may remove or crush wetland vegetation. Impacts on wetland plant communities are discussed in Section 3.6.2. Approximately 85 acres of vegetation would be temporarily impacted along the shoulders of roads for all access road work, including improvements, but the vegetation would be allowed to

grow back. About 3.5 acres of decommissioned roads would be passively restored to a vegetated area.

About 2,200 danger trees would be removed along the 66.5-mile-long right-of-way during construction. This is an average of about 33 trees per line mile with most removals occurring in line miles 19, 20, 21 and 32. Tree removal would open small, forested areas to light, making these areas more vulnerable to invasion by weed species, many of which require sunlight areas to grow. Native understory plants that tend to grow in the shade may not grow as well in these forest openings.

Overall, the impact to general vegetation would be **low** because temporarily disturbed ground would be required to be revegetated post-construction and trees would be allowed to regrow, and tree removal would be sporadic along the edge of the right-of-way.

Sensitive Plant Species

Sensitive plant populations could be present during the construction season, either in vegetative form, blooming, or fruiting and, therefore, vulnerable to disturbance. Two small patches of sickle-pod rockcress, found near structures 13/2 and 13/5, would be avoided resulting in no impact. In line mile 19, a small population of less than ten individuals would be permanently impacted by access road reconstruction activities where they would be crushed in the shoulder of the road.

One pulling and tensioning site would potentially impact a population of about 30 sicklepod rockcress plants and another would impact up to ten individual Watson's desert parsley plants. Impacts to sicklepod rockcress would be **moderate** and Watson's desert parsley would be **low** because the work areas would be restricted to the maximum extent possible to minimize impacts to both species. The work would occur after the plants have died back for the year (senesced); however, soil compaction may impact the root systems of individual plants causing mortality of those individuals.

There would be no impacts to common moonwort because the plant location would be avoided during construction.

Undesirable Plant Species

During and after construction, existing noxious weed populations could spread and colonize disturbed areas. Construction equipment, vehicles, workers, and materials contaminated with seeds, roots, and other weed parts could spread weeds from one work area to another. Bare, disturbed, and compacted soils are vulnerable to weed invasion through natural dispersal, such as wind-blown seeds.

Mitigations measures and BMPs listed in Table 2-5, such as minimizing construction areas and disturbance to vegetation, site restoration, and post construction weed treatments, would be used to reduce or avoid impacts on vegetation. Danger tree removal would occur in areas of predominantly native plant communities, resulting in the slight loss of habitat although trees would be allowed to regrow. Long-term soil compaction with reduced soil productivity around structures and along access roads would make it difficult for native species to recover in those

areas, though these areas occur within an actively-managed right-of-way that is subject to regular disturbance from operations and maintenance activities, including vegetation management. Noxious weeds present in the project corridor could spread into areas not currently infested.

Approximately 16 acres of the Project area is within the boundaries of the Bull Run Watershed Management Unit (BRWMU), along Lolo Pass Road. BPA would follow the BRWMU Standard Operating Protocol for invasive plant species standards to prevent the introduction or spread of invasive plant species, such as orange and meadow hawkweed, knapweeds and false brome. Vehicle and equipment weed wash stations would be set up at strategic locations; certified weed free straw and rock would be used, as practicable; and disturbed bare ground areas would be reseeded following construction.

Overall impacts to general vegetation would be **low-to-moderate** because vegetation would be expected to eventually recolonize temporarily disturbed areas at structure sites, pulling and tensioning areas and along road shoulders. Temporarily excavated areas would be recontoured and revegetated. Approximately 50 acres of vegetation would be permanently disturbed where roads and landings are installed or reconstructed. Weeds could displace native plants, reducing biodiversity and degrading vegetative communities, whether natural or managed. Impacts from noxious weed spread would be minimized with use of BMPs (Table 2-5), such as using vehicle weed wash stations, use of weed-free rock and straw, and post-construction revegetation of disturbed areas.

3.4.3 Environmental Consequences—No Action Alternative

Under the No Action Alternative, the existing conductor would not be replaced, and the access road network would not be improved. However, maintenance activities would likely increase as the conductor deteriorates and more replacement could be required. Maintenance of access roads would continue to occur over time. Emergency repair activities requiring unplanned movement of vehicles through existing noxious weed infestations, could potentially allow the spread of noxious weeds. Emergency maintenance during the wet season could also limit the ability to avoid sensitive plant species or sensitive habitats. These activities would continue to result in **low-to-moderate** impacts from localized vegetation disturbance and danger tree removal.

3.5 Water Resources, Floodplains and Fish

3.5.1 Affected Environment

Water Resources

Approximately, 40 perennial streams are crossed by the transmission line and access roads or within 100 feet of the project corridor. Numerous unnamed intermittent and tributaries to perennial streams also cross the project corridor.

Per Section 303(d) of the Clean Water Act, the Oregon Department of Environmental Quality (DEQ) develops water quality standards within the state and then identifies impaired waters and determines the total maximum daily load (TMDL) allowed for pollutants to maintain water quality standards for the respective waterway. DEQ provides EPA with an integrated report of

303(d) streams within the state every two years. (DEQ 2024c) See Table 3-7 below for a list of pollutants in each 303(d) stream that the project area crosses.

Table 3-7 303(d) Streams in Project Area

Stream	Project Line Mile	Pollutant(s)
Three Mile Creek	2	Alkalinity, ammonia, biological criteria, chloride, chloropyrifos, flow modification, malathion, parathion, pH, sedimentation, temperature
South Fork Mill Creek	11	Biological criteria, temperature
North Fork Mill Creek	11	Alkalinity, ammonia, biological criteria, chloride, dissolved oxygen, pH, phosphate, phosphorous, temperature
Neal Creek	20	Arsenic, Dichlorodiphenyltrichloroethane (DDT), inorganic human health toxics, iron-aquatic life toxics, temperature
West Fork Neal Creek	22	Arsenic, Dichlorodiphenyltrichloroethane (DDT), inorganic human health toxics, iron-aquatic life toxics, temperature
Tony Creek	28	Biological criteria, temperature
Red Creek		Temperature
East Fork Hood River	24	Alkalinity, ammonia, antimony, arsenic, barium, beryllium, biological criteria, cadmium, chloride, chlorophyll a, chlorpyrifos, chromium, copper, dieldrin, dissolved oxygen, E.coli, fecal coliform, flow modification, habitat modification, hexachlorocyclohexane, iron, lead, malathion, manganese, nickel, parathion, pH, phosphate phosphorus, sedimentation, selenium, silver, temperature, thallium, zinc
Middle Fork Hood River	27	Alkalinity, ammonia, antimony, arsenic, barium, beryllium, biological criteria, cadmium, chloride, chlorophyll a, chlorpyrifos, chromium, copper, dieldrin, dissolved oxygen, E.coli, habitat modification, hexachlorocyclohexane, iron, lead, malathion, manganese, nickel, parathion, pH, phosphate phosphorus, sedimentation, selenium, silver, temperature, thallium, zinc
West Fork Hood River	37	Alkalinity, ammonia, antimony, aquatic weeds or algae, arsenic, barium, beryllium, biological criteria, cadmium, chloride, chlorophyll a, chlorpyrifos, chromium, copper, dieldrin, dissolved oxygen, E.coli, hexachlorocyclohexane, iron, lead, malathion, manganese, nickel, pH, phosphate phosphorus, selenium, silver, temperature, thallium, zinc
Clear Creek	46	Temperature, biological criteria,
Sandy River	57	Methylmercury, human health toxics, temperature
Badger Creek	59	Temperature
Cedar Creek	62	Temperature, E. coli
Tickle Creek	63	Biological criteria, alkalinity, aquatic life toxins, E. coli

Source: ODEQ 2024b

A sole source aquifer supplies 50% of an area's drinking water supply, for which there is no alternative water supply source if that aquifer becomes contaminated. (EPA 2024a). The nearest EPA sole source aquifer is the Troutdale Aquifer System in Clark County, Washington, which is approximately 14 miles north of the nearest point of the project area.

Well head protection is important to protect residential drinking water aquifers from local source contamination. In the state of Oregon, development of well head protection plans have been designated to local governments on a voluntary basis. Well head protection plans typically include regulated activities within the well head area that could potentially contaminate public drinking water. Oregon Department of Environmental Quality (DEQ) reviews local well head protection plans. There are no local government well head protection plans in or near the project area (DEQ 2024a. Statewide, DEQ also declares a Groundwater Management Area (GWMA) when groundwater contamination levels are consistently high. Currently, there are three GWMAs in the State of Oregon, none of which are in or near the project location. (DEQ 2019).

The BRWMU is partially within the project area, on USFS-managed land along Lolo Pass Road. The BRWMU is managed by the City of Portland Water Bureau and contains reservoirs that supply the Portland metro area with drinking water. The Bull Run Watershed is protected by the Bull Run Act (16 U.S.C. § 482b).

Floodplains

In Hood River and Clackamas counties, Federal Emergency Management Agency (FEMA) designated 100-year floodplains cross the project corridor in seven locations along Evans Creek, Rogers Creek, Middle Fork River, Red Hill Creek, Elk Creek, Sandy River, and Cedar Creek. No FEMA designated floodplains cross the project area in Wasco County.

Fish

ESA-listed fish species that are suspected or known to occur within streams that the project cross include Lower Columbia River (LCR) coho salmon (*Oncorhynchus kisutch*), LCR Chinook salmon (*Oncorhynchus tshawytscha*), and LCR and Middle Columbia River steelhead (*Oncorhynchus mykiss*) and bull trout (*Salvelinus confluentus*). Coho, Chinook, steelhead and bull trout are also state-listed species. The presence of these species has been identified in 19 streams that the project area crosses. These species all require cold water habitats with suitable gravel or small cobble substrates for redd (nest) building and spawning. Chinook, coho and steelhead populations are limited by degraded habitat, poor water quality, historic hatchery impacts, lack of access to tributaries due to barriers such as roads, dams, and unpassable culverts, to name a few (NMFS 2013, USFWS 2015).

Designated critical habitat in the project area for the ESA-listed fish species above includes Threemile Creek, South Fork and North Fork Mill Creek in Wasco County; East Fork Hood River, Emil Creek, Middle Fork Hood River, Tony Creek, Red Hill Creek, West Fork Hood River, and Elk Creek in Hood River County; and Clear Creek, Minikahda Creek, North Boulder Creek, and the Sandy River in Clackamas County.

Coastal cutthroat (*Oncorhynchus clarkii clarkii*), Pacific lamprey (*Entosphenus tridentatus*) and Redband trout (*Oncorhynchus mykiss gairdneri*) are native fish that are also known to occur in

streams that the project crosses. Pacific lamprey is state listed and a federal sensitive species on BLM- and USFS-managed land that the project crosses. Coastal cutthroat and redband trout are federal sensitive species on BLM- and USFS-managed land in the project area.

The state of Oregon designates the following streams within the project area as core cold water habitat for fish: Camp Creek, Dry Run, Marco Creek, Tumbledown Creek, Ladd Creek, Clear Fork, Sandy River, Clear Creek, Maxwell Creek, Minikahda Creek, North Boulder Creek, Little Joe Creek, Tickle Creek, and several unnamed perennial streams. Core cold water habitat is defined as "waters expected to maintain temperatures within the range generally considered optimal for salmon and steelhead rearing, or that are suitable for bull trout migration, foraging and sub-adult rearing that occurs during the summer" (Oregon Administrative Rules 2024).

3.5.2 Environmental Consequences—Proposed Action

Water Resources

Vegetation and soil disturbance from access road improvements and work occurring around structures could increase the rates of wind and water erosion, resulting in sediment deposition into streams that would degrade water quality. Under the Proposed Action, 40 intermittent and 13 perennial streams would have temporary impacts such as increased turbidity and sedimentation from access road improvements involving in-stream excavation activities and riparian ground disturbance or vegetation removal (or a combination). The replacement of undersized culverts and installation of drainage features would overall improve water quality in the long-term by directing surface water through an adequately-sized culvert, under a new bridge or across access roads via a drain dip on the roadway. This would decrease the amount of sedimentation from erosion of unimproved access roads where stormwater may currently flow down or over an access road. There would be little to no flowing water on road surfaces during road improvements occurring during the dry season. Temporarily disturbed soil would be stabilized and reseeded to minimize soil erosion. The amount of fine sediment introduced to streams during widening, grading, and gravelling of access roads would be similar to natural erosion processes because work would occur during the dry season.

Under the Proposed Action, 23 work areas around structures would be located within 100 feet of intermittent and perennial streams; four of these structures are within 50 feet of streams. Work areas would be restricted during construction to avoid impacts to streams and erosion control practices would be implemented. Eight of the structures that are within 50 to 100 feet of streams would be raised to meet ground-to-conductor clearance standards; of these structures, all would either be further away from the stream or remain equidistant from streams at the new structure locations. Each structure move would result in a small area of exposed soils for a few weeks, which is unlikely to be a substantial source of sediment to nearby streams.

Where danger trees are felled towards small intermittent streams, there could be a potential for changes to localized stream flow paths, if tree segments block the existing channel. However, the addition of large woody debris to streams could provide increased refugia to aquatic life, decreased velocity (the speed of flowing water), and increased aquatic habitat diversity in the stream.

Any surplus excavated soil would be disposed of offsite or in upland areas away from streams. Vegetative buffers between the structures and the structure work areas would help absorb any sediments dispersed from construction activities. Most construction work would occur during the dry season, which would reduce the potential for runoff and erosion. If construction extends into the wet season, traffic on gravel roads has the largest potential to deliver sediment to stream channels. BMPs would be used to minimize sediment runoff to streams.

Soil compaction during structure and access road work while unlikely could impact groundwater recharge by reducing infiltration capacity and increasing surface runoff to streams. Additionally, landings and access road improvements would create impervious surfaces. However, these impacts would be small and spread out over a wide geographic area.

Of the fifteen 303(d) listed streams that the project area crosses, two have proposed access road work in and within 100 feet of 303(d) streams. Road reconstruction and a waterbar would be installed near Neal Creek; however, there is not a defined stream channel in the work area. A new bridge would replace an undersized culvert on West Fork Neal Creek. In total, 11 trees would be removed from riparian zones at Three Mile Creek and East Fork Hood River, which are both 303d listed streams with total maximum daily loads (TMDL) for temperature. Mitigation for tree removal within 100-feet of streams bearing fish listed under the ESA, requires that BPA replace those trees with native shrubs at a 3 to 1 ratio, to provide stream shading. There are no additional anticipated effects to 303d streams from the proposed project.

Within the portion of the project area that crosses the BRWMU, one drain dip and one water bar would be installed on existing access roads that cross intermittent streams. These drainage features would convey water across the access road to drain into vegetated areas, which would improve water quality at these locations.

Potential impacts on groundwater quality during construction and over the long term from the accidental release of hazardous chemicals used during construction (e.g., fuels, lubricants, solvents, etc.) are unlikely because mitigation measures would be used for hazardous spill prevention, containment, and cleanup. If any spills were to occur, they would likely be small and localized. BPA construction contractors would immediately contain and clean up spills and dispose of regulated materials in accordance with federal and state laws. Groundwater recharge could be nominally affected; however, BMPs and mitigation measures (Table 2-5) would be used to minimize the risk to groundwater quality from the accidental release of petroleum products.

Overall, with the use of BMPs, mitigation measures (Table 2-5), restricted work areas, and the majority of the work occurring within the dry season, impacts to water resources would be **low**.

Floodplains

One structure work area is on the edge of a flood zone and approximately 60 feet of access road improvements are in a flood zone; both are designated A flood zones which have a 1% annual chance of flooding. While the transmission line right-of-way is already cleared where it crosses floodplains, nine danger trees would be removed along the edge of the East Fork Hood River floodplain in line mile 24 and two danger trees would be removed along the edge of the Middle Fork Hood River floodplain in line mile 27. Since only a small number of trees would be

removed and no new structures or roads would be constructed in floodplains, floodway storage capabilities would be unchanged, resulting in **none-to-low** impacts.

Fish

Ten fish bearing streams would be impacted to replace undersized culverts with fish-passage culverts or new bridges and installation or repair of fords. Culvert replacements and ford improvements would occur in already disturbed areas, where it has been determined that the current culvert or ford is no longer functional or is undersized. Three new bridges are also proposed for locations that previously had undersized culverts. The replacement of undersized or non-functional culverts on fish-bearing streams in line miles 21, 40, 45, 53, 54, and 55 with new culverts, fords, or bridges would maintain or improve fish passage and fish access to upstream aquatic habitats. Ford repairs in line miles 16 and 38 would improve fish passage by increasing the depth of the channel to accommodate periods of low water flow and would improve the streambed substrate by installing rounded river rock. Increases in stream water temperatures could temporarily result from shrubby vegetation removal within the culvert, ford, or bridge footprints; however, no trees would be removed at these locations. Five trees would be removed to install a temporary bridge over Elk Creek; however, these trees would be replaced at a 3:1 ratio to compensate for tree loss (Table 2-5). Vegetation, including shrubby species, is expected to regrow quickly.

The majority of ground-disturbing work would take place during the dry season, which would reduce the potential for erosion and runoff into streams. Replacement and installation of culverts, fords or bridges on fish streams would occur within the applicable in-water work window. If streamflow is present, the work area would be isolated, and fish would be captured and relocated. BMPs would be used to limit sediment movement downstream (Table 2-5). Site isolation to minimize the downstream transport of turbid water would be required in fish bearing streams, if there is flowing water present at the time of construction. BMPs including erosion and sediment control measures at these work areas would contain overland flow and typically prevent sediment from entering fish habitat, minimizing temporary impacts from construction activities. If sediments reach fish habitat, sediment inputs are expected to be a small pulse and temporary in duration, similar to what would occur naturally during large rain events. The aquatic noise and vibration disturbance generated by the removal and replacement of structures within 100 feet of fish-bearing streams would not be expected to exceed background ambient underwater noise levels. If fish are temporarily displaced from waters near construction work areas due to noise and activity, they would be expected to return once the work in that area ceases. BMPs and mitigation measures (Table 2-5) would be used, including setback distances for fueling and staging areas from water bodies to minimize spills.

Because erosion and sediment control BMPs would be used during all road work including near or in streams and disturbed areas would be mulched and seeded to facilitate restoration, impacts on fish would be **low**.

Removal of danger trees from the project corridor could reduce stream shading but is unlikely to cause a detectable increase in water temperature; about 175 trees would be removed within 50 feet of streams, distributed among 27 different streams throughout the length of the project corridor. Approximately 100 of these trees are within riparian reserves on USFS-managed land

and would be felled towards the streams for large wood recruitment, which could improve stream habitat by adding refugia habitat from predators. Another 46 trees would be removed from withing 100-feet of streams that are known to have ESA-listed fish; however, BPA would replace those trees with native shrubs or smaller stature trees at a 3:1 ratio.

One structure work area is near a stream designated as critical habitat under the ESA, Emil Creek. BPA would restrict the work area to avoid impacts to the stream and also use erosion control measures to minimize sedimentation potential. Another stream with designated critical habitat, Elk Creek, would have a temporary bridge placed over it to avoid impacts to the stream.

Mitigations measures and BMPs listed in Table 2-5 would be used to reduce or avoid impacts. Transport of sediment to streams could result in the temporary degradation of water quality and impact fish.

Overall, the seven culvert replacements with fish passable culverts or new bridges in fish-bearing streams would not permanently remove or degrade fish habitat and would not harm any fish present with BMPs and mitigation measures implemented, such as erosion control measures and work area isolation and fish salvage. Further, the installation of culverts with better fish passage would benefit fish in the area. For these reasons, impacts would be **low** to ESA-listed fish, special-status fish and their habitats.

3.5.3 Environmental Consequences—No Action Alternative

Since there would be no planned construction, BPA would continue to maintain the transmission line and access roads. Initially, impacts on waters resources and fish would be the same as existing conditions, with no or low impact. Undersized and damaged culverts and impaired fords would remain as-is, possibly impeding fish passage. As existing conductor and access roads continue to deteriorate, and emergency conductor repair and replacement is required, impacts could occur. Emergency repairs during times of high runoff could cause erosion that may allow sediments to enter adjacent waterbodies and cause increased disruption to fish. Overall, depending on the nature of the emergency repairs required, the No Action Alternative could result in **low-to-moderate** impacts depending on the timing and location.

3.6 Wetlands

3.6.1 Affected Environment

One hundred fifty-nine wetland areas were delineated in the project corridor, with the majority of wetlands occurring from Parkdale, west to Sandy, Oregon (PNNL 2023d). Because the development of tall woody vegetation is prevented in the transmission line right-of-way, the vegetation is managed as low-growing forbs and shrubs; however, there are some forested wetlands present in the project corridor.

Typical wetland and riparian areas in the Cascade Mountains and lowlands are vegetated with native plants including soft rush (*Juncus effusus*), small-fruited bulrush (*Scirpus microcarpus*), lady fern (*Athyrium filix-femina*), skunk cabbage (*Lysichiton americanus*), and a mix of non-native pasture grasses. Shrubby wetlands contain native shrubs, including willows (*Salix*

sitchensis, *S. scouleriana* and *S. hookeriana*), red-osier dogwood (*Cornus sericea*), and salmonberry (*Rubus spectabilis*). Valley-bottom wetlands encountered in the project corridor are most often dominated by a dense growth of reed canarygrass (*Phalaris arundinacea*) along with pasture grasses and Douglas spirea (*Spirea douglasii*).

3.6.2 Environmental Consequences—Proposed Action

Under the Proposed Action, permanent impacts to wetlands would result from new, improved and reconstructed access roads, drainage upgrades, and landing installations and improvements. Temporary impacts would result from pulling and tensioning work, work around structures, and direction of travel roads where no road improvements are proposed.

A combined 1.5 acres of permanent fill impacts to wetlands would occur across 41 wetlands in the project area. No structure height increases would permanently impact wetlands. About four acres of wetlands would be temporarily disturbed and then restored within the project area.

Structures located in or immediately adjacent to wetlands include 24/6, 27/2, 33/3, 33/5, 34/2, 34/4, 35/2, 37/4, 38/1, 39/1, 39/2, 39/6, 40/2, 42/1, 45/1, and 46/5. About 1.7 acres of native and non-native wetland vegetation would be crushed and temporarily disturbed from wetland mats during construction work, including pulling and tensioning activities, at structures in or near wetlands. Use of BMPs (Table 2-5), including wetland mats would be used to lessen compaction to wetland soils and vegetation during structure work resulting in only temporary wetland impacts. When possible, vehicles and equipment would be restricted to designated routes and work areas to further avoid temporary impacts. No permanent impacts to wetlands from structure work would occur. Temporarily disturbed areas would be revegetated after construction.

Three new landings would be constructed in wetlands at structures 33/3, 40/2, and 46/5. Two existing landings at structure 27/2 and one landing at 35/2 would be improved in a wetland. Landing work would include clearing vegetation, grading, and adding gravel fill in the wetlands. Landings range in size from 40 feet by 50 feet to 50 feet by 50 feet. Landings at structures would result in approximately 0.2 acre total permanent fill to wetlands.

Direction of travel roads could temporarily impact up to four wetlands. If needed, wetland mats would be placed on these roads, which may temporarily crush or cover vegetation along the shoulders of the road. Access road improvements would occur within the existing access road prism and impacts to wetland vegetation and soils would mainly occur along the shoulder of the roads; however, vegetation would be allowed to regrow. Access road improvements on existing access roads would result in 0.75 acre of permanent fill by adding rock but would be spread out between six different wetlands.

Access road reconstruction would require more substantial vegetation removal, grading, and widening to pre-existing access road widths. Impacts to wetland vegetation and soils would be permanent within the reconstructed road prism and vegetation would not be expected to reestablish within the road prism. Reconstruction of access roads would result in approximately 0.50 acre of permanent impacts, distributed across 15 different wetlands.

New access road construction would lead to permanent impacts to approximately 0.04 acre in one wetland. Vegetation would not regrow within the road prism and wetland soils would be

replaced by fill within the road prism. Vegetation would regrow along the outer temporarily disturbed areas. When feasible, access road widths would be reduced to 12 feet and the offsets on either side are reduced to 2 feet for a total area of disturbance of 16 feet to minimize temporary and permanent impacts.

Gates would be installed in several strategic locations to deter unauthorized vehicle use in sensitive wetlands, which has previously contributed to increased soil compaction and rutting.

Drainage work on access roads within wetlands includes drain dips, ford installation/repairs, culvert removal/installation, and bridge installations. Because most of the drainage work would occur within the access road prism, impacts to wetlands would be **low-to-moderate** depending on location and extent of work.

Approximately 75 danger trees would be removed within 12 wetlands between line miles 24 and 66. Tree stumps would be left to avoid soil impacts. Additionally, BPA would direct its contractors to drop trees away from the wetland boundary to the extent practicable. Danger trees would be cut into segments using a chainsaw and scattered at the base of the tree trunk. Equipment would not be allowed to operate within wetland areas.

Wetland impacts from structure work areas, pulling and tensioning sites and direction of travel roads would be temporary. Wetland vegetation would be expected to regrow after construction has been completed, and wetland functions are expected to return to pre-construction conditions after construction and restoration.

Overall, the impacts to wetlands from these activities would be **low-to-moderate** because the temporary disturbance areas would be revegetated; permanent impacts would be spread out over many wetlands; and staking, flagging, or equivalent means would be installed where needed to keep traffic on designated routes and minimize impacts. Existing roads that are improved would also reduce erosion of wetlands. Mitigations measures and BMPs listed in Table 2-5 would also be used to reduce or avoid impacts.

3.6.3 Environmental Consequences—No Action Alternative

Under the No Action Alternative, existing conductor and some access roads would continue to deteriorate, eventually requiring conductor replacement and road improvement. Under the No Action Alternative, the existing conductor would not be replaced, and the access road network would not be improved. However, maintenance activities would likely increase as the conductor deteriorates and more repair work is needed. Maintenance of access roads would continue to occur over time. Emergency repair activities requiring unplanned movement of vehicles through existing wetlands could potentially compact soils. Additionally, gates would not be installed in strategic areas and unauthorized vehicle use on these roads would continue to damage wetland vegetation, soils and hydrology. These activities would continue to result in **low-to-moderate** impacts.

3.7 Wildlife

3.7.1 Affected Environment

The project area was evaluated in the spring and summer of 2022, for suitable habitat for sensitive wildlife (PNNL 2023e). The project spans the West Cascades and East Cascades ecoregions, and a small portion of the project area is within the Columbia Plateau ecoregion, near The Dalles. The West Cascades ecoregion includes the Willamette Valley east to the crest of the Cascade Mountains. The transmission right-of-way is generally managed for primarily grasses, forbs, and shrubs (early seral succession plant community), where vegetation is managed to remove woody species that could encroach on the conductor clearance standards. Conifer or mixed conifer/deciduous forests are found along much of the right-of-way, especially where the project crosses the Mt. Hood National Forest. Many of the adjacent forests have limited structural complexity consisting primarily of regenerated coniferous forests or recently harvested timberlands. Riparian areas, rivers/streams, and wetlands are also found sporadically throughout the project area. Some priority habitats of unique value to wildlife species, such as sagebrush, cliffs/canyons and lava outcrops are present, while others, such as old-growth forest and wet meadow, are rare. Other habitat types of varying condition include mixed coniferous/deciduous and deciduous forests. Large portions of the project area near The Dalles and Parkdale are in or surrounded by fruit orchards. Areas along the western portion of the right-of-way, between Welches and Sandy, are used for livestock pastures or are in crop production.

3.7.1.1 Endangered Wildlife Species and Habitats

Northern spotted owl, gray wolf (*Canis lupis*), streaked horned lark, and Fender's blue butterfly are all ESA-listed threatened or endangered species potentially located within the project area. While listed as potentially occurring within Clackamas and Wasco County, field surveys determined that yellow-billed cuckoo (*Coccyzus americanus*) and Oregon spotted-frog (*Rana pretiosa*) were unlikely to occur within the project area.

Northern spotted owl (*Strix occidentalis caurina*) is an ESA-listed threatened species. Historic occurrences (dating from 1981 to 1992) of Northern spotted owl are located along the transmission line corridor and within a half mile of the right-of-way, in line miles 39, 40, 51. There are no recent occurrence records in the project vicinity.

For breeding and nesting, Northern spotted owls require late successional or old-growth forests with a multi-layered canopy of diverse tree size, age, and species composition. Additionally, they require open spaces under the tree canopy for flight and foraging. Northern spotted owls' nest in snags, tree hollows, deformities, or living trees with broken tops. Foraging and roosting habitat can occur in younger forest stands, along forest edges and in areas that may not support nesting habitat (USFWS 2011).

Approximately, 33% of the project area is within 0.25 mile of modeled nesting, roosting, foraging (NRF) habitat. Suitable Northern spotted owl habitat supports all life stages of spotted owl, while marginally suitable habitat consists of smaller diameter trees which may be important for dispersing and foraging spotted owls. Approximately 30 acres of forest stands adjacent to the transmission right-of-way support NRF suitable or marginally suitable habitat. Suitable habitat

within the project area is located along line miles 23, 24, 33, 34, 37, 39, which is mostly on USFS-managed land. Marginally suitable habitat is in line miles 24, 27, 28, 29, 33, 37, 38, 39, 42, 43, 52, 55, 63. Marginally suitable to suitable habitat is in line mile 33. There is designated critical habitat that the right-of-way crosses in line miles 22 and 23, just east of Parkdale.

Gray wolf (*Canis lupus*) is listed as endangered. The species population has been increasing in eastern Oregon. Gray wolves are habitat generalists and often occupy large territories, including forested areas. ODFW has designated areas of known wolf activity (AKWA) (ODFW 2024b). The nearest AKWA is in Wasco County, southeast of Mt. Hood, approximately 20 miles from the project area. There is no designated critical habitat in the project area for wolves.

Fender's blue butterfly (*Icaricia icarioides fender*) is a threatened species that is endemic to upland prairies and oak savannahs of the Willamette Valley. Fender's typically oviposits eggs onto Kincaid's lupine (*Lupinus sulphureus* ssp. *kincaidii*) but may also use sickle-keeled lupine (*L. albicaulis*) or longspur lupine (*L. arbustus*). Fender's blue adult butterflies' consume nectar on a variety of native and non-native flowers. This species could occur in Clackamas County, in the far western portion of the project area. There is no designated critical habitat in the project area for Fender's blue butterfly.

Streaked horned lark (*Eremophila alpestris strigata*) are listed as threatened. In Oregon, the species occupies the Willamette Valley and the lower Columbia River. They typically nest in large open areas that are managed as such, including airport runway areas, fallow agricultural fields, and areas with dredge piles along or on islands in the Columbia River. This species could occur in Clackamas County, in the far western portion of the project area. There is no designated critical habitat in the project area for streaked horned lark.

In November 2023, wolverine (*Gulo gulo*) was listed as threatened. Wolverines are the largest terrestrial member of the weasel (*Mustilidae*) family and typically inhabit areas with high snowpack. They are known to travel great distances (30 miles per day) and have a large home range (50 to 700 square miles) (USFWS 2018). Dispersed wolverines could occur in the Mt. Hood National Forest area of the project in Clackamas and Hood River counties.

The monarch butterfly (*Danaus plexippus*) is proposed for listing as threatened under the Endangered Species Act. The Western monarch population migrates through southwestern and eastern Oregon. The species is dependent on milkweed species (*Asclepias* spp.) for reproduction. It lays eggs on the milkweed and when the eggs develop into larva, the larvae devour the milkweed plant until pupation. Adult monarchs consume nectar on milkweed and a variety of other flowering plants. Two stems of narrow leaf milkweed (*Asclepias fasicularis*) were documented during the wetland delineation at one location in the right-of-way, near structure 5/1; however, the vegetation survey was unable to relocate this small population. Approximately, 50 narrow leaf milkweed plants were also documented near a bridge on a direction-of-travel road at the intersection of Mill Creek Road and Oak Flat Road in Wasco County. Monarchs could occur throughout the project area but are more likely to occur on the eastern portion of the project area.

3.7.1.2 State Protected Wildlife Species

The Oregon Department of Fish and Wildlife (ODFW) has defined sensitive species as "having small or declining populations that are at risk and/or are of management concern." Sensitive species in Oregon are organized by the state's ecoregions, dependent on where the species populations are in decline (ODFW 2024a). The sensitive species list is updated every five years, with the most current list from 2021. The project area has habitat that could potentially support 31 state-listed wildlife species.

See Appendix D for a listing of all state-listed wildlife potentially occurring within the project area.

Eight state-listed amphibians have the potential to occur in the project area. All of these species rely on cold headwater or perennial streams, moist forests with downed wood or talus slope habitats that are present within the project area.

Two state-listed reptile species could potentially be found in the drier portions of the project area, between The Dalles and Parkdale and one requires riparian areas and ponds or waterways

Twelve state-listed bird species that may be found within the project area occupy various habitats from marshlands, forests, forest edges and open areas and one species is a sagebrush obligate but can nest in ponderosa pine or oak tree stands, which are commonly found towards the eastern portion of the project area.

Six state-listed bats could potentially occur in the project area. Most of these species' roost in colonies underneath tree bark or in standing dead wood, in rock crevices or caves.

Three state-listed small mammals have a small potential to be present in parts of the project area.

3.7.1.3 Federal Sensitive Species and Special Status Wildlife Species

BLM and USFS wildlife biologists provided lists for their respective agencies of federal sensitive or special-status species potentially occurring in the project area on federal lands. Based on review of Oregon Biodiversity Information Center (ORBIC) data of known wildlife species within 5 miles of the project area, species life-history characteristics, and wildlife habitats identified during project field surveys, it was determined that the following species have a moderate potential of occurring in the project area because suitable habitat is present: elk (*Cervus elaphus nelson*), gray wolf, Cope's salamander (*Dicamptodon copei*), American marten (*Martes americana*), Mule deer (*Odocoileus hemionus*), bald eagle (*Haliaeetus leucocephalus*), Larch Mountain salamander (*Plethodon larselli*), Western bumble bee (*Bombus occidentalis*), Columbia Gorge Oregonian (*Cryptomastix hendersoni*), Dalles sideband (*Monadenia fidelis minor*), Crater Lake tightcoil (*Pristiloma crateris*), crowned tightcoil (*Pristiloma pilsbryi*), shiny tightcoil (*Pristiloma wascoense*) (ORBIC 2022). All other species had a low or no potential to occur in the project area on federal lands. See Appendix D for a full list of federal sensitive species that were considered and the potential to occur within the project area.

USFS Survey and Manage wildlife species with potential to occur in the project area include great gray owl (*Strix nebulosa*) and red tree vole (*Arborimus longicaudus*) which are listed as a

Category 'C' Survey and Manage species, where the direction is to manage known sites and conduct pre-disturbance and strategic surveys. Other Survey and Manage species include Larch Mountain salamander, Puget Oregonian (*Cryptomastix devia*), Columbia Oregonian (*Cryptomastix hendersoni*), Dalles sideband and Crater Lake tightcoil which are all Category A species that require management of known sites and pre-disturbance surveys and strategic surveys. The evening fieldslug (*Deroceras hesperium*), and panther jumping slug (*Hemphillia pantherina*) are category B species, which are species where pre-disturbance surveys are not practicable, but the guidance is to manage all known sites and complete strategic surveys. (USFS 2001). See Appendix F for a full list of Survey & Manage species.

3.7.1.4 Columbia River Gorge National Scenic Area Wildlife

Approximately five miles of the project is within the Columbia River Gorge National Scenic Area (CRGNSA), within the urban areas and large-scale agricultural land use designation. Wildlife habitat surveys were conducted in portions of the project area that are in large-scale agricultural land use; habitat surveys were not required in urban area land use.

Wildlife habitat surveys for CRGNSA special status/sensitive species determined that suitable habitat is available in the project area for Lewis' woodpecker (*Melanerpes lewis*), pallid bat (*Antrozous pallidus*), fringed myotis (*Myotis thysanodes*), and shiny tightcoil. Lewis' woodpeckers were also documented in the project area during surveys. All other CRGNSA species had no probability of occurring in the project area because suitable habitat is not available for those species. See Appendix A and B for a full list of CRGNSA species.

3.7.2 Environmental Consequences—Proposed Action

Impacts from vegetation clearing/disturbance and access road work could cause incidental injury or mortality to wildlife or temporarily displace them from habitat areas. Danger tree removal and vegetation clearing could affect common wildlife species in areas where ongoing periodic vegetation management activities occur along the transmission line right-of-way. Wildlife, especially nesting birds, could be temporarily displaced by the removal of danger trees. Danger tree removal would be avoided between March 1 and July 15 (Table 2-5) to minimize displacement of nesting birds and to avoid injuring bat individuals in trees that contain cavities or other features that could support bat colonies. Species displaced would be anticipated to find habitat in adjacent forested areas. It is unlikely that nesting habitat is limited by the availability of suitable trees for use as roosts, perches, nests, or foraging locations in adjacent forested areas.

Degradation of wildlife habitat would temporarily occur where vegetation is removed and could occur if invasive plants establish themselves in areas disturbed by construction activities. Non-native plants provide poor forage for grazing animals, and impenetrable thickets of weed species can impede wildlife movement. Weed control activities would be conducted before, during and after construction to avoid degradation of habitat below existing conditions.

Impacts on wildlife from noise and construction activities would vary depending on the proximity to wildlife and the duration of the noise and activity. Increased noise from heavy equipment during construction and the transportation of equipment to and between sites would temporarily exceed ambient noise levels potentially displacing wildlife.

Overall, impacts on common wildlife species would be **low** because most of the species are highly mobile and would avoid temporary construction disturbance. Noise and activity levels would be temporary, and wildlife would be expected to return after construction has been completed. Incidental mortality is not expected to affect regional population levels and habitat changes would be minimal when compared to the current land uses in the habitat adjacent to the transmission right-of-way and access roads. Danger tree removal would only occur along one edge of the transmission line right-of-way and tree loss would be relatively minimal compared to existing surrounding habitat.

The spread of noxious weeds would be minimized though mitigation measures, such as having vehicle and equipment wash stations (see Table 2-5), which would reduce the potential for degradation of habitat.

3.7.2.1 Endangered Wildlife Species

On August 30, 2023, BPA initiated informal consultation with USFWS by submitting a Biological Assessment determining that the project may affect but is not likely to adversely affect the species discussed below. The USFWS provided a letter of concurrence with the proposed determination of effects to these ESA-listed species on April 19, 2024 (see Table 5-1).

Northern Spotted Owl

Although nesting Northern spotted owl and their young are generally limited to the immediate vicinity of the nest, continuous loud activities within 0.25 mile of the nest during the critical breeding period (March 1 to July 15) would disturb natural behavior.

It is possible that project activities could result in short-term disturbance to spotted owls that may be moving through the project corridor. Such flush responses that occur away from an active nest site are considered to be insignificant, because the owls are simply moving away from a source of disturbance, rather than being forced to flush away from an active nest site. Timing restrictions based on type of noise producing construction activities and distance from NRF would be implemented, so that activities would not disrupt owls during the critical nesting season (March 1-July 15). Helicopter use would be restricted based on the type of helicopter and vertical distance from nesting habitat during the entire breeding season (March 1-September 30). Potential impacts on spotted owls from heavy equipment noise and activity (e.g., disruption of nesting behavior) would be **low** with the implementation of timing restrictions (see Table 2-5 for BMPs).

Eighteen danger trees are proposed to be removed from Northern spotted owl designated critical habitat in line miles 22 and 23. Six of these trees are over 18 inches in diameter and would be topped and girdled, leaving the trunk to create habitat trees. No other project activities within critical habitat would result in a loss of habitat, other than tree removal. Impacts to Northern spotted owls from tree removal would be **low** in designated critical habitat.

Late successional reserve (LSR) land use areas were designated in the NW Forest Plan to protect habitat for associated species, such as Northern spotted owl (USFS 1994a). Maintenance and hazard tree removal in LSR for existing developments, including utility corridors, is allowed and is expected to have less impact to current and future old growth conditions, than are new

developments (USFS1994b). There are no LSR areas where the project crosses BLM-managed land; however, BPA proposes to remove 206 danger trees in late successional reserves on USFS-managed land (Table 3-8), of which there is overlap with Northern spotted owl designated critical habitat. Eighty-two, including the six proposed habitat trees in critical habitat, are over 18 inches in diameter and would also be topped and girdled to create habitat trees. The trees are along the edge of the right-of-way and would not be considered nesting trees. Overall, removal of trees from LSR, with the creation of habitat trees would have a **low** impact on Northern spotted owls.

Table 3-8 Tree Removal in Late Successional Reserve Land Use Allocation

Species	DBH <10”	DBH 11-20”	DBH 21-30”	DBH >31”	TOTAL by Species
Subalpine fir	3	35	8	4	50
Bigleaf maple	0	2	0	0	2
Cottonwood	0	0	2	0	2
Douglas fir	19	22	51	2	94
Grand fir	1	2	0	1	4
Noble fir	14	3	0	0	17
Ponderosa Pine	1	0	0	0	1
Red alder	1	4	0	0	5
Red cedar	0	2	0	0	2
Western hemlock	7	19	3	0	29
Total by DBH	46	89	64	7	**206**

Gray Wolf

Impacts from project activities are not expected to noticeably affect gray wolves or their habitat in Oregon, and the project area is well outside the current known wolf activity areas, which occur south of Mt. Hood. Transient wolves in the area may temporarily avoid locations where construction activities are taking place. The project would not result in permanent habitat loss or a decrease in prey species. Project impacts to wolves and their habitat is expected to be **none-to-low**.

Fender’s Blue Butterfly

Field surveys did not document remnant prairies, or any host plants for Fender’s blue butterfly; however, a few non-native nectar plants for Fender’s blue were documented in some locations. Vegetation removal could result in a small loss of non-native nectar plants, but adjacent areas that are not subject to vegetation removal would support adult Fender’s blue butterfly. Vegetation disturbance from project activities would increase the possibility of invasive weed establishment, which could lower the abundance of nectar species and the potential for host plants to occur. BPA would revegetate areas of ground disturbance to prevent noxious weed

establishment and conduct post-construction weed treatments (see Table 2-5). Project impacts to Fender's blue butterflies is expected to be **none-to-low**.

Streaked Horned Lark

The project area is outside of the streaked horned lark current range but comes within 0.5 mile of the lark's range at the project's western most end. If construction activities are planned in this area during the streaked horned lark's breeding season, BPA would conduct pre-construction nest surveys and implement timing restrictions if active nests are located (see Table 2-5). The timing restrictions for active nest locations would include construction postponement within 100 feet of active nests until the young have fledged. No permanent habitat removal is proposed in this area. The project impacts to streaked horned lark would be **none-to-low**.

Wolverines

The project area does not contain suitable habitat for wolverines; however, there is the possibility that a dispersed or migrating individual could be present in or adjacent to the project area. The species is highly reclusive and would likely avoid any active construction areas. The project is expected to have **none-to-low** impacts to wolverines.

Monarchs

In the event that the monarch butterfly is added to the endangered species list prior to or during project implementation, further consultation with USFWS would occur to determine conservation measures to minimize or avoid impacts. Vegetation surveys documented two milkweed (*Asclepias fascicularis*) populations, one off the right-of-way where no work is proposed and another in the right-of-way near structure 5/1, though the two stems were not relocated during follow up surveys. Nectar plants, other than milkweed, may decrease slightly due to vegetation removal; however, the adjacent undisturbed right-of-way would provide supplemental nectar resources. The project is expected to have **none-to-low** impacts on monarchs.

3.7.2.2 State Protected Wildlife Species

The Proposed Action may impact some state-listed wildlife species. However, most of these species are unlikely to inhabit the existing right-of-way and access road system, due to a somewhat degraded quality of habitat, compared to adjacent forested areas that provide more cover and protection from predators. Tree cutting would occur between July 16 to February 28, to minimize impacts to nesting birds. Trees would be left onsite as woody debris and could potentially create additional habitat for some species that rely on decayed wood for shelter or prey on species that inhabit decayed wood. The project would not involve removing existing snags or decayed wood. To protect wildlife that are dependent on aquatic areas, drainage improvements would occur during the designated in-water-work windows, or during the summer, when stream channels are dry or at low-flow. Best management practices would be utilized to minimize impacts and construction activities would be of a short duration (3-30 days depending on activities) at each location (see Table 2-5). The project is expected to have **low** impacts on state protected wildlife species because birds and mammals may temporarily avoid the project area during construction, but physical harm would be unlikely. Amphibian and reptile

species with less mobility may experience individual mortality but it would not contribute to overall regional population declines.

3.7.2.3 Federal Sensitive and Special Status Wildlife Species

The Proposed Action may impact some federal sensitive or special status species. Most construction activities on federally-managed land would be performed during the dry portion of the year (late summer to early fall), to minimize impacts to terrestrial and aquatic wildlife and habitats. As with state-listed mammals and birds, some individuals may be temporarily displaced while active construction work is occurring, but the work would be of a short-duration and impacts would be minimal. Less mobile species, such as amphibians and mollusks, would be at greater risk for individual mortality; however, individual mortality of some species would not contribute to overall decreases in population sizes on the Mt. Hood National Forest or on BLM-managed lands.

Vegetation removal within the right-of-way may result in a minor loss of flowering forbs and shrubs that provide nectar for federal sensitive pollinators, such as Western bumble bee, but the adjacent undisturbed right-of-way would still provide adequate flowering plants for nectar resources. Additionally, BPA would conduct pre- and post-construction noxious weed control and require construction vehicles and equipment to be clean prior to entering project areas on federal lands to minimize the introduction of and the spread of non-native plants that could reduce the availability of native nectar resources for federal sensitive pollinators (see Table 2-5).

Pre-construction surveys for Survey and Manage species are not required for routine maintenance activities, such as access road improvements that are within the existing access road prism or for danger [hazard] tree removal (USDA and USDI 2001). All of the Survey and Manage species suitable habitat that was documented during wildlife surveys is within areas that BPA has proposed access road improvements within the existing road prism or areas of proposed danger tree removal (or a combination of both). If any of the Survey and Manage species are documented during construction activities, BPA would work with the federal land manager to document the species and implement BMPs to avoid or minimize impacts to those species.

Overall, the project would likely have **none-to-low** impacts on federal sensitive and special-status wildlife species.

3.7.2.4 Columbia Gorge National Scenic Area Wildlife

Wildlife surveys determined that suitable habitat is available in the project area for four CRGNSA federal sensitive species: pallid bat, fringed myotis, Lewis woodpecker, and shiny tightcoil snail.

Nesting and roosting habitat for the pallid bat and fringed myotis would not be removed or altered by project activities. Additionally, project work would take place during daylight hours only; therefore, there would be no impacts to the bat's nighttime foraging activities.

If present, the Lewis's woodpecker may temporarily avoid areas where active construction is occurring; however, there would be ample foraging areas available in the surrounding area.

Danger tree removal in the CRGNSA is limited to just four non-native trees and these trees would be removed after the migratory bird season has ended.

Most of the project work occurring in the CRGNSA would occur in non-forested areas, which is not the preferred habitat for the shiny tightcoil snail. While it is possible that the species could be present in an oak woodland where road reconstruction and drainage improvements are proposed, it is unlikely because the known occurrences of this species are not from that type of a forest.

Overall, project impacts to CRGNSA listed wildlife species that have suitable habitat within the project area would likely be **none-to-low** for the reasons listed above.

3.7.3 Environmental Consequences—No Action Alternative

Under the No Action Alternative, replacement of the existing conductor would not occur, and maintenance activities would continue. Depending on the timing of normal or emergency activities, vegetation removal could result in the mortality or disruption of nesting birds or construction noise could disturb wildlife such as Northern spotted owl during critical periods (such as nesting/breeding). Further, timing needs during emergency response may not allow pre-construction species surveys, which would limit avoidance. Overall, depending on the nature of the emergency repairs required, the No Action Alternative could result in **low-to-moderate** impact depending on timing or location.

3.8 Cultural Resources

3.8.1 Affected Environment

A cultural resource inventory, consisting of a background research and field surveys for both archeological and historical resources was conducted within the Area of Potential Effect (APE), which included portions of the transmission right-of-way, access roads where work would occur and areas where danger trees would be removed (PNNL 2023a). Based on the results of the background research, two previously recorded archaeological sites, Barlow Road and West Fork Railroad Grade, and one historic resource, the Mt. Hood Railroad, were documented as being listed on the National Register of Historic Places (NRHP) within the project's APE.

All identified historic resources in the APE were evaluated for NRHP eligibility. The field survey identified six BPA transmission lines (Big Eddy-Ostrander No. 1, Ostrander-Troutdale No. 1, Big Eddy-Chemawa No. 1, Big Eddy-McLoughlin No. 1 and No. 2, and Big Eddy-Troutdale No. 1) and Lolo Pass Road as eligible for listing on the NRHP.

The field survey identified two new cultural pre-contact resources that are eligible for listing on the NRHP and two unevaluated resources that are assumed also eligible for listing.

Seven isolated finds were also recorded during the field survey; however, these isolates were sufficiently tested to ensure that they are in fact isolated finds. As is typical of isolated finds, these are recommended as not eligible for listing on to the NRHP.

3.8.2 Environmental Consequences—Proposed Action

The project proposes to replace the conductor on the Big Eddy-Ostrander No. 1 500 kV Transmission Line as well as to increase the height of some existing transmission structures. The Big Eddy-Ostrander No. 1 Transmission Line is eligible for listing on the National Register of Historic Places for its association with rural electrification and as a representative example of BPA's post-World War II transmission line development and system expansion. A historic resources evaluation included an assessment of project activities on the transmission line, which determined that the proposed work would improve the essential original function of the transmission line and complete in-kind maintenance repairs, which are noted to not impact the transmission line's historic integrity. Although some structures would be raised to correct impairments along the line, this work does not affect the majority of the resource and, therefore, would not adversely impact the historic integrity of the line.

The other five BPA transmission lines that share the same right-of-way corridor as Big Eddy-Ostrander and are eligible for listing on the NRHP would not be affected by the Proposed Action because no work is proposed on any of those transmission lines. Additionally, Lolo Pass Road would not be affected by the Proposed Action because the road would only be used as a route of travel and no improvements are proposed. Similarly, there would be no effects to the Mt. Hood Railroad because the Proposed Action only includes using a well-established access road that crosses over the railroad track and work on the adjacent structure would not adversely affect the Mt. Hood Railroad.

Previously-recorded cultural sites included The Barlow Road and the West Fork Railroad Grade. Field surveys determined that there was no evidence of the Barlow Road within the APE. Six distinct segments of the West Fork Railroad Grade were documented within the APE. Three of these segments are in areas where danger tree removal would occur, and two of these same segments are in or adjacent to areas where existing access roads would be improved by grading and compacting the road surface and adding surface rock. The remaining three distinct segments of the West Fork Railroad Grade are outside of the project work areas and would not be impacted by construction activities.

To protect the three segments within the project area during removal of danger trees, workers would be instructed to fell trees away from these cultural resources to avoid impacts. BPA would require that access road improvements in and near these sites are limited to the existing access road prism and that no native soils beneath the existing access roads are impacted. Impacts to these cultural resources identified during field surveys as being eligible for listing on the NRHP would be avoided by having a cultural resource monitor present during construction activities, and the sites would be flagged in the field. Construction workers would be instructed to avoid these areas and to not stage materials or park vehicles and equipment within the resource areas.

Construction activities could result in disturbance to unknown cultural resources through accidental discovery depending on the extent of the resources and their proximity to structures and access roads. Use of mitigation measures (Table 2-5) would ensure that any previously undiscovered resources found would be managed properly and would minimize any inadvertent disturbance or destruction of cultural resources from the Proposed Action. Overall, the Proposed Action would likely have **none-to-low** impacts to cultural and historic resources.

3.8.3 Environmental Consequences—No Action Alternative

Under the No Action Alternative, impacts from ongoing maintenance and emergency repairs could potentially include ground disturbance of archaeological sites. Activities would be similar to existing practices; however, the frequency and scope of maintenance activities would likely increase as conductor and access roads deteriorate, and more repairs and replacements are required. Impacts from continued routine maintenance of the existing line or emergency repairs could range from **low-to-moderate**, depending on the level and amount of disturbance, the location of the disturbance, and the eligibility of the cultural resource for listing in the National Register of Historic Places. In the event of an emergency repair, there may not be time to implement avoidance measures and have a cultural monitor onsite when needed, which could result in a **high** effect if a cultural site were damaged.

4 CUMULATIVE IMPACTS

Cumulative impacts are the effect on the environment that results from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions regardless of which agency (federal or non-federal), organization, or person undertakes such other actions (40 CFR 1508.1(i)(3)). Cumulative impacts can result from actions with individually minor, but collectively significant effects taking place over a period of time. The effects of past actions in the vicinity of the Proposed Action are considered to form a part of the affected environment baseline for each resource. Past actions that have adversely affected natural and human resources in the project corridor include construction and maintenance of the existing transmission system, silvicultural and agricultural activities, highway construction, transmission line access road construction, communication site construction, and rural residential development.

4.1 Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions considered in the cumulative effects analysis include the following:

- BPA would continue to operate and maintain other transmission lines within the same right-of-way as the Big Eddy-Ostrander, No. 1 transmission line. Routine work may include hardware replacement, vegetation management, danger tree removal, and access road work.
- Forestry activities would continue on BLM-, USFS-managed lands, and private lands, including road construction, timber harvest, planting, thinning, and other management activities.
- Dispersed recreational use would continue on BLM- and USFS-managed lands.
- Agricultural activities would continue in and adjacent to the right-of-way.
- Residential development may continue in the vicinity of The Dalles, Parkdale, Brightwood and Sandy.
- Portland General Electric’s Brightwood-Rhododendron Upgrade project proposes to replace wood poles with iron poles and performing enhanced vegetation clearance in the Brightwood and Rhododendron area, beginning in 2024.

All of these activities have occurred in the past or are expected to occur during project construction and into the future.

4.2 Cumulative Impacts

The Proposed Action, in combination with past, present, and reasonably foreseeable future actions, could potentially cause cumulative impacts on the resources described in Chapter 3 of this EA. The effects remaining after avoidance and minimization measures are the effects that could contribute to cumulative impacts.

4.2.1 Land Use, Recreation and Transportation

Past, present and reasonably foreseeable future actions that affect the land use in the project area include the original development of the BPA transmission lines within the right-of-way, along with land conversion for agricultural use and timber production. Orchard tree removal associated with the proposed action would temporarily change land use at discreet locations. Orchard owners would be compensated for orchard tree removal and would be allowed to replant orchard trees that do not encroach on BPA's structure setback requirements or access roads; however, it could take several years for the trees to produce the amount of fruit that the current orchard trees are producing. Future timber production and harvesting would not be impacted by the proposed project because BPA would not restrict those activities on private, county, state, or federal lands. Residential development adjacent to the project area could also change land use in some nearby locations, mainly around areas that are already populated in The Dalles, Parkdale, Brightwood and Sandy. The Proposed Action's contribution to cumulative impacts on land use is expected to be **low** because the right-of-way would continue to be operated and maintained as a utility corridor and agricultural activities would continue to be allowed beneath the transmission line.

Reasonably foreseeable future actions, including additional danger tree removal along the BPA right-of-way, and timber harvesting and road improvements in or near the project area conducted by non-BPA entities, could result in changes to viewsheds from recreational areas. It is unlikely that the Proposed Action would contribute to cumulative traffic delays for recreationalists because the timing of reasonably foreseeable actions would not overlap with project activities. The Proposed Action's addition to cumulative impacts on recreation would be **low** because reasonably foreseeable actions could increase deforested areas impacting the viewshed from recreation locations, but the Proposed Action does not include large swaths of tree removal in or near recreation areas.

When combined with reasonably foreseeable actions, such as Portland General Electric's Brightwood-Rhododendron upgrade project, the Proposed Action could increase traffic delays for residents, recreational users, agricultural workers and businesses along routes of travel to the project area. Increased traffic delays could occur along Highway 26, Marmot Road, and Barlow Trail Road, if Portland General Electric's project overlaps with the Proposed Action. Drivers may use alternate routes to get to their destinations to avoid delays, which could create congestion on rural roads. Flaggers would be employed, as needed, to minimize traffic disruptions in certain locations during project implementation but would not prevent drivers from taking alternate routes that they may not normally take. The Proposed Action would contribute to

low to **moderate** cumulative impacts on transportation, depending on the extent of the overlap among projects.

4.2.2 Visual Quality

The visual quality of the project area varies from rolling hills with working orchards in The Dalles and Parkdale areas, to the forested areas of Mt. Hood National Forest and BLM-managed land to rural residential areas with pastureland near the Sandy area. Many locations along the project area have scenic views of Mt. Hood and Mt. Adams in the distance. The Proposed Action may create more visually prominent roads in the right-of-way and tower height increases would slightly change the viewshed in some locations. Danger tree removal would be spaced out over the entire project length and would not create new hard edges to the right-of-way but would create a more scalloped, natural edge along the right-of-way in some locations. Past and present timber harvesting and clearing for agriculture has permanently changed the visual quality of the area. Development of the transmission right-of-way and access roads, along with state highways, has also permanently changed the visual quality of the area. Reasonably foreseeable future actions, such as timber harvesting on private or federal lands could contribute to a degraded viewshed in some locations, adjacent to the project area. Overall, the Proposed Action when combined with past, present and reasonably foreseeable future actions would have a **low** effect on the visual quality of the Project area and vicinity, because only minor changes to the viewshed are anticipated.

4.2.3 Soils and Geologic Hazards

Past, present and future activities that affect soils in the project corridor are primarily timber harvest, including road and landing construction, timber skidding, and tree planting, and maintenance of transmission line access roads. Agricultural activities in the vicinity of The Dalles, Parkdale and Sandy areas of the project would continue to disturb soils during the planting and harvest cycle and from grazing. Recreational vehicle use on private, federal, and county land would continue to impact soils at certain locations that are frequently used by 4-wheel drive vehicles and dirt bikes.

The Proposed Action would contribute to cumulative effects on soils through compaction and reduced productivity around structures and at landings and from erosion along access roads in areas with steep slopes. These effects would decrease when the disturbed areas return to existing conditions as vegetation matures and soils stabilize. Additionally, cleaning and replacing undersized culverts and repairing slumped roads would improve drainage and reduce water impoundment that if left uncorrected could contribute to soil geological hazards such as landslides. With erosion control measures implemented to reduce the risk for erosion (Table 2-5), the Proposed Action would have a **low** cumulative impact on soils.

4.2.4 Vegetation

Past and present transmission line clearing and tree removal, access road construction and maintenance, and silvicultural activities have caused changes in the vegetation composition in the project corridor, decreasing the diversity of native species and introducing non-native vegetation, including noxious weeds.

Reasonably foreseeable future actions, such as BPA's vegetation management, danger tree removal and ongoing forest management would continue to impact vegetation. Although BMPs would be used to minimize the spread of invasive plants by the Proposed Action (Table 2-5), it is possible that impacts would still occur. Soil compaction with reduced soil productivity would make it difficult for native species to recover, increasing the potential for noxious weed infestations especially at structure sites. Thus, the Proposed Action when combined with other reasonably foreseeable future actions could contribute to a **low-to-moderate** cumulative impact on vegetation through the spread of invasive plant species, as well as through the modification of existing vegetation.

4.2.5 Water Resources, Floodplains and Fish

Past and ongoing silvicultural activities and transmission line activities in the project corridor, including construction of roads across water bodies and in riparian areas have impacted streams, floodplains, and fish. Future forest management activities with road construction and transmission line access road maintenance are expected to continue to contribute to these impacts.

The Proposed Action could temporarily disturb streams and water quality during construction from erosion and sedimentation if work occurs in the wet season. Use of BMPs would reduce impacts regardless of when the impact occurs (Table 2-5). Overall, the installation of new drainage features and repairs of existing drainage features would improve stream functions and fish habitat; therefore, the Proposed Action would have a **low** cumulative impact on water resources and fish when added to past, present and reasonably foreseeable future actions. The Proposed Action does not include work in floodplains and would therefore have **no** contribution to cumulative impacts on floodplains.

4.2.6 Wetlands

Wetlands in the project corridor have been cleared and filled by past and ongoing forest management, agricultural uses, road construction and construction of the transmission line. Future forest management and access road maintenance activities may contribute to additional wetland disturbance from clearing and fill.

The Proposed Action would have limited temporary impacts on wetlands from structure work and access road improvements. There would be a total of approximately 1.5 acres of permanent wetland impacts across the entire Proposed Action area. Due to the limited quantity of wetland impacts that are spread out over a large area, mostly in the western portion of the project area, where wetland resources are abundant, the Proposed Action when combined with other past, present and reasonably foreseeable future actions would have a **low** contribution to cumulative impacts on wetlands.

4.2.7 Wildlife

Past and present forest management, access road construction and use, and transmission line construction have had a cumulative impact on wildlife and their habitat (including Northern spotted owl) in the project corridor. The clearing and conversion of land for forest management,

utility infrastructure (such as the existing transmission line, and public and private roads), agricultural use and other uses have resulted in loss of general wildlife and Northern spotted owl habitat. Future activities in Northern spotted owl habitat that occur during the nesting period would contribute to cumulative impacts if disturbance causes behavioral disruptions and injury to this species.

Impacts from the Proposed Action would generally be limited to temporary noise disturbance and a minimal amount of edge-habitat clearing from danger tree removal. Cumulative impacts on general wildlife species would be **low** because sufficient habitat is available in the project corridor and avoidance of the construction areas would be temporary. However, while the Proposed Action is located entirely in an existing transmission line right-of-way and using existing roads, construction activities may impact individual species that are less mobile, such as mollusks and small mammals, but overall the project would not result in detrimental impacts to regional population levels; therefore, there would be a **low** cumulative impact on these species when combined with past, present and reasonably foreseeable future actions.

4.2.8 Cultural Resources

Past and present actions that likely impacted cultural resources include forest management, access road and transmission line construction, communication site construction, residential development and agricultural practices.

Other reasonably foreseeable future actions in the project corridor including forest management, agricultural uses, and transmission line maintenance activities also have the potential to disturb previously undiscovered cultural resources. Because the Proposed Action would not adversely affect any eligible cultural sites and would occur in previously disturbed transmission line rights-of-way and access roads, and with the use of BMPs (Table 2-5), when combined with past, present and other reasonably foreseeable future actions, the cumulative impacts on cultural resources are anticipated to be **low**.

5 ENVIRONMENTAL CONSULTATION, REVIEW, AND PERMIT REQUIREMENTS

Several federal and state statutes, implementing regulations, Executive Orders, and other consultation, review, and permit requirements are potentially applicable to this project (see Table 5-1). For this table, similar resources (e.g., vegetation and wildlife) have been combined when statutes or regulations overlap multiple resource areas.

Table 5-1 Potential Applicable Statutory, Regulatory, and Other Requirements

Resource	Potentially Applicable Requirement	Relevant Project Information
All Resources	National Environmental Policy Act (NEPA) as amended 42 United States Code (U.S.C.) § 4321 *et seq.*	BPA has prepared this EA pursuant to regulations implementing NEPA, which requires federal agencies to assess, consider, and disclose the impacts that any major federal actions may have on the environment to the public.

Resource	Potentially Applicable Requirement	Relevant Project Information
All Resources	Council on Environmental Quality Guidance for Federal Departments and Agencies on Indigenous Knowledge (November 30, 2022)	Consistent with CEQ regulations and related guidance including CEQ's November 30, 2022, Guidance for Federal Departments and Agencies on Indigenous Knowledge, Bonneville has engaged affected communities, Tribes, and Indigenous Peoples including the Confederated Tribes of the Warm Springs Reservation of Oregon, Confederated Tribes of the Umatilla Indian Reservation to inform the assessment of environmental effects.
Vegetation, Wildlife, and Fish	Endangered Species Act as amended 16 U.S.C. § 1531 *et seq*.	BPA submitted a biological assessment to the U.S. Fish and Wildlife Service (USFWS) on August 30, 2024. Informal consultation between BPA and USFWS occurred in the fall of 2023 through early winter 2024. USFWS issued a letter of concurrence on April 19, 2024, for a may affect, but not likely to adversely affect determinations for Northern spotted owls, bull trout and no effect determination for Willamette daisy, Kincaid's lupine, whitebark pine, and yellow-billed cuckoo. During consultation with USFWS, BPA also determined that the project would have no effect on wolverines, wolves, Fender's blue butterfly, or streaked horned lark. BPA plans to use National Oceanic Atmospheric Administration (NOAA) National Marine Fisheries Service's 2016 Programmatic Biological Opinion (PBO) for Standard Local Operating Procedures for Endangered Species (SLOPES) for BPA's transmission line and access road actions in Oregon, Washington, and Idaho to address effects on Endangered Species Act (ESA) listed salmon (Lower Columbia River Coho salmon, Lower Columbia River fall-run Chinook Salmon, and Lower Columbia River winter-run steelhead). The BPA SLOPES PBO provides take coverage for most BPA maintenance activities, including transmission line rebuild projects.

Resource	Potentially Applicable Requirement	Relevant Project Information
Vegetation, Wildlife, and Fish	Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) 16 U.S.C. 1801 *et seq*.	Pacific salmon Essential Fish Habitat (EFH) is administered under the amended Magnuson-Stevens Act; EFH for coho and Chinook salmon are found in streams in the project area. BPA consulted with NMFS on effects to EFH under the Magnuson-Stevens Act as part of the programmatic ESA consultation. BPA's SLOPES PBO contains the analysis of the action's effects on EFH, and the Project would be consistent with that analysis.
Vegetation, Wildlife, and Fish	Bald Eagle and Golden Eagle Protection Act (Eagle Act) 16 U.S.C. § 668-668d	There are no eagle nesting occurrence records in or near the project corridor. If a nest is identified, BPA would avoid construction activities within 0.5 mile of an active bald eagle nest during the breeding season and avoid snag and large tree removal to the extent practicable (Table 2-5).
Vegetation, Wildlife, and Fish	Migratory Bird Treaty Act (MBTA) 16 U.S.C. § 703-712 Responsibilities to Federal Agencies to Protect Migratory Birds Executive Order 13186	Many bird species protected under the MBTA are present in the project corridor and some undoubtedly nest in the general vicinity or the corridor. Potential impacts on nesting birds are described in Section 3.7.2, Wildlife. BPA would implement mitigation measures, such as using seasonal timing restrictions during the breeding season and avoiding removal of snags and large trees to the extent practicable to minimize bird impacts (Table 2-5).
Vegetation, Wildlife, and Fish	Fish and Wildlife Conservation Act 16 U.S.C. § 2901 *et seq*. Fish and Wildlife Coordination Act 16 U.S.C. § 661 *et seq*.	BPA has consulted with the USFWS and ODFW and plans to incorporate BMPs to avoid and minimize potential impacts on fish and wildlife resources (Table 2-5). Impacts on wildlife are described in Section 3.5.2, Water Resources, Floodplains, and Fish, and Section 3.7.2, Wildlife.
Waters, Wetlands, and Floodplain Protection	Clean Water Act 33 U.S.C. § 1251 *et seq*. Floodplain/Wetlands Environmental Review Requirements 10 CFR 1022.12	BPA will obtain the necessary permits for this project as regulated under Clean Water Act Sections 402 and 404 and comply with any conditions, if necessary, from 401 certifications. Project corridor wetlands were delineated in 2021 and 2022 (PNNL 2023e). Potential impacts on wetlands and waterways from the

Resource	Potentially Applicable Requirement	Relevant Project Information
	Floodplain Management Executive Order 11988 Protection of Wetlands Executive Order 11990	Proposed Action and mitigation for these impacts are described in detail in Sections 3.5.2, Water Resources, Floodplains, and Fish and 3.6.2, Wetlands and Table 2-5. Applicants receiving a Section 404 permit from the Corps of Engineers are required to obtain a Section 401 water quality certification from the Oregon Department of Environmental Quality through a joint permit application process. BPA anticipates submitting the joint permit application in the late spring or summer before the first construction season. Project activities would not occur in any floodplains. For construction that disturbs soils at federal facilities in Oregon, the U.S. Environmental Protection Agency (EPA) would issue a National Pollutant Discharge Elimination System (NPDES) permit. This permit authorizes BPA or BPA's contractor to construct, install, modify, or operate erosion and sediment control measures and stormwater treatment and control facilities, and to discharge stormwater to public waters in conformance with all the requirements, limitations, and conditions set forth in the NPDES permit.
Air Quality and Greenhouse Gases	The Clean Air Act, as revised in 1990 42 U.S.C. § 7401	Air quality impacts of the Proposed Action would be low, localized, and temporary, as described in Table 3-1. The project would comply with any air quality standards set by EPA's National Ambient Air Quality Standards.
Air Quality and Greenhouse Gases	Final Mandatory Reporting of Greenhouse Gases Rule 40 CFR 98	Greenhouse gas emissions would be low, localized, and temporary, as described in Table 3-1.
Cultural and Historic Resources	Antiquities Act of 1906 16 U.S.C. § 431-433 Historic Sites Act of 1935 16 U.S.C. § 461-467	BPA identified and documented cultural resources in the Project area and evaluated them for eligibility for listing on the National Register of Historic Places. BPA requested comments on the Proposed Action from the US Forest

Resource	Potentially Applicable Requirement	Relevant Project Information
	National Historic Preservation Act (NHPA), as amended, inclusive of Section 106 54 U.S.C. § 306108 *et seq.* Archaeological Data Preservation Act 16 U.S.C. § 469 – 469-1 Archaeological Resources Protection Act of 1979, as amended 16 U.S.C. § 469 a-c Native American Graves Protection and Repatriation Act 25 U.S.C. § 3001 *et seq.* Indian Sacred Sites Executive Order 13007 American Indian Religious Freedom Act 42 U.S.C. § 1996	Service, Bureau of Land Management, Oregon State Historic Preservation Office and six Tribes determined to have a potential interest in the Project in the form of an initiation letter dated July 8, 2021. Consultation is ongoing. BPA's compliance with these regulations is described in Section 3.8, Cultural Resources. If previously unidentified cultural resources that would be adversely affected by the Proposed Action are found during construction, BPA would follow the procedures set out in Table 2-5 and in compliance with applicable regulations.
Noise, Public Health, and Safety	Noise Control Act 42 U.S.C. § 4901 *et seq*.	Noise disturbance would be short in duration and would occur during daylight hours as described in Table 3-1.
Noise, Public Health, and Safety	Spill Prevention Control and Countermeasures Rule 40 CFR 112 Comprehensive Environmental Response, Compensation, and Liability Act 42 U.S.C. § 9601 *et seq*. Resource Conservation and Recovery Act 42 U.S.C. § 6901 *et seq*.	Petroleum products and other chemicals such as fuel, motor oil, lubricating oil, hydraulic fluid, grease, herbicide, and fertilizer may be used during construction work. Written spill prevention and response procedures would outline requirements to prevent contamination of soil, water, and air from the potential discharge of pollutants. Additionally, employees and contractors would receive training on spill prevention and proper disposal procedures. Adequately stocked spill kits would be available at work sites. Vehicles and machinery would be regularly maintained off-site. Controls would be in place for material delivery and storage, and waste and supply storage

Resource	Potentially Applicable Requirement	Relevant Project Information
		areas would be labeled with signage and covered. Soil and other materials contaminated by spills or leaks would be collected, characterized, stored, transported and disposed of according to applicable federal and state requirements.
Noise, Public Health, and Safety	The Toxic Substances Control Act 15 U.S.C. 2601 *et seq.*	BPA adopted guidelines to ensure that PCBs are not introduced into the environment. Equipment used for the Proposed Action would not contain PCBs. Any equipment removed that may have PCBs would be handled according to the disposal provisions of the Toxic Substances Control Act.
Noise, Public Health, and Safety	Federal Communications Commission	There would be no interference with radio, television, or other reception as a result of the Proposed Action. BPA would comply with Federal Communication Commission requirements relating to radio and television interference from the Proposed Action if any such interference occurs.
State, County, and Local Plan Consistency	Clackamas Comprehensive Plan (Clackamas County 2024) Hood River Comprehensive Plan (Hood River County 2024) Wasco County Comprehensive Plan (Wasco County 2024)	The project would be consistent with the goals and policies of the Clackamas, Hood River, and Wasco County's Comprehensive Plans.

APPENDIX A

Persons and Agencies Consulted

The project mailing list contains contacts for Tribes; local, state, regional, and federal agencies; public officials; interest groups and businesses; and potentially interested or affected landowners. These groups of stakeholders have directly received or have been given instructions on how to receive all project information made available so far, and they will have an opportunity to review the Draft EA. Specific entities (other than private persons) receiving the scoping notifications and this Draft EA are listed below by category.

Federal Agencies and Officials

National Ocean and Atmospheric Administration, National Marine Fisheries Service

U.S. Army Corps of Engineers, Portland District

U.S. Bureau of Land Management

U.S. Environmental Protection Agency, Region 10

U.S. Fish and Wildlife Service

U.S. Forest Service-Columbia River Gorge National Scenic Area

U.S. Forest Service-Mt. Hood National Forest

Tribes and Tribal Groups

Confederated Tribes and Bands of the Yakama Nation

Confederated Tribes of the Grand Ronde Community of Oregon

Confederated Tribes of Siletz Indians

Confederated Tribes of the Umatilla Indian Reservation

Confederated Tribes of the Warm Springs Reservation of Oregon

Nez Perce Tribe

State Agencies and Officials

Oregon Department of Environmental Quality

Oregon Department of Fish and Wildlife

Oregon Department of State Lands

Oregon Department of Transportation

Oregon State Historic Preservation Office

Local Government and Utilities

Central Electric Cooperative

Clackamas County Board of Commissioners

Clackamas County Business and Community Services

Clackamas County Parks

Clackamas County Planning Department

Hood River County Community Development

Hood River Electric Cooperative

Minikahda Water District

Northern Wasco People's Utilities District

Portland General Electric

Portland Water Bureau

Wasco County Planning Department

Wasco Electric Cooperative

Non-Governmental Organizations

44 Trails Association

American Forests Resource Council

Association of O & C Counties

Backcountry Horsemen

Bark

Cascadia Wildlands

Clackamas County Tourism Development Council

Gorge Commission

Mazamas

Mt. Hood Stewardship Council

NW Trail Alliance

Oregon Equestrian Trails

Oregon Hunting Association

Oregon Mountain Biking Coalition

Oregon Timber Trail Alliance

Oregon Wild

Pacific Crest Association

Pacific Rivers Council

Rocky Mountain Elk Foundation

Sandy River Basin Watershed Council

South Fork Water Board

Weyerhaeuser, Inc.

Libraries

Hood River Library

Parkdale Library

Regional Federal Depository Library

Sandy Public Library

The Dalles Library

APPENDIX B

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APPENDIX C

Protected Plant Species

Species	Common Name	Federal Status	State Status	USFS Sensitive	BLM Sensitive	CRGNSA Sensitive
Agoseris elata	Tall agoseris	--	--	X	X	X
Allium nevii	Nevius' onion	--	--	X	--	--
Boechera atrorubens Syn. *Arabis sparsiflora* var. *atrorubens*	Sicklepod rockcress	--	--	X	--	X
Botrychium lunaria	Common moonwort	--	--	X	--	--
Botrychium montanum	Mountain grape fern	--	--	X	X	--
Calamagrostis breweri	Brewer's reedgrass	--	--	X	X	--
Carex capitata	Capitate sedge	--	--	X	--	--
Carex comosa	Bristle sedge	--	--	X	X	--
Carex diandra	Lesser panicled sedge	--	--	X	--	X
Carex lasiocarpa var. *americana*	Slender sedge	--	--	X	--	--
Carex livida	Pale sedge	--	--	X	X	--
Carex nardina	Spikenard sedge	--	--	X	--	--
Carex retrorsa	Retrorse sedge	--	--	X	X	X
Carex saxatilis	Russet sedge	--	--	X	--	--
Carex vernacular	Native sedge, foetid sedge	--	--	X	--	--

Species	Common Name	Federal Status	State Status	USFS Sensitive	BLM Sensitive	CRGNSA Sensitive
Castilleja levisecta	Golden paintbrush	Threatened[1]	--	--	--	--
Castilleja thompsonii	Thompson's paintbrush	--	--	X	--	--
Coptis trifolia	3-leaflet goldthread	--	--	X	X	--
Corydalis aquae-gelidae	Coldwater corydallis	--	--	X	X	X
Danthonia spicata	Poverty oatgrass	--	--	X	--	--
Delphinium leucophaeum	White rock larkspur	--	Endangered	--	--	--
Delphinium nuttallii	Nuttall's larkspur	--	--	X	X	X
Delphinium oreganum	Willamette Valley larkspur	--	--	X	X	--
Delphinium pavonaceum	Peacock larkspur	--	Endangered	--	--	--
Diphasiastrum complanatum	Ground cedar	--	--	X	X	--
Elatine brachysperma	Short-seeded waterwort	--	--	X	--	X
Epilobium palustre	Swamp willow-herb	--	--	X	--	--
Erigeron decumbens	Willamette daisy	Endangered	Endangered	--	X	--
Erigeron howellii	Howell's daisy	--	--	X	X	X
Erigeron oreganus	Oregon daisy (also known as Gorge fleabane,	--	--	X	--	X

[1] This species was proposed for delisting under the ESA in June 2021 (86 FR 34695)

Species	Common Name	Federal Status	State Status	USFS Sensitive	BLM Sensitive	CRGNSA Sensitive
	Oregon fleabane)					
Eucephalus gormanii	Gorman's aster	--	--	X	X	--
Eucephalus vialis	Wayside aster	--	--	--	X	--
Fritillaria camschatcensis	Black lily	--	--	X	X	--
Horkelia congesta ssp. *congesta*	Shaggy horkelia	--	--	--	X	--
Howellia aquatilis	Water howellia	Delisted in 2021	Threatened	X	X	X
Iris tenax var. *gormanii*	Gorman's iris	--	--	--	X	--
Juncus kelloggii	Kellog's rush	--	--	--	X	X
Juncus uncialis	Inch-high rush	--	--	X	--	--
Lathyrus holochlorus	Thin-leaved peavine	--	Endangered	--	X	--
Lewisia Columbiana var. columbiana	Columbia lewisia	--	--	X	X	X
Lomatium bradshawii	Bradshaw's desert parsley	Delisted in 2021	--	--	X	--
Lomatium watsonii	Watson's desert parsley	--	--	X	--	--
Lupinus sulphureaus ssp. *kincaidii*	Kincaid's lupine	Threatened	--	--	X	--
Lycopodiella inundata	Bog club moss	--	--	X	X	--
Navarrettia willamenttensis	Willamette navarietta	--	--	--	X	--
Ophioglossum pusillum	Adder's tongue	--	--	X	X	--
Phlox hendersonii	Henderson's phlox	--	--	X	--	--

Species	Common Name	Federal Status	State Status	USFS Sensitive	BLM Sensitive	CRGNSA Sensitive
Pinus albicaulis	White-bark pine	Threatened	--	--	--	--
Potentilla villosa	Villous cinquefoil	--	--	X	--	--
Ranunculus triternatus	Dalles Mt. buttercup, obscure buttercup	--	--	X	--	X
Rhynchospora alba	White beakrush	--	--	X	X	--
Ribes laxiflorum	Trailing black currant	--	--	--	X	--
Romanzoffia thompsonii	Mistmaiden	--	--	X	X	--
Rorippa columbiae	Columbia cress	--	--	X	--	X
Rotala ramosior	Lowland toothcup	--	--	X	X	X
Scheuchzeria palustris ssp. *americana*	Scheuchzeria	--	--	X	X	X
Schoenoplectus subterminalis	Water club rush	--	--	X	X	--
Seriocarpus rigidus	White topped aster	--	Threatened	--	X	X
Sidalcea hirtipes	Bristly-stemmed checkermallow	--	--	X	X	X
Sidalcea nelsoniana	Nelson's checkermallow	Threatened	Threatened	--	X	--
Sisyrinchium sarmentosum	Pale blue-eyed grass	--	--	X	X	X
Streptopus streptopoides	Krushea, small twisted stalk	--	--	X	X	X
Suksdorfia violacea	Violet suksdorfia	--	--	X	--	X
Sullivantia oregana	Oregon sullivantia	--	--	X	X	X

Species	Common Name	Federal Status	State Status	USFS Sensitive	BLM Sensitive	CRGNSA Sensitive
Taushia stricklandii	Strickland's taushia	--	--	X	X	--
Utricularia ochroleuca	Northern bladderwort	--	--	X	--	--
Wolffia borealis	Dotted water-meal	--	--	X	X	X
Wolffia columbiana	Water-meal	--	--	X	X	X

Sources: ODA 2023, USDA & USDI 2021, USFWS 2023

APPENDIX D

Protected Wildlife Species

Species	Common Name	Federal Status	State Sensitive	USFS Sensitive	BLM Sensitive	CRGNSA Sensitive
Insects						
Aeshna sitchensis	Zigzag darner	--	--	X	--	--
Aeshna subarctica	Subarctic darner	--	--	X	--	--
Agonum belleri	Beller's ground beetle	--	--	X	--	--
Allomyia scotti	Scott's apatanian caddisfly	--	--	--	X	--
Bombus occidentalis	Western bumble bee	--	--	X	X	X
Bombus suckleyi	Suckley cuckoo bumble bee	--	--	X	X	--
Callophrys johnsoni	Johnson's hairstreak	--	--	X	X	--
Colligyrus greggi	Rocky Mountain duskysnail	--	--	X	X	X
Danaus plexippus	Monarch butterfly	Candidate	--	X	X	--
Farula constricta	A Farulan caddisfly	--	--	X	--	X
Icaricia icarioides fenderi	Fender's blue butterfly	Threatened	--	--	--	--
Neothremma prolata	A caddisfly	--	--	X	--	X
Polites mardon	Mardon skipper	--	--	--	X	X
Mollusks						
Cryptomastix devia	Puget oregonian	--	--	X	X	X
Cryptomastix hendersoni	Columbia Gorge oregonian	--	--	X	X	X
Deroceras hesperium	Evening fieldslug	--	--	Management Indicator Species and Survey & Manage	--	--
Hemphillia pantherina	Panther jumping slug	--	--	Management Indicator Species and Survey & Manage	--	--

Species	Common Name	Federal Status	State Sensitive	USFS Sensitive	BLM Sensitive	CRGNSA Sensitive
Monadenia fidelis minor	Dalles sideband	--	--	X	--	X
Oreohelix variabilis	Dalles mountainsnail	--	--	--	X	X
Pristiloma pilsbryi	Crowned tightcoil	--	--	X	X	X
Pristiloma wascoense	Shiny tightcoil	--	--	X	X	X
Vespericola depressus	Dalles hesperian	--	--	X	X	X
Amphibians						
Anaxyrus boreas	Western toad	--	X	--	--	--
Aneides ferreus	Clouded salamander	--	X	--	--	--
Ascaphus truei	Tailed frog	--	X	--	--	--
Dicamptodon copei	Cope's giant salamander	--	X	X	X	X
Plethodon larselli	Larch mountain salamander	--	X	X	--	X
Rana aurora	Red legged frog	--	X	--	--	--
Rana boylii	Foothill yellow-legged frog	--	X	--	X	--
Rana cascadae	Cascades frog	--	X	--	--	--
Rana luteiventris	Columbia spotted frog	--	--	--	X	--
Rana pretiosa	Oregon spotted frog	Threatened	X	--	--	--
Rhyacotriton cascadae	Torrent salamander	--	X	--	--	--
Reptiles						
Actinemys marmorata	Western pond turtle	--	X	--	X	X
Chrysemys picta	Painted turtle	--	X	--	X	X
Lampropeltis zonata	California mountain kingsnake	--	X	--	--	--
Sceloporus graciosus	Northern sagebrush lizard	--	X	--	--	--
Birds						
Accipiter gentilis	Northern goshawk	--	X	--	--	--

Species	Common Name	Federal Status	State Sensitive	USFS Sensitive	BLM Sensitive	CRGNSA Sensitive
Agelaius tricolor	Tricolored blackbird	--	--	--	X	--
Ammodramus savannarum	Grasshopper sparrow	--	X	--	X	--
Artemisiospiza nevadensis	Sagebrush sparrow	--	X	--	--	--
Athene cunicularia	Burrowing owl	--	X	--	--	--
Bartramia longicauda	Upland sandpiper	--	--	--	X	--
Bucephala albeola	Bufflehead	--	--	X	X	X
Buteo regalis	Ferruginous hawk	--	X	--	--	--
Buteo swainsoni	Swainson's hawk	--	X	--	--	--
Coccyzus americanus	Yellow-billed cuckoo	Threatened	--	--	--	--
Coturnicops noveboracensis	Yellow rail	--	X	--	--	--
Contopus cooperi	Olive-sided flycatcher	--	X	--	--	--
Cygnus buccinator	Trumpeter swan	--	X	--	X	--
Cypseloides niger	Black swift	--	X	--	X	X
Dryocopus pileatus	Pileated woodpecker	--	--	Management Indicator Species and Survey & Manage	--	--
Eremophila alpestris strigata	Streaked horned lark	Threatened	--	--	--	--
Grus canadensis	Greater sandhill crane	--	X	--	--	--
Haliaeetus leucocephalus	Bald eagle	--	--	X	X	X
Histrionicus histrionicus	Harlequin duck	--	X	X	X	X
Hydroprogne caspia	Caspian tern	--	X	--	--	--
Lanius ludovicianus	Loggerhead shrike	--	X	--	--	--
Melanerpes lewis	Lewis's woodpecker	--	X	X	X	X

Species	Common Name	Federal Status	State Sensitive	USFS Sensitive	BLM Sensitive	CRGNSA Sensitive
Meleagris gallopavo merriami	Merriam's turkey	--	--	Management Indicator Species and Survey & Manage	--	--
Pelecanus erythrorhynchos	American white pelican	--	X	--	X	--
Picoides arcticus	Blackbacked woodpecker	--	X	Management Indicator Species and Survey & Manage	--	--
Picoides albolarvatus	White-headed woodpecker	--	X	X	X	X
Picoides dorsalis	Three-toed woodpecker	--	X	--	--	--
Podiceps grisegena	Red-necked grebe	--	X	--	--	--
Progne subis	Purple martin	--	X	--	X	X
Psiloscops flammeolus	Flammulated owl	--	X	Management Indicator Species and Survey & Manage	--	--
Sitta pygmaea	Pygmy nuthatch	--	--	Management Indicator Species and Survey & Manage	--	--
Spizella breweri	Brewer's sparrow	--	X	--	--	--
Strix occidentalis caurina	Northern spotted owl	Threatened	--	--	--	--
Strix nebulosa	Great gray owl	--	X	Management Indicator Species and Survey & Manage	--	--
Mammals						
Antrozous pallidus	Pallid bat	--	X	--	X	X
Arborimus longicaudus	Red tree vole	--	X	Management Indicator Species and Survey & Manage	--	--

Species	Common Name	Federal Status	State Sensitive	USFS Sensitive	BLM Sensitive	CRGNSA Sensitive
Canis lupus	Gray wolf	Endangered		X	X	--
Corynorhinus townsendii	Townsend's big-eared bat	--	X	X	X	X
Gulo gulo	Wolverine	Threatened	--	X	X	X
Lasiurus cinereus	Hoary bat	--	X	--	--	--
Martes americana	American marten	--	--	Management Indicator Species and Survey & Manage	--	--
Martes caurina	Pacific marten	--	X	--	--	--
Myotis californicus	California myotis	--	X	--	--	--
Myotis thysanodes	Fringed myotis	--	X	X	X	X
Myotis volans	Long-legged myotis	--	X	--	--	--
Odocoileus hemionus	Deer	--	--	Management Indicator Species and Survey & Manage	--	--
Sciurus griseus	Western gray squirrel	--	--	Management Indicator Species and Survey & Manage	--	--
Fish						
Entosphenus tridentatus	Pacific lamprey	--	X	X	X	X
Oncorhynchus clarkii clarkii	Coastal cutthroat trout	--	--	X	X	X
Oncorhynchus kisutch	Coho salmon (Lower Columbia River)	Threatened	--	--	--	--
Oncorhynchus mykiss	Steelhead (Lower Columbia and Middle Columbia River)	Threatened	X	--	X	--
Oncorhynchus mykiss gairdneri	Redband trout (Inland Columbia Basin)	--	--	X	X	X

Species	Common Name	Federal Status	State Sensitive	USFS Sensitive	BLM Sensitive	CRGNSA Sensitive
Oncorhynchus tschawytscha	Chinook (Lower Columbia River)	Threatened	X	--	--	--
Salvelinus confluentus	Bull trout	Threatened	X	--	--	--

Sources: ODFW 2024a, ORBIC 2022, USDA & USDI 2021, USFWS 2023

APPENDIX E

BLM & USFS Sensitive Species

Potentially Occurring in Project Area

Species **Scientific Name**	**Status**	**Usual Habitats in Oregon**	**Potential for Occurrence in the Project Area**
Elk *Cervus elaphus nelsoni*	Management Indicator Species (USFS)	Habitat generalist utilizing forested or grassland habitats.	Moderate. Suitable habitat is present.
Gray wolf *Canis lupus*	FED-E, FS-S (BLM, USFS)	Habitat generalist utilizing forested habitat with seasonal shifts to more open habitats that reflect seasonal distributions of prey. Nearest known use area is southeast of Mt. Hood along White River.	Moderate. Not currently documented in the project area, but suitable dispersal habitat is present.
Cope's giant salamander *Dicamptodon copei*	FS-S (BLM, USFS)	Stream-dwelling and reliant on cool, perennial streams with coarse substrates, often occurring in small streams with high gradients in forested uplands. Often found in its larval or paedomorphic adult forms (sexually mature adult with juvenile characteristics); both forms have gills and are restricted to aquatic environments. Also known to transform into terrestrial adults and have been found in riparian areas close to surface waters.	Moderate. Suitable habitat is present.
Wolverine *Gulo gulo*	FED-T, FS-S (BLM, USFS)	In Oregon, wolverine habitat is characterized by white bark pine, mountain hemlock, and subalpine fir above 6,000 ft. During winter, low-elevation habitats characterized by lodgepole pine, western white pine, white fir, Shasta red fir, and mountain hemlock are also used. Range of the species in Oregon in 2020 did not include Clackamas, Hood, or Wasco Counties.	Not expected. Preferred habitat is not found in the project area; however, a dispersed wolverine could travel through the area.
American marten *Martes americana*	Management Indicator Species (USFS)	Late-seral forests.	Moderate. Habitat exists in the project area on USFS land.
Mule deer *Odocoileus hemionus*	Management Indicator Species (USFS)	Habitat generalist utilizing forested or grassland habitats.	Moderate. Habitat exists in the project area on USFS land.
Bald eagle *Haliaeetus leucocephalus*	FED-P, FS-S (BLM, USFS)	Usually found near open water or shorelines. Nest in large trees.	Moderate. There are no known eagle nests within 5 miles of the project area; however, there is

Species Scientific Name	Status	Usual Habitats in Oregon	Potential for Occurrence in the Project Area
			suitable nesting habitat available near Elk Creek and Clear Fork Creek.
Grasshopper sparrow *Ammodramus savannarum*	FS-S (BLM)	Dry grassland habitat, generally with low to moderate grass height and low percent shrub cover.	Low. There are no documented occurrences within 5 miles of the project area. Marginally suitable habitat was documented on BLM land.
Tricolored blackbird *Agelaius tricolor*	FS-S (BLM)	Palustrine habitats such as herbaceous wetlands. Terrestrial habitats such as grassland/herbaceous and cropland/hedgerow. Small colonies and summer residents found in Willamette Valley. Colonial breeder forming dense, noisy nesting colonies.	Low. There are no documented occurrences within 5 miles of the project area. A minor amount of suitable habitat was documented on BLM land.
Black-backed woodpecker *Picoides arcticus*	Management Indicator Species (USFS)	Boreal and montane coniferous forests, especially in areas with standing dead wood and windfall trees. Typically prefer recently burned forests.	Not expected. No known occurrences within 5 miles of project area. Project area does not contain large areas of burned or dying trees.
Pileated woodpecker *Drycopus pileatus*	Management Indicator Species (USFS)	Late-seral forests with standing dead wood.	Moderate. Cavity excavation by pileated woodpecker was documented during surveys.
Fringed myotis *Myotis thysanodes*	FS-S (BLM, USFS) OR-S	Inhabits a variety of plant communities including desert scrub, dry grasslands, shrub-steppe, drier forest, coastal conifer forest, and riparian forest, but drier woodlands (e.g., oak, pinyon-juniper, and ponderosa pine) are often preferred. Roosts in a variety of structures including caves, mines, tunnels, large snags and buildings.	Not expected. No known occurrences within 5 miles of project area. No caves, mines, or tunnels in project area for roosting.
Pallid bat *Antrozous pallidus*	FS-S (BLM)	Dry, open habitats, such as dry coniferous forests, oak woodlands, grasslands, and sagebrush steppe. Can also occur in mixed conifer and riparian forests.	Low. No known occurrences within 5 miles of project area. Some foraging habitat identified during surveys.

Species **Scientific Name**	**Status**	**Usual Habitats in Oregon**	**Potential for Occurrence in the Project Area**
Larch mountain salamander *Plethodon larselli*	FS-S (USFS) OR-SC	Occurs in a wide array of habitat types including old-growth forests; younger naturally regenerated forests in gravelly/cobble soils with residual late successional features (snags and large down logs); scree and talus (forested and un-forested); and lava tube entrances where debris has accumulated.	Moderate. Known occurrences within 5 miles of project area. Suitable habitat documented in minimal locations during field surveys.
Scott's apatanian caddisfly *Allomyia scotti*	FS-S (BLM, USFS)	Cold, high-elevation (>3000 feet) perennial seeps/streams	Low. No known occurrences within 5 miles of project area. Some high-elevation streams are in the project area on USFS land.
Western bumble bee *Bombus occidentalis*	FS-S (BLM, USFS)	Bumble bees inhabit a wide variety of natural, agricultural, urban, and rural habitats, although species occurrence tends to peak in flower rich meadows of forests and subalpine zones.	Moderate. Occurrences within 5 miles of the project area have been documented as recently as 2013.
Suckley cuckoo bumble bee *Bombus suckleyi*	FS-S (BLM, USFS)	Bumble bees inhabit a wide variety of natural, agricultural, urban, and rural habitats, although species occurrence tends to peak in flower-rich meadows of forests and subalpine zones.	Not expected. Nearest occurrence record from 2014 is 65 miles south of project area.
Johnson's hairstreak *Callophrys johnsoni*	FS-S (BLM, USFS)	Coniferous forests which contain the mistletoes of the genus Arceuthobium, commonly referred to as dwarf mistletoe, known to occur on several different conifers. Old-growth and late successional second growth forests provide the best habitat for this butterfly, although younger forests where dwarf mistletoe is present also support the species.	Not expected. No occurrences within 5 miles of project area. Some late successional second growth habitat is present adjacent to the project area that could support this species. Population data is limited due to the species spending most of its lifecycle in forest canopies.
Mardon skipper *Polites mardon*	FS-S (BLM)	Grasslands and meadows with nectar sources for adults.	Not expected. No known occurrences within 5 miles of project area. Project area is outside of known species range.

Species **Scientific Name**	**Status**	**Usual Habitats in Oregon**	**Potential for Occurrence in the Project Area**
Cascades axetail slug *Carinacauda stormi*	FS-S (BLM, USFS)	Montane areas in which Douglas-fir is a dominant overstory species, and Western hemlock and vine maple are minor tree species	Not expected. No known occurrences within 5 miles of project area.
Rocky Mountain duskysnail *Colligyrus greggi*	FS-S (BLM, USFS)	Aquatic obligate that require pristine, cold water habitats.	Moderate. Several occurrence records within 5 miles of project area. Project includes in-water work, which could impact the species.
Puget oregonian *Cryptomastix devia*	FS-S (BLM, USFS)	Inhabits moist, mature to old growth forests associated with bigleaf maple growing among conifers (usually Douglas-fir, western hemlock and western redcedar). Often occurring within riparian areas and possibly confined to the riparian zone.	Low. No known occurrences within 5 miles of project area. However, project would include hazard tree removal in riparian areas.
Columbia Gorge Oregonian *Cryptomastix hendersoni*	FS-S (BLM, USFS)	Riparian-associated, known from low to middle elevations, generally near seeps and springs, where it occurs in leaf litter along streams, under logs, among brush, and in basalt talus.	Moderate. Occurrences within 5 miles of project area. Project would include hazard tree removal in riparian areas.
Western ridged mussel *Gonidea angulata*	FS-S (BLM)	Cold water with firm mud to coarse substrates. Low to mid elevations. Host fish presence.	Low. No occurrences within 5 miles of project area. However, limited information is available on population distributions.
Dalles sideband *Monadenia fidelis minor*	FS-S (USFS)	Talus and seasonally moist habitats, near seeps or springs. Leaf litter is important for food and cover.	Moderate. Occurrences within 5 miles of project area. Suitable habitat is present in project area.
A caddisfly *Neothremma prolata*	FS-S (USFS)	Cold, small mountain streams	Low. No known occurrences within 5 miles of project area. However, suitable habitat is present.

Species Scientific Name	Status	Usual Habitats in Oregon	Potential for Occurrence in the Project Area
Crater Lake tightcoil *Pristiloma crateris*	FS-S (BLM, USFS)	Perennially moist areas in mature conifer forests and meadows among surface vegetation, rocks, and woody debris within 10 meters of open water in wetlands, springs, seeps, and streams.	Moderate. Occurrences within 5 miles of project area. Suitable habitat present.
Crowned tightcoil *Pristiloma pilsbryi*	FS-S (BLM, USFS)	Associated with very moist floodplain forest in riparian and old growth habitat.	Low. No known occurrences within 5 miles of project area. However, suitable habitat is present.
Shiny tightcoil *Pristiloma wascoense*	FS-S (BLM, USFS)	Most known sites for this species are in ponderosa pine and Douglas fir forests at moderate to high elevations. The habitat is primarily under deciduous trees, particularly quaking aspen/red alder.	Moderate. Occurrences within 5 miles of project area. Suitable habitat present.
Dalles Hesperian *Vespericola depressus*	FS-S (BLM, USFS)	Riparian forests, spring and seep borders, near the bottom of a slope, moist valley, ravine, or gorge and appears to be restricted to lowland forests with basalt-derived soils or basalt taluses.	Low. No known occurrences within 5 miles of project area. However, suitable habitat is present.

Source: PNNL 2023e

Status Codes:
FED-E=federally endangered, FED-T=federally threatened, FS-S=federal sensitive species, OR-S=state sensitive, OR-SC=state sensitive critical, BLM=suspected or documented on BLM land that the project crosses, USFS=suspected or documented on USFS land that the project crosses.

APPENDIX F

Federal Survey & Manage Species

Species (Scientific Name)	General Habitat Requirements	Potential for Occurrence in Project Area	Survey Category[1]
Great gray owl (*Strix nebulosa*)	Conifer and mixed forest, ponderosa pine, and lodgepole, most frequently in old-growth on north-facing slopes; adjacent to large open meadows.	Moderate in some locations	C
Red tree vole (*Arborimus longicaudis*)	Old-growth conifer forests and mixed-aged forests containing large, live old-growth trees.	Moderate in some locations	C
Larch Mountain Salamander (*Plethodon larselli*)	Occurs in a wide array of habitat types including old-growth forests; younger naturally regenerated forests in gravelly/cobble soils with residual late successional features (snags and large down logs); scree and talus (forested and un-forested) and lava tube entrances where debris has accumulated.	Moderate in some locations	A
Puget Oregonian (*Cryptomastix devia*)	Inhabits moist, mature to old growth forests associated with bigleaf maple growing among conifers (usually Douglas-fir, western hemlock and western redcedar). Often occurring within riparian areas, and possibly confined to the riparian zone.	Moderate in some locations	A
Columbia oregonian (*Cryptomastix hendersoni*)	Riparian-associated, known from low to middle elevations, generally near seeps and springs, where it occurs in leaf litter along streams, under logs, among brush, and in basalt talus.	None	A
Evening fieldslug (*Deroceras hesperium*)	Low elevation, perennially wet meadows in forested habitats.	Moderate in some locations	B
Dalles sideband (*Monadenia fidelis minor*)	Associated with talus habitat and seasonally moist rocky areas, especially around seeps and springs.	None	A

Species (Scientific Name)	General Habitat Requirements	Potential for Occurrence in Project Area	Survey Category[1]
Panther jumping slug (*Hemphillia pantherina*)	Under and inside logs and other forest litter and in talus in moist forest and riparian areas.	Moderate in some locations	B
Crater Lake tightcoil (*Pristiloma arciticum crateris*)	Wetlands in moist forests, often in fens or sedge habitats near open water	Moderate in some locations	A

Source: PNNL 2023e

[1] Survey Category A species require management of known sites, pre-disturbance and strategic surveys; Survey Category B species require management of known sites and strategic surveys; Survey Category C species require management of high-priority sites, pre-disturbance surveys and strategic surveys.

APPENDIX G

Project Totals on USFS-Managed Land

Transmission Line Work on USFS Managed Land

Transmission Line Work	Quantity
Structure Raises	1
Fall Protection	76
Ground Clearance Excavations	0

Access Road Activities on USFS Managed Land

Access Road Activities	Quantity
New Construction	0 mile
Reconstruction	1.1 miles
Improvement	7.8 miles
Decommissioned Roads	1,053 feet
Landings (repairs and new)	6 repairs, 3 new
Gates (repairs and new)	1 repair, 10 new
Cattle Guards (repairs)	0
Fords (repairs and new)	3 repairs, 3 new
New cross drain culverts	1
Replace cross drain culverts	1
New stream culverts	0
Replace stream culverts	1 stream culvert would be replaced with a ford
Culvert cleaning	5
Permanent bridges	0
Temporary bridges	2-3, as needed

Vegetation Removal

Vegetation Removal	Quantity
Removal or disturbance of low-growing vegetation in the transmission line right-of-way for structure work and landings	Approximately 38 acres
Removal of danger trees adjacent to the transmission line right-of-way	Approximately 730

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