South of Tri-Cities Reinforcement Project

Draft Environmental Assessment

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Bonneville
POWER ADMINISTRATION

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Contents

List of Tables

List of Figures

List of Appendices

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1.0 Purpose of and Need for Action

1.1 Introduction

Bonneville Power Administration (BPA) is proposing the South of Tri-Cities Reinforcement Project to build a new 500/115-kilovolt (kV) substation and 115-kV transmission line in Benton County, Washington (Project or Proposed Action). The proposed substation near County Well Road would tie into an existing 500-kV transmission line and convert the voltage to 115-kV for local transmission along the new approximately 18-mile-long transmission line to the existing Badger Canyon Substation in Richland, Washington. Up to 0.8 mile of the proposed 115-kV transmission line would cross land managed by the U.S. Bureau of Land Management (BLM)-Spokane Border Field Office (BLM-Spokane). Badger Canyon Substation would be reconfigured and upgraded to incorporate the new transmission line. Fiber optic cable would be added to the new transmission line, as well as along other existing transmission lines in the area, to improve operational communication and control.

BPA prepared this Environmental Assessment (EA) to assess the potential impacts of the Project on the environment pursuant to the National Environmental Policy Act (NEPA).[1] This EA will be used to determine if the Project would cause effects of a magnitude that would warrant preparing an Environmental Impact Statement (EIS), or whether it would be appropriate to prepare a Finding of No Significant Impact (FONSI). This section of the EA describes the need for action that the Project addresses, identifies the purposes (i.e., goals) of the Project, and summarizes the public scoping process that was conducted for the EA.

1.2 Background

1.2.1 BPA Transmission System

BPA is a nonprofit federal power marketing administration that owns, operates and maintains more than 15,000 circuit miles of high-voltage transmission lines in the Pacific Northwest. The transmission lines move most of the Northwest's high-voltage power from facilities that generate power to customers throughout BPA's service territory. BPA sells transmission services to accommodate customer requests to transmit power across BPA's transmission system. BPA's transmission customers, typically utilities, independent power producers and power marketers, use these services to deliver power over BPA's transmission lines to their buyers. Users of power include public utility districts, municipalities, and investor-owned utilities which, in turn, use their own facilities to provide electricity to homes, businesses, industries, and farms.

BPA has a statutory obligation to ensure it has sufficient capability to serve its customers through a safe and reliable transmission system. The Federal Columbia River Transmission System Act directs BPA to construct improvements, additions and replacements to its transmission system that the BPA Administrator determines are necessary to provide service to BPA's customers, maintain electrical

[1] BPA is aware that the Council on Environmental Quality (CEQ), on February 25, 2025, issued an interim final rule to remove its NEPA implementing regulations at 40 C.F.R. Parts 1500–1508. Based on CEQ guidance, and to promote completion of its NEPA review in a timely manner and without delay, in this EA BPA is voluntarily relying on the CEQ regulations, in addition to DOE's own regulations implementing NEPA at 10 C.F.R. Part 1021, to meet its obligations under NEPA, 42 U.S.C. §§ 4321 *et seq*.

stability and reliability and integrate and transmit power (16 United States Code [U.S.C.] Section [§] 838b[b-d]).

BPA plans its transmission system to serve expected loads and load growth for at least the next 10 years based on forecasts. BPA plans its system in accordance with the National Electric Reliability Corporation (NERC) Planning Standards and the Western Electricity Coordinating Council Regional Criterion to maintain system reliability.

Operating a reliable transmission system is one of BPA's fundamental objectives. Customers depend on consistent, quality electric service and maintaining that service requires a robust system that can respond to common outage-causing events. BPA follows mandatory Reliability Standards, developed by NERC and approved by the Federal Energy Regulatory Commission (FERC). To meet NERC standards, BPA planning performs annual system assessments and develops corrective action plans to expand the system as necessary. BPA Operations also continuously monitors **loads**[2] and voltages, evaluates the transmission system's performance and develops operating plans that respond to reliability risks.

1.2.2 Tri-Cities Area Reliability and Load Growth

BPA divides its service territory into **load areas** for planning purposes. Load areas are regions whose loads are served by a common set of substations and transmission lines. The Tri-Cities load area in Washington includes the population centers of Richland, Kennewick and Pasco, as well as the rest of Benton and Franklin counties and neighboring Grant and Walla Walla counties. Three substations (McNary, Sacajawea, and Midway) serve as the main transmission sources to the Tri-Cities load area, connecting the load area to the larger grid.

Planned transmission line outages are periodically needed for routine maintenance activities. Transmission line outages can also occur as a result of unplanned events, such as equipment failure, a public safety power shutoff during wildfire season, lightning strikes, or a transmission pole struck by a vehicle. Peak demand for electricity in the Tri-Cities load area occurs during the summer months. The seasonally high demand is driven by irrigation needs, agricultural refrigeration, air conditioning and industrial uses. When loads surpass 1,100 megawatts (MW) in the Tri-Cities load area, the capacity of the existing transmission system is strained. Under these conditions, a single transmission line outage can cause system operating limits to be exceeded, which increases the risk of unplanned line or substation outages that could lead to a loss of power to the area. The existing limited capacity of the transmission system in the Tri-Cities area during times of maximum power usage makes planning line outages for maintenance or upgrades difficult and limits the flexibility of BPA's transmission system operators to manage unplanned outages without risking power interruptions such as **load shedding.** Load shedding is a last resort for BPA, but if system operating limits are exceeded, this kind of power interruption may be required to prevent potential overloads and voltage violations on the grid.

The limited flexibility during peak loads in the Tri Cities load area is due to the area's limited number of energy sources (i.e., McNary, Sacajawea, and Midway substations and the Ice Harbor Lock and Dam on the Snake River) and limited transmission pathways into and through the area. The operating plans developed to meet NERC Reliability Standards are, therefore, particularly complex for the Tri Cities area and require engineers to perform special real-time studies and analysis to keep the system functioning

[2] Acronyms and words in **bold** are defined in Appendix C.

smoothly. Even with these efforts, capacity remains an issue, and if system operating limits are exceeded during a transmission line outage, a second transmission line outage would likely lead to required load shedding if other emergency operational measures are not implemented.

Loads in the Tri-Cities load area have surpassed 1,100 MW on hot days every summer for the past 10 years. In July 2017, a combination of high electricity use and equipment failures during a heat wave nearly triggered a load shedding event. Other similar experiences occurred in the summer of 2016 and 2017. These events, and the likelihood of their reoccurrence, led BPA to put procedures in place to reduce the risk of load shedding during periods of peak demand. These procedures include barring planned transmission line outages during the summer.

Due to these procedures, construction projects in the Tri-Cities load area that require transmission line outages cannot occur during peak load conditions. Winter weather and operational requirements for Endangered Species Act (ESA)-listed fish species on the lower Snake River (including Ice Harbor Lock and Dam) in the late summer, fall and early winter further limit when planned transmission line outages can be scheduled. Because transmission line outage windows are so limited, some maintenance of the transmission system in the Tri-Cities load area has been deferred, increasing the risk of equipment failures.

While procedures developed in 2017 have been successful in avoiding the need for load shedding in the Tri-Cities load area, the situation remains tenuous. Every summer there are high temperature days when loads reach the threshold that puts the system at risk of exceeding system operating limits. Any unplanned outage from the loss of a major piece of equipment that occurs under these high-load conditions puts the area under threat of required load shedding. BPA expects the Tri-Cities load area to reach this load threshold with increasing frequency due to continued load growth within the next 10 years, putting long-term system reliability at risk.

Population and load growth in the Tri-Cities load area is also contributing to more demand on the transmission system. The population in the U.S. Census-defined Kennewick-Richland Metro Area, which includes Benton and Franklin counties, grew 23.2 percent between 2010 and 2022 (U.S. Census Bureau 2023). The region's economy, which is anchored in research and development, technology, manufacturing, agriculture, retail and healthcare, is also growing. Between 2001 and 2021, the total metro Gross Domestic Product (GDP) in Benton and Franklin counties combined increased by 63.3 percent (TRIDEC 2023). Between 2018 and 2021, the net growth rate of businesses in Benton and Franklin counties ranged between 2 and 4.3 percent (TRIDEC 2023).

Local utilities report seeing large load growth potential in the future, and substantial population growth is projected for Benton, Franklin, Grant and Walla Walla counties over the next 20 years (Washington Office of Financial Management 2022). Local utility customers served by BPA's transmission system in the Tri-Cities load area include Benton Public Utility District (PUD), Benton Rural Electric Association (REA), Big Bend Electric Cooperative, City of Richland, Columbia REA, Franklin PUD and South Columbia Basin Irrigation District. BPA expects load growth from these customers to increase by at least 1.5 percent annually.

Some of these local customers have requests pending before BPA to accommodate line and load interconnections in the Tri-Cities load area. Line and load interconnections are typically for new load service or to allow customers to build or shift the delivery of service to different points on their system.

As of August 2024, local customers have requested, collectively, more than 400 MW of line and load interconnections that BPA cannot accommodate without reinforcing the transmission system in the Tri-Cities load area.

Large load growth south of the Tri-Cities load area from data center demands in the Boardman and Umatilla areas is also increasing the strain on the system. North-south transmission lines from Midway substations to McNary Substation through the Tri-Cities load area are heavily congested. A new source of energy serving the Tri-Cities load area from BPA's main grid, such as the proposed Project, would help offset the north-south flow congestion.

In addition, requests to integrate new clean energy power generation sources (i.e., new variable resources, such as wind and solar) into BPA's transmission system are contributing to anticipated capacity issues in the Tri-Cities load area. These requests are recorded in BPA's Interconnection Request Queue and are addressed in accordance with BPA's Open Access Transmission Tariff (OATT) (BPA 2023; BPA 2021). BPA's OATT defines the terms and conditions of the transmission and interconnection services it offers. The OATT is generally consistent with the FERC pro forma open access tariff. Under BPA's tariff, BPA offers transmission services to all eligible customers on a first-come, first-served basis, subject to a determination that there is sufficient available transfer capability on BPA's transmission system and that the customer can meet BPA's technical requirements for integration. Customers requesting interconnections pay for any system upgrades necessary to incorporate the power into BPA's transmission system. BPA's decisions regarding transmission interconnection requests are subject to individual environmental review under NEPA and other applicable laws.

BPA works with eligible customers to conduct studies that assess the feasibility of interconnection and how potential additions to the transmission system would affect safety and reliability. These studies identify the interconnection requirements, including any system upgrades, that would be needed to accommodate specific requests.

1.3 BPA's Purpose and 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 provide service to BPA's customers (16 U.S.C. § 838b[b–d]). BPA needs to increase the long-term electrical capacity of its transmission system in the Tri-Cities load area to respond to reliability concerns and anticipated increased demand for electricity over a 10-year planning horizon. Construction of the Project would provide an additional source of transmission capacity to serve the Tri-Cities area and help meet the increased electrical capacity needs and reinforce the transmission system in the Tri-Cities load area.

In meeting the need for action, BPA seeks to achieve the following purposes:

- Ensure that transmission system public safety and reliability standards set by the National Electric Safety Code and NERC are met.
- Continue to meet BPA's contractual and statutory obligations to supply safe, reliable power to serve its customers.
- Demonstrate cost effectiveness.
- Minimize impacts to the natural and human environment.

1.4 BLM's Purpose and Need for Action

The purpose and need for BLM's action is established by the agency's responsibility under Section 501(a)(4) of the Federal Land Policy and Management Act of 1976, as amended (43 U.S.C. 1761), which provides authority for the Secretary of the Interior, in their discretion, to grant rights-of-way on lands under its jurisdiction according to regulations at 43 CFR 2802.10. The BLM-Spokane District would need to respond to an application from BPA requesting a right-of-way (ROW) grant for the portion of the new 115-kV transmission line and access roads that would cross BLM-managed land. The grant would allow BPA to build, operate and maintain the proposed transmission line and access roads.

The BLM Land Use Plan that applies to this portion of the Proposed Action is the Spokane Resource Management Plan, as amended (BLM 1987, BLM 1992). One of the General Management Objectives specified in the May 1987 Resource Management Plan is to "Keep public lands open for exploration/development of mineral resources, rights-of-way, access and other public purposes with consideration to mitigate designated resource concerns." Granting the ROW to BPA would be consistent with this objective. The BLM-Spokane District would assess whether the Project is in conformance with the Spokane Resource Management Plan, as amended.

1.5 Public Involvement

BPA conducted a scoping process for the Project to gather public input on the issues that should be addressed in this EA. The public scoping comment period was held from October 6 to November 20, 2023. BPA hosted open house style public scoping meetings in Kennewick, Washington on October 17 and 18, 2023.

BPA mailed a letter to stakeholders on October 6, 2023, regarding the Project and opportunities to comment through BPA's website or by attending a public meeting. Recipients of the letter included all landowners with parcels that either intersect the Project's preliminary work areas or are within 0.25 mile of the proposed transmission line centerline. The public letter was also posted on a Project website[3] established by BPA to provide information about the Project and the EA process.

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 American Indian Tribes (Tribes) and Indigenous Peoples for information and perspectives regarding environmental, cultural and community impacts. BPA determined that a minimum of four Tribes have a potential interest in the Project: Confederated Tribes of the Umatilla Indian Reservation, Nez Perce Tribe, Wanapum Tribe, and the Confederated Tribes and Bands of the Yakama Nation. BPA requested comments on the Proposed Action from the Tribes in the form of a Section 106 consultation letter dated January 9, 2024, and a public scoping letter dated October 26, 2023. BPA also consulted the Tribes on potential cultural resources to help inform BPA's field investigation methods.

Sixty-four individuals attended the Project public scoping meetings. Thirty-eight unique comments were submitted during the scoping comment period and were posted to the Project website. The majority (23) of the comments addressed route options for the Webber Canyon-Badger Canyon transmission line. Comments were largely focused on the following:

[3] www.bpa.gov/nepa/south-of-tri-cities

- Potential impacts on residential views due to the proposed 115-kV transmission line.
- Potential impacts on property values due to the proposed 115-kV transmission line.
- Health and safety concerns related to the Project's potential fire risk during construction, electromagnetic field levels and use of herbicides.
- Wildlife presence and habitat preservation.
- Potential noise impacts from the proposed 115-kV transmission line.
- Support for the Project's purpose of providing additional power supply to the Tri-Cities.

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

2.0 Proposed Action and Alternative

2.1 Overview of the Proposed Action

BPA is proposing to build, operate and maintain a new 500-kV/115-kV substation west of the Tri-Cities load area in Benton County, Washington and a new 115-kV transmission line from the new substation to Badger Canyon Substation in Richland, Washington (Figure 2-1). The new Webber Canyon Substation would tie into the existing 500-kV Ashe-Marion No. 2 transmission line. BPA is also proposing upgrades at the existing Badger Canyon, Ashe, Marion, McNary and Nine Canyon substations to improve operations in coordination with the proposed reinforcement project. In addition, the Project would include installation of fiber optic cable for system communications along three transmission lines and to the Kennewick Radio Station. The existing Ashe-Marion No. 2 transmission line would be split into two circuits, Ashe-Webber Canyon No. 1 and Webber Canyon-Marion No. 1, and structure signage would be updated accordingly (Figure 2-2).

BPA is considering two routing options for the proposed approximately 18-mile-long Webber Canyon-Badger Canyon No. 1 115-kV transmission line (Webber Canyon-Badger Canyon): the Railroad Option and the Canal Option. The transmission line routing options follow the same route for 12.5 miles east of the proposed Webber Canyon Substation to East Badger Road. The two routing options diverge approximately 1.2 miles south of the East Badger Road and South Badger Canyon Road intersection. The Railroad Option parallels East Badger Road and the BNSF Railway towards Badger Canyon Substation. The Canal Option crosses the Kennewick Irrigation District's East Badger Lateral Canal to the north before continuing east towards Badger Canyon Substation. The routing options converge south of Leslie Road Substation within the existing BPA ROW and follow the same route for the final 0.8 mile to Badger Canyon Substation. The transmission line routing options would cross varying amounts of private, state, and federal lands through which ROW would be acquired by BPA as well as some existing BPA ROW.

Section 2.2 describes the proposed substation, fiber optic cable and transmission line elements that are common components of the Project. The routing options for the Webber Canyon-Badger Canyon transmission line are described in detail in Section 2.3 and BPA's preferred routing option is identified. A No Action Alternative is presented in Section 2.4, followed by a review of Alternatives Eliminated from Detailed Study in Section 2.5. The Proposed Action is compared with a No Action Alternative in Section 2.6.

Figure 2-1: Project Map

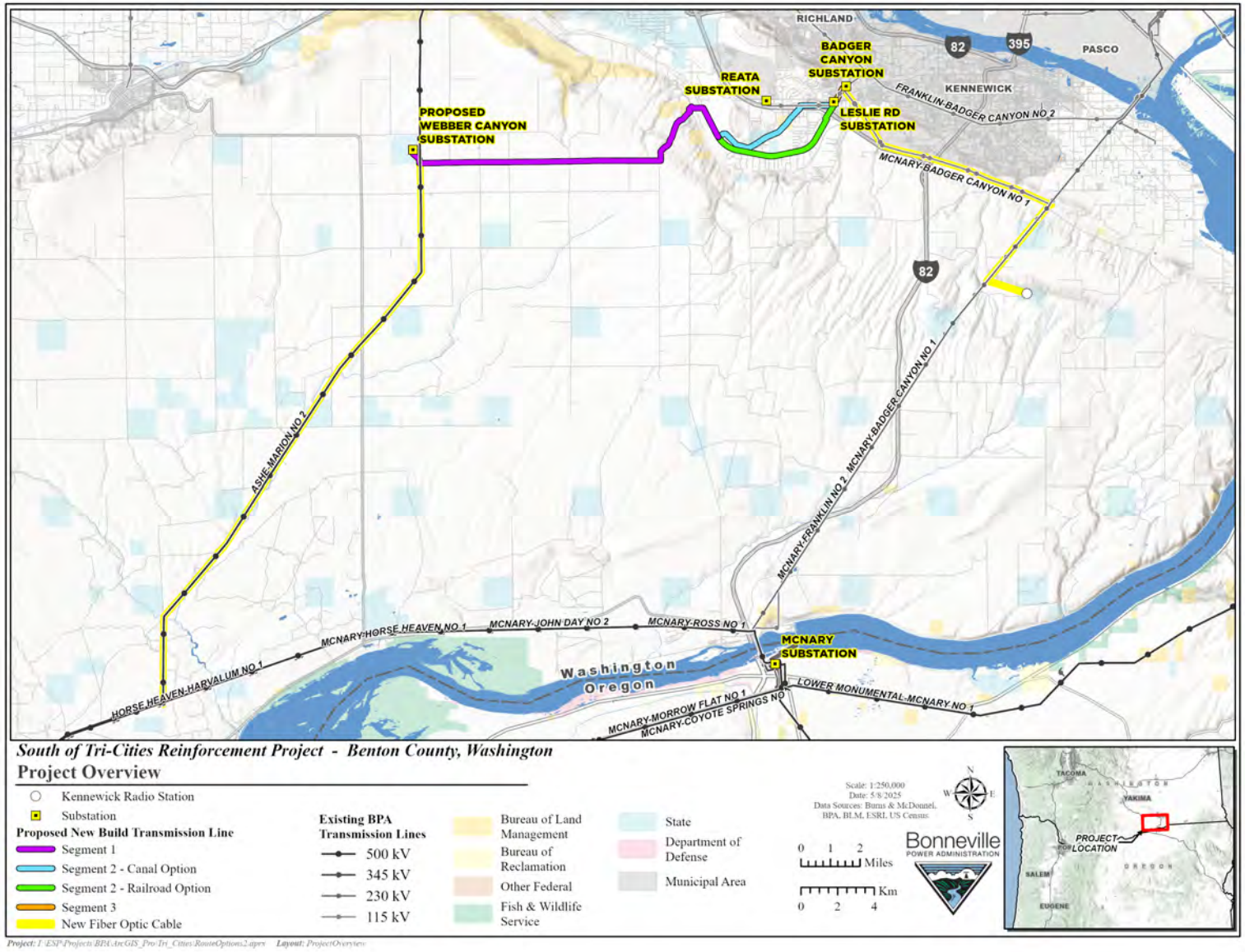
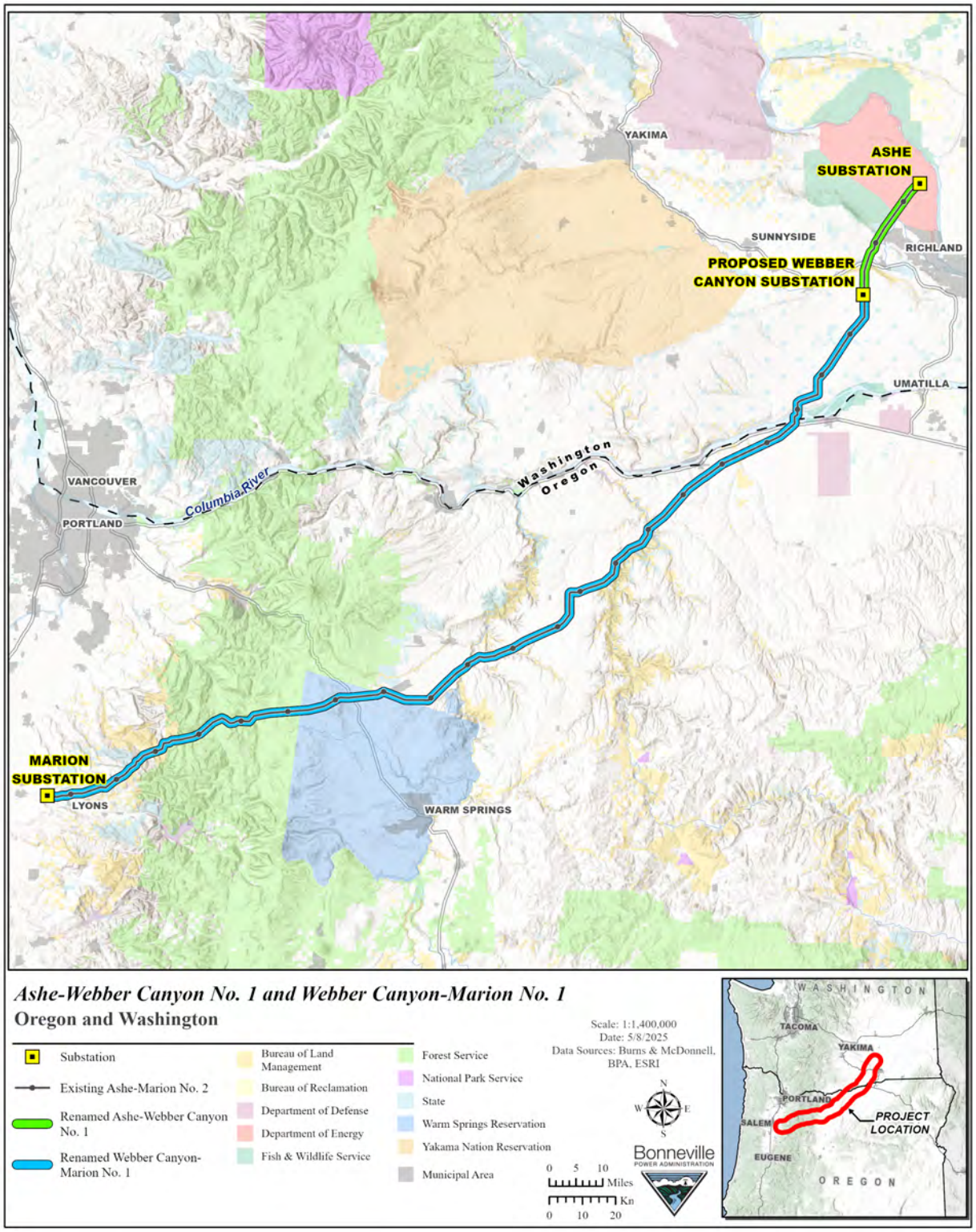


Figure 2-2: Renamed Circuits on Ashe-Marion No. 2



2.2 Project Components

Table 2-1 summarizes components of the Proposed Action. Some components would vary based on selection of the Railroad or Canal Option while others would not be affected by the choice of route option.

Table 2-1: Project Components

Component	Quantity: Railroad Option	Quantity: Canal Option
New Webber Canyon Substation		
Property acquisition	187.0 acres	187.0 acres
Substation permanent facility footprint	31.4 acres	31.4 acres
Upgrade Benton REA 12.47-kV Distribution Line		
Replace single-pole wood structures	74	74
Modify Badger Canyon Substation		
New two-pole wood transmission structure	2	2
New three-pole wood transmission structure	1	1
Modify Ashe Substation		
Remove three-pole wood transmission structure	1	1
New Webber Canyon-Badger Canyon 115-kV Transmission Line		
Length of new transmission line	18.4 miles	18.0 miles
New two-pole wood transmission structures	131	120
New three-pole wood transmission structures	28	25
Remove wood monopole transmission structures	11	26
Remove steel monopole transmission structures	2	2
New steel monopole structures	11	26
New transmission line right-of-way	208.0 acres	190.0 acres
Modify Ashe-Marion No. 2 500-kV Transmission Line (Ashe-Webber Canyon No. 1 500-kV and Webber Canyon-Marion No. 1 500-kV Transmission Lines)		
Remove double-circuit lattice steel towers	4	4
New double-circuit lattice steel towers	4	4
New single-circuit lattice steel towers (within Webber Canyon Substation)	4	4
Replace signage at base of transmission structures	955	955
Replace aerial markers at top of transmission structures	201	201
New overhead fiber optic cable	Up to 20.5 miles	Up to 20.5 miles

Component	Quantity: Railroad Option	Quantity: Canal Option
New underground fiber optic cable	Up to 5.3 miles	Up to 5.3 miles
New fiber optic wood poles	Up to 250	Up to 250
McNary-Badger Canyon No. 1 115-kV Transmission Line and Kennewick Radio Station Fiber Installation		
New overhead fiber optic cable	10.5 miles	10.5 miles
New underground fiber optic cable	1.3 miles	1.3 miles
New underground fiber optic cable in existing conduit	2.0 miles	2.0 miles
New fiber optic wood poles	Up to 13	Up to 13
Access Road Activities		
Improvements	14.0 miles	11.2 miles
New Construction	16.2 miles	18.6 miles
Permanent Vegetation Removal		
Removal of low-growing vegetation for permanent structures and new access roads	98.0 acres	103.6 acres
Removal of trees within and adjacent to the transmission line ROW	13.3 acres	0.4 acre
Temporary Vegetation Removal		
Removal or disturbance of low-growing vegetation for construction workspaces	325.7 acres	331.9 acres

2.2.1 Substations

Substations serve as hubs in the electrical transmission system that interconnect transmission lines, regulate voltage, and transform voltage to higher or lower levels. The Project includes construction of a new substation to help manage power flows in the Tri-Cities region. Modifications and upgrades at some existing substations are also proposed as part of the Project.

2.2.1.1 New Webber Canyon Substation

The proposed Webber Canyon Substation would be sited on a 187-acre site in eastern Benton County, Washington in the Horse Heaven Hills plateau. The site is adjacent to the 500-kV Ashe-Marion No. 2 transmission line, into which the substation would tie. The property is currently owned by the State of Washington and managed by the Washington State Department of Natural Resources (DNR) and would be acquired by BPA prior to construction of the Project. BPA would construct, own and operate the substation.

The substation would be accessed from County Well Road, which runs along the northern edge of the property. The substation would be set back approximately 0.4 mile from the roadway and a new gravel road would be built from County Well Road to the substation. Approximately 31.4 acres of the site would be developed for the substation and gravel access road.

To build the substation, BPA would grade the site and use fill to level the area. Onsite soil would be reused as much as possible, but if additional fill material is needed, soil would be imported to the site. A wire mesh grounding mat would be placed approximately 18 inches below ground throughout the substation site and covered with a 3-inch layer of rock. Concrete foundations would be built for substation equipment (e.g., **transformers**) and structures (e.g., control house). BPA would build 16- to 20-foot-wide gravel roadways throughout the substation.

The Webber Canyon Substation would include a 500-kV yard and a 115-kV yard. A three-phase transformer bank would convert the voltage of the electricity from the 500-kV Ashe-Marion No. 2 transmission line entering the substation to the 115-kV voltage that would be used on the Webber Canyon-Badger Canyon transmission line. An underground oil containment system would be installed beneath the transformers to capture any oil that could leak from the transformers. The 115-kV yard would include a bay for the Webber Canyon-Badger Canyon transmission line. This yard would also have space reserved for potential future expansion.

The 500-kV yard would include four bays. One bay would serve the incoming 500-kV transmission line from Ashe Substation. A second bay would be able to serve the outgoing 500-kV line to Marion Substation. A third bay would serve the 500-kV Ashe-Slatt No 1. transmission line. The Ashe-Slatt No. 1 transmission line shares transmission structures with the Ashe-Marion No. 2 transmission line and would pass through the substation, though it would not be electrically connected. A fourth bay would connect the 500-kV yard with the 115-kV yard and **reactor bank**.

Nine **power circuit breakers** would be installed in the Webber Canyon Substation to redirect power as needed. The breakers planned for the Project, called gas breakers, are insulated by special nonconducting gas (sulfur hexafluoride [SF_6]). These breakers would contain no oil except for a small amount of hydraulic fluid. The 500-kV yard would also include space for two additional bays that would be reserved for potential future expansion.

The Webber Canyon Substation would include an approximately 12,000 square-foot control house and attached maintenance garage. The one-story control house building would house communication and monitoring equipment and the switches necessary to turn equipment on and off. Underground conduit throughout the substation would be installed to connect yard equipment to the control house. Electrical service for the control house would be supplied by a Benton REA distribution line on County Well Road.

To provide electrical service to the new substation, Benton REA would upgrade 6 miles of its existing 12.47-kV distribution line along County Well Road and Highway 221. The upgrade would consist of replacing the transmission structures and **conductor** to provide three-phase power. BPA would partially fund this upgrade of the existing single-phase distribution line. Temporary ground disturbance associated with this replacement would occur along the 6-mile corridor within the 20-foot-wide ROW. Each new structure would result in an approximately 2-foot-diameter permanent disturbance.

The Webber Canyon Substation control house would include bathroom facilities and a workspace for personnel. A new well and pump house would provide potable water to the control house. A septic tank and drain field would be installed to treat sanitary wastewater from the control house. A rocked parking area to accommodate approximately 10 vehicles would also be built adjacent to the control house. To treat surface water runoff from the facility, BPA would build and maintain a stormwater management system with swales conveying runoff to on-site detention ponds.

Exterior lighting would be installed at the substation for use on the rare occasion when work occurs at night, however in most cases no lights would be visible. The substation would be surrounded by a chain-link fence topped with barbed wire for security. A gated entrance to the parking lot and a second gate on County Well Road would limit access to the substation.

2.2.1.2 Modifications to Existing Substations

The Project would involve modifications to four existing BPA substations—Badger Canyon, Ashe, Marion and McNary—and Benton PUD's Nine Canyon Substation.

Badger Canyon Substation is currently a termination point for five transmission lines (Badger Canyon-Leslie Road No. 1 115 kV, Badger Canyon-Richland No. 1 115 kV, Franklin-Badger Canyon No. 1 115 kV, Franklin-Badger Canyon No. 2 115 kV and McNary-Badger Canyon No. 1 115 kV). To accommodate the addition of the Webber Canyon-Badger Canyon transmission line, BPA would construct a new bay at Badger Canyon Substation.

Circuit breakers, disconnect switches, surge arresters and other equipment for the new bay would be installed at Badger Canyon Substation. Three of the transmission lines that terminate at Badger Canyon Substation would be moved to different bays within the substation to avoid line crossings. Two new 70-foot-tall wood two-pole (H-frame) transmission structures would also be installed inside the substation fence to carry the wires to the new bay. Telecommunications equipment and fiber optic cables would be installed as discussed in Section 2.2.3. A yard expansion would not be needed to accommodate the new dead-end structure or bay addition and line termination reconfiguration, and the work would occur on a previously disturbed and rocked surface.

In addition to the work within Badger Canyon Substation, a new 80-foot-tall, three-pole dead-end wood transmission structure would be constructed outside of the substation fence to serve the relocated Franklin-Badger Canyon No. 1 transmission line termination at the new bay. Temporary ground disturbance associated with construction of this new structure would be 100 feet by 100 feet (0.2 acre). Permanent disturbance associated with the new structure would be 10 feet by 50 feet (500 square feet).

At Ashe Substation, the proposed work would involve changing the connection point for the high-voltage reactor bank. Altering the configuration would provide BPA with greater flexibility for managing the transmission system. After the reactor connection is moved, an existing three-pole transmission structure located outside the substation fence would be removed. The temporary disturbance associated with the removal, which would occur on land where BPA has land rights at the U.S. Department of Energy Hanford Site, would be 50 feet by 50 feet (2,500 square feet). The holes would be backfilled with clean soil as needed. Proposed work at Ashe Substation would also include adding equipment upgrades inside the control house.

At Marion Substation, the existing relays inside the control house would be replaced. The work at McNary Substation and Nine Canyon Substation would also be limited to equipment upgrades inside the control houses.

2.2.2 Transmission Lines

Transmission lines carry high-voltage power between substations. The primary elements of a transmission line are transmission structures, conductors and ground wires. Conductors are the wires that carry electrical current. **Ground wires** or shield wires are small (less than 1 inch diameter) overhead

wires that work in concert with buried aluminum wires, called counterpoise, to protect the conductors by dissipating charges from lightning strikes.

Transmission line structure designs vary based on the electrical voltage and the number of lines that they carry. Transmission line structures are individually numbered by line mile and the sequence of the structures in the line mile for each circuit (e.g., structure 3/4, or "three over four," is the fourth structure in the third mile of the transmission line). The distance between individual structures is called a **span**; the length of a span varies based on a variety of factors including, but not limited to terrain, structure type, and line voltage.

2.2.2.1 Webber Canyon-Badger Canyon Transmission Line

The proposed 115-kV Webber Canyon-Badger Canyon transmission line between the proposed Webber Canyon Substation and Badger Canyon Substation would provide a new source of transmission capacity to the Tri-Cities area. A new 100-foot-wide ROW would be required to build and operate most of the approximately 18-mile-long transmission line. Two routes—the Railroad Option and the Canal Option—are under consideration for the middle segment of the transmission line and are described in detail in Section 2.3. Selection of either option would require BPA to acquire ROW easements for varying amounts of private, state and federal land. The options also involve varying amounts of an existing ROW corridor at the eastern end of the Webber Canyon-Badger Canyon transmission line where the line would share ROW and transmission structures with existing transmission lines. The existing ROW corridor ranges from 65 feet wide to 100 feet wide.

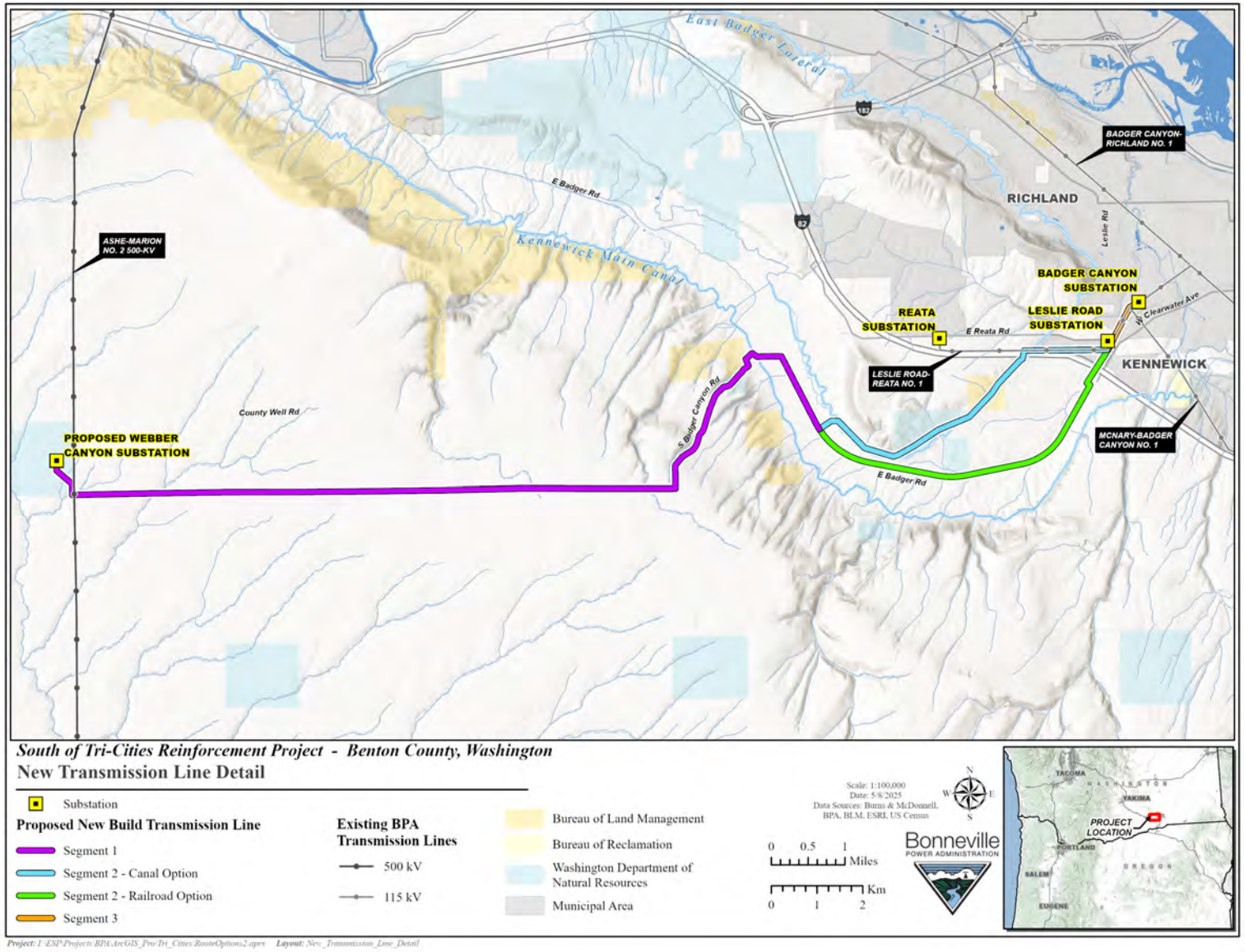
The proposed transmission line route, described below, consists of three segments (shown in Figure 2-3).

Segment 1: The transmission line would begin at Webber Canyon Substation and extend due east for approximately 8.7 miles to South Badger Canyon Road. The transmission line would then continue north, paralleling the east side of South Badger Canyon Road for approximately 2.6 miles to the intersection with East Badger Road. The transmission line would then cross East Badger Road and continue south for approximately 1.2 miles between East Badger Road and the BNSF Railway tracks. Approximately 0.2 mile of Segment 1 (about 2 acres) would cross BLM-managed land.

Segment 2: Segment 2 encompasses the portion of the line for which two routing options are under consideration. The Railroad Option would parallel the railroad tracks and East Badger Road for approximately 5.1 miles. The Canal Option would parallel the Kennewick Irrigation District's East Badger Lateral Canal for approximately 5.2 miles and would include a 1.1-mile-long section in existing BPA ROW with double-circuit steel monopole structures carrying both the existing Leslie Road-Reata No. 1 115-kV transmission line and the new Webber Canyon-Badger Canyon transmission line. Approximately 0.6 mile of the Segment 2 Canal Option (about 7 acres) would cross BLM-managed land.

Segment 3: Beginning at the eastern end of Segment 2, Segment 3 of the transmission line would continue north for 0.8 mile to Badger Canyon Substation. This segment would be constructed in the existing ROW with double-circuit steel monopole structures that would carry the Webber Canyon-Badger Canyon transmission line along with the existing Leslie Road-Reata No. 1 transmission line (south of Leslie Road Substation) and Badger Canyon-Leslie Road No. 1 transmission line (north of Leslie Road Substation).

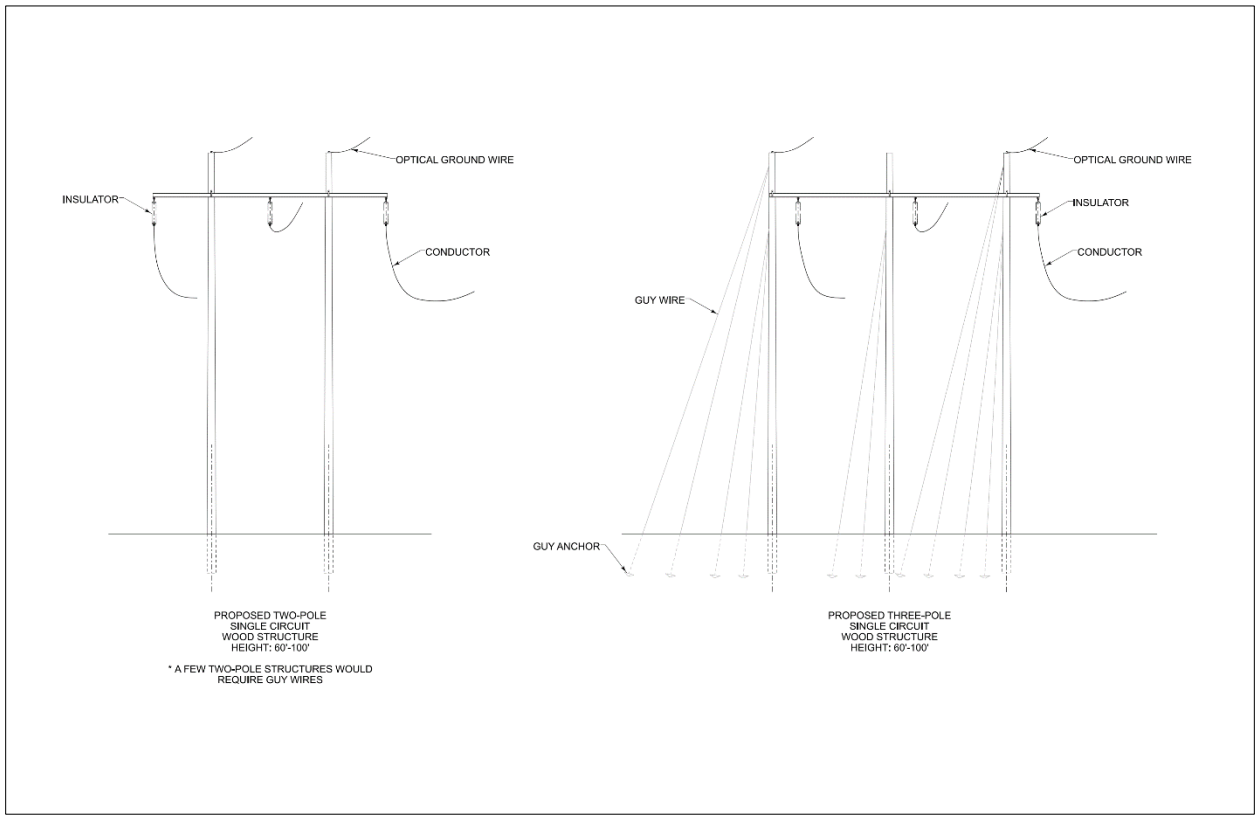
Figure 2-3: Webber Canyon-Badger Canyon Transmission Line Route



The Webber Canyon-Badger Canyon circuit would have three conductors to deliver three-phase power. The NERC and BPA specify the minimum conductor clearance above the ground surface and other features (e.g., streetlights, electrical distribution lines, etc.). The new conductors would adhere to BPA's minimum vertical clearance of 26 feet for new construction of a 115-kV line. Additional conductor-to-ground clearance would be provided over roadways, railroad tracks and canals. Ground wires and counterpoise would be installed along the length of the line. Most of the ground wire would be **optical ground wire**, which is a dual functioning cable designed to replace traditional overhead ground wires with the added benefit of containing optical fibers that can be used for telecommunications purposes.

Most of the Webber Canyon-Badger Canyon transmission line would be supported on single-circuit two- and three-pole wood transmission structures (Figure 2-4). Two-pole structures would be used where the structures are in a straight alignment or where turning angles are small (less than 2 degrees). Three-pole wood structures, which are stronger and provide more support, would be used for larger turning angles (greater than 2 degrees) and at regular intervals along straight sections of the line. Toughened glass or ceramic insulators would be installed on both the wood and steel transmission structures to prevent electricity from moving between the conductors and the structures.

Figure 2-4: Webber Cayon-Badger Canyon Single-Circuit Transmission Structures



The single-circuit wood structures would range in height from 60 to 100 feet, with most between 70 feet and 85 feet tall. Between 145 and 159 wood transmission structures would be installed, depending on the routing option as described in Section 2.3. **Guy wires** that provide additional stability would be installed on some structures as needed and would be attached to guy anchors buried in the ground. The

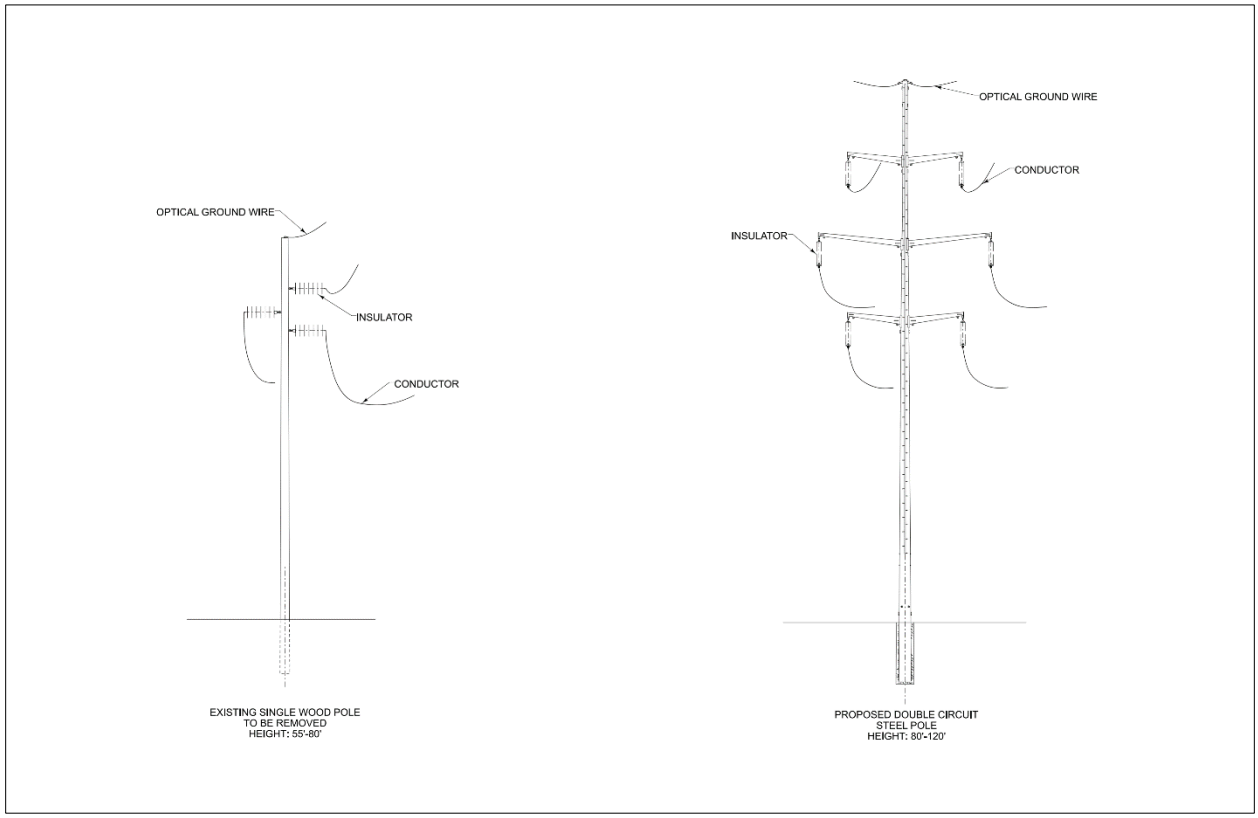
typical span between structures through most of Segment 1, where the topography is flat, would be approximately 700 feet. The typical span between structures in Segment 2 and the eastern end of Segment 1, which traverses a ridgeline, would be 500 to 600 feet.

One single-circuit steel pole would also be required in Segment 2 for the Canal Option, on the south side of Interstate 82. This transmission structure would provide the necessary strength and clearance for the line to cross over the highway. The steel pole would be approximately 95 feet tall.

Double-circuit steel monopole structures would support Segment 3 of the transmission line and part of Segment 2 for the Canal Option (Figure 2-5). Depending on the routing option, between 11 and 26 double-circuit steel monopole structures would be installed. These structures would replace two existing steel monopoles and between 11 and 26 single-circuit wood structures for the Leslie Road-Reata No. 1 and Badger Canyon-Leslie Road No. 1 transmission lines.

The double-circuit steel monopoles would range in height from 80 to 120 feet. The existing single-circuit structures that would be removed range in height from 55 to 80 feet tall. A crane would be used to fully remove the existing wood structures from the ground, which would be hauled away via semi-truck and disposed of at a BPA-approved landfill. Temporary ground disturbance for pole removal would be approximately 50 feet by 50 feet (2,500 square feet) per pole, and the holes would be backfilled with clean soil.

Figure 2-5: Webber Canyon-Badger Canyon Double-Circuit Transmission Structures



Most of the new two-pole and three-pole wood structures would be directly embedded in the ground. Landings would need to be installed for structures proposed on uneven terrain. Most of the engineered steel poles that would be used for the double-circuit segment of the transmission line would also be installed directly in the ground. Steel pole dead-end structures at the substations and large (greater than 2 degree) angle turns would be installed with drilled pier foundations.

Temporary disturbance for transmission structure construction would be approximately 100 feet by 100 feet (0.2 acre) for steel monopoles and 100 feet by 150 feet (0.3 acre) for wood two-pole and wood three-pole structures. If a sensitive resource is present, the temporary work area would be reduced to the extent practicable to avoid impacting the resource. Structures with guy wires would also have a 25-foot-by-25-foot (625-square-foot) temporary disturbance footprint and 3-foot-by-7-foot (21-square-foot) permanent disturbance area for each guy wire anchor. Permanent disturbance would be 8 feet by 8 feet (64 square feet) for a steel monopole, 10 feet by 30 feet (300 square feet) for a wood two-pole structure, and 10 feet by 50 feet (500 square feet) for a wood three-pole structure. A 50-foot-by-50-foot permanent rocked equipment landing would also be built adjacent to each structure to facilitate equipment access during structure construction and maintenance. These landings would be sited to avoid sensitive resources to the extent practicable. Additional temporary ground disturbance associated with stringing transmission line conductors, ground wire and fiber optic cables is discussed in Section 2.2.4 (Temporary Pulling and Tensioning Sites).

Bird flight diverters would be attached to the conductors or optical ground wire (or both) in spans identified as high-risk areas for bird strikes. Transmission structure guy wires would be wrapped in yellow and orange striped high visibility wire guards in these high-risk areas.

2.2.2.2 Ashe-Marion No. 2 Transmission Line

The 228-mile-long Ashe-Marion No. 2 transmission line runs between the Ashe Substation on the Hanford Site in northern Benton County, Washington to the Marion Substation in Marion County, Oregon. The transmission line is supported on double-circuit lattice steel transmission towers. After crossing the Columbia River west of Boardman, Oregon, the Ashe-Marion No. 2 transmission line shares a ROW with multiple transmission lines as it runs southwest across the Columbia Plateau and the Cascade Mountains to the Marion Substation located in the Willamette Valley 20 miles southeast of Salem, Oregon.

To connect the Webber Canyon Substation to the grid, the Ashe-Marion No. 2 transmission line would be split into two circuits at the new substation: the Ashe-Webber Canyon No. 1 500-kV transmission line (Ashe-Webber Canyon No. 1) and the Webber Canyon-Marion No. 1 500-kV transmission line (Webber Canyon-Marion No. 1) (Figure 2-2). Four existing 500-kV lattice steel transmission towers adjacent to the Webber Canyon Substation would be removed. Two of these towers would be replaced with 209-foot-tall double-circuit lattice steel towers and two additional new 206-foot-tall double-circuit lattice steel towers would be installed to direct the circuits to the Webber Canyon Substation. The four new lattice towers would be, on average, 35 feet taller than the existing towers. Within the substation, the termination spans for the Ashe-Slatt No. 1 circuit and the Ashe-Webber Canyon No. 1 and Webber Canyon-Marion No. 1 circuits would be carried on four new 114-foot-tall single-circuit dead-end towers.

BPA would cut the four existing lattice steel towers into pieces and use a crane to deconstruct them. Temporary ground disturbance associated with the removal of the existing lattice steel towers would be

approximately 100 feet by 100 feet (0.2 acre) per tower. Holes would be backfilled with clean soil and the disturbed soil revegetated.

Each of the new double-circuit lattice towers would be installed on four drilled pier type footings. The footings would consist of 6-foot-diameter concrete and steel foundations buried approximately 23 feet deep. The temporary disturbance area around each tower would encompass a 100-foot-by-100-foot (0.2 acre) area.

To maintain consistency with BPA's naming convention of substation-to-substation mile markers, new circuit signage would be required for the Ashe-Webber Canyon No. 1 transmission line and new circuit signage, structure numbers, serial numbers and aerial markers would be required for the Webber Canyon-Marion No. 1 transmission line. Existing signage would be replaced at the base of each of the 115 structures on the Ashe-Webber Canyon No. 1 segment, as well as on the 840 structures on the Webber Canyon-Marion No. 1 segment. Existing access roads would be used to drive to each of the structures in a pick-up truck or all-terrain vehicle (ATV) and signs would be replaced using hand tools. Approximately 15 to 30 minutes would be needed at each structure to complete a sign change. This would involve replacing signs within the existing ROW that crosses private, state, tribal and federal land (Figure 2-2). This includes ROW on the U.S. Department of Energy Hanford Site and lands managed by the U.S. Fish and Wildlife Service (USFWS), U.S. Bureau of Reclamation, U.S. Forest Service, BLM, DNR and the Confederated Tribes of the Warm Springs.

BPA would use helicopters to replace the 201 aerial markers at the top of the first structure in every line mile of the Webber Canyon-Marion No. 1 segment. Approximately 30 minutes would be spent at each structure, with crews expected to complete an average of two aerial sign replacements an hour. Temporary helicopter landing zones would be used for this aspect of the Project.

2.2.3 Fiber Optic Cable

Fiber optic cable is part of a communication system that gathers information about the transmission system and relays commands for controlling power system operations. The fiber optic system consists of overhead and underground fiber optic cable, underground conduit, below-ground concrete vaults, splice enclosures attached to individual transmission structures, fiber optic wood poles and other equipment within substations used to transmit data and information over the system. The Project includes the installation of optical ground wire on the new Webber Canyon-Badger Canyon transmission line as well as the installation of standard fiber optic cable along nearby existing transmission line corridors as a second communication route to create the required system reliability.

Optical ground wire would be installed overhead along the entire length of the proposed Webber Canyon-Badger Canyon transmission line. On the 115-kV McNary-Badger Canyon No. 1 transmission line, approximately 12 miles of fiber optic cable would be installed, most of which would be mounted on the existing lattice steel towers and wood transmission structures. The fiber optic cable on the McNary-Badger Canyon No. 1 transmission line would begin at Badger Canyon Substation and continue to structure 17/6. New fiber optic cable would also branch off the transmission line and continue underground approximately 2 miles in existing buried conduit up a butte known as Jump Off Joe Ridge to BPA's Kennewick Radio Station, which acts as a waypoint between substations and BPA control centers.

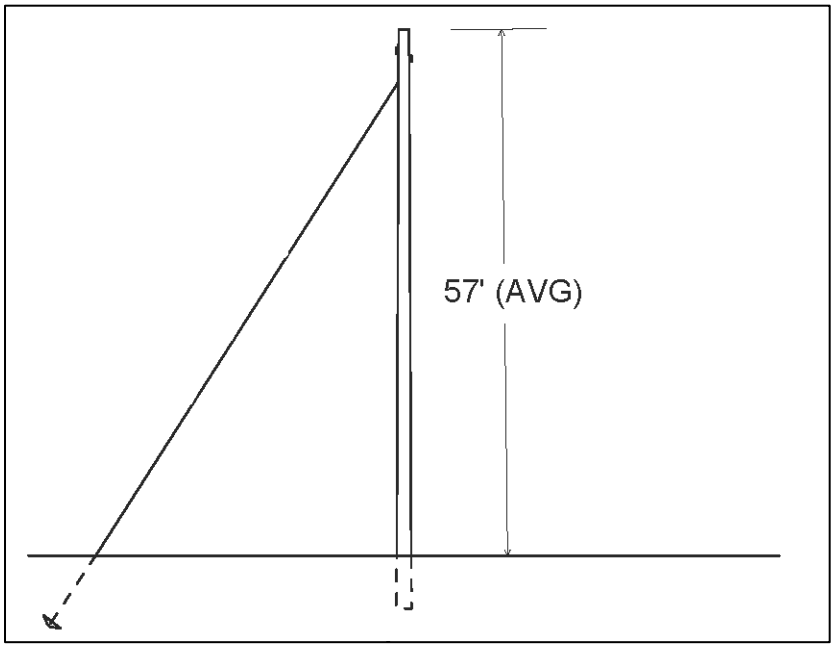
The Project's optical ground wire and standard fiber optic cable would be less than 1 inch in diameter. Optical ground wire attached to the Webber Canyon-Badger Canyon transmission structures would be mounted above the conductors. Standard fiber optic cable attached to the McNary-Badger Canyon No. 1 transmission structures would be mounted below or at the same elevation as the conductors depending on the type of structure. Some of the wood transmission structures on the McNary-Badger Canyon No. 1 transmission line would require reinforcement to support the addition of the fiber optic cable. Between structures 20/6 and 17/6, bracing would be added to 21 structures and guy wires would be added to four structures.

BPA would also install approximately 22 miles of standard fiber optic cable within the existing ROW for the renamed 500-kV Webber Canyon-Marion No. 1 transmission line. This fiber optic cable would be installed as a separate line approximately 45 to 50 feet from the centerline of the 125-foot-wide ROW because the existing lattice steel towers cannot support the additional load of the fiber optic cable. Most of the line would be carried aboveground on new fiber optic wood poles and some sections of the fiber optic cable would be buried underground. The fiber optic cable would begin at the Webber Canyon Substation and terminate at an existing vault next to the McNary-John Day No. 2 transmission structure 23/4, approximately 4 miles north of the Columbia River.

Up to 250 fiber optic wood poles (approximately 12 poles per mile) would be installed parallel to the Webber Canyon-Marion No. 1 transmission line in the 125-foot-wide ROW. The standard fiber optic wood pole would be about 57 feet tall (Figure 2-6). A taller fiber optic wood pole could be used in some areas to provide sufficient clearance for agricultural equipment. In non-agricultural areas, guy wires would be used to support the standard 57-foot-tall structures.

Up to 13 fiber optic wood poles (Figure 2-6) would also be installed on the McNary-Badger Canyon No. 1 transmission line to briefly transition the cable off the transmission structures in two locations. One fiber optic wood pole would be installed to bypass an existing Benton PUD **tap** near tower 25/4 and up to 12 fiber optic wood poles would be installed to bypass tower 24/1, which cannot support the additional load of the cable.

Figure 2-6: Standard Fiber Optic Wood Pole



Each fiber optic wood pole would permanently disturb 16 square feet; a 50-foot-by-50-foot (2,500-square-foot) area would be temporarily disturbed during construction. Adjacent to each new fiber optic wood pole and each transmission structure that would carry fiber optic cable, a 50-foot-by-50-foot (2,500-square-foot) permanent rocked landing would be constructed for equipment access.

BPA would attach bird flight diverters to sections of the overhead fiber optic cable in the Webber Canyon-Marion No. 1 ROW to minimize the risk of bird strikes in high-risk areas. Guy wires on fiber optic wood poles and guy wires added to support existing McNary-Badger Canyon No. 1 transmission structures would be wrapped in yellow and orange striped guy wire guards for increased visibility to reduce bird and terrestrial animal strikes.

Fiber optic cable would be buried in new underground conduit in select locations. This would occur in short (between 0.1 mile and 0.8 mile) stretches as the cable exits substations, the control house at Kennewick Radio Station, as part of the Benton PUD tap bypass described above, and in a few locations where the configuration of existing transmission towers cannot support fiber optic cable attachments. In the Webber Canyon-Marion No. 1 ROW, underground fiber would also be used as needed to avoid placing fiber optic wood poles within crop circles. In total, up to 1.3 miles of new underground conduit would be installed along the McNary-Badger Canyon No. 1 transmission line and up to 5.3 miles of new underground conduit would be installed in the Webber Canyon-Marion No. 1 ROW, though this number may be reduced as designs are advanced.

To install underground fiber optic cable, an excavator would dig trenches that would temporarily disturb approximately 3-foot-wide segments of ground. Fiber optic cable in protective conduit would be placed approximately 5-feet-deep underground in agricultural areas where farming equipment is used, and approximately 40-inches-deep in other areas. Trenches would be backfilled following installation of the conduit and cable and the area would be restored.

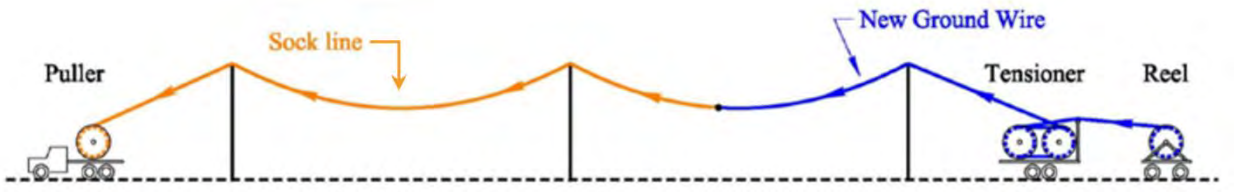
2.2.4 Temporary Pulling and Tensioning Sites

Transmission line conductors, overhead ground wire, and fiber optic cable for the Project would be installed by establishing temporary pulling/tensioning sites. These sites are used for pulling and tightening a section of the conductor, overhead ground wire, or fiber optic cables to the correct tension once they are mounted on transmission line structures. Selected sites can accommodate pulling and tensioning equipment but may first need to be cleared of vegetation and graded (using hand tools, chainsaw, mowers or heavy equipment) to position the equipment.

Temporary pulling/tensioning sites would be located in the ROW where possible. Most of the sites would be approximately 400-foot-by-50-foot wide ahead or behind a structure (approximately 0.5 acre or up to 1 acre if both sides are used). The configuration of these sites would be modified as needed to avoid or minimize impacts to sensitive resources. Ground disturbance may occur from leveling and grading of the pulling and tensioning sites.

After the puller and tensioner equipment is set up, a sock line (usually a rope) would be temporarily strung through all structures on the section using a helicopter or workers on the ground. The tensioner is a large piece of equipment with drums that the new conductor, ground wire or fiber optic cable is fed through to set the proper tension (Figure 2-7). The sock line would be connected to a hard line (typically a small, stranded steel wire), which would be connected to the new conductor or fiber optic cables 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 2-7: Diagram of Typical Stringing Operation



When conductors, wires, and cables are being removed or installed, BPA would set up **guard structures** at road, rail, and distribution line crossings. Guard structures are temporary wood-pole structures with two poles that have a cross arm between the poles. Guard structures are set up to keep conductors, ground wire or fiber optic cable safely above these crossings during installation or removal operations. Guard structures would be removed after the conductors/wires/ cables are strung. BPA may also choose to use a bucket truck with a folding guard arm or similar device instead of the guard structure.

2.2.5 Temporary Staging Areas and Helicopter Landing Zones

Temporary staging areas would be used to store and stockpile construction materials, trucks, and other equipment during construction. Currently, three staging areas have been identified. These include 40 acres at the proposed Webber Canyon Substation site, 4.5 acres at Badger Canyon Substation and 2 acres on East Reata Road. Additional or alternate staging areas may be required during construction and would be evaluated by BPA environmental specialists prior to their use; where feasible, they would be

located in previously-disturbed areas. Staging areas would be sited to avoid impacts to sensitive resources.

Approximately 45 temporary helicopter landing zones would be used for Project construction. Most of the proposed landing zones are in previously cleared areas and would typically occupy 50-foot-by-50-foot areas (2,500 square feet). Light grading may be needed to level the ground surface within the landing zones. Helicopters would be used during stringing of conductor and fiber optic cable, as well as to update the aerial signage on the Webber Canyon-Marion No. 1 transmission line. Helicopter flight paths would follow BPA's ROW when near the Project area.

2.2.6 Access Roads

A mix of existing and new access roads would be used for Project construction and future operations and maintenance (O&M) activities. New access roads would mostly be located within the transmission line ROW, but some would be located outside of it where necessary. BPA would acquire permits or access road easements across public and private land as needed.

Typical BPA access roads are 14 feet wide with an additional 3-foot-wide offset from each side of the road for slopes or drainage ditches. The total disturbance width for typical BPA access roads is approximately 20 feet. When near sensitive resources, access roads may be reduced in width to avoid impacts as much as practicable. BPA's road standards include installations of rock fords, water bars, drain dips and cross drain or stream culverts to manage surface water runoff. For joint-use roads located on public lands, BPA consults with the appropriate management agency regarding road standards.

Access roads fall into the following categories:

- *New construction* is proposed where no roads exist to meet Project needs. Activities would include vegetation removal, road prism shaping, grading, gravelling and installing drainage features (e.g., culverts, waterbars).
- *Improvements* are proposed for existing access roads in need of minor adjustments such as cleaning, shaping, compacting the existing road surface, gravelling or installing drainage features.
- ***Direction of travel routes*** are existing roads or gentle terrain that would be used in their current condition without any improvements or upgrades.

Table 2-2 presents the approximate number of miles of these types of access roads for the Project components.

BPA employs another category of access road work, *reconstruction,* on access roads that have deteriorated to the point of being unusable by construction equipment. Reconstruction can include vegetation removal, road prism reconstruction, grading widening, gravelling and installing drainage features. No access road reconstruction is currently proposed for the Project. As the design is advanced, access road plans may be modified, and changes would be analyzed in the Final EA.

Table 2-2: Project Access Roads by Project Component

Component	Miles of New Construction	Miles of Improvement	Miles of Direction of Travel Routes
New Webber Canyon-Badger Canyon Transmission Line	12.5 – Railroad Option 14.9 – Canal Option	6.0 – Railroad Option 3.2 – Canal Option	1.0 – Railroad Option 1.2 – Canal Option
McNary-Badger Canyon No. 1 and Kennewick Radio Station Fiber Optic Cable Installation	0.7	6.6	11.5
Ashe-Marion No. 2 (Webber Canyon-Marion No. 1) ROW Fiber Optic Cable Installation[a]	3.0	1.4	27.3
Ashe-Marion No. 2 Signage Changes	0	0	437.4
Total	**16.2 - Railroad Option** **18.6 - Canal Option**	**14– Railroad Option** **11.2– Canal Option**	**477.2 – Railroad Option** **477.4 – Canal Option**

[a] *Some access roads used for fiber optic cable installation would also be used for Ashe-Marion No. 2 signage changes.*

2.2.7 Vegetation Clearing

BPA would remove all tall-growing vegetation from the Webber Canyon-Badger Canyon transmission line ROW at the time of construction. All vegetation over 4 feet would typically be removed depending on the species and specific construction, operation or mitigation requirements. All vegetation in construction areas for substations and for access roads, pulling sites and staging areas outside of the ROW would be disturbed or removed.

Any tree outside of the transmission line ROW deemed a present or future hazard to a transmission line is considered a danger tree and would be removed prior to construction of the transmission line. A danger tree is a tree that could fall into, bend into or grow into the conductor or be close enough to the conductor as it swings to cause a flashover of current from the conductor.

2.2.8 Anticipated Construction Schedule

The construction schedule for the Proposed Action 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. In addition, several of the construction steps would need to occur during transmission line outages. Therefore, the scheduling and sequencing of construction would be based in part on when transmission line outages could be scheduled in the Tri-Cities load area. Project construction is proposed over a 2.5-year period. The anticipated schedule for the major components of the Project are as follows:

- Webber Canyon Substation: Winter 2025/2026 through Spring 2028
- Badger Canyon Substation: Spring 2026 through Spring 2028
- Webber Canyon-Badger Canyon No. 1: Winter 2026/2027 through Winter 2027/2028
- McNary-Badger Canyon No. 1 Fiber Optic Cable: Summer 2026 through Winter 2027/2028

- Ashe-Marion No. 2 500-kV Transmission Line Modifications and Webber Canyon-Marion No. 1 Fiber Optic Cable Installation: Winter 2026/2027 through Spring 2028

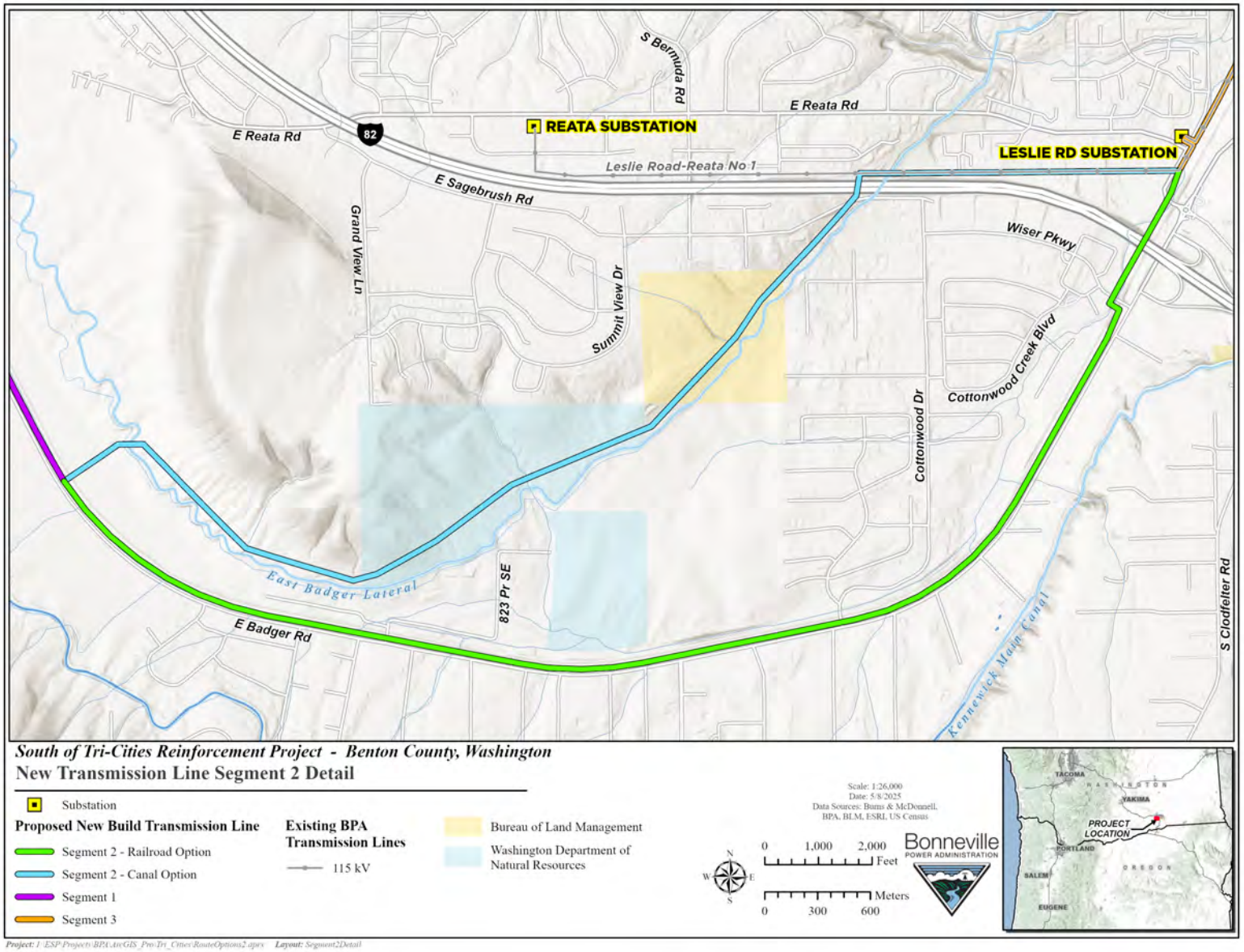
2.2.9 Maintenance Activities

Maintenance activities that occur within transmission line ROWs typically fall into three categories: vegetation management, equipment inspection and repairs and replacement. BPA's Transmission System Vegetation Management Program requires trimming or removing trees and shrubs that currently interfere or could interfere in the future with lines or transmission structures. Routine vegetation management occurs every 3 years in the Tri-Cities area. Equipment inspection generally occurs twice yearly but may be modified depending on weather conditions or other external factors (e.g., reported vandalism). Inspections are typically conducted on foot, via helicopter or with vehicles (trucks, ATVs). The primary purpose of these inspections is to ensure that poles, wires and other infrastructure are in good working condition. Repairs and sometimes full replacement of structures or their components (e.g., insulators) can be required anywhere in the ROW as needed.

2.3 Transmission Line Routing Options

BPA is considering two route options for Segment 2 of the proposed Webber Canyon-Badger Canyon transmission line (Figure 2-8). There are no route options for Segments 1 and 3 (these line segments are described in Section 2.2.2.1).

Figure 2-8: Webber Canyon-Badger Canyon Segment 2 Route Options



2.3.1 Railroad Option

With the Railroad Option, Segment 2 of the transmission line would parallel East Badger Road between the roadway and the BNSF Railway tracks. Approximately 5.7 miles east of the East Badger Road and South Badger Canyon Road intersection, the transmission line would cross the railroad tracks south of Wiser Parkway. The transmission line would then parallel the railroad tracks on the north side of the tracks, continuing north across Interstate 82 and Leslie Road. The transmission line would join the Leslie Road-Reata No. 1 line ROW south of Leslie Road Substation near existing structure 1/3. The Railroad Option for Segment 2 would be approximately 5.1 miles long.

Overall, the total length of the Webber Canyon-Badger Canyon transmission line with the Railroad Option would be 18.4 miles. BPA would acquire approximately 208 acres of new ROW to build, operate and maintain the transmission line. This includes approximately 200 acres of ROW across privately-owned lands, including land held by BNSF Railway, 4 acres of ROW across DNR-managed lands, 2 acres of ROW across BLM-managed lands and 2 acres of ROW across Benton County land.

As listed in Table 2-1, BPA would construct a total of 159 new single-circuit wood transmission structures in Segments 1 and 2 of the Webber Canyon-Badger Canyon transmission line with the Railroad Option. This includes 131 two-pole and 28 three-pole structures. In Segments 2 and 3, BPA would replace 11 existing single-circuit wood pole transmission structures and two single-circuit steel monopoles with 11 double-circuit steel monopoles.

2.3.2 Canal Option

With the Canal Option, Segment 2 of the transmission line would cross the railroad tracks approximately 1.2 miles south of the East Badger Road and South Badger Canyon Road intersection. The transmission line would cross the Kennewick Irrigation District's East Badger Lateral Canal and then continue east approximately 5.2 miles, paralleling the north side of the canal. After crossing Interstate 82, the transmission line would enter the ROW of the Leslie Road-Reata No. 1 transmission line near existing structure 2/13 and continue east on double-circuit structures with the Leslie Road-Reata No. 1 transmission line for approximately 1.1 miles. The Canal Option for Segment 2 would be approximately 4.7 miles long.

The total length of the Webber Canyon-Badger Canyon transmission line with the Canal Option would be 18.0 miles. BPA would acquire approximately 190 acres of new ROW to build, operate and maintain the transmission line with the Canal Option. This includes approximately 161 acres of ROW across privately-owned lands, 18 acres of ROW across DNR-managed lands, 9 acres of ROW across BLM-managed lands and 2 acres of ROW across Benton County land.

As listed in Table 2-1, BPA would construct a total of 145 new single-circuit wood transmission structures in Segments 1 and 2 of the Webber Canyon-Badger Canyon transmission line with the Canal Option. This includes 120 two-pole and 25 three-pole structures. In Segments 2 and 3, BPA would replace 26 existing single-circuit wood pole structures and two single-circuit steel monopoles with 26 double-circuit steel monopoles. Longer spans between some of the structures would allow for the reduction in the number of structures.

2.3.3 Preferred Routing Option

BPA is evaluating the two route options for Segment 2 of the Webber Canyon-Badger Canyon transmission line, and BPA's preferred routing option at this time is the Railroad Option.

As part of the Proposed Action, both the Railroad Option and the Canal Option would serve to meet the purposes of providing a safe and reliable transmission system that meets NERC standards and BPA customer obligations. The two route options would differ in terms of their cost effectiveness and effects on the natural and human environment.

Considerations in the identification of a preferred route option include the environmental effects identified in this EA; length of the routes; existing road infrastructure; number of rail, river and highway crossings; geographic features; non-standard design applications; proximity to existing homes and planned development; number of road and ROW easements; public input; and constructability. For some of these factors, no substantial difference is anticipated between the two options. The Railroad Option would likely present more constructability challenges due to existing infrastructure in the corridor and potential helicopter flight path restrictions during construction. However, the Railroad Option is favorable in terms of other cost effectiveness considerations, specifically, it would require 2.4 fewer miles of new access roads and 15 fewer engineered steel monopole transmission structures than the Canal Option (see Table 2-1).

Analysis of impacts to the natural and human environment from the Proposed Action, with consideration of the impacts specific to the two route options, is detailed in Chapter 3. Notably, the Railroad Option's co-location in an existing infrastructure corridor is expected to have lower vegetation and wildlife impacts than the Canal Option's route through a relatively large area (680 acres) of high-quality shrub steppe habitat (see Sections 3.2.2.2 and 3.5.2.2). Additionally, easements for access roads and ROW would be required from more private landowners with the Canal Option and most of the public comments received during the scoping phase of the Project expressed a preference for the Railroad Option.

2.4 No Action Alternative

Under the No Action Alternative, BPA would not build the Webber Canyon Substation, build the Webber Canyon-Badger Canyon transmission line, modify Badger Canyon Substation, install fiber optic cable along the McNary-Badger Canyon No. 1 or Ashe-Marion No. 2 transmission lines or construct or improve associated access roads. The Ashe-Marion No. 2 transmission line would not be modified to interconnect at Webber Canyon Substation and there would be no associated sign replacements on the transmission structures. The Tri-Cities load area would not have improved transmission capacity to address load growth and the reliable delivery of power would continue to be at risk from unplanned line or substation outages that could lead to a loss of power to the area during periods of peak demand.

2.5 Alternatives Considered but Eliminated from Detailed Study

BPA initially considered several potential alternatives to the Proposed Action when exploring ways to increase the long-term electrical capacity of its transmission system in the Tri-Cities load area and to address reliability concerns and anticipated increased demand.

2.5.1 Non-Wires Alternative

BPA transmission planners studied the extent to which non-wires measures could potentially address the identified reliability problems in the Tri-Cities load area. Non-wires measures could include voluntary customer actions to reduce or shift electricity usage (demand response), voltage reduction, energy efficiency and energy storage. BPA found that there were some limited opportunities to adjust the demand on the system in the Tri-Cities load area through non-wires measures. However, in an event where transmission line outages occur during peak demand, these measures would be insufficient to prevent transmission line overloads due to the underlying transmission constraints in the Tri-Cities load area. BPA concluded that there was not a feasible, cost-effective way to employ batteries, demand response or other non-wires solutions at the scale needed to address this risk of overloading and potential service interruptions and thus, this alternative was eliminated from detailed study in this EA.

2.5.2 Roza Substation and Roza-Red Mountain Line Alternative

BPA initially considered an alternative that, like the Proposed Action, would have included building a new 500-kV substation with a 500-kV/115-kV transformer and adding a new 115-kv circuit requiring the replacement of existing transmission structures leading to the existing Red Mountain Substation. The new substation site for this alternative was a 41-acre BPA-owned property northeast of Benton City, Washington, at the intersection of East Roza Road and West Acord Road. This “Roza” property is directly under the 500-kV Ashe-Marion No. 2 and Ashe-Slatt No. 1 transmission lines.

This alternative would not have brought power directly to the Tri-Cities population centers. Transmission lines between Red Mountain Substation and Badger Canyon Substation are already at capacity. Therefore, to transmit the power to Badger Canyon Substation for subsequent distribution, BPA would have needed to lease capacity from local utilities. This option would have required the local utilities to become Transmission Providers, which entails greater regulations, reporting requirements and ongoing expenses to BPA.

Constructing a new transmission line from the Roza Substation site would have required replacing 6 miles of existing single-circuit structures for the 115-kV Grand View-Red Mountain No. 1 transmission line with double-circuit structures. This may have also required ROW expansions that would impact residential properties. Additionally, the presence of several existing taps on the 115-kV Grand View-Red Mountain No. 1 transmission line would have made interconnecting a new transmission line in this location technically difficult because taking the transmission line out of service for construction would impact the loads served by the taps.

Additionally, BPA determined that the amount of buildable space on the potential Roza Substation property was limited due to it being bordered on the west by Corral Creek and bisected by East Roza Road. These features would limit opportunities to expand the Roza Substation to provide access for potential future load or generation interconnections and is further from where these types of interconnections are given regional growth patterns and current interconnection requests.

Due to the constraints inherent to the substation site and the transmission line corridor and the potential that the alternative would not address the Project Need to add capacity where it is most in demand, this alternative was eliminated from further detailed analysis in this EA.

2.5.3 Webber Canyon Substation Site Alternative

BPA also considered an alternative site for Webber Canyon Substation that could be built with a 115-kV transmission line to Badger Canyon Substation. The alternative site is located on the north side of Sellards Road, adjacent to the east side of the 500-kV Ashe-Marion No. 2 transmission line. Compared to the Proposed Action, this site would have required a longer transmission line route to the Badger Canyon Substation. This site was eliminated from further study in the EA because it would likely result in higher costs, more ground disturbance and commensurate environmental effects when compared to the Proposed Action.

2.5.4 Webber Canyon-Badger Canyon 115-kV Line Route Alternatives

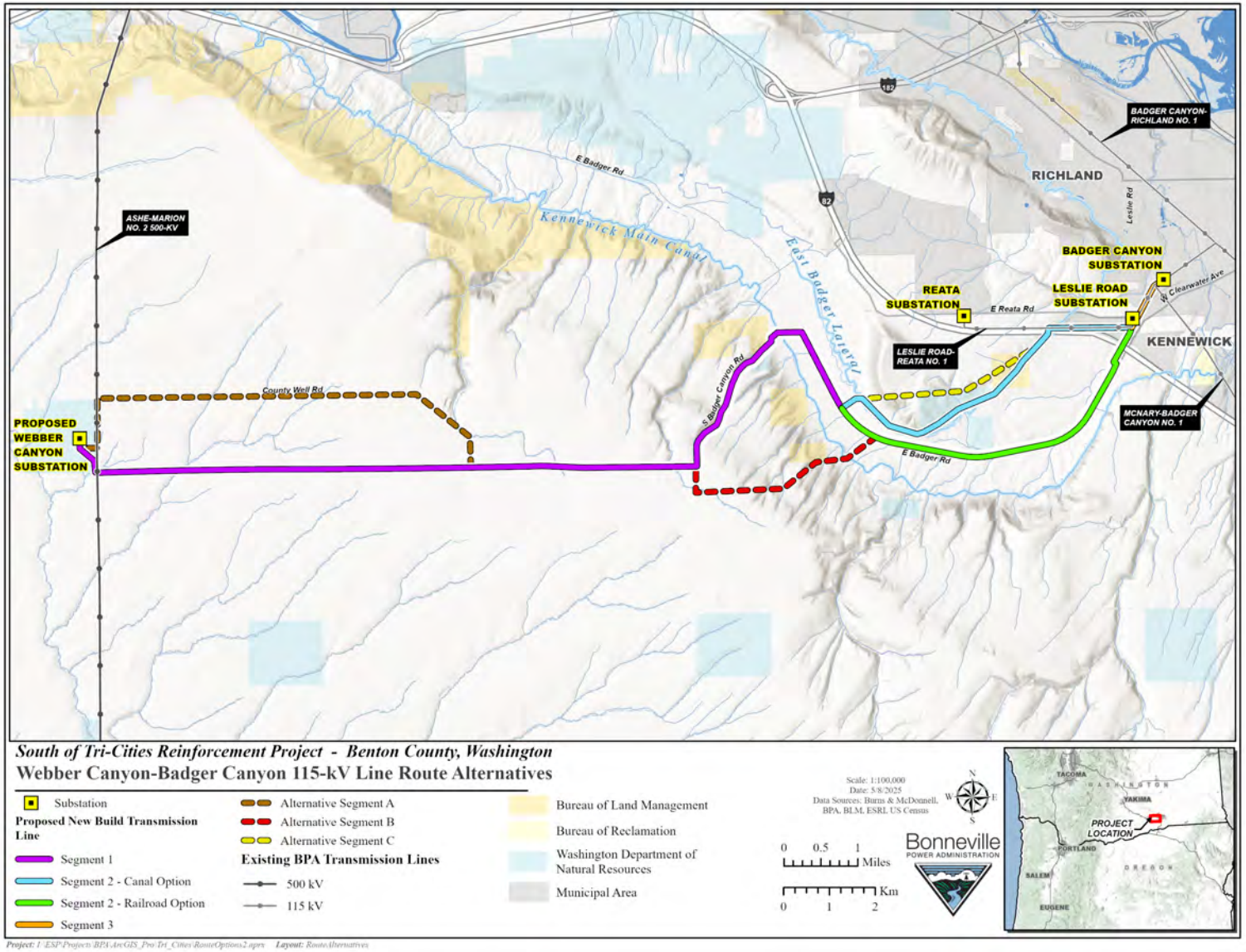
BPA initially considered several transmission line routes between Webber Canyon and Badger Canyon substations before advancing the Proposed Action with the Railroad and Canal routing options for further study. The route segments eliminated from further study in this EA (shown on Figure 2-9) include:

- For the western end of Segment 1, BPA considered routing the transmission line from Webber Canyon Substation east along County Well Road to Travis Road (alternative route Segment A on Figure 2-9). This alternative was dismissed in part because County Well Road already supports an existing distribution line, and additional infrastructure development and road widening is anticipated. This route is also 1.1 miles longer than Segment 1 of the Proposed Action and would have required more angle points. These factors would make this alternative more expensive to build and would involve more ground disturbance and commensurate environmental effects when compared to the Proposed Action. Therefore, this route was eliminated from further detailed analysis in this EA.

- For the eastern end of Segment 1, BPA considered a more southerly route that would have intersected with East Badger Road immediately north of South Sunset Meadow Loop (alternative route Segment B on Figure 2-9). This route was eliminated because it would have traversed a steeper ridge, placed the transmission line closer to existing neighborhoods and required more access road construction than Segment 1 of the Proposed Action, which parallels South Badger Canyon Road. This alternative would have more ground disturbance, property impacts and higher costs than the Proposed Action. Therefore, this route was eliminated from further detailed analysis in this EA.

- For Segment 2, BPA considered a route that, like the Canal Option, would have crossed the Kennewick Irrigation District's East Badger Lateral Canal and proceeded due east (alternative route Segment C on Figure 2-9). BPA advanced the Canal Option and eliminated this option from detailed analysis because the transmission line would have been closer to residences and would have more visual impacts than the Canal Option because it would not be co-located with the existing infrastructure of the canal.

Figure 2-9: Webber Canyon-Badger Canyon 115-kV Transmission Line Eliminated Alternatives



2.6 Comparison of Alternatives

The potential environmental impacts of the Proposed Action and No Action Alternative—based on the analysis presented in Chapter 3 for soils and geologic hazards, vegetation, waterways and water quality, wetlands and floodplains, wildlife, and cultural resources, land use and transportation, noise, public health, and safety, visual quality and recreation—are summarized in Table 2-3. As described in Table 3-1, BPA did not further evaluate the remaining resources because it determined that they were either not applicable to the Project or that the Project would have a very minor or nonexistent impact on them.

Table 2-3: Comparison of the Potential Environmental Impacts by Alternative

Resource	Proposed Action Impacts	No Action Impacts
Soils and geologic hazards	The Proposed Action would permanently disturb up to 104.0 acres for development of the Webber Canyon Substation, transmission line structures, fiber optic cable wood poles, and new access roads. Low-to-moderate soil impacts from soil compaction, reduced soil productivity around structures and along access roads and soil erosion in areas with steep slopes, could remain after mitigation. The Proposed Action would not impact geological resources, and the likelihood of the Project area to be affected by geologic hazards is low.	There would be no impact to soils and geologic hazards.
Vegetation	Up to 104.0 acres of vegetation would be permanently removed and up to 331.9 acres of vegetation may be crushed, removed, grubbed or cut during Project construction. No impacts to ESA-listed or sensitive plant species are anticipated; ground disturbing activities in Oregon would be limited to previously disturbed or developed areas. With the Railroad Option, 13.3 acres of trees would be removed within and immediately adjacent to the transmission line ROW; 0.4 acre of tree removal is anticipated with the Canal Option. Temporary impact areas would be revegetated with an appropriate native groundcover (or a landowner-requested groundcover) to prevent erosion and to limit the introduction of undesirable plant species. Implementing construction best management practices (BMPs) such as vehicle inspections and equipment-cleaning measures, would avoid and minimize the introduction and spread of undesirable plant species within the Project area. Overall, vegetation related impacts would be low due to the majority of the impacts occurring in previously disturbed, cultivated croplands.	BPA would continue to manage vegetation within the existing ROW for the McNary-Badger No. 1 and Ashe-Marion No. 2 transmission lines, resulting in low to no impacts.
Waterways and water quality	Impacts to streams would be avoided due to Project design features such as spanning stream crossings and careful structure placement. Temporary impacts to up to approximately 1,200 linear feet of streams could occur from installing underground fiber optic cable conduit and in the form of increased sediment and turbidity resulting from access road work and temporary work areas. These activities are expected to cause low impacts because these areas would be restored to previous conditions to the extent practicable and most of the streams are intermittent. Low impacts to groundwater quality and recharge rates could occur as	There would be no new impacts to waterways or water quality.

Resource	Proposed Action Impacts	No Action Impacts
	the 31.4-acre Webber Canyon Substation footprint may slow the rate at which precipitation percolates below the soil surface.	
Wetlands and floodplains	Impacts to wetlands would be low because impacts would be relatively small and may be avoided altogether pending final design of the Project. Temporary work areas would disturb approximately 0.7 acre of wetlands. A steel monopole proposed for Segment 3 of the Webber Canyon-Badger Canyon transmission line and landings for equipment access would permanently impact approximately 0.1 acre of wetlands. The Project would have no impact on flood elevations.	There would be no new impacts to wetlands and floodplains.
Wildlife	Temporary impacts to wildlife species are expected to be low as species would likely avoid areas undergoing construction. One ESA-listed species, the northern spotted owl, is known to occupy the Project area within the Mt. Hood National Forest. Signage change activities (the only Project component within northern spotted owl habitat) would occur outside the breeding and nesting season. Additionally, construction activities conducted adjacent to nesting habitats of other species (e.g., migratory birds, ferruginous hawk) could disturb and displace these species if conducted during their breeding seasons. Mitigation measures such as vegetation removal outside of the nesting seasons and pre-construction nesting surveys if tree clearing must be scheduled during the nesting season would reduce temporary impacts on these species to low. Permanent impacts to wildlife species are expected to be low with the implementation of mitigation measures, such as bird flight diverters and guy wire guards.	Low temporary impacts to wildlife from noise and construction disturbance would occur when maintenance activities are required on the Ashe-Marion No. 2 and McNary-Badger Canyon No. 1 transmission lines.
Cultural resources	Impacts to cultural resources (e.g., archaeological sites, historical structures) are being addressed as part of the National Historic Preservation Act (NHPA) Section 106 consultation process. The Section 106 consultation process is ongoing and has included cultural resources studies and consultation with tribes, Washington Department of Archaeology and Historic Preservation (DAHP) and the Oregon State Historic Preservation Office (SHPO). Impacts on cultural resources generally are rated as low throughout the Project area based on the completed cultural resources studies. This would include a low impact on a Yakama Nation Traditional Cultural Place that is recommended as eligible for listing on the National Register of Historic Places (NRHP). At present, no other known historic properties will be adversely affected by the undertaking. Additionally, BPA's Post-Review Discovery Plan would be followed during Project construction should previously unidentified cultural resources be encountered during Project construction.	There would be no-to-low impacts to cultural resources resulting from the ongoing maintenance of the Ashe-Marion No. 2 and McNary-Badger Canyon No. 1 transmission lines.
Land use and transportation	BPA would change the current agricultural land use of a 187-acre parcel for development of the Webber Canyon Substation. Most of the soils at the substation site are categorized as prime farmland if irrigated; their removal from agricultural use would have a low impact on agriculture in the region due to the quantity	There would be no impact to land use. Vehicle trips associated with ongoing maintenance of the Ashe-Marion No. 2 and McNary-

Resource	Proposed Action Impacts	No Action Impacts
	of soils in Benton County that are categorized as prime farmland if irrigated (more than 364,000). BPA would also obtain up to 208 acres in easements for a 100-foot-wide ROW for the Webber Canyon-Badger Canyon transmission line. Construction activities would temporarily limit land use within the ROW and in other temporary work areas resulting in moderate temporary impacts on landowners. Low to no permanent impacts to agriculture uses would occur from the installation of fiber optic cable along the Webber Canyon-Marion No. 1 ROW. Temporary interruptions to agricultural uses could occur during installation of the fiber optic cable, resulting in low to moderate impacts, depending on the timing of construction. Permanent impacts would be moderate because the Proposed Action would convert land for the new substation, access roads and transmission structures and would limit landowners' potential activities and development within the new ROW. Temporary traffic delays during conductor stringing could occur where the Webber Canyon-Badger Canyon transmission line crosses Interstate 82 and other local roads. Implementation of traffic control plans would mitigate traffic impacts to low. Once constructed, permanent impacts of the Project would be low.	Badger Canyon No. 1 transmission lines would continue, resulting in low transportation impacts.
Recreation	During construction, temporary access closures could occur in portions of Amon Creek Natural Preserve, which is located in Richland, Washington adjacent to the Badger Canyon Substation. Recreational use of portions of the BLM- and DNR-managed lands crossed by the Webber Canyon-Badger Canyon would also be temporarily restricted for approximately 4 to 6 weeks during construction. Temporary noise and dust from construction vehicles, machinery and helicopters could also disturb visitors. These temporary impacts would be moderate due to the availability of other local natural areas. Signage changes on the Webber Canyon-Marion No. 1 transmission line in and near public recreation areas would result in low temporary impacts resulting from short-duration (approximately 30 minutes per structure, 1 to 2 days per landing zone) helicopter noise and noise associated with ground level signage changes; no to low temporary impacts would result from ground level signage changes on the Ashe-Webber Canyon No. 1 transmission line.	There would be no new impacts to recreation.
Noise, public health, and safety	Permanent noise impacts from the Project would be low because the proposed transmission line and substation would generate very low levels of noise and modifications to existing infrastructure would not noticeably alter existing noise levels. Temporary construction noise impacts from helicopters and heavy equipment would be low to moderate, depending on proximity to noise sensitive areas. Noise-sensitive areas within 400 feet of construction sites could be exposed to daytime noise levels of 77 on the A-weighted decibel scale (dBA), which is similar to the noise level produced by a coffee grinder.	There would be no new noise impacts. Long term potential impacts to public health and safety could be moderate if prolonged power interruptions occur due to a lack of reinforcement. Power interruptions could potentially put public safety agencies, health providers

Resource	Proposed Action Impacts	No Action Impacts
	With the implementation of construction BMPs, the likelihood of fire ignition is low. The Webber Canyon-Badger Canyon transmission line electric field levels would be within the BPA design limits and the magnetic fields would decrease quickly with distance, approaching common ambient levels within 200 feet as shown in Figures 3-1 and 3-2. Public health and safety impacts would therefore be low.	and businesses that rely on a steady source of power at increased risks of service disruptions.
Visual quality	The proposed Webber Canyon Substation would have a low to moderate visual impact due to the proposed location and relatively low number of viewers in the area. The Webber Canyon-Badger Canyon transmission line would have moderate visual impacts because of its crossing of the Horse Heaven Hills ridgeline, a local scenic asset, and proximity (in Segment 2) to sensitive viewer groups. Fiber optic cable installation and signage changes along existing transmission lines, as well as modifications at existing substations, would result in low visual impacts because the visual character would remain similar to existing conditions.	There would be no new impacts to visual quality.

2.7 Best Management Practices and Mitigation Measures

BMPs and Mitigation Measures	Geology and Soils	Vegetation	Waterways and Water Quality	Wetlands and Floodplains	Wildlife	Cultural Resources	Land Use and Transportation	Recreation	Noise, Public Health and Safety	Visual Quality
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. Design and construct access roads to minimize drainage from the road surface directly into surface waters, size new and replacement culverts (if required) large enough to accommodate predicted flows and size and space cross drains and water bars properly to accommodate flows and direct sediment-laden waters into vegetated areas.	●	●	●	●						
Separate cropland topsoil from substrate for reuse after disturbance.	●	●					●			
Promptly mulch disturbed areas after construction activities are complete and re-seed at the appropriate time period for germination. Use a native seed mix or a landowner requested groundcover. Restore areas to pre-construction or better condition.	●	●								●
Ensure that all imported rock, soil, road fill materials and erosion control materials stockpiled on BLM-managed lands have proof of weed-free certification that meets North American Invasive Species Management Association Weed-Free certification standards. Use weed free materials for all sites.		●								●
Select erosion control materials that are appropriate for windy conditions in the Tri-Cities area (e.g., blankets and hydromulch instead of straw).	●	●								
Equip all vehicles with basic fire-fighting equipment, including extinguishers and shovels, to prevent fires that could harm native vegetation and result in disturbed areas that could be vulnerable to colonization by noxious weeds.		●							●	
Avoid spreading spoils in sensitive areas. Replace augered soils in structure holes, remove from sensitive areas and either deposit at the base of a nearby transmission line structure that is not in a sensitive area or dispose of off-site.		●								

BMPs and Mitigation Measures	Geology and Soils	Vegetation	Waterways and Water Quality	Wetlands and Floodplains	Wildlife	Cultural Resources	Land Use and Transportation	Recreation	Noise, Public Health and Safety	Visual Quality
Use vehicle and equipment cleaning stations (or commercial car washes) to minimize the introduction and spread of weeds during construction by cleaning vehicles and equipment prior to entering and as soon as possible after leaving each work area.		●								
On BLM-managed lands, follow the Spokane BLM Border Field Office Standard Botanical Resource Project Design Features and Stipulations (BLM 2025) and the Standard Operating Procedures in Appendix C-2 of BLM's *Spokane District Programmatic Noxious Weed & Invasive Plant Management Environmental Assessment* (BLM 2018). This includes the following: • If BLM sensitive plant species are identified within the Project area, BPA would avoid and minimize impacts to the extent practicable. • BPA would prepare and implement a BLM-approved Pesticide Use Proposal before any use of herbicides on BLM-managed lands.	●	●	●	●	●	●	●	●	●	●
Prepare and implement a U.S. Forest Service-approved Pesticide Use Plan for noxious weed control at helicopter landing zones in the Mt. Hood National Forest.		●	●	●						
Control noxious weeds manually, mechanically and/or chemically as recommended for each species, prior to construction, if needed, with a focus on species with small, contained infestations to reduce the potential for widespread establishment and the need for long-term management.		●								
Implement a new Spill Prevention Control and Countermeasures (SPCC) Plan for Webber Canyon Substation, an updated SPCC Plan for Badger Canyon Substation and a Stormwater Pollution and Prevention Plan (SWPPP) for the Project in accordance with federal, state and local requirements that addresses erosion and sediment control, fuel and chemical storage, spill containment and cleanup, construction contractor training and proper spilled material disposal activities.		●	●	●	●				●	

BMPs and Mitigation Measures	Geology and Soils	Vegetation	Waterways and Water Quality	Wetlands and Floodplains	Wildlife	Cultural Resources	Land Use and Transportation	Recreation	Noise, Public Health and Safety	Visual Quality
Isolate in-water work area prior to fiber optic cable installation, isolate in-water work area as necessary for construction and to minimize turbidity and do not discharge turbid water to streams.			●		●					
Conduct in-water work for fiber optic cable installation between August 1 and September 30 for tributary of Glade Creek.			●		●					
When tree removal in riparian corridors is necessary, cut trees without disturbing tree roots.	●	●	●	●						
Install signage, fences and flagging to restrict work areas and confine vehicles and equipment to designated routes outside of wetlands, waterways and floodplains where possible.			●	●						
Inspect and maintain access roads and other facilities after construction to ensure proper function and nominal erosion levels.	●		●	●						
Avoid construction or other disturbance within 0.6 mile of active or potentially active ferruginous hawk nests between April 1 and August 15, or until young have fledged.					●					
Deposit all waste products and food garbage from construction sites in covered waste receptacles and remove daily. Transport garbage to a suitable disposal facility.					●					
Cover any construction holes left open overnight to prevent livestock or wildlife from falling in.					●					
If sensitive wildlife species are discovered during construction activities, establish a protective buffer and immediately contact the appropriate federal or state agency.					●					
Install bird flight diverters and high-visibility guy wire guards where the Webber Canyon-Badger Canyon transmission line parallels Scouten Canyon and in other high use areas.					●					

BMPs and Mitigation Measures	Geology and Soils	Vegetation	Waterways and Water Quality	Wetlands and Floodplains	Wildlife	Cultural Resources	Land Use and Transportation	Recreation	Noise, Public Health and Safety	Visual Quality
Attach high-visibility guy wire guards to fiber optic wood poles with guy wires in the Webber Canyon-Marion No. 1 ROW and attach bird flight diverters to the overhead fiber optic cable in high-risk areas for bird strikes.					●					
Attach high-visibility guy wire guards to the guy wires to be installed on select McNary-Badger Canyon No. 1 transmission structures.					●					
Conduct signage change activities along the Webber Canyon-Marion No. 1 transmission line outside of the northern spotted owl breeding/nesting season (March 1 to September 30).					●					
Conduct signage change activities along the Webber Canyon-Marion No. 1 transmission line ROW outside of the eagle nesting season (January 1 to September 30).					●					
If an active eagle nest is discovered, construction activities may not occur within 0.5-mile during the eagle nesting season (January 1 to September 30) or until the nest is no longer active, as determined by a qualified biologist.					●					
Minimize excavation and soil compaction in Townsend's ground squirrel habitat to the greatest extent practicable.					●					
Provide a training to all Project personnel that will cover all mitigation measures, BMPs and procedures for discovering sensitive species.					●				●	
Avoid ground disturbance on BLM-managed land during the migratory bird nesting season, generally March 15 to August 31.					●					
To the extent practicable, schedule tree and other vegetation removal outside of the migratory bird nesting season (March 15 to August 31). If tree clearing is needed during the nesting season, conduct a pre-construction nesting bird survey prior to vegetation removal. If active nests are found, do not remove vegetation until the young have fledged.		●			●					

BMPs and Mitigation Measures	Geology and Soils	Vegetation	Waterways and Water Quality	Wetlands and Floodplains	Wildlife	Cultural Resources	Land Use and Transportation	Recreation	Noise, Public Health and Safety	Visual Quality
Adhere to BPA's Post-Review Discovery Plan. If cultural resources are encountered during Project construction, stop all work within a 30-meter buffer of the find and notify a BPA archaeologist. BPA will contact the DAHP or SHPO, land managers and relevant tribes. If human remains are encountered, the County Coroner and local law enforcement will also be notified.						●				
Minimize ground disturbing activities near cultural resource site boundaries. An archaeological monitor must be present if ground disturbance is proposed within a cultural resource site boundary. Mark sensitive areas in the field for avoidance and brief construction contractors and inspectors on cultural resource-related mitigation measures prior to construction.						●				
Compensate landowners at fair market value for any property/crop damage and any new land rights acquired.							●			
Plan and conduct construction activities to minimize temporary disturbance, displacement of crops and interference with agricultural activities.							●			
On BLM-managed parcels, follow all stipulations of the agency's ROW land grant.							●			
Contact known landowners when a vegetation management or herbicide application is being planned and scheduled to allow landowners to respond to BPA with concerns, questions or directives for herbicide spraying on their property.		●					●		●	
Coordinate the routing and scheduling of construction traffic with Benton County, City of Richland and City of Kennewick public works staff to minimize interruptions to local traffic.							●			
Employ traffic control flaggers and post signs along roads warning of construction activity and merging traffic for temporary interruptions of traffic, where needed.							●			

BMPs and Mitigation Measures	Geology and Soils	Vegetation	Waterways and Water Quality	Wetlands and Floodplains	Wildlife	Cultural Resources	Land Use and Transportation	Recreation	Noise, Public Health and Safety	Visual Quality
Conduct noise-generating construction activities only during daytime hours (e.g., between the hours of 7:00 a.m. to 7:00 p.m., Monday to Friday), to the extent practicable.									●	
Prepare a site-specific Safety Plan before starting construction that specifies how to manage hazardous materials, such as fuel and any toxic materials found in work sites, which includes a Fire Prevention and Suppression Plan; and details how to respond to emergency situations. Keep the Safety Plan on site during construction and maintain and update, as needed.									●	
Install fire retardant pole wraps on the new Webber Canyon-Badger Canyon wood transmission structures and the existing wood transmission structures on the segment of the McNary-Badger Canyon No. 1 transmission line that would be strung with fiber optic cable.									●	
Ensure vehicles are properly maintained. Use sound muffling devices on construction equipment and limit equipment idling.								●	●	
Post a Project construction schedule at Amon Creek Natural Preserve.								●		
Communicate signage replacement plans with managers of potentially affected public recreation areas (identified in Appendix D).								●		

3.0 Affected Environment and Environmental Consequences

This chapter describes the environment and resources that the Proposed Action and No Action Alternative could impact, including the Proposed Action's potential and cumulative impacts on these resources. The analysis for each resource considers impacts to the Project area described below, which includes all land that would be used to construct or maintain (or a combination of both) the Proposed Action. As described in some of the following resource subsections, a larger affected environment area is analyzed for resources that could be impacted by effects extending beyond the Project area, for example, noise or visual disturbances.

The Project area includes:

- Proposed 187-acre Webber Canyon Substation site
- Badger Canyon Substation, Leslie Road Substation, and part of Ashe Substation
- Existing ROW for Badger Canyon-Leslie Road No. 1 transmission line and existing ROW for Leslie Road-Reata No. 1 transmission line between Leslie Road Substation and structure 2/13
- Existing ROW for McNary-Badger No. 1 transmission line between Badger Canyon Substation and structure 17/5
- All structures on the Ashe-Marion No. 2 transmission line
- Existing ROW for the Ashe-Marion No. 2 transmission line between structures 24/2 and 47/1 (includes area for proposed 22-mile Webber Canyon-Marion No. 1 fiber optic cable line)
- Area within 10 feet of the centerline (for a total width of 20 feet) of the 6-mile segment of Benton REA distribution line along County Well Road and Highway 221
- Proposed 100-foot-wide new ROW for Webber Canyon-Badger Canyon transmission line, including the Railroad and Canal Options
- Proposed pulling and tensioning sites, staging areas, helicopter landing zones, fiber optic vault sites and tree and other vegetation removal areas adjacent to proposed ROW
- Area within 25 feet of the centerline (for a total width of 50 feet) of proposed new and improved access roads that are outside of existing ROW

Because the major components of the Proposed Action, including the proposed substation, new transmission line, fiber optic cable installation and substation upgrades outside of control houses would occur within Benton County, Washington, most of the analysis in the following subsections is focused on the Benton County portion of the Project area. Each resource subsection also addresses the affected environment for the signage change component of the Proposed Action—which would occur along the Ashe-Marion No. 2 transmission line (the renamed Ashe-Webber Canyon No. 1 and Webber Canyon-Marion No. 1) in Washington and Oregon (Figure 2-2)—and the potential impacts of the signage changes on the respective resource. Appendix D provides additional analysis of those resources that are present and affected by the proposed signage changes (Fish and Wildlife; Noise, Public Health and Safety; and Recreation). Appendix E provides additional details on the portions of the BLM-managed land through which BPA would request ROW easements for the Project.

Based on the analysis for each resource, impact levels after mitigation measures and BMPs are implemented are characterized as high, moderate, low or no impact. Mitigation measures and BMPs that would help reduce or avoid impacts are identified in Section 2.7.

Table 3-1 identifies resources initially considered for impact analysis. Not all resources present in the Project area are analyzed in detail in Chapter 3 because there would be either no impact or a negligible impact on the resource from the Proposed Action or the No Action Alternative. Resources in Table 3-1 that have a resource status of Present, temporary minor effect or Present, temporary negligible effect were not further evaluated for this EA.

Table 3-1: Resources Initially Considered for Impact Analysis

Resource	Resource Status	Resource Evaluation
Geology and Soils	Present, Affected	Impacts are discussed in Section 3.1
Vegetation	Present, Affected	Impacts are discussed in Section 3.2
Waterways and Water Quality	Present, Affected	Impacts are discussed in Section 3.3
Wetlands and Floodplains	Present, Affected	Impacts are discussed in Section 3.4
Fish and Wildlife	Present, Affected	Impacts are discussed in Section 3.5
Cultural Resources	Present, Affected	Impacts are discussed in Section 3.6
Land Use and Transportation	Present, Affected	Impacts are discussed in Section 3.7
Recreation	Present, Affected	Impacts are discussed in Section 3.8
Noise, Public Health and Safety	Present, Affected	Impacts are discussed in Section 3.9
Visual Quality	Present, Affected	Impacts are discussed in Section 3.10
Air Quality	Present, temporary minor effect by the Proposed Action	Construction of the Proposed Action would result in temporary, localized air quality impacts. The sources of these temporary impacts would include emissions from construction equipment, vehicles, and helicopters, as well as dust from equipment operation and the removal of vegetation. The amount of pollutants emitted from construction equipment, vehicles, and helicopters would be relatively small. The Project contractor would follow an Erosion and Sediment Control Plan with BMPs for reducing fugitive dust during construction. The Project is not within any nonattainment areas that consistently do not meet federal air quality standards (Benton Clean Air Agency 2023 and Oregon Department of Environmental Quality [DEQ] 2023). Project construction impacts would be temporary, relatively minor and would not violate air quality standards or result in significant impacts.
Greenhouse Gases	Present, minor effect by the Proposed Action	Anticipated carbon dioxide equivalent (CO_2e) emissions associated with Project construction activities are estimated to be approximately 10,651 metric tons. Tree removal is estimated to result in the loss of sequestration potential of approximately 10,391 metric tons of CO_2e with the Railroad Option and 320 metric tons of CO_2e with the Canal Option. Annual emissions of

Resource	Resource Status	Resource Evaluation
		approximately 1,216 metric tons of CO_2e are estimated from the potential leak of Sulfur hexafluoride (SF_6) in Webber Canyon Substation breakers and emissions associated with O&M of vehicles and equipment. The temporary emissions associated with Project construction are equivalent to the emissions generated by about 2,484 gasoline-powered passenger vehicles driven for 1 year and the Project's annual emissions are equivalent to the emissions generated by about 289 gasoline-powered passenger vehicles driven for 1 year (EPA 2024a). The Project would increase the Tri-Cities region's resilience to climate variability, as irrigation and air conditioning are drivers of peak electricity demand in the region. Both irrigation and air conditioning demand are expected to increase because of climate variability. By providing an additional transmission source to the region, the Project would improve system capacity and reliability to help meet increasing demand.
Socioeconomic and Public Services	Present, temporary minor effect	Public services in the Tri-Cities region would benefit from the Proposed Action. The Project would provide requested reinforcement to regional utilities. The Project would also reduce the risk of unplanned power interruptions that would otherwise negatively affect the ability of other public service providers, such as hospitals, schools and police departments, to operate. Specialized labor for Project construction would largely be supplied from outside of the region. Construction would provide some economic benefits to businesses providing temporary accommodation and meals to workers, and those businesses would therefore have more money to spend in the local economy, but the overall impact would be small relative to the regional economy. The Ashe-Marion No. 2 ROW passes through the Confederated Tribes of the Warm Springs Reservation and the Project would replace the signage on transmission structures. BPA would also coordinate with the Confederated Tribes of the Warm Springs on siting one of the Project's approximately 45 temporary helicopter landing zones on the Warm Springs Reservation. This proposed landing zone is approximately 0.25 mile from the transmission line ROW and U.S. Route 26 (Warm Springs Highway). A single passenger vehicle would be used to access signs at the bottom of the transmission structures and helicopters would be used to change signs at the top of the structures. No access road construction or improvements would be required, but minor grading could be required at the 50-foot-by-50-foot temporary landing zone site. Potential impacts to archaeological or historic resources on the Warm Springs Reservation are addressed in Section 3.6. Socioeconomic impacts to the Confederated Tribes of the Warm Springs from the Project are expected to be minor and limited to compensation from BPA for the temporary use of land for the helicopter landing zone.

3.1 Soils and Geologic Hazards

3.1.1 Affected Environment

The Proposed Action is in the Columbia Plateau and Cascades physiographic regions. Surface elevation within the Project area ranges from roughly 64 to 5,600 feet above mean sea level. There are 316 unique soil types distributed throughout the Project area. The Project area is comprised mostly of silty, sandy, and gravely loam, with silt loam on low to moderate slopes making up the dominant soil type. High quality agricultural soils, classified by the National Resources Conservation Service (NRCS) as prime farmland, unique farmland and land of unique or statewide importance, constitute 81 percent of the Project area. There are 0.6 acre of prime farmland soils, 737.1 acres of prime farmland soils if irrigated, 255.9 acres of farmland of statewide importance, and 140.1 acres of farmland of unique importance in the Project area (USDA 2024).

Slopes across the Project area range from near zero to more than 30 percent. Soil susceptibility to erosion can be quantified using K-Factor values, one of the five inputs in the universal soil loss equation. The K-Factor value ranges from 0.02 to 0.64 and corresponds to a substrate's susceptibility to erosion. Lower K-factor values indicate soils are less susceptible to erosion (not easily detached) and relatively permeable, whereas higher K-Factor values indicate poor permeability and are highly erodible. Approximately 82 percent of the Project area has a K-Factor value greater than 0.44, which is highly susceptible to erosion (USDA 2024).

The Project area in Benton County does not include any landslide deposits. There are four fault zones across the Project area in Benton County: Columbia Hills fault zone, Horse Heaven Hills fault zone, Rattlesnake Hills faults and Wallula fault zone (Czajkowski and Bowman 2014). These faults are predominantly within areas mapped as National Earthquake Hazards Reduction Program Seismic Class D and areas with low to moderate shaking intensity.

Liquefaction is a process in which loose, granular soils below the groundwater table temporarily lose strength during strong earthquake shaking. Most of the Project area is within areas of bedrock with low-to-moderate liquefaction susceptibility. Moderate-to-high liquefaction susceptibility areas are minimal and limited to portions of the Project area adjacent to or in proximity to ravines, tributaries, or waterways (Washington State Department of Natural Resources 2024).

3.1.2 Environmental Consequences

3.1.2.1 Impacts Common to Both Route Options

The Proposed Action would temporarily disturb up to 325.7 (Railroad Option) or 331.9 (Canal Option) acres of soil and permanently impact up to 111.3 (Railroad Option) or 104.0 (Canal Option) acres of soil. These impacts would result from the construction of the Webber Canyon Substation, the removal and installation of transmission structures, the installation of fiber optic cable, the improvement and construction of access roads and the work areas needed for these actions. Approximately 83 percent (Railroad Option) or 85 percent (Canal Option) of temporary impacts and 85 percent (Railroad Option) or 80 percent (Canal Option) of permanent impacts would occur in areas highly susceptible to erosion.

The proposed construction of the Webber Canyon Substation would result in temporary and permanent soil impacts from cutting, filling, and grading. During Project construction, soil would undergo accelerated compaction from materials storage and equipment and foot traffic. BPA would use deep

foundation techniques, such as over excavation or drilled shafts, to account for moisture-sensitive soils at the substation site. Soil would also be excavated at the substation site for proposed stormwater detention ponds, a septic tank and a well. Excavated soils would be used for overall Project grading where feasible or hauled off-site to an approved disposal facility.

The transmission structure removals and installations under the Proposed Action would result in temporary and permanent soil impacts at structure sites from auguring, grading, construction of landings and vegetation disturbance and removal that would temporarily decrease soil stability. Some of the Webber Canyon-Badger Canyon transmission line structures would require landings, which would permanently compact soils because these areas would continue to be used during transmission line maintenance activities following Project completion. The permanent rocked equipment access landings adjacent to all fiber optic wood poles and the Webber Canyon-Badger Canyon and McNary-Badger Canyon No. 1 transmission line structures in the Project area would also permanently compact soils but would also serve to minimize the extent of erosion from heavy equipment during construction and ongoing maintenance of the transmission lines.

At the proposed Webber Canyon-Badger Canyon transmission structure sites, excess soil removed by the auger would be used as overburden at the base of the poles and spread evenly around the structure sites. In locations where existing transmission structures would be removed, such as Segment 3 of the Webber Canyon-Badger Canyon transmission line, clean fill would be used to backfill holes. Trenching necessary for fiber optic cable installation would temporarily displace soil and remove vegetation from a total of up to 2.4 acres. Conduit with fiber optic cable would be placed in the trenches and backfilled with previously removed soil. Temporary soil compaction from the use of heavy machinery would also occur in staging areas and pulling/tensioning sites used for conductor and fiber optic cable installation. Compaction would gradually ease as vegetation re-establishes, organic matter accumulates and soils regain water absorption capacity.

Ground cleared of vegetation would be susceptible to erosion and establishment of invasive plants. Prompt mulching after construction activities are complete and seeding of exposed soils at the appropriate time period for germination would reduce the potential for erosion from disturbance. Care would be taken to ensure seed is situated in the soil to prevent it from being lost with the wind-erodible portion of soil. Once vegetation establishes, soil erosion would likely cease. Implementing mitigation measures and conducting peak construction work during the dry season would help ensure low impacts to soils from new structure construction and structure replacements.

New wood poles for the Webber Canyon-Badger Canyon transmission line would be pretreated with the preservative 4, 5 Dichloro-2-n-Octyl-4-Isothiazolin-3-One (DCOIT) to lessen wood rot and extend their lifespans. DCOIT preservative has a minor potential to leach from underground portions of poles into adjacent soils or water. DCOIT is expected to have slight mobility and biodegrade if released into soil (National Library of Medicine 2018). If released into fresh water, DCOIT biodegrades to half of its original concentration in 5.5 to 6.4 days (Mahmoodi and Shi 2023). The Environmental Protection Agency (EPA) considers DCOIT to be less toxic than traditional wood preservatives like chromated arsenicals, creosote and pentachlorophenol, which have been found to pose significant health and environmental risks (EPA 2024b).

Soils could be excavated, compacted and subject to erosion from ground clearing, soil piling and use of heavy equipment during access road construction and improvements. Soils disturbed temporarily due to

access road work would be stabilized with the implementation of BMPs and mitigation including reseeding and allowing vegetation to regrow. Improvements on existing roads would not result in a new permanent impact on soils because the roads already exist and soils are already compacted or covered with gravel (or a combination). Access road improvements would include installing water bars, drain dips or new gravel surfacing (or a combination). These features are designed to reduce erosion and minimize impacts on soil and adjacent water bodies. Additionally, erosion and sediment control BMPs would be implemented prior to and during road work.

In total, the Proposed Action would temporarily disturb up to 297.9 acres (Railroad Option) or 297.1 acres (Canal Option) of high quality agricultural soils; no impacts would occur to prime farmland soils. Implementation of mitigation measures, including restoring compacted soils, using BMPs to limit the spread of noxious weeds and separating topsoil in croplands, would minimize temporary impacts to high quality agricultural soils (see Section 2.7). Approximately 9 percent—up to 91.8 acres (Railroad Option) or 102.9 acres (Canal Option)—of high quality agricultural soils in the Project area would be permanently removed for the Webber Canyon Substation, transmission structures, equipment access landings and new access roads. Given the relatively small amount of permanent removal of high-quality agricultural soils relative to the overall quantity in Benton County (approximately 550,000 acres) and measures that would be taken to mitigate temporary construction-related disturbances, impacts to farmland soils would be low to moderate.

Potential soil impacts from the proposed signage changes along the Ashe-Webber Canyon No. 1 and Webber Canyon-Marion No. 1 transmission lines would be limited to the proposed helicopter landing areas. Large, open flat areas were selected for landing areas though some minor grading may be required to ensure a proper landing pad. As such, impacts are expected to be low as most landing zones have been previously cleared and would only be used temporarily.

The Proposed Action would not negatively impact faults or occur in areas of high liquefaction risk. Overall, low-to-moderate soil impacts, including soil compaction and reduced soil productivity around structures and along access roads and soil erosion in areas with steep slopes, would remain after mitigation.

3.1.2.2 Impacts Specific to Route Options

With the Railroad Option, approximately 5.4 acres of soil would be permanently impacted and 23.8 acres of soil would be temporarily impacted for Segment 2 of the Webber Canyon-Badger Canyon transmission line. All temporary and permanent soil impacts would be to high quality agricultural soils. Tree removal along the Railroad Option could result in soil erosion and dust generation. Trees would be removed in a relatively small and flat area (13.3 acres), adjacent vegetation would be left in place, vegetation would grow in areas where tree canopy is lost over time, and BMPs such as leaving stumps in place to minimize soil impacts would be used. Therefore, impacts would be low-to-moderate from tree removal.

With the Canal Option, approximately 10.9 acres of soil would be permanently impacted and 29.9 acres of soil would be temporarily impacted for Segment 2. Approximately 76 percent of temporarily impacted soils and 64 percent of permanently impacted soils would be high quality agricultural soils. Additionally, the Segment 2 Canal Option is routed near the base of moderately steep slopes. The average slope along the route of the Segment 2 Canal Option is approximately 10 percent. The steeper

gradient, coupled with lower vegetation cover in this area and moderate-to-high K-Factor values, makes this option more susceptible to erosion. Tree removal within the Canal Option ROW could also result in soil erosion. Impacts would be low from tree removal because it would be limited to a relatively small and flat area (0.4 acre).

3.1.2.3 No Action Alternative

Under the No Action Alternative, soil disturbance would be limited to ongoing O&M of existing BPA transmission lines in the Project area. No permanent rocked equipment access landings would be built adjacent to the Ashe-Marion No. 2 and McNary-Badger Canyon No. 1 transmission structures, and no substation or other project-specific facilities would be constructed and permanently compact soils. Impacts to highly erodible soils from maintenance equipment operating in these areas would therefore continue to be low.

3.2 Vegetation

3.2.1 Affected Environment

Benton County is within the Columbia Plateau ecoregion, EPA ecoregion Level III, and rests primarily on Columbia River basalt. Windblown silts and volcanic ash cover extensive areas, creating rolling, deep and productive soils. Prehistoric floods scoured some areas of soils and vegetation, leaving the basalt exposed on the surface (EPA 2023b). Approximately 50 percent of the Columbia Plateau ecoregion has been converted to agriculture or development (Washington Department of Fish and Wildlife (WDFW) 2024a). Vegetation in the portion of the Project area in Benton County has been extensively altered by agricultural conversion, grazing, residential development, roads and utility infrastructure.

The portion of the Project area that extends into Oregon through the Columbia Plateau, Eastern Cascades Slopes and Foothills, Cascades and Willamette Valley ecoregions consists of existing transmission structure sites and proposed helicopter landing zones (EPA 2023b). According to the National Land Cover Database, these areas are comprised of land characterized as herbaceous, shrub/scrub, evergreen forest and developed (USGS 2021a). Dominant species in the herbaceous land cover include bluebunch wheatgrass (*Pseudoroegneria spicata*), fescue (*Festuca* sp.) and California oatgrass (*Danthonia californica*) (LANDFIRE 2016, Nature Serve 2024a and Nature Serve 2024b). Dominant species in shrub/scrub land cover include manzanita (*Arctostaphylos sp.*), common juniper (*Juniperous communis*), sagebrush (*Artemisia* sp.) and buckwheat (*Eriogonum* sp.) (LANDFIRE 2016, Nature Serve 2024b, Nature Serve 2024c, Nature Serve 2024d). Dominant species in the evergreen forest typically include ponderosa pine (*Pinus ponderosa*), western hemlock (*Tsuga heterophylla*), Douglas fir (*Pseudotsuga menziesii*), western redcedar (*Thuja plicata*) and bigleaf maple (*Acer macrophyllum*) (LANDFIRE 2016, Nature Serve 2024e and Nature Serve 2024f).

The portion of the Project area in Benton County includes a diverse range of land cover, including cultivated crops, shrub/scrub, herbaceous, emergent herbaceous wetlands and woody wetlands (USGS 2021a). Areas characterized as having shrub/scrub land cover in this area are dominated by big sagebrush (*Artemisia tridentata*) (LANDFIRE 2016, NatureServe 2024g). WDFW classifies sagebrush dominated vegetation communities as shrub steppe habitat, which is a Washington State Priority Habitat due to its significant value to a diverse assemblage of species (WDFW 2023). BLM- and DNR-managed lands in the Project area contain high-quality shrub steppe habitat that is part of large patches of undisturbed habitat surrounding the Project area (approximately 680 acres around the Segment 2

Canal Option and approximately 350 acres around Segment 1 of the Webber Canyon-Badger Canyon transmission line along South Badger Canyon Road). Vegetation in the areas characterized as herbaceous land cover are typically dominated by patchy graminoid cover, cacti, and some forbs or are dominated by nonnative grasses (LANDFIRE 2016, Nature Serve 2024h, Nature Serve 2024i). Wetland delineations took place in 2024 for the Project area in Benton County. Wetlands are further discussed in Section 3.4.

Table 3-2 reports the distribution of land cover that occurs within the Project area.

Table 3-2: Land Cover Within the Project Area

Land Cover[a]	Total Cover in Project Area (Acres)	Percentage of Project Area
Agriculture[b]	532.9 - Railroad 532.7 - Canal	40.2% - Railroad 40.6% - Canal
Developed[c]	161.4 - Railroad 140.1 - Canal	12.2% - Railroad 10.7% - Canal
Herbaceous	201.5 - Railroad 201.5 - Canal	15.2% - Railroad 15.3% - Canal
Forested[d]	32.7 - Railroad 19.8 - Canal	2.5% - Railroad 1.5% - Canal
Shrub/Scrub	393.9. - Railroad 417.1 - Canal	29.7% - Railroad 31.8% - Canal
Wetland Vegetation[e]	2.1 - Railroad 2.1 - Canal	0.2% - Railroad 0.2% - Canal
Total	**1,324.5 - Railroad** **1,313.3 - Canal**	**100% - Railroad** **100% - Canal**

[a] *Source: USGS 2021a*
[b] *Agricultural includes cultivated crops and hay/pasture.*
[c] *Developed includes both landscaped vegetation (e.g., golf courses) and non-vegetated areas.*
[d] *Forested includes deciduous, evergreen and mixed forests.*
[e] *Wetland data, including vegetation, was field verified. All discussions of wetlands and associated vegetation are in Section 3.4.*

3.2.1.1 Sensitive Plant Species

Sensitive plant species include federally threatened and endangered species or species proposed for listing under the ESA, species listed as state endangered by DNR and species designated sensitive by the BLM. The USFWS Information for Planning and Consultation (IPaC) tool identified three ESA- listed sensitive plant species as having the potential to occur in the portion of the Project area in Oregon: Kincaid's lupine (*Lupinus sulphureus* ssp. *kincaidii*), Willamette daisy (*Erigeron decumbens*) and Whitebark Pine (*Pinus albicaulis*) (USFWS 2024a). No ESA-listed plant species identified by IPaC occur within the Washington portion of the Project area. The DNR did not identify any sensitive species for consideration during Project meetings (Nelson, S., pers. comm., DNR, September 8, 2023). The BLM identified two BLM sensitive species that are known to occur near the project area: Piper's fleabane (*Erigeron piperianus*) and woven spore lichen (*Texosporium sancti-jacobi*) (BLM, letter to Border Field Office Field Manager, BLM, February 14, 2025).

3.2.1.2 Noxious Weeds

"Noxious weed" is a legal term meaning any plant officially designated or declared by a federal, state or local agency as injurious to public health, agriculture, recreation, wildlife or property. A list of noxious weed species that are priorities for eradication and spread prevention in Benton County is available for reference from the County Noxious Weed Control Board (Benton County 2024).

Noxious weed surveys were conducted in summer 2024 on the BLM- and DNR-managed parcels that would be crossed by the proposed Webber Canyon-Badger Canyon transmission line, per the request of the agencies. Three Class B noxious weeds were observed along the Canal Option route that intersects DNR parcels including star thistle (*Centaurea solstitialis*), kochia (*Kochia scoparia*) and rush skeleton weed (*Chondrilla juncea*). Kochia and puncture vine (Class B; *Tribulus terrestris*) were observed along the Canal Option route that intersects BLM-managed land. Kochia was observed in a roadside ditch running parallel to South Badger Canyon Road and in three instances on BLM- and DNR-managed land that would be crossed by Segment 1 of the new transmission line. All noxious weeds observed were adjacent to existing dirt roads or along unauthorized bike trails. At the request of the U.S. Forest Service, noxious weed surveys will also be conducted in spring 2025 on helicopter landing zones that would be used in the Mt. Hood National Forest to replace aerial markers on the Webber Canyon-Marion No. 1 transmission line. The results of the survey will be included in the Final EA.

Noxious weeds have the potential to occur in other parts of the Project area; however, most weeds would be confined to areas with previous ground disturbance such as roads, trails and utility corridors. These areas may be more prone to noxious weeds because seeds can be introduced from people, cars and equipment and noxious weeds can establish on exposed, bare soil. Croplands are typically managed for weeds; however, noxious weeds can grow between fields and disturbed areas.

3.2.1.3 Vegetation Specific to Route Options

The dominant land cover along the Canal Option ROW is shrub/scrub (90 percent) (USGS 2021a). As discussed in Section 3.2.1, the dominant species in shrub/scrub is big sagebrush. The dominant land cover types along the Railroad Option ROW are mapped as shrub/scrub (49 percent) and developed (43 percent) (USGS 2021a). The remainders of both route options are comprised of land covers that do not include native vegetation, such as cultivated crops, developed areas and hay/pasture. Field surveys conducted in February 2024 noted that areas within and immediately adjacent to the proposed Railroad Option ROW contain approximately 13.3 acres of Eastern cottonwood (*Populus deltoides*), Russian olive (*Elaeagnus angustifolia*) and Pacific willow (*Salix lasiandra*). Additionally, the Canal Option ROW contains approximately 0.4 acre of Austrian pines (*Pinus nigra*) that were planted as a windbreak.

3.2.2 Environmental Consequences

3.2.2.1 Impacts Common to Both Route Options

Vegetation that would be crushed, removed, grubbed or cut for Project construction is primarily low-growing grasses and shrubs. Permanent removal of vegetation would occur from new access roads, transmission line structures, fiber optic wood poles, landings and the Webber Canyon Substation construction. These activities would permanently convert land to a non-vegetated condition and are reported as permanent impacts in Table 3-3. The new ROW would require vegetation maintenance activities per BPA's Transmission System Vegetation Management Program; however, in Segment 1 and most of Segment 2, this would not result in vegetation conversion because the majority of the

vegetation is comprised of low-growing grasses and shrubs that would not require mowing or cutting to maintain separation from the transmission line. Vegetation management that would result in a permanent conversion in land cover type is counted as a permanent impact in Table 3-3. Segment 3 would be built within an existing ROW that receives regular vegetation maintenance; no vegetation conversion would occur.

Temporary impacts on vegetation would occur from material and equipment staging areas, work areas, helicopter landing zones, pulling/tensioning sites, trenching for underground fiber optic cable, the removal of transmission structures and the improvement of access roads. In these areas, vegetation may be crushed or mowed; however, these areas would be revegetated with an appropriate native groundcover or a landowner- or land manager-requested groundcover to prevent erosion and limit the introduction of undesirable plant species (see Section 2.7). Up to 111.3 acres (Railroad Option) or 104.0 acres (Canal Option) of permanent impacts and up to 325.7 acres (Railroad Option) or 331.9 acres (Canal Option) of temporary impacts would occur from the Proposed Action, depending on which Segment 2 route option is selected (Table 3-3).

Table 3-3: Project Temporary and Permanent Impacts by Land Cover (acres)

Land Cover[a]	Webber Canyon Substation Temporary Impacts	Transmission Lines Temporary Impacts[b]	Access Roads Temporary Impacts	Other Work Areas Temporary Impacts[c]	Total Temporary Impacts	Webber Canyon Substation Permanent Impacts	Transmission Lines Permanent Impacts[d]	Access Roads Permanent Impacts	Total Permanent Impacts
Agriculture	39.1– Railroad 39.1 – Canal	37.3 – Railroad 36.9 – Canal	19.5 – Railroad 19.0 – Canal	89.7 – Railroad 89.8 – Canal	**185.6 – Railroad** **184.8 – Canal**	31.0 – Railroad 31.0 – Canal	11.8 – Railroad 11.9 – Canal	21.3 – Railroad 21.2 – Canal	**64.1– Railroad** **64.1 – Canal**
Developed[e]	2.4 – Railroad 2.4 – Canal	36.7 – Railroad 36.2 – Canal	11.6 – Railroad 7.7 – Canal	16.2 – Railroad 16.2 – Canal	**66.9 – Railroad** **62.5 – Canal**	0.4 – Railroad 0.4 – Canal	4.2 – Railroad 3.4 – Canal	6.7 – Railroad 5.0 – Canal	**11.2 – Railroad** **8.8 – Canal**
Forested	0 – Railroad 0 – Canal	0 – Railroad 0 – Canal	0 – Railroad 0 – Canal	0 – Railroad 0 – Canal	**0 – Railroad** **0 – Canal**	0 – Railroad 0 – Canal	13.3. – Railroad 0.4 – Canal	0 – Railroad 0 – Canal	**13.3 – Railroad** **0.4 – Canal**
Herbaceous	0 – Railroad 0 – Canal	1.3 – Railroad 1.3 – Canal	10.1 – Railroad 10.1 – Canal	0.8 – Railroad 0.8 – Canal	**12.2 – Railroad** **12.2 – Canal**	0 – Railroad 0 – Canal	1.6 – Railroad 1.6 – Canal	0.8 – Railroad 0.8 – Canal	**2.4 – Railroad** **2.4 – Canal**
Shrub/Scrub	0 – Railroad 0 – Canal	30.4 – Railroad 38.7 – Canal	21.0 – Railroad 24.1 – Canal	8.7 – Railroad 8.7 – Railroad	**60.1 – Railroad** **71.5 – Railroad**	0 – Railroad 0 – Canal	11.4 – Railroad 12.9 – Canal	8.5 – Railroad 15.1 – Canal	**19.9 – Railroad** **28.0 – Canal**
Wetland Vegetation[f]	0 – Railroad 0 – Canal	0.7 – Railroad 0.7 – Canal	0.2 – Railroad 0.2 – Canal	0 – Railroad 0 – Canal	**0.9 – Railroad** **0.9 – Canal**	0 – Railroad 0 – Canal	0.1 – Railroad 0.1 – Canal	0.2 – Railroad 0.2 – Canal	**0.3 – Railroad** **0.3 – Canal**
Total	**41.5 – Railroad** **41.5 – Canal**	**106.4 – Railroad** **113.8 – Canal**	**62.4 – Railroad** **61.1 – Canal**	**115.4 – Railroad** **115.5 – Canal**	**325.7 – Railroad** **331.9 – Canal**	**31.4 – Railroad** **31.4 – Canal**	**42.4 – Railroad** **30.3 – Canal**	**37.5 – Railroad** **42.3 – Canal**	**111.3 – Railroad** **104.0 – Canal**

[a] Source: USGS 2021a and field and desktop analysis of land cover.

[b] Includes underground fiber optic cable and the work areas, pulling/tensioning sites and guard structures for Webber Canyon-Badger Canyon transmission line, Benton REA distribution line, McNary-Badger Canyon No. 1 fiber optic cable and Webber Canyon-Marion No. 1 fiber optic cable.

[c] Includes helicopter landing zones, staging areas and work areas at Kennewick Radio Station, Ashe Substation and Badger Canyon Substation.

[d] Includes permanent conversion to a non-vegetated state or a different land cover type.

[e] Developed includes both landscaped vegetation (e.g., golf courses) and non-vegetated areas.

[f] Wetland data, including vegetation, was field verified. All discussions of wetlands and associated vegetation are in Section 3.4.

Permanent vegetation removal from construction of the Webber Canyon Substation (31.4 acres) would not impact native vegetation because the site has been previously disturbed and converted to cropland. Permanent impacts to natural areas (forested, herbaceous, shrub/scrub and wetland vegetation) from the new transmission structures, fiber optic wood poles, landings and access roads would be low because a relatively small amount of natural vegetation (approximately 35.9 acres with Railroad Option or 31.1 acres with Canal Option) would be removed when compared to the area of high-quality habitat with large swaths of native species found on BLM- and DNR-managed lands around the Canal Option.

Overall, vegetation related impacts would be low due to the majority of the impacts occurring in cultivated croplands. Temporary disturbance of herbaceous vegetation would be followed by reseeding with native seed mix as outlined in Section 2.7.

Sensitive Plant Species

No impacts to ESA-listed sensitive plant species are anticipated. Based on the IPaC search, there are three sensitive plant species with the potential to occur in the portion of the Project located in Oregon; however, potential ground disturbing activities in Oregon would be limited to helicopter landing zones, which are proposed within previously disturbed or developed areas. No impacts to ESA-listed or state sensitive plant species are anticipated in the Washington portions of the Project area as no such plant species were identified to occur there. BLM sensitive species plant surveys will occur on BLM-managed land in Spring/Summer 2025 and the results will be provided to BLM. If BLM sensitive plant species are identified within the Project area, BPA would avoid and minimize impacts to the extent practicable, consistent with the Spokane BLM Border Field Office Standard Botanical Resource Design Features and Stipulations (BLM 2025). The Final EA will include the survey results and measures that BPA would take to avoid and minimize impacts to documented sensitive plant species.

Noxious Weeds

Construction activities could introduce or expand noxious weed populations by clearing existing vegetation and exposing soils that would allow noxious weeds to establish. Operating vehicles and equipment may also transport noxious weeds into the Project area. Expanded noxious weed populations could outcompete native vegetation and crop species. By implementing BMPs such as vehicle inspections and equipment-cleaning measures (see Section 2.7), the spread of noxious weed seeds would be reduced. Because the majority of the Project occurs within or adjacent to previously disturbed areas that may already have weeds present, the impacts of introducing noxious weeds to new areas would be low to moderate. If herbicide application is needed on BLM-managed parcels, BPA would follow the Standard Operating Procedures in Appendix C-2 of BLM's *Spokane District Programmatic Noxious Weed & Invasive Plant Management Environmental Assessment* (BLM 2018) and the relevant Spokane BLM Border Field Office Standard Botanical Resource Project Design Features and Stipulations (BLM 2025), including the preparation of a Pesticide Use Proposal for BLM review. If herbicide application is needed at landing zones in the Mt. Hood National Forest, BPA would implement a Pesticide Use Plan that meets U.S. Forest Service standards.

3.2.2.2 Impacts Specific to Route Options

With the Railroad Option, vegetation impacts from Segment 2 of the Webber Canyon-Badger Canyon transmission line and associated access roads would consist of approximately 18.1 acres of permanent vegetation removal and 23.8 acres of temporary vegetation impacts as a result of excavation or crushing. Of those impacts, approximately 15.0 acres of permanent impacts and 10.7 acres of temporary

impacts would be to natural areas (shrub/scrub and forested). The impacts to natural areas would be low since temporarily impacted areas would be revegetated with native species. The permanent impacts associated with the Railroad Option include the removal of approximately 13.3 acres of trees to maintain transmission line clearance. If these trees, which consist of eastern cottonwood, Russian olive and Pacific willow, are cut down and their stumps and roots not removed, they would resprout as a shrub/scrub vegetation community. This scrub/shrub vegetation would likely remain in perpetuity due to BPA's ongoing vegetation management practices along the new transmission line.

With the Canal Option, vegetation impacts from Segment 2 and associated access roads would consist of approximately 10.9 acres of permanent vegetation removal and 30.0 acres of temporary impacts from vegetation crushing and removal via excavation. Impacts specific to natural areas (shrub/scrub and forested) would result in 10.2 acres of permanent impacts and 22.4 acres of temporary impacts. Impacts to natural areas would be low since temporary impact areas would be revegetated with native species. The permanent impacts associated with the Canal Option include the removal of approximately 0.4 acre of landscaped Austrian pine trees to be removed for transmission line clearance.

Since the Railroad Option ROW is co-located in a disturbed corridor between a railroad and East Badger Road, the Railroad Option would have fewer overall impacts to native vegetation communities in the Project area than the Canal Option, which crosses a 680-acre area of high-quality scrub/shrub habitat. Additionally, total impacts to shrub/scrub if the Railroad Option were selected would result in 8.1 fewer acres of permanent impacts and 11.4 fewer acres of temporary impacts than the Canal Option.

3.2.2.3 No Action Alternative

Under the No Action Alternative, O&M activities for the Ashe-Marion No. 2 and McNary-Badger Canyon No. 1 transmission lines would continue. This would include vegetation management in the ROW; maintenance of structures, guy wires and overhead components; and routine inspections of the transmission lines. Under the No Action Alternative, temporary impacts from crushing vegetation would occur when workspaces around structures are required for O&M activities.

3.3 Waterways and Water Quality

3.3.1 Affected Environment

3.3.1.1 Groundwater

The Project is located within the Columbia Plateau Regional Aquifer System, which covers an area of approximately 44,000 square miles within the drainage of the Columbia River (USGS 2021b). Groundwater is the principal water resource in the region and is primarily withdrawn for agricultural irrigation. Groundwater is also the primary source of drinking water for communities in the region.

Wellhead protection areas are surface and subsurface areas around water wells that are regulated to prevent contamination of groundwater used for public drinking water. A total of six groundwater wellhead protection areas occur within the portion of the Project area in Benton County (WDOH 2023). Table 3-4 summarizes wellhead protection areas crossed by the Project area in Benton County.

Table 3-4: Wellhead Protection Areas in the Project Area in Benton County

Portion of Project Area	System Name	Well Name (Well Tag)	Well Description
Segment 2 Canal Option	Badger Mountain Irrigation District	N/A	Community Water System
Segment 2 Canal Option	Summit View Water System	N/A	Community Water System
Segment 2 Railroad Option	BC Water Company	BHT200	Community Water System
Segment 2 Railroad Option	BC Water Company	AGH869	Community Water System
Segment 2 Railroad Option	Canyon Village Water System	N/A	Community Water System
Ashe-Marion No. 2	Brent Hartley	N/A	Non-transient/Non-community water system

Source: WDOH 2023

3.3.1.2 Surface Water

Much of the Project area is located within the Rock-Glade Watershed, which is identified as Water Resource Inventory Area (WRIA) 31 (Washington Department of Ecology 2024a). The Railroad Option and the Canal Option are both located within the Lower Yakima Watershed (WRIA 37).

Surface waters (streams) in the vicinity of the Project were identified using the National Hydrography Dataset (NHD) digital maps (USGS 2023) and were verified during on-site wetland and stream surveys in August 2023, February 2024 and May 2024. There are no mapped surface water features within the proposed helicopter landing zones in Oregon. Wetland and stream surveys were therefore limited to the portion of the Project area that occurs in Benton County.

Nine surface waters were identified in the portion of the Project area in Benton County. One of these is classified as an ephemeral stream. Ephemeral streams are channels that contain flowing water only during precipitation or snowmelt events but have no groundwater connection. Three other surface waters are classified as intermittent streams. Intermittent streams contain water for only part of the year (typically during winter and spring) and convey flow from multiple sources including direct precipitation, overland runoff, groundwater seepage, and snowmelt. Intermittent streams are typically found on more moderate slopes in the middle and lower portions of the watershed.

Five of the identified surface waters are classified as perennial streams (including Glade Creek and four constructed canals with downstream connection to other waters). Perennial streams contain water throughout the year, with groundwater supplying the baseflow supplemented by direct precipitation, runoff and snowmelt. They exhibit well-defined channels and the biological, hydrological and physical characteristics associated with the continuous conveyance of water (Nadeau 2011). Perennial streams typically occur on moderate to low slopes in the middle to lower portions of the watershed. Two of the perennial streams identified in the Project area are part of constructed, concrete- and rubber-lined agricultural irrigation canals (the Kennewick East Badger Lateral Canal and the Kennewick Main Canal), two are natural stream channels that have been partially dredged for use as irrigation canals (Division 4 Canal and an unnamed canal), and one is a naturally-occurring creek (Glade Creek).

No perennial, intermittent, or ephemeral streams were identified within the proposed Railroad Option ROW. The Canal Option would cross a perennial stream, the Kennewick East Badger Lateral Canal, which is a constructed, concrete-lined agricultural canal. No intermittent or ephemeral streams were identified within the proposed Canal Option ROW.

3.3.2 Environmental Consequences

3.3.2.1 Impacts Common to Both Route Options

Groundwater

Ground disturbance associated with the Proposed Action is not expected to affect groundwater quantity or quality, because the Project would not result in excavations that would directly reach groundwater resources. The deepest structural excavations associated with the Proposed Action, up to 30 feet below ground surface, would occur from construction of the Webber Canyon Substation and nearby lattice tower installation. A geotechnical study at the substation site concluded that groundwater at this location is expected to be more than 35 feet below the soil surface (Shannon & Wilson 2024) and groundwater in the surrounding area is typically found at depths greater than 100 feet (Whitehead 1994), it is unlikely that groundwater would be negatively impacted by these activities. A new well that would provide potable water to the substation control house would have a low impact on groundwater quantity as the control house would be used by BPA staff only once per week on average and a small quantity of groundwater would be extracted relative to the overall aquifer quantity.

Webber Canyon Substation could cause low impacts to groundwater quality and recharge rates, as the 31.4-acre substation footprint may slow the rate at which precipitation percolates below the soil surface. BPA would install a septic tank and drain field to treat sanitary wastewater from the control house and minimize impacts to groundwater quality. To treat surface water runoff from the facility, BPA would build and maintain a stormwater management system with swales conveying runoff to on-site detention ponds. The footprint of the Webber Canyon Substation site could slow the rate at which surface water percolates down through the soil surface; however, since this footprint is relatively small (31.4 acres within the 44,000 square mile Columbia Plateau Aquifer System), the Proposed Action would result in low impacts to groundwater recharge rates.

Soil compaction during transmission structure and access road work could temporarily impact groundwater recharge by reducing infiltration capacity and increasing surface runoff to streams. However, these impacts would occur in small construction areas spread over a wide geographic area. Therefore, there would be low impacts to groundwater from transmission structure and access road construction.

Up to 6.6 miles of fiber optic cable would be installed underground with new conduit in areas where overhead installation on existing transmission line structures is not practicable due to structural constraints or where undergrounding would avoid the need to place fiber optic wood poles in crop circles. Project work would occur in the dry season to excavate trenches (approximately 5 feet deep in agricultural areas and approximately 40 inches deep in other areas), install new conduit for the fiber optic cable, and bury the conduit with the soil removed during excavation. Since groundwater in these areas is typically found at depths greater than 100 feet (Whitehead 1994), it is unlikely that groundwater impacts would occur during the installation of the underground fiber optic cable.

Surface Water

Up to approximately 1,200 linear feet of streams could be temporarily impacted by the Proposed Action as a result of access road work, structure installation and removal work areas and other temporary work areas. These temporary impacts would result from increased sediment and turbidity from soil and vegetation disturbance and vehicles traveling within about 10 to 50 feet of the streams crossed by the Project. The current design for underground fiber optic cable in the Webber Canyon-Marion No. 1 ROW would also cross a perennial stream (between Ashe-Marion No. 2 transmission structures 46/1 and 46/2), resulting in temporary impacts from installing work area isolation (e.g., sand bag coffer dam) and trenching. The trench for the fiber optic cable would cross the stream at a perpendicular angle, which would temporarily excavate up to 3 linear feet of the stream bed and banks. Upon installation, the crossing area would be restored to near pre-Project condition. Removal of the work area isolation after trenching would likely result in a temporary pulse of sediment and turbidity within the stream. As the design of the fiber optic cable within the Webber Canyon-Marion No. 1 ROW is advanced, expected stream impacts may be modified and changes would be analyzed in the Final EA. No new bridges or culverts at stream crossings would be required.

The Proposed Action activities are expected to cause low impacts since erosion and sediment control BMPs would be used (see Section 2.7), stream bed disturbance would be isolated and occur within WDFW in-water work window (August 1-September 30), and these areas would be restored to their previous conditions to the extent practicable.

No permanent impacts to streams are expected from the Proposed Action. Permanent impacts to streams would be avoided due to Project design features such as spacing transmission structure to span streams. Proposed signage changes would have no impact on surface water because potential ground disturbance associated with this activity is limited to minor grading at helicopter landing zones where no mapped surface water features occur.

3.3.2.2 Impacts Specific to Route Options

No permanent or temporary impacts to streams would result from Segment 2 of the Webber Canyon-Badger Canyon transmission line with either the Railroad Option or the Canal Option.

3.3.2.3 No Action Alternative

Under the No Action Alternative, ongoing O&M of the existing transmission lines would continue, but no impacts on waterways and water quality are anticipated due to those routine actions that would avoid taking place in or within close proximity to waterbodies. This alternative would result in no new impacts on ground water, waterways and water quality.

3.4 Wetlands and Floodplains

3.4.1 Affected Environment

3.4.1.1 Wetlands

Wetlands are areas that have certain characteristics related to water, soils and vegetation. To be considered a wetland, the following criteria must be met:

- The area must be inundated or saturated with water for a portion of the growing season in most years.

- The soils in the area must have certain characteristics matching soil types that are subject to prolonged saturation (hydric soils).
- The area must contain plant species with special adaptations that enable them to grow in saturated soils.

Most of the Project occurs in the Columbia Plateau ecoregion, a semi-arid region where wetlands are somewhat scarce (EPA 2010). Potential wetlands within the vicinity of the Project were identified using National Wetlands Inventory (NWI) digital maps (USFWS 2023) and verified during on-site wetland surveys in August 2023, February 2024, and May 2024. Wetland surveys were limited to the portion of the Project area in Benton County because signage change activities in Oregon would not impact wetland resources. Ten wetlands totaling approximately 2.8 acres were identified.

Two of the identified wetlands, totaling approximately 0.8 acre, are located partially within the existing BPA ROW for the Badger Canyon-Leslie Road No. 1 transmission line in Segment 3, immediately southwest of the Badger Canyon Substation. One of these wetlands is classified as a palustrine emergent (PEM) wetland, with herbaceous vegetation dominated by broadleaf cattail (*Typha latifolia*). The other wetland is a ponded area classified as a palustrine unconsolidated bottom (PUB) wetland. These wetlands are adjacent to each other, extend outside of the Project area and are part of a larger mosaic of wetlands in the Amon Creek Natural Preserve.

One PEM wetland, totaling approximately 0.3 acre, was identified within the Railroad Option, located between the BNSF Railroad and East Badger Road, in a small depression within a roadside drainage ditch. Herbaceous vegetation within this wetland consists primarily of broadleaf cattail.

Seven PEM wetlands, totaling approximately 1.7 acres, were identified along the Ashe-Marion No. 2 transmission line. One of these wetlands is located within a small, closed depression in an agricultural field. Herbaceous vegetation within this wetland consisted primarily of reed canarygrass (*Phalaris arundinacea*). The six remaining wetlands along the Ashe-Marion No. 2 transmission line are located within and adjacent to depressions along the East Branch Glade Creek. Vegetation within these wetlands is dominated by cattails (*Typha* spp.). No mapped wetlands occur within the proposed helicopter landing zones along the Ashe-Marion No. 2 transmission line.

3.4.1.2 Floodplains

The Federal Emergency Management Agency (FEMA) has mapped portions of Benton County within 100-year floodplains (FEMA 1982). Small portions of the proposed Webber Canyon-Badger Canyon Segment 1 ROW and the Ashe-Marion No. 2 and McNary-Badger Canyon No. 1 ROWs intersect the mapped 100-year floodplain.

3.4.2 Environmental Consequences

3.4.2.1 Impacts Common to Both Route Options

Wetlands

Up to 0.7 acre of delineated PEM wetland would be temporarily impacted by the Proposed Action as a result of structure installation and removal and other temporary work areas. Temporary impacts would be low to moderate, typically in the form of increased sediment and turbidity from soil disturbing activity in and around wetlands. Removal of vegetation in and around wetland areas could likely be avoided. However, if vegetation removal becomes necessary, it would be minimized by mowing or

cutting the vegetation at ground level. BMPs and other measures such as implementing spill prevention plans and installing fencing or flagging around wetlands would be employed to minimize impacts to wetlands affected by the Project (see Section 2.7). After construction, these areas would be restored to their previously disturbed conditions to the extent practicable.

Permanent impacts to a total of approximately 0.1 acre of PEM wetlands would result from the Proposed Action. These impacts reflect less than a tenth of an acre of impacts associated with equipment access landings on the Webber Canyon-Marion No. 1 transmission line and less than a tenth of an acre of impacts from equipment access landings and a transmission structure for Segment 3 of the Webber Canyon-Badger Canyon transmission line. As the Project design is refined, these impacts may be avoided. As currently designed, this permanent removal of wetland vegetation and soils would impact a relatively small area and would therefore have a low impact to wetlands and wetland functions. Pursuant to the Clean Water Act, BPA would obtain permits for impacts to wetlands as needed. Due to the amount of currently anticipated wetland impacts, impacts are expected to be permitted under the U.S. Army Corps of Engineers Nationwide Permit 57 (Electric Utility Line and Telecommunications Activities). A Nationwide Permit is a type of general permit for activities that have minimal impact on wetlands.

Floodplains

Construction activities within 100-year floodplains would be limited to the use of temporary work areas, improvement of several access roads and installation of underground fiber optic cable. The permanent addition of underground fiber optic cable within the floodplain would consist of an approximately 0.2-mile-long stretch of conduit along the Webber Canyon-Marion No. 1 line. These activities would not alter the existing floodplain elevation or reduce flood storage capacity because of the very limited amount of fill relative to the extent of the floodplain and therefore, would result in little to no impact on flood elevations or function.

3.4.2.2 Impacts Specific to Route Options

Of the potential 0.7 acre of temporary wetland impacts, approximately 0.1 acre would occur in Segment 2 of the Webber Canyon-Badger Canyon transmission line with the Railroad Option. This temporary impact would result from vehicles or construction crews crushing or cutting wetland vegetation within a transmission structure work area within a depressional wetland along a roadside ditch that parallels East Badger Road and the BNSF Railway. Minor soil compaction may also occur within the temporary work area. Less than a tenth of an acre of permanent wetland impacts could also occur with the Railroad Option due to equipment access landings, though this impact may be avoided as the Project design is refined.

No temporary or permanent wetland impacts would occur in Segment 2 of the Webber Canyon-Badger Canyon transmission line as a result of the Canal Option. Neither the Railroad Option nor the Canal Option would be constructed within the 100-year floodplain; therefore, there would be no floodplain impacts specific to the route options.

3.4.2.3 No Action Alternative

Under the No Action Alternative, there would be no new impacts on wetlands and floodplains.

3.5 Fish and Wildlife

3.5.1 Affected Environment

This section summarizes terrestrial wildlife, fish and habitat conditions in the Project area. The analytical methodology for determining impacts to these resources included a desktop review based on federal, state, county and non-governmental organization resources and input from the Oregon Department of Fish and Wildlife (ODFW) and WDFW. Species-specific wildlife surveys were also conducted on BLM- and DNR-managed lands within the Project area, per request of the agencies.

Shrub/scrub is the most abundant habitat type within the Project area throughout Washington and eastern Oregon. Scrub/shrub habitat supports over 200 species of birds, 30 mammal species and numerous reptiles, amphibians and insects (WDFW 2024b). Species common to scrub/shrub habitat include burrowing owl (*Athene cunicularia*), ferruginous hawk (*Buteo regalis*), sage thrasher (*Oreoscoptes montanus*), sagebrush sparrow (*Artemisiospiza nevadensis*), American badger (*Taxidea taxus*), common sharp-tailed snake (*Contia tenuis*), desert striped whiptail (*Coluber [Masticophis] taeniatus*), Northern desert nightsnake (*Hypsiglena chlorophaea deserticola*), Northern sagebrush lizard (*Sceloporus graciosus*), pygmy short-horned lizard (*Phrynosoma douglasii*), ring-necked snake (*Diadophis punctatus*), side-blotched lizard (*Uta stansburiana*), Northern leopard frog (*Lithobates [Rana] pipiens*), tiger salamander (*Ambystoma tigrinum*) and Woodhouse's toad (*Anaxyrus woodhousii*).

The 75-acre Amon Creek Natural Preserve occurs within the shrub steppe habitat but also contains a mixture of wetland and riparian habitats. The preserve is home to animals including black-tailed jackrabbits (*Lepus californicus*), coyotes (*Canis latrans*), raccoons (*Procyon lotor*), North American beaver (*Castor canadensis*), river otter (*Lontra canadensis*), American mink (*Neogale vison*) and over 150 bird species (Tapteal Greenway 2020).

Forested habitats primarily occur in Oregon and make up less than 3 percent of the Project area (Table 3-2). They provide habitat for numerous big game animals, small mammals, reptiles, birds and amphibians. A wide variety of animals have been documented throughout the area including black bear (*Ursus americanus*), elk (*Cervus elaphus*), mule deer (*Odocoileus hemionus*), bobcat (*Lynx rufus*), Pacific giant salamander (*Dicamptodon tenebosus*), Western toad (*Bufo boreas*), rough-skinned newt (*Taricha granulose*), raptors and songbirds (USFS 2024).

The Project area also contains cropland and developed areas, which have frequent human disturbance and are expected to support fewer wildlife species than natural habitat types (shrub/scrub, herbaceous, forests and wetlands). The natural habitat types support a wider diversity of wildlife species that have less capacity to co-occur with humans than more developed areas.

Additional information on species that potentially occur in portions of the Ashe-Marion No. 2 transmission line corridor that are solely associated with the signage replacement is detailed in Appendix D. This includes transmission structures 1/2 (at Ashe Substation) to 24/2 (at the proposed Webber Canyon Substation), transmission structures 47/2 (approximately 3 miles north of the Columbia River) to 227/5 (at Marion Substation in Oregon) and proposed helicopter landing zones in Oregon.

3.5.1.1 ESA- and Bald and Golden Eagle Protection Act- Protected Fish and Wildlife Species and Habitats

Federally protected wildlife and habitats considered in this EA include species listed or proposed for listing under the ESA as threatened or endangered, and designated critical habitat for ESA-listed species in the Project area. Bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) are federally protected under the Bald and Golden Eagle Protection Act (BGEPA) and are also considered in this EA.

The USFWS's IPaC tool identified 10 protected wildlife species and one associated designated critical habitat that may occur in the Project area (Table 3-5). Of the 10 species identified, four wildlife species (bald eagle, golden eagle, northern spotted owl, and monarch butterfly) are potentially present in the Project area based on the field visit, desktop review and input from WDFW and ODFW. The remaining six species are unlikely to occur in the Project area due to a lack of supportive habitat features or because their current ranges do not overlap with the Project area (see Table 3-5). Bull trout and federally listed salmonids occur in the Columbia and Yakima rivers (WDFW 2024c); however, there will be no in-water activities and no ground disturbing activities within 2 miles of either river.

Table 3-5: ESA and BGEPA Protected Fish and Wildlife Species Potentially Occurring in the Project Area

Common Name (*Species*)	Federal Listing[a]	Critical Habitat Present?	Potential of Occurrence (Justification)
Mammal			
Gray wolf (*Canis lupus*)	FE	No	Unlikely (Correspondence with WDFW and ODFW [WDFW 2024d; ODFW 2024])
Birds			
Bald eagle (*Haliaeetus leucocephalus*)	BGEPA	NA	Potentially in OR[b,c] and WA[b] (Suitable habitat present)
Golden eagle (*Aquila chrysaetos*)	BGEPA	NA	Potentially in OR[c] and WA (Suitable habitat present)
Northern spotted owl (*Strix occidentalis caurina*)	FT	Yes	Potentially in OR[c] only (Suitable and critical habitat present in OR)
Streaked horned lark (*Eremophila alpestris strigata*)	FT	No	Unlikely (No known occurrences near Project [USFWS 2024b])
Yellow-billed cuckoo (*Coccyzus americanus*)	FT	No	Unlikely (Suitable habitat not present)
Reptiles			
Northwestern pond turtle (*Actinemys marmorata*)	PT	NA	Unlikely (Suitable habitat not present)
Insects			
Fender's blue butterfly (*Icaricia icarioides fender*)	FT	No	Unlikely (Suitable habitat not present)

Common Name (*Species*)	Federal Listing[a]	Critical Habitat Present?	Potential of Occurrence (Justification)
Monarch butterfly (*Danaus Plexippus*)	PT	No	Potentially in OR[c] and WA (Suitable habitat may be present; recorded presence in WA [WDFW 2024e])
Fish			
Bull trout (*Salvelinus confluentus*)	FT	No	Unlikely (Documented presence in the Columbia and Yakima rivers. Ground disturbing activities occur over 2 miles from both rivers [WDFW 2024c])

Source: USFWS 2024a
a FE = Federally Endangered, FT = Federally Threatened, PT = Proposed Threatened, BGEPA = Bald and Golden Eagle Protection Act
b OR = Oregon, WA = Washington
c Appendix D contains additional discussion of the species that are only potentially present in the portion of the Project area associated with the Ashe-Marion No. 2 transmission line signage replacement.

Bald eagles nest in large trees, usually near marine shorelines, large lakes or rivers. They prey on fish, waterfowl, small mammals or scavenge (WDFW 2024f). No eagles or eagle nests were observed during the Benton County field survey and no bald eagle nests are recorded within 1 mile of the Project area (Burns & McDonnell Inc. 2023; WDFW 2024g); however, suitable habitat does exist within the Project area, especially near fiber optic cable installation work approximately 4 miles from the Columbia River.

The golden eagle is associated with steep terrain and is found mostly in dry open forests of eastern Washington, shrub steppe, canyonlands, in high-elevation alpine zones of all regions and sparingly in clearcut areas in western Washington (WDFW 2024h). The Project crosses multiple open spaces that contain suitable habitat. No eagles or eagle nests were observed during the field survey and no golden eagle nests are recorded within 1 mile of the Project area (WDFW 2024g); however, golden eagles may be present within the Project area.

The monarch butterfly (*Danaus plexippus*) requires patches of milkweed (*Asclepias* spp.) and nectar sources during breeding and migration. Monarchs exclusively lay eggs on milkweed plants. Milkweed and monarchs in Washington occur in a variety of habitats including weedy fields, sparsely vegetated habitats, roadsides, open woods, meadows and along waterways (WDFW 2024d; Xerces Society for Invertebrate Conservation 2012). There is potential for milkweed to grow within the Project area. A milkweed survey would occur on the portion of the Project area that crosses BLM-managed land in Spring/Summer 2025. Survey results and any identified minimization measures will be reported in the Final EA.

Migratory Birds

The USFWS lists several bird species, such as bald eagle, California gull (*Larus californicus*), Clark's grebe (*Aechmophorus clarkii*), evening grosbeak (*Coccothraustes vespertinus*), Franklin's gull (*Leucophaeus pipixcan*), golden eagle, lesser yellowlegs (*Tringa flavipes*), Lewis's woodpecker (*Melanerpes lewis*), long-eared owl (*Asio otus*), marbled godwit (*Limosa fedoa*), olive-sided flycatcher (*Contopus cooperi*), pectoral sandpiper (*Calidris melanotos*), rufous hummingbird (*Selasphorus rufus*), sage thrasher, Western grebe (*Aechmophorus occidentalis)* and willet (*Tringa semipalmata*) potentially occurring

within the Project area as birds of conservation concern, many of which have the potential to nest and rear their chicks in the Project area (USFWS 2024a). The nesting season for most bird species is recognized as March 15 to August 31.

3.5.1.2 State Sensitive Wildlife Species

WDFW has classified state-listed species for Washington, some of which may occur within the Project area. According to WDFW data, the following species have been recorded within 1 mile of the Project area: burrowing owl (state candidate species), ferruginous hawk, loggerhead shrike (*Lanius ludovicianus;* state candidate species), northern goshawk (*Accipiter gentilis;* state candidate species), black-tailed jackrabbit (state candidate species), Townsend's ground squirrel (*Urocitellus townsendii;* state candidate species) and sagebrush sparrow (state candidate species). Additionally, there is one northern goshawk nest, 19 burrowing owl nests, three sagebrush sparrow nests, six loggerhead shrike nests and six Townsend's ground squirrel colonies recorded within 1 mile of the Project area (WDFW 2024g). Ferruginous hawk management core areas and home ranges occur within the Project area (WDFW 2024i). Core areas encompass land within 2.0 miles of a nest site (WDFW 2024j). Home ranges include land between 2.0 to 6.2 miles of a nest site when those lands are composed of specific natural vegetation and agricultural land cover types (WDFW 2024j).

The prairie falcon (*Falco mexicanus*) was identified as having the potential to occur in the Project area (Burns & McDonnell Inc. 2023). Pygmy rabbit (*Brachylagus idahoensis*; state priority species) were also identified as a species potentially occurring in the Project area; however, as of 2021, pygmy rabbits are only known to occupy southern Douglas and northern Grant counties in Washington, which is outside the Project area (WDFW 2024k).

WDFW identified two state-listed species with the potential to occur within the Project area and be impacted by the Project. These species include the ferruginous hawk (state endangered) and sandhill crane (*Grus canadensis;* state endangered). WDFW noted that pronghorn (*Antilocapra americana*) occur in the Project area and are of particular interest to the Yakama Nation; they are not a state-listed sensitive species (WDFW 2024c).

ODFW identified 12 state-listed species with the potential to occur along the Oregon portion of the Ashe-Marion No. 2 transmission line corridor. Discussion of these species is included in Appendix D.

3.5.1.3 Department of Natural Resources Wildlife Species

DNR identified four species covered in their Habitat Conservation Plan that are documented on DNR-managed land crossed by the Webber Canyon-Badger Canyon transmission line portion of the Project area. These species include burrowing owl, ferruginous hawk, Townsend's ground squirrel and long-billed curlew (*Numenius americanus*) (Nelson, S., pers. comm., DNR, September 8, 2023). Burrowing owls are associated with shrub steppe and grassland habitat in areas with abandoned mammal burrows such as ground squirrel burrows (WDFW 2024l). Townsend's ground squirrel occurs in shrub steppe, grasslands and agricultural areas with ample soil depth for burrowing. The squirrels are only active for 4 to 5 months of the year from January/February to May/June and hibernate the rest of the year (WDFW 2024m). Long-billed curlew nest in grasslands or pastureland that is not heavily grazed (National Audubon Society 2024).

Townsend's ground squirrel and burrowing owl surveys were conducted in May 2024 on DNR-managed lands according to WDFW protocols (WDFW 2020). No burrows suitable for Townsend's ground squirrel or burrowing owl were observed during the survey and neither species was observed during the survey.

3.5.1.4 Bureau of Land Management Wildlife Species

The BLM identified seven BLM sensitive species that may occur on BLM-managed land that would be crossed by the proposed Webber Canyon-Badger Canyon transmission line. These species include Townsend's ground squirrel, ferruginous hawk, black-tailed jackrabbit, short eared owl (*Asio flammeus*), burrowing owl, long-billed curlew and sagebrush sparrow (BLM Spokane District, email to Border Field Office Realty Specialist, BLM, April 2, 2024).

Townsend's ground squirrel and burrowing owl surveys were conducted in May 2024 within the Project area on BLM lands according to WDFW protocols (WDFW 2020). No burrows suitable for Townsend's ground squirrel or burrowing owl were observed during the survey and neither species was observed during the survey.

3.5.1.5 Wildlife Habitat Specific to Route Options

The Railroad Option is within a developed corridor that has approximately 13.3 acres of trees. These trees likely provide habitat to a diversity of wildlife, but their greatest function is nesting habitat for bird species. Nesting birds in this area are likely tolerant of disturbance, with nests located close to the railroad and East Badger Road. Four burrowing owl nests and two black-tailed jackrabbits were recorded within 1 mile of the Railroad Option (WDFW 2024g).

The Canal Option crosses land that is managed by the BLM and DNR and is connected to large swaths of scrub shrub habitat. Over 200 species of birds, 30 mammal species and numerous invertebrates, amphibians and reptiles utilize Washington's shrub habitat (WDFW 2024a). Additionally, WDFW noted that this area is heavily used by multiple bat species that are drawn to the Kennewick East Badger Lateral Canal (WDFW 2024d).

3.5.2 Environmental Consequences

3.5.2.1 Impacts Common to Both Route Options

Temporary noise and disturbance during construction would affect wildlife in and near the Project area. During construction, work crews would operate heavy construction equipment and helicopters. In active construction areas, wildlife could be temporarily displaced due to disturbance. Although much of the Project area receives some human disturbance under existing conditions, construction activities would exceed existing levels and any habituation by species would not be sustained during intensive construction activity. Some portions of the Project area, such as Segment 2 with the Canal Option, currently receive less human disturbance than others and, therefore, are generally the sites that host the most infrequently occurring species (i.e., the rarest within the Project area). These species would likely be the most impacted by construction activities. A small amount of incidental mortality could result from clearing and grading activities (e.g., amphibians or small mammals).

There is also a risk of bird strikes on the new transmission line, new fiber optic wood pole line and new guy wires. To mitigate the risk of bird strikes, BPA would install bird flight diverters on the some of the overhead fiber optic cable paralleling the Webber Canyon-Marion No. 1 transmission line, and on the Webber Canyon-Badger Canyon transmission line conductor or optical ground wire where they would

intersect areas with a higher risk of avian collisions. On fiber optic wood poles and transmission structures that would have new guy wires (some Webber Canyon-Badger Canyon transmission line structures and McNary-Badger Canyon No.1 transmission line structures between structure 20/6 and 17/6), BPA would also install yellow and orange striped guy wire guards for increased visibility to reduce bird and terrestrial animal strikes. The addition of fiber optic cable to the existing McNary-Badger Canyon No. 1 transmission line is not expected to substantially increase the risk of bird strikes due to the transmission line already existing on the landscape.

Habitat that currently supports wildlife would be disturbed or removed during construction but is anticipated to mostly return to pre-existing conditions once construction is complete and enough recovery time has elapsed. Permanent and temporary impacts to wildlife from loss of habitat—mostly in the form of vegetation removal associated with new and improved access roads, temporary work areas, and transmission structure construction—would vary. Vegetation removal would include crushing, clearing, or cutting, depending on the type of work conducted (see Section 3.2.2). Vegetation removal that results in the loss of native habitat, such as on BLM- and DNR-managed land, would generally have a larger impact on wildlife than the loss of habitat composed primarily of cultivated crops or non-native species along the existing transmission lines. Most clearing and grading impacts are associated with temporary work areas adjacent to transmission structures, Webber Canyon Substation and the new access roads needed for construction and maintenance.

Overall, temporary impacts to common wildlife species would be low because most of the species are mobile and would disperse from construction activities, including helicopter and heavy equipment use. Any incidental mortality would be minor and would not have the potential to affect regional population levels. Furthermore, permanent impacts on wildlife habitat in cropland and developed areas would be low due to the already heavily altered habitats. Permanent impacts to wildlife in natural areas, primarily removal of shrub/scrub habitat on BLM- and DNR-managed land, would be low with mitigation measures implemented (See Section 2.7).

As detailed in Appendix D, the replacement of signs on the Webber Canyon-Marion No. 1 transmission structures would have minor temporary impacts on wildlife. These impacts would be limited to temporary (approximately 30 minutes per structure) helicopter noise, noise associated with the use of hand tools, and a single vehicle or ATV on existing access roads. Wildlife near helicopter landing zones could also be temporarily impacted by localized noise and disturbance associated with helicopter landings and takeoffs. Due to the brief amount of time required to replace the signs at individual transmission structures, use of existing access roads, limited use of individual helicopter landing zones in previously disturbed areas and simple ground-level sign replacement method, temporary impacts on wildlife from signage replacement would be low.

ESA and BGEPA Protected Wildlife

If construction activities were to occur during the bald eagle and golden eagle breeding seasons, individuals could be disturbed or displaced. Activities near active nests could cause parents to abandon nests, resulting in chick or egg mortality. If eagle nests are discovered, construction activities within 0.5 mile of the identified nest would not occur during the nesting season (January through September) (see Section 2.7).

Ground disturbing activities such as structure construction, temporary work areas, road improvement, and Webber Canyon Substation construction may impact monarch butterflies if milkweed is removed

during Project activities. The Project area does not contain habitat that is uniquely suited to milkweed relative to the surrounding areas. Results of the milkweed survey will be included in the Final EA. If milkweed were to be removed during construction, impacts to monarch butterflies would be low due to other suitable habitat (e.g., weedy fields, sparsely vegetated habitats, roadsides) capable of supporting milkweed occurring outside the Project area.

Migratory Birds

Construction activities during the spring/summer breeding season adjacent to nesting habitat features (e.g., shrubs, trees, grass tufts, cavities, stumps, etc.) may disturb and displace individuals. Construction near active nests may cause them to be abandoned, and young would likely suffer mortality as a result. Construction disturbance from noise and human activities may extend beyond the Project area and impact individuals. Scheduling tree removal (and other vegetation removal) outside of the nesting season (March 15 to August 31) in areas with supporting habitat features, when practicable, would minimize impacts to migratory birds (see Section 2.7). If tree clearing is needed outside of that timeframe, BPA would conduct a pre-construction nesting bird survey prior to the tree removal. If active nests are found, trees would not be removed until the young have fledged.

Permanent impacts on migratory birds would likely be minimal because most of the Project would be constructed in developed areas and cropland. The Webber Canyon-Badger Canyon transmission line may result in bird collisions with guy wires and conductors. However, the proposed installation of bird flight diverters and guy wire guards would mitigate this risk and reduce impacts to low.

Potential Project-related effects to wildlife species in Oregon due to the proposed Webber Canyon-Marion No. 1 signage changes are addressed in Appendix D. In summary, temporary impacts from signage change activities on wildlife species would be low with the implementation of mitigation measures, primarily timing restrictions. Permanent impacts on wildlife species are not expected.

State Sensitive Wildlife Species

The Proposed Action may impact some state-listed species in the Project area including the ferruginous hawk. Construction would not occur within 0.6 mile of an active ferruginous hawk nest during the nesting season (April 1 through August 15), or until a biological construction monitor confirms that young have fledged (See Section 2.7). Bird flight diverters would be attached to Webber Canyon-Badger Canyon transmission line conductors or optical ground wire in spans identified as high-risk areas for bird strikes. Transmission structure guy wires would be wrapped in yellow and orange striped high visibility wire guards in these higher-risk areas. With these prescribed mitigation measures, temporary and permanent impacts to this species are expected to be low.

Although sandhill cranes are not known to nest in the Project area, the area is a migratory route for this species (WDFW 2024d). The Webber Canyon-Badger Canyon transmission line may impact the species if it is not visible to the birds. BPA would install flight diverters and guy wire guards along the portions of the Project in and around Scouten Canyon to reduce the risk of sandhill cranes colliding with the transmission line. With the prescribed mitigation measures, temporary and permanent impacts to this species are expected to be low.

Temporary impacts to mammal species such as pronghorn, black-tailed jackrabbit and Townsend's ground squirrel are expected to be low as these species would likely avoid areas undergoing construction. The Webber Canyon-Badger Canyon transmission line structures would provide new perch

locations for predators of black-tailed jackrabbits and Townsend's ground squirrel. However, this is not expected to significantly affect the population of either species because the new perch locations are confined to structures spaced 500 to 700 feet apart, and would have a small, local effect around each structure only. Permanent impacts to the other state sensitive species are expected to be low with the implementation of mitigation measures such as guy wire guards (See Section 2.7).

No Townsend's ground squirrel colonies or burrowing owls were observed during surveys of the BLM- and DNR-managed portions of the Project area. Much of the Project area is under cultivation or is disturbed areas next to roads and railroads where Townsend's ground squirrel and burrowing owl colonies are unlikely to exist, but a few other portions of the Project area with undisturbed habitat may contain colonies that could be impacted by construction. The number of potentially impacted squirrel or burrowing owl colonies would be small; therefore, construction impacts to these colonies would not lead to population-level declines, and overall impacts to these species would be none to moderate depending if colonies are present within the Project area.

Construction activities during the spring/summer breeding season adjacent to nesting habitat features (e.g., shrubs, trees, grass tufts, cavities, stumps, etc.) may disturb and displace loggerhead shrikes, Northern goshawk, sagebrush sparrow and prairie falcon. However, mitigation measures such as conducting vegetation removal outside of the nesting season and pre-construction nesting surveys would reduce temporary impacts on these species. Permanent impacts to these species would be low with the proposed flight diverters installed.

Department of Natural Resources Wildlife Species

The proposed Webber Canyon-Badger Canyon transmission line may also impact species located on DNR-managed land. Temporary and permanent impacts on these species are expected to be low with the implementation of mitigation measures, such as scheduling vegetation removal outside of the nesting season to the extent practicable (see Section 2.7). No impacts to Townsend's ground squirrel or burrowing owl on DNR-managed land are anticipated because burrows suitable for Townsend's ground squirrel or burrowing owl were not observed during the survey.

BLM Wildlife Species

The Proposed Action may impact species located on BLM-managed lands. If ground clearing activities occur outside of the nesting season (March 15 to August 31), temporary and permanent impacts to bird species would be low. If ground clearing is needed during the nesting season, BPA would conduct a pre-construction nesting bird survey prior to clearing (See Section 2.7).

Impacts to ferruginous hawk, black-tailed jackrabbit, long-billed curlew and sagebrush sparrow are discussed above. No impacts to Townsend's ground squirrel or burrowing owl on BLM-managed land are anticipated because burrows suitable for Townsend's ground squirrel or burrowing owl were not observed during the survey.

3.5.2.2 Impacts Specific to Route Options

The Railroad Option would locate Segment 2 of the Webber Canyon-Badger Canyon transmission line in a developed corridor where approximately 13.3 acres of trees would be removed. Removing trees could reduce nesting habitat, however, birds that are displaced due to tree removal could establish nests in other areas, such as the Amon Creek Natural Preserve to the northeast, or in trees located in the housing developments located north and south of the Railroad Option. The Railroad Option would be

co-located along existing developments and would have fewer permanent impacts to wildlife species if mitigation measures such as performing vegetation clearing activities outside of the nesting season were implemented. Temporary impacts from the Railroad Option on nesting bird species would be low with the implementation of mitigation measures regarding nesting birds, such as conducting pre-construction nesting surveys if trees are removed during the nesting season. Permanent impacts on nesting bird species are not expected due to alternate suitable nesting habitat occurring adjacent to the Railroad Option.

With the Canal Option, temporary impacts from Segment 2 of the Webber Canyon-Badger Canyon transmission line would be primarily from construction activities that would cause temporary displacement of wildlife species. However, since this habitat is surrounded by development, temporary construction activities could have a moderate impact on species. Additionally, the Webber Canyon-Badger Canyon line and new access roads would minimally fragment habitat within a large corridor of shrub/scrub habitat. Temporary and permanent impacts on wildlife species from the Canal Option are expected to be moderate.

3.5.2.3 No Action Alternative

Under the No Action Alternative, O&M activities for the Ashe-Marion No. 2 and McNary-Badger Canyon No. 1 transmission lines would continue, which would include regular vegetation management of the transmission lines; noise associated with occasional maintenance of structures, guy wires and overhead components; and periodic routine inspections of the transmission lines. Intermittent O&M activities could result in temporary displacement of wildlife species; however, wildlife species are expected to return. Because impacts would be temporary and localized to the existing transmission lines, temporary and permanent impacts on wildlife species from the No Action Alternative are expected to be low.

3.6 Cultural Resources

3.6.1 Affected Environment

Cultural resources include a variety of resources such as precontact and historic archaeological sites and historic built environment resources (e.g. buildings, transmission lines, canals and railroads). They also include areas of traditional use, traditional objects, and sacred sites.

The cultural resources study area is referred to as the Area of Potential Effects (APE) in this EA, a term defined in the implementing regulations for the National Historic Preservation Act (NHPA) (36 CFR 800.16[d]). The APE is the geographic area within which the Project may cause changes to the character or use of cultural resources.

At the time of European and Euroamerican exploration and settlement, the Project's APE was occupied by Native peoples who shared similar social, political, and subsistence patterns. Groups in the region include the Cayuse (Liksiyu), Nez Perce (Nimíipuu), Palús (Pelúuspem), Umatilla (Imatalamłáma), Walla Walla (Walawalałáma), Wanapum (Wánapam), Yakama (Mámachatpam), and other neighboring groups (Aoki 1994; Beckham 1998; Fagan 2000; Shuster 1998; Stern 1998).

The cultural resources study includes three components: (1) a preliminary background review to identify known cultural resources in the APE, (2) an archaeological survey to identify new resources and confirm the presence or absence of known resources and (3) a built environment survey to identify new resources and confirm the presence or absence of known resources.

A cultural resources study completed for the Washington portion of the APE identified 59 cultural resources. A cultural resources study for the Oregon portion of the APE (i.e., proposed helicopter landing zones in Oregon) is being conducted. The results of the Oregon study will be included in the Final EA. The results of these efforts are summarized in Table 3-6 and detailed in subsequent paragraphs.

Table 3-6: Cultural Resources Study Results

Study Component	Previously Recorded Archaeological Resources	Previously Recorded Built Environment Resources	Archaeological Survey New Resources	Built Environment New Resources	Total
Washington	4	7	4	44	59
Oregon	0	0	pending	pending	pending
Total	4	7	pending	pending	pending

The 59 identified cultural resources have been evaluated for eligibility for the NRHP: 53 are either determined or recommended not eligible for the NRHP; 1 has been recommended as needing additional data for evaluation; and the remaining 5 have been determined eligible for the NRHP by DAHP. The five NRHP-eligible resources are the McNary-Franklin No. 2 and McNary-Ross No. 1 transmission lines, the Kennewick Main Canal, the Kennewick East Badger Lateral Canal and the Northern Pacific Railroad (current BNSF Railway). Of these five, the McNary-Franklin No. 2 and McNary-Ross No. 1 transmission lines, the Kennewick Main Canal and the Northern Pacific Railroad (current BNSF Railway) are associated with both route options, while the Kennewick East Badger Lateral Canal is associated only with the Canal Option.

The Yakama Nation conducted a Traditional Cultural Places Study of the APE. Traditional Cultural Places may consist of not only physical places but also spiritual areas such as mountains, ceremonial grounds, areas of traditional vegetation, hunting grounds, traditional medicine areas, culturally modified trees and many other types of landforms or locations. The Yakama Nation's study concluded that there are Traditional Cultural Places within the APE that are recommended as NRHP-eligible.

3.6.1.1 Preliminary Background Review

Cultural resources desktop analyses and documentation efforts were conducted within the APE to identify previously recorded cultural resources eligible for listing on the NRHP. A literature review of the Washington Information System for Architectural and Archaeological Records Data previous cultural surveys identified four archaeological resources and seven historic-age built resources within the APE (Table 3-7). Five of the built resources in the APE have been determined eligible for the NRHP: two eligible resources are BPA transmission lines, two eligible resources are related to historical water infrastructure and one eligible resource is a railroad.

Table 3-7: Previously Recorded Archaeological Sites and Historic-Age Built Resources in the APE

Resource Name/Description	NRHP Eligibility Status
Precontact lithic scatter	Unevaluated
Precontact isolate (single projectile point)	Unevaluated
Historic debris scatter	Not Eligible

Resource Name/Description	NRHP Eligibility Status
Historic railroad property (Abandoned Northern Pacific Rail Line)	Not Eligible
Northern Pacific Railway – Cascade Division (current BNSF Railroad)	Eligible
Amon Wasteway – Kennewick Division – Yakima Project	Not Eligible
Kennewick Division Badger East Lateral Sections 0+00 to 237+67 and 480+92 to 891+79 – Yakima Project	Eligible
Kennewick Division Main Canal – Division III Station 766+50 to 1300+00 – Yakima Project	Eligible
McNary-Badger Canyon No. 1 Transmission Line	Not Eligible
McNary-Franklin No. 2 Transmission Line	Eligible
McNary-Ross No. 1 345kV Transmission Line	Eligible

Source: DAHP 2024

3.6.1.2 Cultural Resources Survey and Assessment Results

A pedestrian survey of the APE in March and April 2024 resulted in the identification of four newly recorded cultural resources including two historic isolated finds (WWII .50 caliber shell casings), one historic artifact scatter and one historic telegraph line. None of these resources are recommended eligible for the NRHP. Supplemental shovel testing of High Probability Areas identified by DAHP also occurred during the pedestrian survey in April and May 2024. No cultural resources were identified during the testing.

3.6.1.3 Historic-Age Built Environment Survey

Historic-age architectural resources field surveys were conducted in March 2024. The surveys resulted in the documentation of 51 historic-age built resources including 43 residential properties and 8 linear resources. Five of the resources have been determined NRHP-eligible and one has an undetermined NRHP status. The remaining 45 resources are not recommended for NRHP inclusion due to a lack of historic associations and/or significance. Most of the properties are residences constructed in the mid-to-late 1970s, representing common examples of Split-level or Ranch style dwellings.

Two of the Project substations (Badger Canyon and Ashe) were energized in 1976, which falls outside of the BPA's Multiple Property Documentation for Grid Expansion period of significance ending in 1974. Therefore, they have not been previously recorded and were not assessed for NRHP eligibility as they do not meet the minimum eligibility requirements for the NRHP for age. The Marion, McNary and Benton PUD- Nine Mile Canyon Substations are also excluded from NRHP eligibility and Project impact assessments, as their proposed modifications are limited to the interior of the control houses and would not impact potential NRHP eligibility.

3.6.2 Environmental Consequences

3.6.2.1 Impacts Common to Both Route Options

There are 30 cultural resources in the APE that are common to both route options, including 7 archaeological resources and 23 historic built environment resources. The built environment resources include 16 historic residential dwellings and associated outbuildings, 3 historic transmission lines, 2 historic canals, 1 historic farmstead, and 1 historic railroad. The 16 historic residential dwellings were constructed in the mid-to-late 1970s, with the majority representing common examples of Split-level or Ranch style dwellings. All 16 of these resources have been recommended not eligible for listing on the NRHP, and as such they are not considered historic properties. Therefore, the Proposed Action would have no impact on these resources. Table 3-8 lists the 14 remaining resources, provides their NRHP eligibility status and provides Project impact evaluations.

Table 3-8: Cultural Resources Common to Both Routes

Resource Type or Name	NRHP Eligibility	Resource Evaluation
Precontact lithic scatter	Not Eligible[a]	No impact; resource is not a historic property
Precontact isolate (single projectile point)	Not Eligible[a]	No impact; resource is not a historic property
Historic Irrigation Features and Debris Scatter	Not Eligible[a]	No impact; resource is not a historic property
Historic Debris Scatter	Not Eligible[a]	No impact; resource is not a historic property
Isolated Find (WWII .50 caliber shell casing)	Not Eligible[a]	No impact; resource is not a historic property
Isolated Find (WWII .50 caliber shell casing)	Not Eligible[a]	No impact; resource is not a historic property
Abandoned Northern Pacific Railroad Segment	Not Eligible[a]	No impact; resource is not a historic property
McNary-Badger Canyon No. 1 Transmission Line	Not Eligible (DAHP Concurrence on 4/15/2020)	No impact; resource is not a historic property
McNary-Franklin No. 2 Transmission Line	Eligible (DAHP Concurrence on 6/14/2014)	Low impact. The McNary-Franklin No. 2 transmission line would be located either parallel to or in some locations spanned by the Proposed Action. Based on the standards discussed in the BPA Transmission System National Register Multiple Property Documentation form (Kramer 2012), the Project would not adversely affect the visual uniformity, characteristics or overall historic integrity that make the transmission line eligible for listing in the NRHP. As such, the Proposed Action would not cause impacts that would adversely affect characteristics that make

Resource Type or Name	NRHP Eligibility	Resource Evaluation
		the resource eligible for listing in the NRHP. Therefore, there would be a low impact on the historic property.
McNary-Ross No. 1 345kV Transmission Line	Eligible (DAHP Concurrence on 6/14/2014)	Low impact. The McNary-Ross No. 1 transmission line would be located either parallel to or in some locations spanned by the Proposed Action. Based on the standards discussed in the BPA Transmission System National Register Multiple Property Documentation form (Kramer 2012), the Project would not adversely affect the visual uniformity, characteristics or overall historic integrity that make the transmission line eligible for listing in the NRHP. As such, the Proposed Action would not cause impacts that would adversely affect characteristics that make the resource eligible for listing in the NRHP. Therefore, there would be a low impact on the historic property.
Amon Wasteway-Kennewick Division – Yakima Project	Not Eligible (DAHP Concurrence on 6/24/2020)	No impact; resource is not a historic property
Kennewick Division Main Canal - Division III Station 766+50 to 1300+00 – Yakima Project	Eligible (DAHP Concurrence on 11/1/2011)	Low impact. The Proposed Action would be located either parallel to or span the canal. As such, the Proposed Action would not cause impacts that would adversely affect characteristics that make the resource eligible for listing in the NRHP. Therefore, there would be a low impact on the historic property.
Farmstead	Needs additional data[a]	Low impact. All proposed structures and proposed work areas are located along the northside of Swanson Road, outside the resource property boundary. As such, the Proposed Action would not cause impacts that would adversely affect characteristics that make the resource potentially eligible for listing in the NRHP. Therefore, the Proposed Action would have a low impact on the potential historic property.
Northern Pacific Railroad (current BNSF)	Eligible[a] (Previous DAHP Concurrence on other segments on 6/12/2017)	Low impact. The Proposed Action would span the railroad. As such, the Proposed Action would not cause impacts that would adversely affect characteristics that make the resource eligible for listing in the NRHP. Therefore, the Proposed Action would have a low impact on the historic property.

[a] *Preliminary recommendation based on field inventory evaluation.*

The Proposed Action would not cause impacts to the 30 cultural resources that are common to both route options. A majority (25) of these resources are not eligible for the NRHP, and as such they are not considered historic properties which could be affected by the Proposed Action. The remaining five resources have been either determined NRHP-eligible or are recommended potentially eligible for the NRHP. These resources are considered historic properties that could be adversely impacted by the Proposed Action. These historic properties would be either spanned by or be located parallel to the

Proposed Action. As such, they would not be subject to impacts from the Proposed Action, nor would the Proposed Action cause impacts that would adversely affect characteristics that make these resources potentially eligible for listing in the NRHP. The Proposed Action would have a low impact on a Traditional Cultural Place that is recommended eligible for the NRHP. The new Webber Canyon Substation and the new 18-mile wood pole transmission line are new elements on the landscape that would introduce visual effects to this Traditional Cultural Place. Approximately 7 miles of the new transmission line run through residential areas, or along a road/railroad/utility corridor, but the other 11 miles, and the substation would be new infrastructure on the landscape in areas with minimal development and would have an adverse effect on the viewshed within the APE. Overall this would be considered a low impact, as no known named-places associated with the Traditional Cultural Place would be physically impacted. And although these new elements would be visible from parts of the surrounding Horse Heaven Hills, their scale on the landscape and viewshed would be considered minimal given the large size of the Traditional Cultural Place, and the distance from the Horse Heaven Hills.

The signage changes along the Ashe-Marion No. 2 transmission line would not alter the historic character or integrity of the Ashe-Marion No. 2 or of the adjacent transmission lines. The signage changes would require the use of helicopter landing zones to complete the work. There are no cultural resources in or near the proposed helicopter landing zones in Washington. BPA has not obtained survey access to all the proposed landing helicopter landing zones in Oregon. As such, the cultural resources study is in progress for the Oregon portion of the Project and the cultural resources inventory has yet to be completed. If cultural resources are identified at proposed helicopter landing zone(s) in Oregon, BPA would either remove the landing zone(s) from the Proposed Action or implement avoidance protection measures at those locations, such as shifting the landing zone footprint to avoid the resource. As such, signage changes are expected to have no impact on cultural resources.

Additionally, BPA's Post-Review Discovery Plan would be followed during Project construction. If cultural resources are encountered within the APE during Project construction, all work would stop within a 30-meter buffer of the find. A BPA archaeologist would be notified, and BPA would contact the SHPOs and any affected tribes. If human remains are encountered, the County Coroner and local law enforcement would also be notified.

3.6.2.2 Impacts Specific to Route Options

The types and quantities of cultural resources identified, as well as the potential impacts to cultural resources vary between the Railroad Option and the Canal Option for Segment 2 of the Webber Canyon-Badger Canyon transmission line.

There are 15 cultural resources located along the Railroad Option including 11 historic residential dwellings or associated outbuildings, 1 historic railroad, 1 historic telegraph line, 1 historic survey marker and 1 pair of historic ditches. The 11 historic residential dwellings were constructed in the mid-to-late 1970s, with the majority representing common examples of Split-level or Ranch style dwellings. All 11 of these resources have been recommended not eligible for the NRHP, and as such they are not considered historic properties. Therefore, the Railroad Option would have no impact on these resources. Table 3-9 lists the remaining resources, provides their NRHP eligibility status and provides Project impact evaluations.

Table 3-9: Segment 2 Cultural Resources with the Railroad Option

Resource Type or Name	NRHP Eligibility	Resource Evaluation
Northern Pacific Railroad (active BNSF)	Eligible[a] (Previous DAHP Concurrence on other segments on 6/12/2017)	Low impact. The Railroad Option would parallel the historic railroad for approximately 5 miles, and it would cross the railroad adjacent to the intersection of Wiser Parkway and East Badger Road. All structures and proposed work areas are outside the railroad ROW. As such, the Railroad Option would not cause impacts that would adversely affect characteristics that make the resource eligible for listing in the NRHP. Therefore, the Railroad Option would have low impact on the historic property.
Historic telegraph line Remains and Debris	Not Eligible[a]	No impact; resource is not a historic property
Washington State Survey Marker	Not Eligible[a]	No impact; resource is not a historic property
Earthen Ditch	Not Eligible[a]	No impact; resource is not a historic property

[a] *Preliminary recommendation based on field inventory evaluation.*

The Project would not cause impacts to the 15 cultural resources that are along the Railroad Option. A majority (14) of these resources are not eligible for the NRHP, and as such they are not considered historic properties which could be impacted by the Project. The remaining resources, the NRHP-eligible Northern Pacific Railroad and the NRHP-eligible Kennewick Division East Badger Lateral Canal, would be either spanned by or located parallel to the Project. As such, they would not be subject to impacts from the Proposed Action, nor would the Proposed Action cause impacts that would adversely affect characteristics that make these resources potentially eligible for listing in the NRHP. Therefore, the Railroad Option would have no-to-low impacts on cultural resources.

There are 16 cultural resources located along the Canal Option including 14 historic residential dwellings or associated outbuildings, 1 historic railroad and 1 historic canal. The 14 historic residential dwellings were constructed in the mid-to-late 1970s, with the majority representing common examples of Split-level or Ranch style dwellings. All 14 of these resources have been recommended not eligible for the NRHP, and as such they are not considered historic properties. Therefore, the Canal Option would have no impact on these resources. Table 3-10 lists the remaining resources, provides NRHP eligibility status and provides Project impact evaluations.

Table 3-10: Segment 2 Cultural Resources with the Canal Option

Resource Type or Name	NRHP Eligibility	Resource Evaluation
Kennewick Division Badger East Lateral Sections 0+00 to 237+67 and 480+92 to 891+79 – Yakima	Eligible (DAHP Concurrence on 6/25/2020)	The Canal Option would parallel the historic canal for nearly the entirety of the route and would cross the resource in two locations: the first near the western end of the Canal Option, approximately 1.25 miles southeast of Badger, and the second near the eastern end of the Canal Option, approximately 1.5 miles southwest of the Badger Canyon Substation. In these locations, proposed structures would be located more than 150 feet away from the canal and the proposed transmission line would span the canal. As such, the Canal Option would not cause impacts that would adversely affect characteristics that make the resource eligible for listing in the NRHP. Therefore, the Canal Option would have no impact on the historic property.
Northern Pacific Railroad	Eligible[a] (Previous DAHP Concurrence on other segments on 6/12/2017)	The Canal Option would cross the railroad in one location at the western end of the route. At this location, the proposed transmission line would span the railroad, and proposed structures would be placed on either side of the railroad ROW at a distance of more than 100 feet away. As such, the Canal Option would not cause impacts that would adversely affect characteristics that make the resource eligible for listing in the NRHP. Therefore, the Canal Option would have no impact on the historic property.

[a] *Preliminary recommendation based on field inventory evaluation.*

The Project would not cause impacts on the 16 cultural resources that are along the Canal Option. A majority (14) of these resources are not eligible for the NRHP, and as such they are not considered historic properties which could be affected by the Proposed Action. The remaining two resources have been determined NRHP-eligible and would be either spanned by or located parallel to the Proposed Action. As such, they would not be subject to impacts from the Proposed Action, nor would the Proposed Action cause impacts that would adversely affect characteristics that make these resources potentially eligible for listing in the NRHP. Therefore, the Canal Option would have no-to-low impact on cultural resources.

3.6.2.3 No Action Alternative

Under the No Action Alternative, BPA's Post-Review Discovery Plan would be followed if O&M activities along the existing transmission lines result in ground disturbance of unknown archaeological sites. Depending on the level of disturbance and the eligibility of the cultural resource for listing in the NRHP, O&M activities could result in no-to-low impacts to cultural resources.

3.7 Land Use and Transportation

3.7.1 Affected Environment

The majority of the Proposed Action is in unincorporated Benton County, Washington, where agriculture is the predominant land use. With 613,562 acres of farms, more than half (54 percent) of Benton County is farmland (USDA 2017). Seventy-seven percent of the farmland in Benton County is cropland and wheat, vegetables, and potatoes are the most common crops (USDA 2017). Fourteen percent of Benton County farmland is pastureland (USDA 2017).

Webber Canyon Substation and Segment 1 of the Webber Canyon-Badger Canyon transmission line would be located within Benton County's Agricultural zoning district. This zoning district establishes a 20-acre minimum parcel size and is intended to conserve agricultural lands (Benton County 2022). Segment 2 of the Webber Canyon-Badger Canyon transmission line would be located within Benton County's Rural Lands zoning districts, mostly within areas where parcels are a minimum of 5-acres; a small portion of the Railroad Option route would also cross through a Light Industrial zoning district near Interstate 82. Segment 3 of the Webber Canyon-Badger Canyon transmission line would be located within existing BPA ROW in the City of Richland.

Most of the fiber optic cable installation along existing transmission lines would occur within parts of Benton County that are zoned agricultural. The western end of the McNary-Badger Canyon No. 1 transmission line, however, is partially within the cities of Kennewick and Richland. Land uses in these areas include suburban residential, open space, and small amounts of commercial and light industrial uses.

Public lands in the Project area in Benton County include federal, state, county and municipally-owned properties. These include recreation areas, conservation areas and leased lands (e.g., for grazing and agriculture). Public lands used for recreation in the Project area are detailed in Section 3.8 and Appendix D.

Transportation infrastructure in the Benton County portion of the Project area includes Interstate 82, two-lane paved county and city roads, gravel county roads and the BNSF railway. The nearest airport, the Richland Airport owned by the Port of Benton, is located approximately 7 miles north of Badger Canyon Substation. County Well Road would provide the main access to Webber Canyon Substation. County Well Road is a two-lane paved county road.

The 228-mile-long Ashe-Marion No. 2 transmission line crosses through a mix of federal, state, tribal (Confederated Tribes of the Warm Springs), county and private land in Washington and Oregon. Land uses surrounding the ROW include cropland, rangeland, timberland, recreational areas (see Appendix D) and rural residential areas. Approximately 8 miles of the transmission line cross the Hanford Site, 15 miles of the transmission line cross the Confederated Tribes of the Warm Springs Reservation and approximately 28 miles of the transmission line are within the Mt. Hood National Forest. The transmission line crosses Interstate 82 in Washington, the Columbia River, Interstate 84 in Oregon and several rural highways in both states.

3.7.2 Environmental Consequences

3.7.2.1 Impacts Common to Both Route Options

Webber Canyon Substation would be sited on a 187-acre parcel that is currently owned by Washington and managed by the DNR. BPA would negotiate a fair-market value purchase of the property. The property is currently used for agriculture under a 10-year Washington DNR lease that expires in September 2032. This lease would be vacated during the ownership transfer. BPA would permanently convert approximately 31.4 acres from agricultural use for development of the substation, access road, parking area, stormwater detention ponds and a permanent material laydown area. Approximately 41.5 acres would be temporarily used for a construction staging area, material stockpiles and a helicopter landing zone. Six of the proposed Webber Canyon-Badger Canyon transmission line structures and the four new lattice steel towers for the Ashe-Webber Canyon No. 1 and Webber Canyon-Marion No. 1 transmission lines would also be located within the 187-acre property, with proper clearance maintained around each line.

BPA would negotiate and purchase easements, based on fair market value, for a new 100-foot-wide ROW to construct and operate Segments 1 and 2 of the Webber Canyon-Badger Canyon transmission line. Segment 3 of the Webber Canyon-Badger Canyon transmission line would be built within the existing BPA ROW. Within the new easement areas, landowners would be prohibited from placing permanent structures and tall-growing vegetation (generally taller than 4 feet) or from using the land in any way that may interfere with the safe operation or maintenance of the line.

In general, cultivated crops that do not require structural support and do not grow higher than 4 feet would be allowed in the new ROW. These might include wheat, potatoes or other low-growing row crops. Farm vehicles and large equipment that do not extend more than 14 feet high, such as harvesting combines, cranes, derricks and booms, could be operated safely under the Webber Canyon-Badger Canyon transmission line where it passes over roads or cultivated fields.

The impact of transmission lines on property values has been the subject of numerous studies. In their widely cited 2010 article in the *Journal of Real Estate Literature*, Jackson and Pitts reported that most empirical studies found no effect on prices; among studies that had found negative price effects from transmission lines, these effects ranged from approximately 2 to 9 percent, with effects decreasing with distance from the lines (Jackson and Pitts 2010). In a more recent review of the literature in *The Appraisal Journal*, Anderson *et al*. found that the conclusions of recent studies are consistent with those published prior to 2010, with sales data showing negligible to no effect on prices though survey-based research continues to indicate general dislike of transmission lines (Anderson *et al*. 2017). While most research has focused on urban and suburban properties, a case study analysis of rural properties along 500-kV transmission lines in Montana concluded that property use, size and the availability of substitutes are the most important factors when considering the potential impact of transmission lines on prices (Chalmers 2012). Rural properties used for residential purposes are more sensitive to price effects, while those used for agricultural show no effect (Chalmers 2012).

Most studies have concluded that other factors, such as general location, size of property, improvements, condition, amenities and the availability of substitutes in a specific market area are far more important criteria than the presence or absence of transmission lines in determining the value of residential real estate. Whether a transmission line introduces a negative visual impact on property

owners depends on the placement of a line and its proximity, as well as each individual landowner's perception of what is visually acceptable or unacceptable. BPA would not compensate for viewshed obstruction or perceived loss of property value to property outside the acquired easements.

For Segment 1 of the Webber Canyon-Badger Canyon transmission line, BPA would acquire ROW easements on approximately 138 acres of private land, 5 acres of Washington DNR-managed land, 2 acres of Benton County land, and a ROW grant on 2 acres of BLM-managed land. More than half of the ROW for the 11.8-mile Segment 1 is adjacent to a paved roadway. The majority (64 percent) of the land that would be used for Segment 1 ROW is cropland. Continued crop cultivation within the ROW would be negotiated, with provisions for crop damages, when a new easement is purchased. Approximately 4 acres of land currently used for crop cultivation would be permanently converted for construction of Segment 1 transmission line structures and landings.

The amount of new ROW that BPA would acquire for Segment 2 of the Webber Canyon-Badger Canyon transmission line would depend on the selected route option (see 3.7.2.2). Segment 3 of the Webber Canyon-Badger Canyon transmission line would be built within existing BPA ROW and would not require permanent changes in land use.

Fiber optic cable installation on the existing McNary-Badger No. 1 transmission line would not result in permanent changes in land use. Fiber optic cable installation adjacent to the Webber Canyon-Marion No. 1 transmission line would occur within the existing BPA ROW, which crosses open space, agricultural areas, and DNR-managed land. BPA would need to obtain new rights to place fiber optic wood poles or underground cable on the four DNR-owned parcels crossed by the ROW. By burying the fiber optic cable where crop circles are located and not using guy wires on fiber optic wood poles in other agricultural areas, landowners within the ROW could continue using the land for agriculture with the new fiber optic wood poles and cable presenting no to low permanent impacts.

Most of the Project would be constructed and maintained using existing access roads or direction of travel routes. For new access roads or existing access roads where BPA does not possess rights, BPA would acquire easement rights or a ROW grant from the underlying landowner. Improvement of existing access roads would not change their current use. The Proposed Action would involve the permanent conversion of approximately 37.5 acres (Railroad Option) or 42.7 acres (Canal Option) of land for new access roads. Most of the new roads would be built to access Segment 1, and therefore would be on agricultural lands, adjacent to existing roadways where possible.

Construction activities would also temporarily limit land use within the ROW and in other temporary work areas. Construction activities could temporarily disrupt or restrict access to existing croplands and interrupt agricultural uses in the vicinity of structures, underground fiber optic cable installation, and access road corridors, resulting in low to moderate impacts, depending on the timing of construction. In rural residential areas, short-term construction could also inconvenience residents who may choose to temporarily limit the use of their land, both in the ROW and nearby (see Section 3.8, Noise). These short-term land use limitations have the potential to result in moderate temporary impacts on landowners. Permanent impacts to landowners would be low to moderate because the Proposed Action would permanently convert land for the new substation, access roads and transmission structures and would limit potential activities and development within new ROW.

The Proposed Action has the potential to result in short-term impacts on transportation from increased traffic generated by construction vehicles and occasional disruptions to traffic patterns if lane closures or detours are required. Up to two crews with 10 vehicles each would move through the area while conducting transmission line work. During peak construction of the Webber Canyon Substation, it is estimated that workers and equipment deliveries may account for up to 50 round trips per day between the site and the Tri-Cities.

Temporary traffic delays during conductor stringing could occur where the Webber Canyon-Badger Canyon transmission line crosses Interstate 82 and local roads. The impact of temporary traffic delays would be mitigated through the preparation of traffic control plans in coordination with County and City officials and with the use of flaggers. Due to these mitigating actions and the relatively low volume of additional vehicles necessary for construction, the Project would have a low temporary impact on transportation. Once constructed, the Project would have a low permanent impact on traffic because BPA staff would visit Webber Canyon Substation once a week on average and the Webber Canyon-Badger Canyon transmission line would be visited one to two times per year for routine patrols and natural resources review.

The signage changes on the Ashe-Webber No. 1 and Webber-Marion No. 1 transmission lines would have low transportation impacts because the single vehicle needed to access ground level signs on existing roads would have a low impact to traffic. The signage changes would have no permanent impact on land use and low temporary land use impacts from the use of 33 proposed temporary helicopter landing sites for 1 to 2 days each.

3.7.2.2 Impacts Specific to Route Options

With the Railroad Option, the ROW for Segment 2 of the Webber Canyon-Badger Canyon transmission line would be located almost entirely between East Badger Road and the BNSF railway. The surrounding rural residential developments would therefore be separated from the ROW by existing infrastructure. BPA would obtain easements and permits for 61 acres of new transmission line ROW for the Segment 2 Railroad Option. Of that total ROW, approximately 55 acres would be on railroad property and 6 acres would be on rural residential private property. Approximately 2.8 acres of land would be used for new permanent access roads for Segment 2 with the Railroad Option.

With the Canal Option, Segment 2 of the Webber Canyon-Badger Canyon transmission line would include 1.1 miles of shared ROW with the Leslie Road-Reata No. 1 transmission line. The land use in this portion of the ROW would not be altered by the Proposed Action. BPA would negotiate and purchase easements for 43 acres of new ROW for the remainder of the Canal Option route for Segment 2. This would include a ROW grant for approximately 7 acres of BLM-managed land, easements on 14 acres of DNR-managed land, and easements on 22 acres of privately-owned rural residential land. Most of the privately-owned land within the proposed ROW is undeveloped and located north of the canal, though the ROW corridor and new access roads would also cross a few properties south and west of the canal that are currently used for residences and agriculture. The BLM- and DNR-managed parcels that would be crossed by the ROW are currently maintained as open space. Approximately 8.0 acres of land would be used for new permanent access roads for Segment 2 with the Canal Option.

3.7.2.3 No Action Alternative

Under the No Action Alternative, BPA would not develop the land for the Webber Canyon Substation or acquire easements for the Webber Canyon-Badger Canyon transmission line. This alternative would result in no new impacts on land use. Vehicle trips associated with ongoing maintenance of the Ashe-Marion No. 2 and McNary-Badger Canyon No. 1 transmission lines would continue under the No Action Alternative, resulting in low transportation impacts.

3.8 Recreation

3.8.1 Affected Environment

Recreational opportunities in the Project area are limited but include areas where the Project crosses public lands and abuts local recreation facilities. Portions of the Project are located within or adjacent to the 75-acre Amon Creek Natural Preserve. Amon Creek Natural Preserve is a City of Richland-owned wildlife and recreational area on the west fork of Amon Creek. The preserve includes 2.7 miles of walking/mountain biking trails known as Rail Road Trail and Einstein's Loop. BPA owns the property abutting the preserve; Badger Canyon Substation is east of the preserve and 0.6 mile of the Badger Canyon-Leslie Road No. 1 transmission line is adjacent to the eastern edge of the preserve. The BLM-managed parcel that the Webber Canyon-Badger Canyon Segment 1 would cross is open to use by off-highway vehicles and the BLM-managed parcel that the Canal Option would cross is used by mountain bikers.

The replacement of signs on the Ashe-Marion No. 2 transmission structures in Oregon and Washington would also include work in and adjacent to public recreation areas. These include the Hanford Reach National Monument, the Rattlesnake Slope Unit of the WDFW's Sunnyside-Snake River Wildlife Area, the Horse Heaven Hills Recreation Area managed by the BLM, the Umatilla National Wildlife Refuge managed by the USFWS, the Port of Benton's Crow Butte Park, the BLM's Prineville District and the Mt. Hood National Forest managed by the U.S. Forest Service. These recreation areas and their relation to the Project area are described in detail in Appendix D.

3.8.2 Environmental Consequences

3.8.2.1 Impacts Common to Both Route Options

The replacement of five existing Badger Canyon-Leslie Road No. 1 single-circuit transmission structures with double-circuit transmission structures would occur within Segment 3 adjacent to Amon Creek Natural Preserve. To access the transmission structures on the eastern edge of the preserve, BPA would construct approximately 0.1 mile of new access roads and reconstruct an additional 0.1 mile of the existing two-track dirt roads. These roads would be on BPA's property, but in an area that some visitors may use as an extension of the preserve. Modifications to Badger Canyon Substation and use of a temporary helicopter landing zone and staging area at Badger Canyon Substation would also occur in proximity to the preserve.

Impacts on recreational use of the Amon Creek Natural Preserve could include temporary access closures to portions of the preserve for up to 4 months, as well as dust and noise caused by construction activity and construction vehicles accessing Badger Canyon Substation. Intermittent noise and dust impacts would occur over the course of a year. Temporary noise and dust from construction vehicles, machinery, and helicopters could disturb visitors and fewer visitors may choose to visit the southern

part of the preserve during construction. Other nearby natural areas, such as the Badger Mountain Preserve, offer alternative destinations for local recreationists.

Due to the popularity of the Amon Creek Natural Preserve and availability of other local natural areas, short-term access closures, noise and dust near the preserve would have a moderate temporary impact. Construction would occur in the daytime and sound muffling devices would be used on construction equipment to mitigate noise impacts. The permanent replacement of single-circuit transmission structures with taller double-circuit transmission structures would result in a slight change in the visual character of the area; however, it would not permanently create additional noise (see Section 3.9.2) that could disrupt recreational opportunities in the area. There would be no permanent impact on recreational use of the preserve resulting from the Project. Temporary and permanent visual impacts are discussed in Section 3.9.

As detailed in Appendix D, the replacement of signs on the Ashe-Webber Canyon No. 1 and Webber Canyon-Marion No. 1 transmission structures would have minor temporary impacts on recreation areas. These impacts would be limited to temporary (approximately 30 minutes per structure, 1 to 2 days per landing zone) helicopter noise on the Webber Canyon-Marion No. 1 transmission line and noise associated with the use of hand tools and a single vehicle or ATV on existing access roads on both lines. Recreation areas near helicopter landing zones could also be temporarily impacted by localized dust associated with helicopter landings and takeoffs. Due to the brief amount of time required to replace the signs at individual transmission structures, use of existing access roads, limited use of individual helicopter landing zones and simple sign replacement method, temporary impacts on recreation from signage replacement would be low.

3.8.2.2 Impacts Specific to Route Options

There are no designated recreation areas within or adjacent to either the Railroad Option or the Canal Option. Use of a portion of the BLM- and DNR-managed parcels would be temporarily restricted for approximately 4 to 6 weeks during construction of the Canal Option, resulting in low temporary impacts to recreational users whose use patterns may be altered by work area safety restrictions.

3.8.2.3 No Action Alternative

Under the No Action Alternative, ongoing O&M activities on the existing Badger Canyon-Leslie Road No. 1 transmission line would have negligible impacts on the adjacent Amon Creek Natural Preserve and O&M activities on the Ashe-Marion No. 2 transmission line would have negligible impacts on the recreation areas through which it passes. This alternative would result in no new impacts on recreation.

3.9 Noise, Public Health & Safety

3.9.1 Affected Environment

3.9.1.1 Noise

Noise is commonly defined as unwanted or objectionable sound that disrupts normal human activities or diminishes the quality of the human environment. Audible noise is usually measured in decibels (dB) on the A-weighted decibel scale (dBA). This scale models sound as it corresponds to human perception. Noise exposure depends on the amount of time an individual spends near the source and distance from the source.

The affected environment for noise includes lands in the vicinity of the Project area where people could hear Project-related noise. Ambient noise levels vary within the vicinity of the Project area. Most of the portion of the Project in Benton County is characterized by agriculture and open spaces. A typical rural ambient sound level is 45 dBA (Berger *et al*. 2016). Vehicular traffic and agricultural equipment operation are the predominant sources of noise in this setting. In portions of the Project area near and within Kennewick and Richland, street traffic and highway traffic are sources of noise. A typical suburban ambient sound level is 60 dBA (Berger *et al*. 2016).

Audible noise from the existing 500-kV Ashe-Marion No. 2 and Ashe-Slatt No. 1 transmission lines may occur because of corona activity. Corona is the partial electrical breakdown of air molecules around high voltage conductors. Corona-generated noise is often heard as a hissing or crackling sound accompanied by a hum and is generally more audible during wet weather conditions. At other times corona-generated noise may be barely noticeable. Other transmission lines in the Project area are 115-kV, a voltage level that generates a low amount of corona activity with levels of noise that are not typically noticeable.

Locations where noise could adversely affect human activities and experiences are considered noise-sensitive. Noise-sensitive areas in and near the Project area are primarily rural residences, but also include schools and churches. Recreational areas, such as Amon Creek Natural Preserve, are noise-sensitive locations as well. The Ashe-Marion No. 2 transmission line passes through several state and federally managed recreational areas that are detailed in Appendix D.

3.9.1.2 Public Health & Safety

Public health and safety topics related to the Proposed Action include hazardous materials, wildland fire risks and response capabilities, herbicide use, and **electric and magnetic fields**. The context for analysis of each of these resource topics is addressed below.

Within the Project area, both Ashe Substation and a portion of the Ashe-Marion No. 2 transmission line are located within the boundaries of the Hanford Site. The Hanford Site contains hazardous and radioactive waste leftover from the production of nuclear weapons in the 20th century; the Department of Energy is managing an ongoing environmental cleanup project at the site. There are no other known toxic cleanup sites within the Project area (Washington Department of Ecology 2024b).

Wildland Fire

Weather, topography and the amount and types of fuels all contribute to wildland fire risk. In Benton County, extensive grasslands with an increasing amount of cheat grass and other invasive species have likely contributed to an upward trend in the annual acreage burned by wildfire (Benton County 2019). Most of the wildland fires that have occurred in Benton County since 1980 have been concentrated in the northern third of the county, as well as the slopes of the Horse Heaven Hills along the south side of Interstate 82 and in the Badger Mountain area (Benton County 2019). Fire danger in the Project area is generally highest in the summer months.

The Webber Canyon Substation and most of the Webber Canyon-Badger Canyon transmission line would be built within Benton County Fire Districts No. 1 and No. 5. Fire Station #520 is located on County Well Road less than 0.5 mile from the proposed access road to Webber Canyon Substation. The Benton County Fire Districts are staffed by a combination of professionals and volunteers. They are also part of the Tri-County Master Mutual Aid Agreement that includes all fire departments and fire districts within Benton, Franklin, and Walla Walla counties.

Badger Canyon Substation and a portion of the McNary-Badger Canyon No. 1 transmission line are within the City of Richland's Fire and Emergency Services Department's jurisdiction. McNary-Badger Canyon No. 1 also crosses through the jurisdiction of the City of Kennewick and Benton County Fire District No. 1. Other portions of the Proposed Action would be under the jurisdiction of the Hanford Fire Department and Benton County Fire Districts No. 2, No. 5, and No. 6. Fire response agencies with jurisdiction along the Ashe-Marion No. 2 transmission line are included in Appendix D.

Herbicides

Herbicides are a kind of pesticide that is used to control unwanted plants. Herbicides are commonly used in agriculture to manage weeds and are also used in smaller quantities in residential settings. BPA uses herbicides within its substations and along its transmission line and access road ROW to control certain vegetation and establish low-grounding vegetation communities. Specific herbicides and application methods that are approved for use are addressed in BPA's *Transmission System Vegetation Management Program Environmental Impact Statement* (BPA 2000) and Supplement Analyses.

Electric and Magnetic Fields

All electrical wires, from transmission lines to household wiring, produce electric and magnetic fields (EMF). Current (the flow of electric charge in a wire) produces the magnetic field. Voltage (the force that drives the current) is the source of the electric field.

Electric fields are measured in volts per meter (V/m) or kilovolts per meter (kV/m). Localized fields near a small household appliance can range from 30 to 60 V/m, but field strengths drop off sharply with distance from the source. Outdoor electric fields in publicly accessible places can range from 1 V/m to 12 kV/m, with the higher fields present near high-voltage transmission lines of 500 kV or greater. Electric field strength is reduced by objects such as walls and vegetation.

There are no national standards for electric fields from transmission lines, and the state of Washington has no electric field limit. BPA requires new transmission lines to meet its electric field guideline of 9 kV/m maximum on the ROW and 2.5 kV/m maximum at the edge of the ROW. BPA also specifies maximum-allowable electric field strengths of 5 kV/m for road crossings and 2.5 kV/m to 3.5 kV/m for parking lots.

Magnetic fields are measured in units of gauss (G) or milligauss (mG), with 1 G being equal to 1,000 mG. Average magnetic field strength in most homes (away from electrical appliances and wiring) is typically less than 2 mG. However, appliances carrying high current or those with high torque motors, such as microwave ovens, vacuum cleaners or hair dryers, may generate fields of tens or hundreds of milligauss to the areas directly around them. Outdoor magnetic fields in publicly accessible places can range from less than 1 mG to about 1,000 mG (i.e., about 1 G), with the highest levels localized near devices powered by large electric motors.

Magnetic field strength decreases with distance from a source but is not reduced by intervening common objects such as walls and vegetation. Therefore, transmission lines and distribution lines can contribute to longer-term magnetic field exposure through buildings located close to the line. There are no national standards for magnetic fields, and Washington and BPA do not have magnetic field limits for transmission lines.

After decades of research, the issue of whether any long-term health effects are associated with magnetic fields from transmission lines remains inconclusive. For the latest information, BPA looks to the determinations of the National Institute of Environmental Health Science. Scientific reviews of the research on EMF health effects have not found sufficient evidence to conclude that EMF exposure leads to long-term health effects (Exponent 2015).

3.9.2 Environmental Consequences

3.9.2.1 Impacts Common to Both Route Options

Noise

Construction of the Project would result in temporary noise impacts during daytime hours. The use of heavy equipment, increased worker vehicle trips and the intermittent use of helicopters would all contribute to construction noise. The temporary increase in traffic volumes on local roads would have a low noise impact because BPA expects no more than 10 vehicles to be used in one location at a time for work on the transmission lines. Typical noise levels from heavy equipment that would likely be used during construction range from 80 dBA (backhoe) to 95 dBA (rock drill) at 50 feet away (Federal Transit Administration 2018). Noise produced by construction equipment would decrease with distance at a rate of about 6 dBA per doubling of distance from the source of the noise. Based on that assumed attenuation rate, noise-sensitive properties within 400 feet of construction sites could be exposed to daytime noise levels of approximately 77 dBA, which is similar to the noise level produced by a coffee grinder.

Helicopter noise levels depend on a variety of factors, including the size and type of the aircraft, the maneuver they are making (e.g., take-off, turning), and distance from the listener. Research on helicopter noise has found that helicopters may be perceived as more annoying than other sources of similar noise levels. This may be due to the distinct characteristics of helicopter noise (e.g., blade slap), the secondary induced vibration that helicopters can cause to nearby structures, and a lack of habituation to helicopter noise that makes it more noticeable (National Academies of Sciences 2016). Helicopter noise levels are about 106 dBA when operating at 50 feet above ground surface. Noise associated with helicopter use during Project construction would be temporary and intermittent for many locations within the Project area. When not near a helicopter landing area, transmission line work would generally take less than 10 minutes to deliver materials or to string the sock line through each structure. It is estimated that a helicopter would not be in any given line mile for more than 3 hours during Project construction.

Temporary noise impacts during Project construction would be low to moderate and would vary based on the activities proposed and their proximity to noise-sensitive areas. Construction of Webber Canyon Substation, Segment 1 of the Webber Canyon-Badger Canyon transmission line and the fiber optic cable installation in the Webber Canyon-Marion No. 1 ROW would result in low temporary noise impacts due to their locations in rural portions of the County with no residences within 0.25 mile of construction. Crews would spend approximately 3.5 weeks per line mile building the Webber Canyon-Badger Canyon transmission line. Installing the 22 miles of overhead and underground fiber optic cable in the Webber Canyon-Marion No. 1 transmission line ROW would occur over an approximately three-month period, with approximately 20 fiber optic wood poles installed per week.

Fiber optic cable installation on McNary-Badger No. 1 transmission line would result in low to moderate temporary noise impacts due to the use of heavy equipment and helicopters in proximity to noise-sensitive residences and institutions along parts of the transmission line in and near Kennewick and Richland. Most work in a single line mile would occur over an approximately 1-week period.

Other activities near noise-sensitive groups within and near Richland include construction of Segments 2 and 3 of the Webber Canyon-Badger Canyon transmission line and construction at Badger Canyon Substation. Construction activities at Badger Canyon Substation would occur over an approximately 15-month period. Crews would construct Segments 2 and 3 at a pace of approximately 3.5 weeks per line mile. These activities would have moderate temporary noise impacts due to the intermittent use of heavy equipment and helicopter landing zones in proximity to noise-sensitive residences and, for Segment 3 and Badger Canyon Substation, proximity to Amon Creek Natural Preserve. Temporary noise impacts would be mitigated by using sound muffling devices on construction equipment, limiting equipment idling and only operating helicopters and heavy equipment during the day (See Section 2.7).

As described in Appendix D, temporary noise impacts from the signage changes on the Ashe-Webber Canyon No. 1 and Webber Canyon-Marion No. 1 transmission lines would be low. This is because of the short duration of helicopter activity in any single location (approximately 30 minutes), lack of heavy equipment use and the short duration of ground level signage change work (15 to 30 minutes per structure).

Modeling of the Webber Canyon-Badger Canyon transmission line indicates that the maximum anticipated corona-generated noise level at the edge of the ROW during wet weather conditions would be 14 dBA, a noise level that is not typically noticeable. The Webber Canyon Substation would be designed to minimize noise from substation equipment (i.e., humming noise from transformers or short burst of noise from circuit breakers) and would meet BPA's 50 dBA design criteria at the substation perimeter. The Proposed Action's other infrastructure upgrades would not noticeably increase the noise generated by existing substations or transmission lines. Permanent noise impacts from the Project would be low because the Webber Canyon-Badger Canyon transmission line and Webber Canyon Substation would generate very low levels of noise and modifications to existing infrastructure would not noticeably alter existing noise levels.

Public Health & Safety

The Proposed Action would reduce the risk of loss of load events that could lead to power outages that could endanger public health and safety (See Section 1.2). Power outages have the potential to impair the functioning of hospitals, fire departments, and other emergency responders, to increase risks to motorists due to traffic light outages, and to endanger individuals who are dependent on electricity to operate home health equipment. By reducing the risk of these events, the Proposed Action would benefit public health and safety.

Project construction could result in potential public health and safety impacts from incidents involving heavy equipment, vehicles, helicopters or proximity to high-voltage transmission lines. BMPs would be followed to reduce the likelihood and severity of these health and safety risks to low (e.g., Safety Plan, SPCC Plan; see Section 2.7).

Wildland Fire: Project construction could increase the risk of fire ignition. Heavy equipment operation, improper vehicle staging or incorrect fuels storage are all potential risk factors, particularly in the

presence of dry vegetation. Prior to starting work, BPA's construction contractor would contact fire agencies with jurisdiction over the Project area to review fire hazards, prevention measures and response plans. In addition to implementing local fire agencies' rules, BPA's construction contractor would implement standard fire prevention BMPs. These would include appropriately storing fuels and providing fire watchers at work areas where power-driven equipment is used during fire season or whenever fire danger is high. During fire season, daily state fire agency condition reports would be reviewed and required work restrictions and closures would be implemented as necessary. Impacts of the Project on wildland fire risk and public safety would be low due to implementation of BMPs that would make the likelihood of fire ignition low during construction.

Fire retardant pole wraps would be installed on the new Webber Canyon-Badger Canyon wood transmission structures. They would also be added to the existing wood transmission structures on the segment of the McNary-Badger Canyon No. 1 that would be strung with fiber optic cable. The fire-retardant material would enhance protection of these transmission lines in the event of a fire in the area.

Herbicides: The Project would increase the amount of ROW and access roads within which BPA would actively manage vegetation (see Section 3.2). Along with manual and mechanical control, herbicides are a vegetation management tool that could be used during Project construction and during the routine vegetation management that occurs on a 3-year rotation on BPA transmission lines in the area. BPA would follow standard safety procedures and all regulations regarding worker and public safety. Herbicide application would also be guided by BPA's Transmission System Vegetation Management Program.

The public may be exposed to herbicides through drift or spills. BPA notifies known landowners when a vegetation management or herbicide project is being planned to allow landowners to respond to BPA with concerns, questions or directives for herbicide spraying on their property. Landowner response might include information to help BPA determine appropriate application methods and mitigation measures (such as herbicide-free buffer zones around springs, wells, organic farms or other sensitive areas). When landowners request that herbicides not be applied on their property, BPA works with property owners to strategize non-chemical ways to deal with vegetation hazards on the ROW (e.g., noxious weed management plans, replacement vegetation efforts).

Due to the implementation of applicator safety procedures, adherence to guidelines to protect water sources in accordance with the Transmission System Vegetation Management Program, and commitment to working with landowners to ensure vegetation is managed in a manner acceptable to both parties, health and safety impacts from the Project's potential use of herbicides would be low.

Electric and Magnetic Fields: The primary parameters that impact electric and magnetic field levels produced by a power line are line voltage, current loading, line configuration and line routing. The portion of the Proposed Action that would appreciably change these parameters is the installation of the Webber Canyon-Badger Canyon transmission line. The proposed 115-kV transmission line would cause an increase in the EMF in the vicinity of the Webber Canyon-Badger Canyon transmission line, as reported in Table 3-11. Most of the Webber Canyon-Badger Canyon transmission line would be constructed in a new ROW and EMF levels from the addition of the single-circuit line would be low. The field levels would be slightly higher where the Webber Canyon-Badger Canyon transmission line would be constructed in existing ROW as a double-circuit with another 115-kV transmission line.

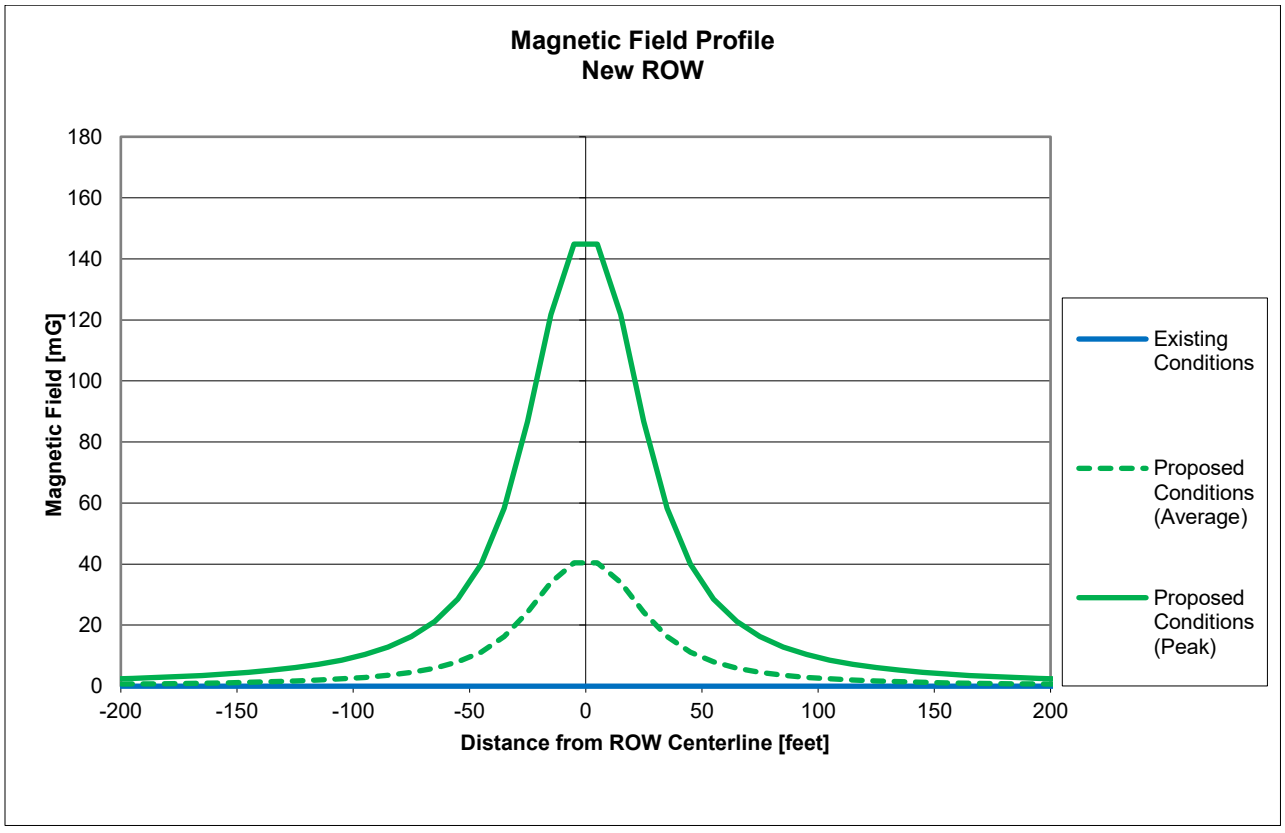
The increases in EMF from the Proposed Action would have a low impact on public safety because electric field levels would be within the BPA design limits and magnetic fields would decrease quickly with distance, approaching common ambient levels within 200 feet as shown in Figures 3-1 and 3-2.

Table 3-11: Webber Canyon-Badger Canyon Transmission Line ROW Electric Field Values (kV/m)

ROW	Existing or Proposed Conditions	Eastern/Southern ROW Edge	Maximum on ROW	Western/Northern ROW Edge
New ROW[a]	Existing	0	0	0
New ROW[a]	Proposed	0.4	1.3	0.4
Existing ROW[b]	Existing	0.4	1.7	0.4
Existing ROW[b]	Proposed	1.5	2.6	0.2

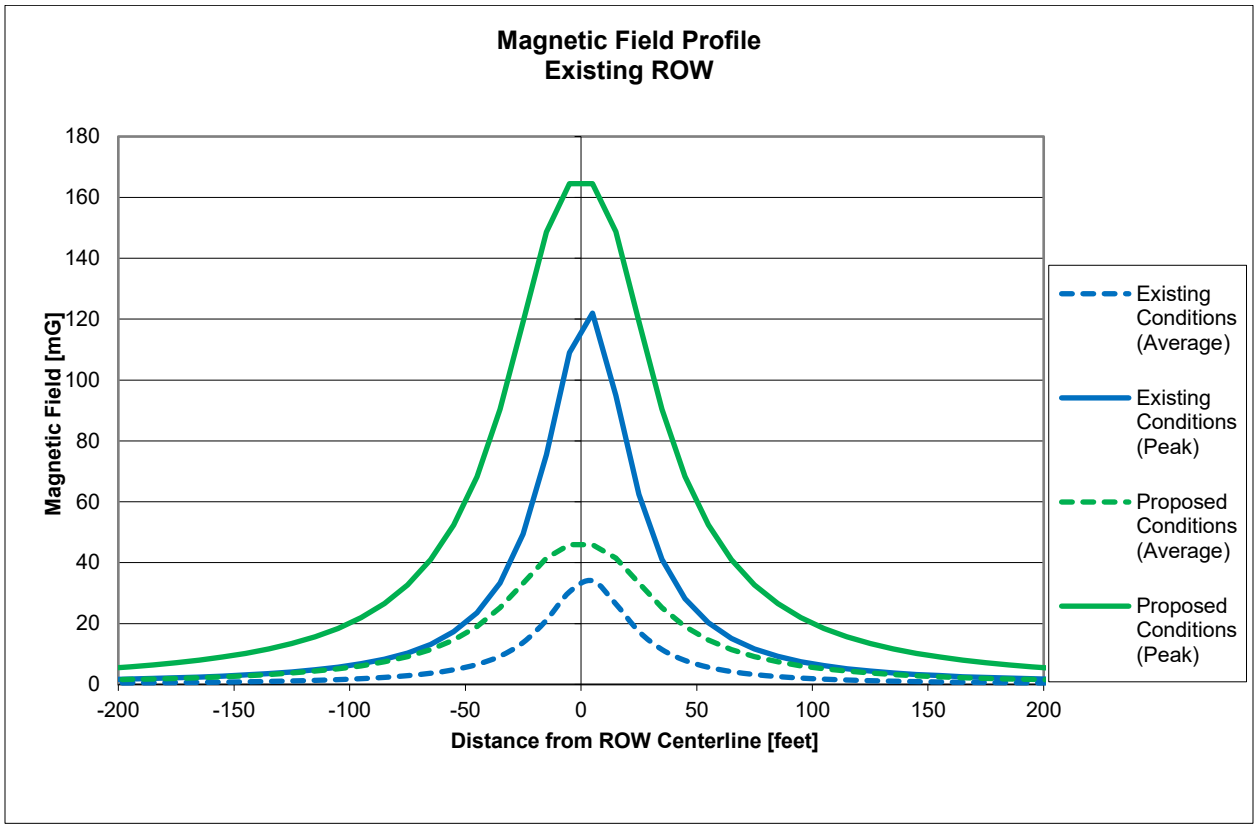
Note: Values developed from BPA modeling programs (BPA 2024).
[a]New ROW consists of Segment 1, Segment 2 Railroad Option and 83% of Segment 2 Canal Option (single-circuit portion).
[b]Existing ROW consists of Segment 3 and 17% of Segment 2 Canal Option (double-circuit portion).

Figure 3-1: Webber Canyon-Badger Canyon Transmission Line Magnetic Field Values (mG) along New ROW (Single-Circuit Portion)



Note: Values developed from BPA modeling programs (BPA 2024). Calculation of annual average and annual peak magnetic field levels are based on historical 2019-2023 line loading statistical data obtained from BPA's SCADA system. New ROW consists of Segment 1, Segment 2 Railroad Option and 83% of Segment 2 Canal Option (single-circuit portion).

Figure 3-2: Webber Canyon-Badger Canyon Transmission Line Magnetic Field Values (mG) along Existing ROW (Double-Circuit Portion)



Note: Values developed from BPA modeling programs (BPA 2024). Calculation of annual average and annual peak magnetic field levels are based on historical 2019-2023 line loading statistical data obtained from BPA's SCADA system.
Existing ROW consists of Segment 3 and 17% of Segment 2 Canal Option (double-circuit portion)

3.9.2.2 Impacts Specific to Route Options

Noise

The Railroad and Canal Options are not substantially different in terms of their proximity to noise-sensitive areas and would therefore have similar moderate temporary noise impacts and low permanent impacts as addressed in section 3.8.2.1.

Public Health & Safety

The potential for wildland fire ignition is not substantially different between the two route options because of similar vegetative conditions and standard risk mitigation BMPs. The prevailing southwest wind could direct a fire on either of the route options towards residential areas. Fire suppression efforts along the Railroad Option would be aided by the flat topography of the route and the ease of access for fire trucks along East Badger Road. Fire suppression efforts may be more challenging along the Canal Option due to limited, unpaved access roads and topography; along this route, a southwest wind could direct fire up a steep hillside.

Herbicide management would generally be the same with either route option, though as an agricultural irrigation source, no herbicide application would occur within 50 feet of the Kennewick East Badger Lateral Canal. EMF increases would be slightly higher along a 1.1-mile-long stretch of the Canal Option that would be constructed as a double-circuit in existing ROW, as compared to the entirely single-circuit Railroad Option. For reasons addressed in Section 3.8.2.1, both route options would have low temporary and permanent impacts on public health and safety.

3.9.2.3 No Action Alternative

Under the No Action Alternative, there would be no new construction impacts related to noise or public health and safety beyond what may be required as part of ongoing O&M of existing substations and transmission lines. There is a potential for moderate long-term impacts to public health and safety, however, if prolonged power interruptions occur due to a lack of reinforcement. Power interruptions could potentially put public safety agencies, health providers, and businesses that rely on a steady source of power at risk.

3.10 Visual Quality

3.10.1 Affected Environment

The visual setting for the majority of the Proposed Action is a semi-arid rural landscape and the affected environment encompasses lands in the vicinity of the Project area from which Project components could be seen. The western portion of the Project area in Benton County (including the proposed Webber Canyon Substation site and Segment 1 of the Webber Canyon-Badger Canyon transmission line), as well as part of the McNary-Badger Canyon No. 1 transmission line, are within the Horse Heaven Hills. This uplift, bordered to the north by the Yakima River, is characterized by cropland and open space. The eastern portion of the Project area in and near Richland and Kennewick is lower in elevation and is characterized by rural residential and suburban development.

The Project area also includes part of a small canyon, Scouten Canyon, through which South Badger Canyon Road begins the elevation change between the hills and the cities. South Badger Canyon Road is a dirt road west of 99 Private Road SE. A larger canyon approximately 2 miles north of the Project area, Webber Canyon, provides a more visually striking and heavily travelled route to Horse Heaven Hills via the paved, two-lane Webber Canyon Road.

Vegetation color in agricultural parts of the Project area ranges from green to tan to brown depending on the season, crop, and irrigation. Due to the semi-arid climate, non-cropland vegetation is predominantly sagebrush steppe, with muted colors. The Ashe-Marion No. 2 500-kV steel lattice towers cross the landscape at the western edge of the Project area, extending north and south from the proposed Webber Canyon Substation site.

As described in Section 3.2, vegetation in the eastern part of the Project area includes deciduous trees, conifer windbreaks, lawns and ornamental plants and remnants of sagebrush steppe. Residences dominate the landscape in this portion of the Project area and vegetation colors are a mix of darker greens and muted greens and browns. The Horse Heaven Hills are a prominent feature when viewed from the eastern part of the Project area, which is approximately 1,000 feet lower in elevation than the ridgeline.

There are no designated scenic resources (such as byways, rivers, or trails designated as "scenic" by a state or federal agency) within or adjacent to the Benton County portion of the Project. However, scenic views of and from Horse Heaven Hills are valued by the local community as a regional asset. Badger Mountain, located approximately 3 miles north of the proposed Webber Canyon-Badger Canyon transmission line corridor, is another regionally significant viewpoint. Sensitive viewer groups within the Project area include residents, motorists, and people using recreational amenities adjacent and within the Project area, such as the Amon Creek Natural Preserve (see Section 3.8).

Benton County's Comprehensive Plan includes a goal to "Conserve visually prominent naturally vegetated steep slopes and elevated ridges that define the Columbia Basin landscape and are uniquely a product of the ice age floods" (Benton County 2022). Horse Heaven Hills is one of the areas identified as a target of preservation measures "to protect the natural landform and vegetative cover" (Benton County 2022).

The Ashe-Marion No. 2 transmission line crosses through a range of rural landscapes with varying degrees of visual interest. These include arid sagebrush ecosystems, the forestlands within and around Mt. Hood National Forest and the eastern edge of the Willamette Valley.

3.10.2 Environmental Consequences

3.10.2.1 Impacts Common to Both Route Options

Construction would result in temporary and permanent visual changes in the Project area. Temporary visual impacts would result from the presence of construction equipment and activities. Some activities have the potential to exacerbate atmospheric dust conditions, which can limit visibility in an area. Erosion control BMPs would reduce the potential for wind to lift soil into the atmosphere and impact visual quality from dust. The longest duration of construction activities would occur at the remote Webber Canyon Substation site, which would be visible to passing motorists, but is away from heavily used and populated areas. Fiber optic wood pole and cable installation in the Webber Canyon-Marion No. 1 transmission line ROW would be less visible because most of the line is located away from existing roadways. Construction of other components of the Project that are closer to existing roadways and residents, including upgrades at Badger Canyon Substation and parts of the Webber Canyon-Badger Canyon transmission line, would be more visible to sensitive viewer groups. Due to the range of locations and viewer groups, short-term construction of the Proposed Action would result in low to moderate temporary visual impacts.

At the Webber Canyon Substation site, the tallest elements would be two new 206-foot-tall lattice steel towers. These towers would be visually consistent with the steel lattice steel towers of the current 500-kV transmission line, as would two proposed 209-foot-tall replacement towers for the Ashe-Webber Canyon No. 1 and Webber Canyon-Marion No. 1 transmission lines. The new substation equipment would be set back approximately 0.4 mile south of County Well Road, the nearest roadway, but would be clearly visible with its approximately 1,000-foot-long (east-west) extent of equipment. Exterior lighting at the substation would be limited as permanent lighting would be cast downwards and would only be turned on during rare occasions when operations and maintenance work occurs at night. Due to its location far from the Horse Heaven Hills ridgeline, the substation would not alter scenic vistas from, or views of, this land formation. Due to the proposed location of the substation and low number of

viewers in the area, the addition of the substation would have low to moderate permanent impacts to the existing visual landscape.

The proposed Webber Canyon-Badger Canyon transmission line would result in noticeable changes to the visual environment where a new ROW would be established for Segments 1 and 2. The new structures would range in height from 60 to 100 feet tall, with most structures in the 70-to-80-foot-tall range. The wood structures proposed throughout Segments 1 and 2 would present a low to moderate contrast with the surrounding landscape due to the prevalence of muted brown colors in the existing landscape. The use of yellow and orange striped guy wire guards on some of the structure guy wires would present a moderate visual contrast to nearby viewers (as intended for the purpose of preventing wildlife collisions and alerting farm operators to their presence) but would not stand out to more distant viewers due to their small diameter and placement close to the ground on the lower sections of guy wires. Sections of the transmission line that would parallel existing roadways and distribution lines would be seen by more sensitive viewers than sections that would cross open agricultural areas but would also have weaker contrast with the surrounding landscape due to the presence of existing infrastructure (see Appendix F, Viewpoint 1).

Most of the transmission structures in Segment 1 would not be visible from the more developed eastern part of the Project area due to distance and elevation changes. Segment 1 would be visible from the east as it descends from the Horse Heaven Hills ridgeline paralleling South Badger Canyon Road. Due to the perpendicular alignment of the transmission line as it would cross the ridgeline and the presence of existing cellular towers and a distribution line on the hilltop immediately south of Badger Canyon Road, these new structures would be relatively unobtrusive, but would have a moderate impact on the visual quality of the Horse Heaven Hills ridgeline given its sensitivity and position relative to higher numbers of viewers (see Appendix F, Viewpoint 2).

In Segment 3, BPA would replace 13 structures (11 wood poles and 2 steel monopoles) with 11 steel monopoles. Structure heights in the ROW would increase from 55 to 80 feet tall to 80 to 120 feet tall. Segment 3 would be in proximity to sensitive viewer groups that include recreationists in Amon Creek Natural Preserve. Although the change in structure types would be perceptible, the overall visual character of the existing ROW would remain similar to the existing conditions.

Fiber optic related upgrades along the McNary-Badger Canyon No. 1 transmission line would result in visual changes from the installation of up to thirteen 57-foot-tall new wood poles in Kennewick, new bracing on 21 wood transmission structures and the addition of overhead fiber optic cable, which would be less than 1 inch in diameter. These changes would result in low permanent impacts because of the relatively small scale of the components relative to the existing transmission line.

The installation of up to 250 fiber optic wood poles paralleling the Webber Canyon-Marion No. 1 transmission line would have a low permanent impact on visual quality because of their distance from sensitive viewer groups in the rural landscape and the scale and location of the poles within the existing transmission line corridor. Approximately twelve poles would be located within each mile, though fiber optic cable is expected to be buried in portions of the ROW that pass through cultivated areas where poles would otherwise conflict with crop circles. The 57-foot-tall poles would be relatively visually unobtrusive compared to the existing lattice steel towers in the ROW, which are approximately three times taller. The linear configuration of the poles, paralleling the existing transmission lines, would be similar to the existing visual character of the ROW.

Although some signage changes along the Webber Canyon-Marion No. 1 transmission line would occur in the vicinity of scenic resources, the signs would replace existing signs of the same size, shape and color. Signage changes along the Webber Canyon-Marion No. 1 and the Ashe-Webber Canyon No. 1 transmission lines would result in low temporary visual impacts and no permanent visual impacts because the signs would be replaced in kind.

Overall, due to the range of Project components, locations and visibility to sensitive viewer groups, the Proposed Action would result in low to moderate permanent visual impacts. The Project would not significantly diminish the visual quality of Horse Heaven Hills and would have no permanent impacts to designated scenic resources.

3.10.2.2 Impacts Specific to Route Options

All transmission structures along the route for the Segment 2 Railroad Option and all transmission structures within new ROW for the Segment 2 Canal Option would be two-pole or three-pole wood structures. As discussed in Section 3.9.2.1, the color of the wood transmission structures in Segment 2 would have a low to moderate contrast with the surrounding landscape, apart from the guy wire guards on some structures. With the Canal Option, BPA would also replace an additional 18 wood transmission structures with 15 steel monopoles within the existing ROW. Although the replacement structures would be taller, the change would be consistent with the existing visual character of the ROW in the light industrial area immediately north of Interstate 82.

Appendix F contains photo simulations showing the anticipated resulting change in the visual environment of the surrounding neighborhoods from both Segment 2 route options. Appendix F Viewpoint 3 depicts the change in the view from East Badger Road that would result from the Railroad Option. As discussed in Section 3.2 Vegetation, this option would involve the removal of approximately 13.3 acres of eastern cottonwood, Russian olive and Pacific willow trees adjacent to East Badger Road. BPA would also maintain the space within and immediately adjacent to the ROW to prevent the regrowth of tall vegetation. This would be a noticeable visual change for surrounding residents and motorists traveling on East Badger Road. The addition of new ROW, access roads and 46 wood transmission structures ranging from 60 to 100 feet in height would also be a noticeable visual change within the context of a previously developed area with an existing roadway, railroad and a distribution line.

Appendix F Viewpoint 4 presents the change in view from the neighborhood around Cottonwood Drive that would be in closest proximity to the Canal Option. The introduction of 37 wood transmission structures ranging in height from 60 to 100 feet would be a noticeable visual change for surrounding residents. Vegetation clearing for the new ROW would result in a less noticeable change than the Railroad Option due to the predominantly low growing shrub/scrub vegetation along this route, but the structures would present a stronger contrast to the existing open space north of the canal.

The photo simulations also depict how views would change with both the Railroad and Canal Options from two viewpoints on the ridgeline north of the Kennewick East Badger Lateral Canal. From the eastern extent of South Sagebrush Road (Appendix F Viewpoint 5), the Canal Option transmission line would be prominent in the foreground. From South Bermuda Road at the top of the ridgeline (Appendix F Viewpoint 6), the transmission line would likely not be noticeable to a casual viewer with either the Railroad Option or the Canal Option.

3.10.2.3 No Action Alternative

Under the No Action Alternative, there would be no modifications to existing infrastructure beyond what may be required as part of ongoing O&M of existing substations and transmission lines. Because there would be no new changes, this alternative would result in no new changes to the visual quality.

3.11 Cumulative Effects

3.11.1 Past, Present, and Reasonably Foreseeable Projects

Past and ongoing actions that have shaped the environment in which the Project is proposed include agricultural development and diversions from the Yakima River, rural residential development, urban development in Kennewick, construction and maintenance of local roadways and state highways and construction and maintenance of the existing transmission and distribution system. Identifying other reasonably foreseeable future actions to consider requires review of planned or permitted work by local, state, and federal agencies. Reasonably foreseeable future actions are those where some form of planning (environmental or engineering) has been initiated or a planning document (e.g., transportation plan; forest management plan) exists that describes specific potential projects. The following reasonably foreseeable projects are also considered in the cumulative effects analysis:

Badger Road Pathway Project: Benton County is proposing to design and construct a pathway north of East Badger Road, beginning on the west at Dallas Road and continuing eastward to the cities of Richland and Kennewick. The envisioned location is similar to the Railroad Option route for Segment 2 of the Webber Canyon-Badger Canyon transmission line. The pathway proposal is still in the conceptual stage and funding has not yet been secured.

Center Parkway South Extension: The City of Richland is planning to construct an approximately 2,500-foot-long two-lane road connecting the southeast end of the existing Center Parkway, next to Badger Canyon Substation, to a new intersection with Leslie Road. This roadway extension would largely occur within the BPA ROW that would be used for Segment 3 of the Webber Canyon-Badger Canyon transmission line. The city will also build a new 12-foot-wide multi-use paved pathway on the north side of the roadway, as well as a new 12-foot-wide gravel pathway on Leslie Road between the extension and a new gravel parking lot adjacent to Amon Creek Natural Preserve (City of Richland 2022). Construction is expected to begin in April 2025 (ClearGov 2024).

Central Storage Reservoir: Kennewick Irrigation District (KID) is proposing to build a new 12,000-acre-foot capacity storage reservoir on approximately 330 acres. The preferred site is on approximately 400 acres bordered by East Badger Road to the east, Amy Loop Road (adjacent to the Main Canal) to the west, South Badger Canyon Road to the north and residential properties to the south. Construction of the Central Storage Reservoir would require raising the elevation of East Badger Road. Funding has not been identified for the project and a Washington State Environmental Policy Act EIS will be required (KID 2022).

County Well Road Reconstruction: In 2025, Benton County plans to reconstruct 3 miles of County Well Road between State Route 221 and McBee Road to an all-weather road and in 2026 and 2027 plans to reconstruct an additional 4 miles of County Well Road east of McBee Road (Benton County 2023). The proposed entrance to the Webber Canyon Substation would intersect the portion of County Well Road that will be reconstructed in 2025.

Horse Heaven Wind Farm: Horse Heaven Wind Farm LLC is planning the development of a renewable energy generational facility with a combination of wind and solar facilities, as well as battery energy storage systems. A Site Certification Agreement between the State of Washington and Horse Heaven Wind Farm LLC was executed on October 18, 2024. Horse Heaven Wind Farm's plan includes four facility substations and proposed interconnections at BPA's proposed Bofer Canyon Substation and the proposed Webber Canyon Substation. Turbines will be sited within an approximately 11,850-acre corridor and the solar siting areas and supporting equipment will occupy up to 10,755 acres.

Lower Basin Fuel Breaks: The BLM-Spokane District is proposing fuel breaks and targeted vegetation management to reduce hazardous fuel loads on BLM-managed lands in the Horse Heaven Hills (BLM 2024). One of the proposed sites, the Badger fuel break, is a 69-acre site on the BLM-managed parcel that would be crossed by Segment 1 of the Webber Canyon-Badger Canyon transmission line; the treatment site is more than 0.5 mile from the Project area. If the Proposed Action in BLM's EA is implemented, the proposed Badger fuel break is expected to create more defensible space through targeted vegetation management techniques to lower the risk of catastrophic wildfires and creation of a fuel break positioned perpendicular to historic fire spread.

Transmission Line Impairments: A proposed new 230/500-kV hub substation called Six Mile Canyon near Boardman, Oregon would require the 500-kV Ashe-Slatt No. 1 line to be split into two individual line circuits. Each of these newly separated lines would need to be re-rated for the maximum electrical load it can safely carry. BPA has determined that the existing line configuration could not be re-rated at the same or higher maximum electrical load as it is currently. Two line **impairments** would need to be mitigated for the newly split circuits to be rated equal to or higher than the current line rating.

The first impairment is located at the transmission line's 4,000-foot-long span of the Columbia River. Pending consultation with the U.S. Army Corps of Engineers regarding required clearances, mitigation could include raising the existing transmission line structures. The second impairment is between Ashe-Marion No. 2 transmission structures 63/2 and 63/3 in Morrow County, Oregon and mitigation could consist of raising one or both of these 175-foot-tall structures. BPA would conduct a separate NEPA environmental review for this impairment project.

The Ashe-Marion No. 2 and the Ashe-Slatt No. 1 transmission lines are attached to the same structures as a double circuit configuration. If the impairments are removed prior to Webber Canyon Substation being energized, the Proposed Action would have no effect on current transmission system operations. However, if the impairment project is not completed before Webber Canyon Substation energization, BPA has determined that the existing configuration of the Ashe-Marion No. 2 line south of the new Webber Canyon Substation (which would be renamed as the Webber Canyon-Marion No. 1 line; see Figure 2-2) could not be re-rated at the same or higher maximum electrical load as it is currently. The 500-kV line could be de-rated until the impairments are removed, which could reduce BPA's ability to move power over the line during peak load conditions. This could temporarily reduce the amount of operational flexibility gains the transmission system in the Tri-Cities region would experience from the Proposed Action.

3.11.2 Cumulative Effects by Resource

The Proposed Action—in combination with past, present, and reasonably foreseeable future actions—may result in cumulative effects on the natural, physical and human environment described in Sections

3.1 through 3.10. The following analysis describes these potential cumulative effects organized by resource topic.

Soils and Geologic Hazards: Previous and ongoing agricultural use of land within the Project area would continue to disturb soils. Other planned construction projects in the Project area would impact soils to differing extents, based on their scale, but would be expected to follow erosion control BMPs due to permitting requirements.

While the Proposed Action may contribute to the cumulative disturbance of soils, the effect would be greatest during and shortly after construction, which could potentially overlap in timing with construction of the Horse Heaven Wind Farm. Because the Horse Heaven Wind Farm lease area spans part of the Project area, construction of the two projects would result in soil compaction and temporarily decrease soil stability where cutting, filling, and grading is required. The impacts to soils would be localized to the projects' respective infrastructure, therefore limiting the extent of the cumulative effects to soils. No geologic hazards are anticipated to affect or be affected by the Project, nor are cumulative effects anticipated from past, present and reasonably foreseeable future actions. With the implementation of mitigation measures described in Section 2.7, cumulative effects to soils due to the Proposed Action when considered in addition to past, present, and other reasonably foreseeable future actions would be low.

Vegetation: Past and present development in the Project area, including the railroad, roadways, rural residential development and irrigation-supported agriculture, has altered native shrub steppe vegetation communities. Within the existing BPA ROW, vegetation has been and will continue to be subject to routine vegetation management.

The Proposed Action would result in the permanent loss of vegetation as well as temporary disturbance of vegetation. Other planned construction projects in the Project area, most notably the Horse Heaven Wind Farm, would also result in permanent vegetation loss and temporary vegetation disturbance. Re-seeding of temporarily disturbed areas would be expected for all projects. The Proposed Action, when considered in addition to past, present and other reasonably foreseeable future actions, could contribute to low-to-moderate cumulative effects on vegetation resulting from the permanent loss of vegetation and from construction activities that temporarily disturb vegetation and contribute to the potential spread of invasive plants.

Waterways & Water Quality: Past diversions of the Yakima River and development of the KID canal system has played a large role in shaping the waterways in the Project area. The proposed KID Central Storage Reservoir would expand the area's water storage capacity.

The Proposed Action would have no permanent stream impacts and low impacts on groundwater recharge due to the addition of impervious surfaces. Other past, present and reasonably foreseeable future actions, such as residential development and the Center Parkway South Extension, would also increase the amount of impervious surfaces and could have permanent impacts to streams by reducing riparian vegetation and placing fill within streams. When considered in addition to past, present and other reasonably foreseeable future actions, the Proposed Action could contribute to low cumulative effects on waterways and water quality from temporary work within streams, disturbance of riparian vegetation and an increase in impervious surfaces that may slow the rate of groundwater recharge.

Wetlands & Floodplains: Wetlands have been impacted by past and ongoing development in the eastern portion of the Project area. Future projects in the vicinity, such as the Center Parkway South Project, could result in reduced floodplain capacity, filling of wetlands and clearing of wetland vegetation. These projects would be required to avoid, minimize and compensate for any impacts to wetlands under federal and state laws, but could still contribute to a cumulative loss of wetland and floodplain functions at the local level.

The Proposed Action would result in less than 1 acre of temporary wetland impacts and approximately 0.1 acre of permanent wetland fill impacts. BPA and the City of Richland are expected to develop Stormwater Pollution and Prevention Plans (SWPPPs) to mitigate impacts to wetlands from increased impervious surfaces associated with projects near delineated wetlands along Badger Road and Amon Creek Natural Preserve (Section 3.11.1). With the implementation of mitigation measures and BMPs, the Proposed Action would contribute to low cumulative effects on wetlands and floodplains when considered in addition to past, present and other reasonably foreseeable future actions.

Wildlife: Past and present development has altered wildlife habitat in the Project area. Other reasonably foreseeable future actions would contribute to this trend. Wind turbines associated with the proposed Horse Heaven Wind Farm would also increase the risk of bird strikes in the area.

Construction of the Proposed Action would likely result in temporary displacements of wildlife. Work timing restrictions would mitigate the risk of impacting the northern spotted owl in Oregon, as well as the ferruginous hawk and migratory birds in Washington. Construction of the Proposed Action could potentially coincide with construction of the Horse Heaven Wind Project. Further, under the Proposed Action, there is also a risk of bird strike from the Webber Canyon-Badger Canyon transmission line and fiber optic cable, though the risk would be mitigated with the addition of bird diverters and guy wire guards and is therefore expected to be low. When considered in addition to past, present and other reasonably foreseeable future actions, the Proposed Action could contribute to low-to-moderate cumulative effects on wildlife as a result of habitat loss, increased risk of avian mortality and temporary noise disturbance.

Cultural Resources: Past and present development and other activities have likely had negative impacts on cultural resources in the Project vicinity. The Site Certification Agreement for the Horse Heaven Wind Farm acknowledges that mitigation measures will not avoid all adverse impacts to Yakama Nation traditional cultural properties, which were characterized as “high” in the project’s state-level final EIS.

The Proposed Action could have unanticipated impacts to cultural resources, and if there is an inadvertent discovery during Project construction, work within a 30-meter buffer of the find would cease and actions would be taken according to BPA’s Post-Review Discovery Plan. The incremental contribution of the Proposed Action, when combined with the impacts of other past, present and reasonably foreseeable future actions, including impacts to Traditional Cultural Places, would result in moderate cumulative impacts on cultural resources.

Land Use & Transportation: Land use and transportation infrastructure in the Project area has changed over time due to agriculture, urban development and ongoing residential development at the outskirts of Kennewick and Richland. The Proposed Action would result in the permanent change in ownership of a 187-acre parcel managed by the Washington DNR and previously leased for agriculture, as well as new easements and ROW grants across up to 208 acres of land. Other reasonably foreseeable future actions

would contribute to incremental change of land use in the area, such as development of vacant land near the Tri-Cities. The Proposed Action, when considered in addition to past, present and other reasonably foreseeable future actions, would have a low to moderate cumulative impact on land use due to the overall reduction in land used solely for agriculture.

Construction of the Proposed Action may result in temporary traffic delays and detours during certain activities, but permanent traffic impacts would be low to none. The city, county and state roadway projects discussed in Section 3.11.1 may result in periodic delays and temporary road/lane closures in the same general vicinity as the Proposed Action. Specifically, reconstruction of County Well Road east of McBee Road, which is approximately 1 mile east of the Webber Canyon Substation site, would overlap with the proposed start of Webber Canyon Substation construction and the City of Richland's Center Parkway South Extension would overlap with the proposed start of construction at Badger Canyon Substation, though the city's project is expected to be complete prior to the proposed start of work on Segment 3 of the Webber Canyon-Badger Canyon transmission line. By coordinating the routing and scheduling of traffic control plans with state and local officials, the Proposed Action, when considered in addition to past, present and other reasonably foreseeable future actions, would result in a low cumulative impact on transportation.

Recreation: Future rural residential development would likely increase demand for recreational amenities in the eastern portion of the Project area. Benton County's conceptual proposal to add a pathway on the north side of East Badger Road, in the same vicinity as the Railroad Option, would add a new recreational facility to the area. Given the current status of the proposal, construction would be unlikely to occur until after construction of the Proposed Action. Another reasonably foreseeable future action that would impact recreation is the City of Richland's Center Parkway South Extension Project, which would locate a roadway and multi-use path along the eastern edge of Amon Creek Natural Preserve and provide improved, additional parking for visitors. The multi-use path, which would bisect the BPA fee-owned property adjacent to the Amon Creek Natural Preserve, would connect to the City of Richland sidewalk system, as well as pathways within the Amon Creek Natural Preserve.

If the city's project is completed before the planned 2026 start date for the proposed Webber Canyon-Badger Canyon transmission line, temporary closures of the path would be required during nearby structure removal, installation and conductor stringing. If the city's project construction overlaps with the Webber Canyon-Badger Canyon transmission line construction, it would add to the cumulative impacts of noise, dust and temporary closures of portions of the Amon Creek Natural Preserve. Based on the short-term impact of the Proposed Action on recreation, when considered in addition to past, present and other reasonably foreseeable future actions, the Project could result in a temporary moderate cumulative impact on recreation.

Noise, Public Health & Safety: Temporary noise impacts from construction of the Proposed Action would have a cumulative impact if other projects in the vicinity are under construction at the same time. This is likely to be the case for the Center Parkway South Extension, as construction is expected to overlap with work at Badger Canyon Substation and impact noise-sensitive residences and users of the Amon Creek Natural Preserve. As discussed in Section 3.8.2, temporary noise impacts from the Proposed Action would be limited to daytime hours and result in low to moderate temporary impacts, though no permanent noise impacts are anticipated. When considered in addition to other reasonably foreseeable future actions, including the Center Parkway South Extension, the Proposed Action would result in

moderate temporary cumulative impacts and low permanent cumulative impacts, since the roadway project would permanently increase vehicle noise adjacent to the preserve.

The risk of wildland fire spread in the Project area has likely increased due to past and ongoing ground disturbance that has led to greater amounts of cheat grass and other invasive species. Construction of the Project could increase the risk of fire ignition but the implementation of fire prevention BMPs would make the likelihood of fire ignition low. If implemented, the BLM's proposed Lower Basin Fuels Breaks project would reduce the risk of wildland fire spread.

Increases in electric field levels from the Proposed Action would be within the BPA design limits and EMF increases would have a low impact on public health and safety; other reasonably foreseeable future actions in Section 3.11.1 are not expected to increase EMF. When considered in addition to past, present and other reasonably foreseeable future actions, the Proposed Action would result in a low cumulative impact on public health and safety.

Visual Quality: The proposed Horse Heaven Wind Farm project would introduce new visual elements to the Horse Heaven Hills, though the exact number and layout of the wind turbines is undetermined as of the time of writing this Draft EA. The wind farm's proposal includes an Aircraft Detection Lighting System and turbines that would be up to 500 feet tall and 670 feet tall.

As discussed in Section 3.10, the Proposed Action would result in low to moderate permanent visual impacts. Because most of the proposed wood transmission structures are in the 70- to 80-foot-tall range and are in perpendicular alignment to the Horse Heaven Hills ridgeline, the Project would not significantly diminish views of Horse Heaven Hills from the valley or the opposing ridgeline. When considered in addition to past, present and other reasonably foreseeable future actions, such as the Horse Heaven Wind Farm that would add much taller structures to Horse Heaven Hills, the Proposed Action would result in a moderate cumulative impact on visual quality.

4.0 Environmental Consultation, Review, & Permit Requirements

Several federal and state statutes, implementing regulations, Executive Orders, other consultation, review and permit requirements are potentially applicable to the Project (see Table 4-1). In Table 4-1, similar resources (e.g., vegetation and wildlife) have been combined when statutes or regulations overlap multiple resource areas.

Table 4-1: Potential Applicable Statutory, Regulatory, and Other Requirements

Resource Category	Potentially Applicable Requirement	Relevant Project Information
All Resources	NEPA, as amended (42 U.S.C. § 4321 *et seq.)*	BPA has prepared this EA pursuant to NEPA, which requires federal agencies to assess, consider and disclose the impacts to the public that any proposed major federal actions may have on the environment.
All Resources	CEQ Guidance for Federal Departments and Agencies on	Consistent with CEQ regulations and related guidance, including CEQ's November 30, 2022, Guidance for Federal Departments and Agencies on Indigenous Knowledge, BPA has engaged affected communities, Tribes and Indigenous Peoples including the

Resource Category	Potentially Applicable Requirement	Relevant Project Information
	Indigenous Knowledge (November 30, 2022)	Confederated Tribes and Bands of the Yakama Nation, Confederated Tribes of the Umatilla Indian Reservation, Nez Perce Tribe, Wanapum Tribe, Confederated Tribes of the Grande Ronde, Confederated Tribes of the Umatilla Indian Reservation and Confederated Tribes of the Warm Springs to inform the assessment of environmental effects.
Land Use	BLM Spokane Resource Management Plan (RMP) Amendment. June 1992. BLM Spokane Resource Management Plan Record of Decision. May 1987 BLM Spokane District Programmatic Noxious Weed & Invasive Plant Management EA. August 2018.	BPA has coordinated with BLM regarding components of the Proposed Action that would involve BLM lands, specifically, obtaining an easement for development and operation of the Webber Canyon-Badger Canyon transmission line and access roads. BLM-Spokane must determine that the Project is in conformance with the Spokane Resource Management Plan, as amended. One of the General Management Objectives specified in the May 1987 RMP is to: "Keep public lands open for exploration/development of mineral resources, rights-of-way, access and other public purposes with consideration to mitigate designated resource concerns." BPA conducted noxious weed and wildlife surveys on BLM lands as described in Sections 3.2.1.2 and 3.5.1.4. If noxious weed control is needed on BLM-managed parcels during Project construction or operation, BPA would follow the Standard Operating Procedures of the BLM's Spokane District Programmatic Noxious Weed & Invasive Plant Management EA.
Land Use	Department of Energy Hanford Site Comprehensive Land Use Plan. 2008. Hanford Site Biological Resources Management Plan. 2017	The Hanford Comprehensive Land-Use Plan provides guidance for future use of the site's lands and resources, and the Biological Resources Management Plan establishes the Department of Energy's management objectives, strategies, actions and general directives for managing biological resources on the Hanford Site. BPA's proposed removal of a three-pole transmission structure on land where BPA has rights at the Ashe Substation and signage changes within the BPA ROW on the Hanford Site would not alter the land use of the existing ROW. Transmission structures would be accessed on existing roads and signage changes would be made at the base of the structures using hand tools with no impact to biological resources.
Land Use	Hanford Reach National Monument Comprehensive Conservation Plan	The Hanford Reach National Monument Comprehensive Conservation Plan (USFWS 2008) provides guidance for management of the national monument consistent with the Presidential Proclamation that established the monument (3 Code of Federal Regulations [CFR] 7319—Proclamation 7319 of June 9, 2000). The proclamation allows for the continued O&M of existing utilities. Signage changes on the Ashe-Marion No. 2 transmission line would therefore be consistent with the activities allowed under the Hanford Reach National Monument Comprehensive Conservation Plan.
Land Use	U.S. Forest Service Mt. Hood Land and Resource Management Plan (Forest Plan). 1990	The Land and Resource Management Plan, as amended, guides all natural resource management activities and establishes management standards and guidelines for the Mt. Hood National Forest. The Forest Service is currently reviewing BPA's SF299 permit application to utilize temporary helicopter landing zones within the

Resource Category	Potentially Applicable Requirement	Relevant Project Information
		National Forest while conducting signage changes within the BPA ROW. BPA anticipates that the Forest Service will determine the proposal to be in conformance with the amended Forest Plan.
Soils Land Use	Farmland Protection Act (7 U.S.C. 4201 *et seq.*)	Part of the 1981 Farm Bill, the Farmland Protection Act is intended to limit federal activities that contribute to the unnecessary conversion of farmland to other uses. As discussed in Section 3.1, the Proposed Action would remove approximately 43 acres of high-quality agricultural soil in the Project area, primarily prime farmland if irrigated. BPA would minimize the removal of farmland from productive use by allowing cultivated crops that do not require structural support and do not grow higher than 4 feet to continue to grow in the proposed new ROW (see Section 3.7).
Wildlife	ESA (16 U.S.C. § 1531 *et seq*.)	As discussed in Section 3.5 and Appendix D, the project is Not Likely to Adversely Affect ESA-listed species.
Wildlife	BGEPA (16 U.S.C. § 668-668d)	Signage changes on the Webber Canyon-Marion No. 1 transmission line would occur outside of the eagle nesting season. While no active nests were identified near the Project area in Washington, it is possible bald eagles or golden eagles could nest within or near the Project area during construction. If a nest is identified, BPA would comply with the BGEPA by avoiding construction activities within 0.5-mile of active eagle nests during the breeding season.
Wildlife	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 area and some may nest in the general vicinity. Potential impacts on migratory birds are described in Section 3.5. BPA would minimize impacts to birds with mitigation measures, such as scheduling tree removal and other vegetation removal as much as possible outside of the March 15 to August 31 nesting season to minimize impacts on migratory birds. If tree clearing is needed outside of that time, BPA would conduct a pre-construction nesting bird survey prior to tree removal. If active nests are found, trees would not be removed until the young have fledged. Line and guy wire guards and bird diverters would also be installed in high bird use areas.
Wildlife	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 WDFW and ODFW and would incorporate BMPs to avoid or minimize potential impacts on wildlife resources (see Section 2.7). Bird diverters would be installed on the Webber Canyon-Badger Canyon transmission line conductor or fiber optic cable in higher-risk areas for bird strikes. Potential impacts on wildlife are described in Section 3.5.
Waterways and Water Quality Wetlands and Floodplains	Clean Water Act (33 U.S.C. § 1251 *et seq*.) Floodplain/Wetlands Environmental Review Requirements 10 CFR § 1022.12 Floodplain Management Executive Order 11988	Potential impacts on waters, wetlands and floodplains from the Proposed Action are described in Section 3.3 and 3.4. Due to the minimal amount of anticipated wetland impacts, impacts are expected to be permitted under Nationwide Permit 57 (Electric Utility Line and Telecommunications Activities). Region 10 of the EPA has a general National Pollutant Discharge Elimination System permit for discharges from construction activities. BPA would prepare a SWPPP to address stabilization practices, structural practices, stormwater management and other

Resource Category	Potentially Applicable Requirement	Relevant Project Information
	Protection of Wetlands Executive Order 11990	erosion and sediment controls, pursuant to the Construction Stormwater General Permit.
Air Quality	The Clean Air Act (42 U.S.C. § 7401 *et seq.*)	Air quality impacts of the Proposed Action would be low, localized and temporary, as described in Table 3-1.
Air Quality and Greenhouse Gases	Final Mandatory Reporting of Greenhouse Gases Rule 40 CFR 98	Greenhouse gas calculations were developed for the following Project activities that could produce greenhouse gas emissions: building the Webber Canyon-Badger Canyon transmission line and Webber Canyon Substation and the ongoing operation of the new sulfur hexafluoride-containing substation equipment. A conservative estimate was also developed for the loss in carbon sequestration that would result from the removal of 13.3 acres of trees for the Railroad Option and the removal of 0.4 acre of landscaped Austrian pine trees for the Canal Option. The estimate assumes that the removed trees are at full maturity and would remain in that state to provide full sequestration potential. This estimate is conservative because the subject trees are not at full maturity (i.e. at full sequestration potential) and many trees may not have reached maximum maturity through natural attrition or other human-related disturbances. As described in Table 3-1, estimated greenhouse gas emissions would be low.
Cultural and Historic Resources	Antiquities Act 16 U.S.C. § 431-433 Historic Sites Act 16 U.S.C. § 461-467 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, 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	As described in Section 3.6, BPA is identifying cultural resources that may be affected by the Project, including those either listed in the NRHP or determined through a process of consultation between agencies, DAHP, Oregon SHPO, Tribal entities and other invited groups to be eligible for listing in the NRHP. The Section 106 process has been initiated through coordination with the DAHP, Oregon SHPO and tribal nations with an interest in the area in letters dated January 9, 2024, and March 19, 2024. BPA will submit a final report and effect determination upon completion of the historic resources analysis. This information would be reflected in the Final EA.
Noise, Public Health, and Safety	Noise Control Act 42 U.S.C. § 4901 *et seq*.	Noise disturbance would be short duration, limited to Project construction activities and would occur during daylight hours as described in Section 3.8.

Resource Category	Potentially Applicable Requirement	Relevant Project Information
Noise, Public Health, and Safety	SPCC 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*.	BPA's construction specifications contain Spill Prevention and Response Procedures that stipulate the methods, means and facilities to prevent contamination of soil, water and atmosphere from discharge of hazardous, toxic substances and pollutants produced by construction operations.
Noise, Public Health, and Safety	The Toxic Substances Control Act 15 U.S.C. 2601 *et seq*.	BPA adopted guidelines to prevent the introduction of polychlorinated biphenyls (PCBs) 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. Implementation of the SPCC Plan would mitigate these substances.
Noise, Public Health, and Safety	Federal Communications Commission (FCC)	No interference with radio, television, or other reception is expected as a result of the Proposed Action. BPA would comply with FCC requirements relating to radio and television interference from the Proposed Action if any such interference occurs.
State, County, and Local Plan Consistency	Benton County Critical Areas Ordinance as guided by the Washington State Growth Management Act (Chapter 36.70a Revised Code of Washington)	The Washington State Growth Management Act requires local governments to protect five types of critical areas: important fish and wildlife habitat areas, wetlands, critical aquifer recharge areas, frequently flooded areas and geologically hazardous areas. Benton County's critical areas regulations are a response to that law— they regulate how development and redevelopment can occur on lands that contain critical areas. The resources analyzed in this EA are consistent with the county's critical areas. Appropriate BMPs and mitigation measures would be implemented in critical areas (e.g., wildlife habitat) as appropriate.

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 stakeholders have directly received or have been given instructions on how to receive all Project information currently available 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

- Bureau of Land Management – Spokane Border Field Office
- Bureau of Land Management – Prineville Central Oregon Field Office
- Bureau of Land Management – Prineville Deschutes Field Office
- Bureau of Land Management – NW Oregon Cascades Field Office
- Bureau of Reclamation – Oregon
- Department of Energy – Hanford Site
- U.S. Environmental Protection Agency, Region 10
- U.S. Fish and Wildlife Service – Hanford Reach National Monument
- U.S. Fish and Wildlife Service – Umatilla National Wildlife Refuge
- U.S. Forest Service – Mt. Hood National Forest
- U.S. Senator, Patty Murray
- U.S. Senator, Maria Cantwell
- U.S. Representative, Daniel Newhouse
- U.S. Representative, Michael Baumgartner

Tribes and Tribal Groups

- Confederated Tribes of the Warm Springs
- Confederated Tribes and Bands of the Yakama Nation, THPO
- Confederated Tribes and Bands of the Yakama Nation, Natural Resources Director
- Confederated Tribes and Bands of the Yakama Nation, Chairperson
- Confederated Tribes and Bands of the Yakama Nation, Cultural Resources
- Confederated Tribes of the Colville Reservation, Cultural Resources; THPO
- Confederated Tribes of the Colville Reservation, Chairperson
- Confederated Tribes of the Colville Reservation, Natural Resources Director
- Confederated Tribes of the Umatilla Indian Reservation, Natural Resources Director
- Confederated Tribes of the Umatilla Indian Reservation, Board of Trustees Chair
- Confederated Tribes of the Umatilla Indian Reservation, THPO
- Confederated Tribes of the Umatilla Indian Reservation, Cultural Resources

State Agencies and Officials

- Washington Department of Archaeology and Historic Preservation
- Washington Department of Ecology, Eastern Region Director
- Washington Department of Ecology, ER Environmental Planner
- Washington Department of Ecology, Central Region Director

- Washington Department of Ecology, Air Quality Deputy Program Manager
- Washington Department of Ecology, Shorelands & Environmental Assistance Program Central Region Section Manager
- Washington Department of Fish and Wildlife – Sunnyside Snake River Wildlife Area Complex (Rattlesnake Slope Unit)
- Washington Energy Facility Site Evaluation Council, Chair
- Washington Energy Facility Site Evaluation Council, Director
- Washington State Department of Natural Resources – Southeast Region
- Washington State Department of Commerce, Energy Policy
- Washington State Representative, Stephanie Barnard
- Washington State Representative, April Connors
- Washington State Representative, Mark Klicker
- Washington State Representative, Skyler Rude
- Washington State Senator, Matt Boehnke
- Washington State Senator, Perry Dozier
- Oregon State Land Board – Board of Forestry

Local Government and Utilities

- Benton County Commissioner, William McKay
- Benton County Commissioner, Michael Alvarez
- Benton County Commissioner, Jerome Delvin
- Benton County Public Works
- Benton County Development Director
- Benton County Planning Department
- City of Richland, Washington – Amon Creek Natural Preserve
- City of Richland, Marketing Manager
- City of Richland, Business Services
- City of Richland, City Manager
- City of Richland, City Clerk
- City of Richland, City Councilor, Kurt Maier
- City of Richland, City Councilor, Jhoanna Jones
- City of Richland, City Councilor, Theresa Richardson
- City of Richland, City Councilor, Sandra Kent
- City of Richland, City Councilor, Ryan Lukson
- City of Richland, City Councilor, Shayne VanDyke
- City of Richland, City Councilor, Ryan Whitten
- Benton County Public Utilities District

Other Interested Parties

- Kennewick Irrigation District
- Tri Cities Development Council, VP Federal Relations
- Tri Cities Development Council, President

Appendix B: References

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Appendix C: Acronyms and Glossary

List of Acronyms

APE	Area of Potential Effects
ATV	all-terrain vehicle
BGEPA	Bald and Golden Eagle Protection Act
BLM	Bureau of Land Management
BMP	Best Management Practice
BPA	Bonneville Power Administration
CEQ	Council on Environmental Quality
CO_2e	Carbon dioxide equivalent
CFR	Code of Federal Regulations
DAHP	Washington Department of Archaeology and Historic Preservation
dB	decibels
dBA	A-weighted decibel scale
DEQ	Department of Environmental Quality
DNR	Washington Department of Natural Resources
DCOIT	4, 5 Dichloro-2-n-Octyl-4-Isothiazolin-3-One
EA	Environmental Assessment
EIS	Environmental Impact Statement
EMF	Electric and Magnetic Fields
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FCC	Federal Communications Commission
FEMA	Federal Emergency Management Association
FERC	Federal Energy Regulatory Commission
FONSI	Finding of No Significant Impact
G	gauss
GDP	Gross Domestic Product
IPaC	Information for Planning and Consultation

KID	Kennewick Irrigation District
kV	kilovolt
kV/m	kilovolts per meter
MBTA	Migratory Bird Treaty Act
mG	milligauss
MW	megawatt
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Corporation
NHD	National Hydrography Dataset
NHPA	National Historic Preservation Act
NRCS	National Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
O&M	Operations and Maintenance
OATT	Open Access Transmission Tariff
ODFW	Oregon Department of Fish and Wildlife
PCB	polychlorinated biphenyl
PEM	palustrine emergent
Project	South of Tri-Cities Reinforcement Project, Proposed Action
PUB	palustrine unconsolidated bottom
PUD	Public Utility District
REA	Rural Electric Association
RMP	Resource Management Plan
ROW	Right-of-Way
SF_6	sulfur hexafluoride
SHPO	State Historic Preservation Office
SPCC	Spill Prevention, Control, and Countermeasures
SWPPP	Stormwater Pollution and Prevention Plan
U.S.C	United States Code

USFWS	U.S. Fish and Wildlife Service
V/m	volts per meter
WDFW	Washington Department of Fish and Wildlife
WRIA	Water Resource Inventory Area

capacity	The maximum load that a generator, piece of equipment, substation, transmission line or system can carry under existing service conditions.
conductor	The wire cable strung between transmission structures through which electric current flows.
corona	The partial electrical breakdown of air molecules around high voltage conductors. Corona-generated noise is usually heard as a hissing or crackling sound accompanied by a hum, and it is particularly audible during wet weather conditions.
counterpoise	A series of aluminum wires buried in the ground at the base of transmission towers that take a lightning charge from the ground wire on the tower and dissipate it into the earth.
danger tree	Tree (or high-growing brush) growing alongside the transmission line ROW that could fall into, bend into, or grow into the conductor or be close enough to the conductor as it swings to cause a flashover of current from the conductor. They are identified by special crews and must be removed to prevent tree-fall into the line or other interference with conductors.
direction of travel routes	Existing roads or gentle terrain that would be used in their current condition without any improvements or upgrades.
electric and magnetic fields	The two kinds of fields produced around electric wire or conductor when an electric transmission line or any electric wiring is in operation. Current (the flow of electric charge in a wire) produces the magnetic field. Voltage (the force that drives the current) is the source of the electric field.
ground wires	Wire on a transmission line that would take the charge during a lightning strike, which is then directed down to the base of the structure and into the ground; used to protect electrical equipment from electrical surges (also known as shield wires).
guard structures	Temporary wood-pole structures with two poles that have a cross arm between the poles. Set up to keep conductors, ground wire or fiber optic cable safely above crossings when line tension is removed during installation or removal operations.
guy wire	A tensioned cable attached to structures, such as transmission structures, used to support or strengthen the structure.
impairment	An area where the distance from the conductor to the ground surface is inadequate, per National Electrical Safety Code (NESC) standards,

	resulting in a threat to line reliability and posing a risk to public health and safety.
load	The amount of electric power or energy delivered or required at any specified point or points on a system. Load originates primarily at the energy-consuming equipment of customers.
load area	For study purposes, BPA divides its transmission system into 27 load areas (also referred to as load service areas). The load areas are based on geographic and electrical proximity.
load growth	Increase in demand for electricity (see load.)
load shedding	The systematic reduction of electric system demand by temporarily decreasing load in response to transmission system or area capacity shortages, system instability or voltage control considerations.
non-wires measures	Non-transmission alternatives to transmission line construction that may include pricing strategies, demand reducing strategies and strategic placement of generators.
optical ground wire	A dual functioning cable designed to replace traditional overhead shield wires with the added benefit of containing optical fibers that can be used for telecommunications purposes.
overload	Moving too much current flow over transmission facilities. In the event of system overload, switches will disconnect sensitive equipment from the flow of electricity.
power circuit breaker	A switching device that can automatically interrupt power flow on a transmission line at the time of a fault.
reactor bank	Substation component that absorbs reactive (capacitance) power and lowers system voltage for grid stability.
shield wire	Overhead wires (also known as ground wires) that work in concert with counterpoise to protect conductors by dissipating charges from lightning strikes.
span	The distance between individual transmission structures on the same transmission line.
tap	A privately owned transmission line that interconnects a private power producing facility to a BPA transmission line.
transformers	Electrical equipment usually contained in a substation that is needed to change voltage on a transmission system.

Appendix D: Proposed Ashe-Marion No. 2 Signage Changes

Introduction

This appendix provides more detailed analysis for the resources affected by proposed signage changes along the existing 500-kV Ashe-Marion No. 2 transmission line. The signage changes are a component of the Proposed Action, as described in Chapter 2. The proposed signage changes occur along 228 miles of the Ashe-Marion No. 2 transmission line. This line crosses through a wider variety of landscapes, land ownership and natural resources than the portion of the Project in Benton County and, therefore, the expected impacts of the proposed signage changes are discussed separately.

Resources that are present and affected by the signage change component of the Proposed Action include Fish and Wildlife; Noise, Public Health, and Safety; and Recreation. Summaries of the signage change effects described herein are included in Chapter 3 of the EA. The absence of signage change effects to other resources (i.e., Soils and Geologic Hazards, Vegetation, Waterways and Water Quality, Wetlands and Floodplains, Cultural Resources, Land Use and Transportation and Visual Quality [because of in-kind replacement]) is addressed in the respective sections of the resource analyses (Chapter 3 of the Draft EA).

Proposed Ashe-Marion No. 2 Signage Changes

The 228-mile-long Ashe-Marion No. 2 transmission line runs between the Ashe Substation on the U.S. Department of Energy Hanford Site in northern Benton County, Washington to the Marion Substation in Marion County, Oregon. The transmission line is supported on double-circuit lattice steel transmission towers. After crossing the Columbia River west of Boardman, Oregon, the Ashe-Marion No. 2 transmission line shares a ROW with multiple transmission lines as it runs southwest across the Columbia Plateau and the Cascade Mountains to Marion Substation located in the Willamette Valley, 20 miles southeast of Salem, Oregon.

To connect the proposed Webber Canyon Substation to the grid, the Ashe-Marion No. 2 transmission line would be split into two circuits at the new substation: the Ashe-Webber Canyon No. 1 500-kV transmission line (Ashe-Webber Canyon No. 1) and the Webber Canyon-Marion No. 1 500-kV transmission line (Webber Canyon-Marion No. 1). To maintain consistency with BPA's naming convention of substation-to-substation mile markers, new circuit signage would be required for the Ashe-Webber Canyon No. 1 transmission line and new circuit signage, structure numbers, serial numbers, and aerial markers would be required for the renamed Webber Canyon-Marion No. 1 transmission line.

Existing signage would be replaced with new line names and mile markers at the base of each of the 115 structures on the Ashe-Webber Canyon No. 1 transmission line and on the 840 structures on the Webber Canyon-Marion No. 1 transmission line. The replacement signage would be the same size and color as the existing signage. To replace the lower transmission structure signs, construction crews would drive to the structures in a pick-up truck or ATV and replace the signs using hand tools. Existing access roads would be used for this work. The crews would need approximately 15 to 30 minutes at each structure to complete a sign change.

Construction crews would use helicopters to replace the 201 aerial markers at the top of the first structure in each line mile of the Webber Canyon-Marion No. 1 transmission line. Approximately 30 minutes would be spent at each structure, with crews expected to complete an average of two aerial sign replacements an hour. Temporary helicopter landing zones would be used for this aspect of the Project. Minor vegetation clearing and grading may occur in these locations to facilitate safe landing.

Fish and Wildlife

Affected Environment

This section summarizes terrestrial wildlife, fish and habitat conditions in the Project area associated with the Ashe-Marion No.2 signage changes (proposed helicopter landing zones and existing transmission structures). The analytical methodology for determining impacts to these resources included two main components: 1) a desktop review based on federal, state, county and non-governmental organization resources and 2) input from ODFW and WDFW. No species-specific surveys were conducted for wildlife based on the desktop review and agency consultation. Impacts to the few state and federally protected species that may occur within the Project area (e.g., northern spotted owl; see Table 3-5 Section 3.5) can be avoided through proposed mitigation measures such as seasonal work restrictions.

Because other Project components in Washington—fiber optic cable installation, interconnection of the Webber Canyon Substation to the Ashe-Marion No. 2 transmission line, and structure removal near Ashe Substation—also affect the Ashe-Marion No. 2 transmission line corridor, species and habitat occurring along the Ashe-Marion No. 2 transmission line in Washington are addressed in detail in Section 3.5.1. The remainder of this affected environment discussion therefore focuses on wildlife that potentially occur in portions of the Ashe-Marion No. 2 transmission line corridor that are solely associated with the signage replacement. This includes Ashe-Marion No. 2 transmission structures 1/2 (at Ashe Substation) to 24/2 (at the proposed Webber Canyon Substation), transmission structures 47/2 (approximately 3 miles north of the Columbia River) to 227/5 (at Marion Substation in Oregon) and proposed helicopter landing zones in Oregon.

Portions of the Project area in Washington that are solely associated with the Ashe-Marion No. 2 transmission line signage replacement pass through the Hanford Reach National Monument, WDFW's Rattlesnake Slope Unit, Sunnyside-Snake River Wildlife Area and the Umatilla National Wildlife Refuge. The Hanford Reach National Monument includes a diversity of native animal species, including pallid bats (*Antrozous pallidus*), coyotes, silver-haired bats (*Lasionycteris noctivagans*), bobcat (*Lynx rufus*), California myotis (*Myotis californicus*), small-footed myotis (*Myotis leibii*), little brown bat (*Myotis lucifugus*), long-legged myotis (*Myotis volans*), Yuma myotis (*Myotis yumanensis*), Western pipistrelle (*Pipistrellus hesperus*), American badger (*Taxidea taxus*), Washington ground squirrel (*Urocitellus washingtoni*) and more than 100 bird species (USFWS 2008).

ODFW identified 12 state-listed species with the potential to occur along the Oregon portion of the Project area. These species include long-billed curlew (*Numenius americanus*), burrowing owl (*Athene cunicularia*), ferruginous hawk (*Buteo regalis*), Swainson's hawk (*Buteo swainsoni*), Brewer's sparrow (*Spizella breweri*), common nighthawk (*Chordeiles minor*), grasshopper sparrow (*Ammodramus savannarum*), hoary bat (*Lasiurus cinereus*), Lewis's woodpecker (*Melanerpes lewis*), loggerhead shrike (*Lanius ludovicianus*), sagebrush sparrow (*Artemisiospiza nevadensis*) and silver-haired bat (*Lasionycteris*

noctivagans) (ODFW 2024). Additionally, wildlife data from Oregon State University's Oregon Biodiversity Information Center (ORBIC) identified 10 state and federally protected wildlife species recorded within 2 miles of the Project area, including American peregrine falcon (*Falco peregrinus anatum*; state sensitive), golden eagle (*Aquila chrysaetos*; federally protected through the Bald and Golden Eagle Protection Act), gray wolf (*Canis lupus*; federally endangered), northern red-legged frog (*Rana aurora*; state sensitive), northern spotted owl (*Strix occidentalis caurina*; state threatened; federally threatened; critical habitat occurs in the Project area), Oregon Slender salamander (*Batrachoseps wright*; state sensitive; federal species of concern), purple martin (*Progne subis*; state sensitive-critical), Swainson's hawk (state sensitive), Washington ground squirrel (*Urocitellus washingtoni*; state endangered) and white-tailed jackrabbit (*Lepus townsendii*; state sensitive) (ORBIC 2024). No fish species occur within the Oregon portion of the Project area.

Environmental Consequences

Temporary noise and disturbance during sign changes would contribute the most to impacts on wildlife in and near the Project area. Prior to sign change work, crews could use heavy construction equipment if minor grading is needed to prepare helicopter landing zones. During sign change activities, the primary consequence to wildlife could result from auditory harassment from helicopters. However, sign change activities would be short term with crews at each structure for less than 1 hour. Wildlife could be temporarily displaced due to disturbance but would likely return after signage activities were finished.

All Project signage change activities within northern spotted owl activity areas and core use areas would occur outside the northern spotted owl nesting season (March 1 to September 30). Helicopter activities would result in temporary impacts; however, these impacts would be low as helicopters would remain at each structure for 15 to 30 minutes. No permanent impacts are expected with the implemented mitigation measure of work occurring outside of the nesting season. Overall, impacts to northern spotted owl are expected to be low.

Noise, Public Health, and Safety

Affected Environment

Noise

Audible noise from the 500-kV Ashe-Marion No. 2 and other 500-kV transmission lines in the shared ROW occur because of corona activity. Corona is the partial electrical breakdown of air molecules around high voltage conductors. Noise sensitive areas in proximity to the Ashe-Marion No. 2 transmission line include the following public lands and recreation areas: Hanford Reach National Monument, the WDFW Rattlesnake Slope Unit, Sunnyside-Snake River Wildlife Area, the Horse Heaven Hills Recreation Area, the Umatilla National Wildlife Refuge, Crow Butte Park, the BLM Prineville District lands and Mt. Hood National Forest (see the Recreation section).

Public Health and Safety

Signage changes on the Washington portion of the Ashe-Marion No. 2 transmission line would occur within the fire response jurisdictions of the Hanford Fire Department and Benton County Fire Districts No. 2, No. 5. and No. 6. Signage changes on the Oregon portion of the Ashe-Marion No. 2 transmission line would occur within the fire response jurisdictions of Morrow County, Gilliam County, Sherman

County, Wasco County, the U.S. Forest Service – Mt. Hood National Forest, the Confederated Tribes of the Warm Springs, Clackamas County and Marion County.

Environmental Consequences

Noise

The use of helicopters to change aerial markers on the Webber Canyon-Marion No. 1 transmission line would result in temporary noise impacts. Helicopters would operate for up to 30 minutes at each of the 201 structures that would receive new aerial markers. Thirty-three landing zones are proposed along the transmission line, seven of which are proposed within a noise-sensitive recreational area (Mt. Hood National Forest). As discussed in the Draft EA (Section 3.8), helicopter noise levels depend on a variety of factors, including the size and type of the aircraft, the type of maneuver (e.g., take-off, turning) and distance from the listener. Helicopter noise levels are approximately 106 dBA when operating at 50 feet above ground surface. Noise decreases with distance at a rate of about 6 dBA per doubling of distance. Based on that assumed attenuation rate, helicopters operating at the average height of the lattice towers (175 feet) would produce noise levels on the ground of approximately 95 dBA during aerial marker replacement. This is similar to noise levels produced by an electric drill.

Although the transmission line crosses multiple noise-sensitive recreation areas, temporary noise impacts from signage changes would be low due to the short duration of helicopter activity in any single location (up to 30 minutes per structure), lack of heavy equipment use and the short duration of ground level signage change work (15 to 30 minutes per structure). The signage changes would have no effect on the existing corona-generated noise from the Ashe-Marion No. 2 transmission line and therefore, would have no permanent impact on noise.

Public Health & Safety

Signage changes could slightly increase the risk of fire ignition. Potential risk factors include improper maintenance and operation of helicopters or vehicles used to access the ground level signs. Sites selected for landing zones would be cleared of vegetation prior to use to minimize safety risks. To ensure that all applicable fire safety rules are followed, BPA's construction contractor would contact fire agencies with jurisdiction over the Project area to review fire hazards, prevention measures, response plans and work restrictions. By implementing BMPs and applicable fire safety regulations, the impact of signage changes on wildland fire risk and public safety would be low. The signage changes would have no long-term impact on the operation and management of the transmission line and would therefore have no permanent impact on public health and safety.

Recreation

Affected Environment

The Ashe-Marion No. 2 transmission line passes through local, state and federally managed lands used for public recreation in Washington and Oregon. The following describes the recreational sites and activities in the vicinity of the transmission line, from north to south.

The Hanford Reach National Monument, managed by the U.S. Fish and Wildlife Service, provides opportunities for hunting, fishing, boating, hiking and wildlife viewing. The main point of access, parking

areas and informal trails are in the northern portion of the Monument, in Franklin County. Eleven Ashe-Marion No. 2 transmission structures are in the southern portion of the Monument in Benton County. There are no visitor facilities in the southern portion of the Monument.

South of the Monument, four Ashe-Marion No. 2 transmission structures are in the WDFW Rattlesnake Slope Unit of the Sunnyside-Snake River Wildlife Area. This Wildlife Area has opportunities for hiking, horseback riding and wildlife viewing. The Tri-Cities Shooting Association's Rattlesnake Mountain Shooting Facility, administered by the Benton County Park Board, is also located in the Rattlesnake Slope Unit, approximately 0.6 mile east of the transmission line.

Six Ashe-Marion No. 2 transmission structures are in an undeveloped BLM-managed parcel that is surrounded by the WDFW Rattlesnake Slope Unit. The Ashe-Marion No. 2 transmission line also crosses BLM land south of Interstate 82 that is designated for recreation. The BLM's Horse Heaven Hills Recreation Area has trails that are used for hiking, mountain biking and nature viewing. Two Ashe-Marion No. 2 transmission structures are located east of Chandler Butte in this Recreation Area.

Umatilla National Wildlife Refuge, managed by the U.S. Fish and Wildlife Service, encompasses 23,555 acres of waters, islands, shores and upland in and around the Columbia River. The refuge is used for hunting, fishing, and wildlife viewing. Eight Ashe-Marion No. 2 transmission structures are located within the Refuge on the eastern part of Crow Butte Island.

Crow Butte Park is a Port of Benton recreational facility on Crow Butte Island in the Columbia River. The western side of the park property features a marina, a day use area and a campground. The eastern side of the property abuts the Umatilla National Wildlife Refuge and is within 300 feet of two Ashe-Marion No. 2 transmission structures.

A few sections of the Ashe-Marion No. 2 transmission line are on BLM lands in the Prineville District in Oregon. The transmission line crosses one developed recreation site: the BLM's Oasis Campground on the east bank of the Deschutes River in Wasco County. This section of the Deschutes River is a National Wild and Scenic River that is classified as recreational and is a popular boating and fishing area. The adjacent roadway, the Lower Deschutes Access Road, is a BLM-designated Country Byway for its scenic views of the basaltic canyon of the Lower Deschutes River. The closest Project work area, at transmission structure 137/2, is approximately 0.3 mile east of the Oasis Campground and the Country Byway.

Approximately 27 miles of the Ashe-Marion No. 2 transmission line pass through the Mt. Hood National Forest in Clackamas County. One hundred Ashe-Marion No. 2 transmission structures and seven temporary helicopter landing zones proposed for the Project are in the National Forest. There are trails, water features and dispersed recreational use throughout the National Forest and in the vicinity of the Project. The nearest campground to the transmission line is the Joe Graham Horse Campground, which is approximately 0.2 mile from the Project's temporary helicopter landing zone #37 in Clackamas County.

The Ashe-Marion No. 2 transmission line also crosses two National Wild and Scenic Rivers in the Mt. Hood National Forest: the Clackamas River and its tributary, the Collawash River. The transmission line crosses both rivers in segments that are classified as recreational in the National Wild and Scenic River

System and are used extensively by recreationists for boating, fishing, swimming and hiking. The nearest transmission structures are set back more than 0.2 mile from either river.

Environmental Consequences

Recreationists would experience temporary noise increases from the sign changes. Due to the brief amount of time required at each transmission structure to replace the lower signs (approximately 15 to 30 minutes), use of existing access roads and the simple sign replacement method, these temporary impacts would be low. Impacts to recreationists from the aerial signage updates would be slightly higher due to the louder noise produced by helicopter use but would overall be relatively low and limited to temporary daytime helicopter operation and localized dust near landing zones. Table D-1 details the signage replacement impacts at each of the recreation areas in proximity to the Ashe-Marion No. 2 transmission line.

Table D-1. Summary of Ashe-Marion No. 2 Signage Replacement-Related Recreation Impacts

Recreation Area	Proposed Action Activity	Impact	Rationale
Hanford Reach National Monument (USFWS)	Replace lower signs on transmission structures to reflect change from Ashe-Marion No. 2 to Ashe-Webber Canyon No. 1 (Ashe-Marion No. 2 structures 8/4 to 11/1)	Low, temporary	Impacts would be limited to noise associated with the use of hand tools and a single trip to each structure in a pickup truck or ATV.
Rattlesnake Slope Unit, Sunnyside-Snake River Wildlife Area (WDFW)	Replace lower signs on transmission structures to reflect change from Ashe-Marion No. 2 to Ashe-Webber Canyon No. 1 (Ashe-Marion No. 2 structures 11/3, 11/4, 13/1)	Low, temporary	Impacts would be limited to noise associated with the use of hand tools and a single trip to each structure in a pickup truck or ATV.
BLM multi-use land, including Horse Heaven Hills Recreation Area (BLM)	Replace lower signs on transmission structures to reflect change from Ashe-Marion No. 2 to Ashe-Webber Canyon No. 1 (Ashe-Marion No. 2 structures 11/5, 12/1 to 12/5, and 19/5 to 20/5)	Low, temporary	Impacts would be limited to noise associated with the use of hand tools and a single trip to each structure in a pickup truck or ATV.
Umatilla National Wildlife Refuge (USFWS)	Replace lower signs and aerial markers on transmission structures to reflect change from Ashe-Marion No. 2 to Webber Canyon-Marion No. 1 (Ashe-Marion No. 2 structures 53/1 to 54/5)	Low, temporary	Impacts would be limited to temporary helicopter noise for up to 30 minutes in any single location and noise associated with the use of hand tools and a single trip to each structure in a pickup truck or ATV.
Crow Butte Park (Port of Benton)	No work at the park; replace transmission structure signs on nearby Umatilla National Wildlife Refuge	Low, temporary	Impacts would be limited to a few hours of helicopter noise.
Prineville District (BLM)	Replace lower signs and aerial markers on transmission structures to reflect change from Ashe-Marion No. 2 to Webber Canyon-Marion No. 1 (Ashe-Marion No. 2 structures 66/3,	Low, temporary	Impacts would be limited to temporary helicopter noise for up to 30 minutes in any single location and temporary noise associated with the use of

Recreation Area	Proposed Action Activity	Impact	Rationale
	81/4, 89/4, 94/3, 94/4, 95/1, 97/3, 98/5, 98/6, 100/1, 153/2 to 153/4, 131/3, 131/4, 137/1, 137/2, 200/2 to 200/4, 202/1 to 204/1, 208/1 to 208/3, 209/2 to 210/2, 212/3, 212/4, 214/2, 216/1-216/3, 217/1 to 217/3, 219/1)		hand tools and a single trip to each structure in a pickup truck or ATV.
Mt. Hood National Forest (U.S. Forest Service)	Replace lower signs and aerial markers on transmission structures to reflect change from Ashe-Marion No. 2 to Webber Canyon-Marion No. 1 (Ashe-Marion No. 2 structures 154/1, 156/2 to 157/1, 157/3, 157/4, 173/3 to 200/1); use approximately seven temporary helicopter landing zones	Low, temporary	Impacts would be limited to temporary helicopter noise for up to 30 minutes in any single location, noise associated with the use of hand tools and a single trip to each structure in a pickup truck or ATV and localized dust at helicopter landing zones. Individual helicopter landing zones would be used for 1 to 2 days each.

Appendix E: Proposed Action on BLM-Managed Land That Would Require New ROW Grants

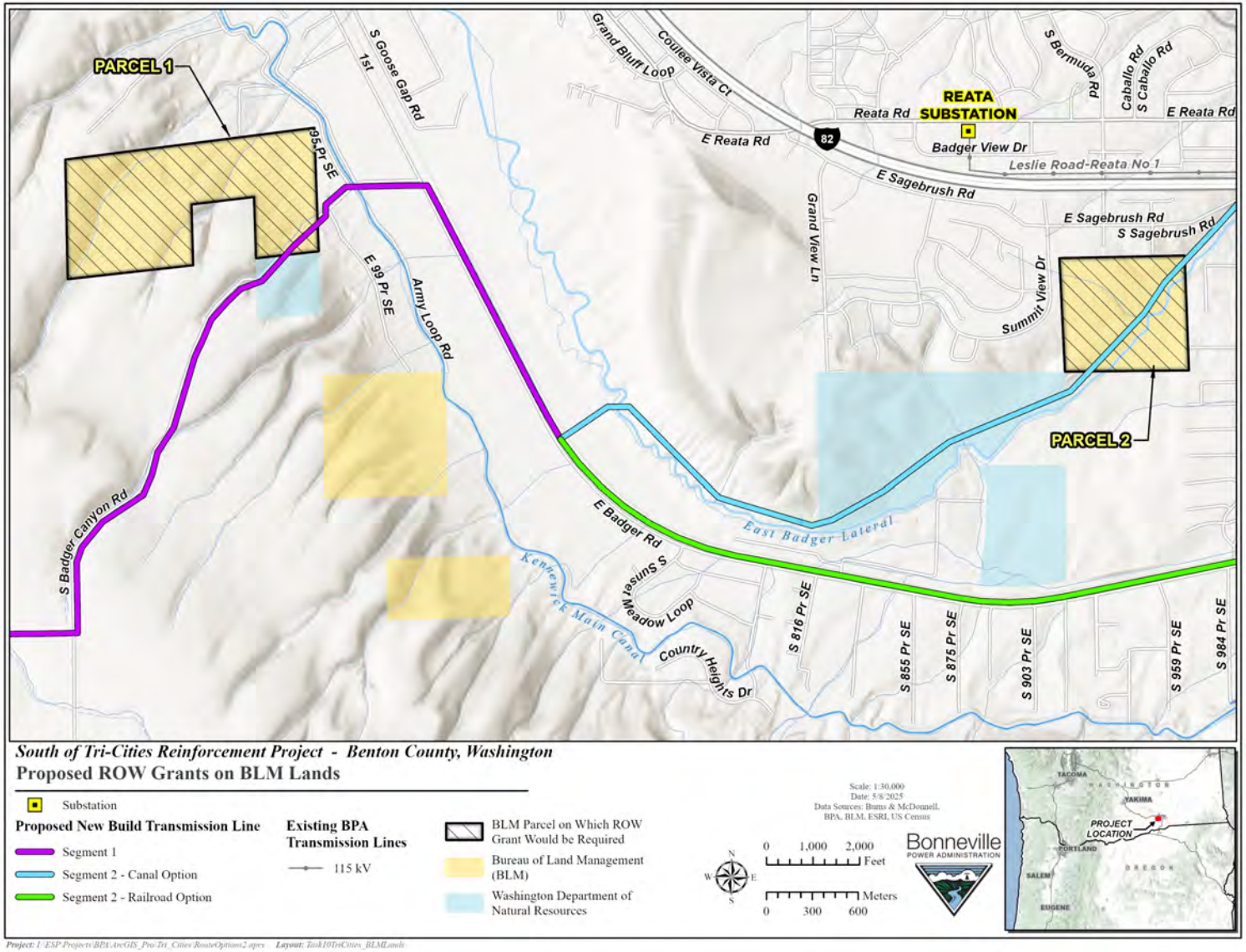
Introduction

This appendix is focused on the portions of the BLM-managed land through which BPA would request ROW grants to construct, operate and maintain the South of Tri-Cities Reinforcement Project (Project or Proposed Action).[1] This includes the portions of two BLM-managed parcels that are within the Project area (see Figure E-1). One BLM-managed parcel would be crossed by Segment 1 of the proposed Webber Canyon-Badger Canyon transmission line (Segment 1) and the other BLM-managed parcel would be crossed by the proposed Webber Canyon-Badger transmission line if the Canal Option is selected for Segment 2 (Segment 2 Canal Option).[2] The Project area analyzed in this appendix includes the portions of the BLM-managed parcels that are within the proposed 100-foot-wide ROW for the Webber Canyon-Badger Canyon transmission line or within the 50-foot-wide easement (25 feet either side of the centerline) of proposed new and improved access roads that would be outside of the proposed ROW; this encompasses all proposed temporary work areas in the BLM-managed parcels.

This appendix provides details on the affected environment and aspects of the environmental consequences that are specific to the BLM-managed parcels. For discussions of methodology, the larger context of the affected environment and conclusions regarding the level of impacts resulting from the Project's environmental consequences, see Chapter 3 of the EA. BMPs and mitigation measures are addressed in Section 2.7 of the EA.

[1] Other BLM-managed lands that are within the Project area are located along the Ashe-Marion No. 2 transmission line where the Proposed Action is limited to signage changes. Impacts to these BLM-managed lands are addressed in the EA and Appendix D. BPA would not need new land rights to make the proposed signage changes.
[2] The Railroad Option is identified in this EA as the preferred routing option at this time, as discussed in Section 2.3.3.

Figure E-1: BLM-Managed Parcels on Which ROW Grants Would be Required



Proposed Action on BLM-Managed Parcels

Approximately 0.2 mile of Segment 1 and less than 0.2 mile of new access roads would be constructed on an approximately 280-acre BLM-managed parcel (BLM parcel 1). The transmission line ROW would occupy approximately 2 acres of BLM parcel 1. Project infrastructure would parallel South Badger Canyon Road to the south, which crosses the southeastern corner of this parcel (Figure E-1). The new access roads would be within the transmission line ROW. Typical BPA access roads are 14 feet wide with an additional 3-foot-wide offset from each side of the road for slopes or drainage ditches. The current Project design includes 2, two-pole wood transmission structures that would be installed in BLM parcel 1; one of the transmission structures would require guy wires. A 50-foot-by-50-foot permanent rocked equipment landing would be built adjacent to each structure to facilitate equipment access during structure construction and maintenance.

Approximately 0.6 mile of the Segment 2 Canal Option and approximately 0.6 mile of new access road would be constructed on an approximately 160-acre BLM-managed parcel (BLM parcel 2). The transmission line ROW would occupy approximately 7 acres of BLM parcel 2. Project infrastructure would parallel Kennewick East Badger Lateral Canal to the north, which crosses between the southwest and northeast corners of the parcel (Figure E-1). All but approximately 50 feet of the approximately 0.6 mile of proposed access road would be located within the transmission line ROW; access road dimensions would be the same as those described for BLM parcel 1. The current Project design includes the installation of 5, two-pole wood transmission structures and 2, three-pole wood transmission structures on BLM parcel 2; the three-pole structures would require guy wires. A 50-foot by 50-foot rocked equipment access landing would be constructed adjacent to each structure.

Chapter 2 of the EA provides details on the design and construction of the proposed transmission line and transmission structures. There are no temporary pulling and tensioning sites, staging areas or helicopter landing zones proposed on BLM-managed lands.

Soils and Geologic Hazards

Affected Environment

Project area soils on BLM parcel 1 are about evenly split between soil types characterized as farmland of unique importance and those that are not prime farmland (USDA 2024). Project area soils on BLM parcel 2 are mapped as not prime farmland (USDA 2024). On both BLM-managed parcels, soils within the Project area have K-Factor values greater than 0.44 and are therefore considered highly susceptible to erosion (USDA 2024).

Environmental Consequences

Transmission structures, equipment access landings and new access roads would result in permanent soil impacts from auguring, grading, and permanent rock placement. Temporary work areas around the new transmission structures and along the new access roads would result in temporarily disturbed soils from vegetation clearing and accelerated compaction from equipment and foot traffic. The Project would permanently impact approximately 0.5 acre of soils and temporarily impact approximately 1.0 acre of soils on BLM parcel 1. The Project would permanently impact approximately 1.8 acres of soils and temporarily impact approximately 3.8 acres of soil on BLM parcel 2.

Vegetation

Affected Environment

The Project area on BLM parcel 1 is comprised of herbaceous and shrub/scrub land cover (USGS 2021a). The Project area on BLM parcel 2 is comprised entirely of shrub/scrub land cover. Vegetation in areas characterized as herbaceous land cover are typically dominated by patchy graminoid cover, cacti, and some forbs or are dominated by nonnative grasses (LANDFIRE 2016, Nature Serve 2024h, Nature Serve 2024i). Areas characterized as having shrub/scrub land cover in the Project area are dominated by big sagebrush (*Artemisia tridentata*) (LANDFIRE 2016, NatureServe 2024g). WDFW classifies sagebrush dominated vegetation communities as shrub steppe habitat, which is a Washington State Priority Habitat due to its significant value to a diverse assemblage of species (WDFW 2023). The BLM-managed parcels contain high-quality shrub steppe habitat as they are part of large patches of undisturbed habitat (approximately 350 acres around Segment 1 as it parallels South Badger Canyon Road and approximately 680 acres around the Segment 2 Canal Option).

BLM sensitive plant and milkweed surveys will occur within the Project area on BLM parcel 1 and BLM parcel 2 in Spring/Summer 2025 and the results will be provided to BLM.

Noxious weed surveys were conducted on the BLM-managed parcels in the Project area in summer 2024. Kochia (Class B; *Kochia scoparia)* was observed in a roadside ditch running parallel to South Badger Canyon Road and on BLM parcel 1. Kochia and puncture vine (Class B; *Tribulus terrestris*) were also observed on BLM parcel 2. All noxious weeds observed were adjacent to existing dirt roads or along unauthorized bike trails.

Environmental Consequences

Project construction on BLM-managed parcels would result in temporary vegetation impacts from clearing or crushing. Permanent vegetation removal would occur from the installation of permanent transmission structures, access roads, and equipment access landings. Impacts to BLM sensitive species are not anticipated as no plant species were identified to occur in the Project area. The Project would temporarily impact approximately 1.0 acre of vegetation and permanently remove approximately 0.5 acre of vegetation on BLM parcel 1. These impacts would occur to areas with shrub/scrub and herbaceous vegetation. The Project would temporarily impact approximately 3.8 acres of shrub/scrub vegetation and permanently remove approximately 1.8 acres of shrub/scrub vegetation on BLM parcel 2. Temporarily impacted areas would be revegetated with native species. Routine vegetation management would occur on a 3-year cycle in the ROW to trim or remove vegetation greater than 4 feet in height that could interfere with lines or transmission structures.

If BLM sensitive plant species are identified within the Project area during surveys, BPA would avoid and minimize impacts to the extent practicable, consistent with the Spokane BLM Border Field Office Standard Botanical Resource Design Features and Stipulations (BLM 2025).

Construction activities could introduce or expand noxious weed populations by clearing existing vegetation, exposing soils and operating vehicles and equipment that may transport noxious weeds into the Project area. BMPs such as vehicle inspections and equipment-cleaning would be implemented to minimize the introduction of noxious weeds to new areas (See Section 2.7). Furthermore, all imported

rock, soil, road fill materials and erosion control materials stockpiled on BLM lands would have proof of weed-free certification that meets North American Invasive Species Management Association Weed-Free certification standards. If herbicide application is needed on the BLM-managed parcels, BPA would follow the Standard Operating Procedures of BLM's *Spokane District Programmatic Noxious Weed & Invasive Plant Management Environmental Assessment* (BLM 2018) and the relevant Spokane BLM Border Field Office Standard Botanical Resource Design Features and Stipulations (BLM 2025), including the preparation of a Pesticide Use Proposal for BLM review.

Waterways and Water Quality

Affected Environment

There are no wellhead protection areas on the BLM-managed parcels. There are also no surface water features within the Project area on the BLM-managed parcels. The Kennewick East Badger Lateral Canal is within approximately 60 feet to 180 feet of the Project area on BLM parcel 2. The Kennewick East Badger Lateral Canal is a constructed, concrete- and rubber-lined agricultural irrigation canal.

Environmental Consequences

No project-related permanent or temporary impacts to streams (including the Kennewick East Badger Lateral Canal) would occur on the BLM-managed parcels.

Wetlands and Floodplains

Affected Environment

There are no wetlands present within the Project area on the BLM-managed parcels. The BLM-managed parcels are also not within a mapped 100-year floodplain (FEMA 1982).

Environmental Consequences

No temporary or permanent impacts to wetlands or floodplains would occur on the BLM-managed parcels.

Fish and Wildlife

Affected Environment

The BLM identified seven BLM sensitive wildlife species that may occur on the BLM-managed parcels. These species include Townsend's ground squirrel (*Urocitellus townsendii)*, ferruginous hawk (*Buteo regalis*), black-tailed jackrabbit (*Lepus californicus*), short eared owl (*Asio flammeus*), burrowing owl (*Athene cunicularia*), long-billed curlew (*Numenius americanus)* and sagebrush sparrow (*Artemisiospiza nevadensis*) (BLM Spokane District, email to Border Field Office Realty Specialist, BLM, April 2, 2024). Additionally, WDFW noted that the area that includes BLM-managed parcel 2 is heavily used by multiple bat species that are drawn to the Kennewick East Badger Lateral Canal (WDFW 2024c). This BLM-managed parcel is part of a large swath of scrub/shrub habitat (approximately 680 acres).

Townsend's ground squirrel and burrowing owl surveys were conducted in May 2024 within the Project area on the BLM-managed parcels according to WDFW protocols (WDFW 2020). No burrows suitable for

Townsend's ground squirrel or burrowing owl were observed during the survey and neither species was observed during the survey.

The Project area may also include milkweed (*Asclepias* spp.) that supports Monarch butterfly (*Danaus Plexippus*), a proposed threatened species under the ESA. A milkweed survey would be conducted within the Project area on BLM parcel 1 and BLM parcel 2 in Spring/Summer 2025 and the results would be provided to BLM and included in the Final EA.

Section 3.5.1 of the EA describes general wildlife that may occur in the Project area, including the BLM-managed parcels.

Environmental Consequences

The Proposed Action may impact species located on the BLM-managed parcels (see Section 2.7). Construction would not occur within 0.6 mile of an active ferruginous hawk nest during the nesting season (April 1 through August 15), or until a biological construction monitor confirms that young have fledged. To mitigate the risk of bird strikes on the proposed transmission line, BPA would install bird flight diverters on the conductor or optical ground wires. On transmission structures with guy wires, BPA would install yellow and orange stiped guy wire guards for increased visibility to reduce bird and terrestrial animal strikes. No impacts to Townsend's ground squirrel or burrowing owl on the BLM-managed parcels are anticipated as the species are presumed absent because burrows suitable for the species were not observed during the survey.

Cultural Resources

Affected Environment

BLM parcel 2 includes part of the NRHP-eligible Kennewick East Badger Lateral Canal. No other cultural resources were identified within the Project area on the BLM-managed parcels.

Environmental Consequences

The Segment 2 Canal Option ROW would parallel the NRHP-eligible Kennewick East Badger Lateral Canal on BLM parcel 2. This cultural resource would not be subject to impacts from the Proposed Action, nor would the Proposed Action cause impacts that would adversely affect characteristics that make this resource potentially eligible for listing in the NRHP.

Land Use and Transportation

Affected Environment

The BLM-managed parcels are currently maintained as open space and are not used for range and grazing. The Land Use Plan that applies to these parcels is the BLM Spokane Resource Management Plan, as amended (BLM 1987, BLM 1992). BLM parcel 1 is also crossed by South Badger Canyon Road. There are no public roads on BLM parcel 2. There are unimproved dirt roads on both BLM-managed parcels.

Environmental Consequences

BPA would apply for ROW grants for a new 100-foot-wide ROW to construct and operate Segments 1 and 2 of the Webber Canyon-Badger Canyon transmission line. For Segment 1, BPA would acquire ROW

grants for approximately 2 acres of BLM parcel 1. With the Segment 2 Canal Option, BPA would acquire ROW grants for approximately 7 acres of BLM parcel 2. Within the new ROW, tall-growing vegetation (generally taller than 4 feet) and any land uses that may interfere with the safe operation or maintenance of the transmission line would be prohibited. There is currently no vegetation or land use in this area that would be impacted by this prohibition.

Noise, Public Health & Safety

Affected Environment

BLM has an agreement with Benton County to provide first responder fire services on the BLM-managed parcels. The lands are part of the wildland-urban interface, and the prevailing winds are from the southwest.

Vehicles on South Badger Canyon Road and off-highway vehicles would be the predominant source of noise on BLM parcel 1. Nearby street traffic, agricultural equipment operation and noise from nearby neighborhoods would contribute to ambient noise on BLM parcel 2. A typical rural ambient sound level is 45 dBA (Berger *et al*. 2016). A typical suburban ambient sound level is 60 dBA (Berger *et al*. 2016).

Environmental Consequences

Project construction could temporarily increase the risk of fire ignition. Heavy equipment operation, improper vehicle staging or incorrect fuels storage are all potential risk factors, particularly in the presence of dry vegetation. Prior to starting work, BPA's construction contractor would contact fire agencies with jurisdiction over the Project area to review fire hazards, prevention measures and response plans. In addition to implementing local fire agencies' rules, BPA's construction contractor would implement standard fire prevention BMPs. These would include appropriately storing fuels and providing fire watchers at work areas where power-driven equipment is used during fire season or whenever fire danger is high. During fire season, daily state fire agency condition reports would be reviewed and required work restrictions and closures would be implemented as necessary. Impacts of the Project on wildland fire risk and public safety would be low due to implementation of BMPs that would make the likelihood of fire ignition low during construction.

Fire retardant pole wraps would be installed on the new wood transmission structures. The fire-retardant material would enhance protection of these transmission lines in the event of a fire in the area.

Construction of the Project would result in temporary noise impacts during daytime hours. The use of heavy equipment, increased worker vehicle trips and the intermittent use of helicopters would all contribute to construction noise. Typical noise levels from heavy equipment that would likely be used during construction range from 80 dBA (backhoe) to 95 dBA (rock drill) at 50 feet away (Federal Transit Administration 2018). Noise produced by construction equipment would decrease with distance at a rate of about 6 dBA per doubling of distance from the source of the noise. Based on that assumed attenuation rate, noise-sensitive properties within 400 feet of construction sites could be exposed to daytime noise levels of approximately 77 dBA, which is similar to the noise level produced by a coffee grinder. Crews would spend approximately 3.5 weeks per line mile building the Webber Canyon-Badger Canyon transmission line.

Helicopters would also fly over the BLM-managed parcels during Project construction; however, this noise would be temporary and intermittent. It would generally take less than 10 minutes to string the sock line through each transmission structure. It is estimated that a helicopter would not be in any given line mile for more than 3 hours during Project construction.

Visual Quality

Affected Environment

The Project area within the BLM-managed parcels contains vegetation that is predominantly sagebrush steppe, with muted colors. BLM parcel 1 is in the foothills to the Horse Heaven Hills plateau and South Badger Canyon Road is part of the visual setting. BLM parcel 2 is in the lowlands and the visual setting includes a crop circle immediately south of the parcel and residential development to the east and on the bluff to the northwest.

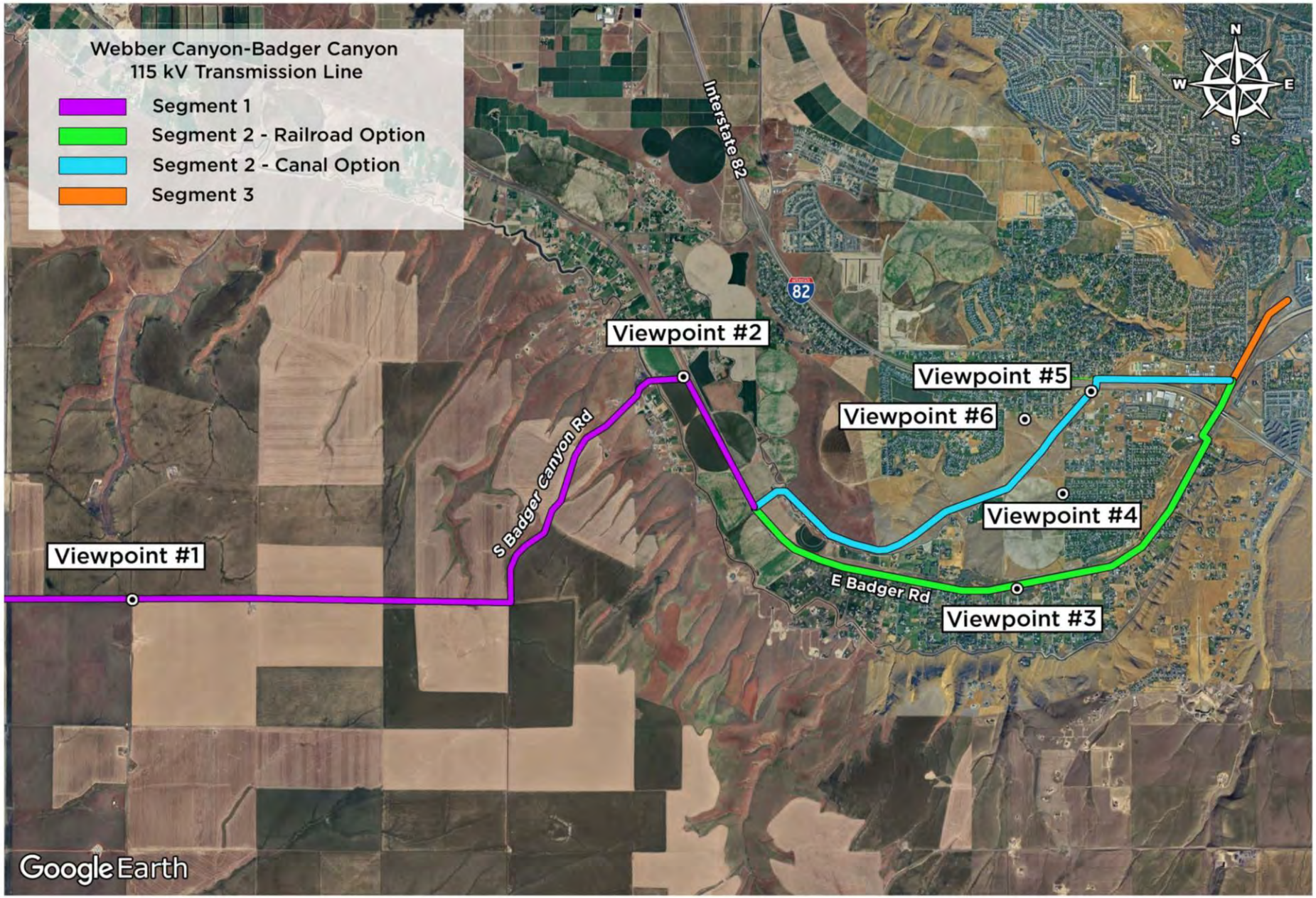
Environmental Consequences

Construction would result in temporary and permanent visual changes in the Project area. Temporary visual impacts would result from the presence of construction equipment and activities. Some activities have the potential to exacerbate atmospheric dust conditions, which can limit visibility in an area. Erosion control BMPs would reduce the potential for wind to lift soil into the atmosphere and impact visual quality from dust.

The wood transmission structures would present the most noticeable permanent visual changes resulting from construction on the BLM-managed parcels. They would present a low to moderate contrast with the surrounding landscape due to the prevalence of muted brown colors in the existing landscape. The use of yellow and orange striped guy wire guards on some of the structures, however, would present a moderate visual contrast to nearby viewers (as intended for the purpose of preventing wildlife collisions).

The transmission structures on BLM parcel 1 would be most visible to those traveling on South Badger Canyon Road. The photo simulation in Appendix F (Viewpoint #2) includes the transmission structures that would be located on this BLM parcel as seen from East Badger Road. The transmission structures on BLM parcel 2 would be a noticeable visible change to residents in the neighborhood around Cottonwood Drive. The photo simulation in Appendix F (Viewpoint #4) includes some of the transmission lines that would be located on this BLM parcel as seen from East Kase Boulevard.

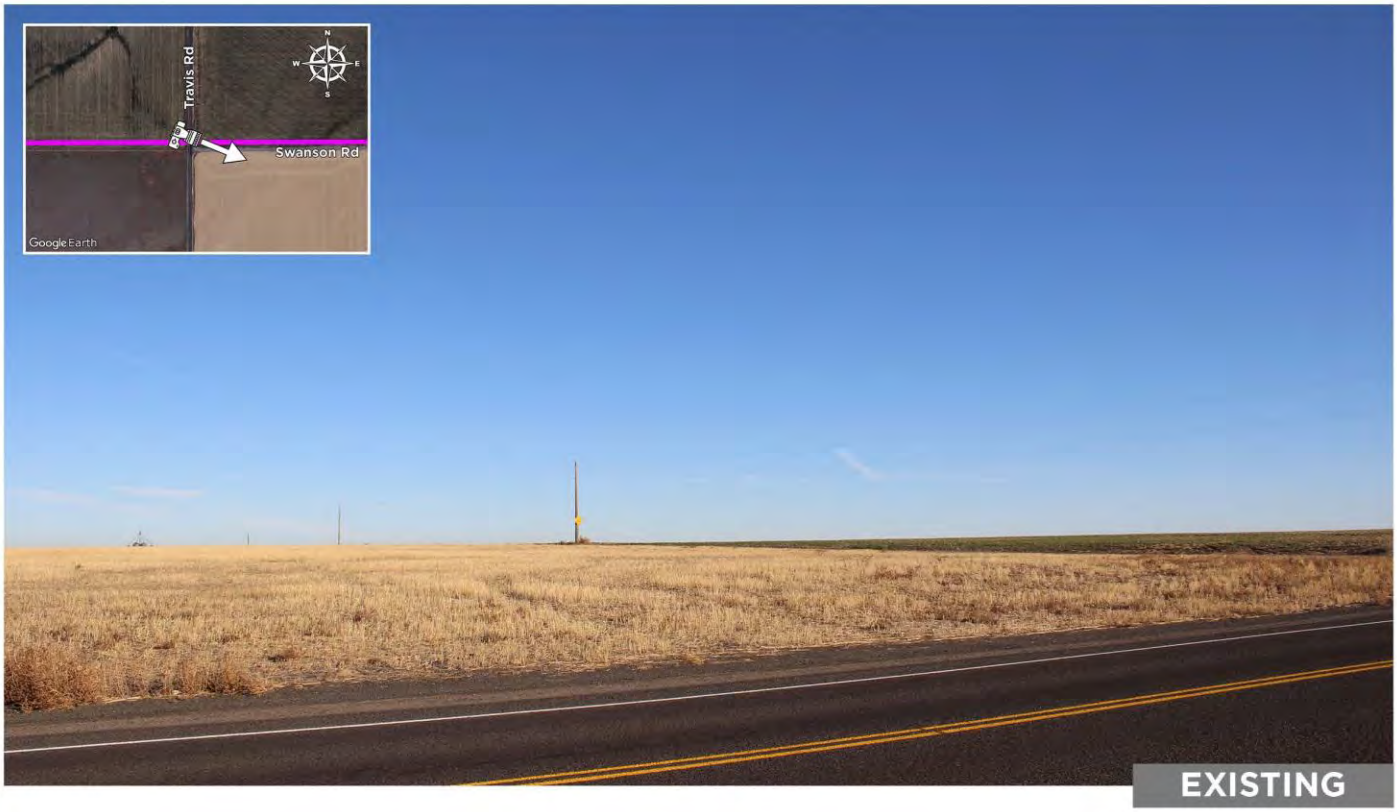
Appendix F: Photo-Simulations of Webber Canyon-Badger Canyon Transmission Line



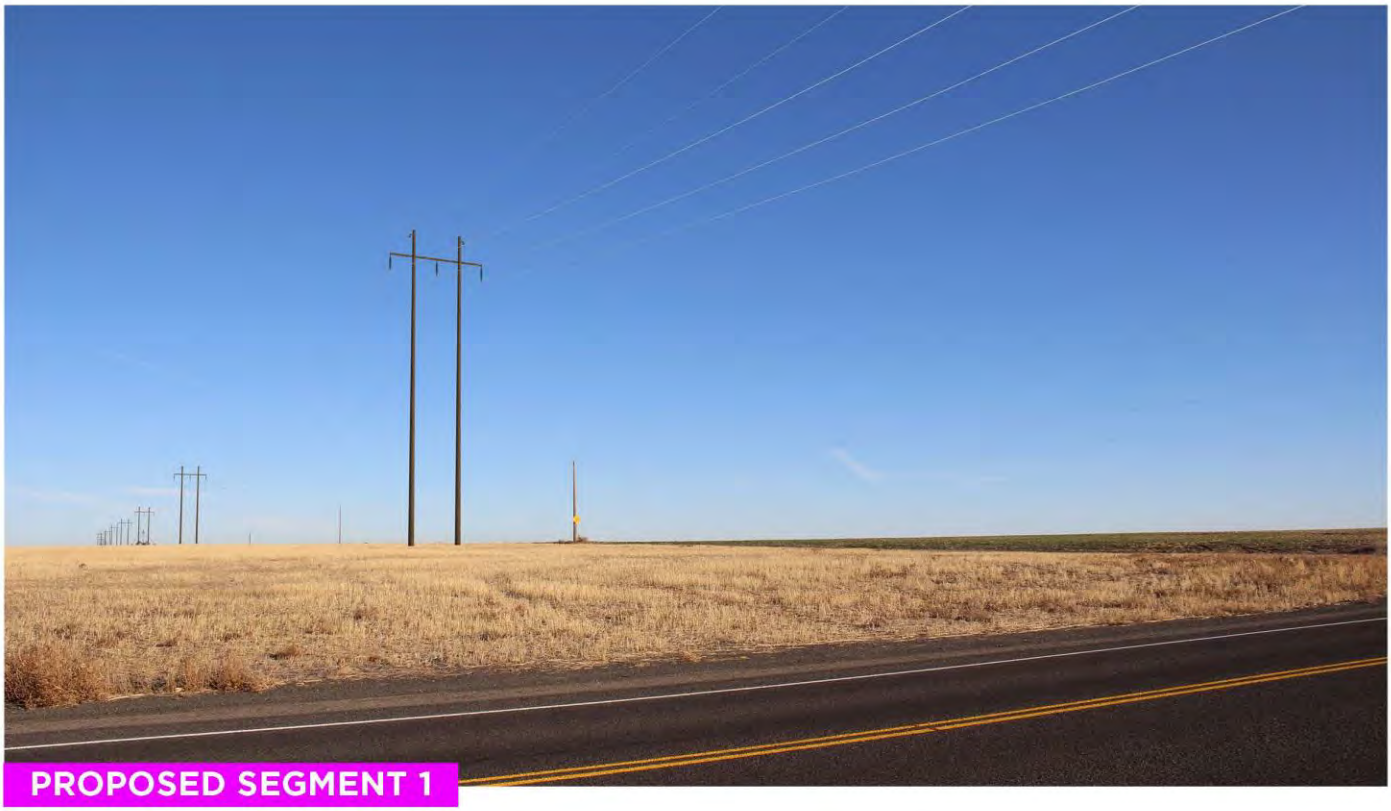
Webber Canyon-Badger Canyon 115kV Transmission Line Photosimulations

Viewpoint Map

Bonneville
POWER ADMINISTRATION



EXISTING

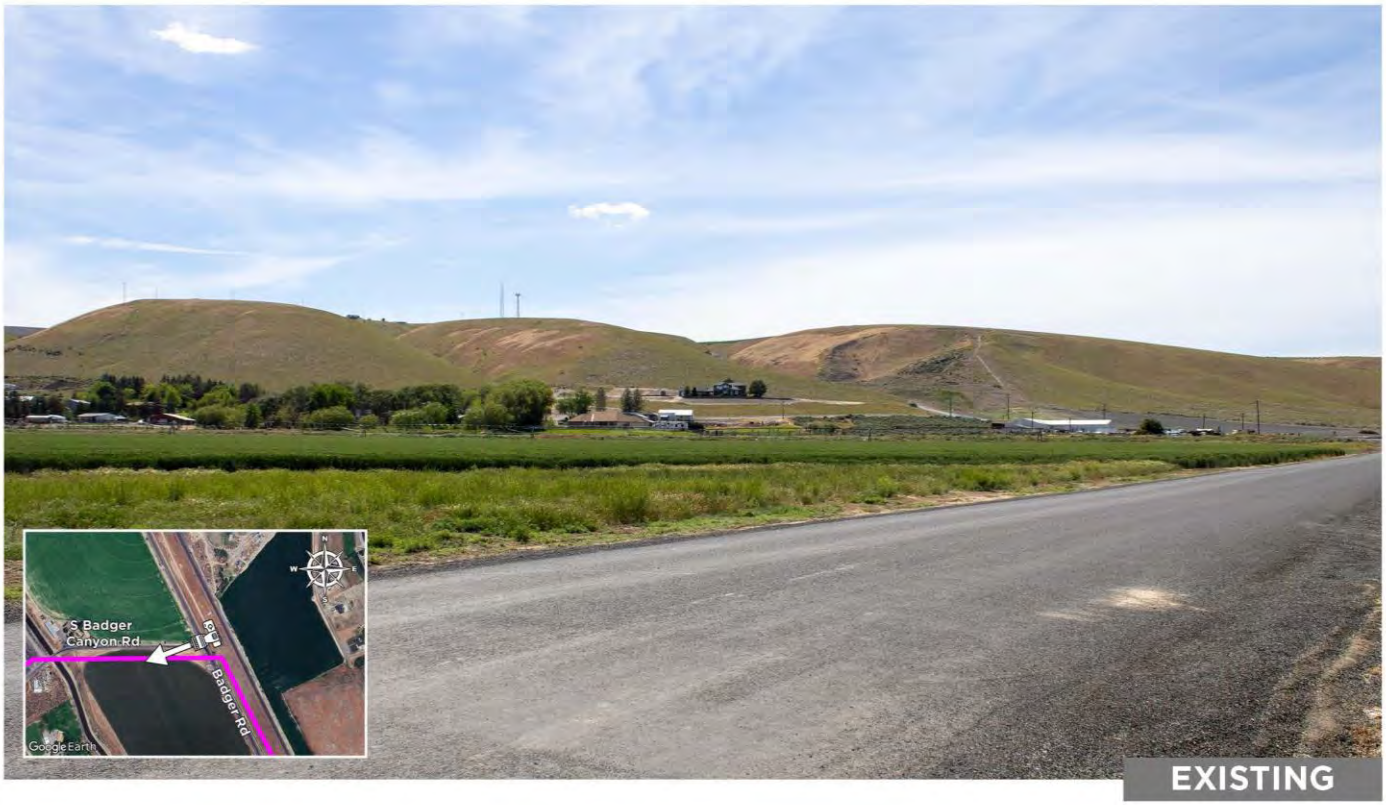


PROPOSED SEGMENT 1

Webber Canyon-Badger Canyon 115kV Transmission Line

Viewpoint #1

Bonneville
POWER ADMINISTRATION



EXISTING

PROPOSED SEGMENT 1

Webber Canyon-Badger Canyon 115kV Transmission Line

Viewpoint #2

Bonneville POWER ADMINISTRATION

EXISTING

PROPOSED SEGMENT 2 - RAILROAD OPTION

Webber Canyon-Badger Canyon 115kV Transmission Line

Viewpoint #3

Bonneville POWER ADMINISTRATION

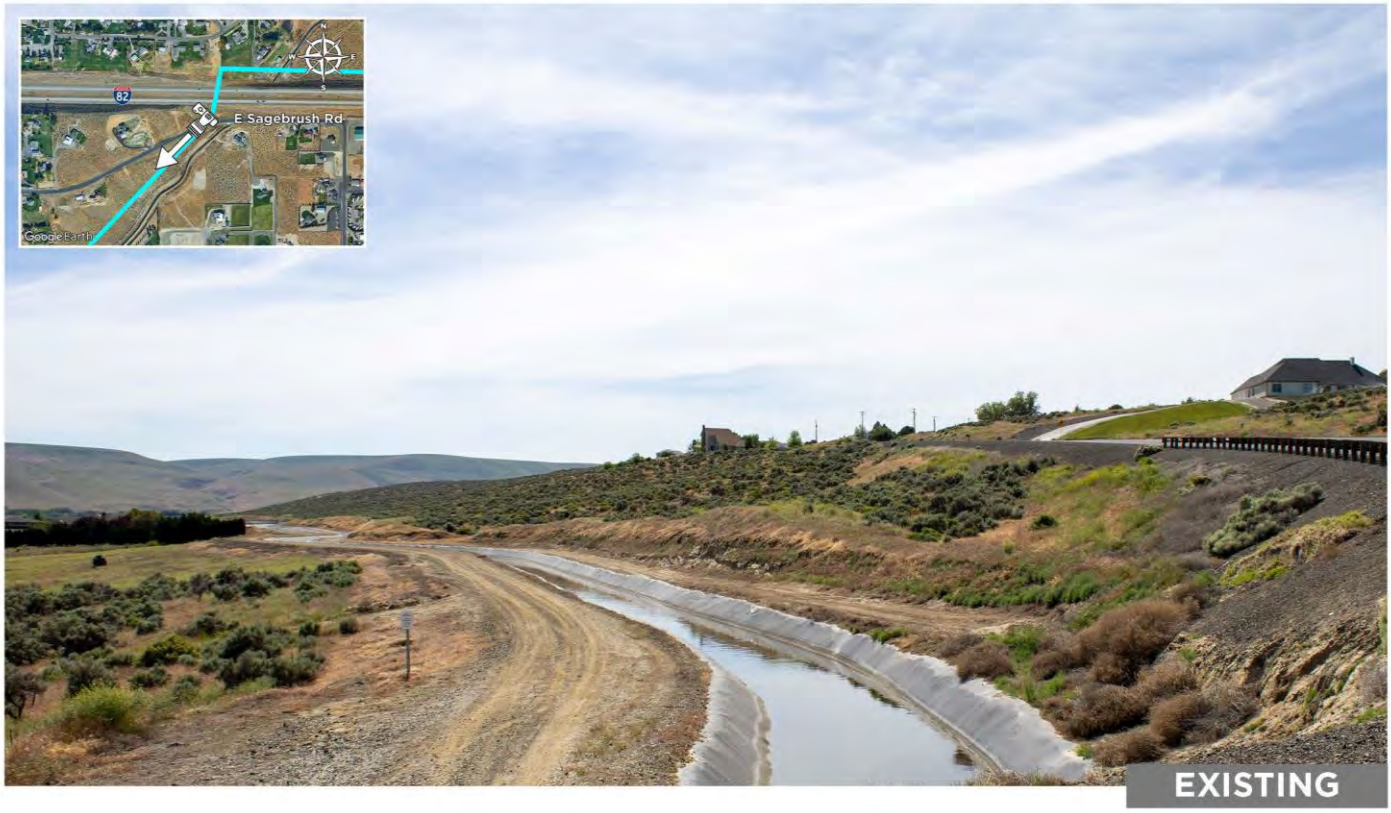
EXISTING

PROPOSED SEGMENT 2 - CANAL OPTION

Webber Canyon-Badger Canyon 115kV Transmission Line

Viewpoint #4

Bonneville POWER ADMINISTRATION



Webber Canyon-Badger Canyon 115kV Transmission Line

Viewpoint #5

Bonneville POWER ADMINISTRATION

Webber Canyon-Badger Canyon 115kV Transmission Line

Viewpoint #6

Bonneville POWER ADMINISTRATION

BONNEVILLE POWER ADMINISTRATION
DOE/BP-5436 ▪ May 2025