

Chapter 2

PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

This chapter describes the Applicant's Proposed Action to construct, operate, and maintain a 500-kV transmission line and ancillary facilities, including a description of right-of-way acquisition, transmission-line components, substations, communication system, access roads, geotechnical investigation required to inform the design and engineering of the B2H Project facilities, and construction activities to assist in understanding the types and extent of environmental effects that could result from the proposed B2H Project.

Also described in this chapter are the range of reasonable alternatives for the Proposed Action identified for detailed analysis, as required by Section 102(2)(E) of the NEPA (40 CFR 1502.14), including the No Action Alternative, which is the continuation of the existing condition or management and serves as a baseline for comparing the environmental effects of the B2H Project alternatives and alternatives considered but eliminated from detailed analysis. In addition, described are the approach used to conduct the process of analyzing and comparing the alternatives; results of the comparison of alternatives, including a description of the environmentally preferable action alternative that emerged from the analyses; description of the Applicant's Proposed Action Alternative route; and description of the Agency Preferred Alternative.

2.1.1 SUMMARY OF CHANGES FROM THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

Between the Draft EIS and Final EIS, revisions were made to the Applicant's Proposed Action, route-variation options were developed to be located closer to (a minimum of 250 feet from) existing transmission lines, and localized route-variation options were developed in some of the segments. These include the following:

- The Applicant changed the northern terminus of the Proposed Action from the proposed Grassland or proposed Horn Butte Substation to the proposed Longhorn Substation and proposes to route the 500-kV transmission line along the west side of Bombing Range Road, which is on the NWSTF Boardman along the west side of the eastern boundary of the military facility (Section 2.1.1.1), to allow for construction of the proposed 500-kV line. A portion of an existing BPA 69-kV transmission line displaced by the 500-kV transmission line would have to be removed.
- The BLM requested colocation of the Draft EIS Agency Preferred Alternative route for the proposed transmission line closer to existing transmission lines (Section 2.1.1.2).
- Localized route-variation options were developed (Section 2.1.1.3) based on comments received between the Draft EIS and Final EIS.

As stated above, a part of the Applicant's Proposed Action is to remove the portion of BPA's 69-kV transmission line, along the west side of Bombing Range Road that would be displaced by the proposed 500-kV transmission line. Although not part of the Applicant's Proposed Action, if an alternative route along the west side of Bombing Range Road (Segment 1) is selected, the 69-kV line may be relocated. The additional action of replacing the BPA 69-kV line is a connected action under the NEPA, the effects of which are analyzed and addressed in the EIS. This additional action is addressed in Section 2.5.2.1 and the potential effects of this action are reported throughout Chapter 3.

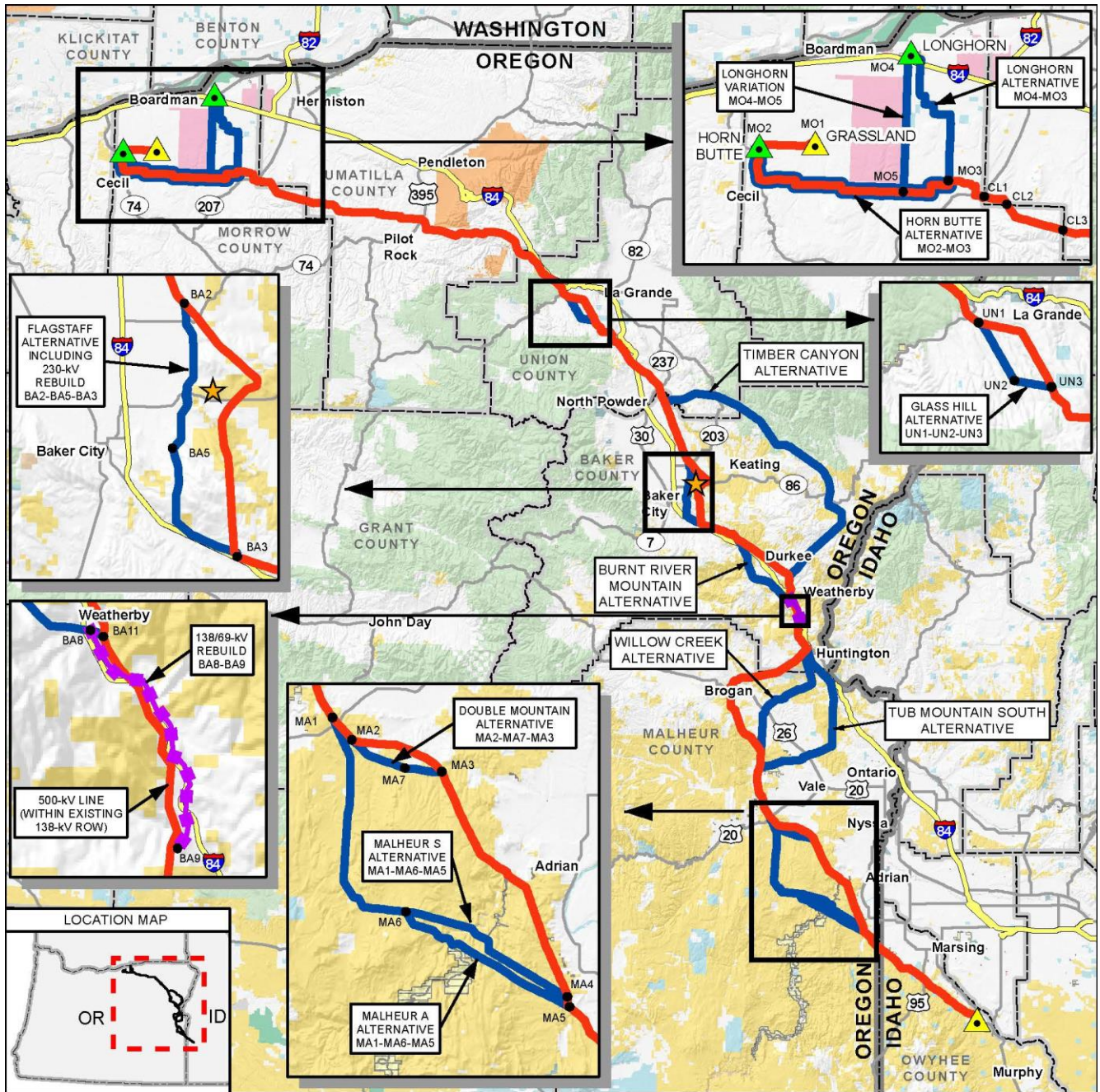
These revisions and route-variation options are described below. The alternative routes addressed in the Draft EIS are shown on Map 2-1, and the alternative routes addressed in this Final EIS are shown on Maps 2-2a and 2-2b.

2.1.1.1 CHANGE IN APPLICANT'S PROPOSED ACTION

In order for the B2H Project to meet its objective of adding approximately 1,000 megawatts of bi-directional capacity between the Pacific Northwest and Intermountain West regions, the point of interconnection at the northern terminus must provide sufficient capacity to (1) transfer an additional 1,050 MW of power from the BPA 500-kV transmission system in the Pacific Northwest west-to-east across the Idaho-Northwest transmission path, (2) transfer an additional 1,000 MW of power east-to-west across the Idaho-Northwest transmission path, and (3) allow for actual power flows on the B2H Project transmission line of up to approximately 1,500 MW, accounting for variations in actual power flows of the various transmission lines comprising the Idaho-Northwest transmission path.

When Idaho Power began the federal permitting process for the B2H Project in 2007, other transmission development projects were being proposed in the Pacific Northwest that influenced Idaho Power's northern terminus location options for the B2H Project; in particular, Portland General Electric's (PGE) Cascade Crossing 500-kV Project. In 2008, the Applicant and PGE executed a Memorandum of Understanding concerning Boardman area transmission development, with the intent of sharing development plans and developing facilities collaboratively to assist each company in fulfilling their respective service and system-reliability obligations. The proposed Grassland Substation was contemplated as an interconnection point between the two projects that could help each company with their respective project objectives (Map 2-1). The proposed Horn Butte Substation was introduced as an alternative location to connect to the Cascade Crossing 500-kV Project.

However, since the NEPA process was initiated for the B2H Project, the transmission-development landscape has changed. Several of the development projects under consideration during the time of original application subsequently have been cancelled. Notably, in 2013, PGE indefinitely suspended the Cascade Crossing Project.



Applicant's Proposed Action Alternative and Other Alternatives Addressed in the Draft EIS

Boardman to Hemingway Transmission Line Project

Map 2-1

PROJECT FEATURES

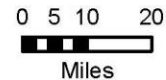
- ▲ Alternative Substation
- ▲ Proposed Substation (currently under construction)
- ▲ Existing Substation
- Proposed Action
- Proposed Rebuild
- Alternative

REFERENCE FEATURES

- ★ National Historic Oregon Trail Interpretive Center
- Interstate
- Highway

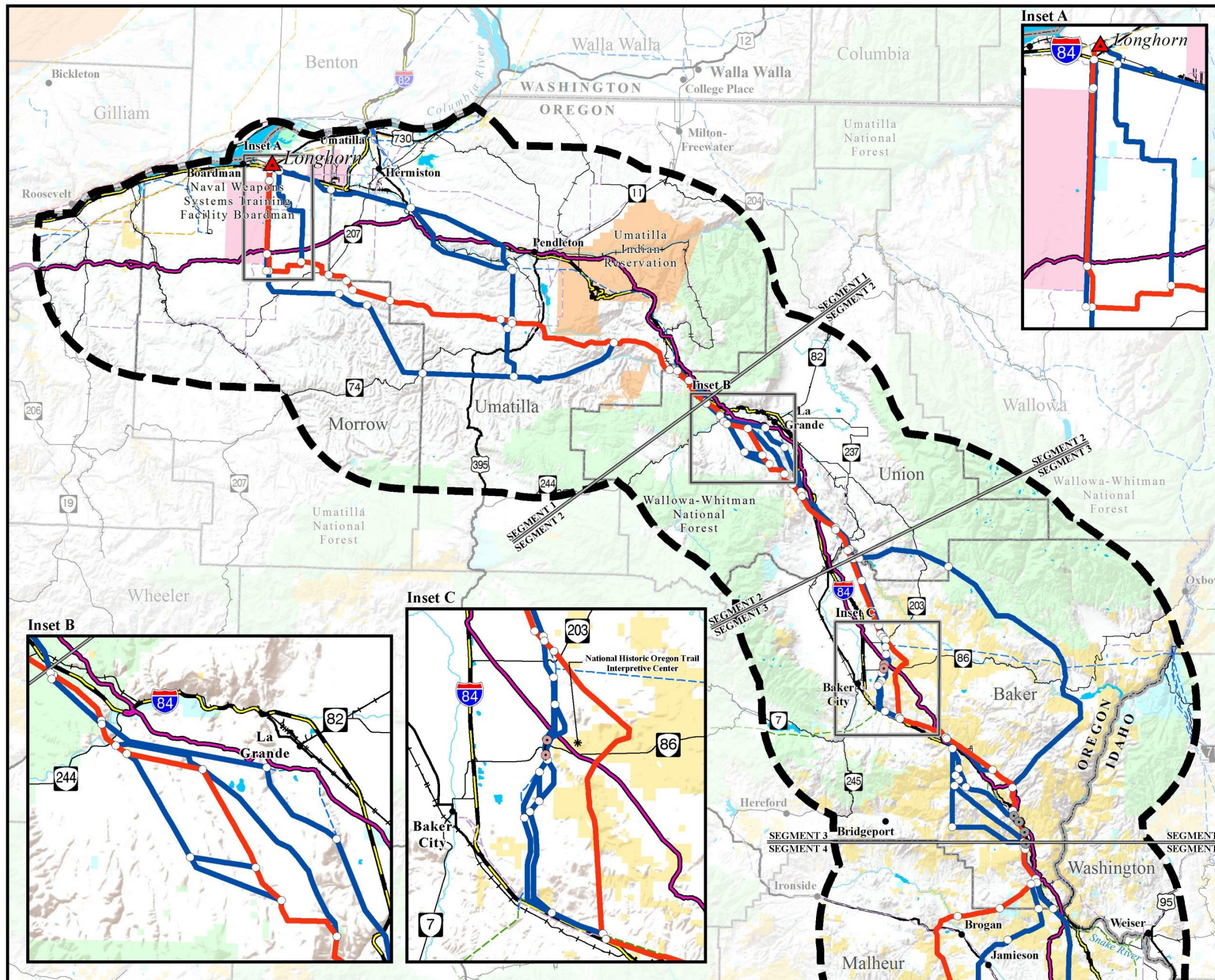
- State Boundary
- County Boundary
- Bureau of Land Management
- Bureau of Reclamation
- Department of Defense
- Forest Service
- Indian Reservation
- Private
- State
- National Park Service
- U.S. Fish and Wildlife Service

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.



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Map 2-2a
**Alternative Routes Analyzed
for the Final EIS
(Northern Area)**

BOARDMAN TO HEMINGWAY
TRANSMISSION LINE PROJECT

Project Features

Project Area Boundary	Link Node
Substation (Project Terminal)	Segment Line
Applicant's Proposed Action Alternative	Flagstaff 230-kV Rebuild (Inset C)
Alternative Route	Double-circuit 138/69-kV Rebuild (Inset D)

Land Ownership

Bureau of Land Management	U.S. Fish and Wildlife Service
Bureau of Reclamation	U.S. Forest Service
Indian Reservation	Other Federal
National Park Service	State Land
U.S. Department of Defense	Private Land

General Reference

City or Town	Interstate Highway
500-kV Transmission Line	U.S. Highway
345-kV Transmission Line	State Highway
230-kV Transmission Line	Lake or Reservoir
138-kV Transmission Line	State Boundary
69- to 115-kV Transmission Line	County Boundary
Railroad	Oregon National Historic Trail Congressionally Designated Alignment

SOURCES:
Land Status, BLM 2014, 2015; Cities and Towns, ESRI 2013; Transmission Lines, Bonneville Power Administration 2009, Idaho Power Company 2007, Logan Simpson Design 2011, Ventyx 2012; Pipelines, ESRI 2012; Railroads, Idaho DOT 2006, Oregon DOT 2014; Highways, ESRI 2013; Waterbodies, ESRI 2013; State and County Boundaries, ESRI 2013; Oregon National Historic Trail Congressionally Designated Alignment, BLM 2015

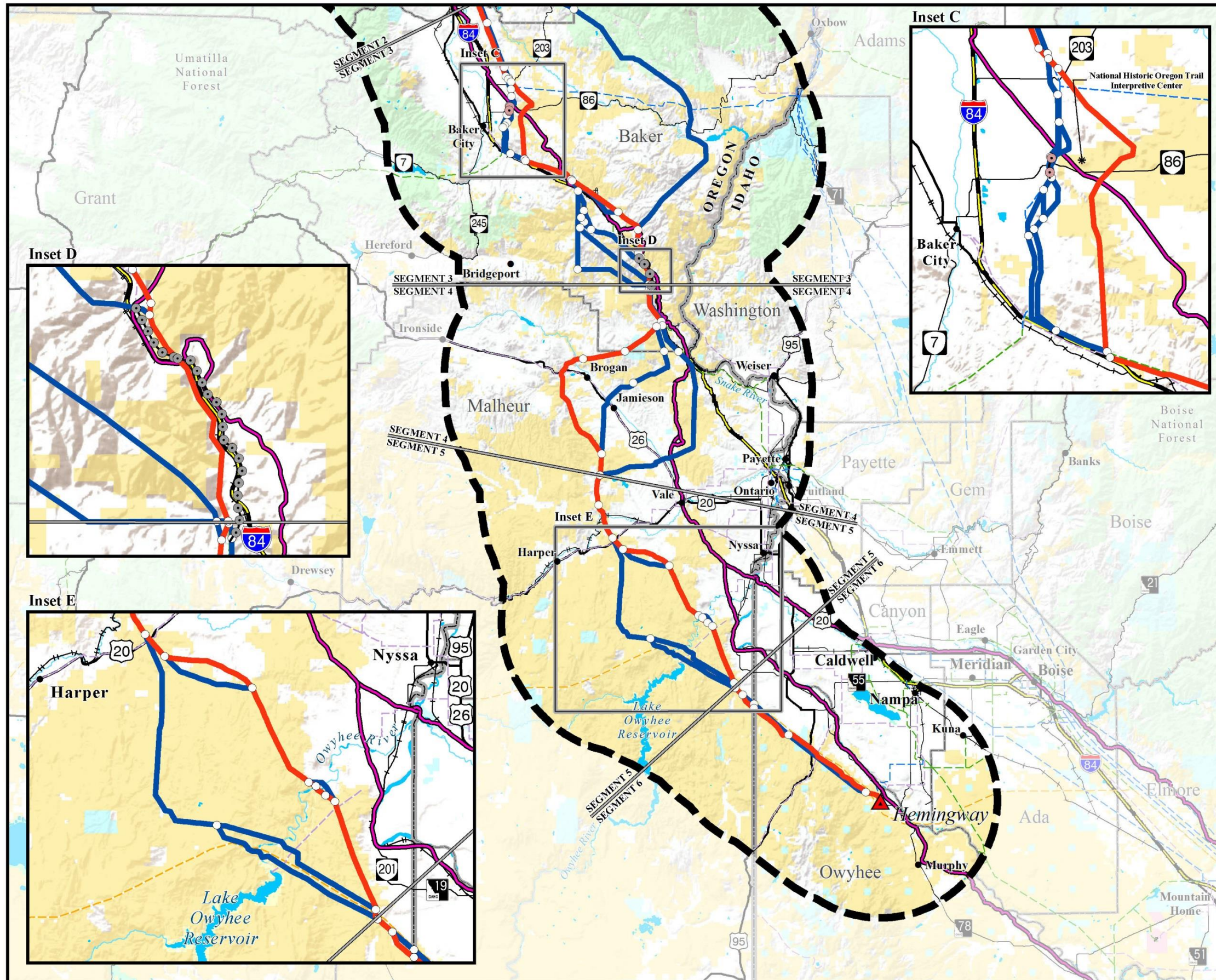
NOTES:

- The alternative routes shown on this map are draft and may be revised or refined throughout the development of the project.
- Substation symbols do not necessarily represent precise locations.
- The B2H Project area boundary is defined by buffering the alternative route centerlines.
- Other federal land ownership may include lands administered by the U.S. Department of Energy, Bonneville Power Administration, Federal Aviation Administration, General Services Administration, or U.S. Department of Agriculture (except U.S. Forest Service).
- Each alternative route is composed of links, which are discrete sections of the route sharing common endpoints determined by the point of intersection with other adjacent links; the common endpoint is referred to as a link node. Links generally are numbered from north to south. Similarly, a segment is composed of alternative routes that share common endpoints determined by the point of intersection with other adjacent alternative routes; the common endpoint is referred to as a segment node.
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Alternative routes last revised: February 18, 2016
Final EIS: November 2016

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Miles
1:950,400 or 1 inch = 15 miles

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Map 2-2b
**Alternative Routes Analyzed
for the Final EIS
(Southern Area)**

BOARDMAN TO HEMINGWAY
TRANSMISSION LINE PROJECT

Project Features

Project Area Boundary	Link Node
Substation (Project Terminal)	Segment Line
Applicant's Proposed Action Alternative	Flagstaff 230-kV Rebuild (Inset C)
Alternative Route	Double-circuit 138/69-kV Rebuild (Inset D)

Land Ownership

Bureau of Land Management	U.S. Fish and Wildlife Service
Bureau of Reclamation	U.S. Forest Service
Indian Reservation	Other Federal
National Park Service	State Land
U.S. Department of Defense	Private Land

General Reference

City or Town	Interstate Highway
500-kV Transmission Line	U.S. Highway
345-kV Transmission Line	State Highway
230-kV Transmission Line	Lake or Reservoir
138-kV Transmission Line	State Boundary
69- to 115-kV Transmission Line	County Boundary
Railroad	Oregon National Historic Trail Congressionally Designated Alignment

SOURCES:
Land Status, BLM 2014, 2015; Cities and Towns, ESRI 2013; Transmission Lines, Bonneville Power Administration 2009, Idaho Power Company 2007, Logan Simpson Design 2011, Ventyx 2012; Pipelines, ESRI 2012; Railroads, Idaho DOT 2006, Oregon DOT 2014; Highways, ESRI 2013; Waterbodies, ESRI 2013; State and County Boundaries, ESRI 2013; Oregon National Historic Trail Congressionally Designated Alignment, BLM 2015

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Alternative routes last revised: February 18, 2016
Final EIS: November 2016

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Miles
1:950,400 or 1 inch = 15 miles

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In the absence of the Cascade Crossing Project, neither the proposed Grassland Substation nor alternative Horn Butte Substation would provide the required approximate 1,000 MW of bi-directional capacity and up to 1,500 MW of actual power-flow capability. Therefore, the proposed Grassland and Horn Butte substations and alternative routes to these substations as set forth in the B2H Project Draft EIS, do not meet the B2H Project objectives. The Applicant is now proposing the remaining Longhorn Substation, which was analyzed in the Draft EIS, as the northern terminus.

The Applicant's objective of terminating at the Longhorn Substation is based on more than electrical connectivity. The site of the Longhorn Substation provides flexibility for commercially advantageous development opportunities. The Longhorn Substation is strategically located near existing generation sources that comprise potential transmission customers or generator service providers for the permitting partners.

In the Draft EIS for the B2H Project, the BLM considered four alternative route-variation options near the NWSTF Boardman property: (1) Grassland Substation route; (2) Horn Butte Substation route; (3) Longhorn Alternative; and (4) Longhorn Variation (on the east side of Bombing Range Road). In comments on the Draft EIS, local landowners, local governments, and the Oregon Department of Agriculture criticized the Longhorn Alternative and Longhorn Variation, expressing concern about the potential impacts on irrigated agriculture and the related economic effects. A number of commenters advocated for a route-variation option on the west side of Bombing Range Road, which would be on the eastern border of the NWSTF Boardman, federal land withdrawn for military use.

The Applicant submitted an application, dated June 22, 2015, to the Navy requesting an easement that would repurpose the area along the eastern boundary of the NWSTF Boardman on the west side of Bombing Range Road, currently occupied by a 69-kV transmission line, for the construction, operation, and maintenance of the B2H Project transmission line. BPA, a permitting partner on the B2H Project, owns and operates the 69-kV transmission line (which serves Columbia Basin Electric Cooperative in southern Morrow County) pursuant to a use agreement with the Navy. The BPA would cooperate with the Applicant to terminate its existing use agreement with the Navy and remove the 69-kV transmission line and construct the B2H Project in place of the 69-kV transmission line. The location and width of the Idaho Power easement would be the same as that provided in BPA's existing use agreement for the 69-kV transmission line; that is, a 90-foot-wide use area. The Applicant is proposing a modified transmission-line structure type, which would be no taller than 100 feet to mitigate potential impacts; that is, minimize interference with the military operations of the NWSTF Boardman. Umatilla Electric Cooperative (UEC), which owns and operates a 115-kV transmission line on private property on the east side of Bombing Range Road, would cooperate with BPA to help BPA continue to provide electrical service to its customers served by the displaced 69-kV transmission line. This is considered a connected action under the NEPA. Description of the 69-kV line relocation is presented in Section 2.5.2.1 and analysis of the action is included throughout Chapter 3.

The route-variation option west of Bombing Range Road was not an alternative in the Draft EIS, but is within the study corridor included in the Draft EIS affected environment sections; therefore, the EIS does not require supplementation. It has been added as the northern portion of the Applicant's

Proposed Action Alternative route. Map 2-3 shows the Applicant's revised Proposed Action in the northern portion of Segment 1.

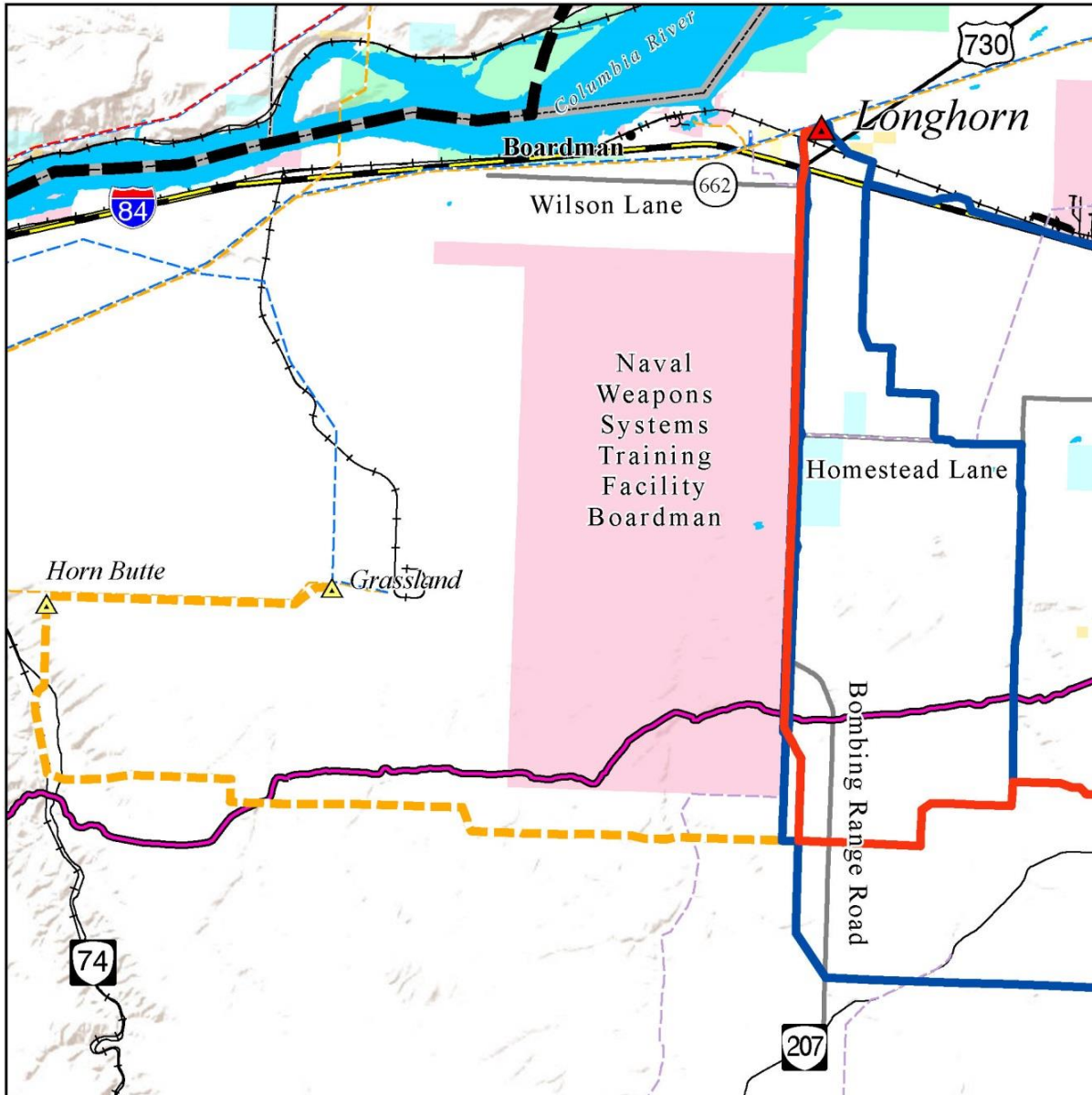
2.1.1.2 COLOCATION OF TRANSMISSION LINES

The Draft EIS presented alternative routes for the B2H Project that were sited with a separation distance of approximately 1,500 feet, where feasible, from existing transmission lines. Between the Draft EIS and Final EIS, the BLM requested that the Draft EIS Agency Preferred Alternative route be collocated closer to existing transmission lines. This section explains the background for establishing the initial 1,500-foot separation and the reason the BLM requested the reduction in the separation distance. Maps 2-4a and 2-4b show the areas where collocated route variations were developed.

In recent decades, significant transmission-line outages resulted in increased regulation aimed at the operation, physical security, and overall reliability of the nation's transmission systems. The FERC was given the mandate by Congress to oversee that mandatory reliability standards are implemented. Under the direction of the FERC, the NERC implemented and enforces more than 100 standards to promote reliability. Also, NERC has authority over eight regional coordinating councils to oversee system reliability in each region. The Western Electricity Coordinating Council is the regional coordinating council responsible for overseeing the Western Interconnection (i.e., electrical grid in the western U.S.) (and the immediate regulatory body under which the Applicant must operate). The NERC and Western Electricity Coordinating Council standards and criteria require transmission providers to meet certain system-performance requirements during outages of multiple transmission line and require risk assessments for impacts on the system due to extreme events, such as loss of multiple transmission lines and entire transmission corridors.

Right-of-way and transmission-line-separation distances¹ for all transmission lines (existing and proposed) in the U.S. should comply with NERC reliability standards. Transmission lines in the Western Electricity Coordinating Council system also are required to comply with Western Electricity Coordinating Council reliability criteria.

¹"Separation distance" refers to the minimum separation between the centerline of one transmission line structure and the centerline of an adjacent centerline of an adjacent transmission line structure where multiple transmission lines follow parallel routes and are aligned structure to structure.



Map 2-3

Applicant's Revised Proposed Action

BOARDMAN TO HEMINGWAY TRANSMISSION LINE PROJECT

Project Features

- Project Area Boundary
- Final EIS**
- Substation (Project Terminal)
- Applicant's Proposed Action Alternative
- Alternative Route
- Draft EIS**
- Applicant's Proposed Action Substation Eliminated after Draft EIS
- Applicant's Proposed Action Alternative Route Eliminated after Draft EIS
- Land Ownership**
- Bureau of Land Management
- Bureau of Reclamation
- U.S. Department of Defense

- U.S. Fish and Wildlife Service
- State Land
- Private Land
- General Reference**
- City or Town
- 500-kV Transmission Line
- 345-kV Transmission Line
- 230-kV Transmission Line
- 138-kV Transmission Line
- 69- to 115-kV Transmission Line
- Railroad
- Interstate Highway
- U.S. Highway
- State Highway
- Other Road

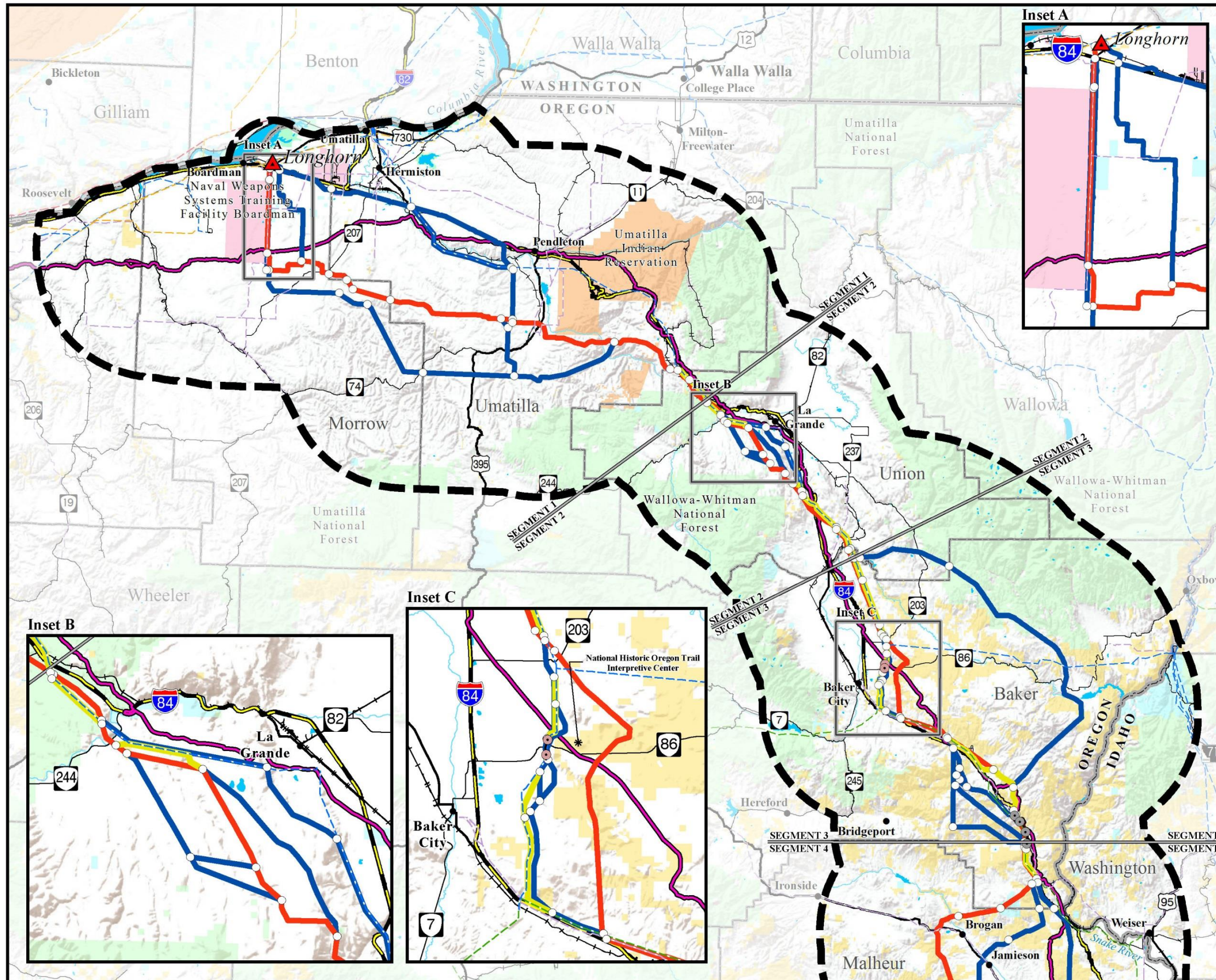
General Reference continued

- Lake or Reservoir
 - County Boundary
 - Oregon National Historic Trail Congressionally Designated Alignment
- SOURCES:
Land Status, BLM 2014, 2015; Cities and Towns, ESRI 2013;
Transmission Lines, Bonneville Power Administration 2009, Idaho Power Company 2007,
Logan Simpson Design 2011, Venayz 2012; Railroads, Idaho DOT 2006, Oregon DOT 2014,
Highways, ESRI 2013;
Waterbodies, ESRI 2013; State and County Boundaries, ESRI 2013;
Oregon National Historic Trail Congressionally Designated Alignment, BLM 2015
- NOTES:
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Alternative routes last revised: February 18, 2016
Final EIS: November 2016

1:225,000 or 1 inch = 4 miles

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Map 2-4a
Colocation Variations
(Northern Area)

BOARDMAN TO HEMINGWAY
TRANSMISSION LINE PROJECT

Project Features

- Project Area Boundary
- Substation (Project Terminal)
- Applicant's Proposed Action Alternative
- Alternative Route
- Colocation Variation
- Link Node
- Segment Line
- Flagstaff 230-kV Rebuild (Inset C)
- Double-circuit 138/69-kV Rebuild (Inset D)

Land Ownership

- Bureau of Land Management
- Bureau of Reclamation
- Indian Reservation
- National Park Service
- U.S. Department of Defense
- U.S. Fish and Wildlife Service
- U.S. Forest Service
- Other Federal
- State Land
- Private Land

General Reference

- City or Town
- 500-kV Transmission Line
- 345-kV Transmission Line
- 230-kV Transmission Line
- 138-kV Transmission Line
- 69- to 115-kV Transmission Line
- Railroad
- Interstate Highway
- U.S. Highway
- State Highway
- Lake or Reservoir
- State Boundary
- County Boundary
- Oregon National Historic Trail Congressionally Designated Alignment

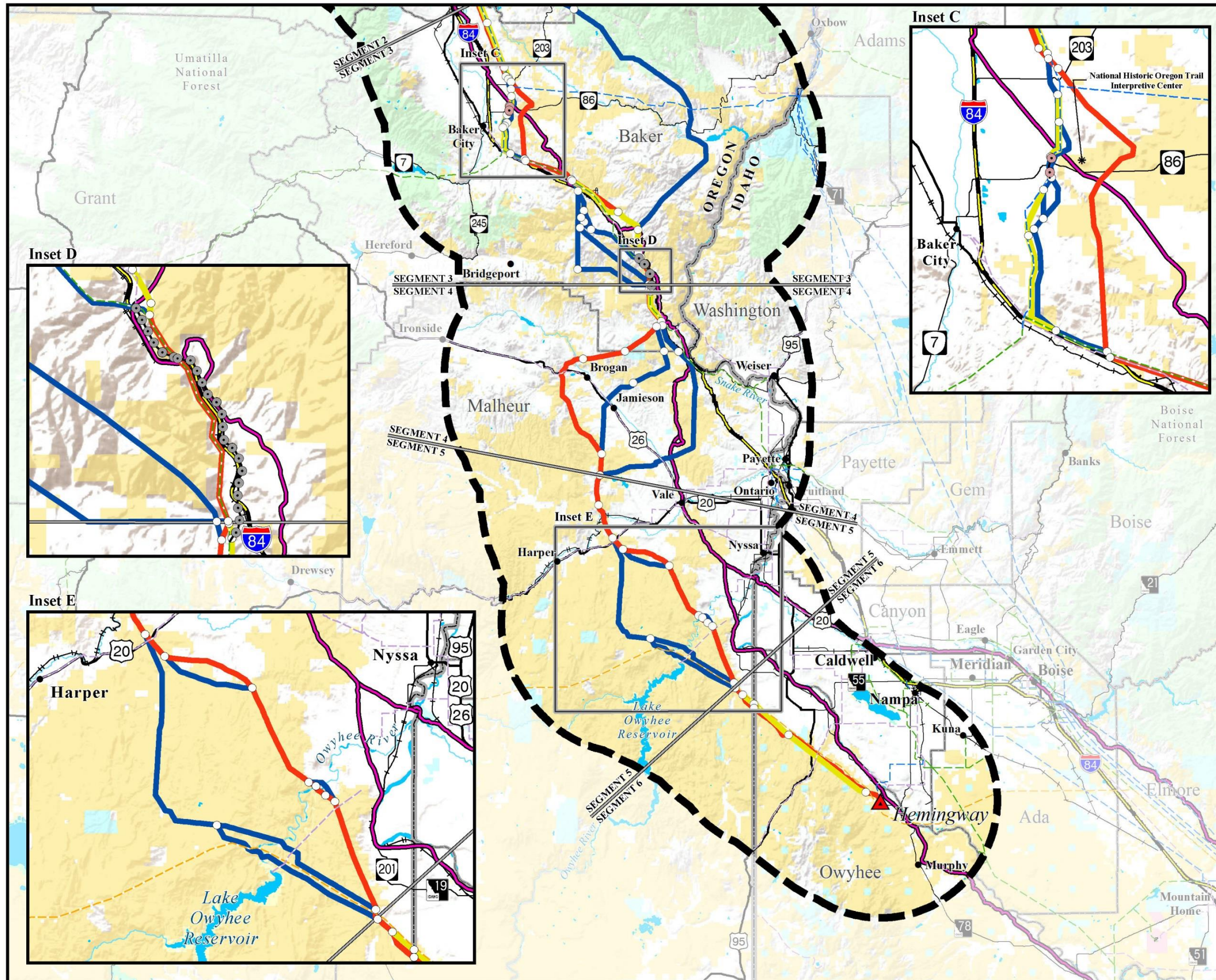
SOURCES:
Land Status, BLM 2014, 2015; Cities and Towns, ESRI 2013;
Transmission Lines, Bonneville Power Administration 2009, Idaho Power Company 2007,
Logan Simpson Design 2011, Ventyx 2012; Pipelines, ESRI 2012;
Railroads, Idaho DOT 2006, Oregon DOT 2014; Highways, ESRI 2013;
Waterbodies, ESRI 2013; State and County Boundaries, ESRI 2013;
Oregon National Historic Trail Congressionally Designated Alignment, BLM 2015

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Alternative routes last revised: February 18, 2016
Final EIS: November 2016

1:950,400 or 1 inch = 15 miles

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Map 2-4b
Colocation Variations
(Southern Area)

BOARDMAN TO HEMINGWAY
TRANSMISSION LINE PROJECT

Project Features

- Project Area Boundary
- Substation (Project Terminal)
- Applicant's Proposed Action Alternative
- Alternative Route
- Colocation Variation
- Link Node
- Segment Line
- Flagstaff 230-kV Rebuild (Inset C)
- Double-circuit 138/69-kV Rebuild (Inset D)

Land Ownership

- Bureau of Land Management
- Bureau of Reclamation
- Indian Reservation
- National Park Service
- U.S. Department of Defense
- U.S. Fish and Wildlife Service
- U.S. Forest Service
- Other Federal
- State Land
- Private Land

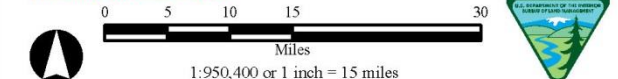
General Reference

- City or Town
- 500-kV Transmission Line
- 345-kV Transmission Line
- 230-kV Transmission Line
- 138-kV Transmission Line
- 69- to 115-kV Transmission Line
- Railroad
- Interstate Highway
- U.S. Highway
- State Highway
- Lake or Reservoir
- State Boundary
- County Boundary
- Oregon National Historic Trail Congressionally Designated Alignment

SOURCES:
Land Status, BLM 2014, 2015; Cities and Towns, ESRI 2013;
Transmission Lines, Bonneville Power Administration 2009, Idaho Power Company 2007,
Logan Simpson Design 2011, Ventyx 2012; Pipelines, ESRI 2012;
Railroads, Idaho DOT 2006, Oregon DOT 2014; Highways, ESRI 2013;
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Alternative routes last revised: February 18, 2016
Final EIS: November 2016



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The Western Electricity Coordinating Council reliability criteria recognize the unique nature of the Western Electricity Coordinating Council system, where there are several instances of multiple long-distance transmission lines running parallel within a corridor and transferring power from remote generation locations to distant load centers. This differs from some other interconnections in the U.S. where load centers are dispersed between generation sources and transmission lines are relatively short. These long-distance transmission lines typically are 345-kV or greater and carry a large amount of power (often referred to as “bulk” power). The presence of long-distance transmission lines implies less redundancy in the system because these long-distance transmission lines could significantly affect the reliability of the power system and could result in cascading outages and loss of load. Therefore, more safeguards against outage of these lines—such as robust construction and frequent maintenance, comprehensive and failsafe protection systems, and outage mitigation methods (such as remedial action schemes)—are designed and implemented throughout the Western Electricity Coordinating Council system.

In 2008, the Western Electricity Coordinating Council established system-performance criteria that required all transmission lines within a common corridor to be subject to performance requirements imposed by the NERC. Common corridors are defined as “contiguous right of way or two parallel rights of way with structure centerlines separation less than the longest span length of the two transmission circuits at the point of separation or 500 feet, whichever is greater, between the transmission circuits. This separation requirement does not apply to the last five spans of the transmission circuits entering into a substation.” Since the typical span for a 500-kV transmission line is approximately 1,500 feet, the Applicant incorporated as part of its transmission-line siting criteria a separation of approximately 1,500 feet between its proposed transmission line and existing lines. In 2012, the Western Electricity Coordinating Council retired the definition of common corridor and introduced Adjacent Transmission Circuits defined as “two transmission circuits with separation between their centerlines less than 250 feet at the point of separation” (Western Electricity Coordinating Council 2013).

From the perspective of the land-managing agencies, it is generally accepted that consolidating facilities minimizes environmental and land-use impacts (e.g., share access roads to minimize surface disturbance, avoid additional habitat fragmentation, reduce visual effects). In accordance with the FLPMA each right-of-way grant must contain terms and conditions that will, among other things, “minimize damage to scenic and esthetic values and fish and wildlife habitat and otherwise protect the environment.” Congress addressed the issue of rights-of-way in utility corridors in Section 503 of the FLPMA. Section 503 states that the Secretary of the Interior will designate corridors to minimize adverse environmental impacts and Executive Order 13213 requires the BLM to emphasize rights-of-way planning and corridor designations. The overall objective is to continue to make federal administered lands available for needed rights-of-way where consistent with national, state, and local plans, and use common rights-of-way to minimize environmental impacts and proliferation of separate rights-of-way.

Given the FLPMA preference to consolidate linear facilities to minimize proliferation of separate rights-of-way, the BLM determined it appropriate to request that the separation distance be reduced. Late in

2014, the BLM requested the Applicant collocate the proposed transmission line, along the Draft EIS Agency Preferred Alternative route, closer to existing transmission lines where possible.

In early 2015, the Applicant reviewed the routing and identified variations to collocate the proposed line closer to existing transmission lines and reviewed the collocated sections of alternative route with the BLM.

However, in a letter from the Applicant dated August 21, 2015, the Applicant stated that (1) the Applicant opposes BLM's route variation providing for an approximately 250-foot and not a 1,500-foot separation distance between adjacent lines, (2) the 250-foot separation distance would not be consistent with the Applicant's objectives for the B2H Project, (3) the separation distance was addressed as part of the right-of-way pre-application meetings and it would be arbitrary and capricious to require a new standard later in the B2H Project, and (4) BLM does not have the authority to dictate separation distances on private or state lands. In the letter, the Applicant explains that Western Electricity Coordinating Council System Performance Criterion TPL-001-WECC-CRT-2.1 identifies certain circumstances whereby electrical utilities must conduct system-reliability simulations and assessments.

These assessment requirements are triggered if, among other things, there are adjacent transmission circuits that share a common right-of-way for a total of more than 3 miles, that are separated by less than 250 feet between centerlines, and that both operate at greater than or equal to 300 kilovolts. Further, the Applicant explains that there is no NERC or Western Electricity Coordinating Council standard or optimal separation distance. Utilities are expected to use their experience and judgment in siting their transmission system in proximity to existing systems. At a minimum, new transmission systems must avoid common node failures, which include the loss of two parallel transmission lines in proximity to each other. Common node failures can result from, among other things, a shield wire from one line being dragged into the adjacent line, high winds, dust storms, ice storms, blizzards, landslides, earthquakes, vandalism, and equipment failure. The NERC and Western Electricity Coordinating Council standards leave the responsibility to the transmission line owner to avoid common node failures and to ensure reliable delivery of electrical services.

The BLM considered the Applicant's statements in its August 21, 2015 letter, the requirements of FLPMA, and comments on the Draft EIS encouraging collocation closer to existing lines, and decided to carry forward and analyze in detail in the Final EIS both the Applicant's originally proposed alignment approximately 1,500 feet from existing transmission lines and the alignment collocated closer to (no less than 250 feet away from) existing transmission lines.

2.1.1.3 RECOMMENDED ROUTE-VARIATION OPTIONS

A number of comments on the Draft EIS offered recommendations for local route-variation options as variations of portions of alternative routes within the B2H Project area. All of the recommended route-variation options and whether the route-variation option has been carried forward in the Final EIS or was considered but eliminated from detailed analysis in the Final EIS are described below. The recommended route-variation options carried forward in the Final EIS are shown on Map 2-5. Section 2.5.4 describes the recommendations for route-variation options that were considered but eliminated from detailed analysis in the Final EIS. Maps 2-8a and 2-8b show the recommended route variations that were considered but eliminated from detailed analysis in the Final EIS.

SEGMENT 1—MORROW-UMATILLA

SLATT SUBSTATION ROUTE-VARIATION OPTION

The Columbia-Snake River Irrigators Association, Oregon Department of Agriculture, Morrow County, City of Boardman, and businesses (Windy River, Hale Companies, Boardman Tree Farm, Pasco Farming, Inc.) recommended a route-variation option that would extend the Horn Butte Substation Alternative route, south of the Naval Weapons Systems Training Facility, approximately an additional 10 miles to the west to connect with the existing BPA Slatt 500-kV Substation (refer to Map 2-8a). The intent of the recommended alternative route was to mitigate impacts on irrigated agricultural lands associated with alternative routes to the Longhorn Substation and it was suggested as an alternative for connecting into the Mid-Columbia grid.

In a letter dated July 23, 2015, BPA, the sole owner of the Slatt Substation, informed the BLM that the Slatt Substation has no open 500-kV bays and there are “severe physical constraints” with expanding the substation to accommodate the B2H Project. Also, BPA has not determined that a joint ownership structure, including an open-bus concept, would be acceptable or even feasible for existing BPA substations, including the Slatt Substation. Because the substation is wholly owned by BPA, BPA’s existing policy and rate schedules would require that BPA charge Idaho Power Company and PacifiCorp for use of the substation (which would be passed onto the rate payers).

The BLM reviewed the recommended route-variation option and, based on BPA’s explanation that it is technically and economically not feasible and it would not meet the interests and objectives of the Applicant and its partners, the BLM did not carry it forward for detailed analysis in the Final EIS (Section 2.5.4.3).

WEST OF BOMBING RANGE ROAD ROUTE-VARIATION OPTION

Idaho Power, Oregon Department of Land Conservation and Development, Oregon Department of Agriculture, Columbia-Snake River Irrigators Association, businesses (Windy River; Hale Companies; Boardman Tree Farm; Pasco Farming, Inc.); Westland Enterprises LLC; Terra Poma Land LLC; Homestead Farms, Inc.; Pacific Northwest Generating Cooperative, UEC) and individuals recommended a routing of the transmission line on the west side of Bombing Range Road on the

NWSTF Boardman. This routing-variation is part of the Applicant's change to its Proposed Action and is analyzed in the Final EIS (Section 2.5.2.1).

PARALLEL INTERSTATE 84/EXISTING 230-KV TRANSMISSION LINE ROUTE-VARIATION OPTIONS

Umatilla County, WildLands Defense; a consortium letter from OCTA, Hells Canyon Preservation Council, Oregon Wild, and WildEarth Guardians, Glass Hill Coalition, Elk Song Ranch; and several individuals recommended a route-variation option that would parallel Interstate 84 in Umatilla County and/or parallel existing 230-kV transmission lines. The intent is to reduce impacts on privately owned lands and consolidate utilities to avoid proliferation of utility corridors in this area. The BLM asked Idaho Power to develop a route variation colocated with Interstate 84 and/or the existing 230-kV transmission lines. At the BLM's request for an alternative route variation paralleling Interstate 84 and/or the existing 230-kV transmission lines, the Applicant developed four options that would be responsive to Draft EIS comments to colocate with the Interstate 84 or the existing 230-kV transmission lines. The options are described below.

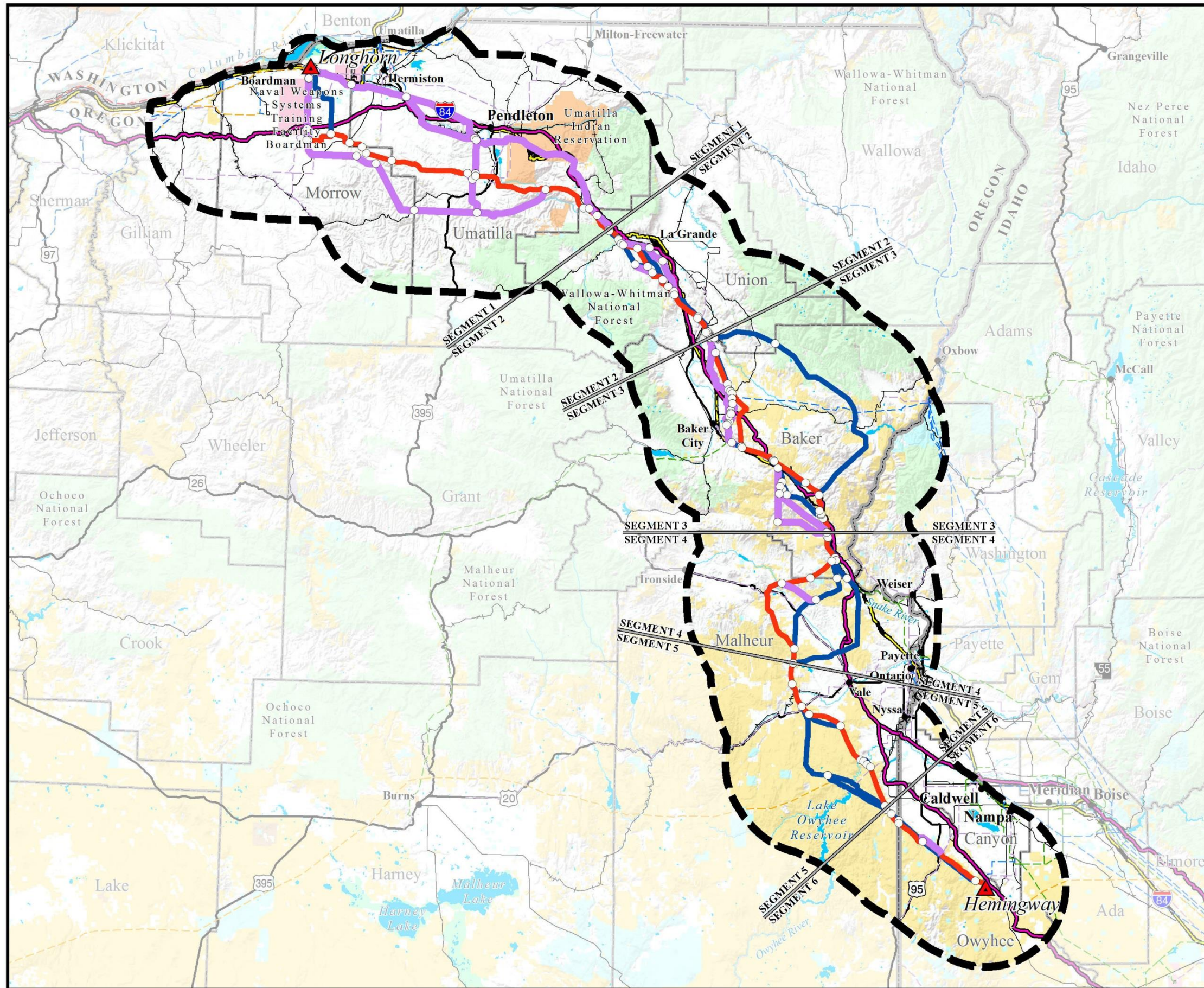
Route-Variation Option 1: From the Longhorn Substation, Option 1, parallels Interstate 84 to west of Pendleton, where it turns south and east to go around the community of Pendleton, parallels an existing transmission line to Interstate 84 and continues to parallel the transmission line to the southeast through the mountainous area of the Umatilla Indian Reservation and then roughly parallel to Interstate 84 to the Hilgard area.

Route-Variation Option 2: From the Longhorn Substation, Option 2 is similar to Option 1, but, in the area of Stanfield, Option 2 heads southeast to parallel an existing transmission line to the area of Rieth and then is the same as Option 1, including crossing the Umatilla Indian Reservation, to the Hilgard area.

Route-Variation Option 3: From the Longhorn Substation, Option 3 is the same as Option 1 to the area southeast of Rieth, where it continues to the south, then heads east, skirting the Umatilla Indian Reservation over to the area of Kamela where the route variation then parallels Interstate 84.

Route-Variation Option 4: From the Longhorn Substation, Option 4 is the same as Option 2 to the area south of Rieth, where it continues south and is the same as Option 3.

Options 1 and 2 cross the Umatilla Indian Reservation, and were considered but eliminated from detailed analysis, as explained in Section 2.5.4.3. Option 3 and 4 are addressed as variations along the Interstate 84 Alternative route (Section 2.5.2.1).



Map 2-5
**Recommended
 Route-Variation Options
 Carried Forward
 in the Final EIS**

BOARDMAN TO HEMINGWAY
 TRANSMISSION LINE PROJECT

Project Features

- Project Area Boundary
- Substation (Project Terminal)
- Applicant's Proposed Action Alternative
- Alternative Route
- Recommended Route-Variation Option
- Link Node
- Segment Line

Land Ownership

- Bureau of Land Management
- U.S. Fish and Wildlife Service
- Bureau of Reclamation
- U.S. Forest Service
- Indian Reservation
- Other Federal
- National Park Service
- State Land
- U.S. Department of Defense
- Private Land

General Reference

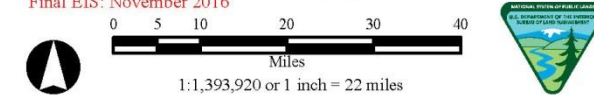
- City or Town
- 500-kV Transmission Line
- 345-kV Transmission Line
- 230-kV Transmission Line
- 138-kV Transmission Line
- 69- to 115-kV Transmission Line
- Railroad
- Interstate Highway
- U.S. Highway
- State Highway
- Lake or Reservoir
- State Boundary
- County Boundary
- Oregon National Historic Trail Congressionally Designated Alignment

SOURCES:
 Land Status, BLM 2014, 2015; Cities and Towns, ESRI 2013;
 Transmission Lines, Bonneville Power Administration 2009, Idaho Power Company 2007,
 Logan Simpson Design 2011, Vertyx 2012; Pipelines, ESRI 2012;
 Railroads, Idaho DOT 2006, Oregon DOT 2014; Highways, ESRI 2013;
 Waterbodies, ESRI 2013; State and County Boundaries, ESRI 2013;
 Oregon National Historic Trail Congressionally Designated Alignment, BLM 2015

NOTES:

- The alternative routes shown on this map are draft and may be revised or refined throughout the development of the project.
- Substation symbols do not necessarily represent precise locations.
- The B2H Project area boundary is defined by buffering the alternative route centerlines.
- Other federal land ownership may include lands administered by the U.S. Department of Energy, Bonneville Power Administration, Federal Aviation Administration, General Services Administration, or U.S. Department of Agriculture (except U.S. Forest Service).
- Each alternative route is composed of links, which are discrete sections of the route sharing common endpoints determined by the point of intersection with other adjacent links; the common endpoint is referred to as a link node. Links generally are numbered from north to south. Similarly, a segment is composed of alternative routes that share common endpoints determined by the point of intersection with other adjacent alternative routes; the common endpoint is referred to as a segment node.
- No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.

Alternative routes last revised: February 18, 2016
 Final EIS: November 2016



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UMATILLA SOUTH ROUTE-VARIATION OPTION

In a memorandum, dated September 11, 2015, Umatilla County requested that the BLM analyze a route-variation option that routes the transmission line approximately 10 miles south of the east-west portion of the Applicant's Proposed Action Alternative route in Segment 1. In January 2016, Umatilla and Morrow counties submitted a second request to the BLM to extend the route-variation option farther to the west and connect with the route-variation option west of Bombing Range Road. The intent of this route-variation option was to avoid existing agricultural lands. The Umatilla South route-variation option is incorporated as a segment of alternative routes in Segment 1 (Section 2.5.2.1).

SEGMENT 2—BLUE MOUNTAINS

MILL CREEK ROUTE-VARIATION OPTION

The Glass Hill Coalition, Elk Song Ranch, and individuals in Union County requested a route-variation option that would head east from the Applicant's Proposed Action Alternative (at the eastern boundary of the Wallowa-Whitman National Forest) to parallel an existing transmission line north of Morgan Lake, then south east paralleling the existing 230-kV transmission line to the point where it rejoins the Applicant's Proposed Action Alternative route north of Tamarack Mountain. The intent of this route-variation option is to reduce impacts on privately owned land and consolidate utilities to avoid proliferation of utility corridors in this area. In January 2016, Union County coordinated with the BLM and Idaho Power to adjust the route-variation options to avoid residences in proximity to the community of La Grande. In spring 2016, the BLM requested input from the cooperating agencies on the preliminary Agency Preferred Alternative. As a result, Union County confirmed this route-variation option as its preferred alternative. The Mill Creek route-variation option is addressed as part of the Mill Creek Alternative route (Section 2.5.2.2).

GLASS HILL ROUTE-VARIATION OPTION

Comments on the Draft EIS recommended a variation of the Glass Hill Alternative. The Glass Hill Alternative spans the canyons of Graves Creek, Little Rock Creek, Rock Creek, and then onto the high elevation of Cowboy Ridge. The recommended route-variation option would move the route approximately 2.5 miles west of Cowboy Ridge, which would avoid the spring, summer, and fall habitat of a large concentration of elk; avoid the high elevation of Cowboy Ridge, an ecological area unique to the Blue Mountain Province; further reduce potential views of a transmission line from the Morgan Lake recreation area; and move the route into an area with better road access thereby reducing the miles of new roads needed for the B2H Project. The Glass Hill route-variation option is addressed as a variation of the Glass Hill Alternative route (Section 2.5.2.2).

SEGMENT 3—BAKER VALLEY

PARALLEL INTERSTATE 84 (BAKER COUNTY) ROUTE-VARIATION OPTION

The Oregon Department of Fish and Wildlife recommended a route-variation option intended to avoid Greater Sage-Grouse Priority Habitat Management Area (PHMA) by closely paralleling Interstate 84 from Oregon Highway 203 to the end of Segment 3. The intent of this route variation was to mitigate

impacts on Greater Sage-Grouse PHMA. Because of other constraints along this route-variation option (e.g., proximity to Baker Municipal Airport, crosses through airspace associated with the airport), it was considered but eliminated from detailed analysis (Section 2.5.4.3).

SUNNYSLOPE ROUTE-VARIATION OPTION

Commenters recommended a route-variation option that is roughly parallel to and east of the Draft EIS Flagstaff Alternative (now Flagstaff A Alternative) east of Baker Municipal Airport, for approximately 8 miles. The intent of this route variation is to locate the alignment closer to section lines to reduce impacts on land owners and agricultural operations. Later in January 2016, the BLM coordinated with Baker County to adjust route-variation options in that area to avoid crossing Greater Sage-Grouse PHMA, a high point in proximity to the National Historic Oregon Trail Interpretive Center (NHOTIC) from which a 500-kV transmission line would be visible, crossing in the proximity of an intact segment of Oregon National Historic Trail, and minimize crossing agricultural lands. The Sunnyslope route-variation option is addressed as a segment of an alternative route in Segment 3 (Section 2.5.2.3).

DURKEE ROUTE-VARIATION OPTION

In comments on the Draft EIS, Baker County recommended a route-variation option, with a map provided, that would begin farther south than the Burnt River Mountain Alternative (near Dixie, Oregon) and extend farther west and then north to join the Burnt River Mountain Alternative approximately 6 miles northwest of Durkee. The intent of this route-variation option was to mitigate impacts on agricultural land uses and privately owned lands, socioeconomics, and high-value soils in and around the community of Durkee. Generally, the requested Durkee route-variation option follows section lines and crosses both private lands and BLM-administered land. Later in January 2016, Baker County coordinated with the BLM to adjust the route-variation option and recommend another local route-variation option, Burnt River West route-variation option that would further reduce impacts on agricultural lands and sensitive resources. The route-variation options described here are addressed as a part of alternative routes in Segment 3 (Section 2.5.2.3).

BURNT RIVER CANYON ROUTE-VARIATION OPTION

Commenters recommended a localized route-variation option at the crossing of Burnt River Canyon in proximity to the mouth of the canyon. These are short route variations; it would be about 0.6 mile (at the widest point) farther west of the current Burnt River Alternative. The intent of this adjustment is to move the alternative route variations farther west from the mouth of Burnt River Canyon to reduce visual impacts and avoid crossing the irrigated agriculture area. The Burnt River Canyon route-variation option is addressed as a segment of alternative route in Segment 3 (Section 2.5.2.3).

SEGMENT 4—BROGAN

BROGAN ROUTE-VARIATION OPTION

A nongovernmental organization, Stop Idaho Power, recommended a route-variation option to the south of the Applicant's Proposed Action Alternative in southern Baker County and northern Malheur County, for approximately 8 miles before sharing an alignment with the Willow Creek Alternative, and

circumvents Little Valley, Striped Mountain, Brosman Mountain, McDowell Butte. The intent of this route variation is to avoid two 2-mile buffers around sage-grouse leks near Brogan. However, while it avoids the two buffer areas, it is entirely in Greater Sage-Grouse PHMA. The route-variation option does not offer substantive improvement over the alternative route to the east, which minimizes the impacts on priority sage-grouse habitat in this area and uses portions of the West-wide Energy Corridor. This route-variation option was considered but eliminated from detailed analysis (Section 2.5.4.3).

SEGMENT 5—MALHEUR

OWYHEE RIVER CROSSING ROUTE-VARIATION OPTIONS

Comments on the Draft EIS recommended a variation of the Applicant's Proposed Action Alternative route that would move the alignment crossing the Owyhee River to the east to reduce effects on visual resources and to be located in the BLM-designated utility corridor. However, the recommended route-variation option would still cross the river in a segment of the river determined by the BLM as suitable for designation as a Wild and Scenic River (WSR). The recommended route-variation option would include structures that would be skylined on a bluff along the south side of the river. Both the Applicant's Proposed Action Alternative route and the recommended route-variation option are within the portion of the river that the BLM has determined suitable for designation as a National WSR with an outstanding remarkable value classification of recreational. The river's wild and scenic characteristics would be degraded through the visual influence of these structures as recreation users enter the canyon further to the southwest.

In response to this issue, the BLM developed a route-variation option that is farther to the east and outside of the area designated as suitable, but located in the BLM-designated utility corridor. Since the BLM developed a viable route-variation option to address the issue, the recommended route-variation option was eliminated from detailed analysis in the Final EIS (Section 2.5.4). The route-variation option developed by the BLM is a slight variation of the Applicant's Proposed Action Alternative route at the crossing of the Owyhee River addressed in Section 2.5.2.5.

SEGMENT 6—TREASURE VALLEY

JUMP CREEK ROUTE-VARIATION OPTION

A letter from a consortium of the Oregon Natural Desert Association, Idaho Conservation League, Oregon Wild, Hells Canyon Preservation Council, and the Wilderness Society recommended a route-variation option located farther north from the Jump Creek recreation area. Due to the visual sensitivity of this recreation area, the intent of the route-variation option is to increase the distance between Jump Creek and the B2H Project while being located adjacent to existing transmission lines. This route-variation option was considered but eliminated from detailed analysis, as explained in Section 2.5.4.3.

2.2 PROPOSED ACTION

As introduced in Section 1.1, the proposed B2H Project includes the following:

- Constructing, operating, and maintaining a single-circuit, 500-kV, alternating current (AC), overhead transmission line in a 250-foot-wide right-of-way (except where crossing the NWSTF

Boardman) from the planned Longhorn Substation near Boardman in Morrow County, Oregon, to the Hemingway Substation in Owyhee County, Idaho, a distance of approximately 300 miles (depending on the route selected)(ancillary facilities include temporary access roads and permanent service roads; and temporary multi-use yards, helicopter fly yards, and pulling-and-tensioning sites); and geotechnical investigations would be completed in advance of final design and engineering;

- Constructing a 500-kV connection in the planned Longhorn Substation;
- Constructing a communication system to control the transmission line and manage the flow of electricity, with regeneration sites approximately every 40 miles;
- Removing the exiting BPA 69-kV transmission line partially or entirely from the NWSTF Boardman (to allow construction of the proposed 500-kV line);
- Potentially relocating approximately 0.9 mile of existing 230-kV transmission line in the vicinity of Flagstaff to allow for efficient placement of the 500-kV line; and
- Potentially relocating an approximately 5.3-mile-long section of existing 138-kV line in the vicinity of Weatherby, Oregon, with an existing 69-kV line; the structures would be rebuilt to accommodate the two transmission lines (i.e., double-circuit 138/69-kV) (and a 12-kV line underbuild), enabling use of the 138-kV line right-of-way for the proposed 500-kV transmission line.

Also, although not part of the Applicant's Proposed Action, it is anticipated that the existing BPA 69-kV line, displaced by the proposed 500-kV transmission line, may be relocated to the east of Bombing Range Road. This additional action of replacing the BPA 69-kV transmission line is a connected action under the NEPA, the effects of which the BLM must analyze and address in the EIS. This action is described in Section 2.3.1 and the potential effects of this action are reported throughout Chapter 3.

2.3 PROJECT DESCRIPTION – COMMON TO ALL ACTION ALTERNATIVES

2.3.1 SYSTEM COMPONENTS

The transmission line system is made up of the right-of-way, transmission and foundation structures, conductors, grounding system, communication station sites, and associated hardware. This section provides descriptions of the various components of the transmission line system proposed for the B2H Project. Table 2-1 is a summary of the typical design characteristics of the 500-kV transmission line and the land that would be temporarily and/or permanently disturbed. Similar information is provided for the double-circuit 138/69-kV line and section of 230-kV line that may be relocated.

Table 2-1. Typical Design Characteristics	
Feature	Description
500-Kilovolt Transmission Line	
Line length	Proposed Action 271.7 miles of single circuit 500-kV
Types of structures, height, average span	Single-circuit lattice structure: <ul style="list-style-type: none"> • 75- to 195 feet tall • 1,200- to 1,800-foot spans (approximately 4 to 3 structures per mile) Single-circuit two-pole H-frame structure: <ul style="list-style-type: none"> • 85- to 100-feet tall • 450- to 600-foot spans (approximately 12 to 9 structures per mile) Alternative single-circuit two-pole H-frame structure <ul style="list-style-type: none"> • 85- to 165-feet tall • 600- to 1,300-foot spans (approximately 9 to 4 structures per mile) Alternative single-circuit three-pole H-frame structure – 85 to 165 feet <ul style="list-style-type: none"> • 85- to 165-feet tall • 600- to 1,300-foot spans (approximately 9 to 4 structures per mile)
Typical Right-of-way width	250 feet
Land Temporarily Disturbed	
Structure construction footprint	<ul style="list-style-type: none"> • Single-circuit lattice structure – 250 by 250 feet (1.4 acres) • Single-circuit two-pole H-frame structure – 250 by 90 feet (0.5 acre) • Alternative single-circuit two-pole H-frame structure – 250 by 90 feet (0.5 acre) • Alternative single-circuit three-pole H-frame structure – 250 by 90 feet (0.5 acre)
Pulling and Tensioning sites (includes some light duty fly yards)	10 acres (5 acres per each end of conductor) every 1.5 to 2 miles
Multi-use Areas (includes fly yards)	Approximately 30 acre sites located approximately every 15 miles
Access roads	Typically 14-foot-wide operational width with 16 to 35 feet wide construction disturbance (based on soils and terrain)
Land Permanently Required	
Structure operations footprint	<ul style="list-style-type: none"> • Single-circuit lattice structure – 50 by 50 feet (0.06 acre) • Single-circuit two-pole H-frame structure – 50 by 15 feet (0.02 acre) • Alternative single-circuit two-pole H-frame structure – 50 by 15 feet (0.02 acre) • Alternative single-circuit three-pole H-frame structure – 90 by 15 feet (0.03 acre)
Communication sites	100- by 100-foot area with 75- by 75-foot fenced area and a 12- by 32- by 9-foot building; located inside the right-of-way approximately every 40 miles
Access roads	New access roads typically would be revegetated (not recontoured) leaving the road for maintenance/operations
Electrical Properties	
Nominal voltage	500-kilovolt (kV) alternating current line-to-line
Circuit configuration	Single circuit, three phase triple-bundle configuration
Minimum ground clearance of conductor	29.5 feet minimal, increased to 35.5 feet in agricultural use areas
230-Kilovolt Double-Circuit Transmission Line	
Line length	12.2 to 15.6 miles
Types of structures, height, average span and number of structures	Double-circuit monopole <ul style="list-style-type: none"> • Not to exceed 100 feet • 400- to 600-foot spans Approximately 161 to 206 structures
Right-of-way width	55 feet

Table 2-1. Typical Design Characteristics	
Feature	Description
Land Temporarily Disturbed	
Structure construction footprint	100 by 150 feet per structure (0.3 acre)
Wire-pulling/splicing sites	1.2 acres along right-of-way every 1 to 2 miles
Land Permanently Required	
Structure operations footprint	25 by 15 feet per structure (0.1 acre)
Electrical Properties	
Nominal voltage	230-kV alternating current
Circuit configuration	Double circuit
Minimum ground clearance of conductor	27 feet minimum
230-Kilovolt Transmission Line	
Line lengths	0.9 mile of 230-kV single-circuit to rebuild
Types of structures, height, average span and number of structures	Single-circuit two-pole H-frame structure (approximately three) <ul style="list-style-type: none"> • 50-feet to 90-feet tall • 400- to 1,200-foot spans • Approximately three structures Single-circuit three-pole H-frame structures (approximately three) <ul style="list-style-type: none"> • 50 feet to 90 feet • 110 to 1,400 • Approximately three structures
Right-of-way width	125 feet
Land Temporarily Disturbed	
Structure construction footprint	Single-circuit two-pole H-frame structure 100 by 150 feet per structure (0.3 acre) Single-circuit three-pole H-frame structure 125 by 150 feet per structure (0.4 acre)
Land Permanently Required	
Structure operations footprint	Single-circuit two-pole H-frame structure 25 feet by 15 feet (0.01 acre) Single-circuit three-pole H-frame structure 50 feet by 15 feet (0.02 acre)
Electrical Properties	
Nominal voltage	230-kV alternating current
Circuit configuration	Single-circuit, three-phase, triple-bundle configuration
Minimum ground clearance of conductor	27 feet minimal
138/69-kilovolt Transmission Lines	
Line length	5.4 miles of rebuilt 69-kV to 138/69-kV double circuit
Types of structures, height, average span and number of structures	Double-circuit monopole with distribution underbuild <ul style="list-style-type: none"> • 55- to 100-feet tall • 110- to 1,400-foot spans • Approximately 67 structures
Right-of-way width	100 feet
Land Temporarily Disturbed	
Structure construction footprint	100 by 100 feet per structure (0.2 acre)
Wire-pulling/splicing sites	1.2 acres along right-of-way every 1 to 2 miles.
Land Permanently Required	
Structure operations footprint	10 by 10 feet per structure

Table 2-1. Typical Design Characteristics	
Feature	Description
Electrical Properties	
Nominal voltage	138/69-kV alternating current
Circuit configuration	Double-circuit with distribution underbuild
Minimum ground clearance of conductor	22 feet above grade for 12.5-kV underbuild on 138/69-kV double-circuit
<i>Table Source: Idaho Power Company 2016</i>	

2.3.1.1 RIGHT-OF-WAY

A transmission line easement or right-of-way is a strip of land (corridor) acquired from property owners. The agreement with the property owner grants the Applicant the right to build, operate, and maintain the transmission line as well as manage the vegetation in the authorized area. The Applicant would acquire rights for the route selected for construction of the proposed transmission line and access roads through right-of-way grants and easements with federal, state, and local governments; other companies (e.g., utilities, railroad); and private landowners.

The Applicant would acquire rights-of-way for transmission lines through mutual agreement with property owners for the use of their property of Eminent Domain that would be used as a last resort. The following tools may be used to acquire rights-of-way:

- **Easements** give the utility company the right to use the land owned by the individual for a specific purpose. Most commonly, negotiations directly with private property owners determine easement rights and restrictions for using portions of the land that remain owned by the individual.
- **Permitting** occurs when the utility applies for a permit to place the facility across public lands.
- **Eminent domain** is an option of last resort when all other options have been unsuccessful. In this case, the utility company may exercise its right to use the easement or property through court actions. Independent appraisers, through the court, would determine a fair price to be paid for the land use.

Property owners are compensated for easements regardless of how they are acquired. The value of the easement is determined using several different sources, including the assessor's records, an appraiser's corridor study and local comparable sales.

Rights to land for substation and communication sites would be obtained through easements or in fee simple title where located on private land.

Landowners have the right to restrict access by the general public to the easements. However, the easement allows the Applicant's employees to access the line as needed to operate and maintain the transmission line. The Applicant, cooperating with the landowner, would establish easement restrictions to ensure that a safe distance from the transmission line is always observed.

The Applicant would work with landowners to locate the facilities on the property, with consideration of engineering and environmental constraints, to ensure the continued use of their land. A 250-foot-wide

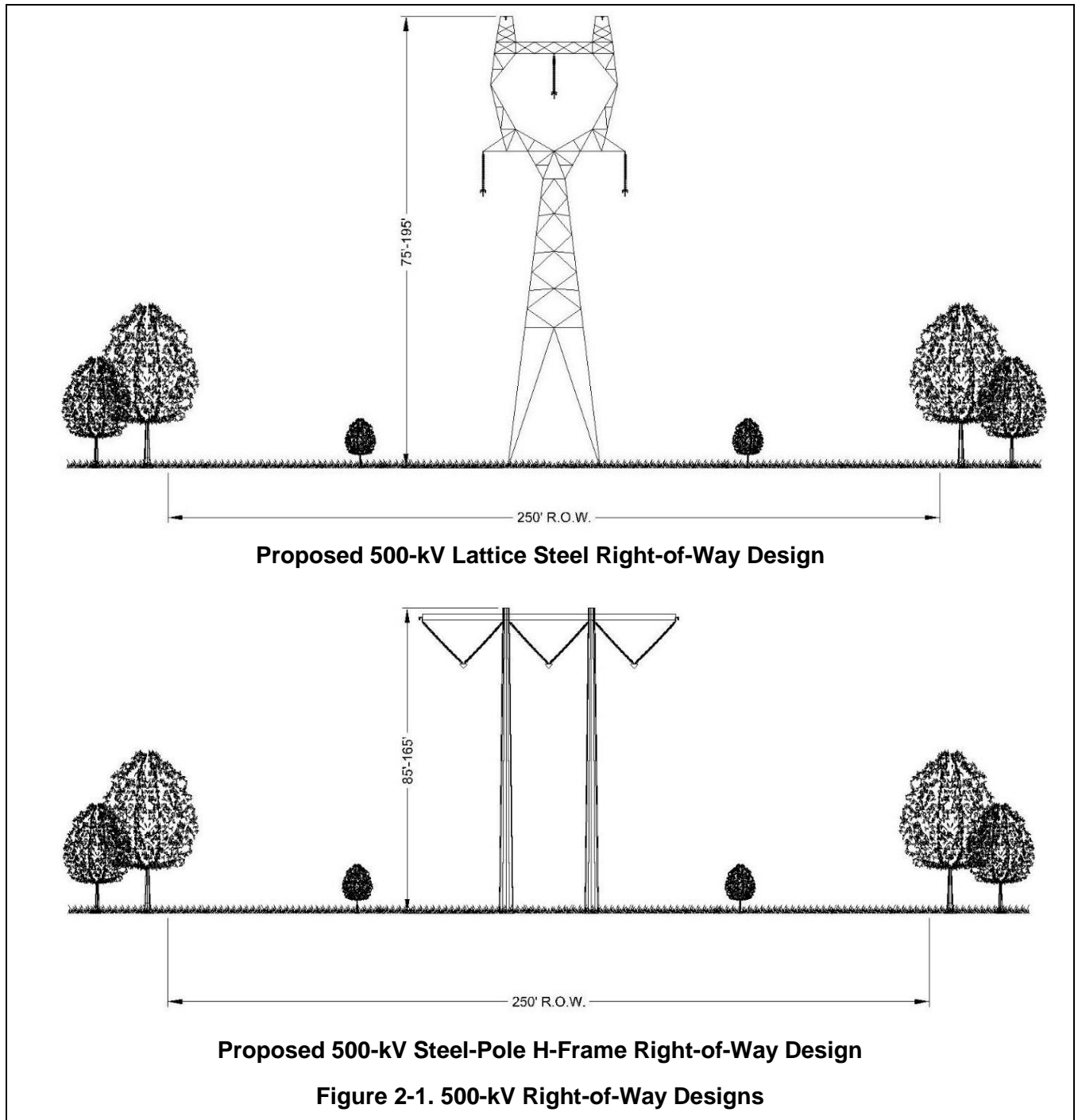
easement is planned for the 500-kV steel lattice structure and the alternative steel pole H-frame structure.

A 90-foot-wide easement is anticipated for the proposed 500-kV transmission line where constructed along the west side of the eastern boundary of the NWSTF Boardman. The right-of-way for the 230-kV line relocation would be 125-feet wide and the right-of-way for the 138/69-kV double-circuit lines with the 12-kV distribution underbuild would be 100-feet wide. Rights-of-way designs are shown in Figures 2-1 through 2-4. Also, the right-of-way for the additional action of relocating the BPA's 69-kV line from the NWSTF Boardman is anticipated to be 55-feet wide.

Right-of-way width requirements for the proposed transmission line are based on three criteria:

- Sufficient National Electrical Safety Code (NESC) clearance must be maintained to the edge of the right-of-way during a wind event when the conductors are blown towards the right-of-way edge.
- Sufficient room must be provided within the right-of-way to perform transmission line maintenance.
- Sufficient clearances must be maintained from the transmission line to the edge of the right-of-way where structures or trees may be located and deemed a hazard or danger to the transmission line. A narrower right-of-way could be accommodated in some areas, but in others, the full 250 feet (125 feet on each side of the centerline) would be required. A narrower right-of-way in forested areas can result in reliability problems. Falling trees are a major cause of outages and damage to transmission lines. In addition, many forest managers are resistant to allowing utilities to remove hazardous trees, which make reducing the right-of way in forested areas infeasible.

Specific localized conditions may result in slightly different right-of-way widths. These will be finalized during the detailed design. There is one potential exception known at this time; that is, if a route is selected along the west side of Bombing Range Road, the Applicant proposes that the easement for the proposed 500-kV transmission line would be 90 feet wide to repurpose the area currently used for the existing BPA 69-kV transmission line.



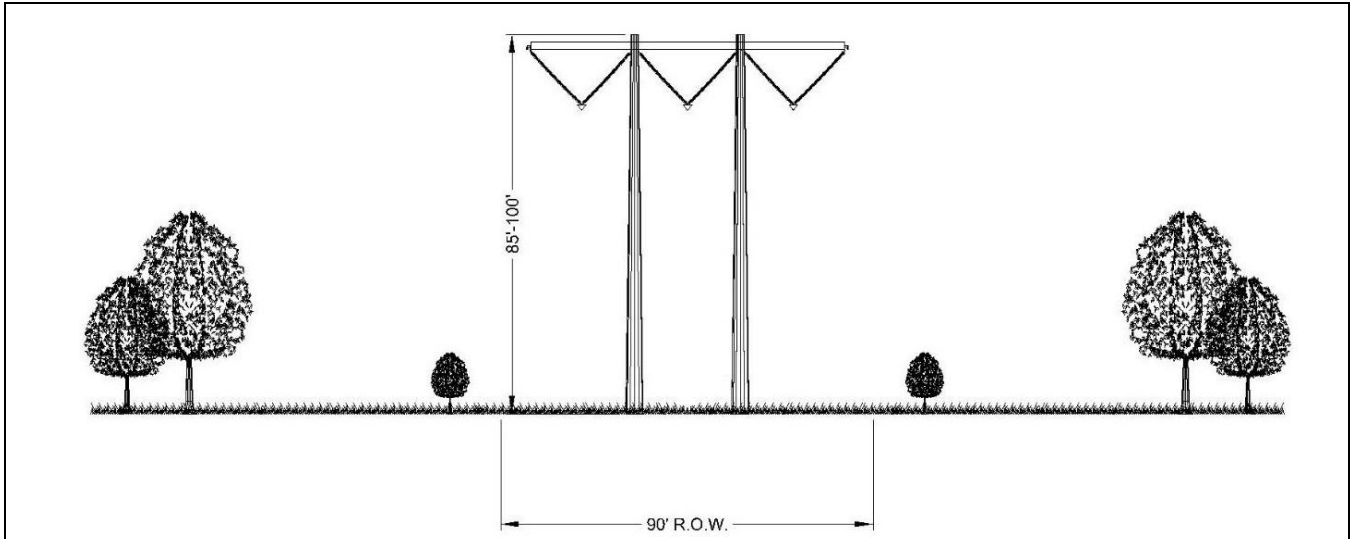


Figure 2-2. Alternate 500-kV Steel Pole Right-of-Way Design
(on and adjacent to the NWSTF Boardman only)

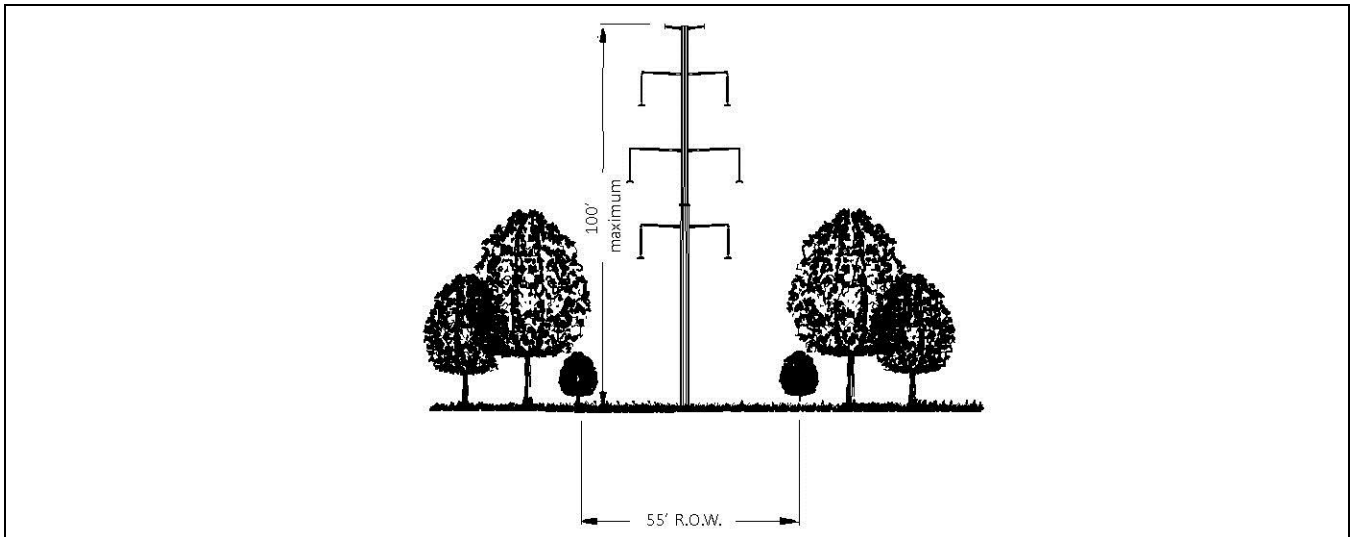
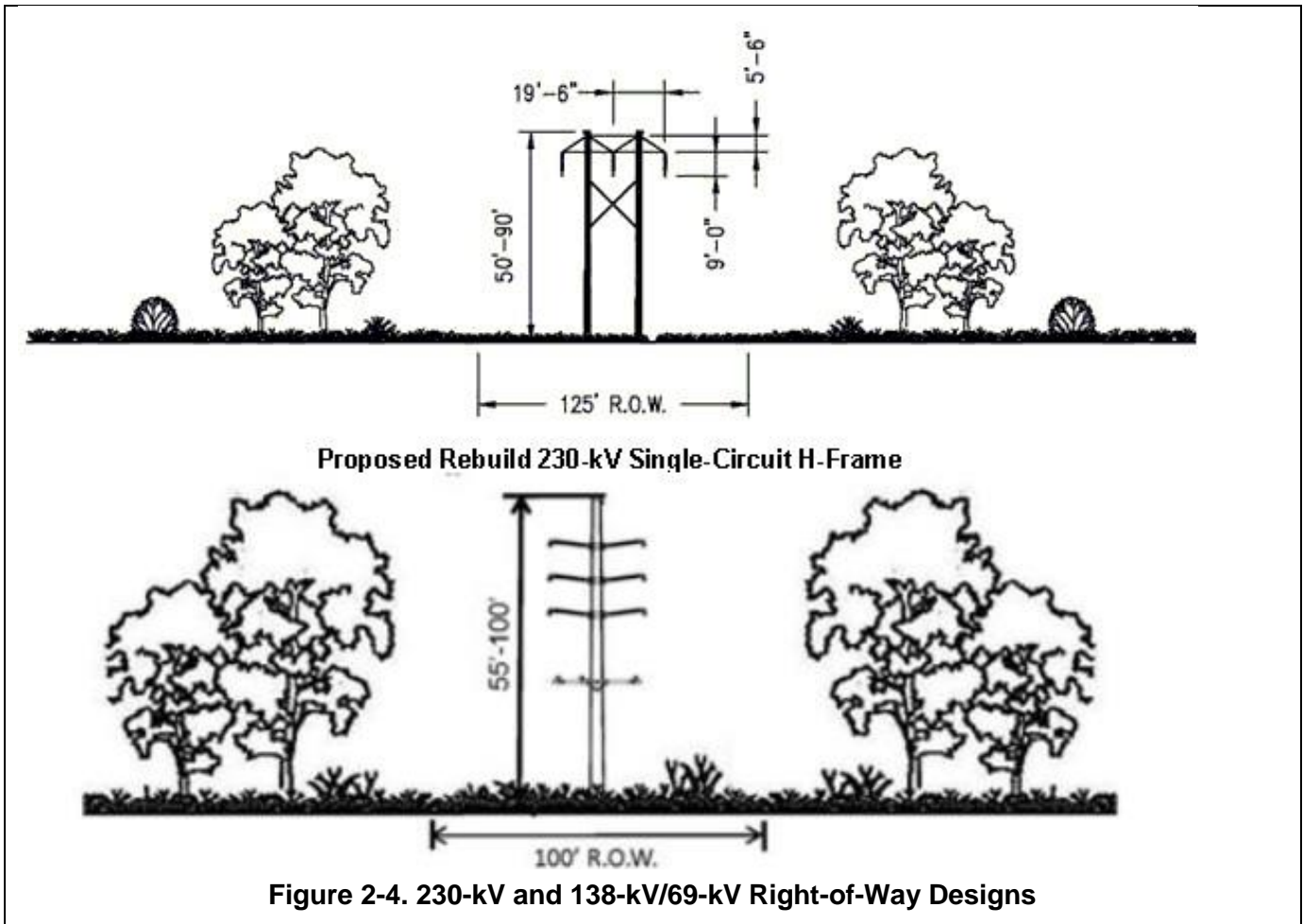


Figure 2-3. 230-kV Steel Monopole Double-Circuit Right-of-Way Design



Right-of-way would comply with NERC reliability standards and Western Electricity Coordinating Council reliability criteria. The Western Electricity Coordinating Council reliability criteria recognize the unique nature of the Western Electricity Coordinating Council system, where there are several instances of multiple long-distance transmission lines running parallel within a corridor and transferring power from remote generation location to distant load centers. At the time, the November 2011 Revised POD and right-of-way application were submitted, the Western Electricity Coordinating Council criteria required a minimum separation by at least, “the longest span or 500 feet, whichever is greater, between the transmission circuits (TPL-[001-004]-WECC-1-CR, April 18, 2008)² For the purposes of making its right-of-way application, the Applicant assumed the separation between the transmission lines would be approximately 1,500 feet. Land between rights-of-way that are separated to meet reliability criteria would not be encumbered with an easement but could be limited practically in land uses due to the proximity of two or more large transmission lines. In 2012, the Western Electricity Coordinating Council retired the definition of common corridor and introduced Adjacent Transmission Circuits defined as “two transmission circuits with separation between their centerlines less than 250 feet at the point of

²The B2H Project transmission line would be consistent with the 2012 WECC guidance, NERC and WECC reliability standards (TPL-004-0(i)(a), and 70 Federal Regulation 20970, 20970-71 (April 22, 2015).

separation” (Western Electricity Coordinating Council 2013). The Applicant clarified that it proposes to separate by 125 feet from any radial 230-kV line associated with existing or new wind-generation projects (Idaho Power Company 2016)

After the transmission line has been energized, agricultural and nonagricultural land uses that are compatible with safety regulation would be permitted in the right-of-way, subject to limitations. Limitations on the use of equipment taller than 15 feet under the transmission line or around structures except for noted below; restrictions on crops that can grow to more than 15 feet at maturity (such as timber) within 25 feet of the outermost phase conductor; restrictions on storage of flammable materials of any kind on the right-of-way; restrictions on refueling equipment under the transmission line; restrictions on grading, land recontouring, and material stockpiling under the transmission line or near structure locations; and required coordination with the Applicant for the construction of fences, irrigation lines, or other facilities that could be subject to induced current and for the use of agricultural equipment taller than 20 feet.

2.3.1.2 TRANSMISSION LINE STRUCTURES

A number of different types of structures may be used for the transmission line. The majority of the transmission line circuits would be supported by 500-kV single-circuit steel lattice structures; however, the Applicant would use other types of structures for special purposes. A description of the various types of structures follows.

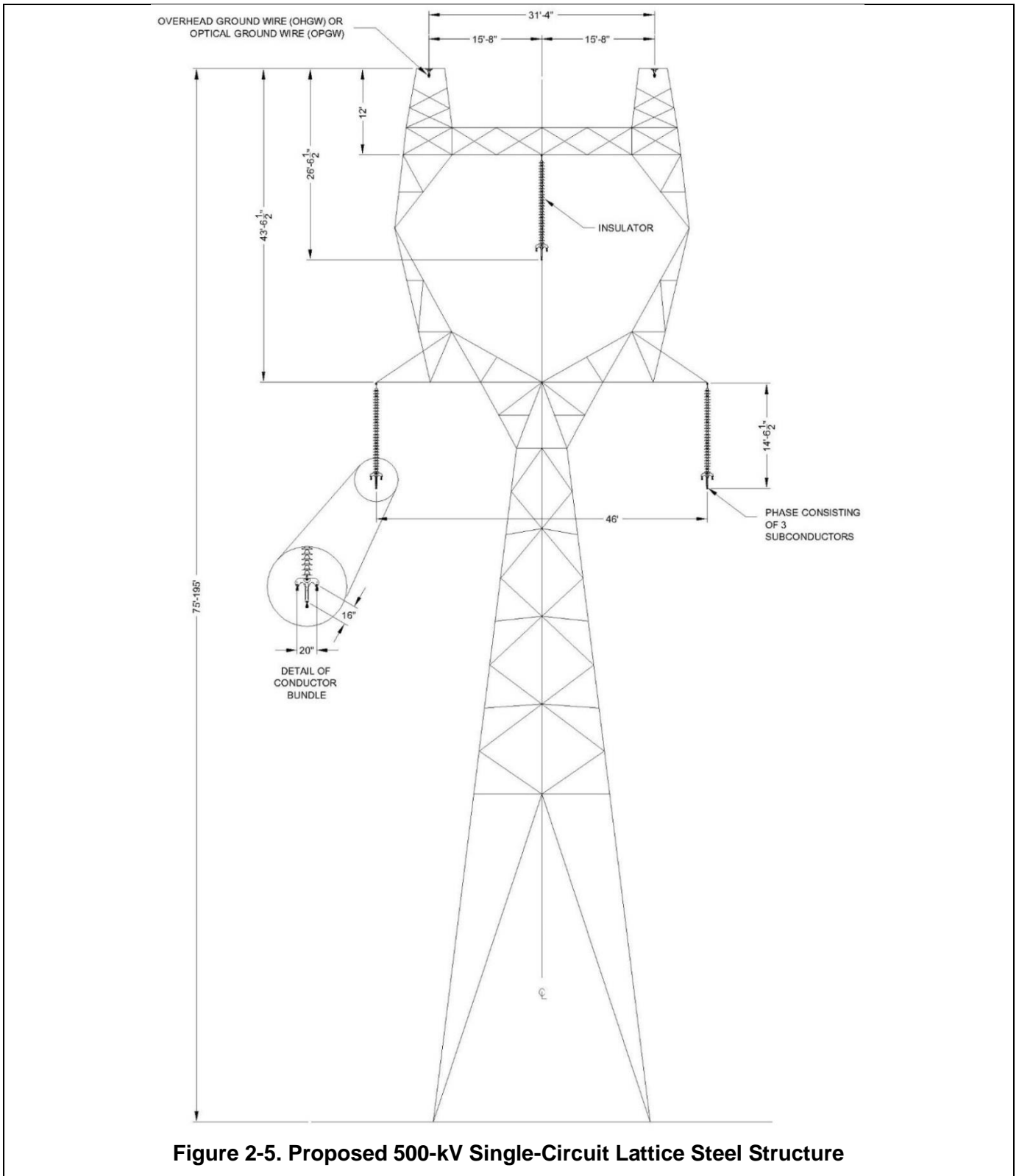
- **Tangent Structures:** Tangent structures are the most common type of structure and would be used along straight sections of the alignment. These structures are designed to support a range of wind and ice loading conditions but will only support loads associated with very slight line angles (0 to 1 degree). A typical tangent 500-kV single-circuit lattice structure is illustrated in Figure 2-5.
- **Angle Structures:** Angle structures are used at angle points along the transmission line. Angle structures that are not designed as dead-end or terminal structures are called “running” angle structures. “Running” angle structures are designed to support a range of wind and ice loading conditions and will support the loads associated with moderate angles up to 25 degrees. Angle structures typically are designed for a specific range of angles—3 to 10 degrees, 10 to 25 degrees, etc.
- **Dead-end Structures:** Dead-end structures generally are used at station termination points, line angles greater than 25 degrees, on each end of long spans such as those crossing canyons and wide rivers, and other points along the transmission line where it is appropriate to support the tension in the conductor. Dead-end structures are designed to support the vertical loads, transverse loads, line-angle loads (where appropriate), and the longitudinal load of the conductor. Dead-end structures also may be used in situations where maintaining clearance is difficult with tangent structures.
- **Steel Monopoles:** Single poles, or monopoles, are tubular steel structures fabricated from high-strength plate steel formed into tubes. Tubular poles can be fabricated into various structure

configurations including single-pole (Figures 2-8 and 2-10), two-pole H-frame (Figures 2-6, 2-7, and 2-9), and three-pole. Tubular steel may be galvanized or made from weathering steel. Tubular steel structures may be imbedded directly or bolted to drilled piers, piles, or a cast-in-place foundation, allowing their use in various soils. Tubular steel, single-pole, double-circuit structures are proposed for the relocation of the BPA's 69-kV transmission line from its current placement on the west side of eastern boundary of the NWSTF Boardman to the east side of Bombing Range Road. Tubular steel, single-pole structures also are proposed for the 138/69-kV double circuit segment of line that may be relocated in Baker County. Two-pole H frame structures are proposed for the segment of 230-kV line that may be relocated in Baker County. Two-pole H-frame 500-kV structures would be used in the vicinity of the NWSTF Boardman (at a reduced height not to exceed 100 feet). Also, 500-kV two-pole H-frame structures may be used as an alternative to the 500-kV lattice, if needed.

- **Transmission Line Crossing Structures:** Transmission line crossing structures are fabricated from high-strength steel. These structures may be delta-configuration lattice steel structures or tubular steel H-frame structures. Preferably, these structures are located perpendicular to the line being crossed. These structures' arrangements would allow the 500-kV line to cross over the top of lower voltage transmission lines or under other 500-kV lines when necessary. Crossing structures would have the same design properties as other transmission-line structures.
- **Transpositional Structures:** At certain points along the transmission line, it may be necessary to install transpositional structures, which is a transmission-line structure used to "transpose" each of the three phases (or conductors) in the transmission circuit so that each phase changes its relative place in the transmission circuit. Transpositional structures used on the B2H Project would be modified dead-end structures with added arms and insulator strings that would allow the phases to move to different positions on the structure. The need to install a transpositional structure is dependent on the electrical characteristics and length of the line and the need to balance the electrical impedance of the transmission line between stations.

In addition, a typical 230-kV single-circuit H-frame structure is illustrated on Figure 2-9 and a typical 138/69-kV structure with a 12-kV distribution underbuild is illustrated in Figure 2-10.

Table 2-1 provides a summary of the typical characteristics of the proposed and alternative transmission line structure characteristics.



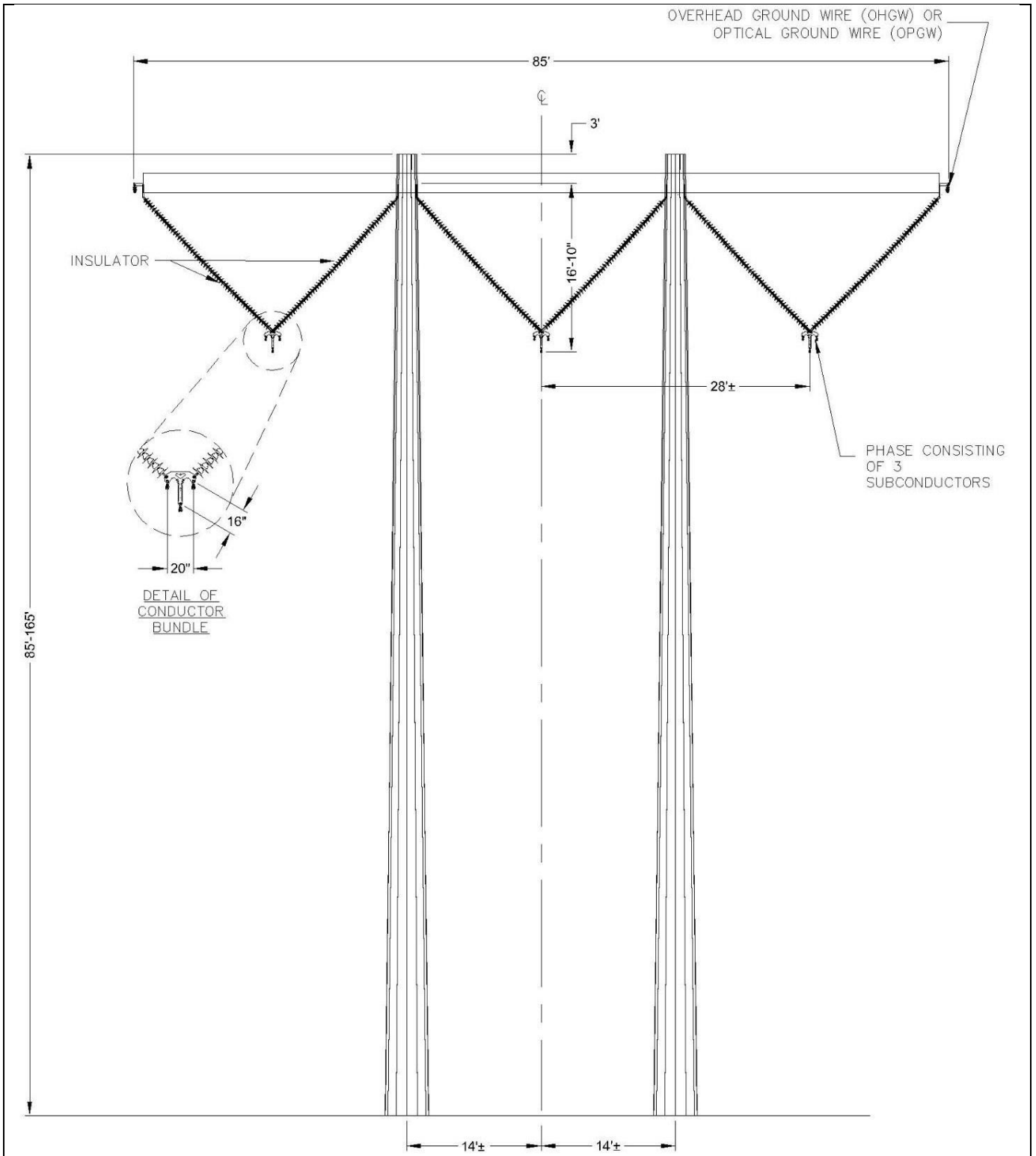


Figure 2-6. Proposed 500-kV Single-Circuit Tubular Steel Two-Pole H-Frame Structure

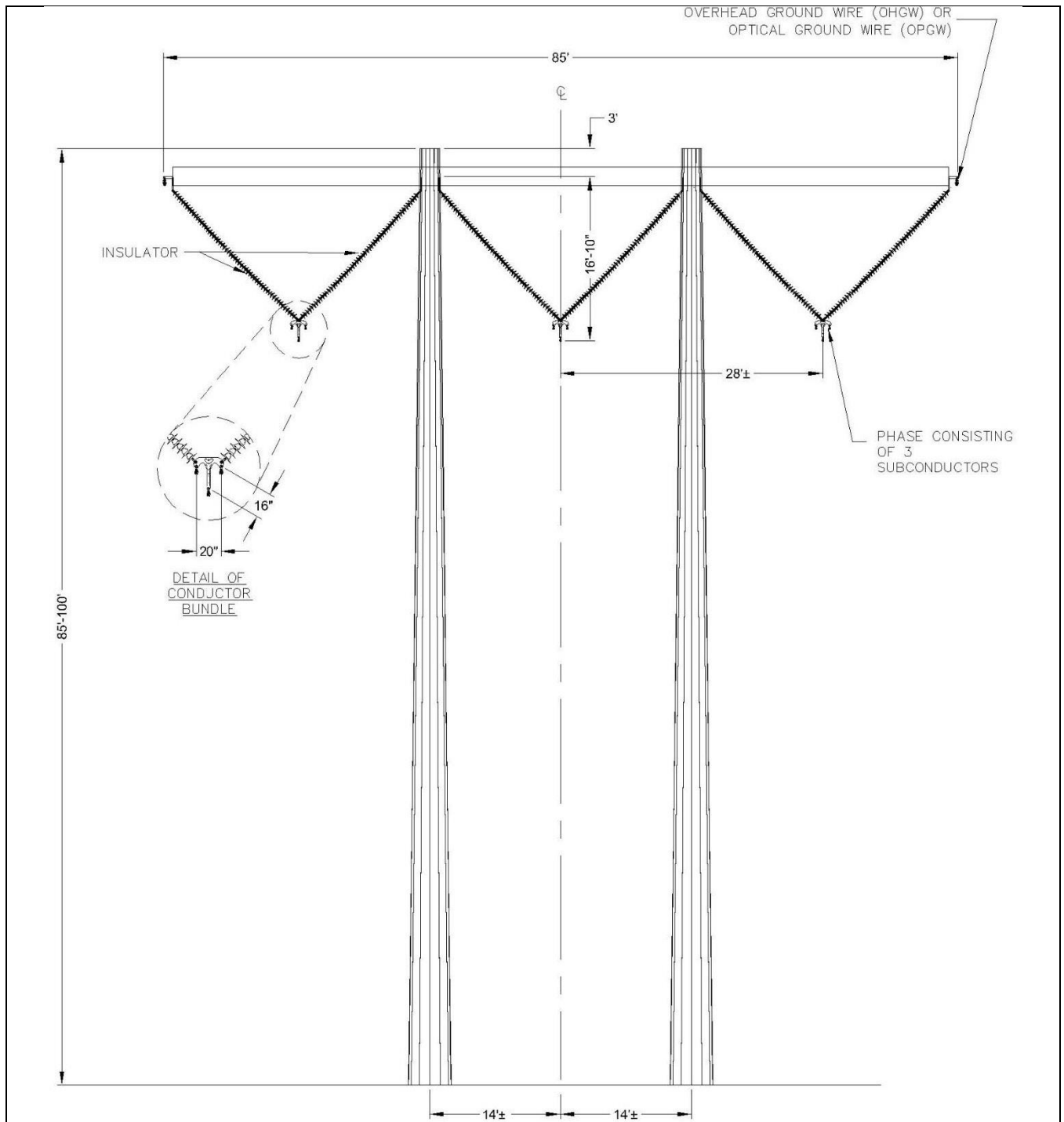
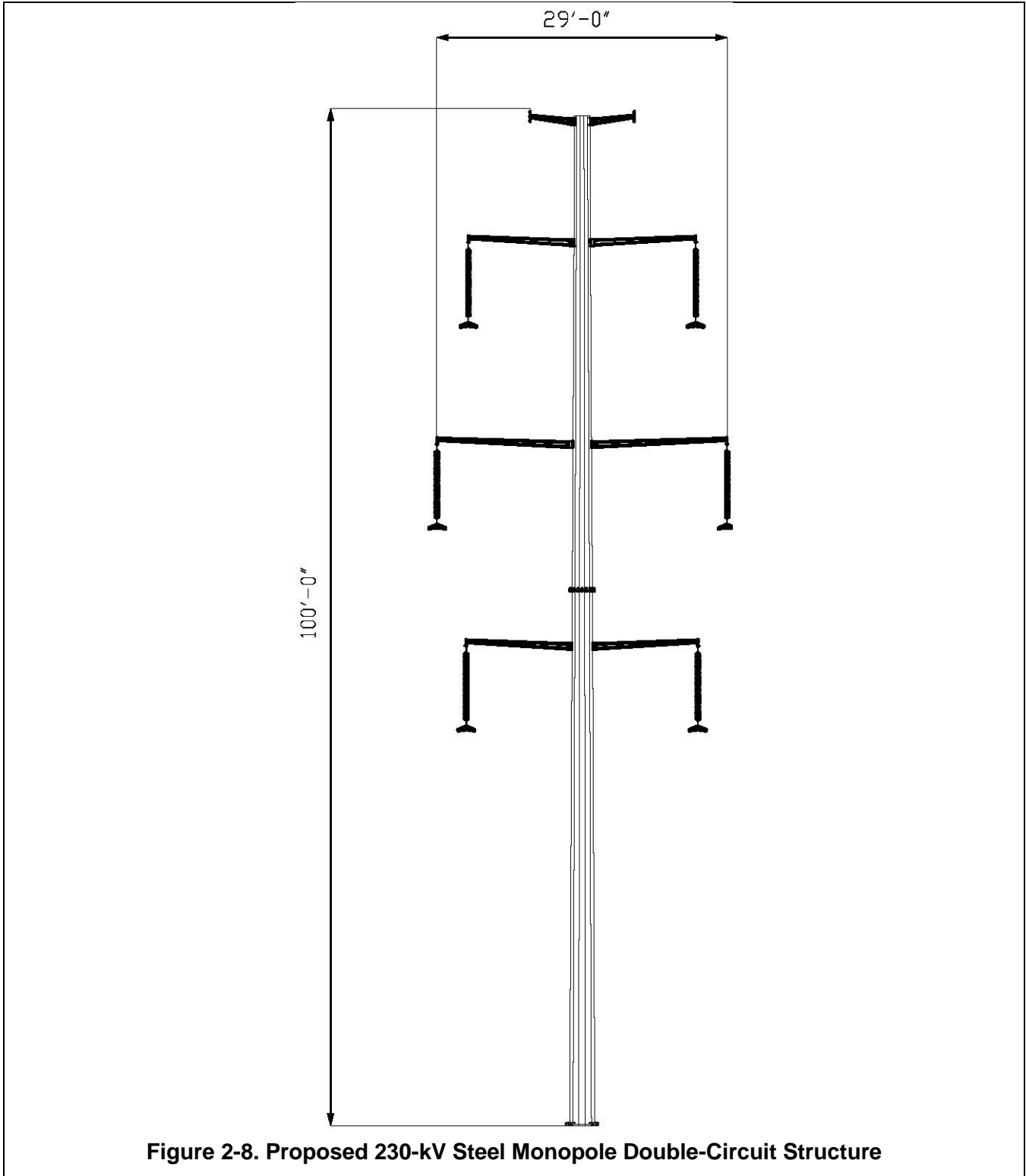
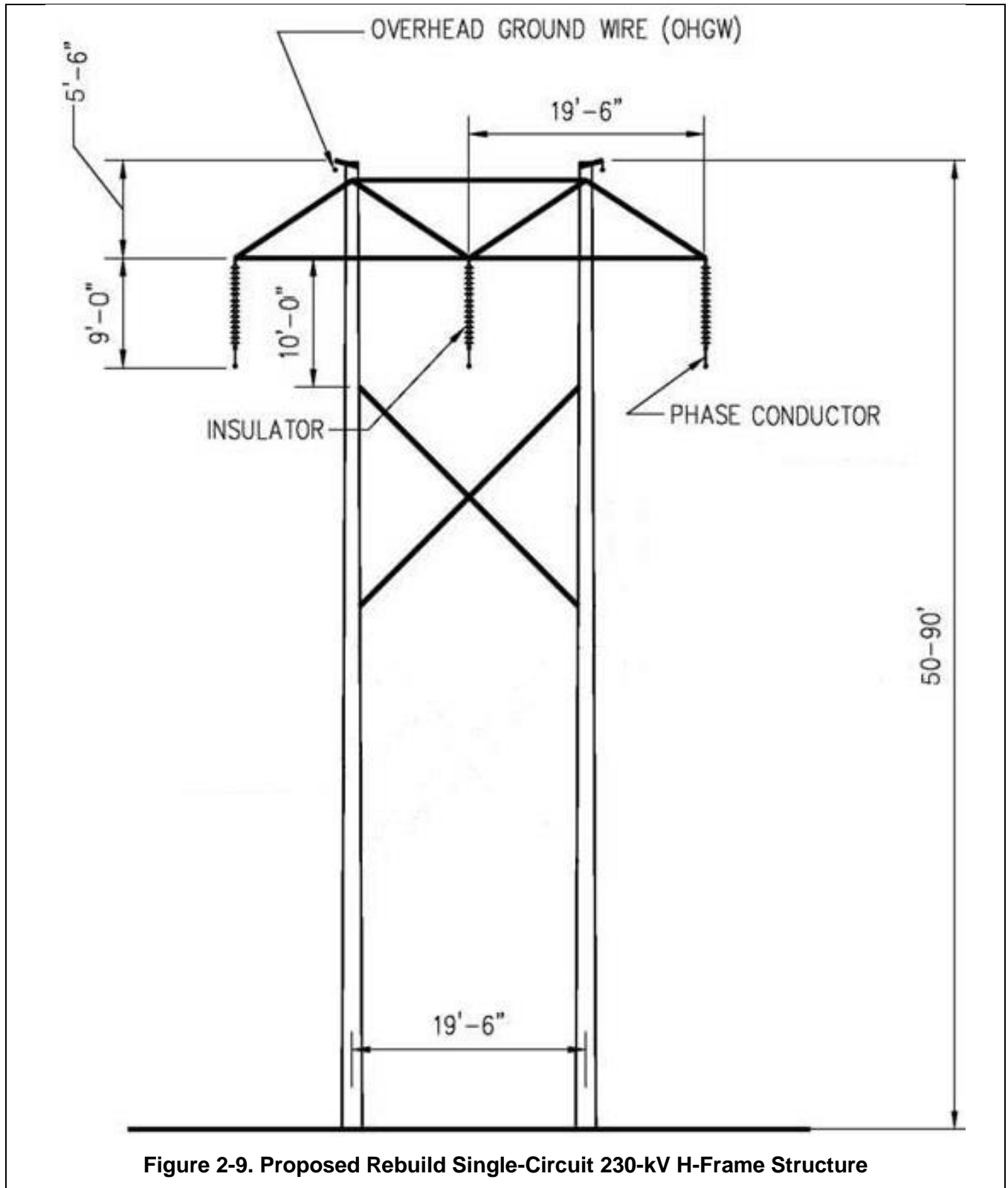


Figure 2-7. Alternative 500-kV Single-Circuit Tubular Steel Two-Pole H-Frame Structure
(on or adjacent to the NWSTF Boardman only)





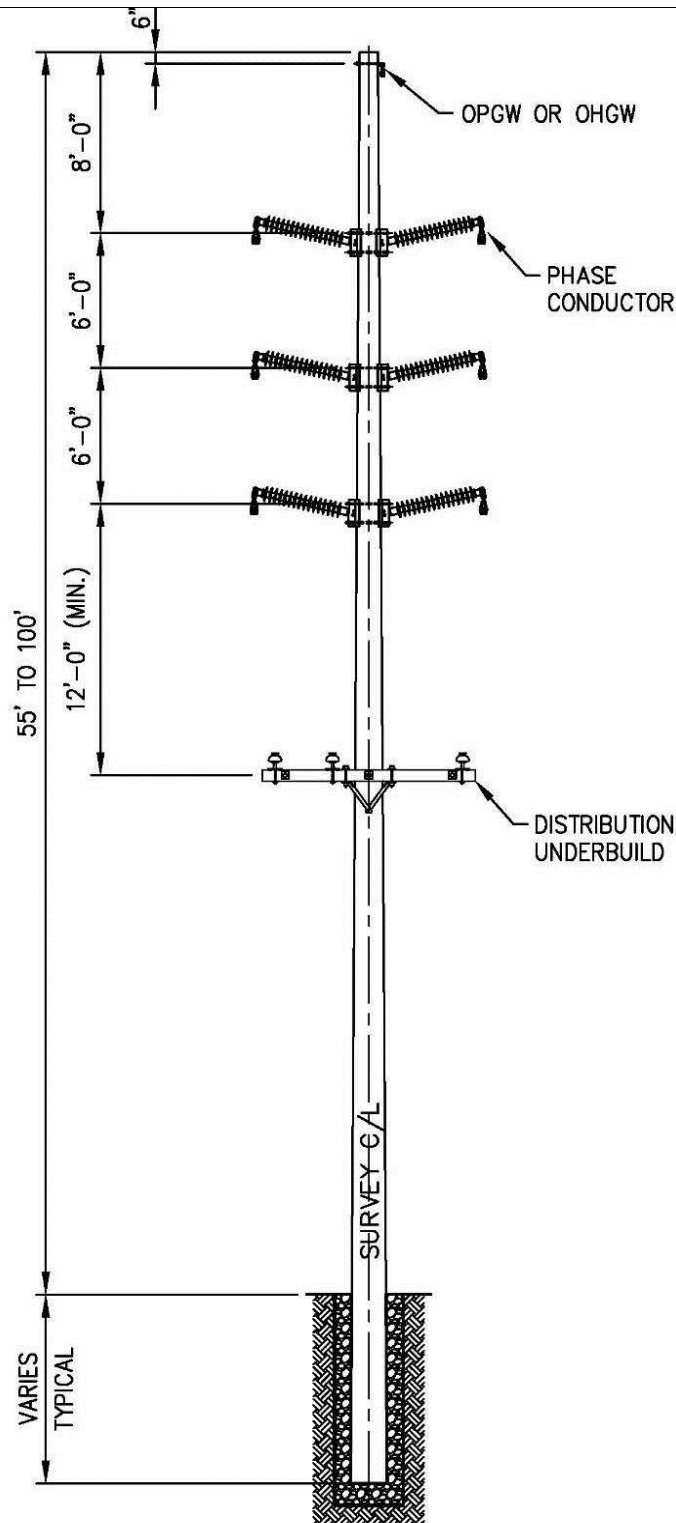


Figure 2-10. Proposed 138/69-kV Double-Circuit Steel Monopole Structure with 12.5-kV Distribution Underbuild

STRUCTURE AND CONDUCTOR CLEARANCES

Conductor phase-to-phase and phase-to-ground clearance parameters are determined in accordance with the Applicant's company standards and the NESC, ANSI C2, produced by the American National Standards Institute (ANSI). These documents provide minimum distances between the conductors and ground, crossing points of other lines and the transmission support structure, and other conductors, and minimum work clearances for personnel during energized operation and maintenance activities (Institute of Electrical and Electronics Engineers 2011). Typically, the clearance of conductors above ground is 29.5 feet for 500-kV lines, but where the line crosses land used for agricultural purposes, a minimum clearance of 35.5 feet would be used to allow for equipment clearance.

For the 230-kV line relocation section, the minimal clearance of conductors above ground is 27 feet. For the 138/69-kV double-circuit section, the 12.5-kV distribution conductor minimal clearance is 22 feet above grade.

STRUCTURE FOUNDATIONS

The 500-kV single-circuit steel lattice structures each require four foundations, one on each corner of the lattice towers. The foundation style, diameter, and depth would be determined during final design and are dependent on structure loading conditions and the type of soil or rock present at each specific site. The preliminary design indicates the foundations for the single-circuit tangent lattice structures would be composed of steel-reinforced concrete drilled piers with a typical diameter of 4 feet and a depth of approximately 15 feet. For the 500-kV H-frame structures, each tangent structure would require two foundations, one for each pole that comprises the H-frame structure. Angle and dead-end structures would use a three-pole structure, each pole having its own foundation. The foundations would be steel-reinforced drilled piers with a typical diameter of 6 to 8 feet and a depth of approximately 25 to 40 feet.

For the 230-kV H-frame structures, each of the two poles for tangent structures would be direct-embedded. Typical direct-embedded foundation sizes would be approximately 5 feet in diameter and approximately 5 feet deep. The 138-kV monopole structures would be a combination of direct-embedded steel poles and self-supported poles on drilled pier foundations. Tangent structures would be direct-embedded steel poles in a single drilled boring, typically 5 feet in diameter and 15 feet deep. Angle and dead-end structures would be on steel-reinforced drilled pier foundations with a typical diameter of 5 to 6 feet and a depth of approximately 20 to 25 feet.

Typical foundation diameters and depths for the proposed structure families are shown in Table 2-2.

Proposed or Alternative Structure	Holes per Structure	Typical Depth (feet)	Typical Diameter (feet)	Estimated Concrete Volume (cubic yards)
500-kV single-circuit – light tangent lattice structure	4	15	4	28
500-kV single-circuit – heavy tangent lattice structure	4	18	5	52
500-kV single-circuit – small angle lattice structure	4	16	6	68
500-kV single-circuit – medium angle lattice structure	4	21	6.5	104
500-kV single-circuit – medium dead-end lattice structure	4	28	7	160
500-kV single-circuit – heavy dead-end lattice structure	4	30	7	172
500-kV single-circuit two-pole tangent H-frame structure	2	25	6	53
500-kV single-circuit three-pole angle H-frame structure	3	30	7	129
500-kV single-circuit three-pole dead-end H-frame structure	3	40	8	224
230-kV double-circuit monopole structure	1	18	4	226
230-kV single-circuit two-pole tangent H-frame structure	2	12	5	NA
230-kV single-circuit three-pole angle H-frame structure	3	12	5	NA
230-kV single-circuit three-pole dead-end guyed structure	3	12	5	NA
138/69-kV double-circuit monopole tangent structure (direct-embedded)	1	15	5	NA
138/69-kV double-circuit monopole angle structure	1	20	5	15
138/69-kV double-circuit monopole dead-end structure	1	25	6	27

CONDUCTORS

The proposed conductor for the 500-kV lattice structure is 3-1519 KCM³ aluminum conductor steel reinforced with trapezoidal aluminum wires (ACSR/TW) “Deschutes.” Each phase of the 500-kV three-phase circuit would be composed of three subconductors in a triple-bundle configuration. The individual 159 KCM conductors would be bundled in a triangular configuration with spacing of 20 inches between horizontal subconductors and 16 inches of diagonal separation between the top two conductors and the lower conductor. The triple-bundled configuration is proposed to provide adequate current carrying

³A thousand circular mils

capacity and to provide for a reduction in audible noise and radio interference as compared to a single large-diameter conductor. Each 500-kV subconductor would have a 45/7 aluminum/steel stranding, with an overall conductor diameter of 1.300 inches and a weight of 1.432 pounds per foot and a non-specular finish⁴.

Where multiple conductors are used in a bundle for each phase, the bundle spacing would be maintained through the use of conductor spacers at intermediate points along the conductor bundle between each structure. The spacers serve a dual purpose: in addition to maintaining the correct bundle configuration and spacing, the spacers also are designed to damp out wind-induced vibration in the conductors. The number of spacers required in each span between structures would be determined during final design of the transmission line.

The proposed conductor for the relocated 230-kV transmission line is 795 KCM 26/7 ACSR “Drake.” Each phase of the 230-kV three-phase circuit would be composed of one conductor. Each conductor would have an overall diameter of 1.107 inches and a weight of 1.093 pounds per foot and a non-specular finish.

The proposed conductors for the 138/69-kV monopole structure lines are 397 KCM 26/7 ACSR “Ibis” (138-kV, one conductor per phase), 4/0 6/1 ACSR “Penguin” (69-kV, one conductor per phase), 2/0 ACSR “Quail” conductor (12.5-kV distribution, one conductor per phase plus neutral wire), and a 3/8 inch extra-high-strength (EHS) seven-strand shield wire at the top of the structures. Conductors would be aligned with typical vertical spacing of 8 feet between shield wire and 9- or 138-kV phase wires, 6 feet between phase wires, and a minimum of 12 feet between 138- or 69-kV phase wires and distribution wires.

OTHER HARDWARE

INSULATORS

Insulators are used to suspend each conductor bundle (phase) from the structure, maintaining the appropriate electrical clearance between conductors, the ground, and the structure. Dead-end insulator assemblies for the transmission lines would use an I-shaped configuration, which consists of insulators hung from either a structure dead-end arm or a dead-end pole in the form of an “I.” Insulators would be composed of grey porcelain or green-tinted toughened glass. The typical insulator assemblies for 500-kV steel lattice tangent structures would consist of an insulator string hung in the form of an “I” (Figure 2-5). Insulator assemblies for the 500-kV H-frame structure would consist of two insulators strings hung in the form of a “V” (Figures 2-6 and 2-7).

GROUNDING SYSTEMS

AC transmission lines such as the B2H Project transmission line have the potential to induce currents on adjacent metal structures such as transmission lines, railroads, pipelines, fences, or structures that are parallel to, cross, or are adjacent to the transmission line. Induced current on these facilities occur

⁴Non-specular refers to a “dull” finish rather than a “shiny” finish.

to some degree during steady-state operating conditions and during a fault condition on the transmission line. For example, during a lightning strike on the line, the insulators may flash over causing a fault condition on the line and current will flow down the structure through the grounding system (i.e., ground rod or counterpoise) and into the ground. The magnitude of the current flows in the transmission line, the proximity of the adjacent facility to the line, and the distance (length) for which the two facilities parallel one another in proximity will vary.

The methods and equipment needed to mitigate these conditions would be determined through electrical studies of the specific situation. As standard practice and as part of the design of the B2H Project, electrical equipment and fencing at the station would be grounded. All fences, metal gates, pipelines, metal buildings, and other metal structures adjacent to the right-of-way that cross or are within the transmission line right-of-way would be grounded as determined necessary. If applicable, grounding of metallic objects outside the right-of-way also may occur, depending on the distance from the transmission line as determined through the electrical studies. These actions address induced currents to ground through ground rods, ground mats, and other grounding systems, thus reducing the effect that a person may experience when touching a metallic object near the line (i.e., reduce electric shock potential). Transmission line public health effects are discussed in Section 3.2.18.

ADDITIONAL MINOR HARDWARE

In addition to the conductors, insulators, and overhead shield wires, other hardware would be installed on the structure as part of the insulator assembly to support the conductors and shield wires. This hardware would include clamps, shackles, links, plates, and various other pieces composed of galvanized steel and aluminum.

A grounding system would be installed at the base of each transmission line structure that would consist of copper or copper-clad ground rods embedded into the ground in immediate proximity to the structure foundation and connected to the structure by a buried copper lead. When the resistance to ground for a grounded transmission line structure is greater than a specified impedance value with the use of ground rods, counterpoise would be installed to lower the resistance to below a specified impedance value. Counterpoise consists of a bare copper-clad or galvanized-steel cable buried a minimum of 12 inches deep, extending from structures (from one or more legs of structure) for approximately 200 feet under the right-of-way.

Other hardware that is not associated with the transmission of electricity may be installed as part of the B2H Project. This hardware may include aerial marker spheres or aircraft warning lighting as required for the conductors or structures per Federal Aviation Administration (FAA) regulations⁵. Structures in proximity to airports and structure height are the determinants of whether FAA regulations would apply based on an assessment of wire/structure strike risk. The Applicant does not anticipate that structure

⁵U.S. Department of Transportation, Federal Aviation Administration, Advisory Circular AC 70/7460-1K Obstruction Marking and Lighting, August 1, 2000; and Advisory Circular AC 70/7460-2K Proposed Construction of Alteration of objects that May Affect the Navigable Airspace, March 1, 2000.

lighting would be required because proposed structures would be less than 200 feet tall and would not be near airports that require structure lighting.

2.3.1.3 SUBSTATIONS

As stated previously, the northern terminus of the proposed transmission line would be the planned Longhorn Substation near Boardman, Oregon, and the southern terminus is the existing Hemingway Substation near Boise, Idaho.

The Applicant identified the need for an endpoint for the B2H Project in the area of the Boardman, Oregon, because it is the easternmost point at which the Applicant can feasibly interconnect to the Pacific Northwest power market. The proposed Longhorn Substation is on land BPA purchased from the Port of Morrow. For termination at the Longhorn Substation, the Applicant would install 500-kV circuit breakers, high-voltage switches, bus supports, and transmission line termination structures, a 500-kV series capacitor bank, and 500-kV shunt reactor banks. The 500-kV transmission line termination structures would be approximately 125 to 135 feet tall. A control house to accommodate the system-communications and control equipment would be constructed as needed. A new all-weather access road would be used to reach the site, and distribution power for the site would be supplied from the nearby existing system, as needed. Fiber-optic signal communication equipment would be installed.

The existing Hemingway Substation, located approximately 30 miles southwest of Boise, Idaho, just off Highway 78, currently serves as a hub for the Applicant's Treasure Valley load. The Hemingway Substation has been designed to accommodate the B2H Project as well as other future projects. No additional ground disturbance outside the current substation would be required, and no new access road would be needed for access to the Hemingway Substation. The B2H Project 500-kV bay would contain high-voltage circuit breakers and switches, bus supports, series capacitor bank, shunt reactor banks, and control equipment similar to that described for the Longhorn Substation.

A typical 500-kV substation is illustrated in Figure 2-11. Figure 2-12 is a photograph of a typical 500-kV station with multiple line connections.

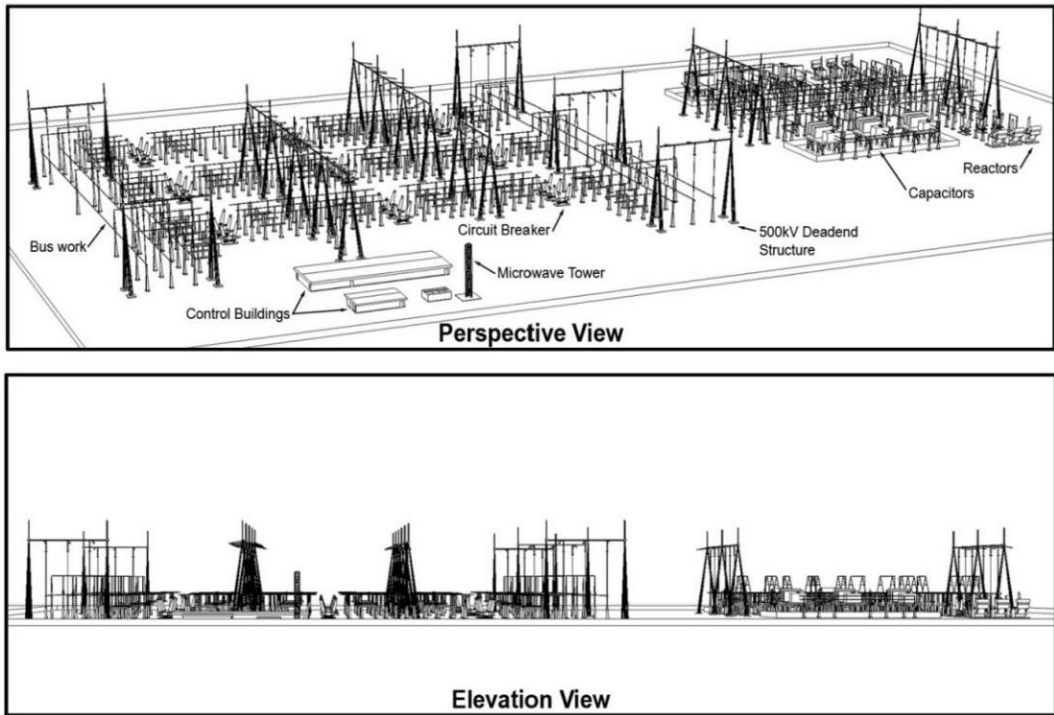


Figure 2-11. Typical 500-kV Substation



Figure 2-12. Typical 500-kV Substation

2.3.1.4 COMMUNICATION SYSTEM

To control the transmission line and manage the flow of electricity, a sophisticated internal communications system would be required. A major factor of the communications system is a fiber-optic line contained within one of the overhead grounding wires carried along the length of the transmission line. As the data signal is passed through the optical fiber cable, the signal degrades with distance. Consequently, signal communication sites (regeneration sites) are required to amplify the signals if the distance between substations or communications sites exceeds approximately 40 miles. As summarized in Table 2-1 a total of nine internal communications sites would be required for the Applicant's Proposed Action. Communication site spacing is approximately 40 miles, depending on access and proximity to local electric distribution lines. The typical site will be 100 feet by 100 feet, with a fenced area of 75 feet by 75 feet. A prefabricated concrete communications shelter with dimensions of approximately 12 feet by 32 feet by 9 feet tall will be placed on the site. Communications sites would be located on private and public lands.

Communications sites would consist of a communications shelter (building) and a standby generator with a liquid petroleum gas fuel tank, a fenced yard, an access road, and distribution power supply from the local distribution system. Two diverse cable routes (aerial and/or buried) from the transmission right-of-way to the equipment shelter would be required. Figure 2-13 illustrates the plan arrangement of a typical communications site.

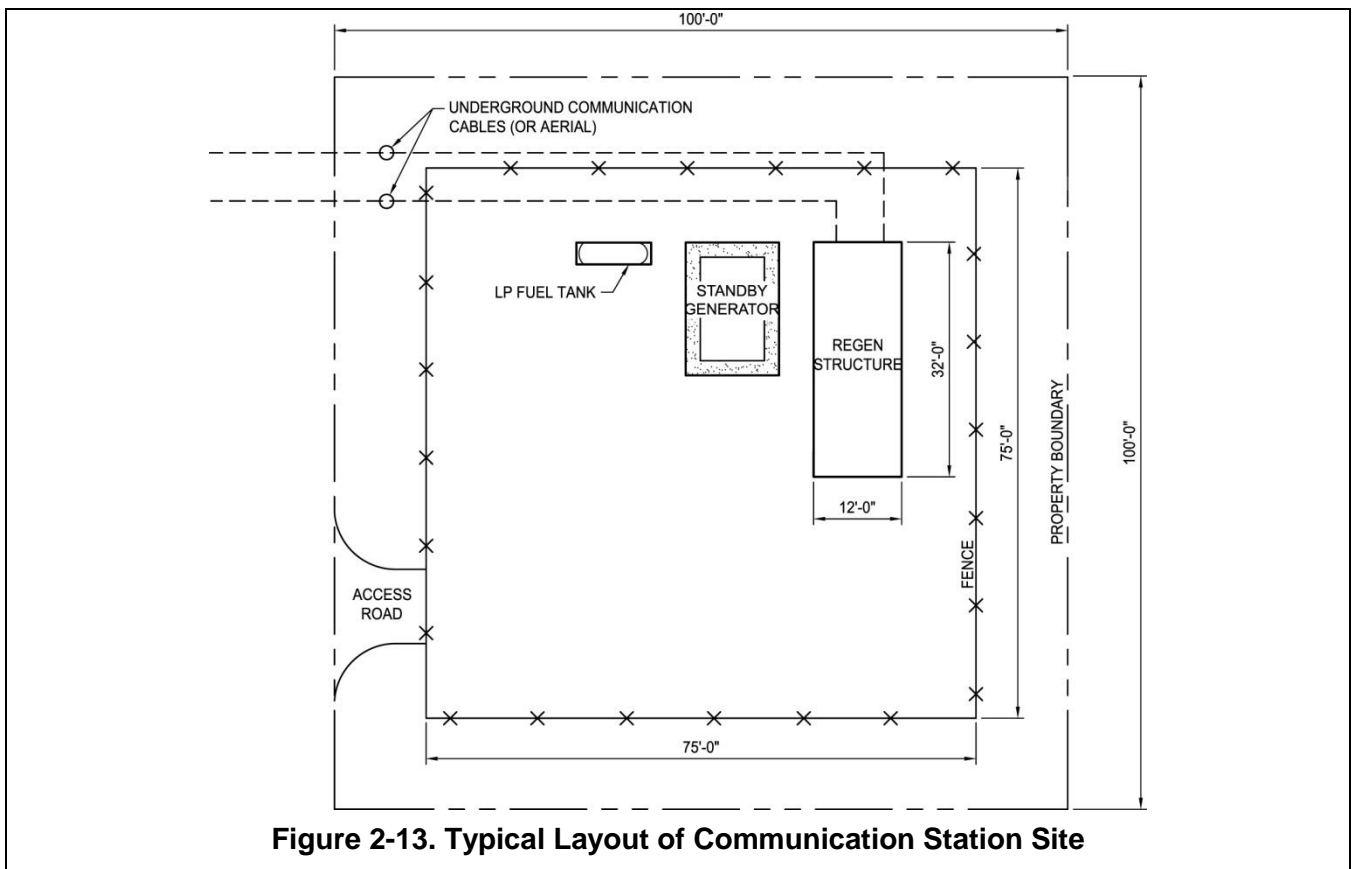


Figure 2-13. Typical Layout of Communication Station Site

OPTICAL GROUND WIRE

Reliable and secure communications for system control and monitoring is very important to maintain the operational integrity of the B2H Project and of the overall interconnected system. Primarily, communications for relaying and control would be provided via the optical ground wire (OPGW) that would be installed on the transmission-line structures; this path is intended for internal use by the Applicant. A second communication path (internal to the Applicant's system) would be provided over the Applicant's existing communication backbone system. No new microwave sites are planned for the B2H Project. Each 500-kV structure would have two lightning shield wires installed on the structure peaks. One of the shield wires would be composed of EHS steel wire with a diameter of 0.495 inch and a weight of 0.517 pound per foot. The second shield wire would be an OPGW constructed of aluminum, and would carry 48 glass fibers within its core. The OPGW would have a diameter of 0.646 inch and a weight of 0.407 pound per foot. The glass fibers inside the OPGW shield wire would provide optical data transfer capability among the Applicant's facilities along the fiber path. The data transferred are required for system control and monitoring.

POTENTIAL FOR CATHODIC PROTECTION

Siting a high-voltage transmission line in proximity and parallel to a metallic underground pipeline may require installation or upgrade of protective equipment to mitigate potential corrosion of the pipeline from induced voltage caused by the transmission line. Installation of the protective equipment, if not already existing, would require additional infrastructure and ground disturbance associated with the B2H Project⁶. As a general siting principle, the Applicant carefully scrutinized siting the proposed transmission line parallel to existing buried pipelines. The cost savings and potential for reduced construction impact of siting adjacent to existing pipelines is weighed against the impact on the underground pipelines and potential mitigation to address the impacts. This has been done to minimize disruption or required modification to existing protective systems and their supporting infrastructures. As the Applicant continues to consider new constraint information, the Applicant would continue to work to avoid interference with underground pipelines as well as other types of existing infrastructure to the maximum extent possible. Where it is not possible to move the proposed transmission line alignment away from a pipeline, the Applicant would work with the owner/operator of the pipeline to evaluate the interference from the B2H Project and see that the necessary protection system is put in place to protect the pipeline. In the B2H Project area, there are few opportunities for the proposed transmission line to parallel large-diameter pipelines.

2.3.1.5 RELATED AND SUPPORTING FACILITIES

Permanent and temporary related and supporting facilities include access roads, multi-use areas, pulling-and-tensioning sites, fly yards within some pulling-and-tensioning sites, and distribution lines to the communication stations.

⁶Where buried pipelines run parallel to a transmission line, they typically are protected by an impressed current cathodic protection (ICCP) system, which requires buried anodes connected to a direct-current power source, if not already installed by the pipeline owner/operator, will generally require construction of a new distribution line to serve the ICCP.

ACCESS ROADS

Access and service roads required for the B2H Project are described as three major types: (1) new roads (including new primitive roads or new bladed roads); (2) existing roads that will require substantial modification; and (3) existing roads that would not require substantial modification. To the extent possible, existing roads would be used in their present condition without improvements. Where applicable, the Applicant would conform to land-management–agency manuals for construction and maintenance.

Following is a description of the three access road types.

New roads proposed to be constructed in connection with the B2H Project include:

- New primitive roads would meet the following criteria:
 - Created by direct vehicle travel over native material and existing vegetation
 - Disturbance may include clearing of large woody vegetation and other obstructions to ensure safe vehicle operation
 - Generally would be present on the landscape as two-track roads leaving no disturbance beyond the edge of the travel surface
 - May require intermittent maintenance work to support continued safe vehicle passage during construction
 - Typical construction disturbance is 16 feet wide; the operational travelway width is 14 feet, which, after use for maintenance over the years, would become a 10-foot-wide two-track roadway
- New bladed roads would meet the following criteria:
 - Construction of new road prism across side slope greater than 8 percent or over rough and uneven terrain
 - Typical construction disturbance is 16 feet wide, but can be up to 35 feet wide as dictated by terrain and soil conditions; the operational width is 14 feet wide, which, after being reseeded and used over the years, would become a 10-foot-wide two-track roadway

Existing roads that would require substantial modification for construction and operation of the B2H Project satisfy the following criteria:

- Field reconnaissance and aerial photographs indicate that current road conditions are not adequate for construction of the B2H Project
- Proposed repair and/or construction activities would (1) increase the width of the existing road prism; (2) change the existing road alignment; (3) use materials inconsistent with the existing road surface; and/or (4) change the existing road profile
- Repairs using existing road surface materials within the existing road prism that would not change the road profiles are considered substantial modifications if they comprise greater than 20 percent of the road surface area defined by road prism width and longitudinal distance over a defined road segment
- Typical construction disturbance is 16 to 35 feet wide; the operational width is 14 feet wide.

After construction is complete, any new roads developed for the B2H Project connecting to multi-use areas would be removed and restored to preconstruction conditions, unless the landowner requests otherwise.

Existing roads that do not require substantial modification include existing paved or all-weather surfaced roads that meet the Applicant's road standards for a minimum operational width of 14 feet. These roads include existing maintained paved or all-weather surfaced roads that are able to be used in their current condition. It is anticipated that the use of these roads would not cause additional new disturbance outside of an established disturbed area. However, these roads could include regular maintenance to make the road passable for construction. Regular maintenance could include, but would not be limited to, minor blading activities, repair of washed out areas, wash-boarded areas, depressions requiring graveling, approach installation, and other minor improvements.

WATERBODY CROSSINGS WITH ACCESS ROADS

Access roads would be designed and constructed to minimize disruption of natural drainage patterns including perennial, intermittent, and ephemeral streams. As the engineering plans are advanced for new access roads, site-specific crossings would be designed. The Applicant would consult with the land-managing agency or landowner (if applicable) regarding relevant standards and guidelines pertaining to road-crossing methods at waterbodies and would be designed to meet a minimum of a 100-year flood event. The Applicant has committed that no vehicles and/or equipment would cross through streams supporting fish species listed as threatened, or endangered under the Endangered Species Act of 1973 (ESA) . Consultation would include site assessment, design, installation, and maintenance. New crossings of canals, ditches, and perennial streams would be avoided to the extent practicable by using existing crossings, but some new crossings are anticipated. The performance of stream crossings would be monitored for the life of the access road and would be maintained or repaired as necessary to protect water quality.

Four types of waterbody crossings potentially could be used as part of the B2H Project:

Type 1 – Drive-through with or without minor grading and/or minimal fill to match existing stream profile

Crossing of a seasonally dry channel.

Type 2 – Hardened drive-through ford

Crossing of a channel that includes grading and stabilization. Stream banks and approaches would be graded to improve vehicle passage and would be stabilized with rock, geotextile fabric, or other erosion-control devices. The streambed would in some areas be reinforced with coarse rock material, where approved by the land-management agency, to support vehicle loads, prevent erosion, and minimize sedimentation into the waterway. Rock would be installed in the streambed such that it would not raise the level of the streambed, thus allowing continued movement of water, fish, and debris. Fords may be constructed in small, shallow streams (less than 2-foot stream depth and 20-foot active stream width) and rocky substrates. Fords also may be appropriate on wider streams that have a poorly defined channel that often changes course from excessive bedload. A ford crossing results in an

average disturbance profile of 25 feet wide (along the waterbody) and 50 feet long (along the roadway) for 1,000 square feet, or 0.02 acre at each crossing. Disturbance amount is estimated based on the need to move equipment into the riparian area to build the 14-foot-wide operational surface, as well as to protect the area from erosion by adding armoring.

Type 3 – Culvert

Crossing of a stream or seasonal drainage that includes installation of a culvert and a stable road surface established over the culvert for vehicle passage. Culverts would be designed and installed under the guidance of a qualified engineer who, in collaboration with a hydrologist and aquatic biologist, where required by the land-management agency, would recommend placement locations; culvert gradient, height, and sizing; and proper construction methods. Culvert design would consider bedload and debris size and volume. The disturbance footprint for culvert installation is estimated to be 50 feet wide (along the waterbody) and 150 feet long (along the road) for 7,500 square feet, or 0.17 acre at each crossing. Ground-disturbing activities would comply with agency-approved best management practices. Construction would occur during periods of low flow. The use of equipment in streams would be minimized. All culverts would be designed and installed to meet desired riparian conditions and fish passage requirements, as identified in applicable land-use-management plans. Culvert slope would not exceed stream gradient. Typically, culverts would be buried partially in the streambed to maintain streambed material in the culvert. Sandbags or other nonerosive material would be placed around the culverts to prevent scour or water flow around the culvert. Adjacent sediment-control structures such as silt fences, check dams, rock armoring, or riprap may be necessary to prevent erosion or sedimentation. Stream banks and approaches may be stabilized with rock or other erosion control devices.

Type 4 – Channel-spanning structures including fish passage

Crossing of a waterbody identified as containing a sensitive fish species that includes installation of a large-diameter culvert, arch culvert or short-span bridge and a stable road surface established over the structure for vehicle passage. Channel-spanning structures would be designed and installed under the guidance of a qualified engineer who, in collaboration with a hydrologist and aquatic biologist would recommend placement locations; structure gradient, height, and sizing; and proper construction methods. The typical disturbance footprint for channel-spanning structures averages 60 feet wide (along the waterbody) and 150 feet long (along the road) for 9,000 square feet, or 0.2 acre at each crossing.

WETLAND CROSSINGS WITH ACCESS ROADS

During construction and for routine and emergency operations, access across wetlands to individual structure locations may be necessary. Selection of final wetland crossing techniques would be based on final access road alignment and wetland characteristics. Techniques that would be considered include the following:

Constructing at-grade roads with geotextiles and road materials for water through-flow

This type of road would be below water during certain times of the year, which would make locating the roads difficult, and the depth of the water over the drivable surface may make travel over the submerged road surface impractical or not feasible.

Limiting structure access across wetlands to dry or frozen conditions, along with the use of low-ground-pressure tires or specialized tracked vehicles

Construction of ice roads in wetlands involves using lightweight equipment such as snowmobiles to tamp down existing snow cover and vegetation to allow penetration of frost into the wetland soils. This operation would be followed by packing with heavier tracked equipment such as Bombardiers or wide-tracked dozers. The window of weather cold enough to allow for this technique is short, thereby restricting operation and maintenance activities to the winter season only.

Installing temporary matting materials to allow access for heavy vehicles and equipment

The mats typically come in the form of heavy timbers bolted together or interlocking pierced-steel planks. Mats spread the concentrated axle loads from equipment over a much larger surface area, thereby reducing the bearing pressure on fragile soils. However, mats are less effective when standing water is present.

Constructing raised fill embankments for permanent above-grade access roads in wetlands such that the travel surface is higher in elevation than the ordinary high-water level

The construction of above-grade access roads would accommodate the types of equipment described above and would be the most flexible for construction. All waterbody and wetland disturbances would be completed under the terms of a USACE Clean Water Act Section 404 permit, the National Pollutant Discharge Elimination System Construction Stormwater Permit (Clean Water Act 402), an ODSL Removal-Fill Permit, and State 401 water quality certification requirements that govern activities within any waters of the United States. In Idaho, there is an additional requirement for a stream channel alteration permit.

Using helicopters for construction access to avoid wetlands

Transmission tower structures proposed for the B2H Project could be erected partially by helicopter, if needed. However, in each case, ground-based vehicles would still be needed and therefore would not eliminate the need for an access road to each structure to complete construction or to perform inspections and live-line maintenance activities. In sensitive resource areas, the agencies may require no access roads, access roads that are overland drive and crush only, or limited in the amount of improvement that will be allowed.

MULTI-USE AREAS

Construction of the B2H Project would begin with establishing multi-use areas, which would serve as field offices; reporting locations for workers; parking space for vehicles and equipment; and sites for material delivery and storage, fabrication assembly of structures, cross arms and other hardware, concrete batch plants, and stations for equipment maintenance. Multi-use areas, each of which is about 30 acres in size, would be located approximately every 15 miles along the transmission line route. The

layout of a typical multi-use area is illustrated in Figure 2-14. Multi-use areas may require an approved land-use permit through county planning departments. Some activities associated with the multi-use areas may require additional permitting. (For example, a concrete batch plant, depending on the zoning, may require a conditional use permit through the county planning department.)

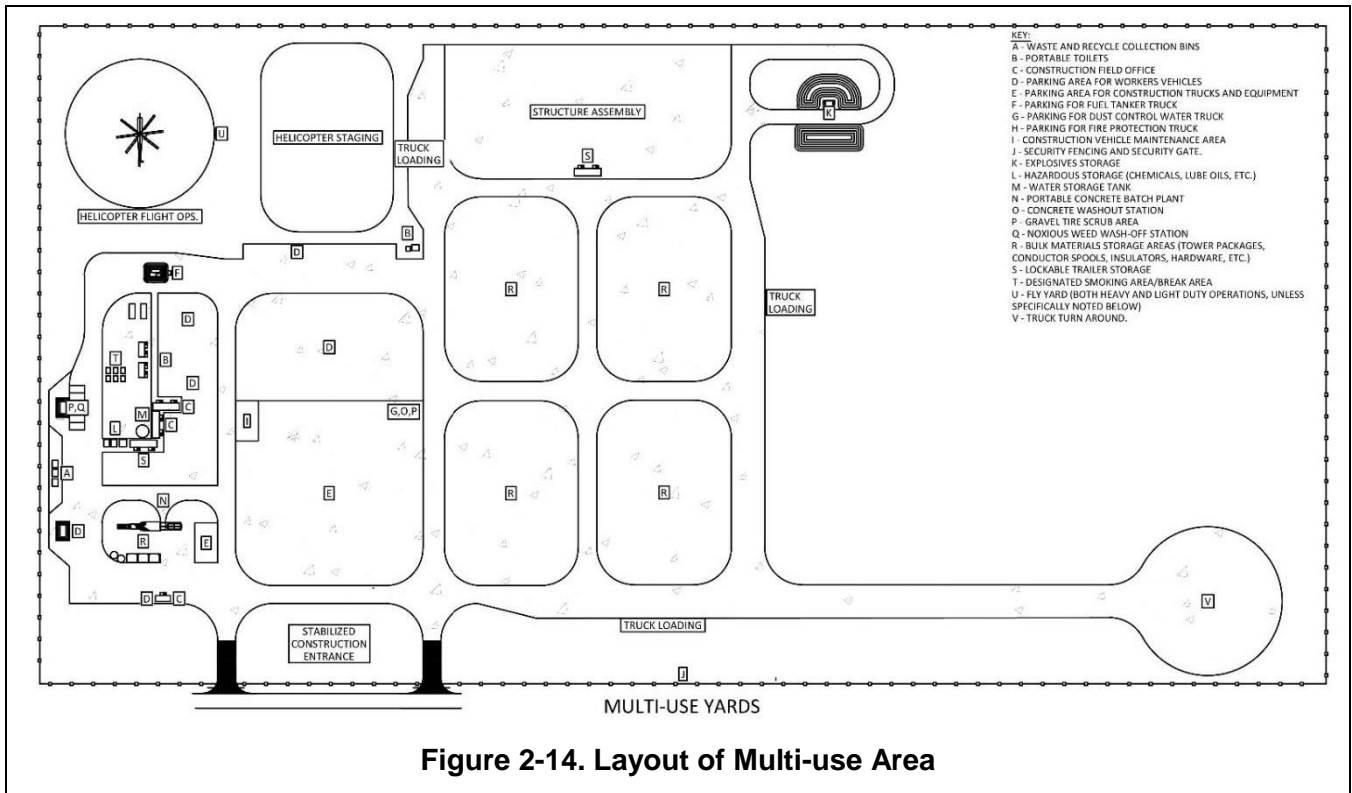


Figure 2-14. Layout of Multi-use Area

Helicopter operations may be staged from multi-use areas. Construction activities potentially facilitated by helicopters may include delivery of construction laborers, equipment, and materials to structure sites; structure placement; hardware installation; and wire-stringing operations. Helicopters also may be used to support the administration and management of the B2H Project by the Applicant, the construction contractor, or both. Where construction access by truck is not practical due to steep terrain, all-terrain-vehicle trails may be used to support maintenance activities. The use of helicopter construction methods for the B2H Project would not change the length of the access-road system required for operating the B2H Project because vehicle access is required to each structure site regardless of the construction method employed. During construction, gasoline, diesel fuel, crankcase oil, lubricants, and cleaning solvents would be stored at multi-use areas. These products would be used to fuel, lubricate, and clean vehicles and equipment and would be transported to multi-use sites in containerized trucks or in other federally or state-approved containers. Enclosed containment would be provided for petroleum products and wastes and petroleum-related construction waste would be removed to a disposal facility authorized to accept such materials. Fuel and chemicals would be properly stored to prevent drainage or accidents. Where required, preventive measures, such as the use of vehicle drip pans for overnight parking areas, may be implemented. Routine visual inspection for presence of petroleum leaks would be required for vehicles. Diesel fuel tanks would be located at the

multi-use areas for vehicle and equipment fueling. Each fuel tank would be located within secondary containment and each station would be equipped with a spill kit. When refueling on right-of-way is necessary, refueling would take place away from waterways. Accidental release of hazardous materials would be prevented or minimized through proper containment of these substances during use and transportation to the site. A Spill Prevention, Containment, and Countermeasure (SPCC) Plan would be prepared for all hazardous materials. All hazardous and dangerous materials would be stored and secured in accordance with the appropriate regulations.

During operations, no fuels or potentially hazardous, such as general lubricants, general cleaners, ethylene glycol (antifreeze), vehicle fuel, and herbicides for weed control would be stored on the right-of-way. When used, they would be transported and disposed of in accordance with applicable local, state, and federal environmental laws and regulations, and product labels as appropriate. At the communication stations, liquid propane would be stored in approved tanks.

Multi-use areas typically would be fenced and their gates locked. Security guards would be stationed where needed. In some cases, the multi-use area may need to be scraped by a bulldozer and a temporary layer of rock laid to provide an all-weather surface. Unless otherwise directed by the landowner, the rock would be removed from the multi-use area upon completion and the area would be restored.

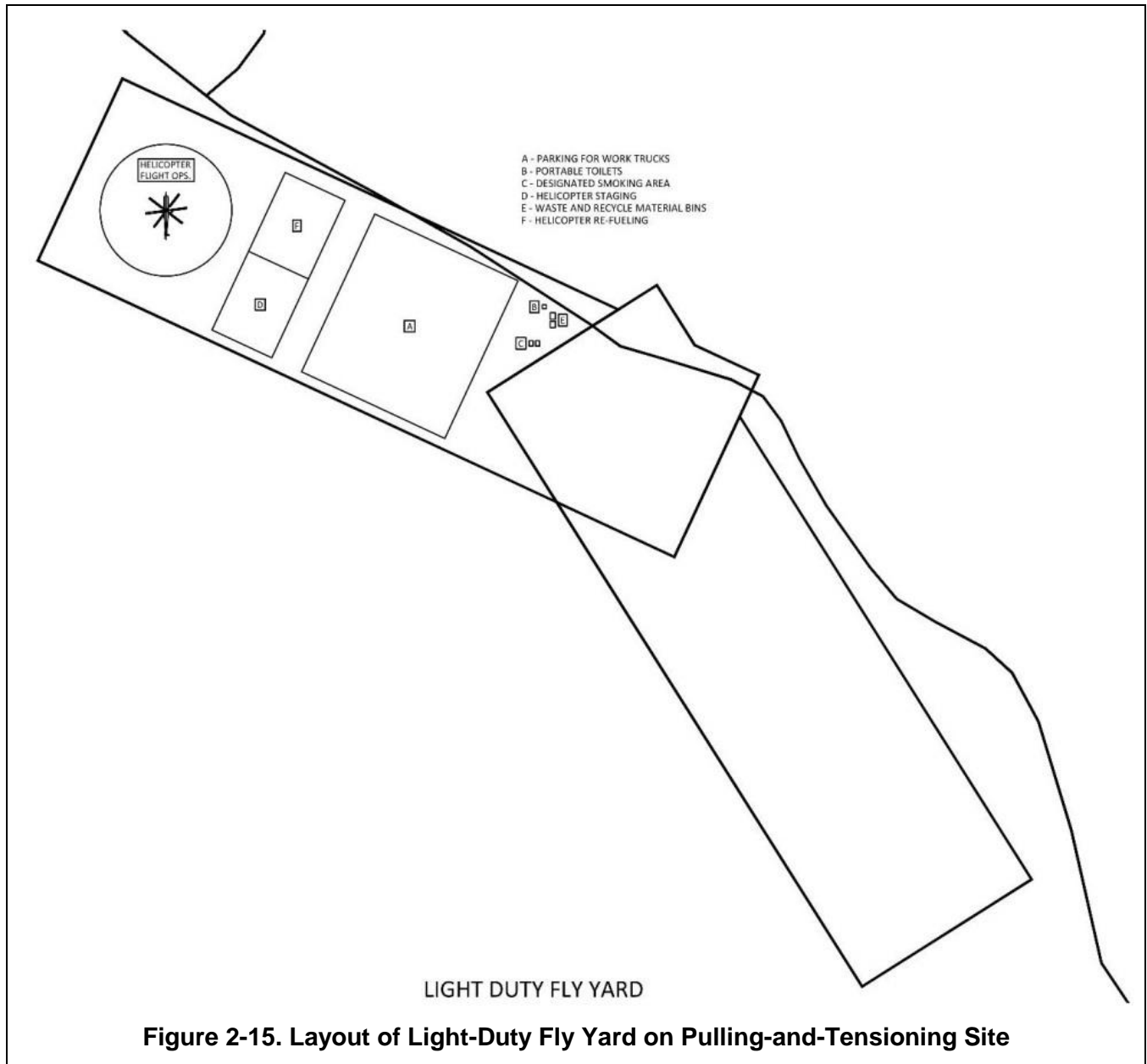
PULLING-AND-TENSIONING SITES

Pulling-and-tensioning sites would be required every 1.5 to 2.0 miles along the right-of-way and at angle points greater than 30 degrees, and would require approximately 5 acres at each end of the wire section to accommodate required equipment.

The pulling-and-tensioning sites for the potential 230-kV and 138/69-kV line relocation and the 230-kV double-circuit line (to replace the BPA 69-kV line) would be required approximately every 1 to 2 miles along the right-of-way and would require approximately 1.2 acres each to accommodate required equipment.

Equipment at sites required for pulling-and-tensioning activities would include tractors and trailers with spooled reels that hold the conductors and trucks with the tensioning equipment.

A few pulling-and-tensioning sites are designated as light-duty fly yards. Light-duty fly yards are similar to the fly yards located in the multi-use areas but are smaller in size (Figure 2-15). All the equipment and activities that occur at a multi-use area also may occur at a light-duty fly yard. The exception would be that no oil and gas or explosive storage would occur and no batch plants would be located at the light-duty fly yards within the pulling-and-tensioning sites. The light-duty fly yards would be located within specific pulling-and-tensioning sites along the B2H Project where the spacing between multi-use areas is too great. The light-duty fly yards would be approximately 5-acre sites spaced approximately 15 miles apart.



2.3.2 SYSTEM CONSTRUCTION

The following section and subsections describe the activities that would be associated with construction, operation, and maintenance of the B2H Project, including environmental compliance, geotechnical investigation, construction schedule and seasons, and typical construction, operation, and maintenance activities.

Design, construction, operation, and maintenance of the B2H Project would meet or exceed requirements of the NESC, U.S. Department of Labor, Occupational Safety and Health Administration standards, and the Applicant’s requirements for safety and protection of landowners.

The activities described in this section would be refined during detailed design and engineering once a route has been selected for construction. Refinements would be either (1) consistent with the outcome of the impact assessment and mitigation planning disclosed in this EIS or (2) additional NEPA review would be required.

2.3.2.1 ENVIRONMENTAL COMPLIANCE

Once a route is selected for construction and prior to commencement of construction, the POD—a detailed plan for construction, operation, and maintenance of the B2H Project—would be completed by the Applicant in collaboration with the agency interdisciplinary team and cooperating agencies.

The POD provides the direction to the Applicant's construction personnel, construction contractors and crews, compliance inspection contractor, environmental monitors, and agency personnel regarding specifications for construction. The POD also would provide direction to the agencies and the Applicant's personnel for operation and maintenance of the B2H Project. The POD provides background information including description of construction, operation, and maintenance activities; description of the Applicant's and agencies' roles and responsibilities; and description of environmental protection measures (e.g., design features of the B2H Project for environmental protection [Table 2-7, Section 2.3.4], selective mitigation measures [Table 2-13, Section 2.5.1.1]), and several implementation plans (Table 2-3). The final Applicant compensatory mitigation plan also would be part of the final POD.

To enable the affected federal agencies to approve and sign the ROD(s) and grant right-of-way, the POD must be substantially developed to a level of completion to satisfy the NEPA. Since design and engineering of the B2H Project will not be completed at the time of the ROD, the draft POD will be based on the information and data, including design features and mitigation measures, carried forward from the EIS, and the final Applicant's compensatory mitigation plan. Completion of the POD would be a condition of signing the ROD(s) and granting any federal land-use authorization. Notice to proceed with construction would not be issued until the stipulations of the right-of-way grant and approved final POD are satisfied. Other agencies also would condition their final authorizations (e.g., special use authorization) on completion of an acceptable POD, including an approved compensatory mitigation plan.

A preliminary POD submitted in November 2011 contains the framework of 12 implementation plans that include proposed design features and mitigation measures to reduce or avoid environmental impacts (unless otherwise directed by private landowners) (Idaho Power Company 2011). These framework plans are briefly described in Table 2-3.

Table 2-3. Framework Plan Descriptions	
Framework Plan	Description
Framework Blasting Plan	Includes types of explosives and storage and security, as well as general use of explosives including the procedures and safety measures for blasting activities and notification requirements
Framework Reclamation Plan	Includes site-specific construction mitigation, reclamation, and revegetation measures for each land management area crossed by the right-of-way within BLM-managed, National Forest System lands, and other federal lands. It would combine the Applicant's environmental protection measures with site-specific mitigation developed in consultation with the BLM, U.S. Forest Service (USFS), and other federal agencies. Some measures would apply project wide, while others would be designed for specific areas. These measures also would apply to state and private land.
Framework Plant and Wildlife Conservation Measures Plan	Presents the measures proposed by the Applicant for avoidance and minimization of impacts on special status plant and wildlife species as related to construction activities for the B2H Project and would outline specific conservation measures to be implemented if state or federally listed species, BLM-sensitive species, or USFS special status species or their habitats are identified within or adjacent to the B2H Project right-of-way.
Framework Agricultural Protection Plan	Includes measures intended to mitigate or provide compensation for agricultural impacts that may occur due to construction of the B2H Project. The measures are intended to be implemented on partially or wholly owned private agricultural land unless directed otherwise by the landowner. Agricultural land will be defined to include that which is annually cultivated or rotated cropland; land in perennial field crops, orchards, or vineyards; land used for small fruit, nursery crops, greenhouses, or Christmas trees; improved pasture; hayfields; and land in the Conservation Reserve Program.
Framework Fire Prevention and Suppression Plan	Includes measures to be taken by the Applicant and its contractors to ensure that fire prevention and suppression are carried out in accordance with federal, state, and local regulations. The plan would address the specific requirements of the USFS and BLM handbooks, and provide environmental protection measures for fire management on privately owned lands. Measures would be identified in this plan that apply to work within the B2H Project area defined as the right-of-way, access roads, all work and storage areas (whether temporary or permanent), and other areas used during construction and operation of the B2H Project.
Framework Operations, Maintenance, and Emergency Response Plan	Includes measures to be employed while conducting routine, corrective, and emergency operations and maintenance activities. Measures identified would be in compliance with applicable state and federal laws and policies; would ensure consistency across and within federal jurisdictions; and would allow for the Applicant to access the transmission line and ancillary facilities in a timely, cost-effective, and safe manner. These measures also would apply to state and private land. At the end of the useful life of the B2H Project, if the facility is no longer required, the transmission line would be removed from service. Before removal, a decommissioning and restoration plan covering planned activities would be prepared for review and approval, and the appropriate level of NEPA analysis would be conducted.
Framework Traffic and Transportation Management Plan	Includes measures that require compliance with federal policies and standards relative to planning, siting, improvement, maintenance, and operation of roads for the B2H Project. These measures also would apply to state and private land.

Table 2-3. Framework Plan Descriptions	
Framework Plan	Description
Framework Stormwater Pollution Prevention Plan	Includes measures for temporary and permanent erosion and sediment control that would be used during construction, operation, and maintenance of the transmission line and ancillary facilities.
Framework Spill Prevention, Containment, and Countermeasures Plan	Includes measures for spill prevention practices, requirements for refueling and equipment operation near waterbodies, procedures for emergency response and incident reporting, and training requirements.
Cultural Resources Protection and Management Measures	Includes the procedures undertaken to inventory, evaluate, and protect cultural resources. It describes the treatment of any eligible or listed resource that cannot be avoided, and procedures for handling inadvertent discoveries during construction, operation, and maintenance. These may include, but not limited to, the Programmatic Agreement, Historic Properties Management Plan, and Inadvertent Discovery Plan.
Visual Resources Protection Plan	Includes measures for minimizing visual impacts and address specific BLM and USFS Visual Resource Management program requirements, and other applicable standards. These measures also would apply to state and private land.
Biological Resources Habitat Protection and Monitoring Plan	Includes specific conservation measures to be implemented in the event state or federally listed species, BLM-sensitive species, or USFS-sensitive species are identified along the B2H Project route during surveys. Measures identified in the plan would be specific to the protection of these species and take priority over measures identified in other plans. (May include a nest Management Plan and Adaptive Management Plan)
Mitigation Framework	Includes compensatory mitigation actions for reasonably foreseeable remaining effects (i.e., residual effects) on important, scarce, or sensitive resources from the B2H Project.

Table Source: Revised POD (Idaho Power Company 2011).

The Applicant would be responsible for ensuring that its contractors and employees implement the design features, mitigation measures, and framework plans. The federal agencies with jurisdictional responsibilities would monitor for implementation of the design features, mitigation measures, and framework plans. For this monitoring, the agencies would use a compliance inspection contractor (CIC) to ensure that the measures prescribed in the EIS and final POD are implemented and are achieving the desired resource protection results on lands of all jurisdictions.

For some resources, such as biological and cultural resources, pedestrian surveys using agency-approved protocols would be required prior to construction. The survey plans would be based on the final design of the B2H Project. The survey results would be reviewed and approved by the agencies and then used by the agencies to refine the mitigation requirements and further inform the final POD.

As mentioned, the POD would be developed by the Applicant in collaboration with the agency interdisciplinary team and cooperating agencies consisting of federal, state, and county agencies having jurisdictional or regulatory responsibilities and/or specialized knowledge for the B2H Project. Although the federal agencies do not have authority over state or private land, the federal agencies have an obligation to disclose in the EIS the consequences on nonfederal lands from their decisions. However, the federal agencies have an obligation to enforce the requirements of the National Historic

Preservation Act and the ESA to protect important historic properties and threatened and endangered species, respectively, regardless of land jurisdiction or ownership.

The provisions of the POD would be applied to federal land, state land, and private land, as required by state law or through private landowner easement negotiations. Documentation of state or landowner decisions regarding the provisions of the POD would be documented and provided to the CIC as a variance. Participation in the development of the POD by state and county cooperating agencies would give them the opportunity to concur with and adopt the terms and conditions of the POD to facilitate state and county licensing or permitting. For the B2H Project, a draft POD that is based on information and data carried forward from the EIS would be required as a condition of signing the ROD. This POD would be incorporated by reference into the ROD, and issued based on the analysis in this EIS. Any refinements in the POD that are consistent with the impacts analysis in the EIS would not require a supplemental EIS.

When resource pedestrian surveys have been completed and the resulting reports have been approved by the agency (or agencies) responsible for overseeing the surveys, refinements to environmental protection measures in the final POD would be incorporated and the agencies would be asked to review the refined, final POD. The approved, final POD is a requirement to receive a notice to proceed for any surface disturbance and would be referenced in any federal right-of-way grant, special-use authorization, license agreement, etc. Thereby, the Applicant agrees to be bound by all terms and conditions, stipulations, and mitigation, including a compensatory mitigation plan, prescribed in such documents. Any change to the POD after issuance of the notice to proceed would require review and approval through the variance process described in the POD or, if the change is not within the analysis for the B2H EIS or other NEPA document, additional NEPA analysis may be required.

2.3.2.2 LAND REQUIREMENTS AND CONSTRUCTION DISTURBANCE

The Applicant proposes to acquire a permanent 250-foot-wide right-of-way for the 500-kV single-circuit sections of the proposed B2H Project, except along the west side of Bombing Range Road where a 90-foot-wide right-of-way is needed, a 125-foot-wide right-of-way for the 230-kV transmission line relocation and a 100-foot-wide right-of-way for the 138/69-kV transmission line relocation and rebuild. The right-of-way widths are based on maintaining sufficient clearance during a high wind event when the conductors could be blown toward the right-of-way edge and on providing sufficient space within the right-of-way to perform transmission line maintenance. For the purposes of assessing impacts, it is assumed that all areas within the right-of-way could be disturbed temporarily during construction.

During construction a temporary easement (for private lands) or short-term right-of-way would be required from landowners and land-management agencies for temporary disturbance. Temporary disturbances, such as material laydown yards, helicopter fly yards, and concrete batch plants, only occur during construction. The land area needed for operations would be smaller than the area needed during construction, because permanent disturbances for the proposed transmission line would be limited to tower pads, communications sites, and access roads. These areas are typical, and the actual land areas needed for construction and operation of the B2H Project would be determined during final

engineering. Design features, best management practices, and selective mitigation measures would be included in the preliminary POD and attached to the ROD and if appropriate, included in any subsequent right-of-way grant or special-use authorizations issued for the B2H Project. The final POD would be completed and approved when final engineering is complete and all environmental pedestrian surveys are complete and approved by regulatory agencies. A notice to proceed would be required prior to any surface-disturbing activity.

2.3.2.3 GEOTECHNICAL INVESTIGATION

Geotechnical investigations would be conducted within the transmission line right-of-way. The purpose of the geotechnical investigation is to collect information regarding subsurface stability, which would be used in the final design of each transmission structure and foundation to ensure the system is designed and constructed to be safe, reliable, and cost efficient.

The geotechnical investigations would consist of boring and sampling soils to a typical depth of 50 to 60 feet below the ground surface; however, some borehole depths may exceed 60 feet depending on local soil conditions. The boreholes would have a diameter of approximately 8 inches and typically would be backfilled with boring cuttings from the borehole and on-site soils. About 70 boreholes would be spaced approximately 3 miles apart. Geotechnical investigations would use existing access roads and overland access routes as identified in the preliminary POD.

Helicopter-transported drill rigs may be used for geotechnical exploration in areas where existing roads do not provide adequate access or where overland travel is prohibited. Geophysical exploration techniques may be employed in areas where drilling is impractical to assist in subsurface characterization. Geophysical exploration techniques use surface vibration and instrumentation to identify subsurface soil and rock layers.

The Applicant has conducted a preliminary geotechnical desktop study. In the final geotechnical investigation program for the transmission line, areas of concern identified in the preliminary geotechnical desktop study would be field-reviewed to determine validity of the data sources used in the study's report. Borings would be planned according to the Applicant's geotechnical investigation standards, with additional boring locations dictated by geotechnical desktop study. Certain boring locations may be eliminated if it is determined that soil conditions would not vary or borings from adjacent transmission lines could be used for design. Geotechnical investigation for the B2H Project is anticipated to consist of site examinations, geotechnical drilling, select geophysical surveys, and laboratory testing.

The Applicant would prepare a more detailed summary of the anticipated boring program, which would be reviewed and approved by the BLM and applicable agencies for sufficiency of biological and cultural surveys and approvals prior to issuance of any short-term right-of-way grant or use authorization. The detailed summary of the anticipated boring program would include the following:

- Land ownership
- Site substantiated access information

- Anticipated drill rig type and drilling method
- Anticipated soil types and subsurface lithology
- Anticipated access requirements

GEOTECHNICAL DRILLING ACTIVITIES

Drilling equipment is commonly mounted on road-legal two-wheel-drive and four-wheel-drive trucks, tracked vehicles, oversized-tire all-terrain vehicles, or platform rigs. The type of drilling rig used is dependent on the access difficulties to the boring location and the sampling methods required. Platform rigs can be transported in pieces to the site via helicopter. Other vehicles and equipment normally mobilized to each boring location include a water truck and/or support vehicle, large air compressor, geologist’s pickup truck or utility vehicle, and possibly another support truck. Table 2-4 is a summary of the geotechnical drilling activities, methods, and equipment that could be used during the geotechnical investigations.

Table 2-4. Summary of Geotechnical Drilling Types, Methods, and Equipment		
Drilling Type	Drilling Method	Support Equipment
Hollow-stem auger	Dry (mechanical)	Drill rig, vehicle for rods and equipment, track-mounted water truck, crew vehicle
Mud rotary	Wet (pumped water)	Drill rig, vehicle for rods and equipment, water truck, crew vehicle ¹
Air rotary	Dry (compressed air; air hammer)	Drill rig, vehicle for rods and equipment, towed air compressor, crew vehicle
Sonic	Dry (sonic vibrations)	Drill rig (larger than others), vehicle for rods and equipment, crew vehicle
Under-reamer (ODEX System)	Dry (compressed air; air hammer)	Vehicle for rods and casing, air compressor, crew vehicle
Cone penetration test	Dry	Truck or track-mounted all terrain rig, support truck for equipment, crew vehicle

Table Note: ¹For the construction of the B2H Project, the Applicant has committed to using water that would be procured from existing municipal sources, from commercial sources, or under a temporary water-use agreement with landowners holding existing water rights.

2.3.2.4 CONSTRUCTION SCHEDULE AND SEASONS

The Applicant would be ready to mobilize once notices to proceed are issued. Final engineering surveys, coordinated with landowners, and detailed design would determine the exact locations of towers, access roads, and other B2H Project features before the start of construction, and would be included in the final POD. The Applicant plans to hire contractors to complete construction work in accordance with agency requirements and industry performance standards. The overall construction period, including construction of access roads, transmission line, substation facilities, and post-construction clean-up, would be approximately 3 years from receipt of a notice to proceed, depending on a number of factors such as weather, seasonal restrictions, and availability of labor and materials.

The B2H Project would be built in two sections or “spreads,” both spreads would be under construction concurrently.

Although the construction rate of progress would be reduced in the winter, the Applicant has planned an aggressive schedule, and it is anticipated that construction would continue through the winter months in the lower-elevation areas, as weather permits. In the higher-elevation areas, winter storms and snow would limit access to the right-of-way; for example, in the Blue Mountains. In these areas, it is expected that construction would be suspended on some portions of the right-of-way during the peak winter months and construction resources would be either demobilized or shifted to other areas of construction. Design features to address wet and winter conditions are and will be addressed further in the POD.

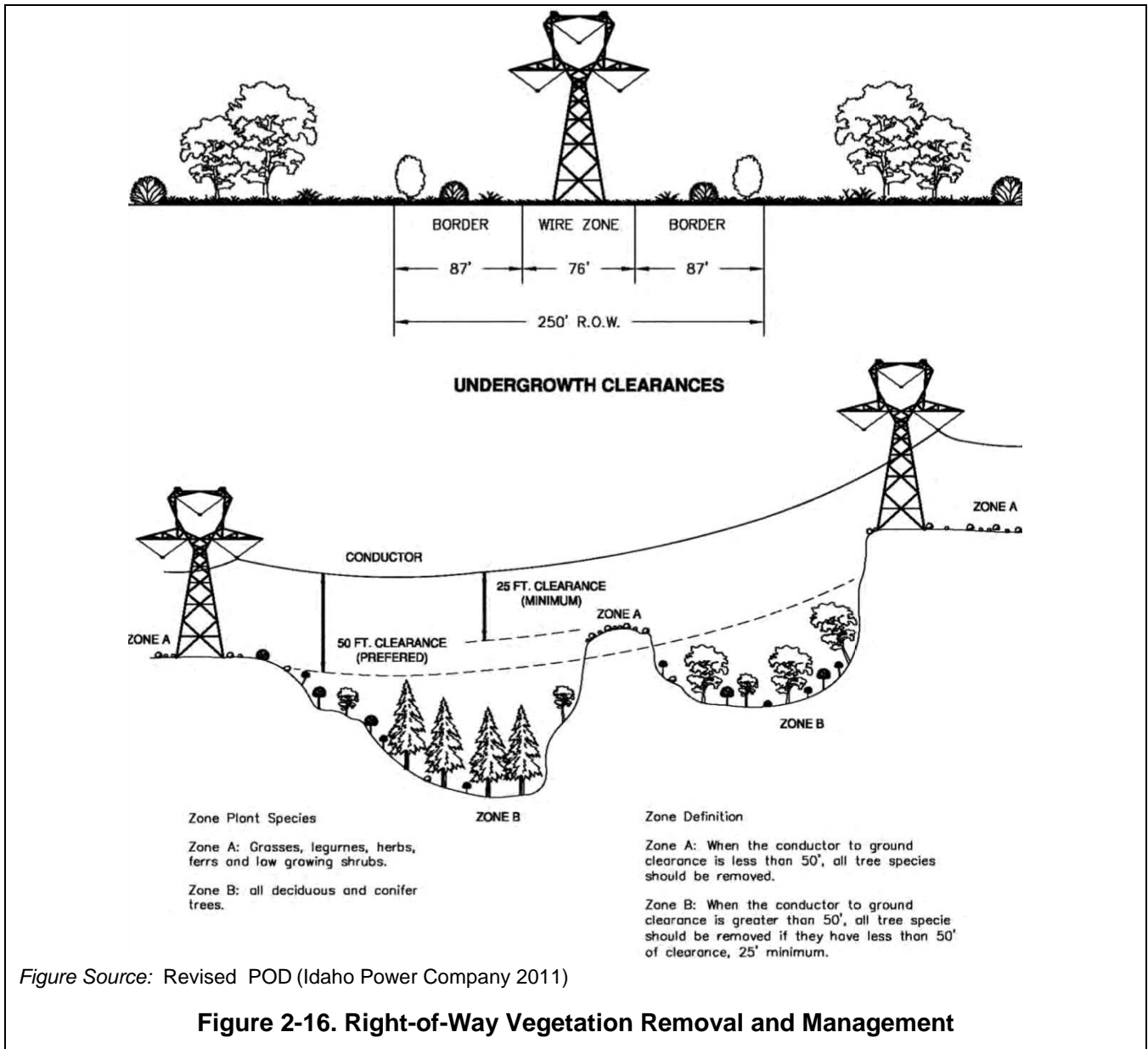
Environmental issues such as seasonal use of wildlife ranges, nesting, soil and water conditions and others also may affect construction scheduling. Seasonal restrictions on construction activity would be implemented, unless specific exemptions are granted in an Adaptive Management Plan, in accordance with agency policy and management plans, to avoid and minimize effects on wildlife. Potential seasonal restrictions and buffers vary by species and are described in Appendix B of this EIS and the wildlife, fish, and vegetation subsections of Chapter 3. As required, biological surveys for sensitive species would be conducted and survey results and mitigation recommendations would be approved before construction activities commence. Data gathered through these surveys would be used to determine the site-specific buffers and seasonal restrictions to implement. Approval to proceed would be granted through a notice to proceed.

2.3.2.5 RIGHT-OF-WAY AND SITE PREPARATION

Within the right-of-way, vegetation would be removed to the extent needed to ensure adequate ground clearances. Individual trees and snags (hazard trees) that pose power-outage or fire risks to conductors or structures also would be removed. Felled trees and snags would be left in place as sources of large woody debris in and/or near waterways, as habitat or to meet other resource needs. Felled green trees would be limbed to reduce fire hazards (Figure 2-16). All timber cleared from the right-of-way on National Forest System land would be cut and cleared in accordance with standards and guidelines in the Wallowa-Whitman LRMP.

Installation of transmission line structures would require preparation of each site where a tower structure would be installed, including vegetation removal and grading to the extent needed to obtain a relatively flat surface for the operation of large cranes, which are generally used to install structures. The use of helicopters for assisted aerial construction may be required depending on overland access to the construction locations, construction schedule, and/or construction economics (Idaho Power Company 2011).

Individual structure sites would be cleared to install the transmission line support structures and facilitate access for future transmission line and structure maintenance. Clearing individual structure sites would be done using a bulldozer to blade the required area. At each 500-kV lattice-structure location, an area approximately 250 feet by 250 feet would be needed for construction laydown, structure assembly, and erection. This area would provide a safe working space for placing equipment, vehicles, and materials. The work area would be cleared of vegetation only to the extent necessary.



At each 230-kV H-frame structure location, an area approximately 100 feet by 150 feet (i.e., two-pole H-frame) would be needed for construction and laydown, structure assembly, and erection.

At each 138/69-kV structure location, an area approximately 100 feet by 100 feet would be needed for construction and lay down, structure assembly, and erection.

If an alternative route involving the option on the west side of Bombing Range Road is selected for construction, removal of the BPA 69-kV transmission line structures would be completed using two methods. The majority of the structures would be removed by taking down the overhead conductor and removing each of the wooden poles at 3 inches below ground surface. The poles would be lifted by crane onto trucks and removed from the site using existing access roads to the maximum extent possible. Removal of three of the H-frame structures that are located in Washington ground squirrel

habitat would be removed by cutting the poles into sections, transporting the pole sections by foot to the nearest existing road, and driving the pole section off site. The construction contractor would climb the poles and remove sections starting at the top. The poles would be removed down to slightly below ground level to eliminate potential raptor-perching structures while avoiding ground disturbance. The below-grade portions of the poles would be left in place. Alternately, the wooden-pole structures could be removed by using a helicopter in conjunction with hand crews working on the ground.

After construction, areas not needed for normal transmission line maintenance, including fire and personnel safety clearance areas, would be graded to blend as nearly as practicable with the natural contours, and then revegetated as required.

Additional equipment may be required if solid rock is encountered at a structure location. Rock-hauling, hammering, or blasting may be required to remove the rock. Excess rock that is too large in size or volume to be spread at the individual structure sites will be hauled away and disposed of at approved landfills or at a location specified by the landowner. Table 2-2 provides the dimensions of each of the foundation holes required for each structure.

2.3.2.6 TRANSMISSION LINE CONSTRUCTION

Various construction activities would occur during the construction process, with several construction crews operating simultaneously at different locations. Figure 2-17 illustrates typical transmission line construction activities.

Foundations would be installed—one foundation for each of the four legs of the lattice tower structures, two or three foundations for the tubular H-frame structures, and one foundation for single-pole structures. Medium- and large-angle H-frames and dead-ends would require three-pole structures. Table 2-2 details foundation dimensions and the amount of concrete needed for each structure type.

If shallow bedrock is encountered, blasting could be required. The construction contractor would be required to prepare a blasting plan as part of the POD (refer to Table 2-3), which details blasting procedures, locations, the amount and type of explosives, safety procedures, and notification protocols. After foundations are installed, and the concrete has had time to cure, the structures would be brought in by either truck or helicopter.

The transmission line structures would be assembled on site or in temporary staging areas (laydown yards) and then would be brought to the site to be erected. If ground transportation is used, cranes would be used to lift and install the structures.

If helicopters are used, the tower structures would be assembled at fly yards. After assembly at the fly yard, the tower sections would be airlifted to the structure location where the sections would be bolted together permanently. The fly yards would be approximately 10 to 15 acres and sited at locations within 4 to 8 minutes of fly time to structure locations.

After assembly and placement of the structures, the conductors and the overhead ground wires would be strung from tower to tower. Figure 2-18 illustrates typical conductor installation. Helicopters are used

to assist in the wire installation process but may not be necessary if access roads are available along the right-of-way from tower to tower allowing specialized wire-stringing vehicles in the area. The first step to wire stringing would be to install insulators and stringing sheaves. Once in place, the initial stringing operation begins with the pulling of a lightweight “sock” line through the sheaves. A specialized stringing vehicle is used to pull the lines.

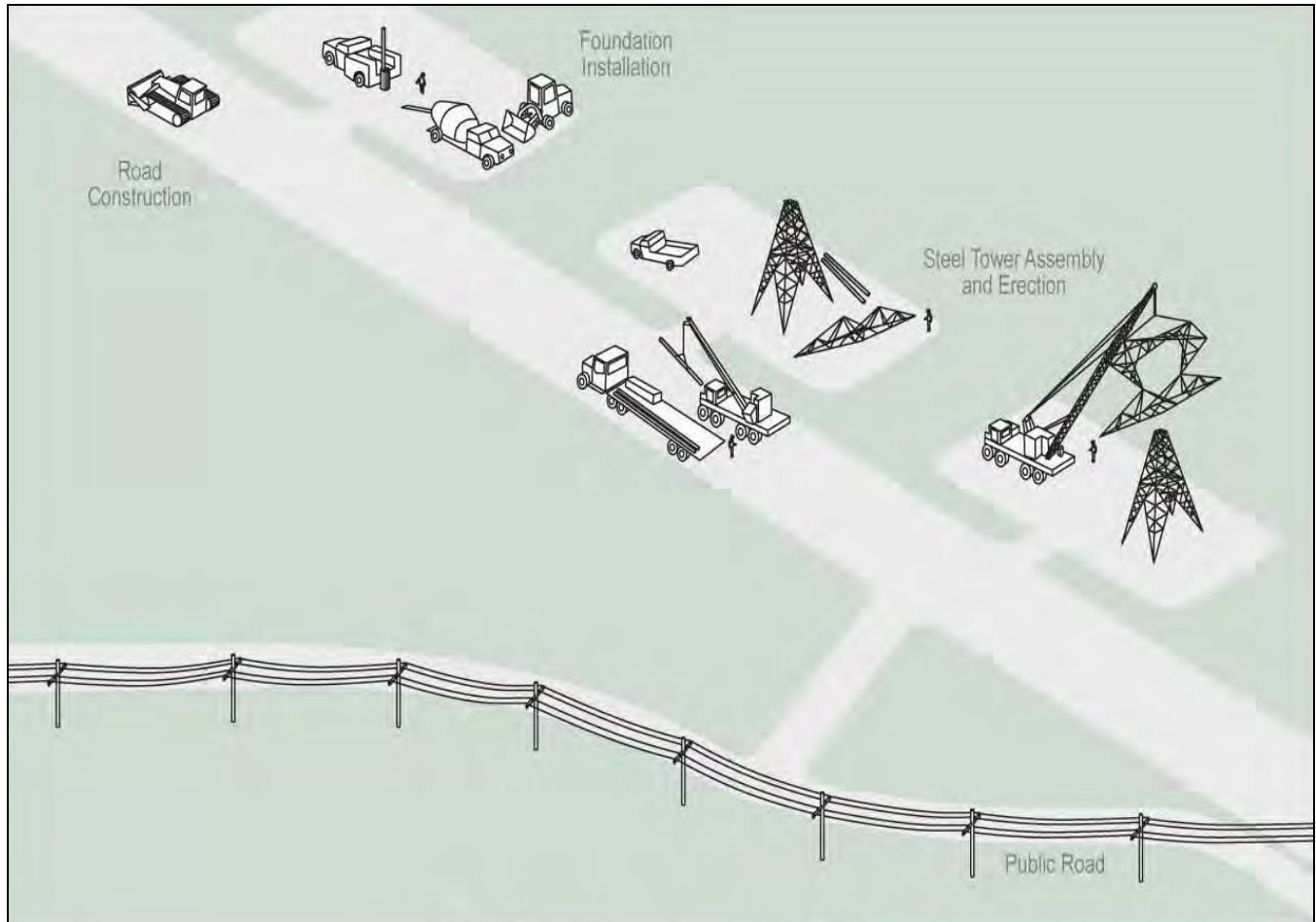


Figure Source: Revised POD (Idaho Power Company 2011)

Figure 2-17. Typical Transmission Line Construction Activities

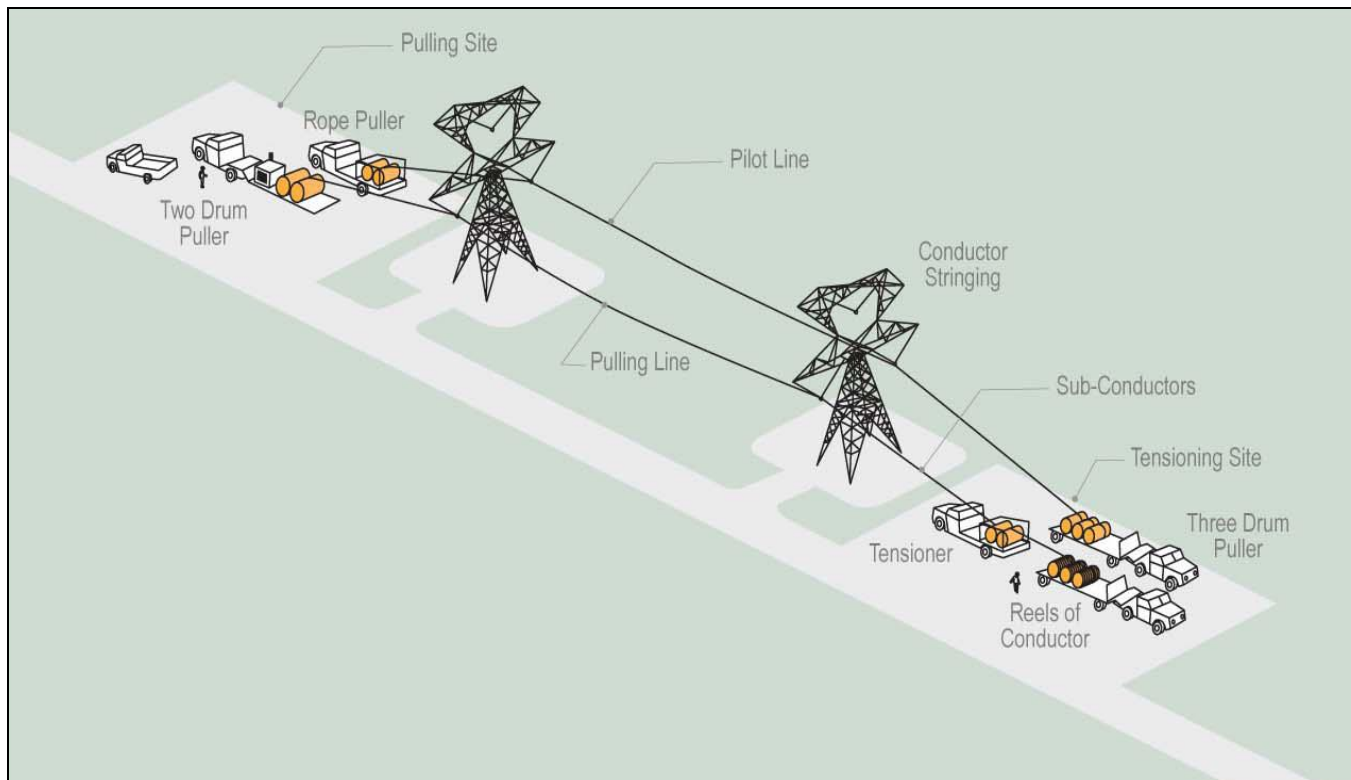


Figure Source: Revised POD (Idaho Power Company 2011)

Figure 2-18. Typical Conductor Installation

Compression or implosive devices are both used to make connections between conductors. Implosive devices are the current industry-preferred method in contrast to previously used conventional hydraulic compression fittings. Implosive fittings use explosives to compress the metal together. Implosive fittings do not require heavy equipment, but do create noise similar to a gunshot when the primer is struck. Compression fittings, dead-ends or splices, are crimped on over the conductor. Normal compression fittings need an engine, typically truck-mounted diesel, to run the hydraulic system. Implosive fittings may be set off either one at a time or in groups. Use of implosive devices would vary depending on what segment of the transmission line is under construction and the number of conductors per bundle. The duration of sound emitted from detonation of an implosive device is short, ranging from approximately 210 to 360 milliseconds. Since the potential exists for noise “startle” effects, the use of implosive devices would be limited to daytime periods. As stated previously, a B2H Project-specific blasting plan, for blasting and implosive splicing, which meets all state and federal requirements, including seasonal restrictions and buffer distances, would be developed and approved by the appropriate agency or agencies (e.g., the BLM, USFS, USFWS, NOAA Fisheries) prior to the start of field activities for inclusion in the POD, and would be executed appropriately for the B2H Project. No in-water blasting would occur as part of the B2H Project.

Following the initial pulling of the wire through the sheaves, the wire is then tensioned to the correct sag between support structures. Temporary pulling-and-tensioning sites for the 500-kV line construction would be spaced approximately 1.5 to 2 miles apart along the right-of-way and each would require

approximately 5 acres for equipment and work space. Pulling-and-tensioning sites for the 230-kV and 138/69-kV lines would be spaced approximately every 1 to 2 miles along the right-of-way and would require approximately 1.2 acres for equipment and work space.

2.3.2.7 ACCESS ROADS

Access and service roads are essential for construction, operation, and maintenance of the transmission line. Large foundation-auger equipment, heavily loaded trucks, cranes, and specialized line-construction equipment would be required for construction, maintenance, and emergency restoration activities. Existing roads, existing roads that require improvements, and new roads would be needed for the B2H Project. To the extent possible, existing roads would be used in their present condition without improvements. In areas where improvements would be required or deemed to be in the best interest of the B2H Project for future operation and maintenance use, the roads would be graded and/or graveled to provide a smooth all-weather travel surface. The Applicant would coordinate with the land-managing agency or owner regarding road improvements needed.

CONSTRUCTION ACCESS ROADS

During construction, vehicular access would be required to each structure. New access roads would be constructed and existing roads widened as needed to provide a minimum of a 14-foot-wide travel way. Roads not required during operation would be restored to as close to their original condition as practicable or left as is, depending on landowner/land-management-agency requirements.

Access on the right-of-way, other than in specific areas, would require a travel surface with a minimum width of 14 feet. In some cases, new roads that must be graded for access along steep slopes (side-hill roads) could exceed this width depending on the amount of displaced soil. These roads typically go directly from structure to structure, except on hillsides, ridgebacks, rock-outcrop areas, wash crossings, treed areas, or in areas where sensitive environmental resources would need to be avoided. In such cases, the road would follow suitable topography from structure to structure, would be constructed in areas that generally cause the least amount of overall disturbance, and may be outside the transmission line right-of-way.

The largest of the heavy equipment needed dictates the minimum road dimensions needed. To accommodate this equipment, road specifications require a 14-foot-wide travel surface and a 16- to 35-foot-wide road width in turns. The road disturbance area and travel way in areas of rolling to hilly terrain would require wider disturbance to account for cuts and fills, turning radii, and/or where vehicles are required to pass one another while traveling in opposite directions.

Specific plans for the construction, rehabilitation, and/or maintenance of roads, including the locations of access roads would be documented in the final POD described in Section 2.3.2.1. The locations and design of B2H Project access roads (and other facilities) would be completed when a route has been selected for construction and final design and engineering completed. For purposes of analyzing effects from access roads for the EIS, ground disturbance associated with upgrading existing roads or

constructing new roads was estimated through development of a predictive model that considers different types or levels of access required. This model is described in more detail in Section 2.5.1.1 under the subheading Impact Assessment and Mitigation Planning.

OPERATIONAL ACCESS ROADS

Permanent transmission line service roads developed for the B2H Project are needed for maintenance of transmission lines structures or ancillary facilities. These roads built for the B2H Project generally would be closed to the public and maintained by the Applicant for administrative use only and/or in accordance with the land-managing agency's policy and or management prescription. Gates would be maintained by the Applicant in an operable manner and secured with dual locks, where applicable, to allow the land-managing agency or owner access for emergencies. All gates installed on National Forest System lands would have reflective markings in accordance with USFS Engineering Manual EM 7100-15.

During routine operations, vehicular access would be needed to reach each structure for periodic inspections and maintenance and to areas of forest or tall shrubs to control vegetation in the right-of-way for safe operation. The Applicant plans to employ live-line maintenance techniques, which requires use of high-reach bucket trucks and other trucks and equipment. For nonroutine maintenance requiring access by larger vehicles, the full width of the access road (14 feet) may be used. Roads would be repaired, as needed, but would not be graded routinely. Best management practices would be applied to be consistent with local conditions, values, and designated uses of water. To preserve the ability to enter rapidly, the road structure (cuts and fill) would be left in place. In an emergency (e.g., in the event of a structure or conductor failure) full emergency access, including cranes and other heavy equipment, would be needed. Based on historical reliability of the lattice and H-frame structures, it is anticipated that only a small fraction of the structure sites would require emergency access during the life of the B2H Project.

2.3.2.8 COMMUNICATIONS SYSTEM

Fiber-optic cable for the communications system would be installed concurrently with stringing the conductors. Construction of communications sites would begin with grading the selected area, removing vegetation, and installing a layer of crushed rock. A prefabricated concrete communications shelter approximately 12 feet by 32 feet by 9 feet tall would be constructed on the site. A standby generator with a liquid petroleum gas fuel tank would be installed at the site inside the fenced area. Two cable routes (aerial and/or buried) from the transmission line structure to the equipment shelter would be installed (Idaho Power Company 2011). Typical layout of a communication site is illustrated in Figure 2-13.

Access roads to communications stations would be constructed using a bulldozer or grader, followed by a roller to compact and smooth the ground. Front-end loaders would be used to move the soil locally or off site. Typically, gravel would be applied to the prepared base layer (Idaho Power Company 2011).

2.3.2.9 CONSTRUCTION WORKFORCE AND EQUIPMENT

The B2H Project would be constructed primarily by contract personnel; the Applicant would be responsible for administration and inspection. The construction workforce would consist of laborers, craftspeople, supervisory personnel, support personnel, and construction management personnel who would perform the construction tasks. The B2H Project is proposed to be constructed in two geographic segments, within which a complete construction sequence would be conducted. The boundaries of the construction segments have not been finalized, but the northern construction segment would likely include Morrow, Umatilla, and Union counties and the northern portion of Baker County, and the southern construction segment would likely include the southern portion of Baker County, Malheur County, and Owyhee County. Both construction segments are planned to occur simultaneously and are anticipated to take approximately 3 years to complete. The projected number of construction workers and anticipated changes to the population of the B2H Project area are summarized by construction segments in Table 2-5.

Workers	Construction Segment 1	Construction Segment 2
Permanent workers likely to commute to job site daily	61	63
Temporary workers likely to move to B2H Project area alone	164	169
Temporary workers likely to move to B2H Project area with family	18	19
Total	243	251

Table Source: Revised POD (Idaho Power Company 2011).

2.3.3 OPERATION AND MAINTENANCE

2.3.3.1 LAND REQUIREMENTS FOR OPERATIONS

During operations, land requirements would be restricted to the right-of-way, substations, communications facilities, and roads authorized by the right-of-way grant and special-use authorization. Approval for access across federal lands to the right-of-way would be contained in the right-of-way grant and special-use authorization. Access to the easement across nonfederal land would be in accordance with the land rights obtained by the Applicant as part of the easement acquisition process. As the engineering details of the B2H Project design are developed, the locations and areas of land needed for B2H Project operations may be revised, and would be specified in the final POD. Table 2-1 provides the approximate land areas that would be needed for construction and operations of the B2H Project throughout the life of the B2H Project.

2.3.3.2 ROUTINE SYSTEM INSPECTION, MAINTENANCE, AND REPAIR

The Applicant proposes specific operations and maintenance policies and procedures that are designed to meet the requirements of NERC, Western Electricity Coordinating Council, the state public utility commissions of Oregon and Idaho, and to comply with applicable codes and standards for maintaining the reliability of the electrical system. Operation and maintenance activities would include transmission line patrols, climbing inspections, structure and wire maintenance, insulator washing as needed,

vegetation management, and access roads repair. Periodic inspection and maintenance is a key part of operating and maintaining the electrical system.

After the transmission line has been energized, land uses that are compatible with safety regulations would be permitted in and adjacent to the right-of-way. Existing land uses such as agriculture and grazing generally would be permitted within the right-of-way. Incompatible land uses within the right-of-way include construction of inhabited dwellings and any use requiring changes in surface elevation that could affect electrical clearances of existing or planned facilities.

TRANSMISSION LINE MAINTENANCE

Planned maintenance activities include routine patrols, inspections, scheduled maintenance, and scheduled emergency maintenance. Regular ground and aerial inspections would be performed in accordance with the Applicant's established policies and procedures for transmission line inspection and maintenance. Transmission lines and substations would be inspected for corrosion, equipment misalignment, loose fittings, vandalism, and other mechanical problems. Inspection of the entire transmission line system would be conducted semi-annually with detailed ground inspections using trucks or all-terrain vehicles taking place on an annual basis using service roads to each structure. Examples of routine maintenance include the following:

- Inspections from a helicopter
- Inspections from ground patrols
- Climbing structures to inspect hardware or make repairs
- Structure or conductor maintenance from a bucket truck
- Cathodic protection surveys
- Vegetation clearing to trim or remove shrubs and trees over 12 feet
- Removal of individual trees (hazard trees) that pose a risk to conductors or structures
- Routine road maintenance such as grading to improve surface condition and drainage, or removing rocks and debris
- Installation of bird protection devices, bird perch discouragers, and relocation or removal of bird nests as permitted.

Unplanned maintenance activities include emergency maintenance in cases where public safety and property are threatened. Unplanned maintenance activities and emergency maintenance and repair that could arise from the following:

- Lightning strike or wildfire
- Damage to structures from high winds, ice, or other weather-related conditions
- Line or system outages
- Breaking or eminent failure of crossarms or insulators
- Vandalism to structures or conductors

Routine maintenance activities are ordinary maintenance tasks that historically have been performed and are carried out on a routine basis. The work performed is typically repair or replacement of individual transmission line components and does not result in new ground disturbance. These maintenance activities typically are performed by relatively small crews using a minimum of equipment and usually are conducted within a period from a few hours up to a few days. Work requires access to the damaged portion of the line. Equipment required for this work may include four-wheel-drive trucks, flatbed trucks, bucket trucks (low reach), boom trucks (high reach), or manlifts. This work is scheduled and is typically in response to issues found during inspections. Typical items that may require periodic replacement on transmission line structures include insulators, hardware, or other structure members. It is expected that these replacements would be required infrequently.

ACCESS ROAD AND WORK AREA REPAIR

Repairs in the right-of-way may include grading or repair of existing maintenance access roads and work areas, and spot repair of sites subject to flooding or scouring. Required equipment may include a grader, backhoe, four-wheel-drive pickup truck, and a cat-loader or bulldozer. The cat-loader has steel tracks, whereas the grader, backhoe, and truck typically have rubber tires. Repairs in the right-of-way would be scheduled as a result of line inspections in response to an emergency situation.

VEGETATION MANAGEMENT

The need for vegetation management also would be determined during inspection patrols.

Work areas adjacent to electrical transmission structures and along the right-of-way would be maintained for vehicle and equipment access. Shrubs and other obstructions would be removed near structures to facilitate inspection and maintenance of equipment and to ensure system reliability. At a minimum, trees and brush would be cleared within a 25-foot radius of the base or foundation of all electrical transmission structures and to accommodate equipment pads to conduct live-line maintenance operations.

Vegetation management practices along the right-of-way would be in accordance with the Applicant's clearing specifications and vegetation management plans, which would be consistent with the NERC's Vegetation Management Standards (FAC-003-2, 2009). The area that would be rights-of-way for the B2H Project are dominated by agricultural and shrub-steppe vegetation communities except for the approximately 5.9 miles in the designated utility corridor across the Wallowa-Whitman National Forest. Interference with conductors is not anticipated. However, if vegetation management is required, the Applicant generally would schedule it according to maintenance cycles (e.g., 5- or 10-year cycles).

A wire-border zone method is used to control vegetation. This method results in two zones of clearing and revegetation. The wire zone is the linear area along the right-of-way under the wires and extending 10 feet outside of the outermost phase conductor. After initial clearing, vegetation in the wire zone would be maintained to consist of native grasses, legumes, herbs, ferns, and other low-growing shrubs that remain under 5 feet tall at maturity. The border zone is the linear area along each side of the right-of-way extending from the wire zone to the edge of the right-of-way. Vegetation in the border zone

would be maintained to consist of tall shrubs or short trees (up to 25 feet high at maturity), grasses, and forbs. These cover plants benefit the right-of-way by competing with and excluding undesirable plants. The width of the wire and border zones for the various transmission lines are depicted in Figure 2-16. During maintenance inspections, vegetation growth would be monitored and managed to maintain the wire-border zone objectives. The Applicant's approach is to remove all tree species within the right-of-way where the conductor ground clearance is less than 50 feet, leaving grasses, legumes, herbs, ferns, and low-growing shrubs within the right-of-way. When conductor ground clearance is greater than 50 feet; for example, a canyon or ravine crossing with high ground clearance at mid-span, trees and shrubs would be left in place as long as the conductor clearance to the vegetation tops is 50 feet or more (Figure 2-16).

Vegetation would be removed using mechanical equipment such as chain saws, weed trimmers, rakes, shovels, mowers, and brush hooks. Clearing efforts in heavy growth areas would use equipment such as a Hydro-Ax or similar. The duration of activities, the size of crew and required equipment depends on the amount and size of the vegetation to be trimmed or removed.

In selected areas, herbicides may be used to control noxious weeds. Herbicide applications would be performed in accordance with federal, state, and local regulations, and in compliance with managing land agency requirements.

NOXIOUS WEED CONTROL

The states of Idaho and Oregon list activities that are capable of disseminating noxious weeds and the requirements to control the spread of listed noxious weeds. Equipment and supplies necessary for transmission line construction and operation and maintenance activities, and the activities themselves, are possible agents for the spread of noxious weeds. Under the requirements of a right-of-way grant or special-use authorization, and privately negotiated easements, the Applicant would be responsible for control of noxious weed species that result or would result from construction, operation, and maintenance of the improvements authorized under the grant. Therefore, a noxious-weed-control strategy to reduce the opportunity for weeds to invade new areas and to minimize the spread of weeds within a predetermined area associated with the B2H Project is addressed in Appendix B2 of the POD, Framework Reclamation Plan, which complies with Oregon, Idaho, BLM, and USFS noxious weed requirements. However, cleaning stations may be needed closer to the potentially affected area. Noxious weed control is discussed in Section 3.2.3.

The responsible party would clean all equipment that may operate off-road or disturb the ground before beginning construction or operation and maintenance activities within a predetermined area associated with the B2H Project. This process would clean tracks and other parts of the equipment that could trap soil and debris and would reduce the potential for introduction or spread of undesirable exotic vegetation. Preferably, the cleaning would occur at an Idaho Power operation center, commercial car wash, or similar facility. Vehicles traveling only on established paved roads would not require cleaning.

COMMUNICATION SITE MAINTENANCE

Maintenance activities for communication sites include equipment testing, equipment monitoring and repair, and emergency and routine procedures for service continuity and preventive maintenance. Communication sites would be visited every 2 to 3 months by one individual in a light-duty truck to inspect the facilities. Annual maintenance would be performed by a two-man crew in a light-duty truck over a 2- to 5-day period.

FUEL AND CHEMICAL STORAGE FACILITIES

During construction, gasoline, diesel fuel, crankcase oil, lubricants, and cleaning solvents would be present along the transmission line corridor, typically at multi-use areas, and at the Longhorn Substation construction site. These products would be used to fuel, lubricate, and clean vehicles and equipment and would be transported in containerized trucks or in other federal and state approved containers. Enclosed containment would be provided for petroleum products and wastes and petroleum-related construction waste would be removed to a disposal facility authorized to accept such materials. Fuel and chemicals would be stored properly to prevent drainage or accidents. Where required, preventive measures such as the use of vehicle drip pans for overnight parking areas may be implemented. Routine visual inspection for presence of petroleum leaks would be required for vehicles. Diesel fuel tanks would be located at the multi-use areas for vehicle and equipment fueling. Each fuel tank would be located within secondary containment and each station would be equipped with a spill kit. When on-right-of-way refueling is necessary, it would be done away from waterways. Accidental releases of hazardous materials would be prevented or minimized through proper containment of these substances during use and transportation to the site. A SPCC Plan will be prepared as part of the POD (refer to Table 2-3). All hazardous and dangerous materials would be stored and secured in accordance with the appropriate regulations.

During operations, no fuels or potentially hazardous materials such as general lubricants, general cleaners, ethylene glycol (antifreeze), vehicle fuel, or herbicides for weed control would be stored on the right-of-way. When used, they would be stored and disposed of in accordance with applicable local, state, federal environmental laws and regulations, and product labels where applicable. At the communication stations, liquid petroleum would be stored in approved tanks. Reactors at the termination station would be filled with an insulating mineral oil. Secondary containment structures would be installed to prevent oil from this equipment from reaching ground or water bodies in the event of a rupture or leak. IPC would use a standard type of oil containment consisting of a pit of a calculated capacity under the oil-filled equipment that has an oil-impervious liner. The pit is filled with rock to grade level. In case of an oil leak or rupture, the oil captured in the containment pit is removed and transported to an approved disposal facility.

EQUIPMENT AND SYSTEMS FOR FIRE

During construction, the risk of fire danger is related to smoking, refueling activities, operating vehicles and other equipment off improved roadways, welding activities, and the use of explosive materials and flammable liquids. Spark arrestors would be used on vehicles and equipment as appropriate. During

operation, the risk of fire is primarily from vehicles and maintenance activities that require welding. A Fire Prevention and Suppression Plan will be included in the final POD (refer to Table 2-3) and personnel would receive instructions/training regarding participation in fire suppression operations with local and federal firefighting operations.

All federal, state, and county laws, ordinances, rules, and regulations pertaining to fire prevention and suppression would be strictly adhered to. All personnel would be advised of their responsibilities under the applicable fire laws and regulations.

The prevention and suppression of wildfires in eastern Oregon is carried out by BLM, USFS, and local fire districts and agencies and by BLM, state of Idaho, and local fire districts in Idaho (Table 2-6).

Table 2-6. Fire Suppression Responsibilities in Oregon	
Who	Where
Oregon	
City fire departments and rural fire protection districts in mutual aid with Oregon Department of Forestry	Structures in Oregon's wildland interface areas covered by mutual-aid agreements. Rangeland fire protection associations on rangeland areas of eastern Oregon outside of both a forest protection district and a rural fire district.
Bureau of Land Management and Bureau of Reclamation	National System of Public Lands and Bureau of Reclamation managed lands
U.S. Forest Service	National Forest and National Grasslands
Idaho	
City fire departments and Rangeland Fire Protection Associations protection districts in mutual aid with Idaho Department of Lands	Structures in Idaho wildland interface areas covered local fire protection. Rangelands on private lands are protected by Rangeland Fire Protection Association, specifically the Owyhee Rangeland Fire Protection Association.
Bureau of Land Management	National System of Public Lands and Bureau of Reclamation-managed lands
Idaho Department of Lands	State lands
<p><i>Table Source:</i> ODEQ 2003; Idaho Power Company 2016</p> <p><i>Table Note:</i> In Oregon, the agencies' activities are closely coordinated, primarily through the Pacific Northwest Wildfire Coordinating Group. Coordination of firefighting resources also occurs under Oregon's <i>Emergency Conflagration Act</i> that allows the state fire marshal to mobilize and dispatch structural firefighting personnel and equipment when a significant number of structures are threatened by fire and local structural fire-suppression capability is exhausted (OSFM 2007).</p>	

If the Applicant becomes aware of an emergency situation that is caused by a fire on or threatening BLM-managed or National Forest lands and that could damage the transmission lines or their operation, they would notify the appropriate agency contact. Specific construction-related activities and safety measures would be implemented during construction of the transmission line to prevent fires and to ensure quick response and suppression if a fire occurs. Typical practices to prevent fires during construction and maintenance/repair activities include brush clearing prior to work, posting a fire watch, and stationing a water truck at the job site to keep the ground and vegetation moist in extreme fire conditions, enforcing red flag warnings, providing "fire behavior" training to all construction personnel, keeping vehicles on or within designated roads or work areas, and providing fire suppression equipment and emergency notification numbers at each construction site.

The Applicant would require its contractor to maintain a list, to be provided to local fire-protection agencies, of all equipment that is either specifically designed for, or capable of, being adapted to fighting fires. The Applicant would require its contractor to provide basic fire-fighting equipment on-site during construction, including fire extinguishers, shovels, axes, and other tools in sufficient numbers so each employee on-site can assist in the event of a fire-fighting operation.

During transmission line operation, the risk of fire danger is minimal. The primary causes of fire on the right-of-way result from unauthorized entry by individuals for recreational purposes and from fires started outside the right-of-way. In the latter case, authorities can use the right-of-way as a potential point of attack for fighting a fire. During transmission line operation, access to the right-of-way would be restricted in accordance with jurisdictional agency or landowner requirements to minimize recreational use of the right-of-way.

During maintenance operations, the Applicant or its contractor would equip personnel with basic fire-fighting equipment, including fire extinguishers, shovels, and polaskis as described above. Maintenance crews also would carry emergency response/fire control phone numbers.

2.3.4 ENVIRONMENTAL DESIGN FEATURES OF THE PROJECT

Early in the project, land-use plans and other documents relevant to the B2H Project were reviewed to identify best management practices and other measures that mitigate potential impacts and were compiled from the multiple sources into a comprehensive list. Sources include BLM resource management plans, the USFS land and resource management plan, agency policy manuals, the interagency operating procedures from the West-wide Energy Corridor EIS (DOE and BLM 2008), and RODs (BLM 2009; USFS 2009), and environmental protection measures proposed by the Applicant. Among the information, there was much redundancy and the list was condensed to be more concise (Draft EIS Appendix C). Comments on the Draft EIS included a criticism that reviewers had difficulty discerning where impacts would occur, how and where impacts would be mitigated, and the relative effectiveness of the measures. In response to those comments, the BLM further refined the measures into two types. One type comprises measures the Applicant would implement as standard practice of construction, operation, and/or maintenance, as applicable. Referred to as design features of the project for environmental protection, these environmental design features are part of the Applicant's project description. Table 2-7 is a list of the environmental design features; and for each feature, the table indicates the phase of the B2H Project the design feature would apply to and the intended effectiveness of the design feature. These environmental design features are applied to all lands, regardless of jurisdiction or ownership, where appropriate. The other type comprises measures that the Applicant has committed to apply to certain areas through the planning process to avoid, reduce, or minimize impacts of the B2H Project. The selective mitigation measures are described in Section 2.5.1.1.

Table 2-7. Design Features of the Project for Environmental Protection

Design Feature	Application Phase ¹			Effectiveness
	Design and Engineering	Construction	Operation and Maintenance	
<p>1. Plan of Development</p> <p>A Plan of Development (POD) would be prepared for implementation and maintenance of the B2H Project to provide direction to the Applicant’s construction personnel, construction contractors and crews, compliance inspection contractor (CIC), environmental monitors, and agency personnel regarding specification of construction; and provide direction to the agencies and Applicant’s personnel for operation and maintenance of the B2H Project. The POD would contain implementation plans and detailed mapping to facilitate execution of environmental protection, mitigation measures, and conservation measures. Implementation plans (also refer to EIS Table 2-3) would include the following:</p> <ul style="list-style-type: none"> • Flagging, Fencing, and Signage Plan • Traffic and Transportation Management Plan • Environmental and Safety Training Plan • Environmental Compliance Management Plan • Biological Resources Conservation Plan • Biological Survey Work Plan • Noxious Weed Management Plan • Water Resources Protection Plan • Historic Properties Management Plan • Paleontological Resources Treatment Plan • Erosion, Dust Control, and Air Quality Plan • Reclamation, Revegetation, and Monitoring Framework Plan • Stormwater Pollution Prevention Plan • Spill Pollution Prevention Containment and Countermeasure Plan • Hazardous Materials Management Plan • Emergency Preparedness and Response Plan • Fire Prevention and Suppression Plan • Blasting Plan 	✓	✓	✓	<p>The implementation plans, prepared based on requirements from land-management and/or regulatory agencies, would outline the direction for adhering to the requirements during construction, operation, and maintenance of the B2H Project. The plans would contribute to avoiding, minimizing, rectifying, reducing, eliminating, or compensating for effects of the B2H Project on the environment. The plans would be incorporated into the POD, which would be approved by the agencies prior to commencing construction. Execution of the POD would be a condition of the Record(s) of Decision (ROD) and stipulation for the right-of-way grant and other authorizations.</p>

Table 2-7. Design Features of the Project for Environmental Protection

Design Feature	Application Phase ¹			Effectiveness
	Design and Engineering	Construction	Operation and Maintenance	
<p>2. Environmental Training for All Personnel Prior to construction, the compliance inspection contractor (CIC) would instruct all personnel on the protection of cultural, paleontological, ecological, and other natural resources such as (a) federal and state laws regarding antiquities, paleontological resources, and plants and wildlife, including collection and removal; (b) the importance of these resources; (c) the purpose and necessity of protecting them; and (d) reporting and procedures for stop work.</p>		✓	✓	This procedure is mandatory to educate all construction and maintenance personnel on the requirements for environmental protection during construction and for maintenance activities set forth in the POD, with the intent of avoiding, minimizing, reducing, or eliminating effects on the environment.
<p>3. Landowner Notification(s) Prior to B2H Project-related activities on private lands, landowners would be contacted for rights-of-entry and to inform them of impending visits to and/or work on their respective properties. A toll-free telephone number would be maintained for landowners to contact the Applicant or the Applicant’s designee with questions, concerns, and/or to report any B2H Project-related issues during construction of the B2H Project.</p>	✓	✓		This procedure is intended to keep the private landowners informed of B2H Project-related actions and activities on their lands and would allow for concerns of landowners during construction to be addressed.
<p>4. Preconstruction Surveys for Sensitive Species Preconstruction surveys for special status species, threatened and endangered species, or other species of particular concern would be considered in accordance with the B2H Project Biological Survey Work Plan, which was approved previously by the Applicant and the appropriate land-management or wildlife-management agencies (e.g., Bureau of Land Management [BLM], U.S. Fish and Wildlife Service [USFWS], state wildlife agencies, etc.). In cases for which such species are identified, appropriate action would be taken to avoid jeopardizing the species and its habitat. Amendments to the work plan would be made based on the best available science. Surveys for fish species are not anticipated; Endangered Species Act (ESA)-listed fish species would be presumed present in all watersheds that agency data indicate presence.</p>	✓	✓		While the surveys or the results of the surveys are not measures that avoid, reduce, minimize, or eliminate over time effects on the special status species, the results of the surveys would be used to generate professional recommendations for mitigation and/or conservation measures to protect the species. The resulting mitigation and/or conservation measures would be incorporated into the POD.
<p>5. Spatial Extent of Construction Activities The spatial limits of construction activities, including vehicle movement, would be predetermined with activity restricted to and confined within those limits. No paint or</p>		✓		Restricting all construction activities and vehicle movement to the areas granted for right-of-way, easement, special-use authorization would avoid

Table 2-7. Design Features of the Project for Environmental Protection

Design Feature	Application Phase ¹			Effectiveness
	Design and Engineering	Construction	Operation and Maintenance	
permanent discoloring agents indicating survey or construction limits would be applied to rocks, vegetation, structures, fences, etc.				disturbance outside the area granted. Also, this design features precludes use of permanent discoloring agents inside or outside the area granted for the B2H Project.
<p>6. Reclaim Construction Areas</p> <p>In construction areas (e.g., staging areas, material laydown yards, fly yards, and wire pulling/splicing sites), where there is ground disturbance and where recontouring is required, surface reclamation would occur as required by the Reclamation, Revegetation, and Monitoring Plan or the landowner. The method of reclamation may consist of, but not be limited to, returning disturbed areas to their natural contour, replacement of displaced rocks and boulders in a manner that does not create strong edge conditions, reseeding, installing cross drains for erosion control, placing water bars in permanent roads, use of vertical pitting and mulching used for clearings in sage areas, and filling ditches where they were installed for temporary roads.</p> <p>All areas disturbed as a part of the construction and/or maintenance of the proposed transmission line would be seeded with a seed mixture appropriate for those areas as identified in the Reclamation, Revegetation, and Monitoring Plan. The federal land-management agency or landowner(s) would approve a seed mixture that is compatible with the affected Ecological Site Description. Seeding methods typically would include drill seeding, where practicable; however, the federal land-management agency or landowner(s) may recommend broadcast seeding as an alternative method in some cases.</p> <p>In construction areas where disturbing the existing contours is not required, vegetation would be left in place wherever possible, and original contours would be maintained to avoid excessive root damage and allow for resprouting in accordance with the Reclamation, Revegetation, and Monitoring Plan or landowner approval.</p>		✓	✓	Reclaiming areas disturbed following construction by rectifying the effects of construction by repairing, rehabilitating, or restoring the affected environment to a visually similar character by replicating colors, patterns and textures to those found prior to the project induced disturbances. Placement of rocks and boulders to avoid creating additional strong linear edges helps to restore similar visually character of the disturbed areas.

Table 2-7. Design Features of the Project for Environmental Protection

Design Feature	Application Phase ¹			Effectiveness
	Design and Engineering	Construction	Operation and Maintenance	
<p>7. Salvage Topsoil for Revegetation</p> <p>In work areas where ground-disturbing activities would occur, topsoil would be salvaged and segregated prior to construction, to be redistributed and contoured evenly over the surface of the disturbed area to be removed following completion of construction. The soil surface would be seeded with an agency- or landowner-approved seed mix and left rough to help reduce the potential for erosion and loss of seeded surface as specified in the reclamation plan.</p>		✓	✓	The intent of this procedure is to facilitate reclamation, revegetation and restoration by using the stockpiled native topsoil, and leave the surface in a condition to reduce potential for erosion and better assist revegetation establishment to reduce or eliminate the effects over time.
<p>8. Overland Travel in Construction Work Areas</p> <p>Grading would be minimized by driving overland in areas approved in advance by the land-management agency and/or land owner in predesignated work areas (e.g., staging areas, material laydown yards, fly yards, and wire pulling/splicing sites) whenever possible.</p>	✓	✓	✓	This practice would reduce and/or minimize potential for additional erosion and introduction of noxious weeds; and increase revegetation success by leaving existing vegetation roots intact by reducing the amount of grading during construction.
<p>9. Use of Access Routes Outside of Right-of-way</p> <p>All vehicle movement outside the right-of-way would be restricted to predesignated access, contractor-acquired access, public roads, overland travel routes, or crossings of streams approved in advance by the applicable land-management agency or landowner.</p>		✓	✓	Similar to Design Feature 4, restricting vehicle movement would preclude disturbance outside areas essential for B2H Project-related travel to avoid B2H Project effects outside of the right-of-way.
<p>10. Speed Limit on Project Access Routes</p> <p>To minimize vehicle collisions with wildlife or livestock and reduce amount of dust generated from construction related activities, a speed limit of 25 miles per hour would be employed on B2H Project access routes, unless the applicable land-management agency has designated an alternative speed limit.</p>		✓	✓	Slower vehicular-travel speeds allow for increased time for driver response, thereby minimizing the potential for such collisions. Also, vehicles traveling at slower speeds generate less dust, reducing B2H Project effects.
<p>11. Limit Construction and Maintenance Activities During Migratory Bird Nesting Season</p> <p>If ground-disturbing activities (e.g., vegetation clearing or construction activities) could not be avoided during the migratory bird nesting season (between April 1 and July 15), migratory bird and nest surveys would be required within 7 days of any ground-disturbing activities. A spatial buffer would be placed around each active nest detected during the surveys in the area where the buffer intersects work areas where</p>		✓	✓	Limiting construction and maintenance activities during migratory bird nesting season would minimize and avoid disturbance and/or the take of migratory birds and their nests during construction and maintenance activities by conducting these operations outside the migratory bird nesting season and away from active nests.

Table 2-7. Design Features of the Project for Environmental Protection

Design Feature	Application Phase ¹			Effectiveness
	Design and Engineering	Construction	Operation and Maintenance	
vegetation clearing or construction is taking place, until such time as the nest is determined, through monitoring, to be no longer occupied. Appropriate spatial nest buffers (by species or guild) and nest-monitoring requirements would be identified using the best available scientific information through coordination with USFWS and other appropriate agencies, and would be provided in a migratory-bird nest-management plan incorporated into the POD.				
<p>12. Avian-Safe Design</p> <p>The Applicant would design and construct all new or rebuilt transmission facilities to avian-safe design standards, including the Applicant’s Avian Protection Plan (Idaho Power 2015), Reducing Avian Collisions with Power Lines (APLIC 2012) and Suggested Practices for Avian Protection on Power Lines (APLIC 2006).</p>	✓	✓		This would reduce and/or eliminate the potential for raptor or other large-bird electrocutions and minimize the potential for raptor and other bird collisions with the transmission line through the implementation of these standards.
<p>13. Raptor Protection During Breeding</p> <p>Agency guidelines for raptor protection during the breeding season would be followed.</p>	✓	✓	✓	Following these guidelines would avoid take of raptors and minimize disturbance by implementing seasonal and spatial restrictions around active raptor nests during construction and maintenance activities.
<p>14. Shallow Groundwater Discovery During Drilling</p> <p>State standards for abandoning drill holes would be adhered to where groundwater is encountered.</p>		✓		Complying with state standards for abandoning drill holes where groundwater is encountered would address the potential for contamination of groundwater in the event they are encountered during geotechnical investigation and/or construction.
<p>15. Reduce Impacts on Riparian Areas</p> <p>Consistent with the BLM and USFS riparian management policies, surface-disturbing activities would be avoided in defined segments of Riparian Conservation Areas², using the following delineation criteria, unless exception criteria defined by the BLM are met or with agency approval of acceptable measures to protect riparian resources and habitats by avoiding or minimizing stormwater runoff, sedimentation, and disturbance of riparian vegetation, habitats, and wildlife species:</p> <ul style="list-style-type: none"> • Fish-bearing streams: 300 feet slope distance on either side of the stream, or to the extent of additional delineation criteria, whichever is greatest. 	✓	✓	✓	This would reduce potential for direct and indirect impacts on riparian areas and the vegetation, fish, and wildlife habitats associated with them by avoiding, minimizing, reducing, and/or eliminating over time modification of these areas through development of site-specific mitigations.

Table 2-7. Design Features of the Project for Environmental Protection

Design Feature	Application Phase ¹			Effectiveness
	Design and Engineering	Construction	Operation and Maintenance	
<ul style="list-style-type: none"> Perennial non-fish bearing streams: 150 feet slope distance on either side of the stream, or to the extent of additional delineation criteria, whichever is greatest. Ponds, lakes, reservoirs, and wetlands greater than 1 acre: 150 feet slope distance from the edge of the maximum pool elevation of constructed ponds and reservoirs, or from the edge of the wetland, pond or lake, or to the extent of additional delineation criteria, whichever is greatest. Intermittent or seasonally flowing streams and wetlands less than 1 acre in watersheds that support ESA-listed fish species and /or designated critical habitat: 100 feet slope distance from the edge of the stream channel or wetland to the outer edge of riparian vegetation, whichever is greatest. Intermittent or seasonally flowing streams and wetlands less than 1 acre in watersheds that do not have current, documented presence of ESA-listed fish species and /or designated critical habitat: 50 feet slope distance from the edge of the stream channel or wetland to the outer edge of riparian vegetation, whichever is greatest. <p>Mitigation measures, such as micro-siting road locations, would be developed on a site-specific basis, in consultation and coordination with the BLM and other federal land-management agencies, and incorporated into the final POD.</p>				
<p>16. Span Riparian Communities/Water Courses</p> <p>Based on biological resources surveys and results of Section 7 consultation (with USFWS and National Oceanic and Atmospheric Administration [NOAA] Fisheries), state and federally designated sensitive plants, fisheries, habitat, wetlands, riparian areas, springs, wells, water courses, or rare/slow regenerating vegetation communities would be flagged and structures would be placed to allow spanning of these features, where feasible, within the limits of standard structure design. Surveys for fish species are not anticipated; ESA-listed fish species would be presumed present in all watersheds that agency data indicate presence.</p>	✓			Spanning riparian communities and/or water courses would avoid, minimize and/or reduce potential for impacts on riparian areas and water courses by siting project facilities outside of these areas.

Table 2-7. Design Features of the Project for Environmental Protection

Design Feature	Application Phase ¹			Effectiveness
	Design and Engineering	Construction	Operation and Maintenance	
<p>17. Work During Wet Periods</p> <p>If work were required during wet periods with saturated soil conditions, vehicles would not be allowed to travel when soils are moist enough for deep rutting (4 or more inches deep) to occur unless prefabricated equipment pads (matting) were installed over the saturated areas or other measures were implemented to prevent rutting. Equipment with low-ground-pressure tires, wide tracks, or balloon tires would be used when possible.</p>		✓	✓	This would avoid, minimize, and/or reduce potential for impacts on riparian and soil resources by avoiding work in these areas during wet periods and/or by taking measures that would reduce and minimize disturbance of these areas if work in them could not be avoided during wet periods.
<p>18. Crossing of Dry Washes</p> <p>Crossings of dry washes would be made during dry conditions, when possible. Repeated crossings would be limited to the extent possible but constrained to the same location with appropriate stabilization to reduce erosion potential.</p>		✓	✓	This would avoid and minimize potential for impacts on water quality and stream structure and function by limiting crossing periods and the frequency of the crossings.
<p>19. Canal and/or Ditch Crossings</p> <p>Canal and/or ditch crossings would require placement of temporary bridges or improvement of existing crossings.</p>	✓	✓		This is intended to avoid or minimize damage to water-delivery infrastructure and/or interference with delivery of water.
<p>20. Reduce Potential for Aquatic Invasive Species</p> <p>Interagency-developed methods of avoidance, inspection, and sanitization as described in the Operational Guidelines for Aquatic Invasive Species Prevention and Equipment Cleaning (USFS 2009) would be adhered to. If control of fugitive dust near sensitive water bodies is necessary, water would be obtained from treated municipal sources or drafted from sources known to contain no aquatic invasive species. Support vehicles, drill rigs, water trucks and drafting equipment would be inspected and sanitized, as necessary, following interagency-approved operational guidelines.</p>		✓	✓	This would avoid, reduce, and/or minimize the potential for spread of aquatic invasive species through adherence with methods to prevent the transport of these invasive species during construction activities associated with the B2H Project.
<p>21. Disposal of Hazardous Materials and Construction Waste</p> <p>Hazardous material would not be discharged onto the ground or into streams or drainage areas. Enclosed containment would be provided for all waste. All construction waste (i.e., trash and litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials) would be removed to a disposal facility authorized to accept such materials within 1 month of B2H Project completion, except for hazardous waste which would be removed within 1 week of B2H Project</p>		✓	✓	Proper disposal of hazardous materials and construction waste is intended to avoid introduction of such waste into the environment. As explained in Design Feature 1, a Spill Pollution Prevention and Countermeasure Plan would be completed and be a part of the POD.

Table 2-7. Design Features of the Project for Environmental Protection

Design Feature	Application Phase ¹			Effectiveness
	Design and Engineering	Construction	Operation and Maintenance	
completion. Refueling and storing potentially hazardous materials would not occur within a 200-foot radius of all identified private water wells, and a 400-foot radius of all identified municipal or community water wells. Spill prevention and containment measures would be incorporated as needed.				
22. Right-of-way Debris All nonbiodegradable debris from the construction or maintenance of the transmission line would be collected and removed from the right-of-way when the construction or maintenance is complete. Slash would be left in place or disposed of in accordance with requirements of the land-management agency or landowner.		✓	✓	Proper disposal of right-of-way debris is intended to avoid introduction of debris into the environment and minimize the effects of construction. However, slash may be left in place if the land-management agency or landowner identify a benefit (e.g., erosion control, habitat).
23. Open Burning of Trash Open burning of construction trash would not be allowed unless permitted by the appropriate authorities.		✓	✓	Disallowing open burning of trash avoids that as the potential for ignition of inadvertent, accidental wildfire.
24. Spark Arrestor on Combustion Engines All internal- and external-combustion engines would be operated per 36 Code of Federal Regulations 261.52, which requires all such engines to be equipped with a qualified spark arrester that is maintained and not modified.		✓	✓	Requiring spark arrestors on all internal- and external-combustion engines would minimize the potential for such sparks as cause ignition of inadvertent, accidental wildfire.
25. Avoid Work in Hazardous/Contaminated Sites Where work would occur on hazardous and contaminated sites, the Applicant must seek approval from the U.S. Environmental Protection Agency (EPA) as required by federal law. Work on contaminated sites must avoid remedial structures (e.g., capped areas, treatment, or monitoring wells, etc.) and workers must use adequate worker protection measures for working in contaminated areas.		✓	✓	Avoiding work in sites recognized by the EPA as hazardous and/or contaminated precludes issues of construction worker health and safety and reduces potential damage to remedial structures.
26. Reduce Corona Corona is the localized electric field near a conductor that can be sufficiently concentrated to ionize air close to the conductors, and can result in a partial discharge of electrical energy (corona discharge or corona). Corona from conductors and hardware may cause audible noise and radio noise (which may interfere with	✓	✓	✓	Implementing design and engineering features and construction techniques to reduce corona would reduce audible noise, radio and television interference, and power losses that result in operating inefficiencies.

Table 2-7. Design Features of the Project for Environmental Protection

Design Feature	Application Phase ¹			Effectiveness
	Design and Engineering	Construction	Operation and Maintenance	
communications). Transmission line materials that have been designed and tested to minimize corona would be used. A bundle configuration and larger conductors would be used to limit audible noise, radio interference, and television interference due to corona. Tension would be maintained on all insulator assemblies to ensure positive contact between insulators, thereby avoiding sparking. Caution would be exercised during construction to avoid scratching or nicking the conductor surface, which may provide points for corona to occur.				
<p>27. Respond to Complaints of Radio or Television Interference</p> <p>The Applicant would respond to complaints of line-generated radio or television interference by investigating the complaints and implementing appropriate mitigating measures where appropriate and possible. In addition, the transmission lines would be patrolled by air or inspected on the ground on a periodic basis, in compliance with the Applicant’s standards, so damaged insulators or other line materials that could cause interference are repaired or replaced.</p>			✓	As implied, the Applicant would maintain the transmission line to avoid or minimize line-generated radio and television interference.
<p>28. Avoid Induced Currents and Voltages</p> <p>The Applicant would apply grounding or other methods where possible to minimize or eliminate problems of induced currents and voltages onto conductive objects sharing the same right-of-way, to meet the appropriate codes.</p>		✓	✓	As stated, applying grounding or other methods, where possible, would avoid or minimize problems of induced current and voltages on conductive objects.
<p>29. Use of High-visibility Markers for Air Traffic Safety</p> <p>Towers and/or shield wires would be marked with high-visibility devices (i.e., marker balls or other marking devices) where required by governmental agencies with jurisdiction (i.e., Federal Aviation Administration). An offset catenary on separate poles would be used in lieu of marking the conductor. Tower heights would be less than 200 feet to avoid the need for aircraft obstruction lighting.</p>	✓			Use of high-visibility markers is intended to avoid potential for air-traffic collision with the transmission line.

Table 2-7. Design Features of the Project for Environmental Protection

Design Feature	Application Phase ¹			Effectiveness
	Design and Engineering	Construction	Operation and Maintenance	
<p>30. Reduce Visual Impacts Dull-galvanized steel for lattice towers and non-specular conductors would be used to reduce visual impacts.</p>	✓	✓		The use of these materials is effective in minimizing the visual contrast introduced by the structures, conductors, and insulators. This reduced contrast also allows for greater visual absorption of the B2H Project into the surrounding landscape.
<p>31. Compliance with National Historic Preservation Act In accordance with the Programmatic Agreement (to comply with Section 106 of the National Historic Preservation Act) entered into among the BLM; USFS; the states of Idaho and Oregon; consulting parties; and tribes, specific measures to mitigate effects on cultural resources would be developed and implemented to mitigate identified adverse impacts.</p>	✓	✓		As implied, the intent is to develop site-specific measures to mitigate effects on cultural resources. These may include B2H Project modifications (e.g., selective placement of structures, span sites) to avoid adverse impacts, cultural resources monitoring of construction activities to avoid or minimize damage to discoveries, and data recovery studies to minimize loss of data important to the historical record.
<p>32. Maintain Existing Watering Facilities Watering facilities (tanks, natural springs and/or developed springs, water lines, wells, etc.) would be repaired or replaced if they are damaged or destroyed by construction and/or maintenance activities to their predisturbed condition as required by the landowner or land-management agency. Should construction and/or maintenance activities prevent use of a watering facility while livestock are grazing in that area, then the Applicant would provide alternate sources of water and/or alternate sources of forage where water is available.</p>		✓	✓	This would rectify the impact on stock-watering facilities by repairing or replacing such facilities if they are damaged or destroyed or an alternate water source is needed.
<p>33. Maintain Function of Livestock Containment Facilities Fences, gates, and walls would be replaced, repaired, or reclaimed to their original condition as required by the landowner or the land-management agency in the event they are removed, damaged, or destroyed by construction activities. Fences would be braced before cutting. Temporary gates or enclosures would be installed only with the permission of the landowner or the land-management agency and would be removed/reclaimed following construction unless approved by the land management agency or landowner to be left after construction is complete. Cattle guards or permanent access gates would be installed where new permanent access roads cut</p>		✓	✓	These procedures are intended to avoid, minimize, rectify or eliminate impacts that could occur on livestock grazing operations and/or range improvements by taking pre-cautions to maintain the function of the fences, gates, and walls.

Table 2-7. Design Features of the Project for Environmental Protection

Design Feature	Application Phase ¹			Effectiveness
	Design and Engineering	Construction	Operation and Maintenance	
<p>through fences on land administered by an affected federal agency or other grazing lands.</p> <p>Temporary gates across breached fences may be required when livestock are actively grazing an area in which the breached fence is located when construction activities have halted for a time. This temporary gate would prevent livestock on one side of the fence from going to the other side through the breach. Should construction activities prevent use of a facility, such as a corral when that corral is needed to facilitate movement of livestock, then the Applicant would provide a temporary corral to facilitate movement of livestock.</p>				
<p>34. Avoid Calving, Lambing, and Trailing Areas</p> <p>Calving, lambing, and trailing areas would be avoided when in use by livestock operations to the extent practicable. Trailing areas (areas where livestock producers move livestock across lands to facilitate proper grazing management) can occur throughout the B2H Project area and timing may vary throughout the year. Prior to construction, the Applicant would coordinate with the applicable land-management agency or private landowner to determine when grazing occurs and avoid areas used for calving, lambing, and trailing during construction.</p>		✓	✓	<p>These procedures are intended to avoid, minimize or eliminate impacts that could occur on livestock operations by taking precautions to avoid interruptions to calving, lambing and trailing areas when in use.</p>
<p>35. Avoid Agricultural Operations</p> <p>On agricultural land, the right-of-way would be aligned, insofar as is practicable, to reduce the impact on farm operations and agricultural production.</p>	✓			<p>Avoidance of agricultural operations through the design and engineering of the B2H Project is intended to preclude interference with agricultural operations.</p>

Table 2-7. Design Features of the Project for Environmental Protection

Design Feature	Application Phase ¹			Effectiveness
	Design and Engineering	Construction	Operation and Maintenance	
<p>36. Minimize/Reduce Interference with Agricultural Operations Construction and maintenance activities would occur as practicable to minimize impacts on agricultural operations. In cultivated agricultural areas, soil compacted by construction and maintenance activities would be decompacted or the landowner compensated accordingly.</p>		✓	✓	Where construction and maintenance activities occur on agricultural lands, this measure is intended to minimize the impact of these activities through the timing and coordination of them with the agriculture operations.
<p>37. Patrol and Maintain the Project The transmission line and rights-of-way would be patrolled regularly and properly maintained in compliance with applicable safety codes.</p>			✓	Regular patrol of the transmission line and rights-of-way results in recommendations for corrective maintenance, including maintenance of vegetation, access roads, as well as the transmission line.

Table Notes:

¹Design features of the B2H Project for environmental protection are measures or procedures that are part of the B2H Project description and implemented as standard practice and include measures or procedures that could avoid, minimize, reduce, or rectify (or eliminate over time) adverse impacts. These three columns refer to the phase and/or phases of the B2H Project during which design features are relevant (i.e., during design and engineering, construction, and/or operation and maintenance).

²Distances represent default Riparian Conservation Area widths recommended in PACFISH, and are consistent with PACFISH (USFS and BLM 1995) and INFISH (USFS 1995) strategies, and the Updated Interior Columbia Basin Strategy – Memorandum #1920 (BLM, USFS, USFWS, EPA, and NOAA Fisheries 2014).

2.3.4.1 DECOMMISSIONING

Typically, transmission lines that have been regularly maintained continue to provide service longer than the projected service life of at least 50 years. At the end of the service life of the B2H Project, assuming that it is not upgraded or otherwise kept in service, the transmission line, service roads, and other associated facilities would be decommissioned. At such time, a plan for dismantling and removing conductors, insulators, and hardware from the right-of-way would be developed and approved by the permitting agencies, and additional NEPA analysis would be completed, if necessary. Tower and pole structures would be removed and foundations demolished to a point below the ground surface and buried. All long-term disturbances on federal land would be restored in accordance with a Termination and Reclamation Plan approved by the federal land-management-agency Authorized Officer, as appropriate. Since it is not possible to know which facilities would be needed and would remain and/or facilities that would be removed, and it is difficult to predict the status of land use and policy regarding decommissioning and reclamation at a point that far in the future, the effects of decommissioning of the B2H Project are not analyzed in this EIS. Requirements for decommissioning and reclamation (including environmental protection) would have to be addressed in a comprehensive Termination and Reclamation Plan (or equivalent) when decommissioning is proposed. Such a plan would need to be filed 2 years before the termination of the right-of-way and approved by the permitting agencies.

A decommissioning bond also will be required 2 years prior to the expiration of the right-of-way grant (i.e., 30 years with the right of renewal) and USFS special-use authorization in the event the holder fails for whatever reason to comply with the terms, conditions, and special stipulations of the grant or to renew the right-of-way grant(s) (and USFS special-use authorization) at the end of the appropriate terms. The decommissioning bond amount is to be determined with a Reclamation Cost Estimate (RCE) Report submitted for the Applicant by an independent state-certified engineer, approved by the agencies and containing engineer's seal, and the final amount approved by the BLM and USFS, in an amount sufficient to include all expenses related to the decommissioning, removal, and restoration of the right-of-way grant(s) and USFS special-use authorization on BLM- and USFS-administered land, respectively. All costs of preparing and submitting this report shall be borne by the holder. If the right-of-way grant and special use authorizations are renewed by the BLM or USFS, the bond will be terminated. If the grant is not renewed, the BLM will hold the bond until reclamation acceptable to the BLM Authorized Officer and USFS Deciding Official is completed.

2.4 ALTERNATIVES DEVELOPMENT

The NEPA requires federal agencies to "...study, develop, and describe appropriate alternatives to recommend courses of action in any proposal that involves unresolved conflicts concerning alternative uses of available resources" (NEPA Section 102(2)(E)). The Council on Environmental Quality Forty Most Asked Questions Concerning CEQ's NEPA Regulations provide that "reasonable alternatives include those that are practical or feasible from the technical and economic standpoint and using

common sense rather than simply desirable from the standpoint of the applicant” (CEQ 1981: Question 2a).

The Applicant’s process to identify the initial, preliminary alternative routes and, ultimately, an Applicant’s Proposed Action Alternative route, or proposed corridor, for the proposed transmission line is summarized in the 2010 Siting Study (Idaho Power Company 2010) and 2012 Supplemental Siting Study (Idaho Power Company 2012) (available at <http://www.boardmanto hemingway.com/asp>). BLM considered, in part, the Applicants’ Proposed Action Alternative along with the BLM’s purpose and need in developing alternatives to be analyzed in the EIS. Between the Draft EIS and Final EIS, revisions were made to the network of alternative routes in response to comments on the Draft EIS as described in Section 2.1.1.

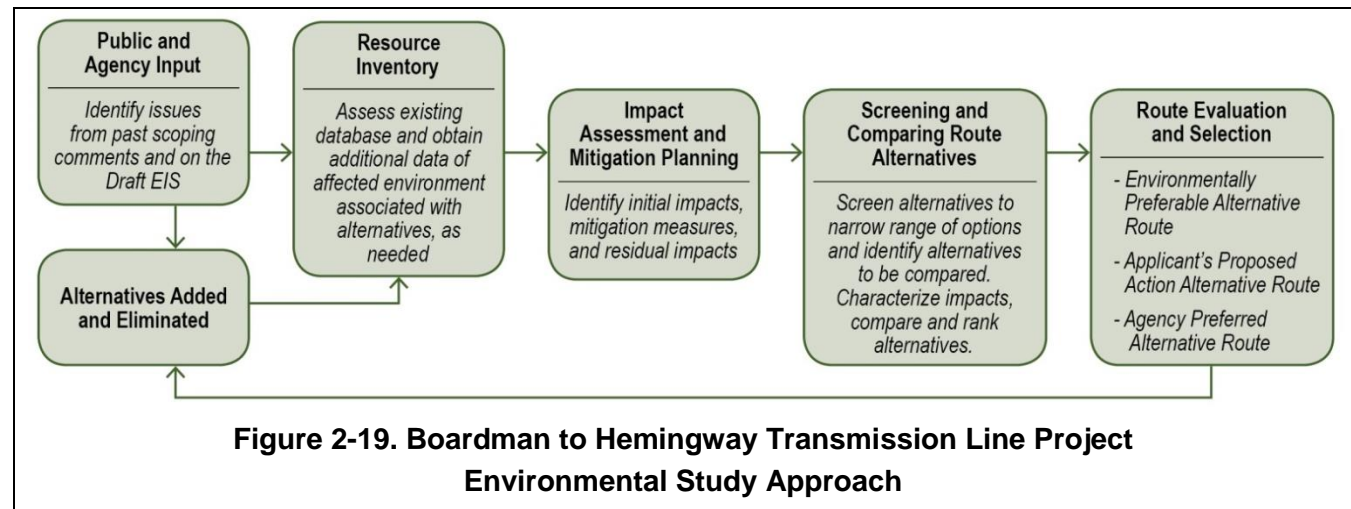
2.5 STUDY AND ANALYSIS METHODS

Comments on the Draft EIS suggested the need to describe further the approach used for studying, analyzing, and comparing the alternative routes to clarify information presented and support conclusions. In response, the following section has been added to the EIS to summarize the overall approach used for studying, analyzing, and comparing the alternative routes developed.

2.5.1 STUDYING AND ANALYZING THE ALTERNATIVES

The following text summarizes the approach used for studying, analyzing, and comparing the alternative routes developed in response to the need for the B2H Project and the need for the affected federal agencies to respond to the Applicant’s application for right-of-way on federal land. Consistent with Section 102(2)(A) of NEPA, the process described uses “a systematic interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decision making, which may have an impact on man’s environment” (as specified in 40 CFR 1507.2). Tiered from the overall approach, methodologies adapted for each resource study are presented in the introductory information in resource section in Chapter 3.

This section includes a description of baseline data collection and the method for assessing impacts and applying measures to avoid, reduce, minimize, or eliminate those impacts (Section 2.5.1.1) and the method for comparing the alternative routes (Section 2.5.1.1) from which a route exhibiting the least impact emerges. The process is summarized in Figure 2-19. In concert with environmental results, administrative, management, and current land-use factors are considered by the participating agencies to derive the Agency Preferred Alternative (Section 2.7). System planning and reliability, engineering, costs, safety, schedule, and constructability are among the factors the Applicant considers to identify its Applicant’s Proposed Action Alternative (Section 2.8).



2.5.1.1 STUDYING AND ANALYZING ALTERNATIVES

Relevant law and policy and the issues identified through the scoping process guide what studies of the natural, human, and cultural environments federal agencies must conduct and address in an interdisciplinary manner in the EIS. The studies for B2H Project were designed to develop an inventory of environmental data reflecting the existing condition of the environment in sufficient detail to:

- Predict potential or probable impacts on the environment brought about by the construction, operation, and maintenance of the proposed transmission line, access roads, and ancillary facilities along each of the alternative transmission line routes;
- Prepare realistic recommendations to avoid, minimize, rectify, reduce, or eliminate impacts identified during the analysis;
- Compare the alternative routes based on interdisciplinary resource analysis and identify the alternative route exhibiting the least impact;
- Identify an Agency Preferred Alternative in response to local concerns and in collaboration with the cooperating agencies; and
- Meet the environmental reporting requirements of the BLM, in coordination with cooperating federal and state agencies and county and local governments.

RESOURCE INVENTORY

Data on the existing condition of each resource were gathered and compiled, using the most recent data available—primarily literature, published and unpublished reports, land-use plans, maps, and agency databases. Data gathered for visual resources were verified by field reconnaissance.

Comments on the Draft EIS informed the BLM of new and/or updated data, which were gathered and compiled for use in preparing the Final EIS. During an agency workshop conducted in August 2015, the BLM requested the agency interdisciplinary team and cooperating agencies to review the updated data for adequacy and provide information regarding additional issues, concerns, policies, and regulations.

For most of the resources, inventories for the EIS were developed to describe the existing environment in the study corridors along the alternative routes in sufficient detail to assess potential direct and indirect impacts that could result from the proposed B2H Project. The width of the study corridor varies for some resources based on the area that potentially could be affected (Table 2-8). Analysis of air quality is based on regional data. Data used to assess potential impacts on social and economic conditions are countywide and statewide and are not extracted for study-corridor-level analysis. Resource inventories informed development of the Affected Environment section documented in Chapter 3.

Table 2-8. Study Corridors by Resource	
Resource	Study-Corridor Width (miles)
Earth resources	1
Paleontological resources	1
Water resources	1
Biological resources (vegetation, special status plants, wildlife, special status wildlife, migratory birds, fish and aquatics)	1
Land use	1
Agriculture	1
Recreation	1
Transportation	1
Potential congressional designations	1
Lands with wilderness characteristics	1
Visual resources	10
National trails system	10
Cultural resources	4

Table Note: Analysis of air quality is based on regional data. Data and information used to assess potential social and economic impacts are based on countywide and statewide data and are not extracted for corridor-level assessment.

The alternative routes (and study corridors) are centered on a line referred to as the reference centerline. The reference centerlines were mapped in detail sufficient for analysis for the EIS. Precise locations of the centerline would be refined through engineering surveys on the route selected for the transmission line prior to construction of the B2H Project. Each alternative route is composed of links, which are discrete sections of the route sharing common endpoints determined by the point of intersection with other adjacent links; the common endpoint is referred to as a link node. Links are numbered generally from north to south. Similarly, a segment is composed of alternative routes that share common endpoints determined by the point of intersection with alternative routes in an adjacent segment; the common endpoint is referred to as a segment node.

To facilitate analysis and reference, mileposts are marked along the reference centerline of each link. Resource data collected for the area in a study corridor are input, stored, and retrieved by link number and milepost (to 0.1 mile). Where appropriate, resource discussions in this document (principally Chapter 3) refer to links and mileposts to provide a geographic reference to the resource data. Maps

displaying resource inventory data and impacts are in Volume II – Maps. The results of the inventory of resources are documented by link and milepost in resource inventory summaries and maps.

IMPACT ASSESSMENT AND MITIGATION PLANNING

Impacts on the environment can result directly (caused by the action and occurs at the same time and place) or indirectly (caused by the action and is later in time or farther removed in distance, but still reasonably foreseeable) and can be temporary (short-term), long-term, or permanent. The assumptions for each resource define temporal scope of analysis. In this analysis, temporary environmental effects predicted to occur during construction of the B2H Project that would be anticipated to return to a preconstruction condition at or within 5 years of the end of construction were considered short-term impacts. Environmental effects anticipated to be remaining after 5 years are considered long-term impacts. Permanent impacts are those that would be anticipated to endure beyond the life of the B2H Project, including irreversible and irretrievable commitment of resources. Impacts can be beneficial (positive) or adverse (negative) and can vary in significance from no change or only slightly discernible change to a full modification of the environment. Cumulative impacts result from the incremental effect of an action when added to other past, present, and reasonably foreseeable future actions (RFFA) and can result from individually minor but collectively significant actions taking place over a period of time. The approach used to address cumulative effects is described in Section 3.3.

Once the environmental inventory (baseline resource data) was compiled for each alternative route and the data were reviewed by the lead and cooperating agencies, potential effects of the proposed B2H Project were assessed and measures were recommended, where appropriate, to avoid, minimize, rectify, reduce, or eliminate the impacts (refer to subsection Mitigation Planning and Effectiveness below). The process of assessing impacts and applying measures to reduce impacts is a systematic interdisciplinary analysis that first identifies initial impacts based on a comparison of the proposed B2H Project (i.e., the predicted types and amounts of disturbance) and the existing condition of the environment (before the B2H Project). Then, measures may be applied selectively on a case-by-case basis and often in localized areas to effectively reduce impacts further, thereby resulting in residual impacts or the impacts remaining after the application of the selective measures. Figure 2-20 provides an overview of the impact assessment and mitigation planning process. Results of impact assessment and mitigation planning are presented in the Environmental Consequences sections in Chapter 3.

ESTIMATED GROUND DISTURBANCE AND VEGETATION CLEARING

The first step of the analysis was to determine the types and amount of ground disturbance that could occur based on the design and typical specifications of the proposed facilities, construction techniques (including design features of the project for environmental protection [Table 2-7]) and equipment used, extent and duration of the construction, requirements for operation of the transmission line and associated facilities, and activities associated with routine maintenance.

Most of the potential physical impacts that could occur, including ground disturbance, would result from the following construction activities:

- Upgrading existing roads or constructing new roads for access where needed
- Preparing structure sites, multi-use areas, and communication station sites
- Assembling and erecting tower structures
- Stringing conductors (e.g., wire pulling-and-tensioning sites and wire-splicing sites)

In addition, impacts on some resources would occur following construction from the presence of the transmission lines and access roads. Also, periodic maintenance activities could cause temporary impacts.

Since the B2H Project facilities have not been fully designed and locations of the transmission line facilities are not known, for the purpose of estimating impacts, the amount of ground that could be disturbed as a result of implementation of the B2H Project was estimated based on the typical design characteristics of the 500-kV transmission line and ancillary facilities (Section 2.3.1), including tower sites, multi-purpose construction yards, communication regeneration station sites, etc., as well as the 230-kV line and 138/69-kV line segments potentially planned for relocation. The estimated ground disturbance associated with using existing access roads or upgrading or constructing access roads also was considered. Temporary ground disturbance during construction would be associated with structure work areas, wire-splicing sites, wire pulling-and-tensioning sites, multi-purpose construction yards, and temporary access roads. Permanent ground disturbance would be associated with structure foundation areas, communication station sites, and permanent access roads. Estimated ground disturbance from access road per mile of transmission line is presented in Table 2-9. Estimated ground disturbance associated with the 500-kV transmission line is presented in Table 2-10. Estimated ground disturbance associated with the 230-kV and 138/69-kV line segments to be relocated is presented in Table 2-11, and disturbance associated with the 230-kV double-circuit line (additional action for replacing the BPA's 69-kV line is presented in Table 2-12).

Table 2-9. Access Levels and Potential Ground Disturbance

Project Access Level		Estimated Disturbance per Mile of Transmission Line
1	Use existing road (0 to 15 percent slopes) within half the distance of the typical span from project centerline; no improvements required; spur roads	2.8 acres
2	Use existing road (greater than 15 percent slopes) within half the distance of the typical span from project centerline; improvements required; spur roads	6.7 acres
3	Construct new access road (0 to 8 percent slopes)	3.5 acres
4	Construct new access road (8 to 15 percent slopes)	5.3 acres
5	Construct new access road (15 to 30 percent slopes)	8.5 acres
6	Construct new all-terrain vehicle access road (greater than 30 percent slopes)	14.2 acres

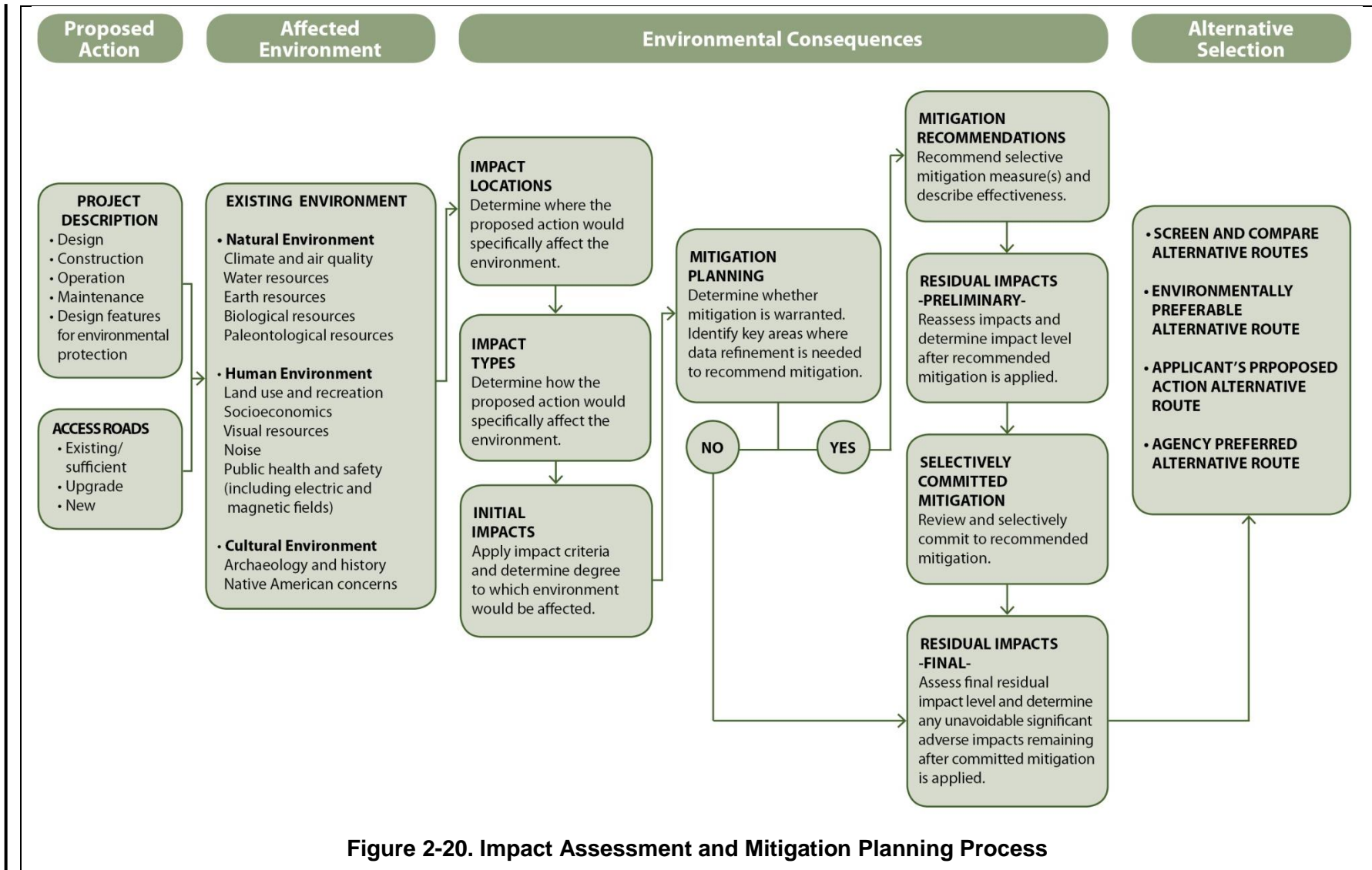


Figure 2-20. Impact Assessment and Mitigation Planning Process

Table 2-10. Summary of Estimated Ground Disturbance and Vegetation Clearing for the 500-Kilovolt Transmission Line Alternative Routes by Segment

Alternative	Temporary Disturbance (acres) ^{1,5}	Permanent Disturbance (acres) ^{2,5}	Total Disturbance (acres) ^{3,5}	Transmission Line Right-of-way Vegetation Clearing (acres) ^{4,5}
Segment 1 - Morrow-Umatilla				
Applicant's Proposed Action	1,395	512	1,907	442
<i>Variation S1-B1</i>	92	50	142	181
<i>Variation S1-B2</i>	92	44	136	162
East of Bombing Range Road	1,402	512	1,913	442
Applicant's Proposed Action – Southern Route	1,512	578	2,090	484
West of Bombing Range Road – Southern Route	1,455	656	2,111	484
Longhorn	1,361	507	1,867	442
Interstate 84	1,307	478	1,784	442
<i>Variation S1-A1</i>	285	75	360	0
<i>Variation S1-A2</i>	285	122	408	0
Interstate 84 – Southern Route	1,441	548	1,989	484
Segment 2 - Blue Mountain				
Applicant's Proposed Action	522	243	764	363
<i>Variation S2-A1</i>	43	15	58	45
<i>Variation S2-A2</i>	45	16	60	48
<i>Variation S2-B1</i>	57	28	85	41
<i>Variation S2-B2</i>	59	26	85	45
<i>Variation S2-C1</i>	143	78	221	188
<i>Variation S2-C2</i>	136	55	191	172
<i>Variation S2-E1</i>	35	17	52	38
<i>Variation S2-E2</i>	40	18	58	38
<i>Variation S2-F1</i>	187	73	260	10
<i>Variation S2-F2</i>	188	78	266	6
Glass Hill	520	232	752	331
<i>Variation S2-D1</i>	66	42	109	102
<i>Variation S2-D2</i>	63	35	98	76
Mill Creek	525	259	784	274
Segment 3 - Baker Valley				
Applicant's Proposed Action	852	386	1,238	0
<i>Variation S3-A1</i>	191	68	259	0
<i>Variation S3-A2</i>	188	63	252	0
<i>Variation S3-B1</i>	214	97	311	0
<i>Variation S3-B2</i>	222	92	315	10
<i>Variation S3-B3</i>	227	85	312	10
<i>Variation S3-B4</i>	221	79	300	10
<i>Variation S3-B5</i>	216	85	301	10

Table 2-10. Summary of Estimated Ground Disturbance and Vegetation Clearing for the 500-Kilovolt Transmission Line Alternative Routes by Segment				
Alternative	Temporary Disturbance (acres)^{1,5}	Permanent Disturbance (acres)^{2,5}	Total Disturbance (acres)^{3,5}	Transmission Line Right-of-way Vegetation Clearing (acres)^{4,5}
<i>Variation S3-C1</i>	326	177	502	0
<i>Variation S3-C2</i>	335	177	512	0
<i>Variation S3-C3</i>	326	189	515	22
<i>Variation S3-C4</i>	330	193	524	22
<i>Variation S3-C5</i>	324	252	576	41
<i>Variation S3-C6</i>	381	304	685	92
Flagstaff A	853	375	1,228	10
Timber Canyon Alternative	1,085	606	1,691	655
Flagstaff A – Burnt River Mountain	853	387	1,241	32
Flagstaff B	864	375	1,239	10
Flagstaff B – Burnt River West	859	445	1,305	51
Flagstaff B – Durkee	920	502	1,422	102
Segment 4 - Brogan				
Applicant's Proposed Action	619	335	953	0
<i>Variation S4-A1</i>	91	63	154	0
<i>Variation S4-A2</i>	93	57	149	0
<i>Variation S4-A3</i>	94	58	153	0
Tub Mountain South	625	277	901	0
Willow Creek	534	244	777	0
Segment 5 - Malheur				
Applicant's Proposed Action	635	250	884	0
<i>Variation S5-A1</i>	105	36	141	0
<i>Variation S5-A2</i>	114	33	147	0
<i>Variation S5-B1</i>	37	19	56	0
<i>Variation S5-B2</i>	43	14	57	0
Malheur S	682	291	974	0
Malheur A	665	267	932	0
Segment 6 - Treasure Valley				
Applicant's Proposed Action	440	173	613	0
<i>Variation S6-A1</i>	138	67	205	0
<i>Variation S6-A2</i>	137	59	196	0

Table 2-10. Summary of Estimated Ground Disturbance and Vegetation Clearing for the 500-Kilovolt Transmission Line Alternative Routes by Segment

Alternative	Temporary Disturbance (acres) ^{1,5}	Permanent Disturbance (acres) ^{2,5}	Total Disturbance (acres) ^{3,5}	Transmission Line Right-of-way Vegetation Clearing (acres) ^{4,5}
Variation S6-B1	224	88	312	0
Variation S6-B2	217	91	309	3

Table Notes:

¹Temporary Disturbance: Estimated area of disturbance associated with structure work areas (250 by 250 feet per structure, except along the Bombing Range Road where structure works areas would be 90 by 250 feet), wire tensioning/pulling sites, which includes light duty fly yards (10 acres every 1.5 miles), and multi-use areas including fly yards (30-acre site located approximately every 15 miles);

²Permanent Disturbance: Estimated area of disturbance associated with the area occupied by structures (pads) (0.06 acre per structure every 1200 feet), communication stations (100 by 100 feet, one station approximately every 40 miles), Longhorn Substation (20 acres), and permanent access roads.

³Total Disturbance: the sum of construction and temporary disturbance

⁴Transmission Line Right-of-way Vegetation Clearing: Vegetation clearing has been estimated in the transmission line right-of-way only. Calculations only include vegetation types with the potential to grow more than 5 feet tall (aspen, juniper and mahogany woodland, and mixed conifer forest) and overlap with other disturbance in the B2H Project right-of-way. Vegetation clearing was not calculated for access roads due to the access road design not being available for the alternative routes at this time and is required to accurately identify locations of temporary and permanent access roads

⁵Disturbance calculations include an additional 5 percent contingency. Acres in table are rounded; therefore, they may not sum exactly.

Table 2-11. Summary of Estimated Ground Disturbance and Vegetation Clearing for the 230-Kilovolt and 138/69-Kilovolt Transmission Line Rebuilds (Segment 3)

Alternative	Total Length (miles)	Temporary Disturbance (acres)	Permanent Disturbance (acres)	Total Disturbance (acres)
230-kV transmission line relocation	0.9	0.96	0.04	1.00
138/69-kV transmission line relocation	5.3	1.19	0.15	1.34

Table Source: Idaho Power Company 2016

Table 2-12. Summary of Estimated Ground Disturbance and Vegetation Clearing for the 230-kV Double-circuit Rebuild (Segment 1)

Alternative	Total Length (miles)	Temporary Disturbance (acres)	Permanent Disturbance (acres)	Total Disturbance (acres)
Design Option 1 (partial removal of 69-kV line)	12.2	32.8	1.61	64.4
Design Option 2 (full removal of 69-kV line)	15.6	80.3	2.06	82.4
Design Option 3 (full removal of 69-kV line with step-down substation)	15.6	80.3	4.26	84.6

Table Source: Idaho Power Company 2016.

As described in Section 2.3.1.5, existing access roads would be used in their present condition without improvements, to the extent possible, to limit new disturbance for the B2H Project. In areas where improvements are required or deemed to be in the best interest of the B2H Project for future operation

and maintenance use, the roads would be graded and/or graveled to provide a smooth all-weather travel surface. In areas where it is not practicable to use existing roads to fulfill the access requirements of the B2H Project, the existing road would be upgraded or a new road would be constructed. Since the B2H Project facilities have not been fully designed and locations of the transmission line facilities are not known, for the purpose of estimating impacts, ground disturbance associated with upgrading existing roads or constructing new roads was predicted through the development of a model. The predictive model was developed to (1) consider where existing roads can be used for construction, operation, and maintenance and where improved or new roads are required; (2) estimate potential ground disturbance resulting from the construction of new spur roads, improvement of existing access roads, and construction of new access roads; and (3) establish a baseline condition for access to conduct initial impact assessments for each resource evaluated in the EIS (e.g., visual resources, biological resources, land use, etc.).

Access levels are predictions of the general type of access (i.e., use existing roads, improve existing roads, or construct new roads) that would be required for every mile of each B2H Project alternative route, and the associated amount of disturbance the access level would create. Although the method incorporates road design criteria, it does not go to the level of actual road design. As a result, some variation is anticipated between the disturbance predictions generated from the access-level modeling and the actual disturbance of designed and engineered access roads. Access-level disturbance predictions have been developed to be conservative to ensure predictions for ground disturbance are not underestimated in relation to actual B2H Project disturbance and impacts. For purposes of analyzing impacts on resources and assessing likely ground disturbance associated with the B2H Project, the following six access levels, based primarily on slope, were developed based on information provided in the Applicant's description of the B2H Project:

- Access Level 1: Use existing roads (0 to 15 percent slope)
- Access Level 2: Use existing roads (greater than 15 percent slope)
- Access Level 3: Construct new access, flat to rolling terrain (0 to 8 percent slope)
- Access Level 4: Construct new access, rolling terrain (8 to 15 percent slope)
- Access Level 5: Construct new access, steep terrain (15 to 30 percent slope)
- Access Level 6: Construct new all-terrain vehicle (ATV) access, very steep terrain (greater than 30 percent slope)

In addition to ground disturbance, vegetation types that have the potential to grow more than 5 feet tall (e.g., aspen, montane forest, mountain shrub, pinyon-juniper, and riparian) would be cleared from the transmission line right-of-way. Areas of the right-of-way were identified where these vegetation communities occur. Ground disturbance in the right-of-way associated with access roads, structure work areas, wire-splicing sites, wire pulling-and-tensioning sites, and multi-use areas where these vegetative communities occur would overlap with the areas of transmission line right-of-way vegetation clearing.

INITIAL IMPACTS

As described in the previous section, based on estimated ground disturbance and resource inventory data reflecting the existing environment, each resource specialist determined the types and amounts of impacts that could occur on the resource (i.e., initial impacts). Computer-assisted models were developed to support this determination, which allowed the method used for each resource to be tailored to specific requirements, criteria, and assumptions for analysis of each resource. Qualitative and quantitative variables of resource sensitivity, resource quantity, and estimated ground disturbance were considered in predicting the intensity of initial impacts. The intensity of the environmental effect also can vary. In this analysis, the intensity of impacts was described in the following levels: high impact—that could cause substantial change or stress to an environmental resource or use (severe adverse or exceptional beneficial effects); moderate impact—that potentially could cause some change or stress to an environmental resource or use (readily apparent effects); low impact—that could be detectable but slight; and no identifiable impact. What constitutes a high, moderate, or low impact on a resource varies by resource and is described in the study methodology for each resource in Chapter 3, as are the assumptions for analysis made regarding each resource.

MITIGATION PLANNING AND EFFECTIVENESS

After initial impacts were identified for each resource, additional measures to mitigate impacts further for environmental protection (Table 2-13) were applied to avoid, minimize, or rectify/reduce over time moderate or high impacts. These selective mitigation measures were developed in collaboration with the BLM and cooperating agencies and include measures or techniques recommended or required (depending on land ownership) by BLM and USFS after initial impacts were identified and assessed. As such, selective mitigation measures provide a planning tool for minimizing potential adverse impacts. For some resources (e.g., biological and cultural resources), pedestrian surveys conducted using agency-approved protocols would be required prior to construction (and based on the final design of the B2H Project). The survey results would be used by the agencies to refine the mitigation requirements and further inform the final POD.

Once an alternative route is selected, the Applicant would coordinate with the BLM and other land-management agencies or landowners, as appropriate, to refine the implementation of mitigation at specific locations or areas based on final B2H Project design. For example, if a road closure was recommended, the Applicant would work with the applicable land-management agency or landowner to determine the specific method of road closure most appropriate for the site or area (e.g., barricading with a locking gate, obstructing access on the road using an earthen berm or boulders, revegetating the roadbed, or obliterating the road and returning it to its natural contour and vegetation). This detailed mitigation would be incorporated into the final POD prior to construction of the B2H Project and prior to receiving a notice to proceed for the B2H Project.

Table 2-13. Selective Mitigation Measures						
Mitigation Measure	Mitigation Examples	Application Phase ¹			Mitigation Effectiveness	
		Design and Engineering	Construction	Operation and Maintenance		
<p>1. Limit Widening of Existing Roads in Areas of Sensitive Soils, Vegetation, and/or Stream Crossings</p> <p>In areas where soils, vegetation, and/or streams are sensitive to disturbance, existing roads to be used for construction access and/or B2H Project maintenance would not, as much as possible/practicable, be widened or otherwise upgraded except in areas necessary to make existing roads passable and safe.</p>	<p>Widening of existing road</p> <p>Using existing road without improving</p>	✓			<p>Avoiding unnecessary access road upgrades would reduce the amount of habitat disturbed or removed and limit visual contrast that could occur from additional earthwork. Avoiding road upgrades would help in reducing the potential for indirect effects such as damage or loss of vegetation, spread of noxious weeds, harassment of wildlife, vandalism of cultural resources, and disturbance to sensitive land uses (e.g., parks, preservation, and recreation areas). Limiting ground disturbance would; minimize exposure of soils that are highly or moderately susceptible to wind or water erosion. The potential for increased erosion and sedimentation as a result of soil compaction and/or decompaction would be reduced as well as the loss of soil-stabilizing vegetation.</p>	
<p>2. Use Existing Access or Stream Crossings, or both, for Sensitive Resources Avoidance</p> <p>Existing access or stream crossings, or both, would be used as much as possible or practicable for construction and maintenance to avoid disturbance of sensitive resources crossed by the B2H Project.</p>	<p>Stream</p> <p>Existing access</p> <p>Temporary access avoids stream crossing and riparian vegetation</p> <p>Truck</p> <p>Highway</p> <p>Trail</p> <p>Temporary access avoids recreation trail</p>		✓	✓	<p>Similar to Selective Mitigation Measure 1, this mitigation measure would minimize ground-disturbing clearing and construction activities in areas of sensitive resources, thereby limiting the amount of habitat disturbed, removed, or fragmented. This would reduce the risk of isolation affecting the viability of special status wildlife subpopulations in these habitat areas. Visual contrast would be reduced by locating and constructing access routes, where they would be less visible from viewing locations. Minimizing ground-disturbing construction activities in the vicinity of fish-bearing streams and/or specially designated waters would limit soil disturbance, thereby minimizing the potential for increased erosion and sedimentation. In addition, limiting crossing of trails and other linear land uses would reduce direct conflicts with their use and function.</p>	
<p>3. Use of Matting (Stabilization) in Sensitive Resource Areas</p> <p>To minimize ground disturbance in sensitive resource areas, matting or other similar practices for ground stabilization could be used for B2H Project access and work areas.</p>	<p>Stabilizing Matting</p> <p>Sensitive Soils Area</p> <p>Access Road</p>		✓	✓	<p>Similar to Selective Mitigation Measures 1 and 2, this selective mitigation measure would minimize ground disturbance in areas of sensitive resources. In particular, in areas where the construction of roads, work areas, or use of overland access, would directly affect resources. Use of matting such as composite or timber mats, would minimize rutting as well as minimize effects on cultural resources located along access routes, after appropriate site recordation in accordance with Section 106 requirements.</p>	

Table 2-13. Selective Mitigation Measures					
Mitigation Measure	Mitigation Examples	Application Phase ¹			Mitigation Effectiveness
		Design and Engineering	Construction	Operation and Maintenance	
<p>4. Minimize Slope Cut and Fill for Access and Work Areas</p> <p>The alignment of new access roads would follow the landform contours where practicable to minimize ground disturbance and/or reduce scarring (visual contrast) of the landscape.</p> <p>Modification to the size and/or configuration of the structure work areas facilitated by minor structure design adjustments (e.g., altering leg length) would be used to minimize cut and fill slopes and blend contours with existing topography.</p> <p>Additionally, soil amendments or mineral emulsions would be applied, or grading techniques such as slope rounding and slope scarification would be used to blend road and structure work area cuts into the landscape in areas of steep terrain where grading is necessary, in rocky areas, or where soil color would create strong landscape contrasts.</p>		<p>✓</p>			<p>Following the existing land contours and terrain minimizes the cutting and filling of slopes and reduces the potential for the form and line of the landscape to be visually interrupted. This results in reducing visual contrast between the exposed ground of the road or structure work areas and the surrounding environment. Additionally, the application of soil/rock coloring would further reduce the visual contrast between exposed ground and the surrounding environment. Minimizing slope cut and fill also reduces ground disturbance and potential habitat fragmentation. Water runoff is less likely to accelerate soil erosion, thus minimizing (1) potential damage from rutting and drilling, which, in turn, protects adjacent vegetation and (2) potential sedimentation into nearby fish-bearing streams.</p>
<p>5. Minimize Vegetation Clearing for Operational Clearances</p> <p>Removal of vegetation in the right-of-way would be minimized to limit disturbance to timber resources, reduce disturbance to agricultural production, reduce visual contrast, and protect sensitive habitat, subject to structure- and conductor-clearance requirements. Trees and other vegetation would be removed selectively (e.g., edge feathering) to blend the edge of the right-of-way into adjacent vegetation patterns, as practicable and appropriate. Refer to EIS Section 2.3.3.2 for more description of vegetation management.</p>			<p>✓</p>	<p>✓</p>	<p>Selectively removing vegetation (i.e., trees, crops, other vegetative cover) in and along the edges of the right-of-way, or limiting the width of the area cleared in the right-of-way, reduces disruption of habitat, minimizes removal of timber resources, allows compatible land uses to continue, and reduces the visual contrast between the right-of-way and the surrounding environment. Minimizing the number of trees cleared in sensitive habitats would lessen impacts on wildlife habitat connectivity and avian nesting habitat. Minimizing disturbance to agricultural crops reduces production losses and maintains topsoil. Furthermore, feathering the edges of the right-of-way instead of cutting trees and vegetation in a straight line results in a more gradual modification to the environment and the hard visual line created by the cleared right-of-way/forest interface. Minimizing vegetation clearing also reduces the potential for erosion and potential sedimentation in nearby fish-bearing streams.</p>
<p>6. Limit New or Improved Accessibility to Areas Previously Inaccessible</p> <p>In areas of sensitive habitat or areas sensitive to additional public access, new or improved access in the B2H Project area would be limited.</p> <p>New or improved access would be closed or rehabilitated using the most effective and least environmentally damaging methods appropriate to that area (in consultation with the landowner or land-management agency). Methods for road closure or management may include installing locking gates, obstructing the path (e.g., earthen berms, boulders, redistribution of woody debris), revegetating and mulching the surface of the roadbed to make it less apparent, or restoring the road to its natural contour and vegetation.</p>			<p>✓</p>	<p>✓</p>	<p>Closing access roads where they are not needed after construction protects the area resources from further disturbance for the reasons described in Selective Mitigation Measure 1. The closing of these access roads would restore existing natural features as well as limit public access to wildlife populations, reduce stress and disturbance to wildlife, special status wildlife and habitats during critical life-cycle periods, anthropogenic disturbance, and traffic; consequently reducing erosive attributes (e.g., soil compaction, decompaction, rutting). Additionally, visual contrast would be reduced through restoring existing features in naturally intact and highly visible areas.</p>

Table 2-13. Selective Mitigation Measures					
Mitigation Measure	Mitigation Examples	Application Phase ¹			Mitigation Effectiveness
		Design and Engineering	Construction	Operation and Maintenance	
<p>7. Tower Design Modification</p> <p>The tower design may be modified to reduce resource impacts. Modifications include use of alternative structure type, modifying tower height, modifying tower leg lengths to accommodate varied terrain, and changing tower finish type.</p>		✓			<p>Flexibility in designing the tower, or use of different tower types, would allow tower structures to be more adapted to specific site situations. For example, in areas where there are sensitive views and an existing corridor, the proposed line could parallel an existing line and match the type of tower used along the existing line, minimizing visual contrast. In situations where an alternative structure may be shorter in height, there would be opportunities to screen or backdrop the structures against topography, resulting in reduced visual contrast. Additionally, tower design modification could be used to minimize perching opportunities for aerial predators where sensitive prey species occur (e.g., sage-grouse).</p>
<p>8. Span and/or Avoid Sensitive Features</p> <p>Within the limits of standard tower design, structures would be located to allow conductors to avoid identified sensitive features such as dwellings/buildings and span sensitive existing land uses, natural features, hazardous substance remediation sites, and cultural resource sites. This could be accomplished through methods such as selective tower placement, spanning sensitive features, or realigning the B2H Project centerline (micro-siting).</p>		✓	✓		<p>Flexibility in the placement of towers allows sensitive features to be avoided. Realigning the towers along an alternative route or realigning the alternative route (micro-siting), to the extent practicable, can result in avoiding or minimizing direct and indirect impacts on resources (e.g., cultural, biological, fish-bearing streams, and visual), as well as land uses (e.g., agriculture, parks, hazardous substance remediation, and recreation areas). This mitigation measure would reduce potential loss, degradation, and fragmentation of wildlife habitat; decreasing the risk of isolation between habitat areas and subpopulations. Additionally, the transmission line or associated facilities could be realigned, to the extent practicable, in areas with high concern viewsheds to locate structures to result in reduced visual contrast and visibility.</p>
<p>9. Match Transmission Line Spans</p> <p>Standard tower design would be modified to correspond with spacing of existing transmission line structures of similar voltage and/or span lengths, where feasible and within limits of standard tower design, to reduce visual contrast and/or potential operational conflicts. The normal span would be modified to correspond with existing towers, but not necessarily at every location.</p>		✓			<p>Matching tower spacing with existing parallel lines reduces the visual space occupied by the towers and minimizes the amount of contrast between the man-made structures and the landscape.</p>
<p>10. Maximize Span at Crossings</p> <p>At highway, canyon, and trail crossings, towers would be placed at the maximum feasible distance from the crossing within limits of standard tower design and in conformance with engineering and Applicant requirements to reduce visual impacts and potential impacts on recreation values and to increase safety at these locations from potential off-highway vehicle collisions.</p>		✓			<p>Placing towers at a maximum distance from major or sensitive crossings (e.g., roads and trails) can sometimes be done to reduce the dominance of views resulting from locating structures directly adjacent to these features. Locating structures directly adjacent to highways or over waterways can create potential safety hazards (i.e., vehicle collision with tower). Conversely, placing the towers so that the crossing is at mid-span means the clearance between the conductor and the ground is at its lowest.</p>

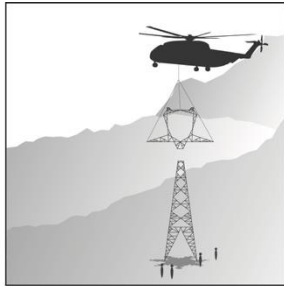
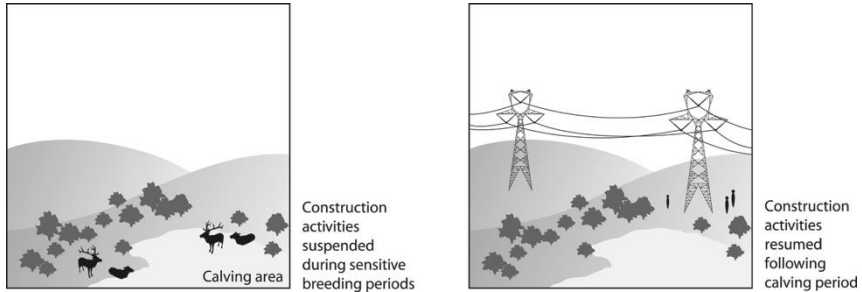
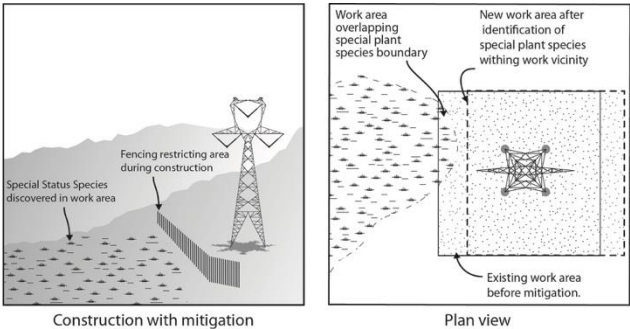
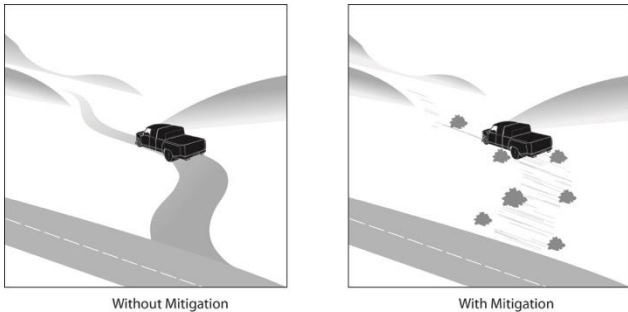
Table 2-13. Selective Mitigation Measures					
Mitigation Measure	Mitigation Examples	Application Phase ¹			Mitigation Effectiveness
		Design and Engineering	Construction	Operation and Maintenance	
<p>11. Helicopter-Assisted Construction</p> <p>Helicopter-assisted placement of towers during construction and maintenance may be used where practicable to reduce surface impacts in environmental constraint areas or steep terrain locations.</p>			✓	✓	Using helicopters to place towers in steep terrain or otherwise sensitive areas reduces land-use and natural-resource impacts as a result of on-the-ground construction activities. Limiting ground disturbance would reduce the loss of vegetation, accelerated soil erosion, potential damage to cultural resources, and visual impacts. This mitigation is most effective in specially designated areas where the existing access roads would require extensive improvement or the construction of new access roads is not desired, to meet management prescriptions.
<p>12. Seasonal and Spatial Fish and Wildlife Restrictions</p> <p>To minimize disturbance to identified fish and wildlife species during sensitive periods, construction, operation, and maintenance activities would be restricted in designated areas unless exceptions are granted by the Authorized Officer or his/her designated representative and other applicable regulatory agencies (e.g., U.S. Fish and Wildlife Service [USFWS], National Oceanic and Atmospheric Administration Fisheries, state wildlife agencies). A list of seasonal and spatial restriction for biological resources is presented in Appendix B of the EIS.</p>			✓	✓	Restricting construction activities or maintenance during identified sensitive periods would avoid potential disturbance of fish and wildlife during critical periods of their life cycles.
<p>13. Spatial Plant Restrictions</p> <p>To minimize disturbance to identified plant species, construction, operation, and maintenance activities would be restricted in designated areas unless exceptions are granted by the Authorized Officer or his/her designated representative and other applicable regulatory agencies (e.g., U.S. Fish and Wildlife Service, state wildlife agencies).</p>			✓	✓	Restricting construction activities or maintenance during identified sensitive periods would avoid potential disturbance of plants during critical periods of their life cycles.
<p>14. Overland Access</p> <p>In addition to using overland travel in work areas, overland access to work areas may be used to reduce resource impacts. The construction contractor would use overland access in areas where no grading would be needed to access work areas. Overland access would consist of drive-and-crush (i.e., vehicular travel to access a site without significantly modifying the landscape, cropping vegetation, or removing soil) and/or clear-and-cut travel (removal of all vegetation while leaving the root crown intact to improve or provide suitable access for equipment). Prior to commencement of work activities, overland access routes would be staked. Routes would be specified in the Plan of Development (POD). Use of overland access routes would be restricted based on dry or frozen soil conditions, seasonal weather conditions, and relatively flat terrain.</p>			✓	✓	Overland access, where allowed, would avoid or minimize the removal of surface soil and vegetation where soils are susceptible to wind and water erosion, reducing the potential for erosion and loss of habitat. Avoiding constructing a new road would reduce the potential for increased traffic and the associated indirect effects including the introduction of invasive weeds and special status wildlife habitat fragmentation.

Table 2-13. Selective Mitigation Measures

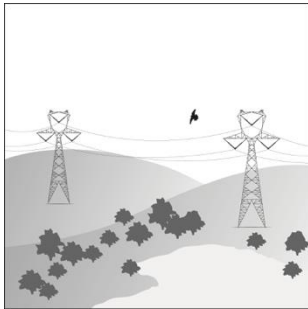
Mitigation Measure	Mitigation Examples	Application Phase ¹			Mitigation Effectiveness
		Design and Engineering	Construction	Operation and Maintenance	
<p>15. Flight Diverters and Perch Deterrents</p> <p>Shield wires, guy wires, and overhead optical ground wire along designated portions of the transmission line with a high potential for avian collisions would be marked with flight diverters or other Bureau of Land Management or U.S. Forest Service approved devices in accordance with agency requirements and Reducing Avian Collisions with Power Lines, The State of the Art in 2012 (APLIC 2012). Portions of the transmission line adjacent to or that cross through waterfowl and general migratory pathways or habitat for high priority species may be marked to reduce the risk of avian collisions. This measure also may include use of devices to deter raptors from perching on transmission line structures in habitat for high priority prey species (e.g., sage-grouse). The specific segments where these devices would be used would be determined in consultation with the appropriate agencies.</p>			✓	✓	<p>Marking guy wires and overhead optical ground wires on segments of the transmission lines that are adjacent to or cross through high-priority avian habitat or where risk of avian collisions are elevated would minimize the risk of avian collision.</p>

Table Note: ¹These three columns refer to the phase and/or phases of the B2H Project during which selective mitigation measures are relevant (i.e., during design and engineering, construction, and/or operation and maintenance).

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Additionally, mitigation to offset or compensate for impacts on some qualifying resources may require mitigation measures and conservation actions to achieve land-use plan goals and objectives and provide for sustained yield of natural resources on public lands, while continuing to honor the agency's multiple-use mission. Reasonably foreseeable residual effects on resources that are expected to remain after the application of mitigation measures that meet the following criteria warrant compensatory mitigation:

- Residual effects that, if compensatory mitigation were not required, would inhibit achieving compliance with laws, regulations, and/or policies.
- Residual effects that, if compensatory mitigation were not required, would inhibit achieving land-use plans objectives.
- Residual effects on important, scarce, or sensitive resources that have been previously identified in a mitigation strategy as warranting compensatory mitigation.
- Residual effects to important, scarce, or sensitive resources that are identified through a NEPA process as warranting compensatory mitigation.

The sequence of mitigation action would comply with the mitigation identified by the CEQ (40 CFR 1508.20) and BLM's Draft Manual Section-1794 – Regional Mitigation (interim policy) and could include measures for the BLM to consider for compensating for an impact by replacing or providing substitute resources or environments. Examples include creation or restoration of wetlands; offsite vegetation treatments to improve sage-grouse or migratory bird habitat; purchase of property or conservation easements to provide long-term protection for sage-grouse or migratory bird habitats; or appropriate mitigation for impacts on designated National Scenic and/or Historic Trails or those trails recommended as suitable for congressional designation. Appendix C contains a Mitigation Framework. The Mitigation Framework (hereafter Framework) is intended to be a framework, not a site-specific mitigation plan, to discuss how the mitigation hierarchy, including compensatory mitigation, is applied to the direct and indirect impacts of the project. The Framework will (1) describe how avoidance and minimization would eliminate and/or reduce impacts; (2) identify remaining (i.e., residual) impacts to be addressed through compensatory mitigation; and (3) establish the process to assess the compensatory mitigation obligation to achieve a no net loss, or as required or appropriate, a net benefit to resources. Upon identification of the selected route in the Record of Decision and following final engineering and design, the Mitigation Framework will be used to prepare a final Compensatory Mitigation Plan. The Compensatory Mitigation Plan will be prepared using the mitigation framework as a guide for assessing the direct and indirect impacts based on an engineered and designed alignment, and identify a suite of site-specific compensatory mitigation options for selection and implementation under the review and guidance of the cooperating agencies. The goal of the Compensatory Mitigation Plan will be to provide a net benefit to sage-grouse habitat and for other resources, a no net loss and where required or appropriate, a net benefit. Cooperating agencies will review to establish consistency with the guidance and standards and principles for their particular agency and a recommendation will be made to the Authorized Officer for approval prior to any issuance of notices to proceed for the long-term right-of-way grant.

This approach is consistent with the Presidential Memorandum: Mitigating Impacts on Natural Resources from Development and Encouraging Related Private Investment (November 3, 2015); Secretarial Order No. 3330, Improving Mitigation Policies and Practices of the Department of the Interior; the BLM's obligations under the FLPMA, NEPA, Mineral Leasing Act of 1920, as amended, CEQ Regulations; and the USDI Manual 600 DM 6: Landscape Scale Mitigation Policy and WO IM2013-142: Draft MS-1794 – Regional Mitigation.

In addition to any compensatory mitigation required by the BLM, the Applicant may be required to provide compensatory mitigation for (1) effects on fish and wildlife habitat in accordance with the Energy Facility Siting Council Fish and Wildlife Habitat standard (OAR 345-022-0060), which incorporates the Oregon Department of Fish and Wildlife (ODFW) Habitat Mitigation Policy (OAR 635-415-0025), (2) effects on forested habitat on the Willowa-Whitman National Forest, (3) effects on species listed under the ESA included as terms and conditions of the National Oceanic and Atmospheric Administration (NOAA) Fisheries and the U.S. Fish and Wildlife Service (USFWS) Biological Opinions, and (4) effects on wetlands, streams, and other aquatic resources regulated by the Clean Water Act Section 404 permitting process and other U.S. Army Corp of Engineer (USACE) permits. The requirements of these agencies are described in Appendix C.

RESIDUAL IMPACTS

Residual impacts are the environmental effects that remain after selective mitigation measures are applied. After the locations of potential residual impacts were identified, the intensities of such potential residual impacts anticipated to occur from construction along the reference centerline of the alternative routes were assessed and mapped (Volume II). They are discussed in the Environmental Consequences sections for each resource in Chapter 3.

The description of residual effects anticipated for each alternative route should be reviewed in conjunction with the resource inventory maps provided in Volume II. Several of the alternative routes considered in this EIS share common links and would result in similar environmental effects. Rather than repeating information, in most cases the descriptions of alternative routes have been abbreviated, as appropriate, to focus on the effects unique to an alternative route.

SCREENING AND COMPARING ALTERNATIVES

Through a systematic analysis, as shown in Figure 2-21, the alternative routes were screened and compared to narrow the number of alternative routes and to determine the most environmentally acceptable routes to be addressed in the EIS.

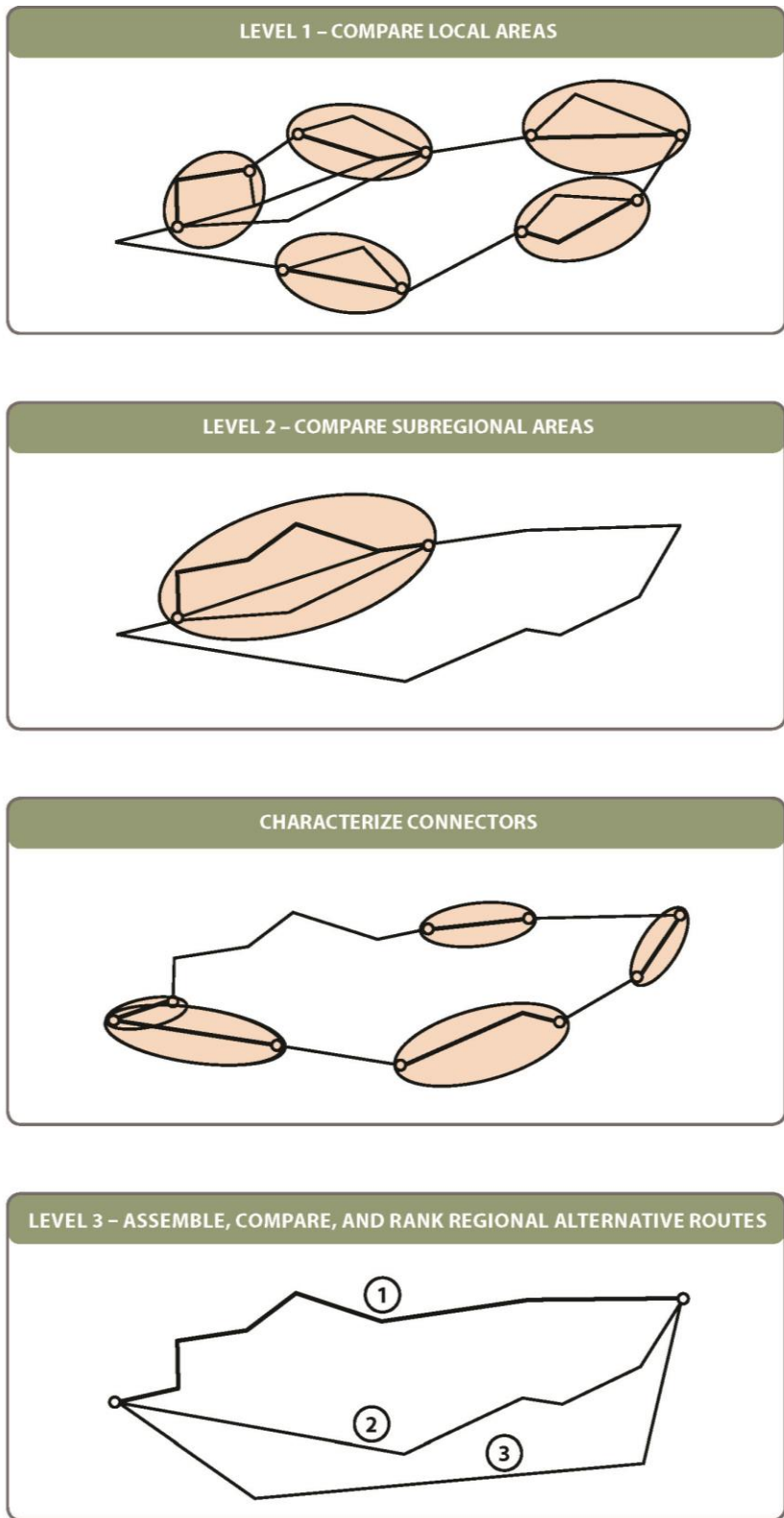


Figure 2-21. Alternative Routes Screening and Comparison Approach

Once the impacts along each of the alternative routes had been analyzed, the alternative routes were screened to characterize the impacts and compared to identify which were most environmentally preferable (in accordance with criteria at 40 CFR 1502.14). Screening and comparing the routes was conducted progressively in three levels, as illustrated in Figure 2-21, for all of the alternative routes. Level 1 screening focused on comparison of route variations in localized areas. Level 2 screening focused on larger subregional areas. Level 3 screening involved combining the suitable segments of routes from the first two levels of screening to form complete routes in each segment.

The results of the screening and comparison establish the basis for characterizing the impacts of remaining, complete alternative routes and comparing those alternative routes. The results of the comparison of alternative routes are presented in Section 2.6.

2.5.2 TRANSMISSION LINE ALTERNATIVE ROUTES

The B2H Project area is organized into the same six segments broadly described in the Draft EIS and are based generally on similar geography, natural features, drainages, resources, and/or land uses. The B2H Project segments, from north to south, are as follows:

- Segment 1—Morrow-Umatilla
- Segment 2—Blue Mountains
- Segment 3—Baker Valley
- Segment 4—Brogan
- Segment 5—Malheur
- Segment 6—Treasure Valley

There are multiple alternative routes in each segment. Each segment begins and ends where the alternative routes meet and intersect at a common point, or segment node. This section provides a description of each alternative route, and localized variations, if applicable, in each of the six segments. The alternative routes analyzed for the Final EIS include the alternative routes analyzed in the Draft EIS and the route variations resulting (1) from collocating the alignment of the proposed transmission line closer to existing transmission lines and (2) from recommendations received in comments on the Draft EIS. The BLM took a hard look at the route variations and determined the route variations are all within the B2H Project area and, additionally, the route variations incorporated into the network of alternative routes are within the spectrum of alternatives already analyzed; therefore, the EIS does not require supplementation.

Map 2-6 shows the six segments. Maps 2-7a through 2-7f show the alternative routes and route variations in each segment. Table 2-14 is a list of the alternative routes and variations and discloses the approximate disturbance anticipated along each alternative route and route variation. Then each alternative route is described and is accompanied by a small diagram showing the alignment of that alternative route.

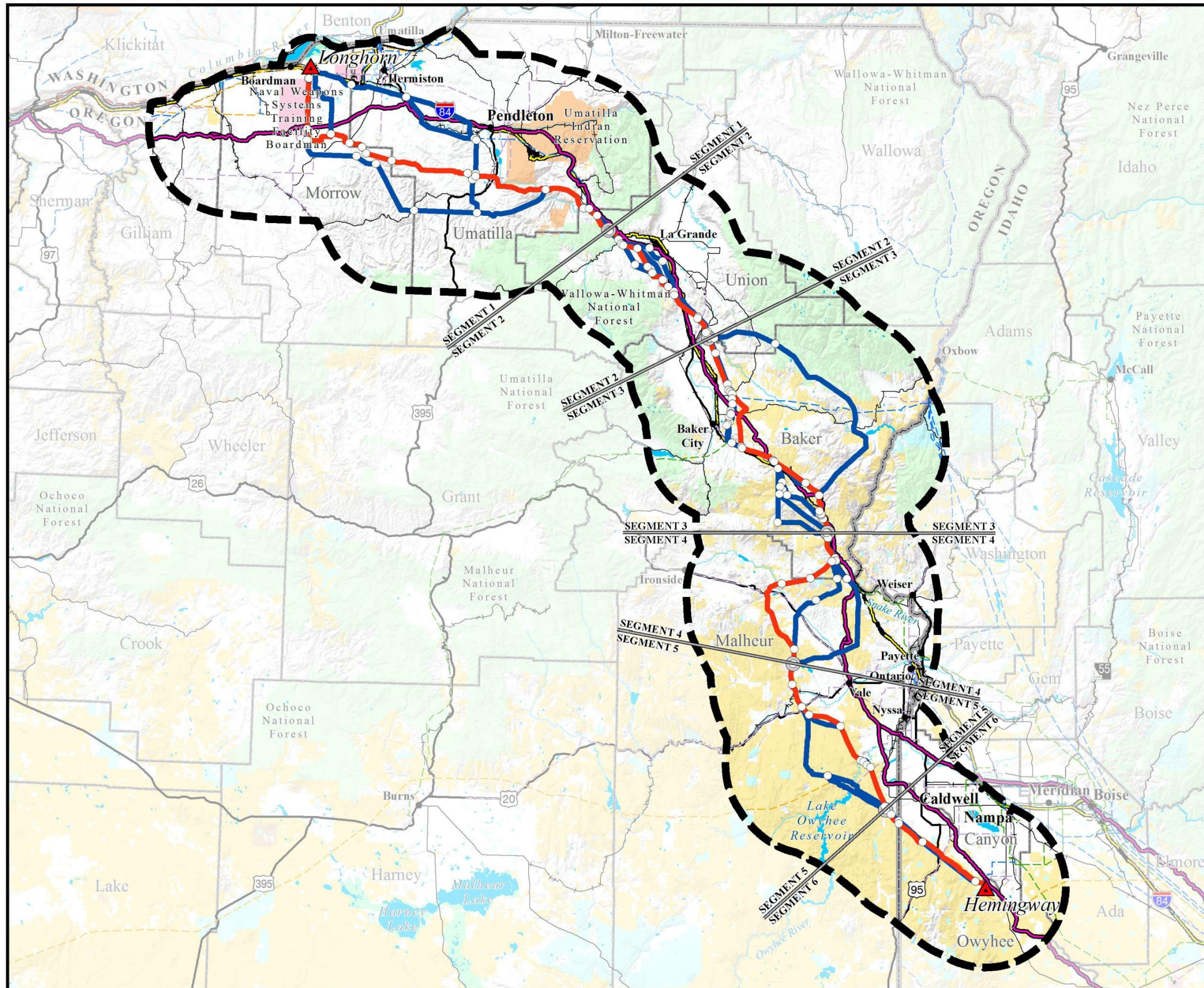
NOTE: The term “Proposed Action” refers to Idaho Power Company's proposal to construct, operate, and maintain a 500-kV transmission line from the area of Boardman, Oregon, to the area of Hemingway, Idaho. The term “Applicant's Proposed Action Alternative” is the Applicant's preferred route.

Table 2-14. Alternative Routes and Variations by Segment		
Alternative Route	Link(s)	Length (Miles¹)
Segment 1 – Morrow-Umatilla		
Applicant's Proposed Action (modified to Longhorn Substation and West of Bombing Range Road)	1-1, 1-3, 1-7,1-27, 1-35, 1-43,1-45, 1-51,1-53, 1-59, 1-60, 1-61, 1-50, 1-63, 1-65, 1-71, 1-77	91.9
<i>Variation S1-B1</i>	<i>1-77</i>	6.4
<i>Variation S1-B2</i>	<i>1-73, 1-75</i>	6.4
East of Bombing Range Road	1-1, 1-3, 1-11, 1-25, 1-33, 1-41, 1-43, 1-45, 1-51, 1-53, 1-59, 1-60, 1-61, 1-50,1-63, 1-65, 1-71,1-77	92.3
Applicant's Proposed Action – Southern Route	1-1, 1-3, 1-7, 1-27, 1-35, 1-43, 1-45, 1-51, 1-53, 1-59, 1-60, 1-79,1-83, 1-66, 1-65, 1-71, 1-77	99.1
West of Bombing Range Road – Southern Route	1-1, 1-3, 1-7, 1-27, 1-35, 1-36, 1-38, 1-62, 1-64, 1-66, 1-65, 1-71, 1-77	95.6
Longhorn	1-5, 1-9, 1-15, 1-45, 1-51, 1-53, 1-59, 1-60, 1-61, 1-50, 1-63, 1-65, 1-71, 1-77	88.2
Interstate 84	1-5, 1-9, 1-19, 1-23, 1-31, 1-39, 1-49, 1-50, 1-63, 1-65, 1-71, 1-77	84.7
<i>Variation S1-A1 (230-kV)</i>	<i>1-31</i>	18.5
<i>Variation S1-A2 (230-kV)</i>	<i>1-37</i>	18.5
Interstate 84 – Southern Route	1-5, 1-9, 1-19, 1-23, 1-31, 1-39, 1-49, 1-50, 1-81, 1-83, 1-66, 1-65, 1-71, 1-77	93.4
Segment 2 – Blue Mountains		
Applicant's Proposed Action	2-1, 2-5, 2-15, 2-20, 2-30, 2-35, 2-45, 2-47, 2-50, 2-52, 2-60, 2-75, 2-85, 2-95	33.8
<i>Variation S2-A1</i>	<i>2-1, 2-5</i>	2.8
<i>Variation S2-A2</i>	<i>2-3, 2-7</i>	2.9
<i>Variation S2-B1</i>	<i>2-30, 2-35</i>	3.7
<i>Variation S2-B2</i>	<i>2-25</i>	3.8
<i>Variation S2-C1</i>	<i>2-45, 2-47, 2-50</i>	9.3
<i>Variation S2-C2</i>	<i>2-48</i>	8.8
<i>Variation S2-E1</i>	<i>2-60</i>	2.3
<i>Variation S2-E2</i>	<i>2-55, 2-65</i>	2.6
<i>Variation S2-F1</i>	<i>2-75, 2-85, 2-95</i>	12.1
<i>Variation S2-F2</i>	<i>2-70, 2-80, 2-90</i>	12.2

Table 2-14. Alternative Routes and Variations by Segment		
Alternative Route	Link(s)	Length (Miles¹)
Glass Hill	2-1, 2-5, 2-15, 2-20, 2-30, 2-40, 2-42, 2-47, 2-50, 2-52, 2-60, 2-75, 2-85, 2-95	33.7
<i>Variation S2-D1 (Glass Hill)</i>	2-42, 2-47	4.3
<i>Variation S2-D2 (Glass Hill)</i>	2-46	4.1
Mill Creek	2-3, 2-7, 2-10, 2-12, 2-63, 2-65, 2-70, 2-80, 2-90	34.0
Segment 3 – Baker Valley		
Applicant's Proposed Action	3-4, 3-22, 3-26, 3-28, 3-52, 3-54, 3-58, 3-78, 3-80, 3-82, 3-86, 3-88, 3-92	55.2
<i>Variation S3-A1</i>	3-4, 3-22	12.4
<i>Variation S3-A2</i>	3-10, 3-12, 3-14, 3-20	12.2
<i>Variation S3-B1</i>	3-26, 3-28	13.9
<i>Variation S3-B2</i>	3-24, 3-31, 3-37, 3-41, 3-46, 3-47, 3-48	14.4
<i>Variation S3-B3</i>	3-24, 3-31, 3-37, 3-41, 3-46, 3-45, 3-44, 3-48	14.7
<i>Variation S3-B4</i>	3-24, 3-31, 3-32, 3-36, 3-38, 3-39, 3-43, 3-44, 3-48	14.3
<i>Variation S3-B5</i>	3-24, 3-34, 3-36, 3-38, 3-39, 3-40, 3-46, 3-47, 3-48	14.0
<i>Variation S3-C1</i>	3-58, 3-78, 3-80, 3-82, 3-86, 3-88, 3-92	21.1
<i>Variation S3-C2</i>	3-56, 3-42, 3-78, 3-80, 3-82, 3-86, 3-88, 3-92	21.7
<i>Variation S3-C3</i>	3-56, 3-60, 3-62, 3-64, 3-72, 3-76, 3-88, 3-92	21.1
<i>Variation S3-C4</i>	3-56, 3-60, 3-62, 3-68, 3-70, 3-72, 3-76, 3-88, 3-92	21.4
<i>Variation S3-C5</i>	3-56, 3-60, 3-62, 3-66, 3-71, 3-73, 3-94	21.0
<i>Variation S3-C6</i>	3-56, 3-60, 3-74, 3-90, 3-94	24.7
Flagstaff A	3-4, 3-22, 3-24, 3-34, 3-36, 3-38, 3-39, 3-40, 3-46, 3-47, 3-48, 3-52, 3-54, 3-58, 3-78, 3-80, 3-82, 3-86, 3-88, 3-92	55.3
Timber Canyon	3-1, 3-2, 3-6, 3-8, 3-80, 3-82, 3-86, 3-88, 3-92	70.3
Flagstaff A – Burnt River Mountain	3-10, 3-12, 3-14, 3-20, 3-24, 3-34, 3-36, 3-38, 3-39, 3-40, 3-46, 3-47, 3-48, 3-52, 3-54, 3-56, 3-60, 3-62, 3-64, 3-72, 3-76, 3-88, 3-92	55.3
Flagstaff B	3-4, 3-22, 3-24, 3-31, 3-37, 3-41, 3-46, 3-45, 3-44, 3-48, 3-52, 3-54, 3-58, 3-78, 3-80, 3-82, 3-86, 3-88, 3-92	56.0
Flagstaff B – Burnt River West	3-10, 3-12, 3-14, 3-20, 3-24, 3-31, 3-37, 3-41, 3-46, 3-45, 3-44, 3-48, 3-52, 3-54, 3-56, 3-60, 3-62, 3-66, 3-71, 3-73, 3-94	55.7
Flagstaff B – Durkee	3-4, 3-22, 3-24, 3-31, 3-37, 3-41, 3-46, 3-45, 3-44, 3-48, 3-52, 3-54, 3-56, 3-60, 3-74, 3-90, 3-94	59.6
Segment 4 – Brogan		
Applicant's Proposed Action	4-1, 4-10, 4-11, 4-13, 4-25, 4-45, 4-50, 4-65, 4-70	40.1
<i>Variation S4-A1</i>	4-1, 4-10, 4-11, 4-13	5.9
<i>Variation S4-A2</i>	4-1, 4-5, 4-15, 4-17	6.0

Table 2-14. Alternative Routes and Variations by Segment		
Alternative Route	Link(s)	Length (Miles¹)
<i>Variation S4-A3</i>	4-3, 4-11, 4-12, 4-17	6.1
Tub Mountain South	4-1, 4-5, 4-15, 4-17, 4-20, 4-30, 4-75	40.5
Willow Creek	4-1, 4-10, 4-11, 4-13, 4-25, 4-35, 4-40, 4-60, 4-70	34.6
Segment 5 – Malheur		
Applicant’s Proposed Action	5-1, 5-5, 5-10, 5-15, 5-40, 5-50, 5-55, 5-65, 5-70, 5-75	40.4
<i>Variation S5-A1</i>	5-15	7.4
<i>Variation S5-A2</i>	5-20	7.4
<i>Variation S5-B1 (Owyhee River Crossing)</i>	5-50, 5-55, 5-65	2.5
<i>Variation S5-B2 (Owyhee River Crossing)</i>	5-45	2.8
Malheur S	5-1, 5-5, 5-25, 5-30, 5-75	43.5
Malheur A	5-1, 5-5, 5-25, 5-35	43.1
Segment 6 – Treasure Valley		
Applicant’s Proposed Action	6-1, 6-10, 6-20, 6-25, 6-35	28.0
<i>Variation S6-A1</i>	6-10, 6-20	9.3
<i>Variation S6-A2</i>	6-5, 6-15	8.9
<i>Variation S6-B1</i>	6-25	14.4
<i>Variation S6-B2</i>	6-30	14.1
<i>Table Note: ¹Mileage calculations are approximate.</i>		

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Map 2-6

Segments

BOARDMAN TO HEMINGWAY TRANSMISSION LINE PROJECT

Project Features

- Project Area Boundary
- Substation (Project Terminal)
- Applicant's Proposed Action Alternative
- Alternative Route
- Link Node
- Segment Node

Land Ownership

- Bureau of Land Management
- U.S. Fish and Wildlife Service
- Bureau of Reclamation
- U.S. Forest Service
- Indian Reservation
- Other Federal
- National Park Service
- State Land
- U.S. Department of Defense
- Private Land

General Reference

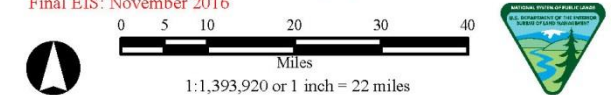
- City or Town
- 500-kV Transmission Line
- 345-kV Transmission Line
- 230-kV Transmission Line
- 138-kV Transmission Line
- 69- to 115-kV Transmission Line
- Railroad
- Interstate Highway
- U.S. Highway
- State Highway
- Lake or Reservoir
- State Boundary
- County Boundary
- Oregon National Historic Trail Congressionally Designated Alignment

SOURCES:
 Land Status, BLM 2014, 2015; Cities and Towns, ESRI 2013; Transmission Lines, Bonneville Power Administration 2009, Idaho Power Company 2007, Logan Simpson Design 2011, Ventyx 2012; Pipelines, ESRI 2012; Railroads, Idaho DOT 2006, Oregon DOT 2014; Highways, ESRI 2013; Waterbodies, ESRI 2013; State and County Boundaries, ESRI 2013; Oregon National Historic Trail Congressionally Designated Alignment, BLM 2015

NOTES:

- The alternative routes shown on this map are draft and may be revised or refined throughout the development of the project.
- Substation symbols do not necessarily represent precise locations.
- The B2H Project area boundary is defined by buffering the alternative route centerlines.
- Other federal land ownership may include lands administered by the U.S. Department of Energy, Bonneville Power Administration, Federal Aviation Administration, General Services Administration, or U.S. Department of Agriculture (except U.S. Forest Service).
- Each alternative route is composed of links, which are discrete sections of the route sharing common endpoints determined by the point of intersection with other adjacent links, the common endpoint is referred to as a link node. Links generally are numbered from north to south. Similarly, a segment is composed of alternative routes that share common endpoints determined by the point of intersection with other adjacent alternative routes, the common endpoint is referred to as a segment node.
- No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.

Alternative routes last revised: February 18, 2016
 Final EIS: November 2016



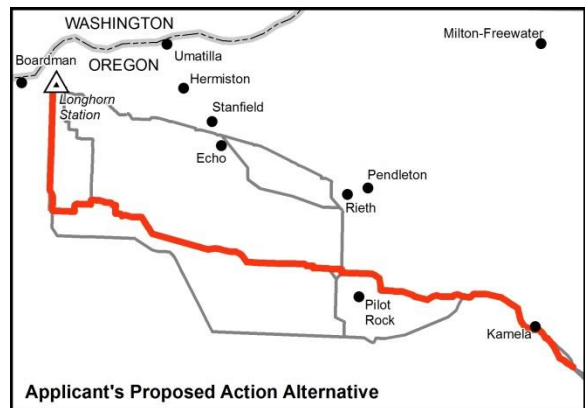
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2.5.2.1 SEGMENT 1—MORROW-UMATILLA

Segment 1 begins at the planned Longhorn Substation in Morrow County and ends west of La Grande in Union County on the Wallowa-Whitman National Forest. The seven alternative routes and two areas of local variations in Segment 1 are shown in Map 2-7a.

APPLICANT'S PROPOSED ACTION ALTERNATIVE [LINKS 1-1, 1-3, 1-7, 1-27, 1-35, 1-43, 1-45, 1-51, 1-53, 1-59, 1-60, 1-61, 1-50, 1-63, 1-65, 1-71, 1-77; 91.9 MILES]

Comments on the Draft EIS from the Applicant indicated a change in the Applicant's Proposed Action from using the Grassland or Horn Butte Substation to using the proposed Longhorn Substation. The Longhorn Substation was addressed in the Draft EIS; however, the Applicant Proposed Action Alternative route now exits the Longhorn Substation and heads south on the west side of Bombing Range Road to a point where the route variation turns to the east and then continues along the Applicant's Proposed Action Alternative described in the Draft EIS.



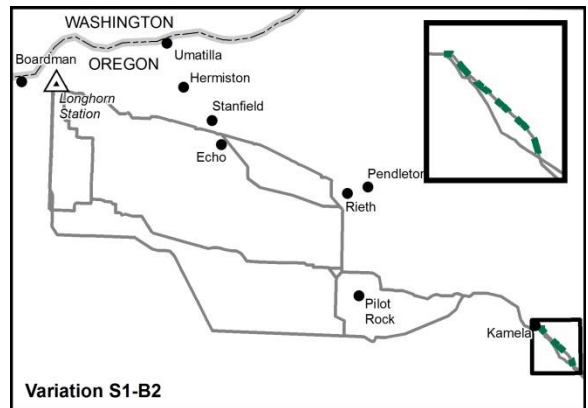
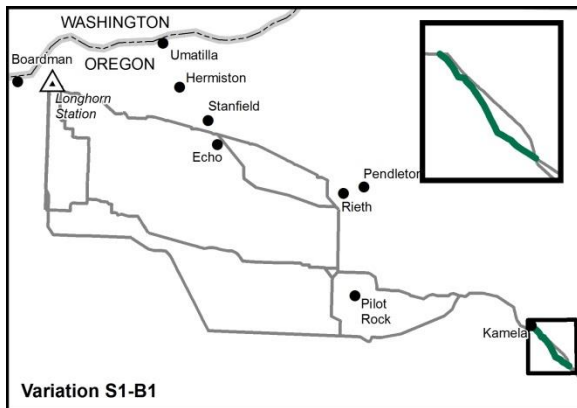
The Applicant's Proposed Action Alternative in Segment 1 exits the planned Longhorn Substation to the south, crossing the intersection of Interstate 84 and U.S. Highway 730, where the transmission line would then cross to the west side of Bombing Range Road. The alternative continues along the west side of Bombing Range Road for approximately 12 miles, within a 90-foot-wide use area, currently occupied by a 69-kV transmission line owned by BPA, on the NWSTF Boardman, before crossing the road and turning to the east traversing areas of irrigated and dryland agriculture for approximately 40 miles north of Butter Creek and Jack Canyon. The transmission line would cross U.S. Highway 395 between the community of Pilot Rock and the McKay Creek National Wildlife Refuge before ascending the Blue Mountains, south of the Umatilla Indian Reservation, across McKay Creek and onto the Wallowa-Whitman National Forest. This alternative does not parallel the existing 230-kV transmission line, starting south of Kamela, to avoid crossing Interstate 84 twice and continues to the southeast between the interstate and the Blue Mountain Forest State Scenic Corridor in Railroad Canyon.

This alternative (as well as the Applicant's Proposed Action – Southern Route Alternative and West of Bombing Range Road – Southern Route Alternative) would be designed using two tower types. From Longhorn Substation for about 3.0 miles, the transmission line structures typically would be 170-foot tall self-supported steel lattice with typical spans of approximately 1,500 feet between structures. From that point to the south, where the transmission line would be adjacent to the NWSTF Boardman, structures would be no taller than 100 feet tubular steel H-frame with typical spans of 400 to 600 feet between structures. Where the transmission line would no longer be adjacent to the NWSTF Boardman, the structure type would revert to 170-foot tall self-supported steel lattice.

VARIATION S1 AREA B (KAMELA, WALLOWA-WHITMAN NATIONAL FOREST AREA)

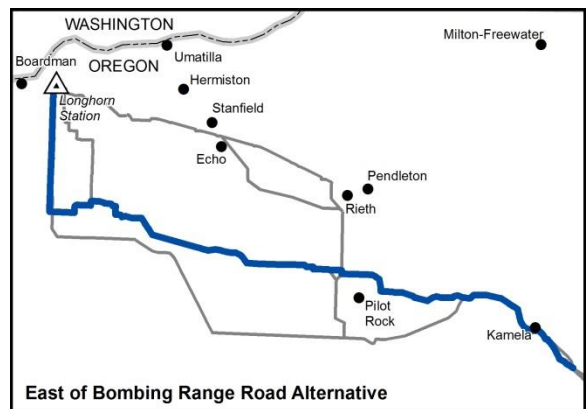
Variation S1-B1 (Link 1-77; 6.4 miles) shares the same alignment as all of the alternative routes in Segment 1 located between Interstate 84 and Blue Mountain Forest State Scenic Corridor in Railroad Canyon. This variation does not parallel the existing 230-kV transmission line, starting south of Kamela, to avoid crossing Interstate 84 twice.

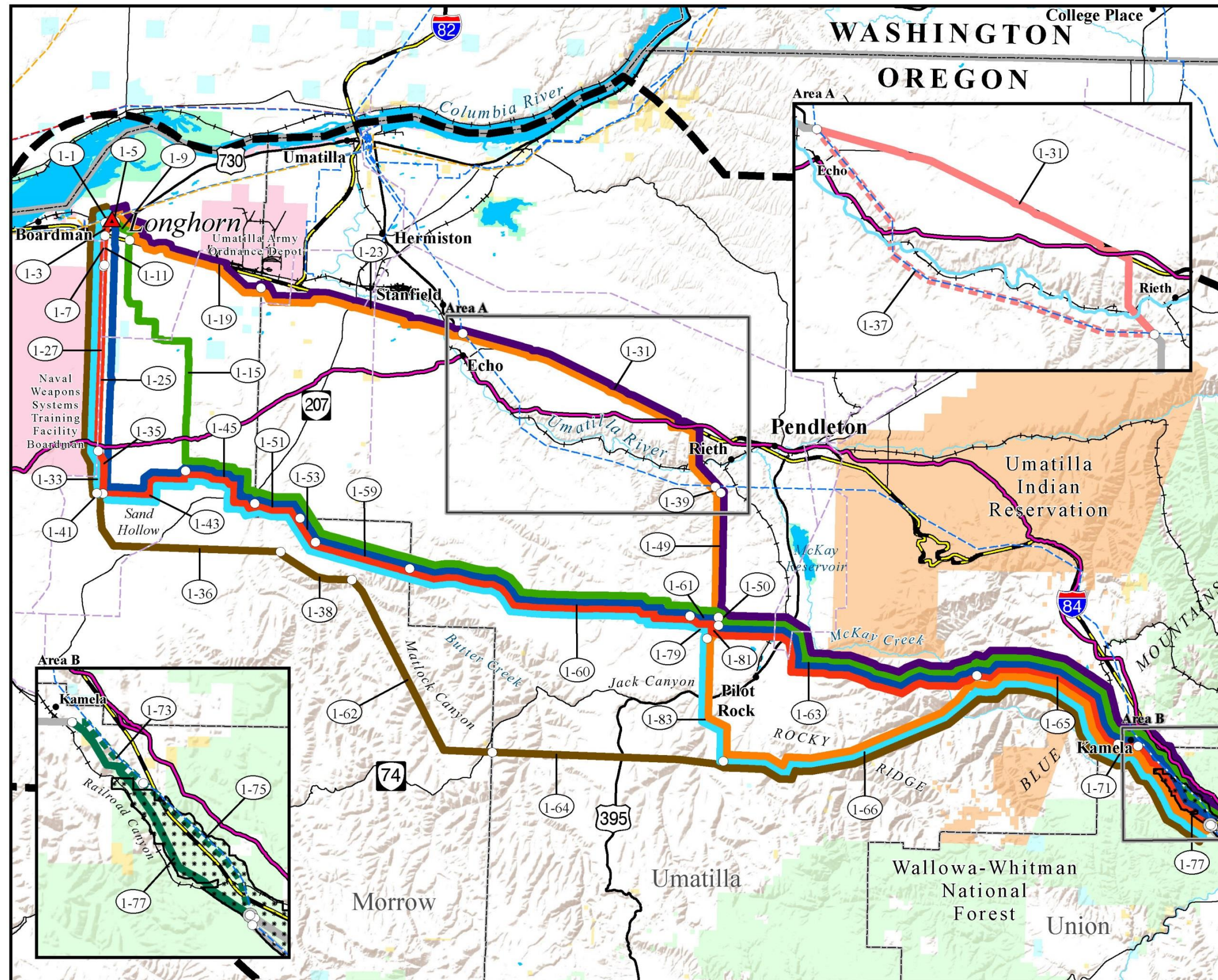
Variation S1-B2 (Links 1-73; 1-75, 6.4 miles) separates from the Segment 1 alternatives, south of Kamela, to parallel the existing 230-kV transmission line crossing Interstate 84 twice before rejoining the Segment 1 alternatives south of the interstate.



EAST OF BOMBING RANGE ROAD ALTERNATIVE (LONGHORN VARIATION IN DRAFT EIS) [LINKS 1-1, 1-3, 1-11, 1-25, 1-33, 1-41, 1-43, 1-45, 1-51, 1-53, 1-59, 1-60, 1-61, 1-50, 1-63, 1-65, 1-71, 1-77; 92.3 MILES]

The East of Bombing Range Road Alternative was addressed in the Draft EIS as the Longhorn Variation. It differs from the Applicant’s Proposed Action Alternative only in that it parallels Bombing Range Road on the east side rather than on the west side of the road. The route was developed to address concerns (1) raised by the Navy regarding encroachment on military airspace in the vicinity of the NWSTF Boardman, (2) to minimize effects on tree farms and dairies in the area, and (3) to align with an existing transmission corridor.





Map 2-7a
Segment 1
Morrow-Umatilla

**BOARDMAN TO HEMINGWAY
TRANSMISSION LINE PROJECT**

Alternative Routes^{1,2}

Applicant's Proposed Action Alternative	West of Bombing Range Road - Southern Route Alternative
East of Bombing Range Road Alternative	Longhorn Alternative
Applicant's Proposed Action - Southern Route Alternative	Interstate 84 Alternative
	Interstate 84 - Southern Route Alternative

Variations

AREA A Variation S1-A1	AREA B Variation S1-B1
AREA A Variation S1-A2	AREA B Variation S1-B2

Project Features

Project Area Boundary	Link Node
Substation (Project Terminal)	Segment Node
Link Number	

Land Ownership

Bureau of Land Management	U.S. Fish and Wildlife Service
Bureau of Reclamation	U.S. Forest Service
Indian Reservation	State Land
U.S. Department of Defense	Private Land

General Reference

City or Town	Interstate Highway
Land and Resource Management Plan Utility Corridor	U.S. Highway
500-kV Transmission Line	State Highway
345-kV Transmission Line	Lake or Reservoir
230-kV Transmission Line	State Boundary
69- to 115-kV Transmission Line	County Boundary
Railroad	Oregon National Historic Trail Congressionally Designated Alignment

SOURCES:
 Land Jurisdiction, BLM 2014, 2015; Cities and Towns, ESRI 2013; Land and Resource Management Plan Utility Corridors, USFS 2010; Transmission Lines, Venityx 2012; Logan Simpson Design 2011; Bonneville Power Administration 2009; Idaho Power Company 2007; Substations, EPG 2015; Railroads, Idaho DOT 2006, Oregon DOT 2009; Highways, ESRI 2013; Waterbodies, ESRI 2013; State and County Boundaries, ESRI 2013; Oregon National Historic Trail Congressionally Designated Alignment, BLM 2015

NOTES:
 • Alternative routes are depicted graphically on map and, in most cases, share centerline alignment in common areas.
 • Alternative routes, but not route variations, are shown within the overall geographic extent.
 • The alternative routes shown on this map are draft and may be revised or refined throughout the development of the project.
 • Substation symbols do not necessarily represent precise locations.
 • The B2H Project area boundary is defined by buffering the alternative route centerlines.
 • Other federal land ownership may include lands administered by the U.S. Department of Energy, Bonneville Power Administration, Federal Aviation Administration, General Services Administration, or U.S. Department of Agriculture (except U.S. Forest Service).
 • Each alternative route is composed of links, which are discrete sections of the route sharing common endpoints determined by the point of intersection with other adjacent links; the common endpoint is referred to as a link node. Links generally are numbered from north to south. Similarly, a segment is composed of alternative routes that share common endpoints determined by the point of intersection with other adjacent alternative routes; the common endpoint is referred to as a segment node.
 • No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.

Alternative routes last revised: February 18, 2016
 Final EIS: November 2016

0 5 10
Miles
1:375,000 or 1 inch = 6 miles

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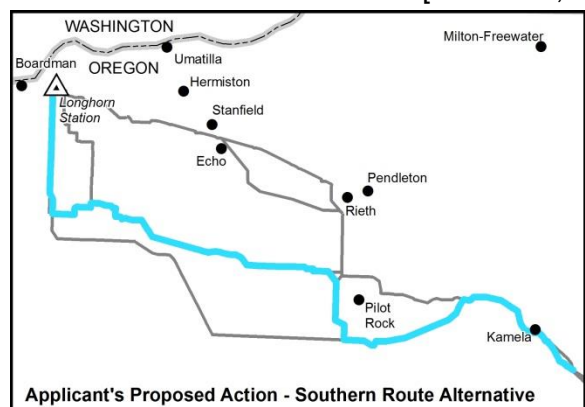
Although closer to the NWSTF Boardman property, the alternative route parallels the existing UEC 115-kV transmission line (located on the east side of Bombing Range Road) and the BPA 69-kV line (located on the west side of Bombing Range Road). The right-of-way along the northern portion of this alternative would be immediately adjacent to but would not extend over the eastern boundary of the NWSTF Boardman property.

The alternative route exits the planned Longhorn Substation to the southwest, where it immediately crosses over the Union Pacific Railroad, then turns south and crosses the intersection of Interstate 84 and U.S. Highway 730, where the transmission line would continue south along the east side of Bombing Range Road, crossing mostly private land and a parcel of state-administered land. The alternative route continues along the east side of Bombing Range Road for approximately 15 miles, along the edge of the Boardman Tree Farm and other irrigated agricultural lands, before turning to the east traversing areas of irrigated and dryland agriculture for approximately 40 miles north of Butter Creek and Jack Canyon. The transmission line would cross U.S. Highway 395 between the community of Pilot Rock and the McKay Creek National Wildlife Refuge before ascending the Blue Mountains, south of the Umatilla Indian Reservation, across McKay Creek and onto the Wallowa-Whitman National Forest. This alternative route does not parallel the existing 230-kV transmission line, starting south of Kamela, to avoid crossing Interstate 84 twice and continues to the southeast between the interstate and Blue Mountain Forest State Scenic Corridor in Railroad Canyon.

The East of Bombing Range Road Alternative would be designed using two structure types. From Longhorn Substation for about 3.0 miles, the transmission line structures typically would be 170-foot tall self-supported steel lattice with typical spans of approximately 1,500 feet between structures. From that point to the south, where the transmission line would be adjacent to the NWSTF Boardman, structures would be no taller than 100 feet tubular steel H-frame with typical spans of 500 to 700 feet between structures. Where the transmission line would no longer be adjacent to the NWSTF Boardman, the structure type would revert to 170-foot tall self-supported steel lattice.

APPLICANT'S PROPOSED ACTION – SOUTHERN ROUTE ALTERNATIVE [LINKS 1-1, 1-3, 1-7, 1-27, 1-35, 1-43, 1-45, 1-51, 1-53, 1-59, 1-60, 1-79, 1-83, 1-66, 1-65, 1-71, 1-77; 99.1 MILES]

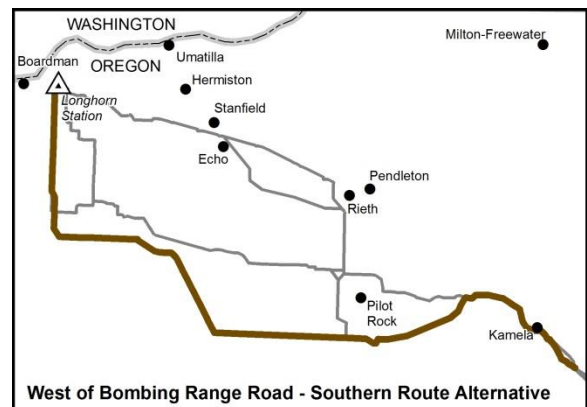
The Applicant's Proposed Action – Southern Route Alternative was not addressed as such in the Draft EIS and is the result of incorporating a route-variation option recommended in comments since the Draft EIS was released for public review. It is the same as the Applicant's Proposed Action through Link 1-61 where it turns south. The north-south portion that passes to the west of Pilot Rock was proposed by the DNR of the CTUIR to connect with the southern route alternative proposed by Morrow and Umatilla counties.



The alternative route exits the planned Longhorn Substation to the south, crossing the intersection of Interstate 84 and U.S. Highway 730, where the transmission line would then cross to the west side of Bombing Range Road. The alternative route continues along the west side of Bombing Range Road for approximately 12 miles, within a 90-foot-wide use area, currently occupied by the BPA 69-kV transmission line, on the NWSTF Boardman, before crossing the road and turning to the east traversing areas of irrigated and dryland agriculture for approximately 40 miles north of Butter Creek and Jack Canyon. The transmission line would then turn south crossing U.S. Highway 395 about 4 miles west of Pilot Rock and continue to the south before turning toward the east and ascending the Blue Mountains across Rocky Ridge. This alternative route crosses McKay Creek and enters the Wallowa-Whitman National Forest. This alternative route does not parallel the existing 230-kV transmission line, starting south of Kamela, to avoid crossing Interstate 84 twice and continues to the southeast between the interstate and Blue Mountain Forest State Scenic Corridor in Railroad Canyon.

WEST OF BOMBING RANGE ROAD – SOUTHERN ROUTE ALTERNATIVE [LINKS 1-1, 1-3, 1-7, 1-27, 1-35, 1-36, 1-38, 1-62, 1-64, 1-66, 1-65, 1-71, 1-77; 95.6 MILES]

The West of Bombing Range Road to Southern Route Alternative was not addressed in the Draft EIS and is the result of a route-variation option recommended in comments since the Draft EIS was released for public review. It was proposed by Morrow and Umatilla counties to avoid agricultural areas and areas of potential windfarm development. The north-south portion of the alternative route south of the Longhorn Substation is the same alignment as the Applicant's Proposed Action Alternative and the Applicant's Proposed Action – Southern Route Alternative.



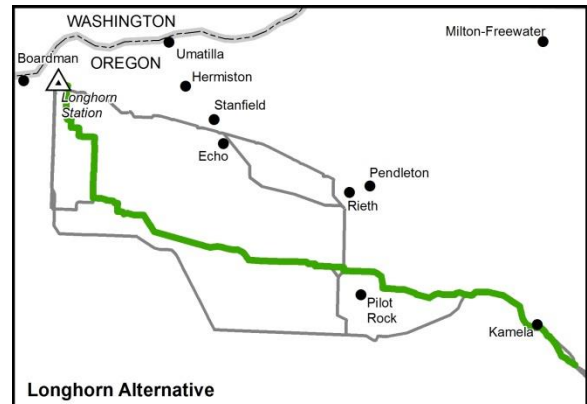
It exits the planned Longhorn Substation to the south, crossing the intersection of Interstate 84 and U.S. Highway 730, where the transmission line would then cross to the west side of Bombing Range Road. The alternative route continues along the west side of Bombing Range Road for approximately 12 miles, within a 90-foot-wide use area, currently occupied by a 69-kV transmission line owned by BPA, on the NWSTF Boardman, before crossing the road and continuing an additional 5 miles to the south. Just west of Oregon Route 207, the transmission line would turn to the east traversing an area of dryland agriculture for 15 miles before crossing Butter Creek and turning to the southeast paralleling Matlock Canyon (the Umatilla south route-variation option recommended by Morrow County [Section 2.1.1.3]). This alternative route then continues to the east for approximately 25 miles crossing U.S. Highway 395 9 miles southwest of Pilot Rock and ascending the Blue Mountains across Rocky Ridge. This alternative route crosses McKay Creek and enters the Wallowa-Whitman National Forest. This alternative route does not parallel the existing 230-kV transmission line, starting south of Kamela, to avoid crossing Interstate 84 twice and continues to the southeast between the interstate and Blue Mountain Forest State Scenic Corridor in Railroad Canyon.

LONGHORN ALTERNATIVE [LINKS 1-5, 1-9, 1-15, 1-45, 1-51, 1-53, 1-59, 1-60, 1-61, 1-50, 1-63, 1-65, 1-71, 1-77; 88.2 MILES]

The Longhorn Alternative was addressed in the Draft EIS. Except for the initial north-south portion of the route Links 1-5, 1-9, 1-15, the Longhorn Alternative is the same as the Applicant's Proposed Action Alternative.

The alternative route exits the planned Longhorn Substation to the east crossing U.S. Highway 730 before turning to the south across Interstate 84. This alternative route then continues to the southeast avoiding irrigated agricultural lands and the Boardman Tree Farm for approximately 8 miles, then the transmission line would

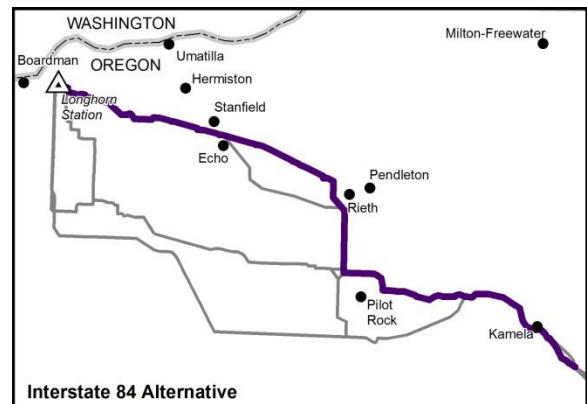
turn to the south toward Sand Hollow before heading east to traverse areas of irrigated and dryland agriculture for approximately 35 miles north of Butter Creek and Jack Canyon. The transmission line would cross U.S. Highway 395 between the community of Pilot Rock and the McKay Creek National Wildlife Refuge before ascending the Blue Mountains, south of the Umatilla Indian Reservation, across McKay Creek and onto the Wallowa-Whitman National Forest. This alternative route does not parallel the existing 230-kV transmission line, starting south of Kamela, to avoid crossing Interstate 84 twice and continues to the southeast between the interstate and Blue Mountain Forest State Scenic Corridor in Railroad Canyon.



INTERSTATE 84 ALTERNATIVE [LINKS 1-5, 1-9, 1-19, 1-23, 1-31, 1-39, 1-49, 1-50, 1-63, 1-65, 1-71, 1-77; 84.7 MILES]

The Interstate 84 Alternative was not addressed in the Draft EIS and is the result of a route-variation option recommended in comments on the Draft EIS; comments received from Umatilla County; WildLands Defense; a letter from a consortium of the OCTA, Hells Canyon Preservation Council, Oregon Wild, and WildEarth Guardians; and several individuals. The intent was to consolidate the proposed transmission line with other linear facilities and in areas already disturbed.

The Interstate 84 Alternative exits the planned Longhorn Substation to the east crossing U.S. Highway 730 and then parallels Interstate 84 for approximately 35 miles (except for approximately a 6-mile-long section just south of the Umatilla Ordnance Depot) to an area 6 miles west of Pendleton. The alternative route then turns to the south crossing the Umatilla River before joining the alignment of the Applicant's Proposed Action Alternative northwest of Pilot Rock. The transmission line would cross U.S. Highway 395 between the community of Pilot Rock and the McKay Creek National Wildlife Refuge before ascending the Blue Mountains, south of the Umatilla Indian Reservation, across McKay Creek and onto the Wallowa-Whitman National Forest. This alternative

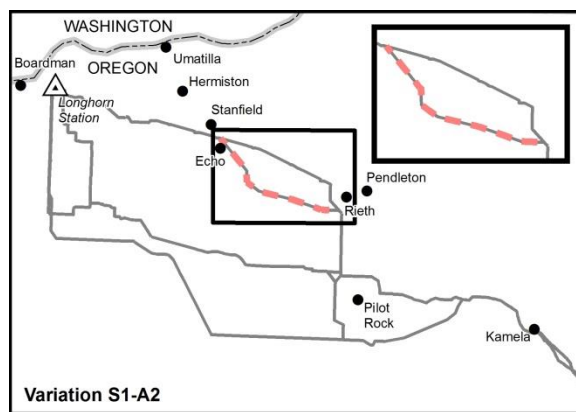
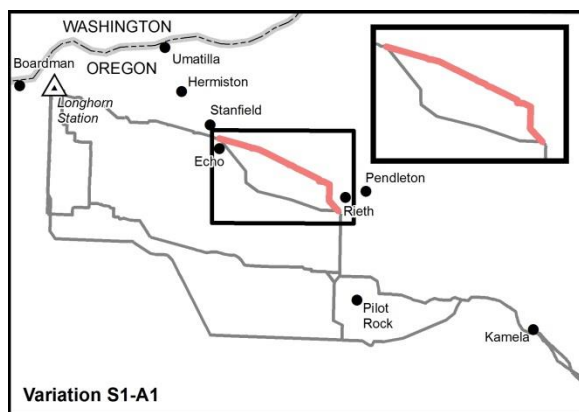


route does not parallel the existing 230-kV transmission line, starting south of Kamela, to avoid crossing Interstate 84 twice and continues to the southeast between the interstate and Blue Mountain Forest State Scenic Corridor in Railroad Canyon.

VARIATION S1 AREA A (PARALLEL 230-KV TRANSMISSION LINE)

Variation S1-A1 (Link 1-31; 18.5 miles) is the same alignment as the Interstate 84 and Interstate 84 to southern route alternative, paralleling Interstate 84 to the southeast for approximately 15 miles. About 6 miles west of Pendleton, the route turns to the south crossing the Umatilla River.

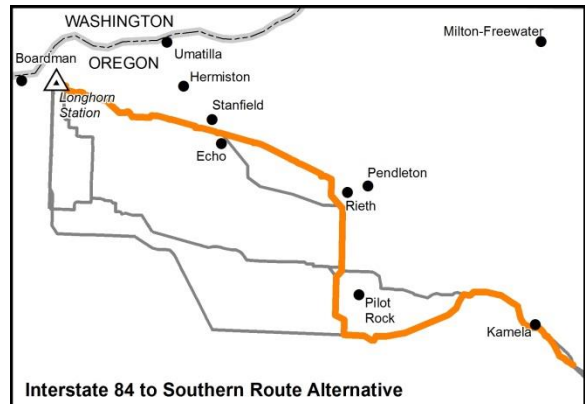
Variation S1-A2 (Link 1-37; 18.5 miles) was not addressed in the Draft EIS and was developed to respond to the comments on the Draft EIS to parallel Interstate 84 and/or the exiting 230-kV transmission line. This variation separates from the Interstate 84 and Interstate 84 – Southern Route alternatives by turning southeast in an area north of the community of Echo and parallels the existing 230-kV line crossing the Umatilla River approximately 15 miles west of Pendleton. The route continues to parallel the Umatilla River, about 1 mile to the south for another 9 miles before rejoining the Interstate 84 and Interstate 84 to Southern Route alternatives.



INTERSTATE 84 – SOUTHERN ROUTE ALTERNATIVE [LINKS 1-5, 1-9, 1-19, 1-23, 1-31, 1-39, 1-49, 1-50, 1-81, 1-83, 1-66, 1-65, 1-71, 1-77; 93.4 MILES]

The Interstate 84 – Southern Route Alternative was not addressed in the Draft EIS and is the result of a route-variation option recommended by the CTUIR DNR. The CTUIR DNR preferred routing along the Interstate 84 where there is existing disturbance, but suggested extending the north-south portion (Link 1-49) farther south to connect with the southern route, thereby avoiding a cultural landscape in the McKay Creek area.

The Interstate 84 – Southern Route Alternative exits the planned Longhorn Substation to the east crossing U.S. Highway 730 and then parallels Interstate 84 for approximately 35 miles, except for about 6 miles south of the Umatilla Ordnance Depot, to an area 6 miles west of Pendleton. The alternative route then turns to the south crossing the Umatilla River and Jack Canyon before joining the Southern Route southwest of Pilot Rock and ascending the Blue Mountains across Rocky Ridge. This alternative route then crosses McKay Creek and enters the Wallowa-Whitman National Forest. This alternative route does not parallel the existing 230-kV transmission line, starting south of Kamela, to avoid crossing Interstate 84 twice and continues to the southeast between the interstate and Blue Mountain Forest State Scenic Corridor in Railroad Canyon.



ADDITIONAL ACTION – 69-KV LINE RELOCATION

The current alignment of the BPA 69-kV transmission line is illustrated in Figure 2-22a. The existing 69-kV line exits the BPA-owned Boardman Substation north of Interstate 84 over to and south along the west side of Bombing Range Road to the southeast corner of the NWSTF Boardman, then traverses east to west along the southern boundary of the NWSTF Boardman property for approximately 2 miles, then turns southwest and continues on private land to the existing Lone Substation to serve the Columbia Basin Electric Cooperative load.

To allow the BPA to continue electrical service to customers serviced by the 69-kV line and accommodate the Applicant's requested use of the NWSTF Boardman property, the BPA and UEC, which owns and operates a 115-kV transmission line on private land on the east side of Bombing Range Road, are coordinating to develop options potentially to relocate BPA's 69-kV line. Three options are being considered. All three options involve replacing UEC's 115-kV line with double-circuit structures to support 230-kV lines. Design Option 1 provides for partial removal of the BPA 69-kV line from the NWSTF Boardman to allow the vacated area to be repurposed for the B2H 500-kV transmission line. Design Options 2 and 3 both provide for complete removal of the BPA 69-kV transmission line from the NWSTF Boardman. A description of each design option follows.

DESIGN OPTION 1 (PARTIAL REMOVAL OF THE 69-kV LINE FROM NWSTF BOARDMAN)

Design Option 1, illustrated in Figures 2-22b and 2-22c, reflects partial removal (12.2 miles) of the 69-kV line from the NWSTF Boardman. Design Option 1 involves building approximately 12.2 miles of new double-circuit 230-kV line. From the intersection of Wilson Lane and Bombing Range Road to Homestead Lane (approximately 3.5 miles), where the line enters the Bombing Range Substation, the UEC 115-kV transmission line would be rebuilt as a tubular steel, single-pole, double-circuit 230-kV. The west circuit would be energized initially at 69-kV by connecting it to the existing BPA 69-kV line at the intersection of Wilson Lane and Bombing Range Road. The east circuit would be energized initially at 115-kV by connecting it to the remaining existing UEC 115-kV line at the corner of Wilson Lane and Bombing Range Road. From Homestead Lane, the new double-circuit 230-kV line would extend south on the east side of Bombing Range Road on private land supporting only the west circuit (69-kV).

At the point where the proposed B2H transmission line would divert from the NWSTF Boardman property east onto private property, the 69-kV circuit would cross to the west side of Bombing Range Road and connect with the existing 69-kV H-frame line and continue on the NWSTF Boardman for approximately 3.9 miles then onto private land continuing south to the Lone Substation to serve the Columbia Basin Electric Cooperative load.

The double-circuit 230-kV structures would be no taller than 100 feet. OPGW would be installed in the shield-wire position. Spans between structures would be approximately 400 to 600 feet. The tubular steel poles would be direct buried where possible, and installed on a drilled-pier concrete foundation where required. The typical footprint would be a circle about 3 feet in diameter where direct buried. Where a foundation is used, the footprint would be approximately 8 feet in diameter. The double-circuit line is anticipated to occupy a right-of-way 55 feet wide.

DESIGN OPTION 2 (FULL REMOVAL OF THE 69-kV LINE FROM NWSTF BOARDMAN)

Design Option 2, illustrated on Figures 2-22d and 2-22e, reflects full removal of the 69-kV line from the NWSTF Boardman. Of the approximately 15.6 miles of 69-kV line to be removed, most of the line is on the NWSTF Boardman, the remainder is on private land. Similar to Design Option 1, from the intersection of Wilson Lane and Bombing Range Road to Homestead Lane (approximately 3.5 miles), where the line enters the Bombing Range Substation, the UEC 115-kV transmission line would be rebuilt as a tubular steel, single-pole, double-circuit 230-kV. The lines would be energized initially at 69-kV on the west side and 115-kV on the east side.

South of Homestead Lane, the new double-circuit transmission line structures, with only the west circuit (69-kV) installed, would be constructed continuing south along the east side of the NWSTF Boardman eastern boundary on private land to and around the southeast corner of the NWSTF Boardman. The new 69-kV circuit would connect at this point to the existing 69-kV line and continue south to the Lone Substation.

The new double-circuit 230-kV line would be approximately 17.7 miles long (5.5 miles north of Homestead Lane with both circuits installed and 12.2 miles south of Homestead). The double-circuit

230-kV structures would be no taller than 100 feet above ground level where height is restricted due to operations associated with the NWSTF Boardman. OPGW would be installed in the shield-wire position. Spans between structures would be approximately 400 to 600 feet. The tubular steel poles would be direct buried where possible, and installed on a drilled-pier concrete foundation where required. The typical footprint would be a circle about 3 feet in diameter where direct buried. Where a foundation is used, the footprint would be approximately 8 feet in diameter. The double-circuit line is anticipated to occupy a right-of-way 55 feet wide.

DESIGN OPTION 3 (FULL REMOVAL OF THE 69-KV LINE FROM NWSTF BOARDMAN WITH STEP-DOWN SUBSTATION)

In the event that wind-energy development precedes construction of the B2H Project, Design Option 3 assumes that the new tubular steel, single-pole double-circuit 230-kV would be constructed by others (e.g., wind-energy developers). Design Option 3, illustrated in Figures 2-22f and 2-22g, would be similar as Design Option 2 with a deviation in the south; the line would remain on the east side of Bombing Range Road. Also, south of the NWSTF Boardman, where the new double-circuit 230-kV line would cross over the 69-kV line, a new step-down substation (from 230-kV to 69-kV) would be constructed on a new site on private land (Figure 2-22g). The pad for the substation would be constructed to cover an area of approximately 410 feet by 235 feet. A standard 7-foot-high chain link fence with three-strand barbed wire on top would be constructed around the substation. A prefabricated concrete control building approximately 12 feet by 30 feet would be installed. Power to the substation would be provided by a 69-kV distribution transformer with a direct-current battery bank to provide 8 hours of backup power in the event of an outage of the 230-kV line. An approximately 0.35-mile-long existing primitive road would be upgraded to provide access to the substation.

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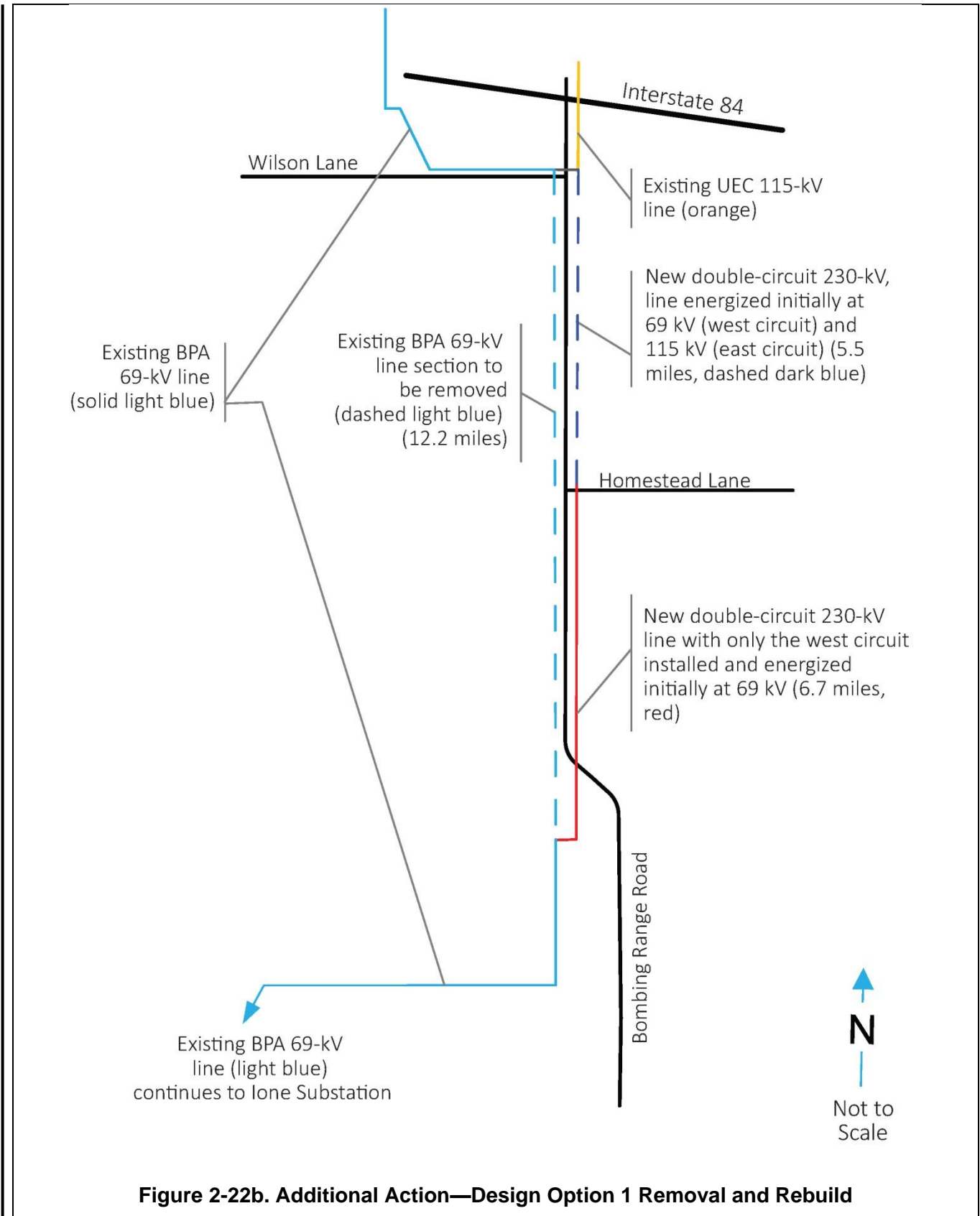


Figure 2-22b. Additional Action—Design Option 1 Removal and Rebuild

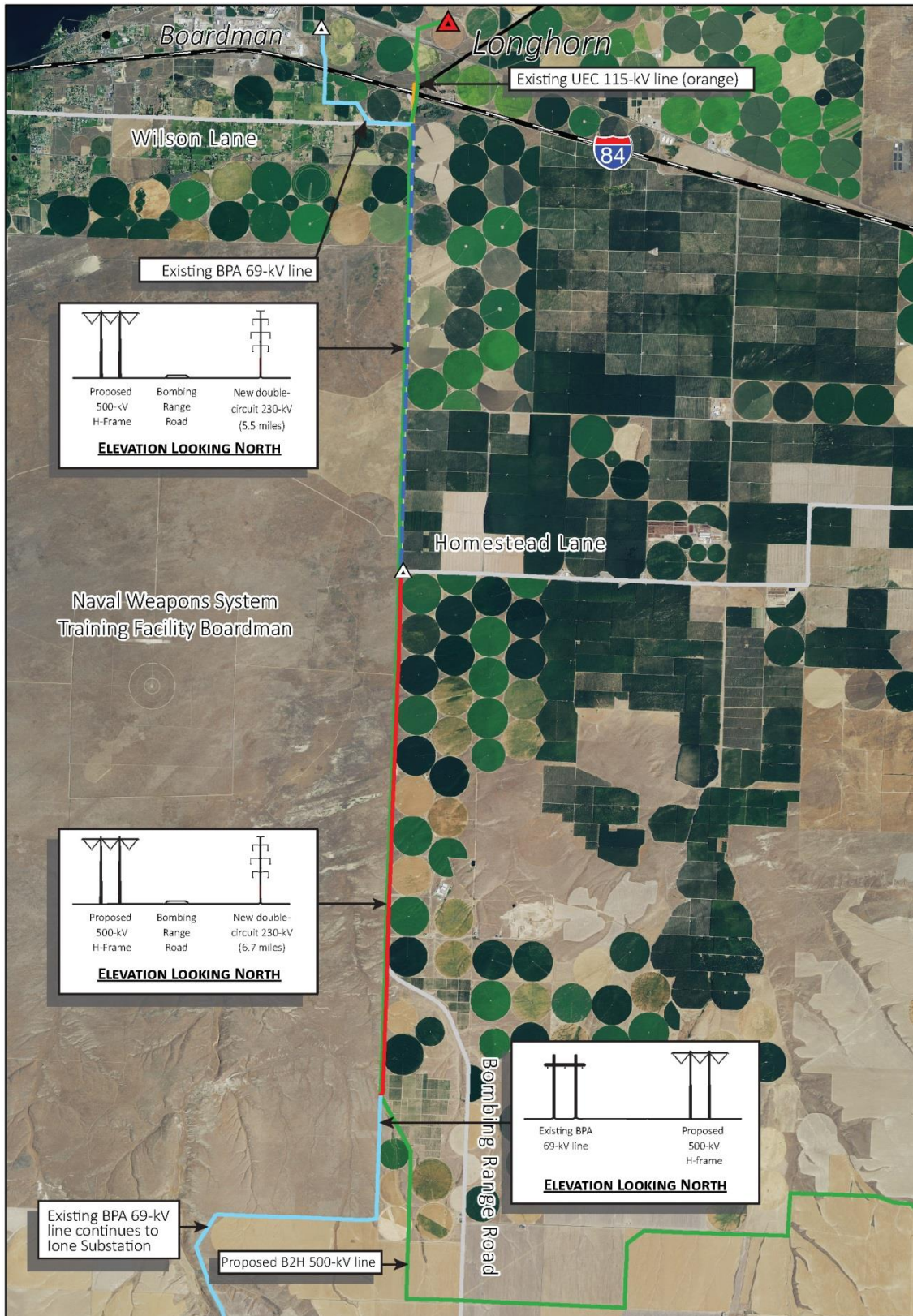


Figure 2-22c. Additional Action—Design Option 1 Proposed Configuration

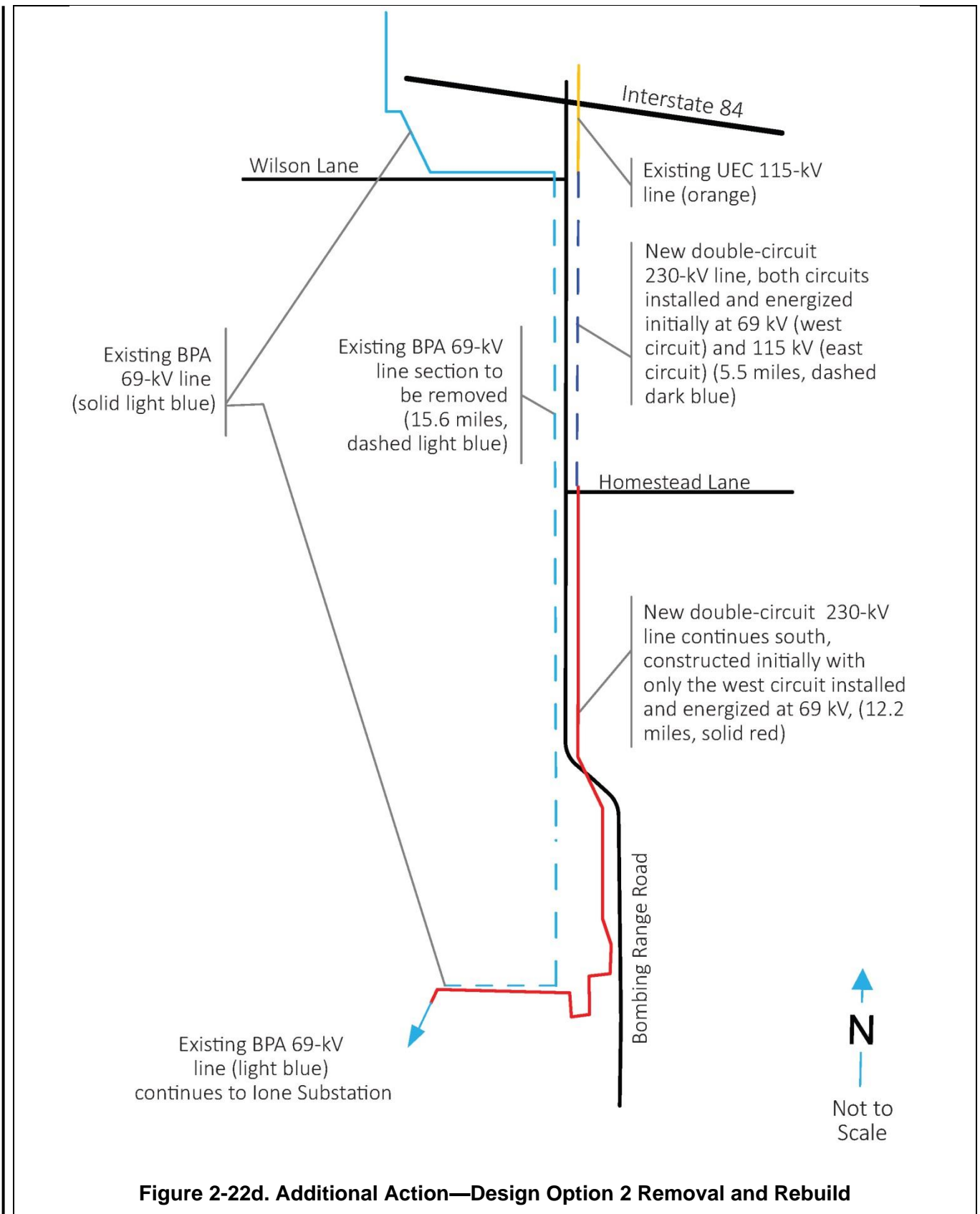


Figure 2-22d. Additional Action—Design Option 2 Removal and Rebuild

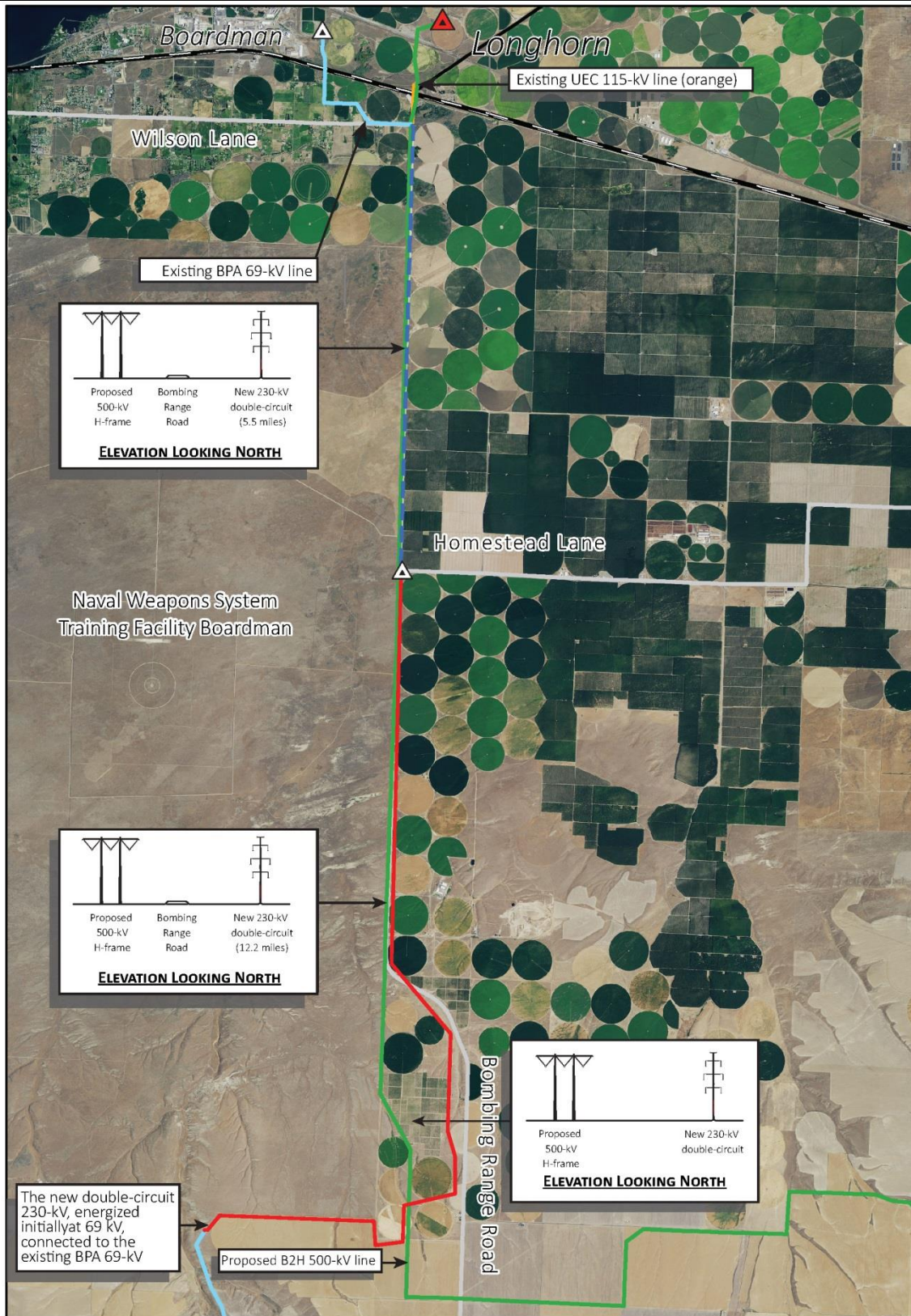


Figure 2-22e. Additional Action—Design Option 2 Proposed Configuration

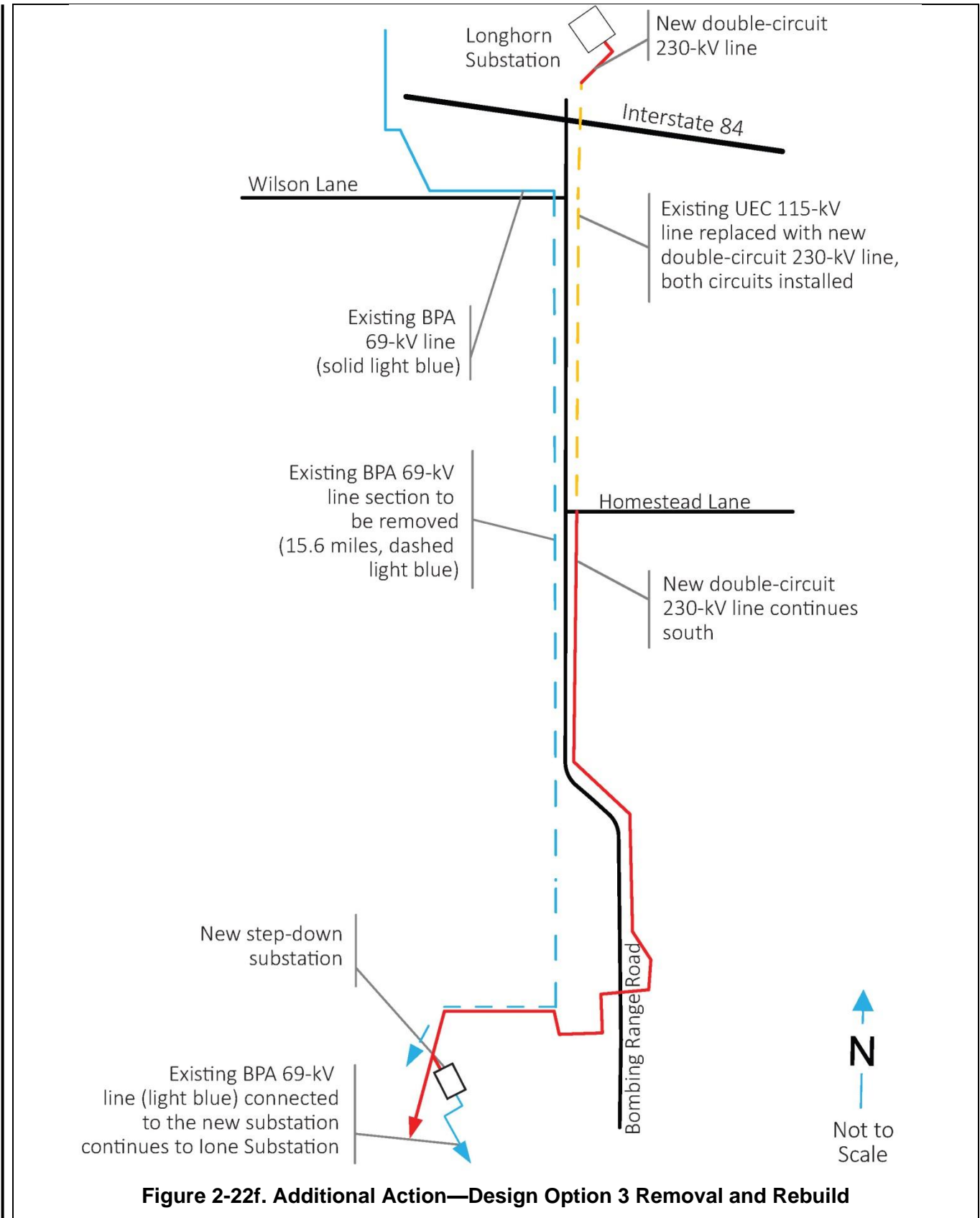


Figure 2-22f. Additional Action—Design Option 3 Removal and Rebuild

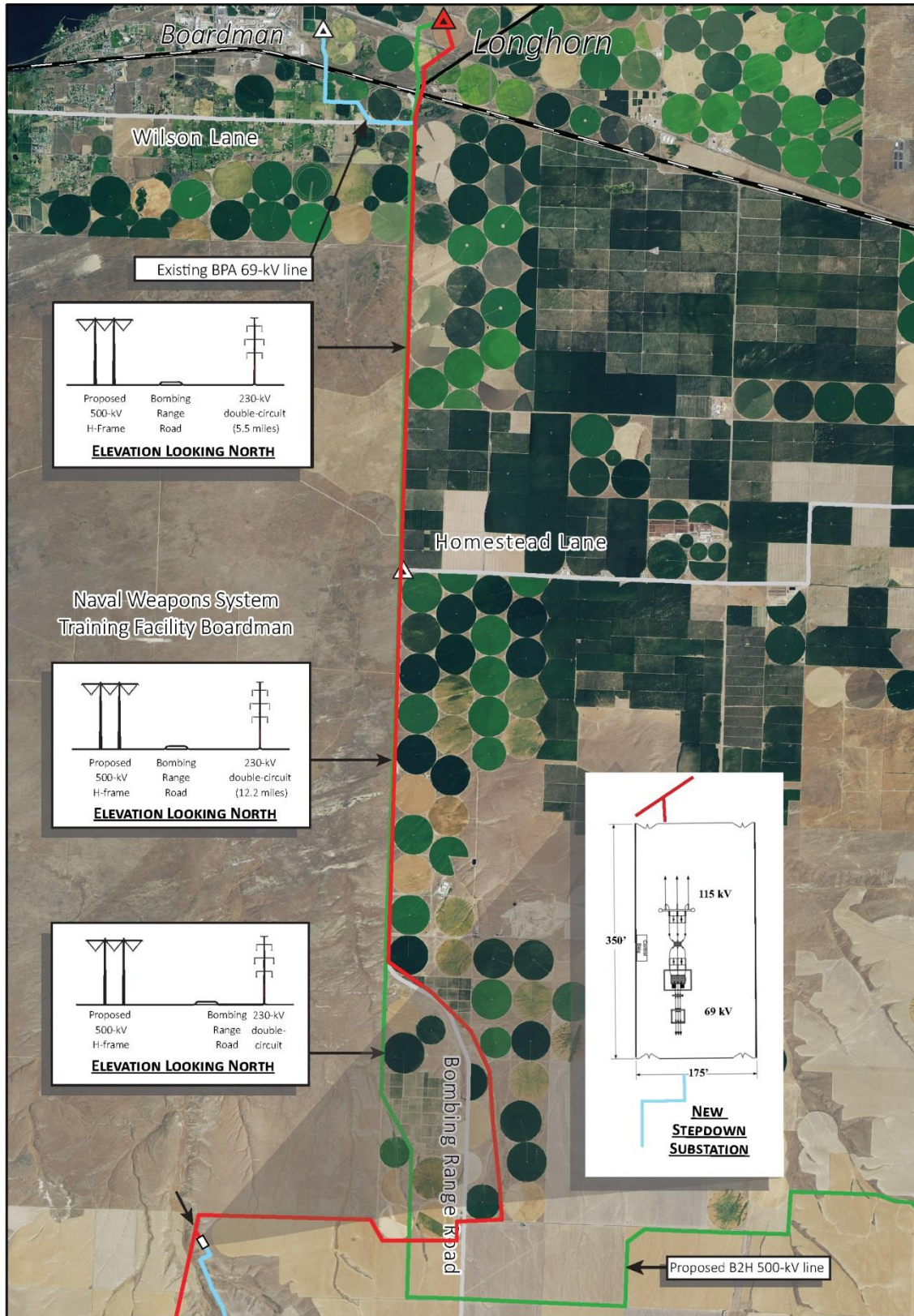


Figure 2-22g. Additional Action—Design Option 3 Proposed Configuration

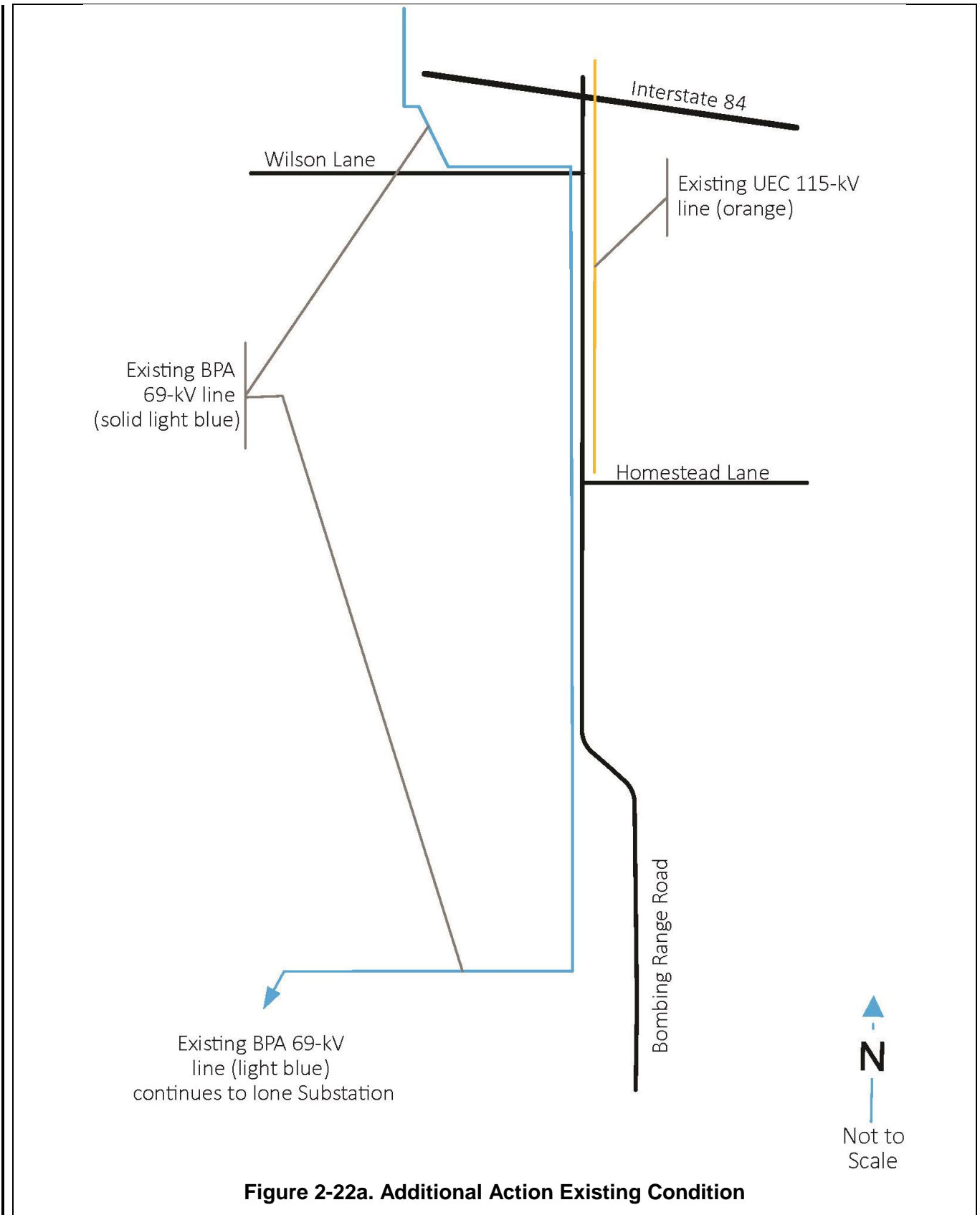


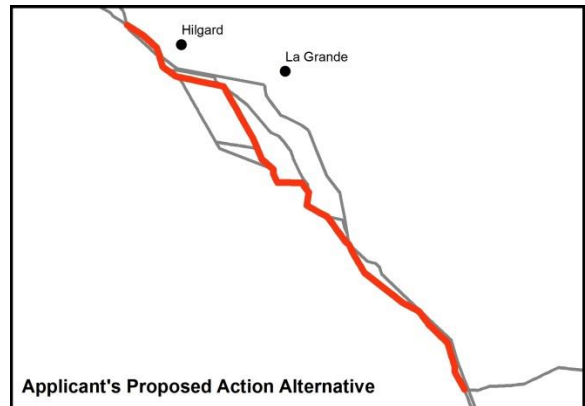
Figure 2-22a. Additional Action Existing Condition

2.5.2.2 SEGMENT 2—BLUE MOUNTAINS

Segment 2 begins at west of La Grande in Union County and ends east of North Powder in Union County. The three alternative routes and six areas of local route variations in Segment 2 are shown on Map 2-7b.

APPLICANT’S PROPOSED ACTION ALTERNATIVE [LINKS 2-1, 2-5, 2-15, 2-20, 2-30, 2-35, 2-45, 2-47, 2-50, 2-52, 2-60, 2-75, 2-85, 2-95; 33.8 MILES]

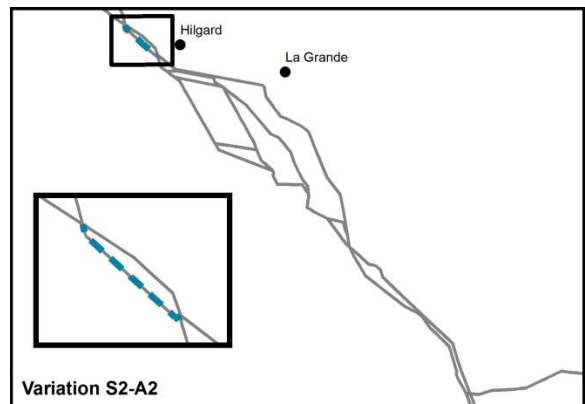
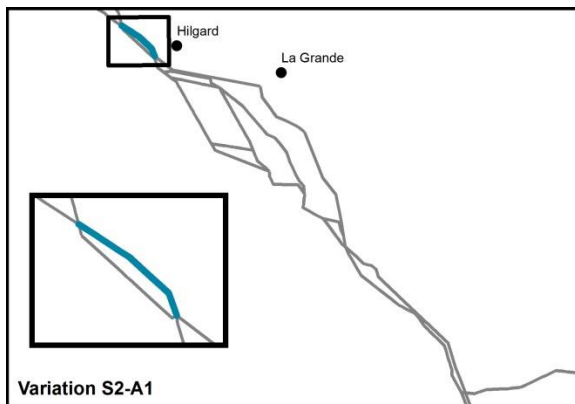
The Applicant’s Proposed Action Alternative in Segment 2 was addressed in the Draft EIS and was the Agency Preferred Route in the Draft EIS. It was developed to the west of and to avoid the community of La Grande, Morgan Lake, and Ladd Marsh Wildlife Area. It continues from Segment 1 traveling to the southeast crossing Oregon Route 244, near Hilgard Junction State Park, and briefly heading east toward La Grande, for 3 miles, before again turning to the southeast. This alternative route is located 1 mile west of Morgan Lake and crosses Glass Hill and Ladd Creek as the route continues to the southeast for 15 miles before crossing Interstate 84 approximately 15 miles south of La Grande. Continuing to the southeast, the Applicant’s Proposed Action Alternative crosses Powder River to the end of Segment 2 on Riverdale Hill.

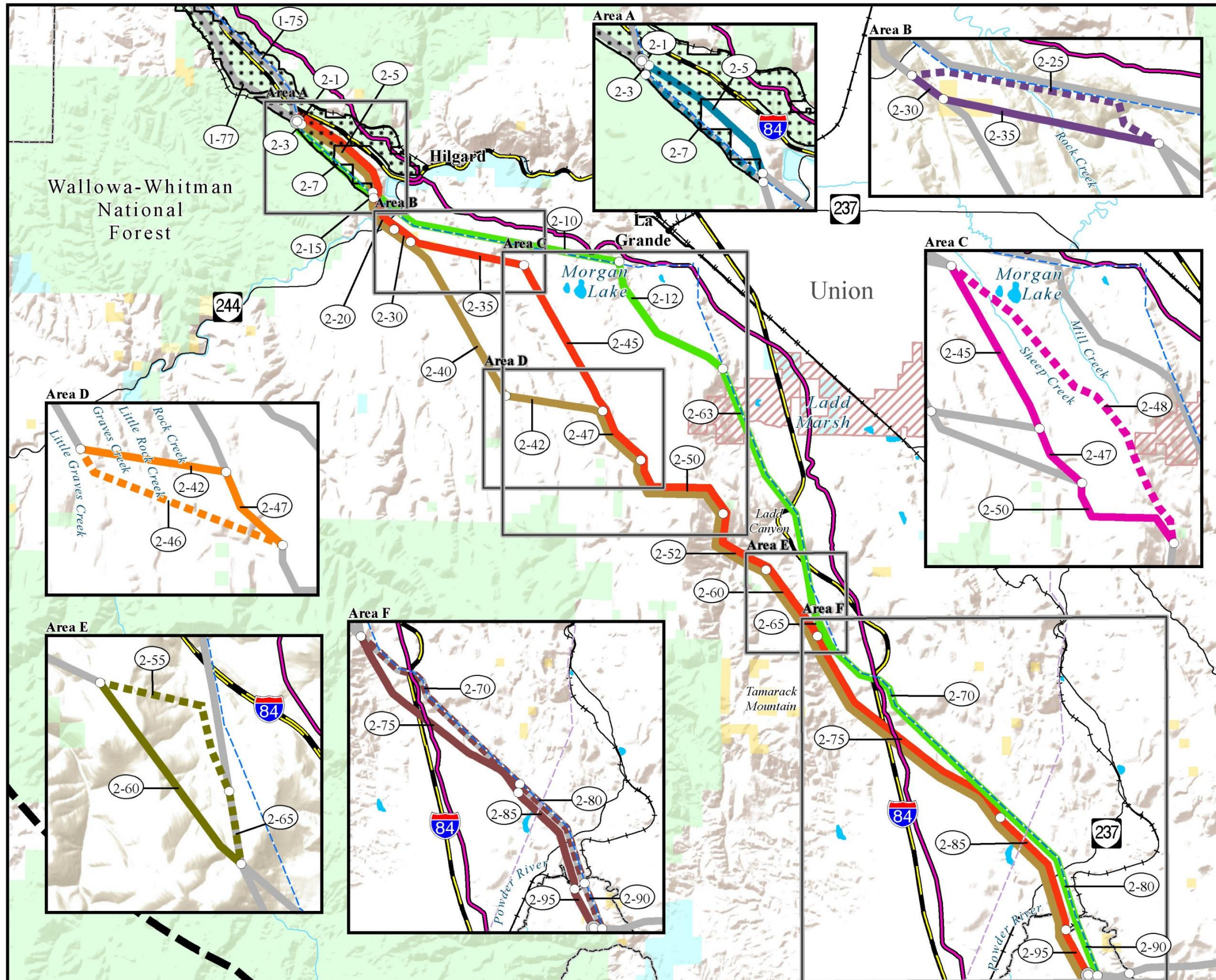


VARIATION S2 AREA A (WALLOWA-WHITMAN NATIONAL FOREST)

Variation S2-A1 (Links 2-1, 2-5; 2.8 miles) shares the same alignment as all of the alternatives in Segment 2, located 0.5 mile southeast of Interstate 84, paralleling the interstate for 3 miles to an area west of the Hilgard Junction State Park.

Variation S2-A2 (Links 2-3, 2-7; 2.9 miles) separates from the Segment 2 alternatives and parallels the existing 230-kV transmission line for 3 miles before rejoining the Segment 2 alternatives west of Hilgard Junction State Park.





Map 2-7b
Segment 2
Blue Mountains

BOARDMAN TO HEMINGWAY
TRANSMISSION LINE PROJECT

Alternative Routes^{1,2}

- Applicant's Proposed Action Alternative
- Mill Creek Alternative
- Glass Hill Alternative

Variations

- | | |
|---|---|
| AREA A | AREA B |
| — Variation S2-A1 | — Variation S2-B1 |
| — Variation S2-A2 | — Variation S2-B2 |
| AREA C | AREA D |
| — Variation S2-C1 | — Variation S2-D1 |
| — Variation S2-C2 | — Variation S2-D2 |
| AREA E | AREA F |
| — Variation S2-E1 | — Variation S2-F1 |
| — Variation S2-E2 | — Variation S2-F2 |

Project Features

- Project Area Boundary
- Link Node
- Link Number
- Segment Node

Land Ownership

- Bureau of Land Management
- State Land
- Bureau of Reclamation
- Private Land
- U.S. Forest Service

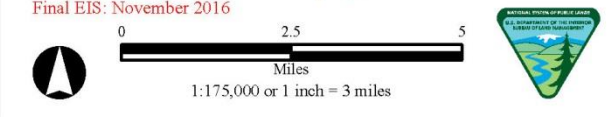
General Reference

- City or Town
- Interstate Highway
- *** Land and Resource Management Plan Utility Corridor
- State Highway
- Ladd Marsh Wildlife Management Area Ladd Marsh Wildlife Management Area
- Lake or Reservoir
- County Boundary
- 230-kV Transmission Line
- Oregon National Historic Trail Congressionally Designated Alignment
- Railroad

SOURCES:
Land Jurisdiction, BLM 2014, 2015; Cities and Towns, ESRI 2013; Land and Resource Management Plan Utility Corridors, USFS 2010; Transmission Lines, Vestyx 2012; Logan Simpson Design 2011; Bonneville Power Administration 2009, Idaho Power Company 2007; Substations, EPG 2015; Railroads, Idaho DOT 2006, Oregon DOT 2009; Highways, ESRI 2013; Waterbodies, ESRI 2013; State and County Boundaries, ESRI 2013; Wildlife Management Areas, IDFG 2012, ODFW 2014; Oregon National Historic Trail Congressionally Designated Alignment, BLM 2015

NOTES:
¹ Alternative routes are depicted graphically on map and, in most cases, share centerline alignment in common areas.
² Alternative routes, but not route variations, are shown within the overall geographic extent.
 • The alternative routes shown on this map are draft and may be revised or refined throughout the development of the project.
 • The B2H Project area boundary is defined by buffering the alternative route centerlines.
 • Other federal land ownership may include lands administered by the U.S. Department of Energy, Bonneville Power Administration, Federal Aviation Administration, General Services Administration, or U.S. Department of Agriculture (except U.S. Forest Service).
 • Each alternative route is composed of links, which are discrete sections of the route sharing common endpoints determined by the point of intersection with other adjacent links; the common endpoint is referred to as a link node. Links generally are numbered from north to south. Similarly, a segment is composed of alternative routes that share common endpoints determined by the point of intersection with other adjacent alternative routes; the common endpoint is referred to as a segment node.
 • No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.

Alternative routes last revised: February 18, 2016
Final EIS: November 2016

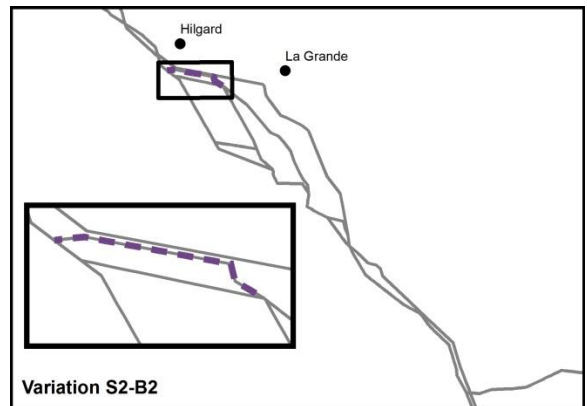
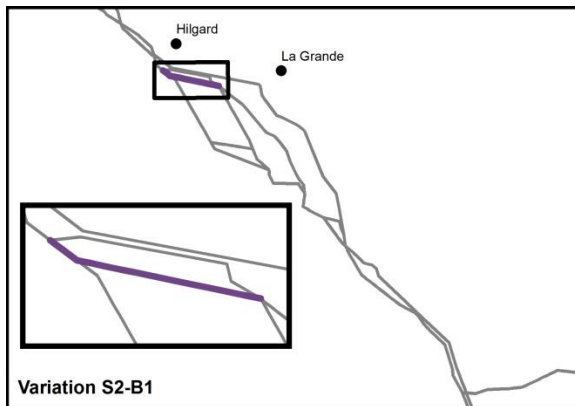


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VARIATION S2 AREA B (WEST OF LA GRANDE)

Variation S2-B1 (Links 2-30, 2-35; 3.7 miles) shares the same alignment as the Applicant’s Proposed Action Alternative route beginning south of Oregon Route 244 and traveling to the east for approximately 3 miles, located a 0.5 mile south of the existing 230-kV transmission line, crossing Rock Creek.

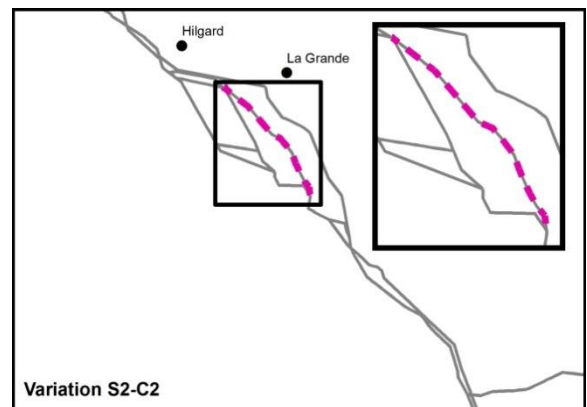
Variation S2-B2 (Link 2-25; 3.8 miles) separates from the Applicant’s Proposed Action Alternative route south of Oregon Route 244 and more closely parallels the existing 230-kV transmission line for 3 miles before rejoining the Applicant’s Proposed Action Alternative east of Rock Creek.



VARIATION S2 AREA C (ELK SONG RANCH AREA)

Variation S2-C1 (Links 2-45, 2-47, 2-50; 9.3 miles) shares the same alignment as the Applicant’s Proposed Action Alternative beginning 1.5 miles west of Morgan Lake heading to the southeast between Rock Creek and Sheep Creek for 7 miles, before turning to the east across Glass Hill to an area 1.5 miles northwest of Ladd Creek.

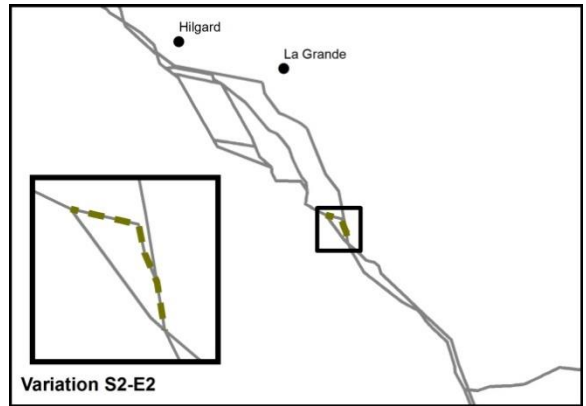
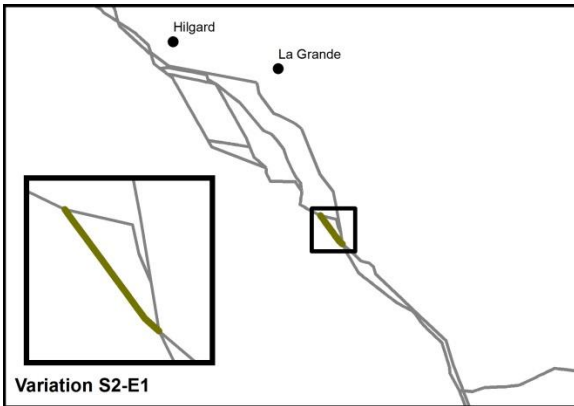
Variation S2-C2 (Link 2-48; 8.8 miles) separates from the Applicant’s Proposed Action Alternative and would be located 0.25 mile from Morgan Lake and roughly paralleling Variation S2-C1 between Mill Creek and Sheep Creek, staying east of Glass Hill, to an area 1.5 miles northwest of Ladd Creek.



VARIATION S2 AREA E

Variation S2-E1 (Link 2-60; 2.3 miles) shares the same alignment as the Applicant’s Proposed Action Alternative and Glass Hill Alternative 0.5 mile southeast of Ladd Creek and continuing 2 miles to the southeast.

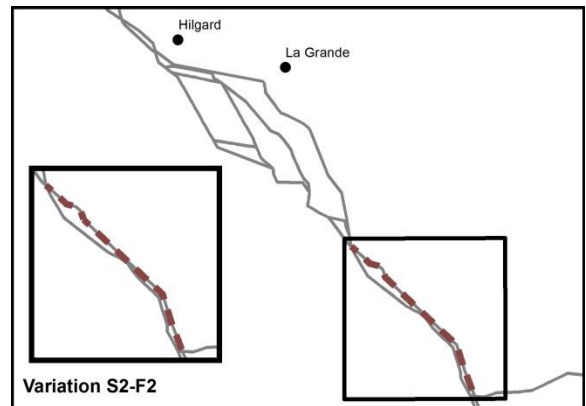
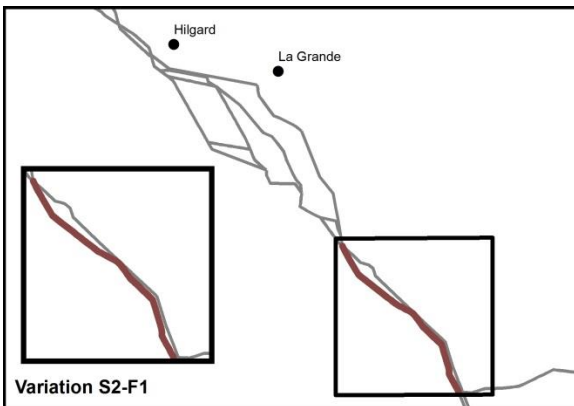
Variation S2-E2 (Links 2-55, 2-65; 2.6 miles) separates from the Applicant’s Proposed Action Alternative and Glass Hill Alternative southeast of Ladd Creek and traverses down a steep slope toward Interstate 84 before traversing back up the northeast flank of Baldy to rejoin the Applicant’s Proposed Action and Glass Hill alternatives.



VARIATION S2 AREA F

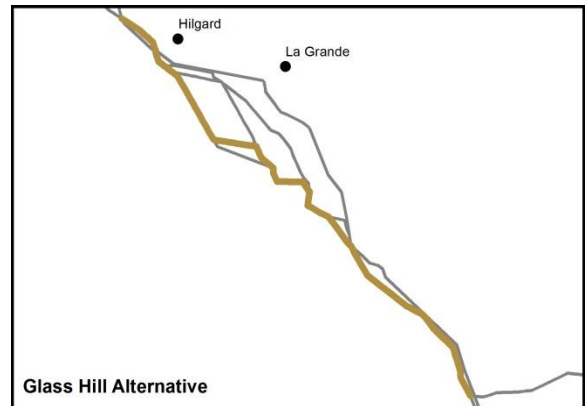
Variation S2-F1 (Links 2-75, 2-85, 2-95; 12.1 miles) shares the same alignment as all of the Segment 2 alternatives starting east of Baldy and traveling to the southeast for 12 miles crossing Interstate 84 and the Powder River to the end of Segment 2 on Riverdale Hill.

Variation S2-F2 (Links 2-70, 2-80, 2-90; 12.2 miles) separates from the Segment 2 alternatives east of Baldy and parallels an existing 230-kV transmission line for 12 miles crossing Interstate 84 and the Powder River to the end of Segment 2 on Riverdale Hill.



GLASS HILL ALTERNATIVE [LINKS 2-1, 2-5, 2-15, 2-20, 2-30, 2-40, 2-42, 2-47, 2-50, 2-52, 2-60, 2-75, 2-85, 2-95; 33.7 MILES]

The Glass Hill Alternative was addressed in the Draft EIS. The alternative route was developed in response to various considerations of landowners, environmental resources, visual effects, and constructability expressed during the Community Advisory Process (Idaho Power Company 2012: 10-15) and scoping for the NEPA process to address concerns regarding proximity of the Applicant’s Proposed Action Alternative to Ladd Marsh Wildlife Area and concerns about the visibility of the transmission line from La Grande in Union County.

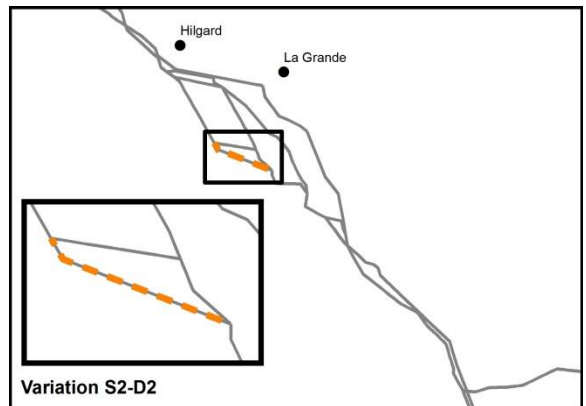
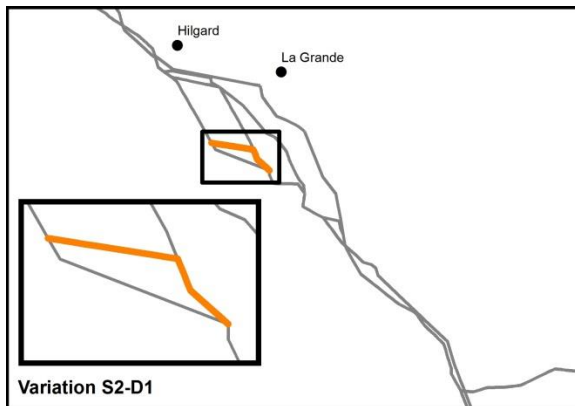


The alternative route continues from Segment 1 traveling to the southeast crossing Oregon Route 244, near Hilgard Junction State Park, separating from the Applicant’s Proposed Action Alternative by continuing southeast adjacent to Little Graves Creek located 3 miles west of Morgan Lake, before turning to the east to rejoin the Applicant’s Proposed Action Alternative 5 miles southwest of La Grande. The transmission line then would continue to the southeast for 11 miles before crossing Interstate 84 approximately 15 miles south of La Grande. Continuing to the southeast, the Glass Hill Alternative crosses Powder River to the end of Segment 2 on Riverdale Hill.

VARIATION S2 AREA D

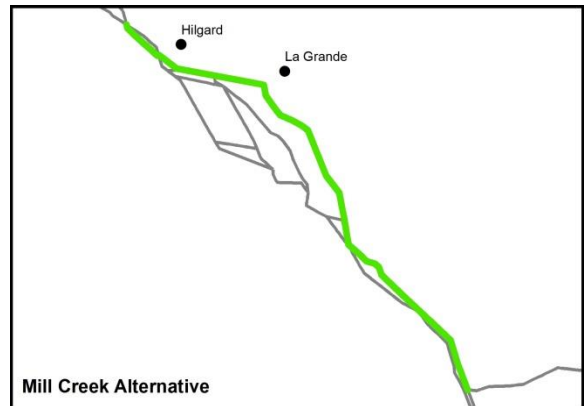
Variation S2-D1 (Links 2-42, 2-47; 4.3 miles) shares the same alignment as the Glass Hill Alternative starting at Little Graves Creek and crossing Graves Creek, Little Rock Creek, and Rock Creek as this route travels to the southeast toward Glass Hill.

Variation S2-D2 (Link 2-46; 4.1 miles) was recommended as part of comments on the Draft EIS, the intent of which was to help blend the transmission line structures into the surrounding landscape better and to avoid an elk population. Variation S2-D2 separates from the Glass Hill Alternative and roughly parallels Variation S2-D1 across Graves Creek, Little Rock Creek, and Rock Creek but located 0.75 mile farther to the south.



MILL CREEK ALTERNATIVE [LINKS 2-3, 2-7, 2-10, 2-12, 2-63, 2-65, 2-70, 2-80, 2-90; 34.0 MILES]

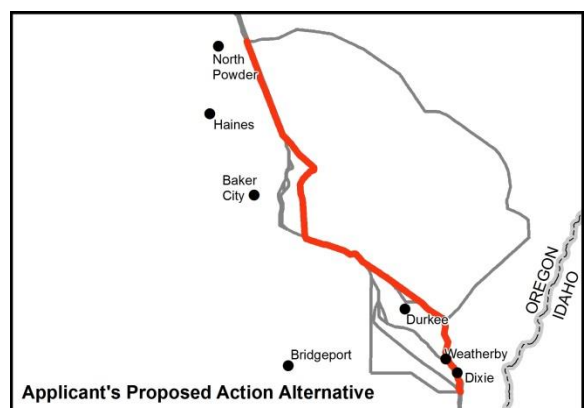
The Mill Creek Alternative was not addressed in the Draft EIS and is the result of a route-variation option recommended by Union County to parallel the existing 230-kV transmission line except in the general area of La Grande. The Mill Creek Alternative continues from Segment 1 traveling to the southeast where this alternative separates from the Applicant's Proposed Action Alternative, near Hilgard Junction State Park, crossing Oregon Route 244 parallel to the existing 230-kV transmission line toward La Grande to the east. The transmission line would follow the existing 230-kV transmission line until Table Mountain where this alternative route avoids closely approaching La Grande, and residences south of town, by turning to the south and would be located 1 mile east of Morgan Lake. Approximately 4 miles south of La Grande, this alternative route again parallels the existing 230-kV transmission line crossing the Ladd Marsh Wildlife Area and then Interstate 84 twice in Ladd Canyon before rejoining the Applicant's Proposed Action Alternative 12 miles south of La Grande. Continuing to the southeast, the Mill Creek Alternative crosses Powder River to the end of Segment 2 on Riverdale Hill.

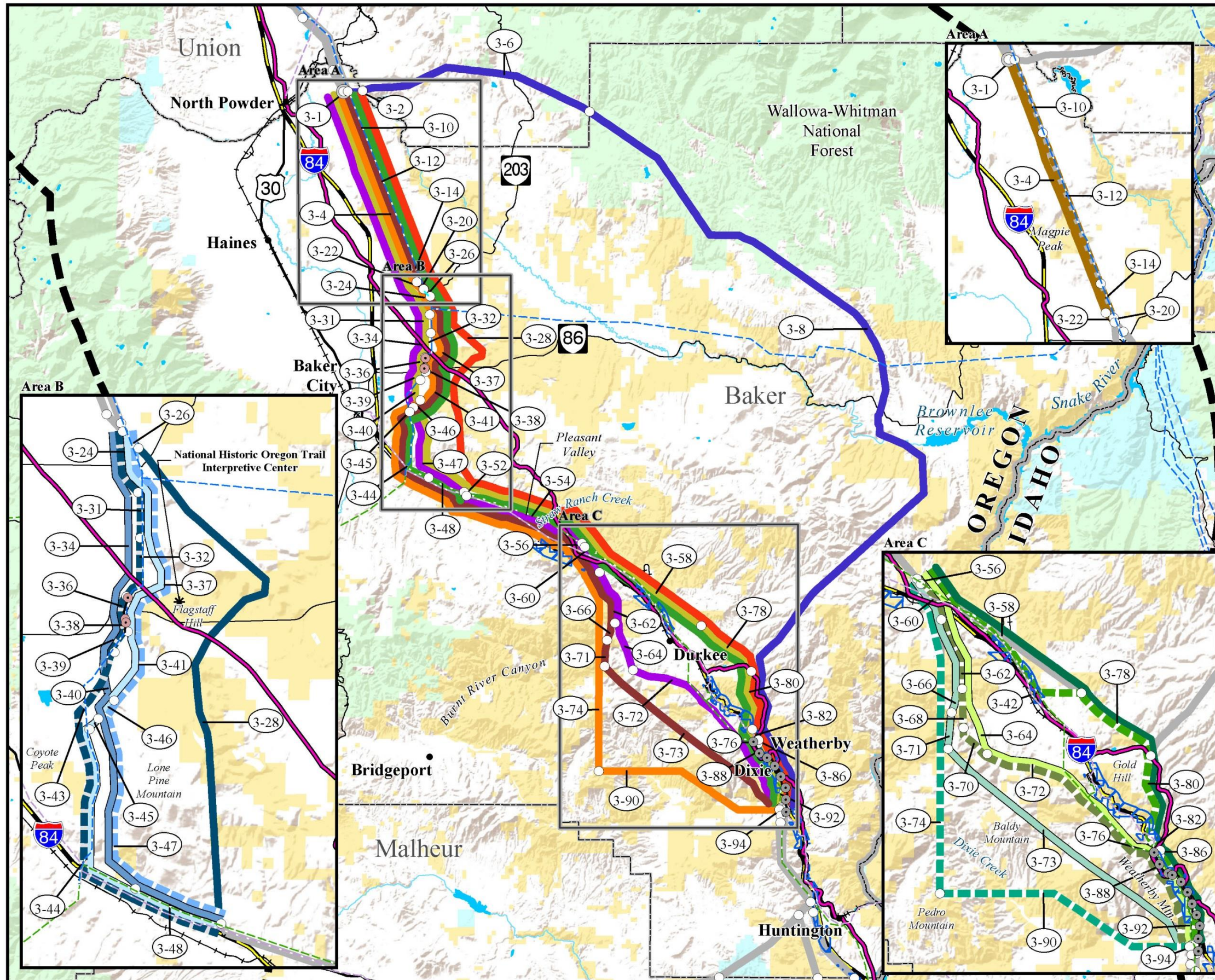
**2.5.2.3 SEGMENT 3—BAKER VALLEY**

Segment 3 begins at a point east of North Powder in Union County and ends at a point just south of Dixie in Baker County. The three alternative routes and three areas of local route variations in Segment 3 are shown on Map 2-7c.

APPLICANT'S PROPOSED ACTION ALTERNATIVE [LINKS 3-4, 3-22, 3-26, 3-28, 3-52, 3-54, 3-58, 3-78, 3-80, 3-82, 3-86, 3-88, 3-92; 55.2 MILES]

The Applicant's Proposed Action Alternative in Segment 3 was addressed in the Draft EIS. It begins on Riverdale Hill paralleling an existing 230-kV transmission line to the southeast passing to the east of Magpie Peak and then turning east of Flagstaff Hill to pass to the east of the NHOTIC and 5 miles east of Baker City. After crossing Oregon Route 86, the alternative travels south to Interstate 84, to the east of Lone Pine Mountain, where the transmission line would roughly parallel the interstate on the north side for approximately 28 miles except near the community of Durkee and Gold Hill. In this area, the Applicant's Proposed Action Alternative is located 1.5 miles to the northeast of Interstate 84 before paralleling the interstate between the communities of Weatherby and Dixie to the end of Segment 3 at Dixie Creek.





Map 2-7c
**Segment 3
Baker Valley**

BOARDMAN TO HEMINGWAY
TRANSMISSION LINE PROJECT

Alternative Routes^{1,2}

Applicant's Proposed Action Alternative	Flagstaff A - Burnt River Mountain Alternative
Flagstaff A Alternative	Flagstaff B Alternative
Timber Canyon Alternative	Flagstaff B - Burnt River West Alternative
	Flagstaff B - Durkee Alternative

Variations

AREA A

Variation S3-A1	Variation S3-A2
-----------------	-----------------

AREA B

Variation S3-B1	Variation S3-B4
Variation S3-B2	Variation S3-B5
Variation S3-B3	

AREA C

Variation S3-C1	Variation S3-C4
Variation S3-C2	Variation S3-C5
Variation S3-C3	Variation S3-C6

Project Features

Project Area Boundary	Segment Node
Link Number	Flagstaff 230-kV Rebuild (Area B)
Link Node	Double-circuit 138/69-kV Rebuild (Area C)

Land Ownership

Bureau of Land Management	State Land
Bureau of Reclamation	Private Land
U.S. Forest Service	

General Reference

City or Town	Interstate Highway
West-wide Energy Corridor	U.S. Highway
National Historic Oregon Trail Interpretive Center	State Highway
230-kV Transmission Line	Lake or Reservoir
138-kV Transmission Line	State Boundary
69- to 115-kV Transmission Line	County Boundary
Railroad	Oregon National Historic Trail Congressionally Designated Alignment

SOURCES:
Land Jurisdiction, BLM 2014, 2015; Cities and Towns, ESRI 2013; National Historic Oregon Trail Interpretive Center, BLM 2010, 2015; Transmission Lines, Ventyx 2012, Logan Simpson Design 2011, Bonneville Power Administration 2009, Idaho Power Company 2007; West-wide Energy Corridors, Argonne National Laboratory 2008; Substations, EPG 2015; Railroads, Idaho DOT 2006, Oregon DOT 2009; Highways, ESRI 2013; Waterbodies, ESRI 2013; State and County Boundaries, ESRI 2013; Oregon National Historic Trail Congressionally Designated Alignment, BLM 2015

NOTES:
1. Alternative routes are depicted graphically on map and, in most cases, share centerline alignment in common areas. Alternative routes, but not route variations, are shown within the overall geographic extent.
2. The alternative routes shown on this map are draft and may be revised or refined throughout the development of the project.
3. The B2H Project area boundary is defined by buffering the alternative routes centerlines.
4. Other federal land ownership may include lands administered by the U.S. Department of Energy, Bonneville Power Administration, Federal Aviation Administration, General Services Administration, or U.S. Department of Agriculture (except U.S. Forest Service).
5. Each alternative route is composed of links, which are discrete sections of the route sharing common endpoints determined by the point of intersection with other adjacent links; the common endpoint is referred to as a link node. Links generally are numbered from north to south. Similarly, a segment is composed of alternative routes that share common endpoints determined by the point of intersection with other adjacent alternative routes; the common endpoint is referred to as a segment node.
6. No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.

Alternative routes last revised: February 18, 2016
Final EIS: November 2016

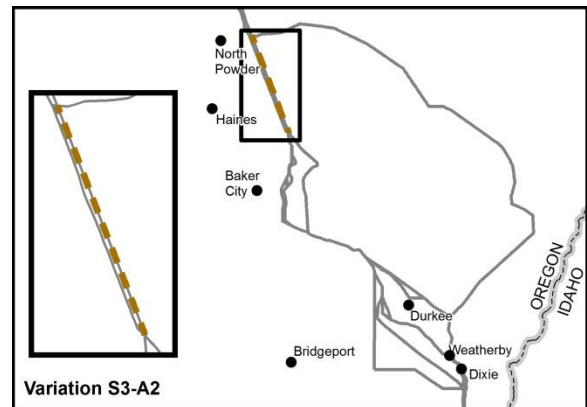
0 5 10
Miles
1:375,000 or 1 inch = 6 miles

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VARIATION S3 AREA A

Variation S3-A1 (Links 3-4, 3-22; 12.4 miles) shares the same alignment as the Applicant's Proposed Action Alternative beginning on Riverdale Hill where it parallels an existing 230-kV transmission line for approximately 12 miles to the southeast passing to the east of Magpie Peak before ending approximately 1 mile north of Oregon Route 203.

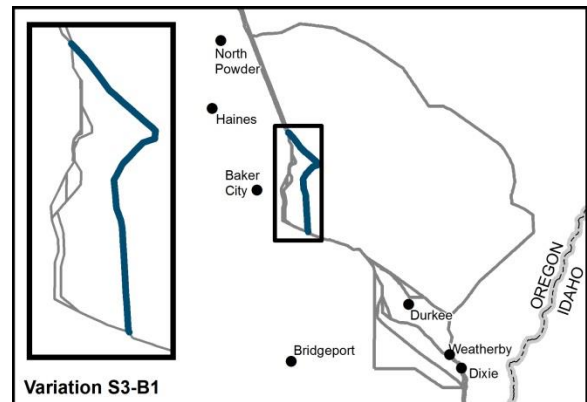
Variation S3-A2 (Links 3-10, 3-12, 3-14, 3-20; 12.2 miles) was not addressed in the Draft EIS and is a route-variation option developed as a result of the BLM's request to colocate the proposed transmission line closer to the existing transmission line. This variation begins on Riverdale Hill paralleling an existing 230-kV (offset approximately 250-feet to the west) for approximately 12 miles to the southeast passing to the east of Magpie Peak before ending approximately 1 mile north of Oregon Route 203.



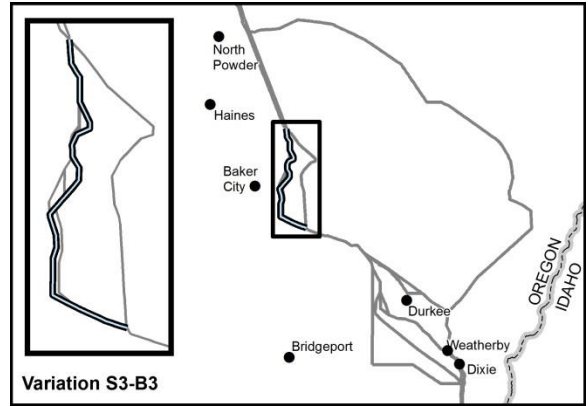
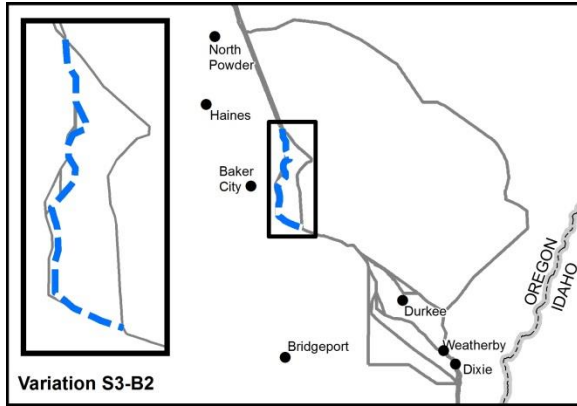
VARIATION S3 AREA B

Variation S3-B1 (Links 3-26, 3-28; 13.9 miles) begins 1 mile north of Oregon Route 203 and is a part of the alignment of the Applicant's Proposed Action Alternative ending just north of an existing 138-kV transmission line and Interstate 84.

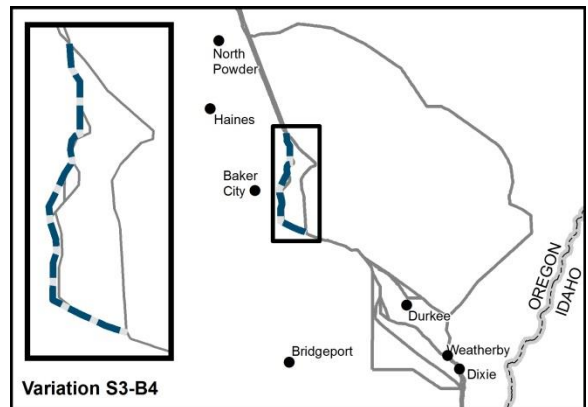
Variation S3-B2 (Links 3-24, 3-31, 3-37, 3-41, 4-46, 3-47, 3-48; 14.4 miles) begins 1 mile north of Oregon Route 203 and shares the same alignment as the Flagstaff B Alternative for approximately 8 miles before heading southeast following the Flagstaff A Alternative (Flagstaff Alternative from the Draft EIS) for approximately 4 miles. It then rejoins the Flagstaff B Alternative heading southeast for approximately 2 miles before ending just north of an existing 138-kV transmission line and Interstate 84.



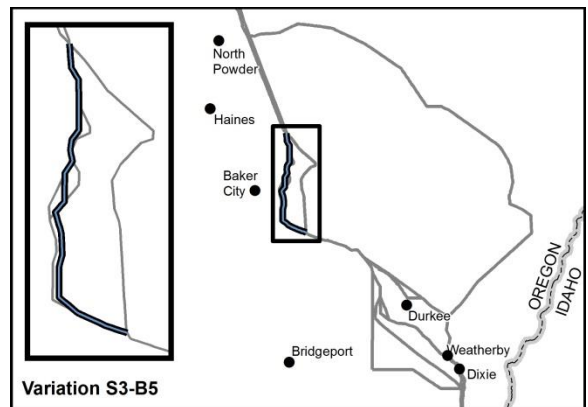
Variation S3-B3 (Links 3-24, 3-31, 3-37, 3-41, 3-46, 3-45, 3-44, 3-48; 14.7 miles) begins 1 mile north of Oregon Route 203 and shares the same alignment as the Flagstaff B Alternative before ending just north of an existing 138-kV transmission line and Interstate 84.



Variation S3-B4 (Links 3-24, 3-31, 3-32, 3-36, 3-38, 3-39, 3-43, 3-44, 3-48; 14.3 miles) begins 1 mile north of Oregon Route 203 and shares the same alignment as the Flagstaff A and B alternatives for approximately 1.5 miles. It then briefly heads southeast to parallel (250-foot offset to west) the existing 230-kV transmission line for approximately 2.6 miles. It then joins the alignment of the Flagstaff A Alternative in the vicinity of Oregon Route 86. It then leaves the Flagstaff A Alternative and heads southwest, roughly parallel to the existing 230-kV transmission line, before joining the Flagstaff B Alternative route, approximately 1.3 miles east of Coyote Peak. The variation follows the same alignment of the Flagstaff B Alternative for approximately 6.0 miles, ending just north of an existing 138-kV transmission line and Interstate 84.



Variation S3-B5 (Links 3-24, 3-34, 3-36, 3-38, 3-39, 3-40, 3-46, 3-47, 3-48; 14.0 miles) begins 1 mile north of Oregon Route 203 and shares the same alignment as the Flagstaff A Alternative before ending just north of an existing 138-kV transmission line and Interstate 84.

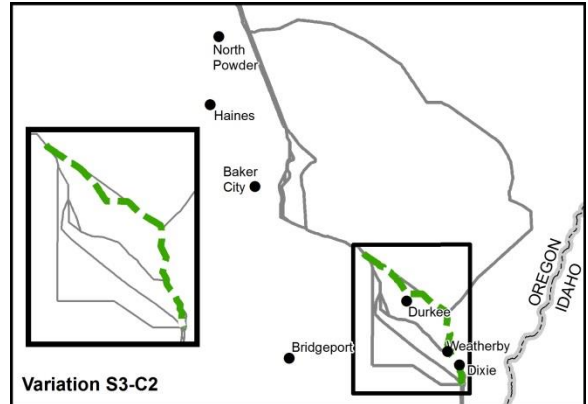
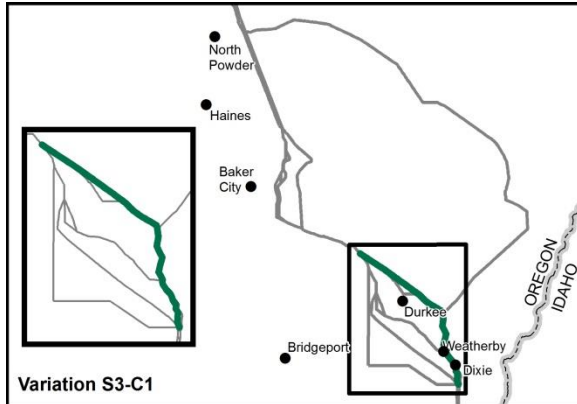


VARIATION S3 AREA C

Variation S3-C1 (Links 3-58, 3-78, 3-80, 3-82, 3-86, 3-88, 3-92; 21.1 miles) is part of the Applicant’s Proposed Action Alternative beginning just east of Straw Ranch Creek and approximately 0.8 mile north of Interstate 84 and ending at Dixie Creek.

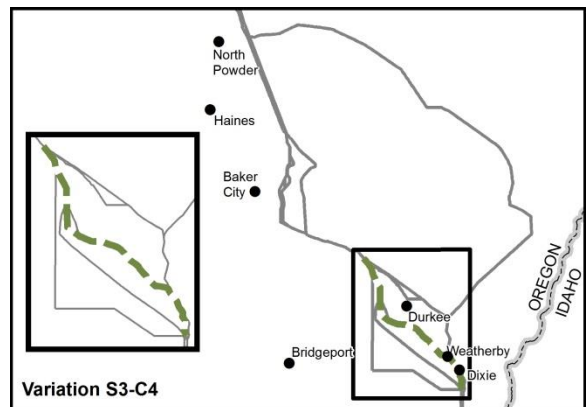
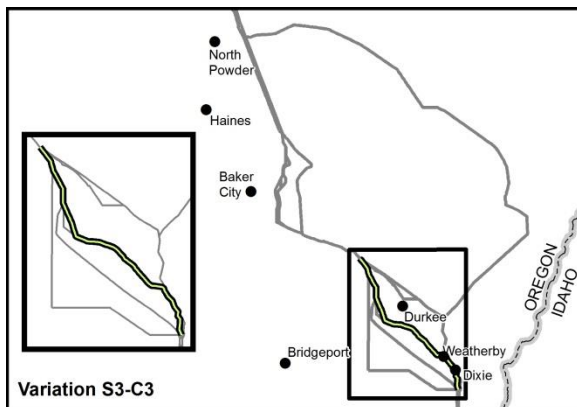
Variation S3-C2 (Links 3-56, 3-42, 3-78, 3-80, 3-82, 3-86, 3-88, 3-92; 21.7 miles) begins just east of Straw Ranch Creek, approximately 0.8 mile north of Interstate 84 and an existing 138-kV transmission line. The variation heads southeast for 0.3 mile, crossing the existing 138-kV transmission line, and then continues parallel to the existing 138-kV transmission line (on south side) for approximately 4.8

miles. Approximately 0.1 mile south of Hindman Road, the variation heads east for 0.1 mile crossing a railroad and the existing 138-kV transmission line again before heading southeast parallel to the existing 138-kV transmission line (on north side) for approximately 1.9 miles. The variation then heads directly east for 1.7 miles, crossing Durkee Creek approximately 0.7 mile north of Durkee, where it then joins the alignment of the Applicant’s Proposed Action Alternative for 12.8 miles before ending at Dixie Creek.



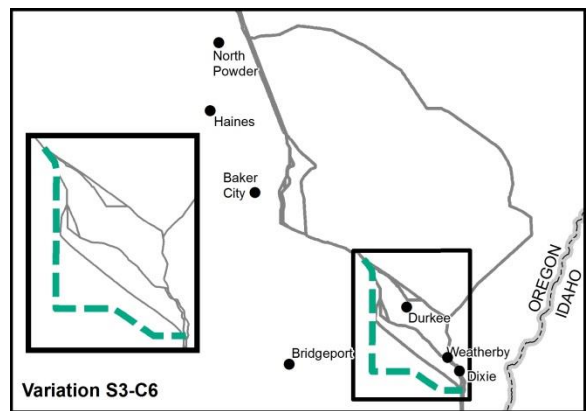
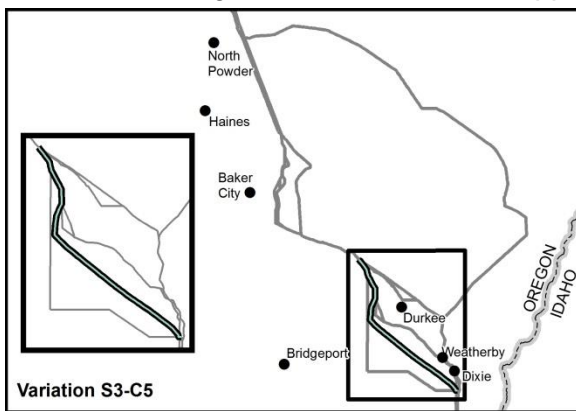
Variation S3-C3 (Links 3-56, 3-60, 3-62, 3-64, 3-72, 3-76, 3-88, 3-92; 21.1 miles) begins just east of Straw Ranch Creek and north of the existing 138-kV transmission line, approximately 0.8 mile north of Interstate 84, and north of the existing 138-kV transmission line. This variation follows the alignment of the Flagstaff A – Burnt River Mountain Alternative, which was addressed in the Draft EIS and intended to avoid Greater Sage-Grouse PHMA and the community of Durkee. The variation turns more to the south crossing Interstate 84 and then Burnt River Canyon, located 2.5 miles west of Durkee, before crossing Interstate 84 again near Weatherby. The variation then parallels the interstate for approximately 4 miles to the end of Segment 3 at Dixie Creek.

Variation S3-C4 (Links 3-56, 3-60, 3-62, 3-68, 3-70, 3-72, 3-76, 3-88, 3-92; 21.4 miles) shares the same alignment as Variation S3-C3, except for a 3.2-mile portion (Links 3-68 and 3-70) crossing Burnt River Canyon, approximately 0.6 mile west of the alignment that was addressed in the Draft EIS. This adjustment was developed in response to the comments on the Draft EIS.



Variation S3-C5 (Links 3-56, 3-60, 3-62, 3-66, 3-71, 3-73, 3-94; 21.0 miles) begins just east of Straw Ranch Creek and north of the existing 138-kV transmission line, approximately 0.8 mile north of Interstate 84, and north of the existing 138-kV transmission line. This variation shares the same alignment as the Flagstaff B – Burnt River West Alternative. It crosses Burnt River Canyon before heading southeast for approximately 13 miles toward Weatherby Mountain, crossing the northern flank of Baldy Mountain. After traversing the southwestern flank of Weatherby Mountain the variation crosses Dixie Creek to the end of Segment 3 approximately 0.5 mile west of Interstate 84.

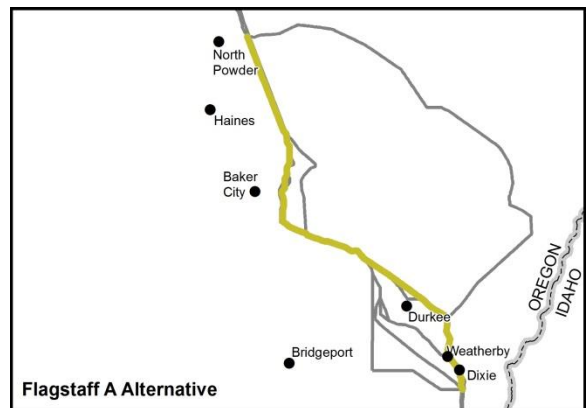
Variation S3-C6 (Links 3-56, 3-60, 3-74, 3-90, 3-94; 24.7 miles) shares the same alignment as Flagstaff B – Durkee Alternative in the Durkee area. This alignment is new based on comments on the Draft EIS received from Baker County and is intended to avoid more private and agricultural lands. As the route travels to the south, it crosses Burnt River Canyon before turning east on the northeast flank of Pedro Mountain crossing Dixie Creek twice, and the Snake River Mormon Basin Backcountry Byway, to the end of Segment 3 at Dixie Creek approximately 0.5 mile west of Interstate 84.



FLAGSTAFF A ALTERNATIVE [LINKS 3-4, 3-22, 3-24, 3-34, 3-36, 3-38, 3-39, 3-40, 3-46, 3-47, 3-48, 3-52, 3-54, 3-58, 3-78, 3-80, 3-82, 3-86, 3-88, 3-92; 55.3 MILES]

The Flagstaff A Alternative was addressed in the Draft EIS as the Flagstaff Alternative and was developed to parallel the existing 230-kV transmission line and avoid the Greater Sage-Grouse PHMA in the area east of Baker City.

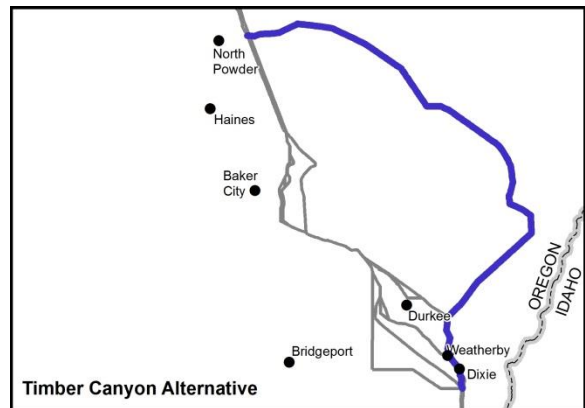
The Flagstaff A Alternative begins on Riverdale Hill collocated to closely parallel an existing 230-kV transmission line, where possible, to the southeast passing to the east of Magpie Peak and turning south near Oregon Route 203. The route continues to be collocated to closely parallel the existing 230-kV transmission line, where possible, west of Flagstaff Hill and the NHOTIC. In this area, the transmission line would be located 3 miles east of Baker City continuing to the south toward Interstate 84 passing on the west side of Lone Pine Mountain. This alternative route roughly parallels the interstate on the north side for 31 miles except near the community of Durkee and Gold Hill. In this area, the Flagstaff Alternative is located 1.5 miles to the



northeast of Interstate 84 before paralleling the interstate between the communities of Weatherby and Dixie to the end of Segment 3 at Dixie Creek.

TIMBER CANYON ALTERNATIVE [LINKS 3-1, 3-2, 3-6, 3-8, 3-80, 3-82, 3-86, 3-88, 3-92; 70.3 MILES]

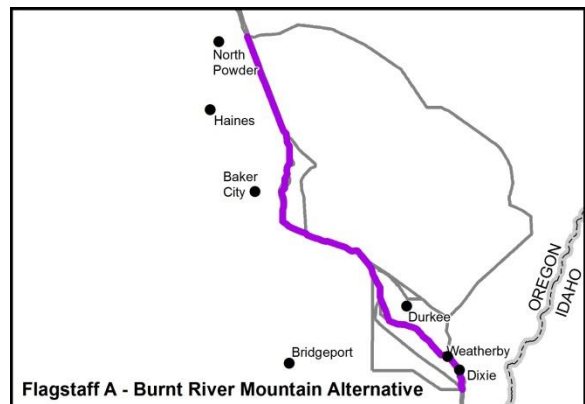
The Timber Canyon Alternative was addressed in the Draft EIS and was developed to avoid effects on Greater Sage-Grouse PHMAs and Oregon NHT segments. The Timber Canyon Alternative begins on Riverdale Hill where the route heads east passing north of Thief Valley Reservoir and ascending the southern edge of Wallowa Mountains onto the Wallowa-Whitman National Forest. After crossing Oregon Route 203 north of the community of Medical Springs, this route turns to the southeast crossing Big Creek and Goose Creek before passing east of the community of Sparta to Eagle Creek. In this area, the route turns to the south staying west of the communities of New Bridge and Richland then crosses the Powder River before turning to the southwest. This alternative route travels 17 miles southwest toward the community of Weatherby passing to the west of Big Lookout Mountain and Daly Creek. The Timber Canyon Alternative does not parallel existing transmission lines except at the southern end of the route near Weatherby, the transmission line would parallel Interstate 84 for approximately 4 miles to the end of Segment 3 at Dixie Creek.



FLAGSTAFF A – BURNT RIVER MOUNTAIN ALTERNATIVE [LINKS 3-10, 3-12, 3-14, 3-20, 3-24, 3-34, 3-36, 3-38, 3-39, 3-40, 3-46, 3-47, 3-48, 3-52, 3-54, 3-56, 3-60, 3-62, 3-64, 3-72, 3-76, 3-88, 3-92; 55.3 MILES]

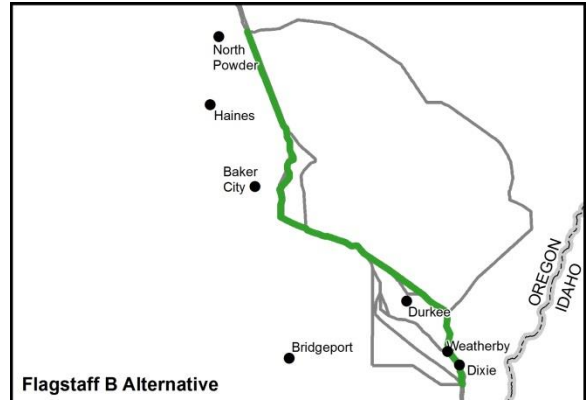
The Burnt River Mountain portion of the Flagstaff A – Burnt River Mountain Alternative was addressed in the Draft EIS and was intended to avoid Greater Sage-Grouse PHMA and the community of Durkee.

The Flagstaff A – Burnt River Mountain Alternative begins on Riverdale Hill, collocated to closely parallel an existing 230-kV transmission line where possible, to the southeast passing to the east of Magpie Peak and then turning east of Flagstaff Hill to pass to the west of the NHOTIC and 5 miles east of Baker City. After crossing Oregon Route 86, the alternative route travels south to Interstate 84, to the east of Lone Pine Mountain, where the transmission line would roughly parallel the interstate on the north side for 28 miles except near the community of Durkee. In this area the route turns more to the south crossing Interstate 84 and then Burnt River Canyon, located 2.5 miles southeast of Durkee, before crossing Interstate 84 again near Weatherby. The alternative route then parallels the interstate for 4 miles to the end of Segment 3 at Dixie Creek.



FLAGSTAFF B ALTERNATIVE [LINKS 3-4, 3-22, 3-24, 3-31, 3-37, 3-41, 3-46, 3-45, 3-44, 3-48, 3-52, 3-54, 3-58, 3-78, 3-80, 3-82, 3-86, 3-88, 3-92; 56.0 MILES]

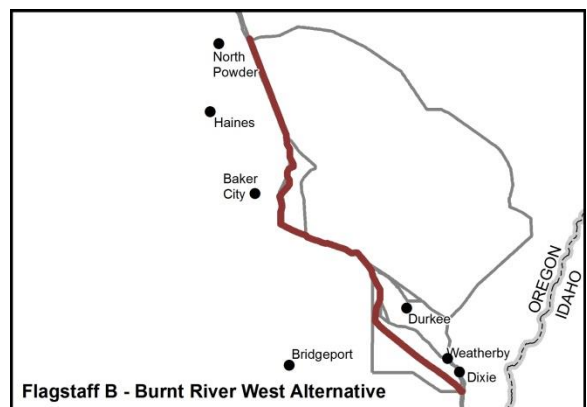
The Flagstaff B Alternative was not addressed as such in the Draft EIS and is the result of incorporating a route-variation option recommended in comments between the Draft and Final EIS. The Flagstaff B Alternative begins on Riverdale Hill paralleling an existing 230-kV transmission line to the southeast passing to the east of Magpie Peak. Beginning 1 mile north of Oregon Route 203, the Flagstaff B Alternative follows the alignment of the Flagstaff A Alternative for approximately 0.6 mile before joining other route-variation option alignments to avoid private lands and agricultural operations recommended between the Draft and Final EIS.



The alternative route follows the existing 230-kV transmission line for 1 mile before heading southeast into Flagstaff Gulch before turning southwest crossing Oregon Route 86 1 mile west of Flagstaff Hill. The route turns to the southwest before turning south as it closely parallels the existing 230-kV transmission line for 3 miles and then travels south to Interstate 84, where the alternative would roughly parallel the interstate on the north side for 31 miles except near the community of Durkee and Gold Hill. In this area, the alternative is located 1.5 miles to the northeast of Interstate 84 before paralleling the interstate between the communities of Weatherby and Dixie to the end of Segment 3 at Dixie Creek.

FLAGSTAFF B – BURNT RIVER WEST ALTERNATIVE [LINKS 3-10, 3-12, 3-14, 3-20, 3-24, 3-31, 3-37, 3-41, 3-46, 3-45, 3-44, 3-48, 3-52, 3-54, 3-56, 3-60, 3-62, 3-66, 3-71, 3-73, 3-94; 55.7 MILES]

The Flagstaff B – Burnt River West Alternative was not addressed as such in the Draft EIS and is the result of incorporating route-variation options recommended in comments between the Draft and Final EIS. The Flagstaff B – Burnt River West Alternative begins on Riverdale Hill paralleling an existing 230-kV transmission line (offset approximately 250-feet to the west). Beginning 1 mile north of Oregon Route 203, the Flagstaff B Alternative follows the alignment of the Flagstaff A Alternative for approximately 0.6 mile before

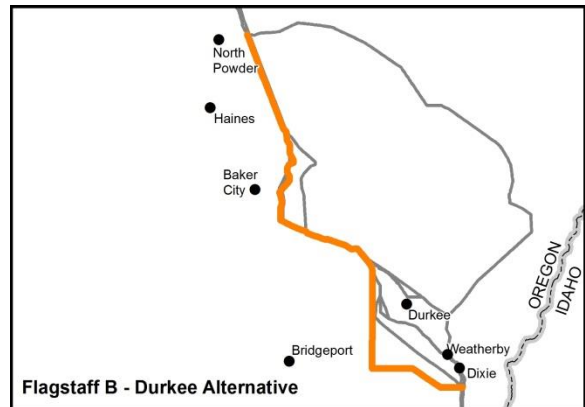


joining other route-variation option alignments to avoid private lands and agricultural operations recommended since the Draft EIS was released for public review. The alternative follows the existing 230-kV transmission line for 1 mile before heading southeast into Flagstaff Gulch before turning southwest crossing Oregon Route 86 1 mile west of Flagstaff Hill. The route turns to the southwest before turning south as it closely parallels the existing 230-kV transmission line for 3 miles and then travels south to Interstate 84. To the east of Straw Ranch Creek, the alternative crosses a 138-kV

transmission line and Interstate 84 and follows a route-variation option recommended by Baker County. The alternative route crosses Burnt River Canyon before heading southeast for approximately 13 miles toward Weatherby Mountain, crossing the northern flank of Baldy Mountain. After traversing the southwestern flank of Weatherby Mountain the alternative route crosses Dixie Creek to the end of Segment 3 approximately 0.5 mile west of Interstate 84.

FLAGSTAFF B – DURKEE ALTERNATIVE [LINKS 3-4,3-22, 3-24, 3-31, 3-37, 3-41, 3-46, 3-45, 3-44, 3-48, 3-52, 3-54, 3-56, 3-60, 3-74, 3-90, 3-94; 59.6 MILES]

The Flagstaff B – Durkee Alternative was not addressed as such in the Draft EIS and is the result of incorporating a route-variation option recommended in comments between the Draft and Final EIS. The Flagstaff B – Durkee Alternative begins on Riverdale Hill paralleling an existing 230-kV transmission line to the south passing to the east of Magpie Peak. Beginning 1 mile north of Oregon Route 203, the Flagstaff B Alternative follows the alignment of the Flagstaff A Alternative for



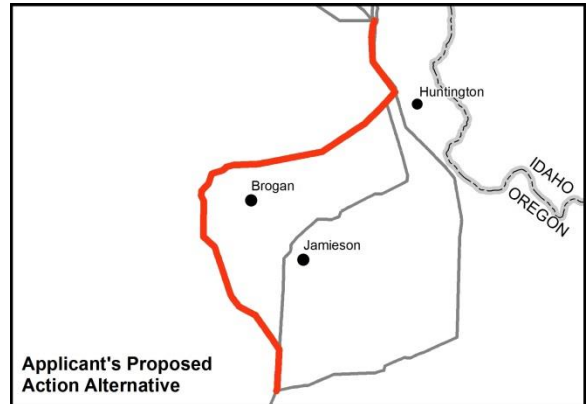
approximately 0.6 mile before joining a new alignment the result of route-variation options to avoid private lands and agricultural operations recommended since the Draft EIS was released for public review. The alternative follows an existing 230-kV transmission line for 1 mile before heading southeast into Flagstaff Gulch before turning southwest crossing Oregon Route 86 1 mile west of Flagstaff Hill. The route turns to the southwest before turning south as it closely parallels the existing 230-kV transmission line for 3 miles and then travels south to Interstate 84, roughly paralleling the interstate for 9 miles. To the east of Straw Ranch Creek, the alternative route crosses a 138-kV transmission line and Interstate 84 and follows a route-variation option recommended by Baker County. The alternative route travels south for 11 miles crossing Burnt River Canyon and below Sheep Mountain before turning and heading east on the northeastern flank of Pedro Mountain, crossing Dixie Creek twice, and the Snake River Mormon Basin Backcountry Byway, to the end of Segment 3 at Dixie Creek approximately 0.5 mile west of Interstate 84.

2.5.2.4 SEGMENT 4—BROGAN

Segment 4 begins at a point just south of Dixie in Baker County and ends at a point south of Jamieson in Malheur County. The three alternative routes and one area of local route variations in Segment 4 are shown on Map 2-7d.

APPLICANT’S PROPOSED ACTION ALTERNATIVE [LINKS 4-1, 4-10, 4-11, 4-13, 4-25, 4-45, 4-50, 4-65, 4-70; 40.1 MILES]

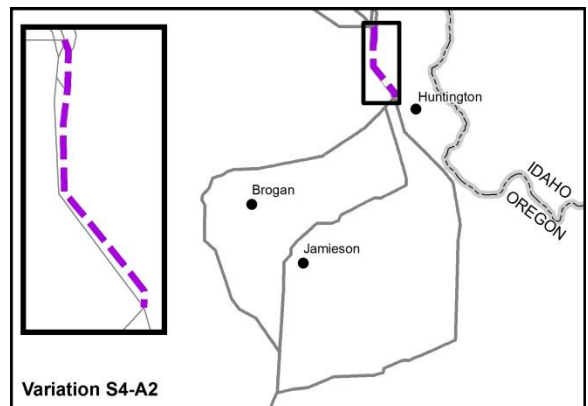
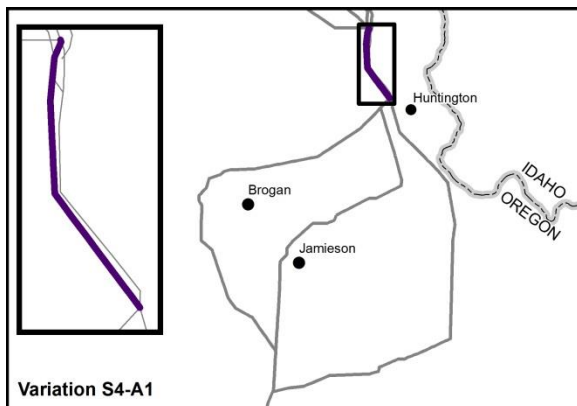
The Applicant’s Proposed Action Alternative in Segment 4 was addressed in the Draft EIS and parallels an existing 138-kV transmission line to the south from Dixie Creek to Durbin Creek (west of the community of Huntington), approximately 5 miles, before turning to the southwest toward the community of Brogan. The route passes north of Lost Tom Mountain and then crosses Birch Creek and Phipps Creek east of Brogan. The transmission line would cross U.S. Highway 26, approximately 4 miles east of Brogan, where the route turns to the south running along the eastern flank of Cottonwood Mountain to the end of the Segment 4 north of Bully Creek.

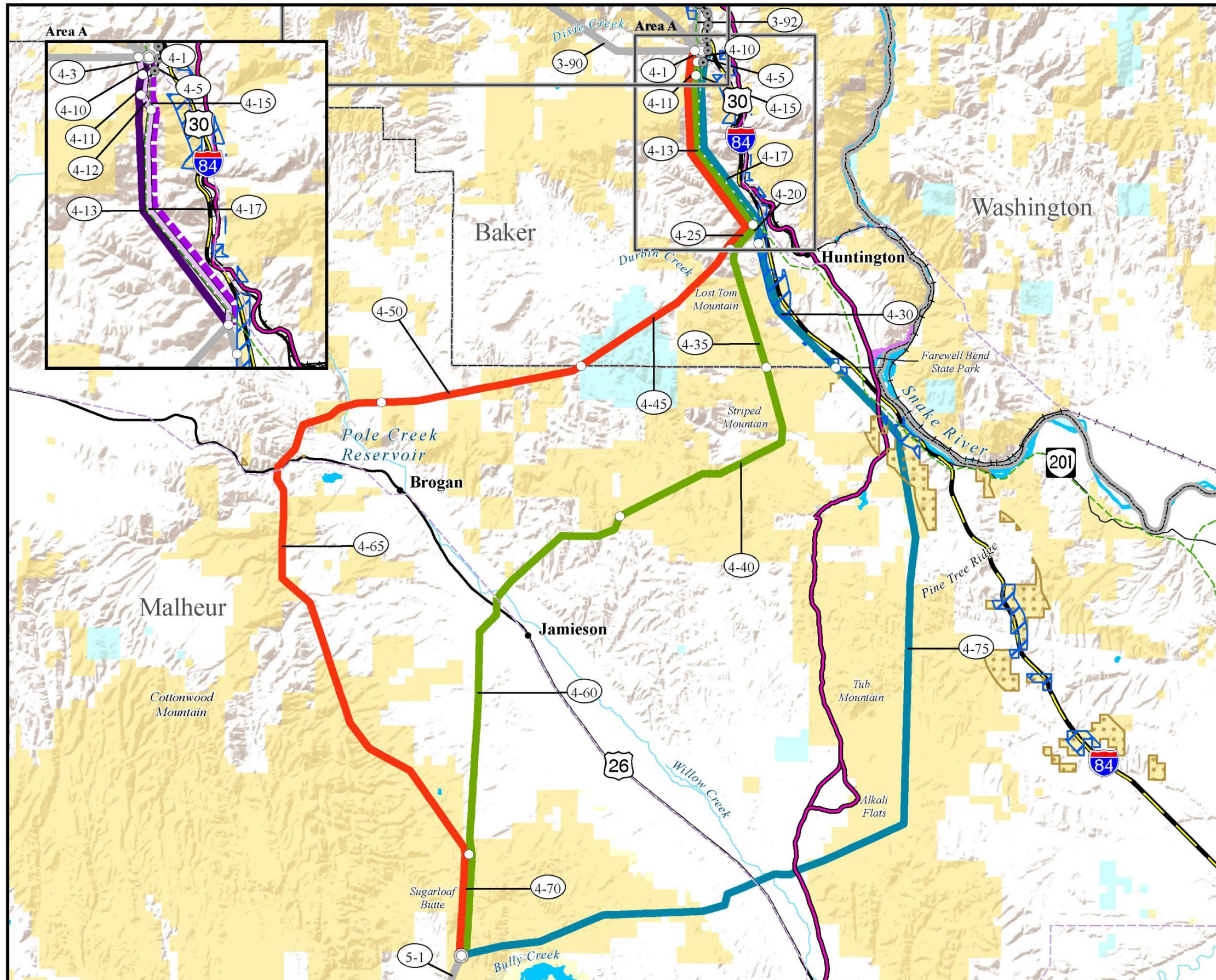


VARIATION S4 AREA A (COLOCATION NORTHWEST OF HUNTINGTON)

Variation S4-A1 (Links 4-1, 4-10, 4-11, 4-13; 5.9 miles) is the same alignment as Applicant’s Proposed Action Alternative and Willow Creek Alternative paralleling an existing 138-kV transmission line from Dixie Creek to Durbin Creek (west of community of Huntington) for approximately 6 miles.

Variation S4-A2 (Links 4-1, 4-5, 4-15, 4-17; 6.0 miles) separates from the Segment 4 alternatives by more closely paralleling the existing 138-kV transmission line from Dixie Creek to Durbin Creek (west of community of Huntington) for approximately 6 miles before rejoining the Segment 4 alternative routes.





Map 2-7d
Segment 4
Brogan

BOARDMAN TO HEMINGWAY
TRANSMISSION LINE PROJECT

Alternative Routes^{1,2}

- Applicant's Proposed Action Alternative
- Tub Mountain South Alternative
- Willow Creek Alternative

Variations

- Variation S4-A1
- Variation S4-A2
- Variation S4-A3

Project Features

- Link Number
- Link Node
- Segment Node
- Double-circuit 138/69-kV Rebuild (Area A)

Land Ownership

- Bureau of Land Management
- State Land
- Bureau of Reclamation
- Private Land

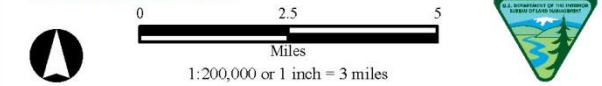
General Reference

- City or Town
- Resource Management Plan Utility Corridor
- West-wide Energy Corridor
- Farewell Bend State Park
- 138-kV Transmission Line
- 69- to 115-kV Transmission Line
- Railroad
- Interstate Highway
- U.S. Highway
- State Highway
- Lake or Reservoir
- County Boundary
- Oregon National Historic Trail Congressionally Designated Alignment

SOURCES:
Land Jurisdiction, BLM 2014, 2015; Cities and Towns, ESRI 2013; Resource Management Plan Utility Corridors, BLM 2015; West-wide Energy Corridors, Argonne National Laboratory 2008; Transmission Lines, Ventyx 2012, Logan Simpson Design 2011, Bonneville Power Administration 2009, Idaho Power Company 2007; Substations, EPG 2015; Railroads, Idaho DOT 2006, Oregon DOT 2009; Highways, ESRI 2013; Waterbodies, ESRI 2013; State and County Boundaries, ESRI 2013; Oregon National Historic Trail Congressionally Designated Alignment, BLM 2015

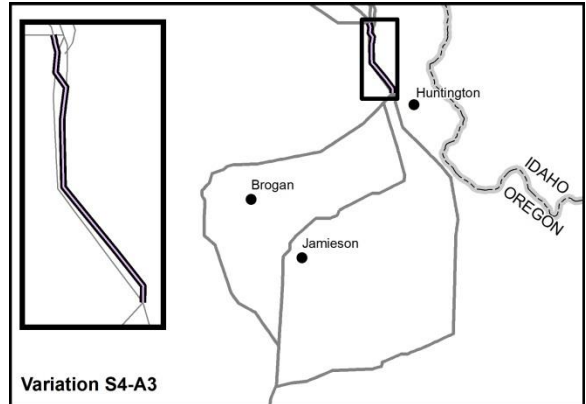
NOTES:
¹ Alternative routes are depicted graphically on map and, in most cases, share centerline alignment in common areas.
² Alternative routes, but not route variations, are shown within the overall geographic extent.
 • The alternative routes shown on this map are draft and may be revised or refined throughout the development of the project.
 • The B2H Project area boundary is defined by buffering the alternative route centerlines.
 • Other federal land ownership may include lands administered by the U.S. Department of Energy, Bonneville Power Administration, Federal Aviation Administration, General Services Administration, or U.S. Department of Agriculture (except U.S. Forest Service).
 • Each alternative route is composed of links, which are discrete sections of the route sharing common endpoints determined by the point of intersection with other adjacent links, the common endpoint is referred to as a link node. Links generally are numbered from north to south. Similarly, a segment is composed of alternative routes that share common endpoints determined by the point of intersection with other adjacent alternative routes; the common endpoint is referred to as a segment node.
 • No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.

Alternative routes last revised: February 18, 2016
 Final EIS: November 2016



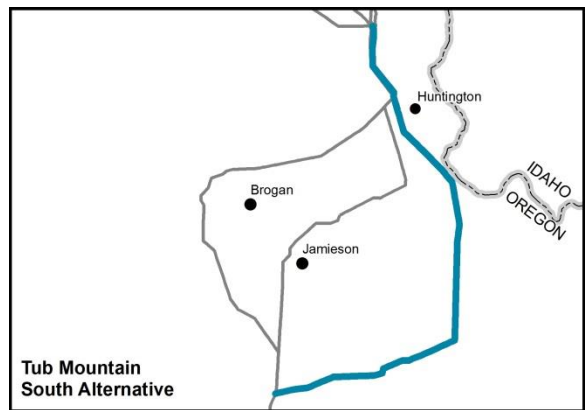
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Variation S4-A3 (Links 4-3, 4-11, 4-12, 4-17; 6.1 miles) begins 0.2 mile west of the Applicant’s Proposed Action Alternative before joining the Applicant’s Proposed Action Alternative for 0.4 mile before turning southeast to closely parallel the existing 138-kV transmission line from Dixie Creek to Durbin Creek (west of community of Huntington) for approximately 5 miles before rejoining the Segment 4 alternative routes.



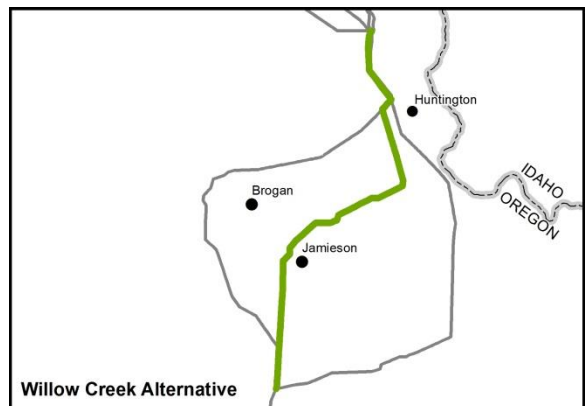
TUB MOUNTAIN SOUTH ALTERNATIVE [LINKS 4-1, 4-5, 4-15, 4-17, 4-20, 4-30, 4-75; 40.5 MILES]

The Tub Mountain South Alternative, addressed in the Draft EIS, was developed to avoid Greater Sage-Grouse habitat in the Brogan area, and was identified in the Draft EIS as the Agency Preferred Alternative. The Tub Mountain South Alternative route was colocated to closely parallel an existing 138-kV transmission line to the south from Dixie Creek to Durbin Creek (west of the community of Huntington), approximately 5 miles, before turning to the southeast toward the Snake River. Where possible (Links 4-20 and 4-21), the route is within a West-wide Energy Corridor and BLM-designated utility corridor (along the northern portion of Link 4-75). This route passes within 1 mile of Farewell Bend State Recreation Area, adjacent to an existing 138-kV transmission line, where the alternative route turns south crossing Pine Tree Ridge and along the eastern flank of Tub Mountain. On the Alkali Flats, 8 miles north of the community of Vale, this alternative turns toward the southwest crossing Willow Creek and U.S. Highway 26 to the end of Segment 4 north of Bully Creek.



WILLOW CREEK ALTERNATIVE [LINKS 4-1, 4-10, 4-11, 4-13, 4-25, 4-35, 4-40, 4-60, 4-70; 34.6 MILES]

The Willow Creek Alternative, addressed in the Draft EIS, was developed to avoid Greater Sage-Grouse habitat and several known Greater Sage-Grouse leks. The Willow Creek Alternative route parallels an existing 138-kV transmission line to the south from Dixie Creek to Durbin Creek (west of the community of Huntington), approximately 5 miles, before continuing to the south toward Birch Creek. In this area, the route turns to the southwest passing south of Striped Mountain, Brosman Mountain, and McDowell Butte. Approximately 1.5 miles



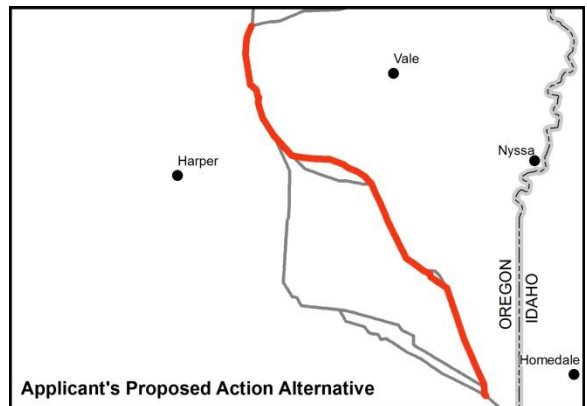
northwest of the community of Jamieson, at the crossing of U.S. Highway 26, the route turns to the south to pass between Sugarloaf Butte and Hope Butte to the end of Segment 4 north of Bully Creek.

2.5.2.5 SEGMENT 5—MALHEUR

Segment 5 begins at a point south of Jamieson in Malheur County and ends at a point 3 miles west of the Oregon-Idaho border. The three alternative routes and two areas of local route variations in Segment 5 are shown on Map 2-7e.

APPLICANT’S PROPOSED ACTION ALTERNATIVE [LINKS 5-1, 5-5, 5-10, 5-15, 5-40, 5-50, 5-55, 5-65, 5-70, 5-75; 40.4 MILES]

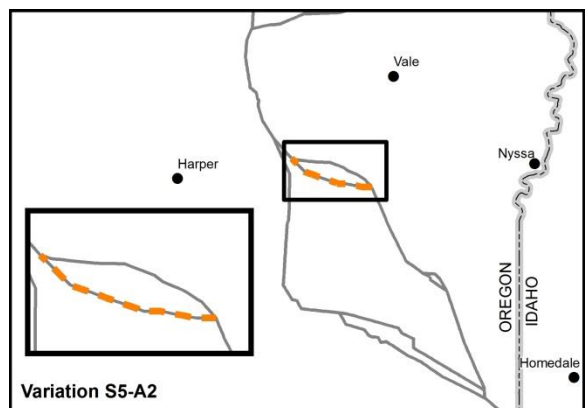
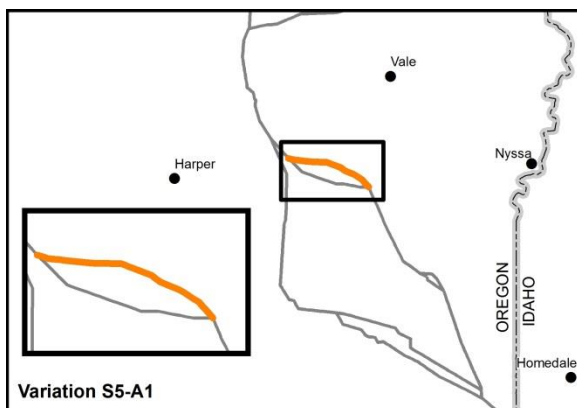
The Applicant’s Proposed Action Alternative in Segment 5 was identified as the Agency Preferred Alternative in the Draft EIS. It crosses Bully Creek at the beginning of Segment 5 traveling to the south where the route crosses Malheur Canyon and U.S. Highway 20 before turning toward the east to pass around the north side of Double Mountain. The route then continues to the southeast crossing the Owyhee River in a portion of the river determined by the BLM to be suitable for designation as a National WSR. South of the Owyhee River, the transmission line would continue to the southeast to the end of Segment 5 near Succor Creek approximately 3 miles west of the Oregon-Idaho border.

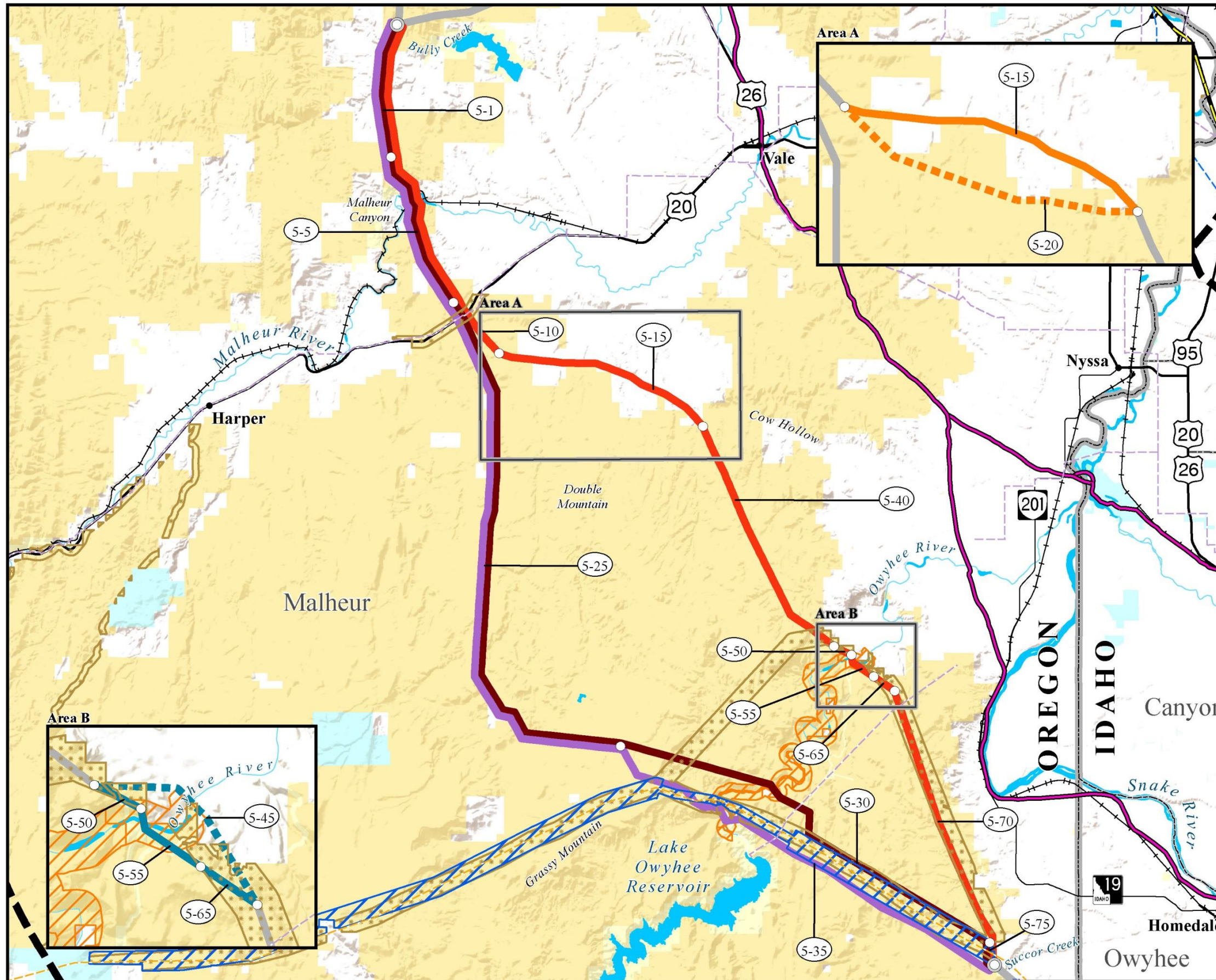


VARIATION S5 AREA A (DOUBLE MOUNTAIN AREA)

Variation S5-A1 (Link 5-15; 7.4 miles), addressed in the Draft EIS, was developed to avoid crossing lands with wilderness characteristics. Variation S5-A1 is the alignment of the Applicant’s Proposed Action Alternative south of U.S. Highway 20 to Cow Hollow for a distance of approximately 7 miles.

Variation S5-A2 (Link 5-20; 7.4 miles), addressed in the Draft EIS, separates from the Applicant’s Proposed Action Alternative, south of U.S. Highway 20, by being located about a mile farther to the south before rejoining the Applicant’s Proposed Action Alternative in Cow Hollow. Variation S5-A2 crosses areas of lands with wilderness characteristics.





Map 2-7e
**Segment 5
Malheur**

BOARDMAN TO HEMINGWAY
TRANSMISSION LINE PROJECT

Alternative Routes^{1,2}

Applicant's Proposed Action Alternative	Malheur A Alternative
Malheur S Alternative	

Variations

AREA A	AREA B
Variation S5-A1	Variation S5-B1
Variation S5-A2	Variation S5-B2

Project Features

Project Area Boundary	Link Node
Link Number	Segment Node

Land Ownership

Bureau of Land Management	State Land
Bureau of Reclamation	Private Land

General Reference

City or Town	Railroad
Resource Management Plan Utility Corridor	U.S. Highway
West-wide Energy Corridor	State Highway
Wild and Scenic River-Determined Suitable	Lake or Reservoir
500-kV Transmission Line	State Boundary
230-kV Transmission Line	County Boundary
69- to 115-kV Transmission Line	Oregon National Historic Trail Congressionally Designated Alignment

SOURCES:
Land Jurisdiction, BLM 2014, 2015; Cities and Towns, ESRI 2013; Resource Management Plan Utility Corridors, BLM 2015; West-wide Energy Corridors, Argonne National Laboratory 2008; Wild and Scenic Rivers - Determined Suitable, BLM 2015; Transmission Lines, Ventyx 2012; Logan Simpson Design 2011, Bonneville Power Administration 2009, Idaho Power Company 2007; Substations, EPG 2015; Railroads, Idaho DOT 2006, Oregon DOT 2009; Highways, ESRI 2013; Waterbodies, ESRI 2013; State and County Boundaries, ESRI 2013; Oregon National Historic Trail Congressionally Designated Alignment, BLM 2015

NOTES:
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² Alternative routes, but not route variations, are shown within the overall geographic extent.
 • The alternative routes shown on this map are draft and may be revised or refined throughout the development of the project.
 • The B2H Project area boundary is defined by buffering the alternative route centerlines.
 • Other federal land ownership may include lands administered by the U.S. Department of Energy, Bonneville Power Administration, Federal Aviation Administration, General Services Administration, or U.S. Department of Agriculture (except U.S. Forest Service).
 • Each alternative route is composed of links, which are discrete sections of the route sharing common endpoints determined by the point of intersection with other adjacent links; the common endpoint is referred to as a link node. Links generally are numbered from north to south. Similarly, a segment is composed of alternative routes that share common endpoints determined by the point of intersection with other adjacent alternative routes; the common endpoint is referred to as a segment node.
 • No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.
 Alternative routes last revised: February 18, 2016
 Final EIS: November 2016

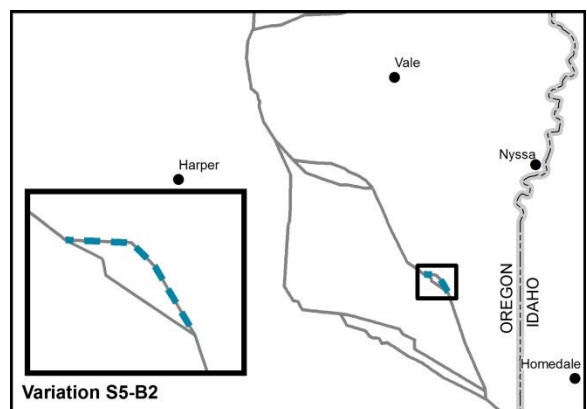
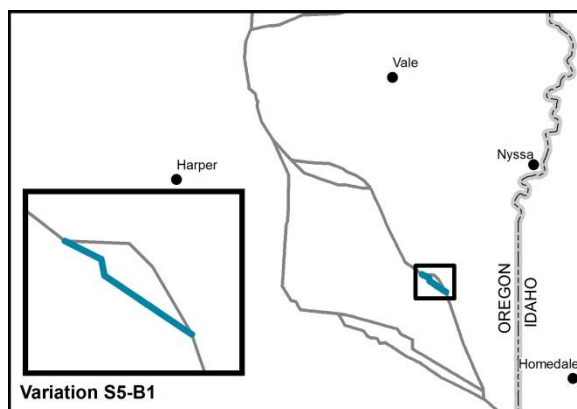
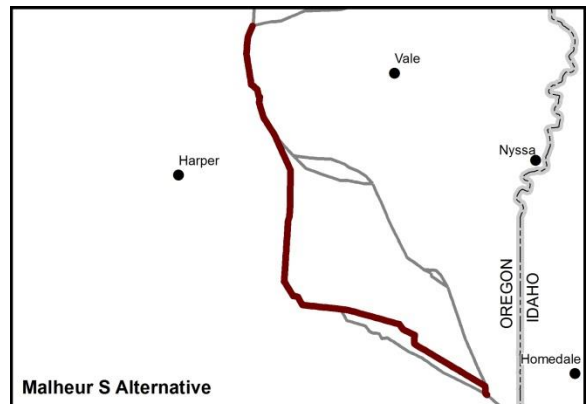
0 2.5 5
Miles
1:215,000 or 1 inch = 3 miles

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VARIATION S5 AREA B (OWYHEE RIVER CROSSING)

Variation S5-B1 (Links 5-50, 5-55, 5-56; 2.5 miles), addressed in the Draft EIS, is the alignment of the Applicant’s Proposed Action Alternative across the Owyhee River in an area determined by the BLM to be suitable for designation as a National WSR for a distance of approximately 2.5 miles.

Variation S5-B2 (Link 5-45; 2.8 miles) was not addressed in the Draft EIS and is a route-variation option developed by the BLM farther to the northeast and outside the area determined to be suitable for wild and scenic designation. Variation S5-B2 separates from the Applicant’s Proposed Action Alternative at the crossing of the Owyhee River.

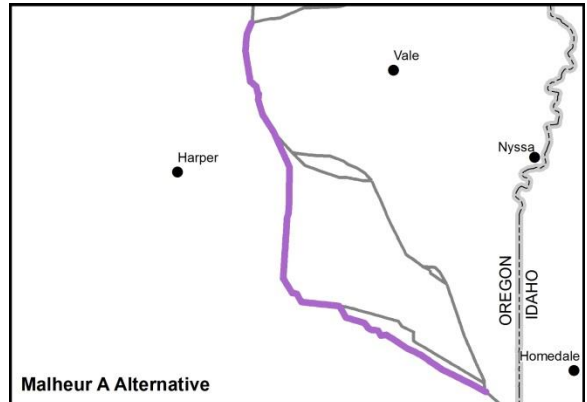


MALHEUR S ALTERNATIVE [LINKS 5-1, 5-5, 5-25, 5-30, 5-75; 43.5 MILES]

The Malheur S Alternative, addressed in the Draft EIS, was developed to avoid privately owned farmland and to avoid lands with wilderness characteristics. Malheur S Alternative crosses Bully Creek at the beginning of Segment 5 traveling to south where the route crosses Malheur Canyon and U.S. Highway 20 into Sand Hollow. North of Grassy Mountain, this alternative turns to the southeast to cross the Owyhee River in the Owyhee River Below the Dam Area of Critical Environmental Concern (ACEC) and a portion suitable for wild and scenic designation, north of an existing 500-kV transmission line 2.5 miles north of the Owyhee Dam. The transmission line would continue to parallel the existing 500-kV transmission line to the southeast to the end of Segment 5 near Succor Creek approximately 3 miles west of the Oregon-Idaho border.

MALHEUR A ALTERNATIVE [LINKS 5-1, 5-5, 5-25, 5-35; 43.1 MILES]

The Malheur A Alternative, addressed in the Draft EIS, was developed to be within or parallel the West-wide Energy Corridor in the vicinity of the Owyhee Dam. Malheur A Alternative crosses Bully Creek at the beginning of Segment 5 traveling to south where the route crosses Malheur Canyon and U.S. Highway 20 into Sand Hollow. North of Grassy Mountain, this alternative turns to the southeast to cross the Owyhee River, in the Owyhee River Below the Dam ACEC and a portion suitable for wild and scenic designation, south of an existing 500-kV transmission line 1.5 miles north of the Owyhee Dam. The transmission line would continue to parallel the existing 500-kV transmission line to the southeast to the end of Segment 5 near Succor Creek approximately 3 miles west of the Oregon-Idaho border.

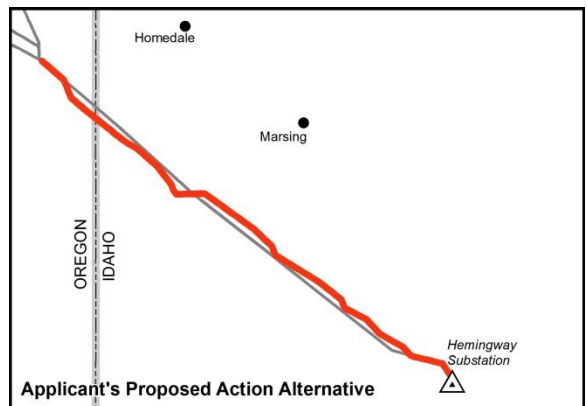


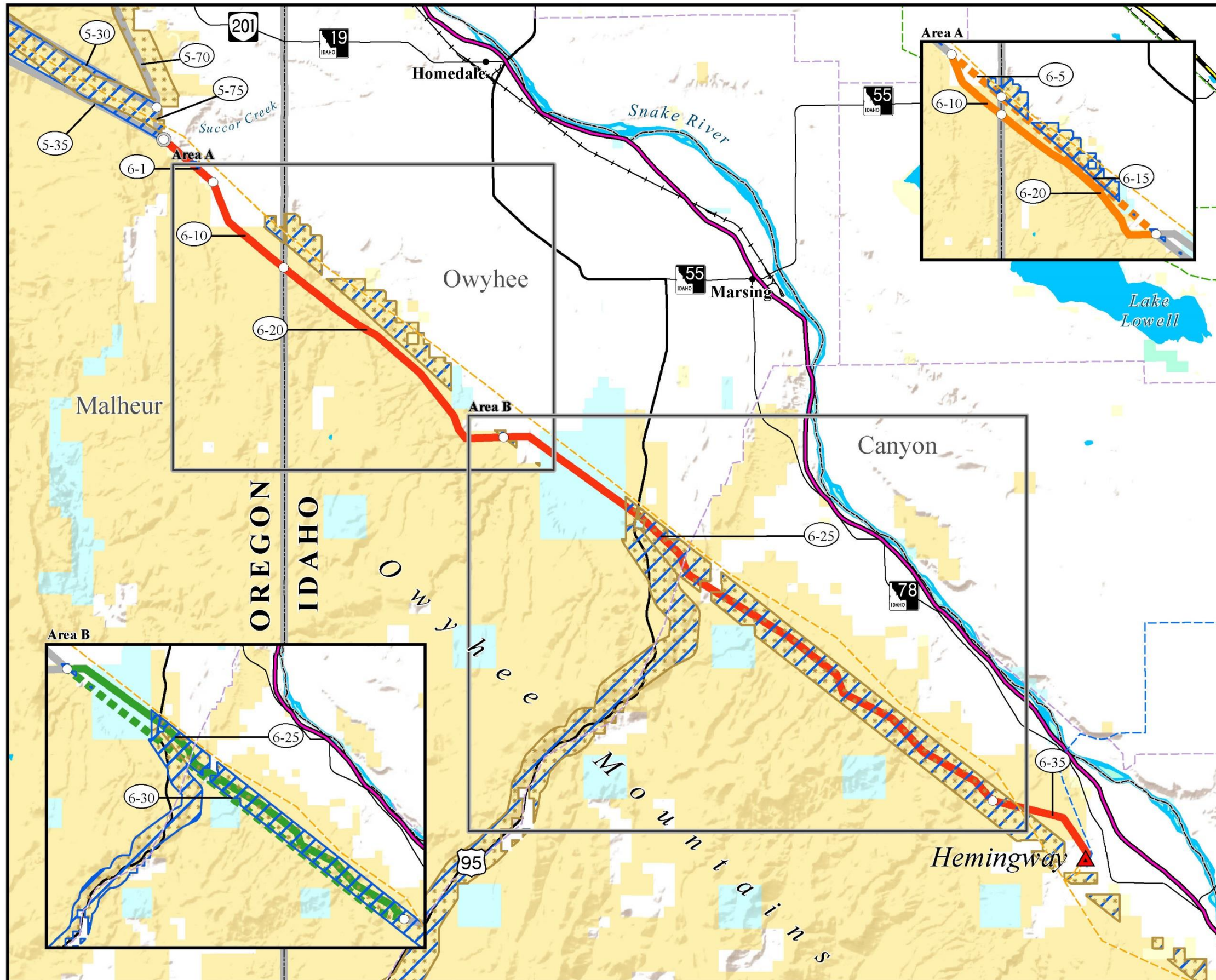
2.5.2.6 SEGMENT 6—TREASURE VALLEY

Segment 6 begins at a point approximately 3 miles west of the Oregon-Idaho border and ends at the Hemingway Substation in Owyhee County, Idaho. The one route and two areas of local route variations in Segment 6 are shown on Map 2-7f.

APPLICANT’S PROPOSED ACTION ALTERNATIVE [LINKS 6-1, 6-10, 6-20, 6-25, 6-35; 28.0 MILES]

The Applicant’s Proposed Action Alternative in Segment 6, addressed in the Draft EIS, begins near Succor Creek, approximately 3 miles west of the Oregon-Idaho border, traveling to the southeast into Idaho adjacent to an existing 500-kV transmission line, along the northwestern flank of the Owyhee Mountains. This route is located northeast of Jump Creek Canyon ACEC and further to the southeast is located within a designated West-wide Energy Corridor, crossing U.S. Highway 95 and Reynolds Creek before entering the existing Hemingway Substation 7 miles west of the community of Melba, Idaho.





Map 2-7f
**Segment 6
 Treasure Valley**

**BOARDMAN TO HEMINGWAY
 TRANSMISSION LINE PROJECT**

Alternative Routes^{1,2}
 Applicant's Proposed Action Alternative

Variations

AREA A Variation S6-A1 Variation S6-A2	AREA B Variation S6-B1 Variation S6-B2
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Project Features

Substation (Project Terminal)	Link Node
Link Number	Segment Node

Land Ownership

Bureau of Land Management	State Land
Bureau of Reclamation	Private Land
U.S. Fish and Wildlife Service	

General Reference

City or Town	Interstate Highway
Resource Management Plan Utility Corridor	U.S. Highway
West-wide Energy Corridor	State Highway
500-kV Transmission Line	Lake or Reservoir
230-kV Transmission Line	State Boundary
138-kV Transmission Line	County Boundary
69- to 115-kV Transmission Line	Oregon National Historic Trail Congressionally Designated Alignment
Railroad	

SOURCES:
 Land Jurisdiction, BLM 2014, 2015; Cities and Towns, ESRI 2013; Resource Management Plan Utility Corridors, BLM 2015; West-wide Energy Corridors, Argonne National Laboratory 2008; Transmission Lines, Ventyx 2012, Logan Simpson Design 2011, Bonneville Power Administration 2009, Idaho Power Company 2007; Substations, EPG 2015; Railroads, Idaho DOT 2006, Oregon DOT 2009; Highways, ESRI 2013; Waterbodies, ESRI 2013; State and County Boundaries, ESRI 2013; Oregon National Historic Trail Congressionally Designated Alignment, BLM 2015

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 • The B2H Project area boundary is defined by buffering the alternative route centerlines.
 • Other federal land ownership may include lands administered by the U.S. Department of Energy, Bonneville Power Administration, Federal Aviation Administration, General Services Administration, or U.S. Department of Agriculture (except U.S. Forest Service).
 • Each alternative route is composed of links, which are discrete sections of the route sharing common endpoints determined by the point of intersection with other adjacent links, the common endpoint is referred to as a link node. Links generally are numbered from north to south. Similarly, a segment is composed of alternative routes that share common endpoints determined by the point of intersection with other adjacent alternative routes; the common endpoint is referred to as a segment node.
 • No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.

Alternative routes last revised: February 18, 2016
 Final EIS: November 2016

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 Miles
 1:150,000 or 1 inch = 2 miles

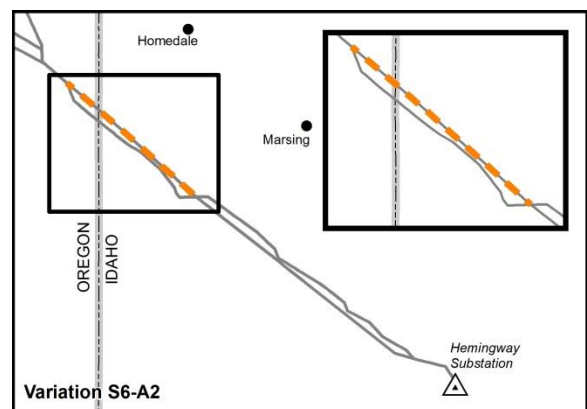
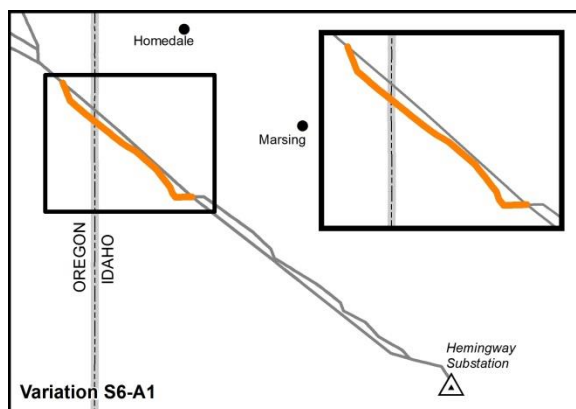
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VARIATION S6 AREA A

The BLM developed the variations as part of collocating the proposed transmission line to existing transmission lines in the area and to use the utility corridor designated on BLM-administered land more efficiently.

Variation S6-A1 (Links 6-10, 6-20; 9.3 miles) is the alignment of the Applicant's Proposed Action Alternative from Succor Creek, crossing the Oregon-Idaho border, to Jump Creek for a total distance of 9 miles in proximity to the existing 500-kV transmission line.

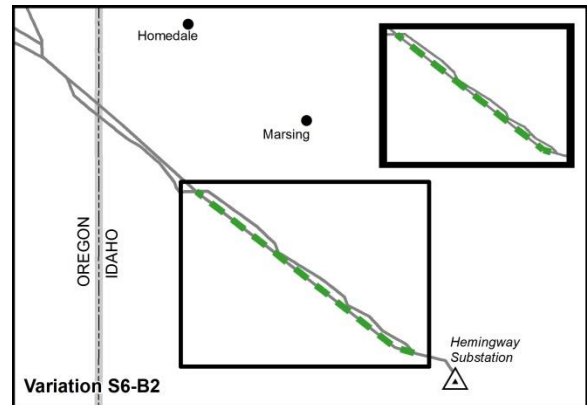
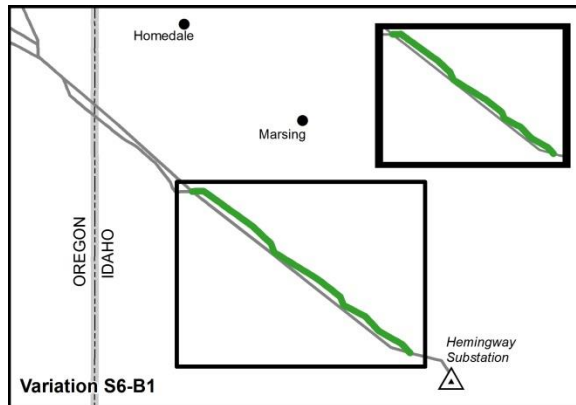
Variation S6-A2 (Links 6-5, 6-15; 8.9 miles) was developed between the Draft and Final EIS by the BLM. Variation S6-A2 separates from the Applicant's Proposed Action Alternative at Succor Creek, to more closely parallel the existing 500-kV transmission line and to be located within the designated West-wide Energy Corridor to Jump Creek.



VARIATION S6 AREA B

Variation S6-B1 (Link 6-25; 14.4 miles) is the alignment of the Applicant's Proposed Action Alternative from Jump Creek to Wilson Creek, 2.5 miles northwest of the existing Hemingway Substation, for a total distance of 14 miles. This route more closely parallels the existing 500-kV transmission line in the designated West-wide Energy Corridor.

Variation S6-B2 (Link 6-30; 14.1 miles) was developed between the Draft and Final EIS by the BLM. Variation S6-B2 separates from the Applicant's Proposed Action Alternative at Jump Creek and crosses in proximity to the Jump Creek Canyon ACEC than Variation S6-B1 traveling to the southeast for 14 miles to Wilson Creek, 2.5 miles northwest of the existing Hemingway Substation. This route is not located as close to the existing 500-kV transmission line as Variation S6-B1 since it is located along the southwest edge of the West-wide Energy Corridor to allow for future linear utilities to be sited between the proposed and the existing transmission lines.



2.5.3 NO ACTION ALTERNATIVE

The Council on Environmental Quality regulations require that EISs describe a “no action” alternative to a proposed action (40 CFR 1502.14(d)). The No Action Alternative describes the reasonably foreseeable outcome that would result from denying the Applicant’s requests for a right-of-way grant and special-use authorization to construct the proposed B2H Project. If no action is taken, the BLM would not grant a right-of-way and the USFS would not authorize a special-use permit for the B2H Project to cross federal lands and the transmission line and ancillary facilities would not be constructed on federal lands. Additionally, the objectives of the signatories to the 2009 Memorandum of Understanding to accommodate additional electrical generation capacity, improve reliability, and reduce congestion by expanding and modernizing the transmission grid through the B2H Project would not be met. The Applicant’s objectives for the B2H Project, which include providing additional capacity to connect the Pacific Northwest Region with the Intermountain region of southern Idaho to alleviate existing transmission constraints between the two areas and to ensure sufficient capacity so that Idaho Power can meet present and forecasted load requirements (as described in Section 1.4, Idaho Power’s Objectives for the B2H Project), would not be met.

The No Action Alternative is intended to describe the existing and future state of the environment in the absence of the Proposed Action. It provides a baseline for comparing environmental effects and demonstrates the consequences of not granting the right-of-way and authorizing special use.

2.5.4 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

Section 6.6.3 of BLM NEPA Handbook H-1790-1 (BLM 2008) provides that a suggested alternative to a proposed action may be considered but eliminated from detailed analysis if:

- It is ineffective (it would not respond to BLM's purpose and need).
- It is technically or economically infeasible.
- It is inconsistent with the basic policy objectives for the management of the area (such as not conforming to BLM's RMPs or the USFS Land and Resource Management Plan).
- Its implementation is remote or speculative.
- It is substantially similar in design to an alternative that is analyzed.
- It would have substantially similar effects on an alternative that is analyzed.

The alternatives and modifications to the Proposed Action, features and technologies described here were not carried forward for detailed analysis in the EIS. The process for eliminating alternatives from detailed analysis complies with 40 CFR 1502.14(a) of the Council on Environmental Quality regulations. A description of each alternative considered but eliminated from detailed analysis, along with the rationale for elimination, is provided below.

2.5.4.1 ALTERNATIVE TRANSMISSION TECHNOLOGY OPTIONS INSTALL DOUBLE-CIRCUIT NEW TRANSMISSION LINES ON EXISTING TOWERS IN THE STUDY AREA

One of the Applicant's objectives in proposing the B2H Project is to improve system reliability between the Boardman and southeastern Idaho areas. System reliability generally is improved by adding redundant transmission lines so that if one line is damaged or otherwise not in service, the other line can continue to provide service. However, locating the proposed B2H Project 500-kV line closer than 250 feet to other high-voltage lines would create "Adjacent Transmission Circuits" (Western Electricity Coordinating Council 2013). Adding Adjacent Transmission Circuits does not improve a system's reliability rating because a single event could disrupt service on both transmission lines. There would be a potential risk to reliability of a double-circuit line, as well as to the system, and would be ineffective in meeting the Applicant's objectives for proposing the B2H Project. This alternative was considered by the BLM but was eliminated from detailed analysis in the EIS due to the potential risk to reliability and because it would not meet the BLM's purpose and need to advance federal policy direction in the Energy Policy Act of 2005 aimed at increasing the capability and reliability of power transmission.

USE HIGH-VOLTAGE DIRECT CURRENT RATHER THAN ALTERNATING CURRENT

The primary benefit of a direct-current (DC) system is better control of power flows over very long distances (i.e., more than 400 miles). To interconnect with an alternating-current system, the direct current must be converted to alternating current. Converter stations require more land than a typical alternative-current substation, and additional costs for one 500-kV DC converter station are expensive (up to \$200 million) and two would be needed for one direct-current line. Also, a direct-current system

has limited ability for future expansion where additional future transmission capacity is needed and requires a higher upfront cost. The B2H Project alternating-current system would allow for power in the northwest to be efficiently transported to southwestern Idaho in times of high demand and, conversely, would allow southwestern Idaho to send excess power to the northwest grid—two of the Applicant's key purposes for building the B2H Project. The use of direct-current transmission would not provide the regional transmission connectivity the Applicant needs. For these reasons, the Applicant chose the alternating-current design over a direct-current design for the B2H Project. This alternative was considered by the BLM but was eliminated from detailed analysis in the EIS because it would not meet the BLM's purpose and need to improve infrastructure for distribution of the energy resources needed and would not advance federal policy direction in the Energy Policy Act of 2005 aimed at increasing capability and reliability of power transmission.

BURY THE TRANSMISSION LINE

While recent research is resulting in development of new techniques for manufacturing, design, construction, and maintenance of underground transmission lines, there are a number of important considerations that make the technology for extra-high-voltage transmission line impractical for long-length installations. Burying 500-kV transmission lines is not commonly considered due to significant technical challenges, minimal experience with the technology worldwide, reduced reliability, ground disturbance from trenching or boring, and significant costs.

Of the types of underground cable-system technologies available (high-pressure fluid filled, gas-insulated, self-contained fluid-filled, high-voltage extruded dielectric), the most likely technology appropriate for the 500-kV transmission line would be the high-voltage extruded-dielectric cable system. There are only three such 500-kV installations in the world and one has been installed in the United States (3.5 miles in Chino Hills, California).

There are many factors to consider when designing the optimal and most economical underground cable system. One of the main factors is the thermal performance of the underground cable system, and the main considerations for thermal performance to avoid overheating include the following:

- Cable size – larger cables allow for increased load transfer;
- Soil thermal resistivity – the ability of the heat to dissipate away from the cable is based on the thermal properties of the soil/backfill installed around the cable;
- Cable depth – the deeper the cable is from the surface, the more difficult it is for the surrounding soil to dissipate heat, thus resulting in lower ampacity (the maximum amount of electric current a conductor or device can carry before sustaining immediate or progressive deterioration); and
- Cable separation – other cables in proximity also generate heat, thus resulting in mutual heating; mutual heating can be reduced by increasing the separation of the cables.

Based on these considerations, the cable system for a three-phase 500-kV transmission line would require four cables per phase to achieve the necessary ampacity.

While extra-high-voltage extruded dielectric cable systems can be direct buried, the most common method in the U.S. has been to install the cable in concrete-encased ducts, commonly called a duct-

bank system. This type of system provides mechanical protection, eliminates re-excavation in the event of a cable failure, and reduces obstacles for repairs. For this type of installation, each duct bank would be expected to include a total of four ducts.

Generally, the most common technique for placing underground lines is open-cut trenching. The typical trench dimensions vary by cable type, voltage level, and required power transfer. Trenching operation typically are staged such that a maximum of 300 to 500 feet of trench is open at any one time. The duct banks would be installed at a minimum cover depth of 3 feet or as required by routing design (may be buried deeper to avoid heating the soil and changing conditions of the vegetation and wildlife habitat above the duct bank). The four duct banks would be separated by approximately 10 to 15 feet to reduce mutual heating. The concrete duct bank is covered with thermally approved backfill to assist in heat dissipation. Installing underground transmission lines can require as much as twice the construction time of overhead line due to the extensive excavation required to complete the trenching and installation of the cable-system infrastructure, cable splicing, and construction of transition stations.

The underground option requires overhead to underground transition stations and manholes. Transitions stations are similar in size to a switching station (approximately 200 feet by 400 feet) and add surface disturbance not required by the overhead option. Lengths of 500-kV extruded dielectric cable are limited to approximately 1,500 feet in length, requiring splices at the end of each 1,500-foot-long section. When the underground segment exceeds this length, manholes are required (outside dimensions of which are approximately 10-feet wide by 30-feet long). Manholes allow for racking of the cables and provide a location for splicing the cables. Splices require regular inspection and maintenance. Similar to an overhead line, a permanent access road and access road to each manhole would be required to provide access for inspection.

Underground transmission lines reduce system reliability and increase the complexity of systems operation and maintenance. While underground systems comparatively have fewer forced outages than overhead lines, damage to the cable or components often result in longer durations of outages. When a failure occurs, underground cables cannot be diagnosed visually, as is the case with an overhead line, rather, the cable system must be tested with specialized equipment to locate the damaged sections of the cable. Typical time needed to repair failure of accessories such as terminations and splices is often lengthy because these repairs require additional effort to identify, access, expose, and repair the damaged cables, and could take several days or weeks to fully restore. (An underground 500-kV transmission line could take months to repair if new cable must be manufactured.) Therefore, reliability of the transmission line service is reduced compared to an overhead transmission line (for which damaged areas are relatively easy to locate and repairs are typically less than 24 hours). The potential for long-term outages associated with the 500-kV transmission line would be unacceptable for a circuit carrying bulk power to a large service area.

The costs of construction and maintenance of an underground 500-kV transmission line is significantly higher than an overhead transmission line. Underground cable system costs are largely dependent on material costs, which fluctuate with the economic market and availability. Other cost considerations include range of design options, system complexity, geotechnical conditions, and higher construction

costs than overhead lines. The costs of installing a 500-kV transmission line underground can be 10 to 15 times greater, or more, than the cost of constructing a 500-kV overhead transmission line (BPA 2016; National Grid 2013; Everglades National Park 500-kV Underground Feasibility Study).

Typically, these additional costs must be approved by the public utilities commissions and are passed on to all ratepayers, not to just those near the area of underground installation.

Burying segments of a transmission line may be possible as a measure to mitigate effects of the line, particularly visual effects; however, burying transmission lines may be incompatible with some uses, such as agriculture, forestry, wildlife habitat or enhancement, and/or future development depending on site-specific conditions. For the B2H Project, no segments of the proposed transmission line have been identified where burying the transmission line would be justified. Because of the increased land disturbance, reduced reliability, unproven technology for 500-kV lines over long distances compared to an overhead line, and high costs, the alternative of placing the 500-kV transmission line underground is not considered feasible for the B2H Project. This alternative was considered by the BLM but was eliminated from detailed analysis in the EIS due to the potential risk to reliability and because it would not meet the BLM's purpose and need to advance federal policy direction in the Energy Policy Act of 2005 aimed at increasing capability and reliability of power transmission.

2.5.4.2 ALTERNATIVES TO TRANSMISSION LINE CONSTRUCTION LOCATE ENERGY PRODUCTION AT THE POINT OF DEMAND TO AVOID THE NEED FOR TRANSMISSION

The B2H Project is not designed to transmit electrical power from any identified power source or to any identified load center. The purpose of the B2H Project is to increase transmission capacity connecting the Pacific Northwest to the Intermountain Region of southern Idaho and to alleviate existing transmission constraints to ensure sufficient capacity to meet projected increased system loads. This alternative was considered by the BLM but was eliminated from detailed analysis in the EIS as it would not meet the BLM's purpose and need to support improving infrastructure for distribution of energy resources needed to advance federal policy direction in the Energy Policy Act of 2005 aimed at increasing the capability and reliability of power transmission.

EMPLOY ENERGY CONSERVATION AND DEMAND-SIDE MANAGEMENT TO REDUCE ENERGY DEMAND

Conservation and demand-side management consist of a variety of approaches to reduce electricity use, including energy efficiency and conservation, building and appliance standards, and load management and fuel substitution. The Applicant already encourages conservation by offering energy efficiency incentives to customers, sharing conservation tips and tools, and by providing energy efficiency education. The Applicant is required by both federal and state laws to plan for and meet load and transmission requirements. The Applicant proposed the B2H Project to meet the system improvement commitments of its approved 2015 Integrated Resource Plan. This alternative was considered by the BLM but was eliminated from detailed analysis in the EIS as it would not meet the BLM's purpose and need to support improving infrastructure for distribution of the energy

resources needed and would not advance federal policy direction in the Energy Policy Act of 2005 aimed at increasing the capability and reliability of power transmission.

2.5.4.3 TRANSMISSION LINE ALTERNATIVE ROUTES LOCATE THE LINE PRIMARILY ON PUBLIC AND STATE LANDS

A number of comments received during 2008 scoping and the Applicant-sponsored Community Advisory Process suggested that the proposed transmission line be located primarily on public and state lands in order to avoid impacts on private lands, particularly farmlands. During the Community Advisory Process, a number of participants identified routes to the west of the initially proposed alignment as a way to place the transmission line more on public and state lands and away from existing agricultural operations. The Community Advisory Process Western Route was developed by the Applicant as a refinement of several alignments proposed in the southwest region of the Community Advisory Process study area, primarily to reduce the amount of private land affected in favor of placing the B2H Project on more public and state lands. The BLM evaluated the Community Advisory Process Western Route as a primarily public land route alternative.

The Community Advisory Process Western Route would exit the Grassland Substation to the south, head west for about 6 miles, and then turn south crossing the western part of Morrow County, continuing southwest across Grant and Harney, then east across Malheur and Owyhee counties to the Hemingway Substation. The Western Route would cross about 117 miles of terrain identified by the Applicant as technically infeasible due to construction constraints. Compared to the Applicant's Proposed Action Alternative, the Community Advisory Process Western Route would require the most new right-of-way, use the least amount of existing utility corridor, cross 30 more special status streams, require more than 1,750 acres of forest clearing, and cross about 45 miles through the Malheur and Umatilla National Forests (Idaho Power Company 2010). By comparison, the Applicant's Proposed Action Alternative route would follow designated corridors through forested areas with minimal forest clearing. The Community Advisory Process Western Route would be inconsistent with BLM's policy of using existing corridors (FLPMA, Section 503). This route was considered but eliminated from detailed analysis because it is technically infeasible.

LOCATE THE TRANSMISSION LINE IN THE INTERSTATE-84 HIGHWAY CORRIDOR

The Interstate-84 corridor (from the Boardman area to Hemingway area) was considered as a potential corridor for the entire length of the proposed transmission and evaluated during the Community Advisory Process siting study and also was considered during development of the agency alternative. Portions of the alternative routes do follow the Interstate-84 corridor. However, in some portions of the highway corridor there exist technical constraints that prevented the line from collocating with Interstate 84 for its entire length. Constraints include urban areas, Indian reservation lands, airport clear zones, residences, industrial zones, and irrigated agricultural lands (Idaho Power Company 2010). Using the Interstate 84 corridor for the length of the B2H Project was considered technically infeasible. In addition, the alternative is substantially similar in design to an alternative that was identified.

As described in Section 2.1.1.3, comments on the Draft EIS and/or subsequent discussion with counties recommended alternative route-variation options. The recommended route-variation options were reviewed by the BLM for viability. Some route-variation options were incorporated into the network of alternative routes analyzed for the Final EIS. Other route-variation options were considered but eliminated from detailed analysis in the Final EIS. The following describes the route-variation options eliminated from detailed analysis and the reason for their elimination. Maps 2-8a and 2-8b show the general locations of the route-variation options that were eliminated from detailed analysis.

SEGMENT 1—MORROW-UMATILLA

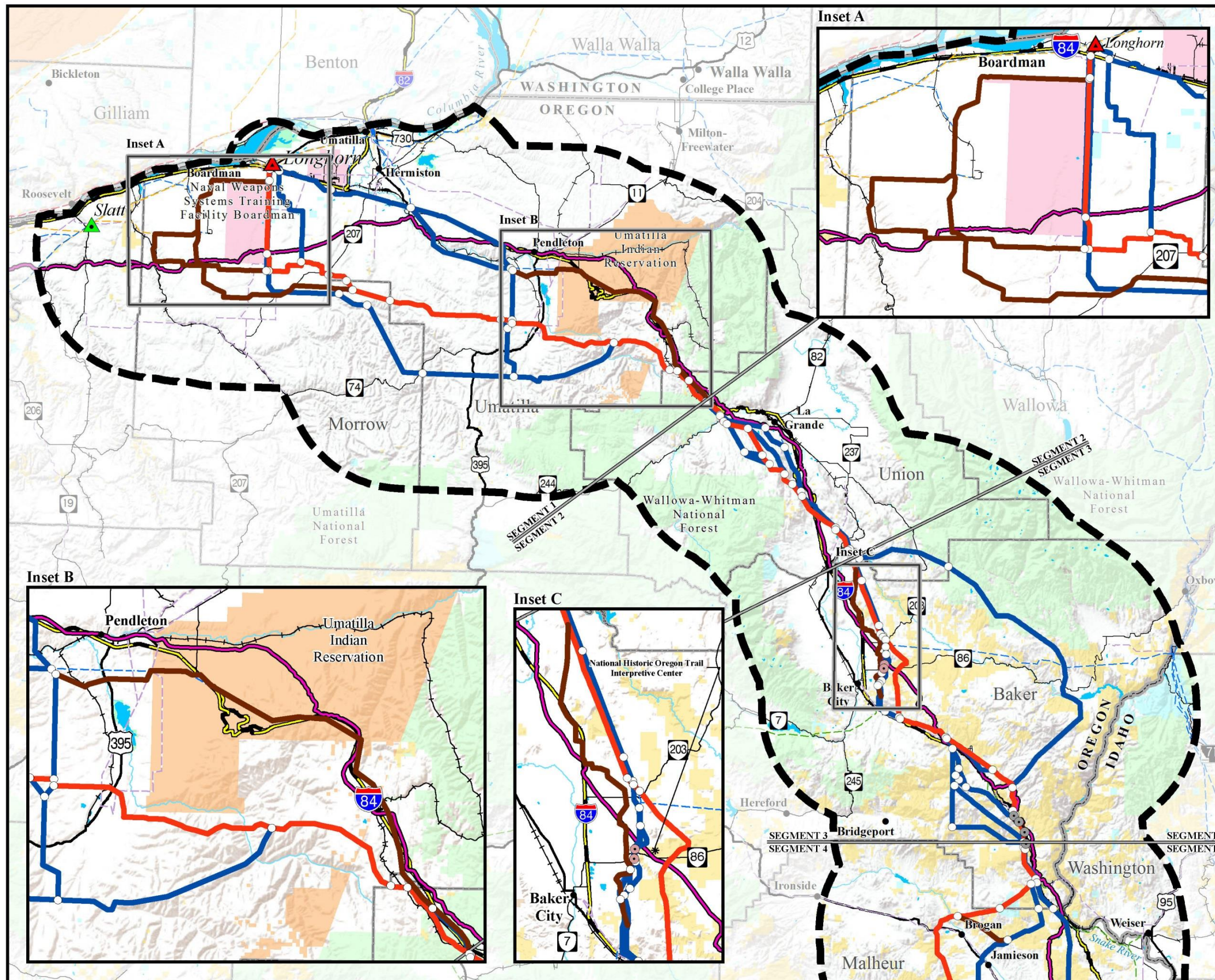
GRASSLANDS AND HORN BUTTE SUBSTATIONS AND ALTERNATIVE ROUTE

After the Draft EIS was released for public review, the Applicant changed its Proposed Action from a preferred northern terminus at Grassland Substation to a northern terminus at Longhorn Substation (Inset A on Map 2-8a).

In the Applicant's letter transmitting its comments on the Draft EIS (dated March 19, 2015), the Applicant stated that "In the absence of the Cascade Crossing, the Grassland and Horn Butte routes set forth in the Draft EIS do not meet B2H Project objectives. Neither the Grassland nor Horn Butte substations would provide the required approximate 1,000 MW of bi-directional capacity and up to 1,500 MW [megawatts] of actual power flow capability. Therefore, Idaho Power does not support the Grassland or Horn Butte routes." Further, "The Longhorn Substation is the only substation discussed in the Draft EIS that would meet Idaho Power's objectives. Therefore, Idaho Power supports the alternatives that would connect the B2H Project with the Longhorn Substation." The Longhorn Substation and alternative routes to the substation (i.e., East of Bombing Range Road, Longhorn Variation) were analyzed and documented in the Draft EIS. The Applicant submitted to the BLM a revised application (Standard Form 299) on September 9, 2015. The Grassland Substation and Horn Butte Substation no longer would meet the objectives of the Applicant's purposes for the B2H Project. This alternative was considered by the BLM but was eliminated from detailed analysis in the EIS as it would be ineffective in improving infrastructure for distribution of the energy resources needed and is no longer technically feasible.

SOUTHERN ALTERNATIVE ROUTE WEST

In comments on the Draft EIS, Oregon Department of Agriculture, City of Boardman, businesses (Windy River; Westland Enterprises LLC; Terra Poma Land LLC; Homestead Farms, Inc.), and individuals recommended an east-west route-variation option south of the alternative route into the proposed Grassland or Horn Butte (Inset A on Map 2-8a). The intent was to avoid more agricultural land. Since the Grassland or Horn Butte substations no longer would meet the objectives of the Applicant for proposing the B2H Project, the substations and alternative routes to the substations were no longer needed. This alternative was considered by the BLM but was eliminated from detailed analysis in the EIS as it would be ineffective in improving infrastructure for distribution of the energy resources needed and is no longer technically feasible.



Map 2-8a
**Alternative Routes
Considered but Eliminated
from Detailed Analysis
(Northern Area)**

BOARDMAN TO HEMINGWAY
TRANSMISSION LINE PROJECT

Project Features

Project Area Boundary	Link Node
Substation (Considered but Eliminated from Detailed Analysis)	Segment Line
Substation (Project Terminal)	Flagstaff 230-kV Rebuild (Inset C)
Considered but Eliminated from Detailed Analysis	Double-circuit 138/69-kV Rebuild
Applicant's Proposed Action Alternative	
Alternative Route	

Land Ownership

Bureau of Land Management	U.S. Fish and Wildlife Service
Bureau of Reclamation	U.S. Forest Service
Indian Reservation	Other Federal
National Park Service	State Land
U.S. Department of Defense	Private Land

General Reference

City or Town	Interstate Highway
500-kV Transmission Line	U.S. Highway
345-kV Transmission Line	State Highway
230-kV Transmission Line	Lake or Reservoir
138-kV Transmission Line	State Boundary
69- to 115-kV Transmission Line	County Boundary
Railroad	Oregon National Historic Trail Congressionally Designated Alignment

SOURCES:
Land Status, BLM 2014, 2015; Cities and Towns, ESRI 2013; Transmission Lines, Bonneville Power Administration 2009, Idaho Power Company 2007, Logan Simpson Design 2011, Ventyx 2012; Pipelines, ESRI 2012; Railroads, Idaho DOT 2006, Oregon DOT 2014; Highways, ESRI 2013; Waterbodies, ESRI 2013; State and County Boundaries, ESRI 2013; Oregon National Historic Trail Congressionally Designated Alignment, BLM 2015

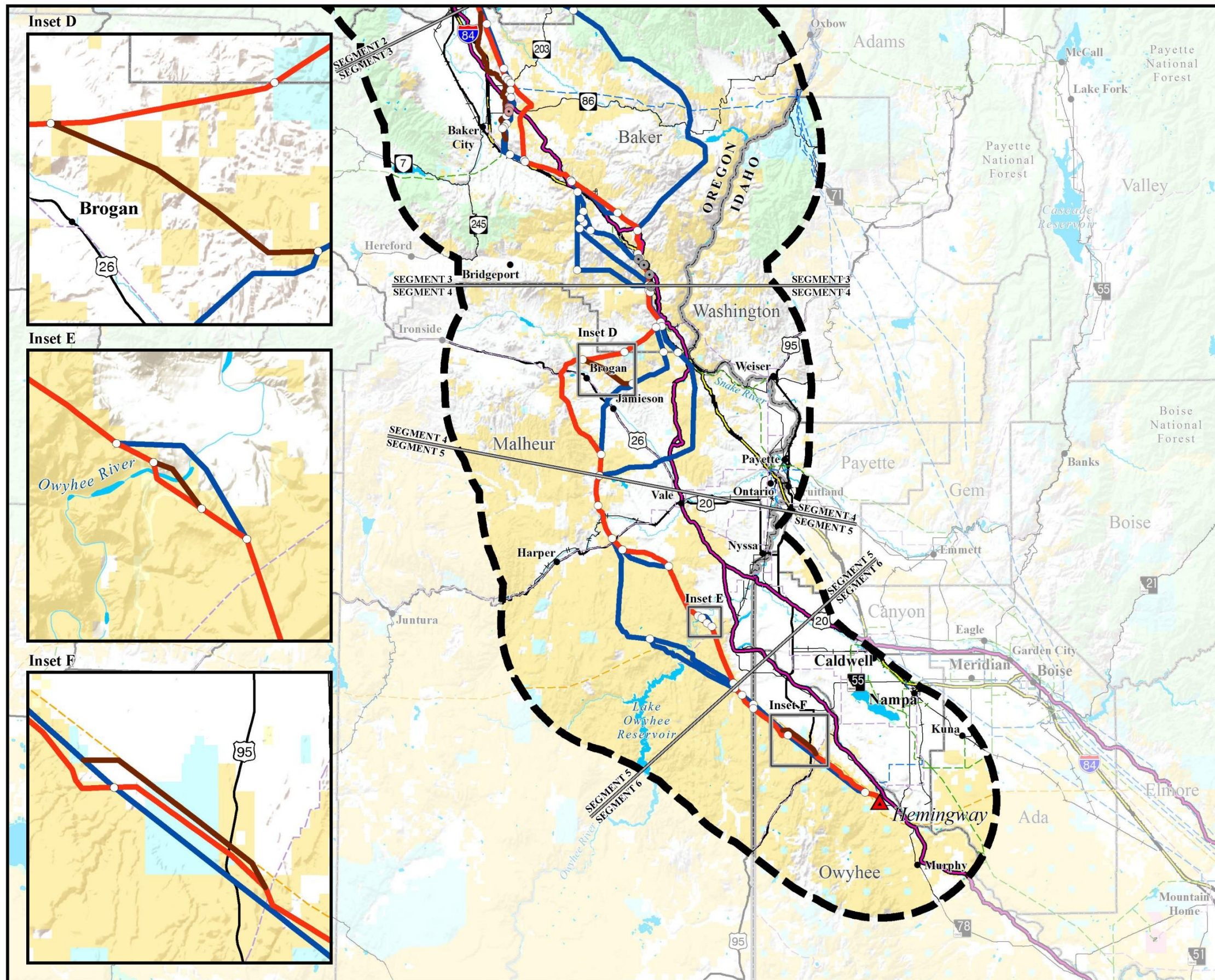
NOTES:

- The alternative routes shown on this map are draft and may be revised or refined throughout the development of the project.
- Substation symbols do not necessarily represent precise locations.
- The B2H Project area boundary is defined by buffering the alternative route centerlines.
- Other federal land ownership may include lands administered by the U.S. Department of Energy, Bonneville Power Administration, Federal Aviation Administration, General Services Administration, or U.S. Department of Agriculture (except U.S. Forest Service).
- Each alternative route is composed of links, which are discrete sections of the route sharing common endpoints determined by the point of intersection with other adjacent links; the common endpoint is referred to as a link node. Links generally are numbered from north to south. Similarly, a segment is composed of alternative routes that share common endpoints determined by the point of intersection with other adjacent alternative routes; the common endpoint is referred to as a segment node.
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Alternative routes last revised: February 18, 2016
Final EIS: November 2016

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Miles
1:950,400 or 1 inch = 15 miles

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Map 2-8b
**Alternative Routes
Considered but Eliminated
from Detailed Analysis
(Southern Area)**

BOARDMAN TO HEMINGWAY
TRANSMISSION LINE PROJECT

Project Features

Project Area Boundary	Link Node
Substation (Considered but Eliminated from Detailed Analysis)	Segment Line
Substation (Project Terminal)	Flagstaff 230-kV Rebuild (Inset C)
Considered but Eliminated from Detailed Analysis	Double-circuit 138/69-kV Rebuild
Applicant's Proposed Action Alternative	
Alternative Route	

Land Ownership

Bureau of Land Management	U.S. Fish and Wildlife Service
Bureau of Reclamation	U.S. Forest Service
Indian Reservation	Other Federal
National Park Service	State Land
U.S. Department of Defense	Private Land

General Reference

City or Town	Interstate Highway
500-kV Transmission Line	U.S. Highway
345-kV Transmission Line	State Highway
230-kV Transmission Line	Lake or Reservoir
138-kV Transmission Line	State Boundary
69- to 115-kV Transmission Line	County Boundary
Railroad	Oregon National Historic Trail Congressionally Designated Alignment

SOURCES:
Land Status, BLM 2014, 2015; Cities and Towns, ESRI 2013; Transmission Lines, Bonneville Power Administration 2009, Idaho Power Company 2007, Logan Simpson Design 2011, Ventyx 2012; Pipelines, ESRI 2012; Railroads, Idaho DOT 2006, Oregon DOT 2014; Highways, ESRI 2013; Waterbodies, ESRI 2013; State and County Boundaries, ESRI 2013; Oregon National Historic Trail Congressionally Designated Alignment, BLM 2015

NOTES:

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Final EIS: November 2016

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Miles
1:950,400 or 1 inch = 15 miles

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SLATT SUBSTATION ALTERNATIVE ROUTE

The Columbia-Snake River Irrigators Association, Oregon Department of Agriculture, Morrow County, City of Boardman, and businesses (Windy River, Hale Companies, Boardman Tree Farm, Pasco Farming, Inc.) recommended a route-variation option that would extend the Horn Butte Alternative route, south of the NWSTF Boardman, approximately an additional 10 miles to the west to connect with the existing BPA Slatt 500-kV Substation. The intent of the recommended alternative route was to mitigate impacts on irrigated agricultural land.

However, in a letter dated July 23, 2015, the BPA, the sole owner of the Slatt Substation, informed the BLM that the Slatt Substation has no open 500-kV bays and there are “severe physical constraints” to expanding the substation to accommodate the B2H Project. Also, BPA has not determined that a joint ownership structure, including an open-bus concept would be acceptable or even feasible for existing BPA substations, including the Slatt Substation. Because the substation is wholly owned by the BPA, BPA’s existing policy and rate schedules would require that BPA charge Idaho Power and PacifiCorp for use of the substation (which would be passed onto the rate payers). This alternative was considered by the BLM but was eliminated from detailed analysis in the EIS as it is technically infeasible and would not meet the BLM’s purpose and need in improving infrastructure for distribution of the energy resources needed.

PARALLEL INTERSTATE 84/EXISTING 230-KV TRANSMISSION LINE ROUTE-VARIATION OPTIONS

Comments on the Draft EIS from Umatilla County, WildLands Defense; a letter from a consortium of the OCTA, Hells Canyon Preservation Council, Oregon Wild, and WildEarth Guardians; and several individuals recommended an alternative route-variation option paralleling to Interstate 84 in Umatilla County and/or paralleling existing transmission lines. The intent was to consolidate linear facilities to avoid proliferation of utility corridors in this area and reduce impacts on privately owned lands. The BLM asked the Applicant to develop a route collocated with Interstate 84 and/or the existing 230-kV transmission lines. At the BLM’s request for an alternative route-variation option parallel to Interstate 84 and/or the existing 230-kV transmission lines, the Applicant developed four options that would be responsive to Draft EIS comments to collocate with the Interstate 84 or the existing 230-kV transmission lines. Section 2.1.1.3 provides a description of the options.

A section common to two of the route-variation options would cross through the mountainous area of the Umatilla Indian Reservation and then roughly parallel to Interstate 84 to the Hilgard area. In a letter dated September 23, 2015, the Applicant indicated that crossing the Umatilla Indian Reservation would result in a short-term right-of-way contractual agreement that would be inconsistent with the objectives of the B2H Project. On June 18, 2015, the Applicant met with representatives of the CTUIR. The CTUIR stated that a right-of-way across the Reservation would be limited to a 20-year term. The financial uncertainty associated with the CTUIR possibly denying a renewal of the right-of-way following the expiration of the original term and forcing the Applicant to take the affected portion of the transmission line out of service, could threaten the Applicant’s intention that the B2H Project remain in-service long

term if not indefinitely. Considering the costly investment in the transmission line, the Applicant does not feel it would be prudent to take the economic risk. Two of the alternatives paralleling Interstate 84 and/or the existing 230-kV transmission lines were carried forward for detailed analysis in the EIS (Inset B on Map 2-8a). The two alternative routes with route-variation options crossing the Umatilla Indian Reservation were considered by the BLM but were eliminated from detailed analysis in the EIS because the routes could be permitted by the Tribe for a period of only 20 years. The project has a life of at least 50 years, so this option is economically infeasible due to the uncertainty regarding renewal of the right-of-way.

SEGMENT 2—BLUE MOUNTAINS

Recommended route-variation options in Segment 2 are analyzed in the EIS; none were eliminated from detailed analysis.

SEGMENT 3 — BAKER VALLEY

PARALLEL INTERSTATE 84 – BAKER COUNTY ROUTE-VARIATION OPTION

In comments on the Draft EIS, the Oregon Department of Fish and Wildlife recommended a route-variation option to avoid Greater Sage-grouse Category 1 habitat by closely paralleling Interstate 84 from Oregon Highway 203 to the southeast (Inset C on Maps 2-8a). The intent of this route variation is to mitigate impacts on Greater Sage-grouse Category 1 habitat. This route-variation option is in proximity to the Baker Municipal Airport and crosses the airspace associated with the airport, which constitutes technical engineering and safety issues; crosses designated wetland areas; and there are potential visual impacts on views from Interstate 84 where the route-variation option parallels in proximity to the interstate.

In an email, dated September 23, 2015, the Applicant explained that a route roughly parallel to Interstate 84 in Baker County (Magpie-Flagstaff) had been evaluated in 2013 for a sage-grouse avoidance-balancing review. The environmental and land use constraints in the area are such that the route provided no improvement beyond the Applicant's Proposed Action Alternative that parallels the existing transmission line to the north. This alternative route-variation option was considered by the BLM but eliminated from detailed analysis in the EIS as technically infeasible due primarily to safety concerns with the proximity of the proposed transmission line to the Baker Municipal Airport and crossing through airspace associated with the airport.

SEGMENT 4 — BROGAN

BROGAN ROUTE-VARIATION OPTION

In comments on the Draft EIS, a nongovernmental organization, Stop Idaho Power, recommended a route-variation option south of the Applicant's Proposed Action Alternative route in southern Baker County and northern Malheur County, for approximately 8 miles before sharing an alignment with the Willow Creek Alternative (Inset D on Map 2-8b). The intent of this recommended route-variation option is to avoid two 2-mile buffers around Greater Sage Grouse leks near Brogan. Although the route-variation option avoids the lek buffers, it would be located entirely within Greater Sage-Grouse PHMA

and it is longer than the Applicant's Proposed Action Alternative; therefore, the route-variation option would result in more ground disturbance in a relatively undisturbed area. It does not offer a substantive improvement over the alternative routes already being considered, and was considered by the BLM, but eliminated from detailed analysis in the EIS.

SEGMENT 5 — MALHEUR

OWYHEE RIVER CROSSING

Comments on the Draft EIS recommended that the alignment of the Applicant's Proposed Action Alternative at the crossing of the Owyhee River be moved slightly to the east to reduce effects on visual resources and to be located within the BLM-designated utility corridor (Inset E on Map 2-8b). However, both the Applicant's Proposed Action Alternative and the recommended adjustment would be within a segment of the Owyhee River identified by the BLM as suitable for designation as a National WSR with an outstanding remarkable value classification of recreational. In response, the BLM improved on the concept recommended by moving the recommended alignment to the east and outside of the suitable WSR segment and within the BLM-designated corridor to reduce impacts; therefore, the originally recommended route-variation did not need to be analyzed in detail in the EIS.

SEGMENT 6 — TREASURE VALLEY

JUMP CREEK ROUTE-VARIATION OPTION

A letter from a consortium of Oregon Natural Desert Association, Idaho Conservation League, Oregon Wild, Hells Canyon Preservation Council, and the Wilderness Society requested a route variation be located farther north from the Jump Creek recreation area and away from the mouth of the canyon (Inset F on Map 2-8b). Due to the visual sensitivity of this recreation area, the intent of the recommended route variation is to increase the distance between Jump Creek and the B2H Project while collocating closer to existing transmission lines.

The BLM sited the alternative route in this area purposefully to optimize use of the West-wide Energy Corridor (by aligning close to the southern edge of the designated corridor) to allow for efficient placement and construction of future linear facilities within the corridor, without unnecessary crossings of other transmission lines and undue degradation of resources. Moving and collocating the route's alignment closer to the existing transmission lines, in this instance, would constrain use of the West-wide Energy Corridor and would require crossings of the existing transmission lines (which increases risk in operational reliability). Any improved visual effects of this alignment on the recreation area would be offset by the technological requirement to use angle or dead-end structures, which are taller and more robust, to facilitate angles in the alignment to offset from the canyon. The BLM considered this alternative, but eliminated it from detailed analysis in the EIS as it is inconsistent with policy objectives for management in a West-wide Energy Corridor as the impacts outside of the West-wide Energy Corridor are greater than those inside the corridor.

2.6 SUMMARY COMPARISON OF ALTERNATIVE ROUTES

As explained in Section 2.5.1, on completion of the analyses, the alternative routes in each segment were screened to characterize the key issues and impacts, then compared to identify the most environmentally acceptable routes to be addressed in the EIS. This section summarizes the results of the comparison of alternative routes and summarizes the alternative route that emerged from the analysis exhibiting the least impact on the environment overall.

Chapter 3 provides descriptions of the existing condition of the potentially affected environment and environmental consequences for each resource by alternative route in each segment. The results of the analyses are characterized and summarized in Tables 2-19 through 2-36 at the end of this chapter. This information serves as a basis for comparing the alternative routes. Resource maps showing baseline data and residual impacts are included in the Volume II. Maps 2-9a and 2-9b show existing linear facilities in the B2H Project area.

2.6.1 ENVIRONMENTALLY PREFERABLE ACTION ALTERNATIVE

2.6.1.1 INTRODUCTION

In this EIS, the alternative route that results in the least impact on the natural, human, and cultural environment and best protects, preserves, and enhances historic, cultural, and natural resources is the environmentally preferable action alternative.

As explained in Section 2.1.1.3, comments on the Draft EIS recommended local route variations; that is, variations of alternative routes addressed in the Draft EIS. In some cases, these route variations were developed by counties working with local stakeholders. Because of the additional variants, all alternative routes were analyzed and compared for the Final EIS. As a result, the environmentally preferable action alternative route that emerged from the analysis for the Final EIS is the route exhibiting the least effects overall on the natural, human, and cultural environment. Key considerations to compare the relative impacts among alternative routes include the following:

- Vegetation: native grassland, shrubland, forest, riparian (RCA) vegetation communities
- Wildlife: Washington ground squirrel, Greater Sage-Grouse, big game winter range
- Fisheries: ESA-listed fish species, Essential Fish Habitat
- Land uses: relevant and important values or characteristics of certain land uses established for conservation or recreation (specially designated areas, potential congressional designations, managed recreation areas), lands with wilderness characteristics, paralleling existing linear facilities, consideration of existing development (e.g., commercial, residential)
- Agriculture: existing agriculture (i.e., irrigated agriculture and crop production), soils important to farming as identified in federal and state law (i.e., high-value soils and important farmland), Conservation Reserve Program lands (agricultural lands in the B2H Project area are important because of the high-quality soils associated with the Columbia River Basin, proximity to processing facilities, and flat topography)
- National Historic Trails/Study trails: direct, indirect effects on trails

- Visual resources: scenic quality/landscape character, visibility from key observation points (residential, recreation, historic and scenic travel routes)
- Cultural resources: NRHP-eligible and listed properties, sites and/or areas of concern to Native Americans, cultural landscapes, and other areas of cultural significance

Although vegetation, wildlife, and fisheries are key considerations in the comparison of alternative routes, after comparing the alternative routes, these key considerations did not emerge as primary discriminators to identifying the environmentally preferable action alternative. While effects on vegetation communities would occur, design features of the B2H Project for environmental protection are anticipated to limit these effects through reducing the extent of disturbance, preventing the spread and establishment of invasive plants, and reclaiming disturbed areas with desirable native vegetation. Only one ESA-listed plant species, Howell's spectacular thelypody, occurs in the B2H Project area and all known occurrence of the species are located more than 1 mile from any alternative route. Other sensitive plants species (approximately 22, refer to Appendix D, Sections D.3 and D.5) are known to occur within 1 mile from alternative routes, but potential impacts resulting from any alternative route would be avoided or minimized to the greatest extent possible and not likely to contribute to the need to list the species under the ESA. Big game and migratory birds and raptors were not considered primary contributors to identifying the environmentally preferable action alternative because, while short- and long-term habitat loss associated with these species would occur, none of the alternative routes are anticipated to negatively affect big game or migratory birds and raptors appreciably due to the small amount of habitat affected compared to the large home ranges of these species. Disturbance of big game and migratory birds and raptors during sensitive periods would be minimized through the implementation of seasonal restrictions. Alternative routes in Segments 1 and 2 cross streams that support ESA-listed fish (steelhead, Chinook salmon, and bull trout), and associated protected fish habitat. In addition, alternative routes in all segments cross streams that support redband trout. Fish resources were not considered a primary contributor to identifying the environmentally preferable action alternative because streams that support ESA-listed fish and associated protected fish habitats would be completely spanned and no new access road crossings, or modifications of existing crossings below the ordinary high water mark, would occur in waterways that support ESA-listed fish and associated protected fish habitats.

The combinations of alternative routes and route variations that compose the environmentally preferable action alternative is summarized in Table 2-15, which is a list of links that comprise the environmentally preferable action alternative route, and shown on Map 2-10 (also refer to Maps 2-7a through 2-7f). A description of the environmentally preferable action alternative route by segment follows the table and a summary of the key considerations by segment is presented in Table 2-16.

Table 2-15. Summary of Environmentally Preferable Action Alternative Route			
Segment Number	Alternative Route	Link(s)	Length (miles)¹
Segment 1	Interstate 84 – Southern Route Alternative with Variation S1-A2	1-5, 1-9, 1-19, 1-23, 1-37, 1-39, 1-49, 1-50, 1-81, 1-83, 1-66, 1-65, 1-71, 1-77	93.7
Segment 2	Glass Hill Alternative with Variations S2-A2, S2-D2, and S2-F2	2-3, 2-7, 2-15, 2-20, 2-30, 2-40, 2-46, 2-50, 2-52, 2-60, 2-70, 2-80, 2-90	33.7
Segment 3	Flagstaff B – Burnt River West Alternative with Variations S3-A2 and S3-B4	3-10, 3-12, 3-14, 3-20, 3-24, 3-31, 3-32, 3-36, 3-38, 3-39, 3-43, 3-44, 3-48, 3-52, 3-54, 3-56, 3-60, 3-62, 3-66, 3-71, 3-73, 3-94	55.1
Segment 4	Tub Mountain South Alternative with Variation S4-A2	4-1, 4-5, 4-15, 4-17, 4-20, 4-30, 4-75	40.5
Segment 5	Applicant’s Proposed Action Alternative with Variation S5-B2	5-1, 5-5, 5-10, 5-15, 5-40, 5-45, 5-70, 5-75	40.6
Segment 6	Applicant’s Proposed Action Alternative with Variations S6-A2 and S6-B2	6-1, 6-5, 6-15, 6-30, 6-35	27.3
Total			290.7
<i>Table Note:</i> ¹ Mileage calculations are approximate as of March 4, 2016.			

Table 2-16. Summary of Key Considerations Regarding the Environmentally Preferable Action Alternative by Segment

Segment 1 – Morrow-Umatilla	Segment 2 – Blue Mountains	Segment 3 – Baker Valley	Segment 4 – Brogan	Segment 5 – Malheur	Segment 6 – Treasure Valley
Vegetation					
<p>Impacts on federally listed species are not anticipated along any of the alternative routes in Segment 1.</p> <p>Based on the available data for sensitive plant species occurrence, this alternative route along with the Interstate 84 Alternative, would affect the least number of sensitive plant occurrences.</p> <p>Compared to the Applicant’s Proposed Action Alternative, the Applicant’s Proposed Action – Southern Route Alternative, and the West of Bombing Range Road – Southern Route Alternative, this alternative avoids crossing the Research Natural Area (RNA-B) on the Naval Weapons System Training Facility (NWSTF) Boardman established to preserve remnant high-quality sagebrush vegetation communities.</p>	<p>This alternative route and all other alternative routes could affect known occurrences of the federally listed Howell’s spectacular thelypody, but any impacts are likely to be limited in intensity given the distance between known occurrences and all alternative routes.</p> <p>Moderate residual impacts on sensitive plant species could occur for this alternative route and all other alternative routes considered, with all alternatives resulting in similar amounts of impacts..</p> <p>This alternative route and all other alternative routes would result in predominantly moderate residual impacts on vegetation communities, with all alternatives resulting in similar amounts of impacts.</p>	<p>This alternative route and all other alternative routes could affect known occurrences of the federally listed Howell’s spectacular thelypody, but any impacts are likely to be limited in intensity given the distance between known occurrences and all alternative routes.</p> <p>Based on the available data for sensitive plant species occurrence, this alternative route would affect the fewest sensitive plant occurrences.</p> <p>This alternative route and all other alternative routes would result in predominantly moderate residual impacts on vegetation communities. Compared to the Timber Canyon Alternative, this alternative route would result in fewer residual impacts on vegetation communities due to its shorter length.</p>	<p>Impacts on federally listed species are not anticipated along any of the alternative routes in Segment 4.</p> <p>Based on the available data for sensitive plant species occurrence, this alternative route would affect the greatest number of sensitive plant occurrences.</p> <p>This alternative route would result in the least impacts on vegetation communities, as it primarily crosses Non-native Grasslands.</p>	<p>Impacts on federally listed species are not anticipated along any of the alternative routes in Segment 5.</p> <p>Based on the available data for sensitive plant species occurrence, this alternative route would affect the greatest number of sensitive plant occurrences.</p> <p>This alternative route would result in the least impacts on vegetation communities as it is the shortest alternative route considered and crosses Tall Sagebrush Steppe vegetation communities to the least extent. It also avoids the Owyhee River Below the Dam ACEC and potential impacts on the rare black cottonwood galleries in the ACEC.</p>	<p>Impacts on federally listed species are not anticipated along any of the alternative routes in Segment 6.</p> <p>Based on the available data for sensitive plant species occurrence, Variation S6-A2 of this alternative route would affect a greater number of sensitive plant occurrences. Variation S6-B2 of this alternative route would affect sensitive plant occurrences similarly to the other route variation.</p> <p>All variations considered in Segment 6 would result in predominantly moderate impacts on vegetation communities.</p>
Wildlife					
<p>Crosses Washington ground squirrel suitable habitat but avoids known occupied colony avoidance and dispersal areas, although none of the suitable habitat crossed has been surveyed for colonies. Compared to the Applicant’s Proposed Action Alternative, the Applicant’s Proposed Action – Southern Route Alternative, and the West of Bombing Range Road – Southern Route Alternative, this alternative avoids high impacts on occupied Washington ground squirrel habitat on the NWSTF Boardman, including habitat on the NWSTF Boardman Washington ground squirrel Resource Management Area (RMA).</p> <p>Compared to the West of Bombing Range Road – Southern Route, which would have the greatest impact on federally endangered gray wolves because Oregon Department of Fish and Wildlife (ODFW)-designated wolf use areas occur in the study corridor, ODFW-designated wolf use areas do not occur in the study corridors of this alternative route or the other alternative routes.</p> <p>No key issues identified for big game.</p>	<p>Crosses Greater Sage-Grouse General Habitat Management Area (GHMA) but along with the other alternative routes, would not cross Priority Habitat Management Area (PHMA) and no leks occur within 3.1 miles.</p> <p>Impacts on migratory bird habitat would be less with this alternative than the other alternatives as the Ladd Marsh Important Bird Areas would not be crossed.</p> <p>Along with the Applicant’s Proposed Action Alternative, this alternative would have slightly less effect on big game from crossing less big game habitat than the Mill Creek Alternative.</p>	<p>This alternative route avoids Greater Sage-Grouse PHMA to a greater extent than the Applicant’s Proposed Action Alternative, and where it does cross PHMA, it is located on the periphery of PHMA and is colocated with existing anthropogenic disturbances.</p> <p>Along with the other alternative routes, this alternative route would have less impact on big game from crossing less big game habitat than the Timber Canyon Alternative.</p>	<p>This alternative route would have the least impact on Greater Sage-Grouse, as it largely avoids PHMA. Where PHMA is crossed, the alternative route follows the outer edge of PHMA, which is closer to anthropogenic disturbances and, thus, represent lower quality habitat. The alternative route also crosses less GHMA, and crosses within 3.1 miles of a fewer number of leks than the other two alternative routes.</p> <p>No key issues identified for big game.</p>	<p>This alternative route would have the least impact on Greater Sage-Grouse, as it crosses the least amount of GHMA. Where GHMA is crossed, the route follows the outer edge of GHMA, which is closer to anthropogenic disturbances and, thus, represent lower quality habitat. Along with the other alternative routes, would not cross PHMA and no leks occur within 3.1 miles.</p> <p>This alternative route would have the least impact on Columbia spotted frog, as it crosses less habitat overall than the other alternative routes.</p> <p>No key issues identified for big game.</p>	<p>The route variations of this alternative route, along with the other route variations, cross Greater Sage-Grouse Important Habitat Management Area (IHMA) and do not cross GHMA, PHMA, and no leks occur within 3.1 miles. The IHMA crossed by Variation S6-A2 of this alternative route are not identified as lands used by Greater Sage-Grouse, but are lands that serve as management buffers for PHMA and to connect patches of PHMA. Therefore, identifiable impacts on Greater Sage-Grouse habitat in IHMA would not be expected. Variation S6-B2 is farther from the existing 500-kV transmission line than Variation S6-B1 and is farther from the edge of IMHA, and therefore may be located in an area of higher quality habitat.</p> <p>The route variations of this alternative route would have the least impact on Columbia spotted frog, as it crosses less habitat overall than the other route variations.</p> <p>No key issues identified for big game.</p>

Table 2-16. Summary of Key Considerations Regarding the Environmentally Preferable Action Alternative by Segment

Segment 1 – Morrow-Umatilla	Segment 2 – Blue Mountains	Segment 3 – Baker Valley	Segment 4 – Brogan	Segment 5 – Malheur	Segment 6 – Treasure Valley
Fisheries					
<p>This alternative route crosses streams that support steelhead, Chinook salmon, bull trout, and associated protected fish habitats, as well as streams that support redband trout.</p> <p>Along with the West of Bombing Range Road – Southern Route Alternative, this alternative is anticipated to result in greater residual impacts on fish resources than the other alternative routes as a greater distance of streams that support redband trout and Endangered Species Act (ESA)-listed fish, critical habitat, and/or Essential Fish Habitat (EFH) are crossed.</p>	<p>This alternative route crosses streams that support steelhead, Chinook salmon, bull trout, and associated protected fish habitats, as well as streams that support redband trout.</p> <p>This alternative is anticipated to result in greater residual impacts on fish resources than the other alternative routes as a greater distance of streams that support redband trout, ESA-listed fish, and associated protected fish habitats are crossed.</p>	<p>Along with the other alternative routes, this alternative route does not cross streams that support ESA-listed fish, critical habitat, and/or EFH; but does cross streams that support redband trout.</p> <p>Compared to the Timber Canyon Alternative, this alternative is anticipated to result in less residual impact on fish resources as less distance of streams that support redband trout are crossed.</p>	<p>Along with the other alternative routes, this alternative route does not cross streams that support ESA-listed fish, critical habitat, and/or EFH; but does cross streams that support redband trout.</p> <p>This alternative is anticipated to result in greater residual impact on fish resources than the other alternative routes as a greater distance of streams that support redband trout are crossed.</p>	<p>Along with the other alternative routes, this alternative route does not cross streams that support ESA-listed fish, critical habitat, and/or EFH; but does cross streams that support redband trout.</p> <p>This alternative is anticipated to result in greater residual impact on fish resources than the other alternative routes as a greater distance of streams that support redband trout are crossed.</p>	<p>Along with the other route variations, the route variations of this alternative route do not cross streams that support ESA-listed fish, critical habitat, and/or EFH; but do cross streams that support redband trout.</p> <p>For each route variation option, the route variations cross the same streams that support redband trout for the same distance; therefore, residual impacts on fish resources are anticipated to be similar with any of the Applicant’s Proposed Action route variation options.</p>
Land Uses					
<p>The northern portion of route is collocated with Interstate-84 and avoids windfarm development. Variation S1-A2 parallels an existing 230-kV line between the areas of Echo and Rieth. From Kamela and on to Wallowa-Whitman National Forest routing is within the USFS-designated utility corridor.</p> <p>This alternative avoids impacts on NWSTF Boardman property compared to the Applicant’s Proposed Action Alternative, West of Bombing Range Road- Southern Route Alternative, and East of Bombing Range Road Alternative. Crosses less military airspace than all other alternative routes and route variations and minimizes impacts to training operations due to this alternative’s collocation with Interstate 84.</p> <p>Avoids impacts on research natural area associated with the Applicant’s Proposed Action Alternative. None of the alternative routes within Segment 1 are located in a West-wide Energy Corridor (WVEC).</p>	<p>Variation S2-A2 is preferred by USFS for collocation closer to the existing 230-kV transmission line within the USFS-designated utility corridor on the Wallowa-Whitman National Forest. This alternative would minimize vegetation removal over other alternative routes by using existing service roads associated with the existing 230-kV line.</p> <p>In southern portion, Variation S2-F2 provides greater opportunity than other alternative routes for collocation with the existing 230-kV transmission line. This route minimizes impacts on community of La Grande, residences, and other associated land uses.</p> <p>This alternative and the Applicant’s Proposed Action Alternative share the same alignment in this area and are located within an USFS-designated utility corridor for 1.3 miles. This is less than the Mill Creek Alternative (2.5 miles). No alternative routes are located within a WVEC.</p> <p>This alternative also is preferable for recreation as it is the farthest distance from the Morgan Lake Recreation Area.</p>	<p>The northern portion of alignment collocated closer to the existing 230-kV transmission line. Also, Variation S3-B4 parallels the existing 230-kV line along most of the north-south portion of the routing. Where the alternative route turns to the southeast, the route variation diverges from the 230-kV line and parallels an existing 138-kV transmission line and Interstate 84. Variation S3-C5 reduces impacts on privately owned lands in and around the community of Durkee. Avoids impacts on community and residences through collocation with existing facilities.</p> <p>Approximately 1.3 miles of Variation S3-C3 and 1.4 miles of the Applicant’s Proposed Action Alternative, Flagstaff A Alternative, Timber Canyon Alternative, Flagstaff A-Burnt River Alternative and Flagstaff B are located within a WVEC. No other alternative routes are within a utility corridor. Less than 0.1 mile of Variation S3-B4 is located within a right-of-way avoidance area. No other alternative routes or route variations are located within a right-of-way avoidance area.</p>	<p>The northern portion of the alternative route parallels Interstate 84, and parallels the exiting 138-kV transmission line in the area of Farewell Bend. Variations S4-A2 allows for collocation closer to the existing 138-kV line. Avoids impacts on community and residences through collocation with existing facilities.</p> <p>This alternative uses 3.2 miles of a WVEC and approximately 1.8 miles of BLM-designated utility corridor while the other alternative routes are not located in any utility corridors.</p>	<p>North of Double Mountain, the route crosses private land to avoid crossing lands with wilderness characteristics south of the route. Variation S5-B2 avoids crossing a segment of the Owyhee River identified by the BLM as suitable for designating as a National WSR (Owyhee River Below the Dam suitable WSR segment). Just north of the river crossing, the route enters and remains within a BLM-designated utility corridor nearly to the end of Segment 5.</p> <p>Approximately 0.8 miles of this alternative is located within WVEC, which is less than the Malheur S and A alternatives. It also uses 13.3 miles within BLM-designated utility corridor, which is more than both the Malheur S and A Alternatives. Approximately 0.7 mile is identified as right-of-way avoidance which is also less than the Malheur S and A Alternatives. No other alternative routes are located within utility corridors.</p>	<p>Applicant’s Proposed Action Alternative and Variations S6-A2 and S6-B2 Located within and along the southern edge of the BLM-designated utility corridor to maximize future use of this corridor.</p> <p>This alternative would result in greatest use of WVEC and BLM-designated utility corridor than the other route variations in Segment 6.</p>
Agriculture					
<p>Because the northern portion of this alternative is not subject to the NWSTF Boardman height restrictions as other alternatives are, it allows tower structure heights to be taller and span distances</p>	<p>The environmentally preferable action alternative crosses the least field crops of all alternatives in Segment 2. The Mill Creek Alternative crosses the least high-value soils and important farmland, though the</p>	<p>The Flagstaff B – Burnt River West Alternative crosses the fewest miles of center pivot irrigation except for the Timber Canyon Alternative. It also crosses the least miles of other mechanized irrigation, field</p>	<p>The environmentally preferable action alternative (Tub Mountain South Alternative) crosses the most irrigated farmland of any alternative in Segment 4, though it does cross fewer miles of pivot</p>	<p>All alternatives have similarly low impacts on irrigated agriculture and crop production, though the Applicant’s Proposed Action Alternative has the least. However, environmentally preferable action</p>	<p>The variations in Segment 6 have similarly low impacts on existing agriculture. However, Variation S6-A2 would affect more important farmland and high-value soils than Variation S6-A1. Variation S6-</p>

Table 2-16. Summary of Key Considerations Regarding the Environmentally Preferable Action Alternative by Segment

Segment 1 – Morrow-Umatilla	Segment 2 – Blue Mountains	Segment 3 – Baker Valley	Segment 4 – Brogan	Segment 5 – Malheur	Segment 6 – Treasure Valley
<p>greater than those that would be used on other alternatives such as the East of Bombing Range Road Alternative. Thus, while the Interstate 84 Alternative passes through an area that has the most pivot irrigation of all alternatives, all pivots could be spanned except one on Variation S1-A2. Conversely, a minimum of 23 pivots along the East of Bombing Range Road Alternative could not be spanned.</p> <p>The Interstate 84 Alternative also avoids all of the tree farm and crosses two confined animal feeding operations in locations where they can be spanned. Conversely, the Longhorn Alternative crosses two confined animal feeding operations in locations that could not be spanned and would have high impacts long-term.</p> <p>This alternative would affect fewer acres of lands enrolled in Conservation Reserve Program contracts than most of the other alternatives (except for West of Bombing Range Road – Southern Route and Interstate 84 – Southern Route).</p> <p>Variation S1-A2 is preferable to S1-A1 because there is less land cultivated for field crops under Variation S1-A2 (approximately 4.2 miles less than Variation S1-A1). While there is more center-pivot irrigation crossed on Variation S1-A2, there is much less cultivated cropland crossed, and because of this, this variation would have fewer impacts on existing agriculture. Variation S1-A2 crosses 10 fewer miles of prime farmland if irrigated, 9.7 fewer miles of high-value soils, and 6.4 more miles of farmland of statewide importance compared to Variation S1-A1.</p>	<p>environmentally preferable action alternative still crosses fewer miles than the Applicant's Proposed Action Alternative. There is no irrigated farmland or land enrolled in the Conservation Reserve Program crossed by any alternative in Segment 2.</p> <p>The variations have few differences with the exception of Variations S2-F1 and S2-F2. Variation S2-F2 crosses fewer miles of field crops, prime farmland if irrigated, farmland of statewide importance, and high-value soils than Variation S2-F1.</p>	<p>crops, high-value soils, and important farmland of any alternative in Segment 3.</p> <p>Variation S3-A2 crosses fewer miles of irrigated agriculture and important farmland than Variation S3-A1 (while neither cross high-value soils nor lands enrolled in the Conservation Reserve Program).</p> <p>Variation S3-B4 avoids center pivot irrigation completely, but does affect the most other mechanized irrigation of these variations. This variation also crosses the most high-value soils, but ranks in the middle-to-high range for important farmland affected. None of these variations impact lands enrolled in the Conservation Reserve Program.</p>	<p>irrigation than the Willow Creek Alternative. It also avoids a landing strip used for agriculture that the Willow Creek Alternative crosses. This alternative crosses the most high-value soils and important farmland of any alternative in Segment 4, and all alternatives avoid lands enrolled in the Conservation Reserve Program.</p> <p>All variations have similar impacts on agriculture.</p>	<p>alternative crosses more than double the miles of high-value soils of the other alternatives in Segment 5.</p> <p>Variation S5-B2 crosses more irrigated agriculture and important farmland, but less high-value soils compared to Variation S5-B1.</p>	<p>B2 would affect less important farmland and high-value soils than S6-B1.</p>
National Historic Trails/Study Trails					
<p>Oregon NHT</p> <p>Avoids crossing and highly affecting the Boardman high-potential route segment and a contributing trail segment (Well Spring Segment) along Bombing Range Road.</p> <p>Moderate impacts on views from National Park Service (NPS) auto tour route (Interstate 84). Route avoids the area of high impacts west of Pendleton based on the alignment of Variation S1-B2.</p>	<p>Oregon NHT</p> <p>Avoids area of high impacts on views from the NPS auto tour route (Interstate 84) west of La Grande based on the alignment of Variation S2-A2, where views are partially screened by topography and vegetation.</p> <p>High impacts on views from two trail-associated cultural sites west of Morgan Lake Park.</p>	<p>Oregon NHT</p> <p>All alternatives in Segment 3, except for the Timber Canyon Alternative, would highly impact views from the National Historic Oregon Trail Interpretive Center (NHOTIC). Based on the alignment of Variation S3-B4, west of the NHOTIC, this route would be located adjacent to an existing 230-kV transmission line at the edge of development in Baker Valley, thus reducing</p>	<p>Oregon NHT</p> <p>All alternatives in Segment 4 would highly affect views from the NPS auto tour route (Interstate 84) north of Huntington.</p> <p>Based on the alignment of the Tub Mountain South Alternative, views from the Birch Creek Interpretive Site (located in the Oregon Trail ACEC – Birch Creek portion), adjacent to contributing trail segments, and Alkali Springs high-potential route segment</p>	<p>Oregon NHT</p> <p>Since there are no high-potential historic sites, high-potential historic segments, or contributing trail segments located in the trail-specific study area for the Oregon NHT in Segment 5, the B2H Project would impact the Oregon NHT minimally.</p>	<p>Oregon NHT</p> <p>There would be no key issues since views from the Givens Hot Spring high-potential historic site would be affected minimally by the B2H Project where it would parallel an existing 500-kV transmission line that is already located closer to the historic site. Based on the alignment of Variation S5-B2, these effects would be reduced because the B2H Project components</p>

Table 2-16. Summary of Key Considerations Regarding the Environmentally Preferable Action Alternative by Segment

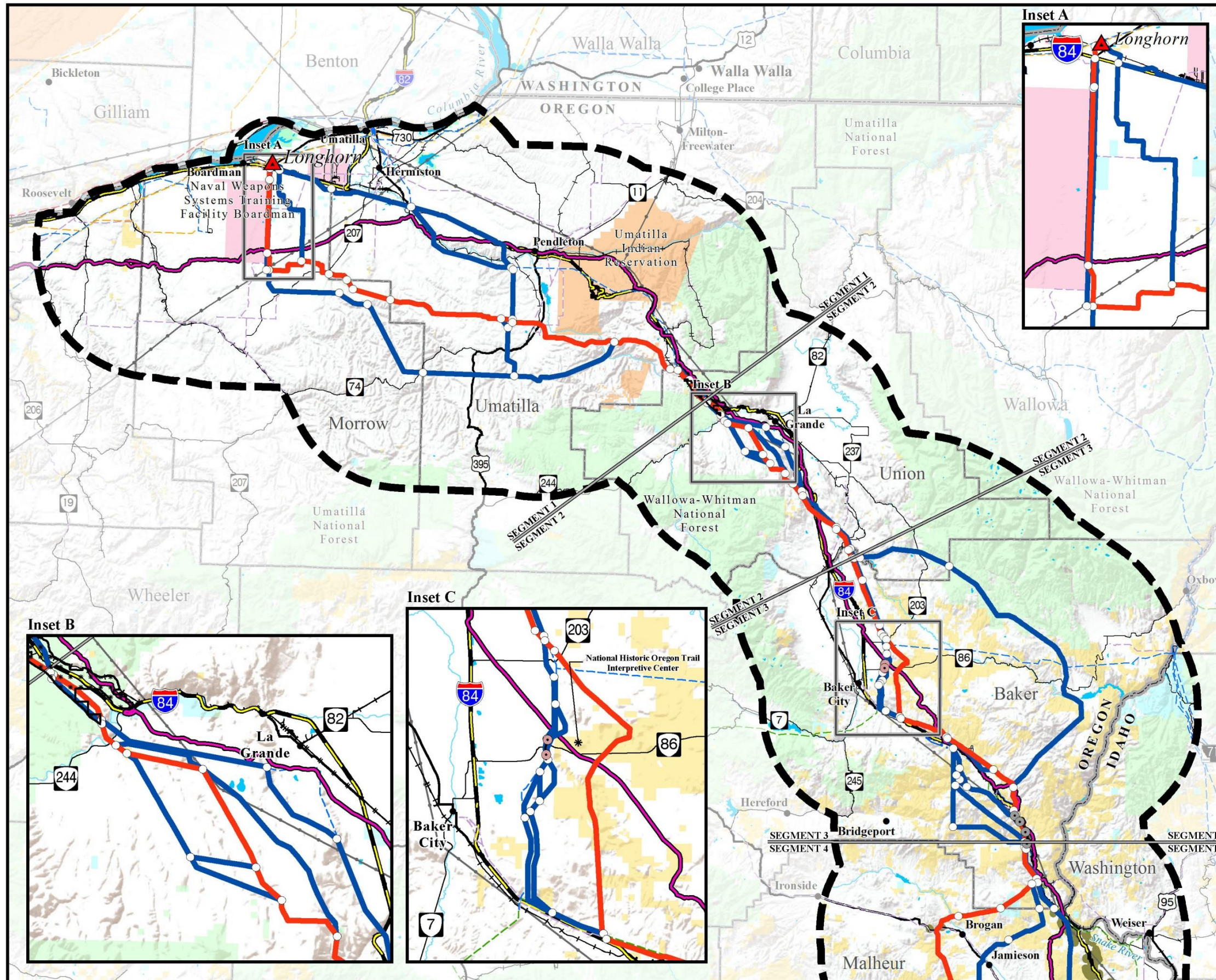
Segment 1 – Morrow-Umatilla	Segment 2 – Blue Mountains	Segment 3 – Baker Valley	Segment 4 – Brogan	Segment 5 – Malheur	Segment 6 – Treasure Valley
<p>High impacts on views from contributing trail segment southeast of the community of Echo, where adjacent to a smaller existing transmission line.</p> <p>Lewis and Clark NHT Similar to all Segment 1 alternatives, moderate impacts would occur on views from the Lewis and Clark NHT auto tour route (U.S. Highway 730).</p> <p>Study Trails Moderate impacts on views from Umatilla River Route and Columbia River to the Dalles Study Trail, where the trail would be crossed north of the community of Echo</p> <p>Low impacts on other trails under study.</p>	<p>Route avoids paralleling the Blue Mountain high-potential route segment and adjacent contributing trail segments (as well as other trail-associated cultural sites) by not paralleling the existing 230-kV transmission line near La Grande.</p> <p>Similar to all alternatives in the southern portion of Segment 2, high impacts on views from the NPS auto tour route (Interstate 84) would occur south of Ladd Canyon but, based on the alignment of Variation S2-F2, an existing 230-kV transmission line would be paralleled at the crossing of the auto tour route— incrementally reducing the extent of change (visual contrast) within the viewshed.</p> <p>Study Trails No study trails located within the NHT study area for Segment 2.</p>	<p>the extent of change (visual contrast) within the viewshed.</p> <p>Similar to all Segment 3 alternatives except the Timber Canyon Alternative, views from the NPS auto tour route (Interstate 84) east of Pleasant Valley would be highly affected.</p> <p>By siting this route away from the community of Durkee, trail resources including contributing trail segments and the NPS auto tour route (Interstate 84) would be avoided, thereby reducing the extent of impacts on the Oregon NHT compared to other alternative routes.</p> <p>Study Trails Based on the alignment of Variation S3-B4, views of the B2H Project would be screened by topography west of the NHOTIC— resulting in low impacts on views from the Goodale’s Cutoff Study Trail.</p>	<p>also would be highly affected by the environmentally preferable action alternative.</p> <p>Study Trails Moderate impacts on views from the Olds Ferry Road Study Trail would occur south of Farewell Bend in context with an existing transmission line and Interstate 84.</p>	<p>Study Trails All alternatives in Segment 5 would highly affect views from the Meek Cutoff Study Trail west of Vale in Malheur Canyon and the benchlands to the south.</p>	<p>would be located farther from the historic site.</p> <p>Study Trails No study trails located within the NHT study area for Segment 6.</p>
Visual Resources					
<p>Landscape Character and Scenic Quality This route would result in reduced impacts on landscape character and scenic quality since the B2H Project would traverse agricultural and ranching settings with a high degree of existing modifications compared to landscapes further to the south.</p> <p>Variation S1-A2 would result in increased impacts on the Umatilla River landscape by crossing and paralleling the river, but overall, result in reduced impacts on other landscapes by paralleling an existing 230-kV transmission line.</p> <p>Views Impacts on views would be increased along this route compared to other alternatives, because Interstate 84 is a major travel corridor, and based on the presence of more residential viewers that would be affected.</p> <p>Conformance with Management Objectives All alternatives would result in a similar extent of nonconformance with visual quality objectives (VQOs) on lands managed by the USFS.</p>	<p>Landscape Character and Scenic Quality Since this route does not parallel the existing 230-kV transmission line and instead traverses partially forested lands that are mostly undeveloped, this route would have increased impacts on landscape character and scenic quality compared to the Mill Creek Alternative.</p> <p>Views Impacts on views, including visibility from travel routes, residential viewers, and the recreation viewers at Morgan Lake would be reduced when compared to the Applicant’s Proposed Action Alternative and Mill Creek Alternative. Based on the alignment of Variation S2-F2, impacts on views from residences and Interstate 84 would be further reduced based on the B2H Project’s colocation with an existing 230-kV transmission line.</p> <p>Conformance with Management Objectives All alternatives would have a similar extent of nonconformance with VQOs on lands managed by the USFS with this route having the least acres of nonconformance.</p>	<p>Landscape Character and Scenic Quality Since this route does not parallel Interstate 84 in proximity to Durkee and adjacent existing transmission lines, and instead traverses steeply rolling hills that are mostly undeveloped, this route would result in increased impacts on landscape character and scenic quality compared to the Applicant’s Proposed Action, Flagstaff A, and Flagstaff B alternatives.</p> <p>Based on the alignment of Variation S3-B4 near Baker City, this route would result in reduced impacts on scenic quality based on its parallel alignment with the existing 230-kV transmission line that has already modified the existing landscape setting.</p> <p>Views Impacts on residential views in Durkee and views from I-84 would be reduced by selecting this route west of the community and interstate highway. Note, impacts on the NHOTIC are described under National Historic Trails.</p> <p>Conformance with Management Objectives This route would result in nonconformance with BLM visual resource management</p>	<p>Landscape Character and Scenic Quality This route would result in the least amount of impact on landscape character and scenic quality since existing transmission lines would be paralleled for the greatest distance, and because a greater amount of agricultural and ranching landscapes, with existing cultural modifications, would be crossed</p> <p>Views As compared to other alternatives, impacts on views would be increased based on the environmentally preferable action alternative’s parallel alignment with the Interstate 84 viewing platform.</p> <p>Conformance with Management Objectives This route would result in non-conformance with BLM VRM Class III objectives adjacent to the Birch Creek Interpretive Site (Oregon NHT), requiring a project-specific RMP amendment.</p>	<p>Landscape Character and Scenic Quality This route would result in the greatest amount of impact on landscape character and scenic quality since mostly undeveloped landscapes would be traversed. Additionally, this route does not parallel the existing 500-kV transmission line which already has modified existing settings within the vicinity of the Malheur A and Malheur S alternatives.</p> <p>Based on the alignment of Variation S5-B2, this route would result in reduced impacts on the Owyhee River landscape by siting the B2H Project farther to the east in agricultural lands, as compared the Applicant’s Proposed Action Alternative.</p> <p>Views Impacts on recreation views would be reduced on this route compared to the other alternatives and variations, because the Owyhee River would be crossed at the mouth of the canyon based on the alignment of Variation S5-B2.</p> <p>Impacts on residential viewers, located in the agricultural lands northeast of Owyhee River, would be increased based on the</p>	<p>Landscape Character and Scenic Quality This route generally parallels an existing 500-kV transmission line based on the alignments of Variations S6-A2 and S6-B2. In some areas, due to skylining of transmission line structures, the B2H Project would highly affect scenic quality.</p> <p>Views Moderate impacts on views from residences along Jump Creek Road and Poison Creek Road, as well as on views from recreation viewing platforms, would occur along this route. These impacts on views would be similar for the other variations in Segment 6.</p> <p>Conformance with Management Objectives All alternatives and routes in Segment 6 would meet the BLM VRM Class objectives crossed.</p>

Table 2-16. Summary of Key Considerations Regarding the Environmentally Preferable Action Alternative by Segment

Segment 1 – Morrow-Umatilla	Segment 2 – Blue Mountains	Segment 3 – Baker Valley	Segment 4 – Brogan	Segment 5 – Malheur	Segment 6 – Treasure Valley
		<p>(VRM) Class II objectives in Burnt River Canyon, requiring a project-specific RMP amendment.</p> <p>By being sited west of the NHOTIC would not require a plan amendment to the BLM VRM Class III lands in Virtue Flat.</p>		<p>alignment of Variation S5-B2 since more residences would have views of the B2H Project.</p> <p>Conformance with Management Objectives</p> <p>All alternatives in Segment 5 would result in nonconformance with BLM VRM Class II or III objectives at the crossing of the Owyhee River. This route, based on the alignment of Variation S5-B2, would result in the least amount of nonconformance with BLM VRM Classes.</p>	
Cultural Resources					
<p>Even though the environmentally preferable action alternative is not the shortest or the one with the lowest number of previously recorded sites that would be potentially affected, it avoids highly significant resources that are located in proximity to, or, are crossed by the other six alternative routes considered under Segment 1. These resources are:</p> <ul style="list-style-type: none"> • NRHP-listed Well Spring Segment of the Oregon NHT • Two historic properties of religious and cultural significance to Indian tribes in the NWSTF Boardman (resources of concern to the CTUIR) • Sand Hollow Battlefield 1848 (resource of concern to the CTUIR) • Cultural landscape in the McKay Creek area; this area is important for both pre-contact and historic resources and is a place of importance in the contemporary culture of the CTUIR <p>Although the environmentally preferable action alternative does cross the Oregon NHT, it crosses an unrecorded segment of the trail, which is of unknown condition.</p> <p>Note: Despite the environmentally preferable action alternative distance from the aforementioned culturally significant resources, this alternative route has the second highest miles of high cultural resource sensitivity (result of three historic canals crossed).</p>	<p>The environmentally preferable action alternative potentially would affect the lowest number of previously recorded sites. The potential for affecting a greater number of known, high sensitivity sites is the same for the environmentally preferable action alternative and the Applicant's Proposed Action Alternative but lower for the Mill Creek Alternative. Even though the Mill Creek Alternative crosses the lowest number of miles of high cultural resource sensitivity, a historic property of religious and cultural significance to Indian tribes (traditional fishery/campsite) is found along the Mill Creek Alternative (indirect effects area of potential effect [APE]). This sensitive resource also has been identified along one of the route variations (Variation S2-B2) considered for the Applicant's Proposed Action Alternative (indirect effects APE).</p> <p>All three alternative routes cross the same unrecorded segment (unknown condition) of the Oregon NHT and parallel one previously recorded, contributing segment of the trail along their western extent. Overall, the environmentally preferable action alternative would have the lowest overall impact on the Oregon NHT, as this alternative route is located farthest from the trail.</p> <p>Avoids crossing the Ladd Marsh Wildlife Area, which has potential for sites of cultural importance.</p>	<p>Potential impacts along the environmentally preferable action alternative would be substantially lower than the other alternative routes considered in Segment 3, except for the Flagstaff B – Durkee Alternative (lowest potential impacts). The potential for affecting a greater number of previously recorded and high sensitivity sites also is lower along these two alternative routes (primarily along the Flagstaff B – Durkee Alternative).</p> <p>Potential impacts on the Oregon NHT would be similar to the other alternative routes considered in Segment 3, except that the environmentally preferable action alternative avoids multiple crossings of the historic trail (previously recorded segments) near Durkee, resulting in the potential for less intense impacts. The Flagstaff B – Durkee Alternative would have the lowest overall impact on the Oregon NHT, as the southern portion of this alternative route is located farthest from the trail.</p> <p>Based on the alignment of Variation S3-B4, potential effects on the Goodale's Cutoff Study Trail would be reduced because the B2H Project components would be located farther from previously recorded segments of the Study Trail.</p> <p>Compared to the Applicant's Proposed Action Alternative, the environmentally preferable action alternative lies farther from numerous historic resources associated with the Virtue Flat Mining Area, Goal 5 Resources, and established communities (e.g., Durkee, Weatherby).</p>	<p>Compared to the other alternative routes considered in Segment 4, the environmentally preferable action alternative potentially would affect the highest number of previously recorded sites. In addition, this alternative route crosses more miles of high cultural resource sensitivity than the other alternative routes.</p> <p>Potential impacts on the Oregon NHT and trail-associated sites, along the environmentally preferable action alternative would be more substantial than for the other alternative routes, as it crosses five unrecorded, intact segments of the trail.</p> <p>Avoids one area of Native American concern (Striped Mountain).</p> <p>Compared to the environmentally preferable action alternative, the other two alternative routes considered under Segment 4 avoid the Olds Ferry Road Study Trail, human burial sites of tribal significance, the Farewell Bend, and one broad cultural landscape that extends from the Farewell Bend area to the south. There is the potential for indirect effects on unrecorded, significant sites near the Tub Mountain, the Snake River, Huntington, and the Tom Creek areas, along the environmentally preferable action alternative.</p> <p>The Shoshone-Paiute Tribes of the Duck Valley Indian Reservation, the Burns Paiute Tribe, and the CTUIR have expressed concerns about the proximity</p>	<p>The environmentally preferable action alternative potentially would affect the lowest number of previously recorded sites. However, the potential for affecting a greater number of known, high-sensitivity sites is higher along this alternative route than along the other two alternative routes considered in Segment 5.</p> <p>No potential impacts on the Oregon NHT and trail-associated sites were identified, as segments of the Oregon NHT are not located in the study corridor for the alternative routes considered under Segment 5.</p> <p>Potential impacts on the Meek Cutoff Study Trail (previously recorded, noncontributing segment) would be the same for all three alternative routes, since these alternative routes follow the same alignment in proximity to the Study Trail.</p> <p>Of the alternative routes considered in Segment 5, the environmentally preferable action alternative lies farther from historic resources associated with the Owyhee Dam Historic District (NRHP-listed).</p> <p>Avoids passing through an area of Native American concern (Negro Rock Canyon [east of Sand Hollow in Malheur County]). There is the potential for direct effects on undocumented, significant sites of tribal significance in or near this sensitive area.</p>	<p>The environmentally preferable action alternative crosses areas of high cultural resource sensitivity, attributed to six previously recorded sites with a high sensitivity index.</p> <p>Based on the alignment of Variation S6-A2, potential effects on Graveyard Point (historic resource and Native American concern) and the NRHP-listed Poison Creek Stage Station would increase because the B2H Project components would be located closer to these cultural resources. One extensive, pre-contact lithic procurement area has been documented within the boundaries of Graveyard Point in the indirect effects APE.</p> <p>Tribal input from the Shoshone-Paiute Tribes of the Duck Valley Indian Reservation indicates the Tribes' preference for Variation S6-A1 (Applicant's Proposed Action Alternative) instead of Variation S6-A2, since Variation S6-A1 (Applicant's Proposed Action Alternative) lies farther from Graveyard Point. This culturally sensitive area is situated more than 1 mile to the north/northeast of the route variation.</p>

Table 2-16. Summary of Key Considerations Regarding the Environmentally Preferable Action Alternative by Segment

Segment 1 – Morrow-Umatilla	Segment 2 – Blue Mountains	Segment 3 – Baker Valley	Segment 4 – Brogan	Segment 5 – Malheur	Segment 6 – Treasure Valley
		<p>Avoids numerous pre-contact sites (e.g., rock features, rockshelters, lithic procurement areas) and one culturally sensitive area of Native American concern (Medical Hot Springs).</p>	<p>of the B2H Project to Farewell Bend (major tribal river crossing and tribal gathering area). The environmentally preferable action alternative passes within 1 mile of Farewell Bend. The CTUIR supports paralleling the transmission line and Interstate 84 to the Farewell Bend area, but preferred the route to cross over to the Willow Creek Alternative to avoid potential impacts on the cultural landscape south of the Farewell Bend area.</p>		



Map 2-9a
Linear Facilities and Utility Corridors (Northern Area)

BOARDMAN TO HEMINGWAY TRANSMISSION LINE PROJECT

- Linear Facilities**
- 500-kV Transmission Line
 - 345-kV Transmission Line
 - 230-kV Transmission Line
 - 138-kV Transmission Line
 - 69- to 115-kV Transmission Line
 - Pipeline
- Federal Utility Corridors**
- West-wide Energy Corridor
 - Land and Resource Management Plan Utility Corridor
 - Resource Management Plan Utility Corridor
- Project Features**
- Project Area Boundary
 - ▲ Substation (Project Terminal)
 - Applicant's Proposed Action Alternative
 - Alternative Route
 - Link Node
 - Segment Line
 - Flagstaff 230-kV Rebuild (Inset C)
 - Double-circuit 138/69-kV Rebuild (Inset D)
- Land Ownership**
- Bureau of Land Management
 - Bureau of Reclamation
 - Indian Reservation
 - National Park Service
 - U.S. Department of Defense
 - U.S. Fish and Wildlife Service
 - U.S. Forest Service
 - Other Federal
 - State Land
 - Private Land
- General Reference**
- City or Town
 - Railroad
 - Interstate Highway
 - U.S. Highway
 - State Highway
 - Lake or Reservoir
 - State Boundary
 - County Boundary
 - Oregon National Historic Trail Congressionally Designated Alignment

SOURCES:
 Transmission Lines, Bonneville Power Administration 2009, Idaho Power Company 2007, Logan Simpson Design 2011, Ventyx 2012; Pipelines, ESRI 2012; West-wide Energy Corridors, Argonne National Laboratory 2008; Land and Resource Management Plan Utility Corridor, USFS 2010; Resource Management Plan Utility Corridors, BLM 2002, 2012; Land Status, BLM 2014, 2015; Cities and Towns, ESRI 2013; Railroads, Idaho DOT 2006, Oregon DOT 2014; Highways, ESRI 2013; Waterbodies, ESRI 2013; State and County Boundaries, ESRI 2013; Oregon National Historic Trail Congressionally Designated Alignment, BLM 2015

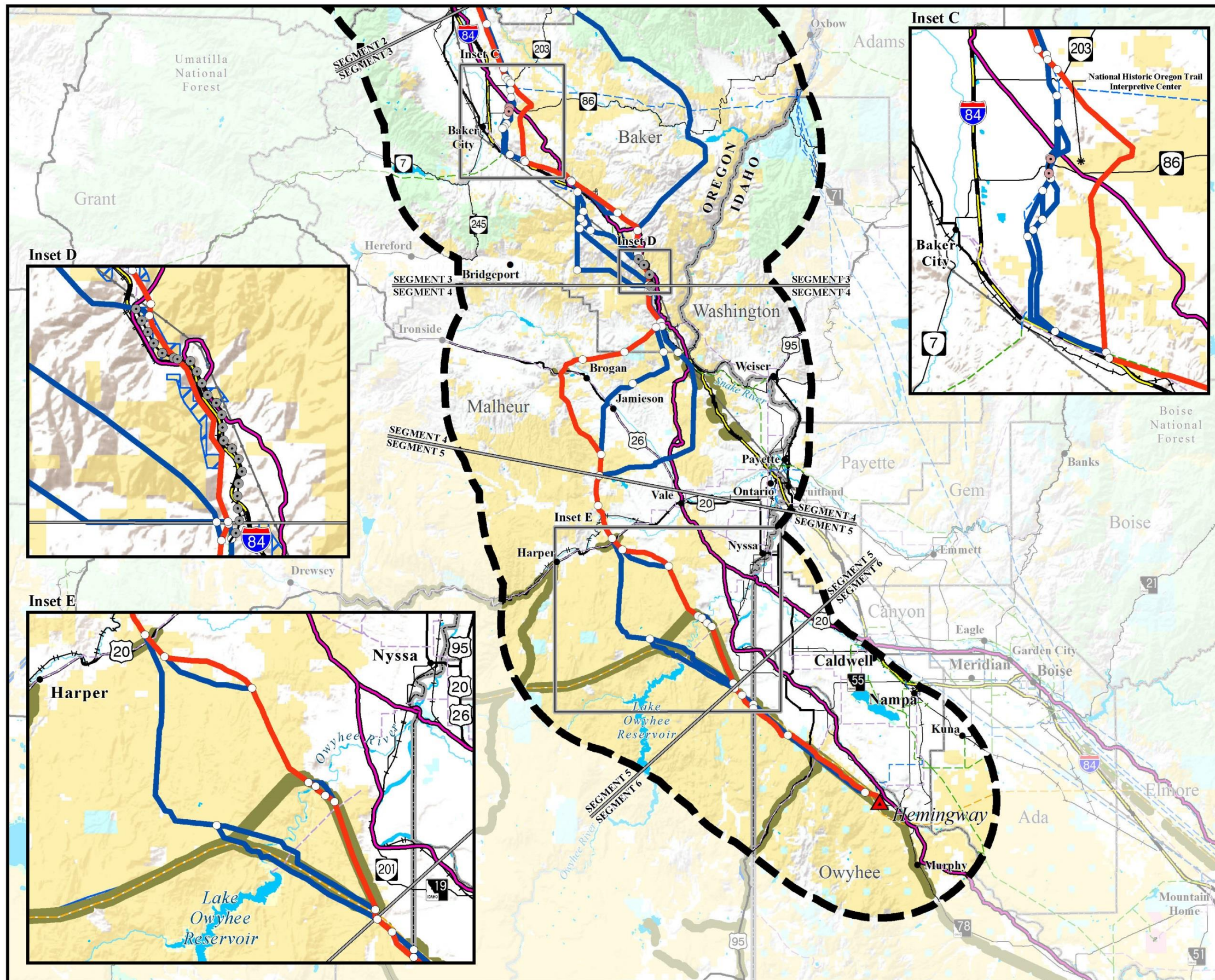
NOTES:

- The alternative routes shown on this map are draft and may be revised or refined throughout the development of the project.
- Substation symbols do not necessarily represent precise locations.
- The B2H Project area boundary is defined by buffering the alternative route centerlines.
- Other federal land ownership may include lands administered by the U.S. Department of Energy, Bonneville Power Administration, Federal Aviation Administration, General Services Administration, or U.S. Department of Agriculture (except U.S. Forest Service).
- Each alternative route is composed of links, which are discrete sections of the route sharing common endpoints determined by the point of intersection with other adjacent links; the common endpoint is referred to as a link node. Links generally are numbered from north to south. Similarly, a segment is composed of alternative routes that share common endpoints determined by the point of intersection with other adjacent alternative routes; the common endpoint is referred to as a segment node.
- No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.

Alternative routes last revised: February 18, 2016
 Final EIS: November 2016

0 5 10 15 30 Miles
 1:950,400 or 1 inch = 15 miles

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Map 2-9b

Linear Facilities and Utility Corridors (Southern Area)

BOARDMAN TO HEMINGWAY TRANSMISSION LINE PROJECT

Linear Facilities

- 500-kV Transmission Line
- 345-kV Transmission Line
- 230-kV Transmission Line
- 138-kV Transmission Line
- 69- to 115-kV Transmission Line
- Pipeline

Federal Utility Corridors

- ▭ West-wide Energy Corridor
- ▭ Land and Resource Management Plan Utility Corridor
- ▭ Resource Management Plan Utility Corridor

Project Features

- ▭ Project Area Boundary
- ▴ Substation (Project Terminal)
- Applicant's Proposed Action Alternative
- Alternative Route
- Link Node
- Segment Line
- Flagstaff 230-kV Rebuild (Inset C)
- Double-circuit 138/69-kV Rebuild (Inset D)

Land Ownership

- Bureau of Land Management
- Bureau of Reclamation
- Indian Reservation
- National Park Service
- U.S. Department of Defense
- U.S. Fish and Wildlife Service
- U.S. Forest Service
- Other Federal
- State Land
- Private Land

General Reference

- City or Town
- Railroad
- Interstate Highway
- U.S. Highway
- State Highway
- Lake or Reservoir
- ▭ State Boundary
- ▭ County Boundary
- Oregon National Historic Trail Congressionally Designated Alignment

SOURCES:
 Transmission Lines, Bonneville Power Administration 2009, Idaho Power Company 2007, Logan Simpson Design 2011, Ventyx 2012; Pipelines, ESRI 2012; West-wide Energy Corridors, Argonne National Laboratory 2008; Land and Resource Management Plan Utility Corridor, USFS 2010; Resource Management Plan Utility Corridors, BLM 2002, 2012; Land Status, BLM 2014, 2015; Cities and Towns, ESRI 2013; Railroads, Idaho DOT 2006, Oregon DOT 2014; Highways, ESRI 2013; Waterbodies, ESRI 2013; State and County Boundaries, ESRI 2013; Oregon National Historic Trail Congressionally Designated Alignment, BLM 2015

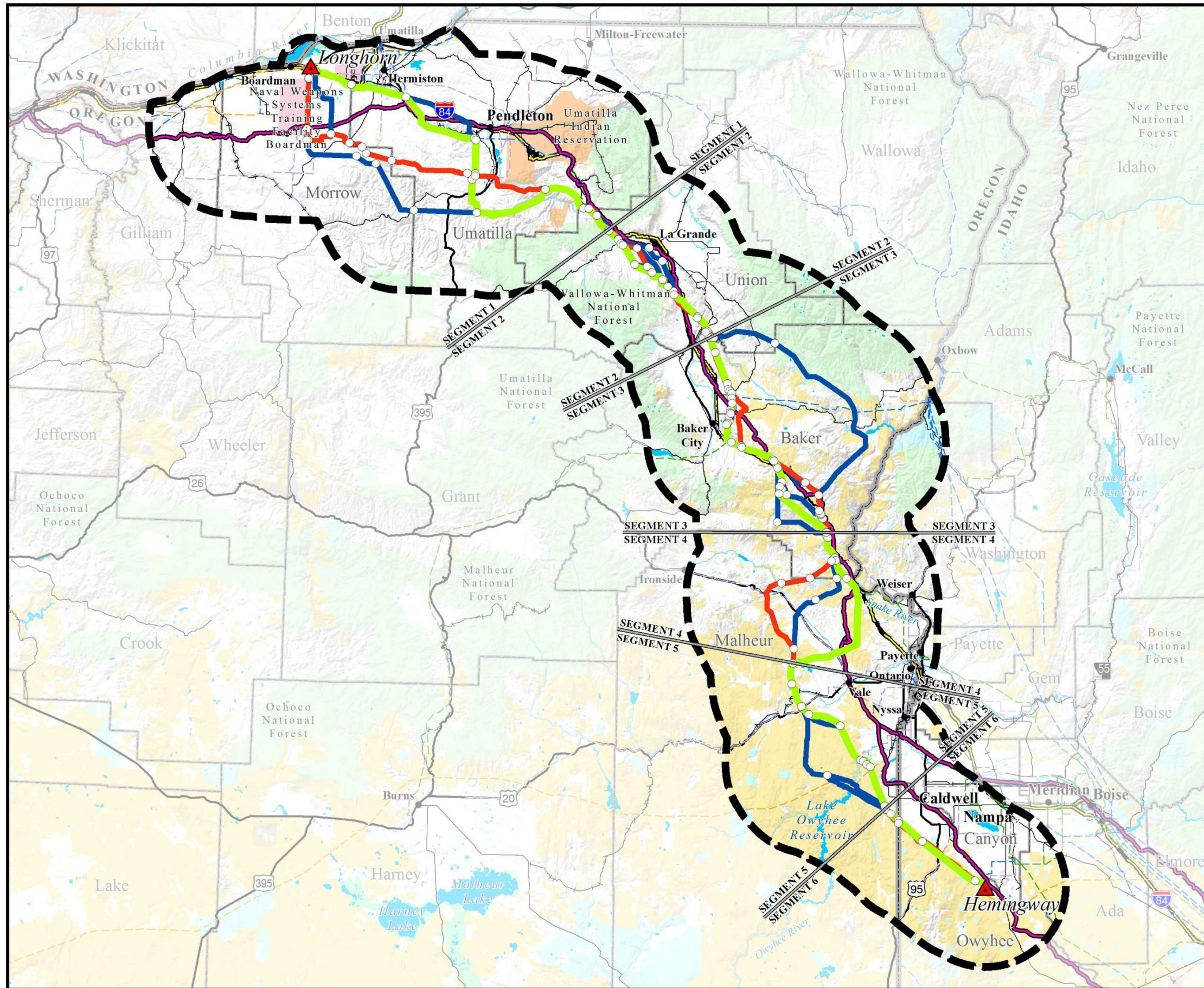
NOTES:

- The alternative routes shown on this map are draft and may be revised or refined throughout the development of the project.
- Substation symbols do not necessarily represent precise locations.
- The B2H Project area boundary is defined by buffering the alternative route centerlines.
- Other federal land ownership may include lands administered by the U.S. Department of Energy, Bonneville Power Administration, Federal Aviation Administration, General Services Administration, or U.S. Department of Agriculture (except U.S. Forest Service).
- Each alternative route is composed of links, which are discrete sections of the route sharing common endpoints determined by the point of intersection with other adjacent links; the common endpoint is referred to as a link node. Links generally are numbered from north to south. Similarly, a segment is composed of alternative routes that share common endpoints determined by the point of intersection with other adjacent alternative routes; the common endpoint is referred to as a segment node.
- No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.

Alternative routes last revised: February 18, 2016
 Final EIS: November 2016

0 5 10 15 30
 Miles
 1:950,400 or 1 inch = 15 miles

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Map 2-10
**Environmentally Preferable
 Action Alternative Route**

**BOARDMAN TO HEMINGWAY
 TRANSMISSION LINE PROJECT**

- Project Features**
- Project Area Boundary
 - Substation (Project Terminal)
 - Applicant's Proposed Action Alternative
 - Alternative Route
 - Environmentally Preferable Action Alternative Route
 - Link Node
 - Segment Line

- Land Ownership**
- Bureau of Land Management
 - Bureau of Reclamation
 - Indian Reservation
 - National Park Service
 - U.S. Department of Defense
 - U.S. Fish and Wildlife Service
 - U.S. Forest Service
 - Other Federal
 - State Land
 - Private Land

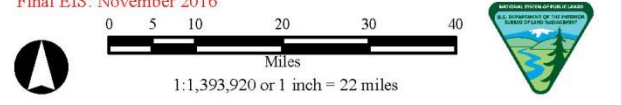
- General Reference**
- City or Town
 - 500-kV Transmission Line
 - 345-kV Transmission Line
 - 230-kV Transmission Line
 - 138-kV Transmission Line
 - 69- to 115-kV Transmission Line
 - Railroad
 - Interstate Highway
 - U.S. Highway
 - State Highway
 - Lake or Reservoir
 - State Boundary
 - County Boundary
 - Oregon National Historic Trail Congressionally Designated Alignment

SOURCES:
 Land Status, BLM 2014, 2015; Cities and Towns, ESRI 2013;
 Transmission Lines, Bonneville Power Administration 2009, Idaho Power Company 2007,
 Logan Simpson Design 2011, Ventyx 2012; Pipelines, ESRI 2012;
 Railroads, Idaho DOT 2006, Oregon DOT 2014; Highways, ESRI 2013;
 Waterbodies, ESRI 2013; State and County Boundaries, ESRI 2013;
 Oregon National Historic Trail Congressionally Designated Alignment, BLM 2015

NOTES:

- The alternative routes shown on this map are draft and may be revised or refined throughout the development of the project.
- Substation symbols do not necessarily represent precise locations.
- The B2H Project area boundary is defined by buffering the alternative route centerlines.
- Other federal land ownership may include lands administered by the U.S. Department of Energy, Bonneville Power Administration, Federal Aviation Administration, General Services Administration, or U.S. Department of Agriculture (except U.S. Forest Service).
- Each alternative route is composed of links, which are discrete sections of the route sharing common endpoints determined by the point of intersection with other adjacent links; the common endpoint is referred to as a link node. Links generally are numbered from north to south. Similarly, a segment is composed of alternative routes that share common endpoints determined by the point of intersection with other adjacent alternative routes; the common endpoint is referred to as a segment node.
- No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.

Alternative routes last revised: February 18, 2016
 Final EIS: November 2016



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2.6.1.1 SEGMENT 1—MORROW-UMATILLA

The environmentally preferable action alternative in Segment 1 is Interstate 84 – Southern Route Alternative with the variation (Variation S1-A2). As mentioned previously, this route was recommended by local stakeholders in comments on the Draft EIS (Section 2.1.1.3), the intent was to site the line in areas already disturbed, consolidate linear facilities to avoid proliferation of utility corridors in this area, and avoid privately owned land.

The initial 23 miles of the alternative route parallels existing linear infrastructure (Interstate 84) along the south side of the Interstate 84 right-of way through areas developed with commercial uses and dense irrigated agriculture. The intent would be to site the transmission line to avoid or minimize effects on existing agriculture to the extent practicable. Between the areas of Echo and Rieth, Variation S1-A2 crosses through areas of existing agriculture (irrigated and dryland farming) along the eastern portion of the variation; however, it crosses through less agricultural area than Variation S2-A1 along Interstate 84. The environmentally preferable Variation (S1-A2) also crosses through the northern edge of an area identified as suitable habitat for the Washington ground squirrel⁷.

South of Rieth, the environmentally preferable action alternative route turns south, avoiding the community of Pendleton and the Umatilla Indian Reservation, and continues for approximately 20.5 miles. This stretch of the environmentally preferable action alternative crosses U.S. Highway 395 southwest of Pilot Rock, the southern portion of the route in this area crosses through areas of existing agriculture (predominantly dryland farming). The environmentally preferable action alternative also crosses through areas identified as suitable habitat for the Washington ground squirrel⁷. The environmentally preferable action alternative intersects with and follows the southernmost east-west alternative route in Segment 1 recommended by Morrow County. The alternative then crosses Rocky Ridge as it enters the Blue Mountains, avoiding potentially significant impacts on a broad area of cultural resources of concern to Native American tribes (the CTUIR in particular) associated with McKay Creek. The environmentally preferable action alternative route then intersects at a point where all of the alternative routes intersect and continues east to the area of Kamela.

In comparison, the alternative routes on the west side of Bombing Range Road, which would partially repurpose the position of BPA's 69-kV transmission line on the NWSTF Boardman, could result in potentially high impacts on Washington ground squirrel⁸ habitat (including occupied colony dispersal areas) on the NWSTF Boardman; it would cross the NWSTF Boardman Washington ground squirrel RMA, and RNA-B on the NWSTF Boardman⁹. Also, the West of Bombing Range Road alternative

⁷Presence or absence of Washington ground squirrel colonies has not been confirmed by survey in the areas identified as suitable habitat for the Washington ground squirrel.

⁸All alternative routes on the west side of Bombing Range Road cross Washington ground squirrel occupied habitat within the eastern boundary of the NWSTF Boardman, including the 11,226-acre Washington ground squirrel Resource Management Area, which is no longer used for military training activities and where habitat restoration efforts are focused on the NWSTF Boardman (Navy 2015). The NWSTF Boardman and adjacent privately owned Boardman Conservation Area represent the largest contiguous area of Washington ground squirrel occupied habitat in Oregon, and is likely the largest area of contiguous occupied habitat in the entire range of the Washington ground squirrel (USFWS 2008).

⁹Resource Natural Area B (RNA-B) was established to preserve remnant high-quality sagebrush vegetation communities.

would cross and result in potentially significant impacts on historic properties of religious and cultural significance to Indian tribes (referred to as TCPs by the Navy [Navy 2015]) in the general area of the southeast corner of the NWSTF Boardman, and avoids areas identified by the county for potential windfarm development.

The East of Bombing Range Road Alternative would cross densely developed irrigated agriculture; some of the center-pivots could not be spanned and operations would be affected. Also, there are Washington ground squirrel occupied colony avoidance areas and suitable habitat (where not developed with agriculture) south and east of the NWSTF Boardman. The Longhorn Alternative was developed before the Draft EIS to follow section lines with the intent of minimizing impacts on agricultural lands in the area; however, it intersects with the east-west portion of the Applicant's Proposed Action Alternative, which exhibits other impacts (described below).

Three of these alternatives to the south of the Longhorn Substation—Applicant's Proposed Action Alternative, East of Bombing Range Road, and Applicant's Proposed Action – Southern Route Alternative—turn east at the southeast corner of the NWSTF Boardman sharing the same alignment. These routes do not parallel existing linear infrastructure. They cross east through areas of potential windfarm development and then intersect with the Longhorn Alternative, also sharing the same alignment east to the end of Segment 1. These four alternatives cross several miles of dense agricultural areas (predominantly dryland farming). The routes cross substantially more Washington ground squirrel habitat⁷ than the environmentally preferable or southernmost east-west alternative routes, and cross small areas of occupied colony dispersal areas and occupied colony avoidance area.

The West of Bombing Range Road – Southern Route Alternative uses the southernmost east-west route, which also does not parallel existing linear infrastructure. This alternative crosses through an area of more rugged terrain that is much less developed. The alternative route was developed by Morrow and Umatilla counties to minimize effects on areas of potential windfarm development. This southernmost route crosses through agricultural areas (predominantly dryland farming south and east of the NWSTF Boardman and southwest of the Pilot Rock area), but crosses much less than the Applicant's Proposed Action Alternative; and crosses Washington ground squirrel suitable habitat⁷.

At the southern end of the Segment 1, from the area of Kamela and onto the Wallowa-Whitman National Forest, the routing that is environmentally preferable is the same as the Applicant's Proposed Action Alternative and Agency Preferred Alternative (Variation S1-B2). Variation S1-B2 is the USFS-preferred routing on the National Forest, which is within the USFS-designated utility corridor over Variation S1-B2 because it is located farther from the Oregon NHT and associated sites (i.e., NPS Auto Tour Route, Blue Mountains Interpretive Park High Potential Historic Site) and, therefore, would have less effect on visual resources; and it would avoid unspecified places of Native American concern.

2.6.1.2 SEGMENT 2—BLUE MOUNTAINS

The environmentally preferable action alternative in Segment 2 is a combination of Variation S2-A2 on the Wallowa-Whitman National Forest, the Glass Hill Alternative with Variation S2-D2, and Variation S2-F2 along the southern portion of Segment 2. The intent for this alternative is to parallel the existing

230-kV line in the northern portion of the segment, diverge to the west to avoid the community of La Grande and associated residences and agriculture, and avoid/or minimize impacts on the Oregon NHT and associated sites, and views of the proposed transmission line.

In the northern portion of the segment, the preference of the USFS on the Wallowa-Whitman National Forest is to collocate closer to the existing 230-kV transmission line within the USFS-designated utility corridor to the extent practicable (Variation S2-A2). The intent is to minimize vegetation removal and surface disturbance by using the existing service roads associated with the existing 230-kV transmission line.

Both the environmentally preferable action alternative and the Applicant's Proposed Action Alternative diverge south from the 230-kV line to avoid impacts on the community of La Grande and associated residences and agriculture. The environmentally preferable action alternative crosses the least amount of field crops. Even though much of the Mill Creek Alternative parallels an existing 230-kV transmission line, the Mill Creek Alternative would still affect the community, residences, and agriculture.

Along the environmentally preferable action alternative views from the NPS auto tour route are partially screened by topography and vegetation, which is not the case along the other two alternatives to the east. The environmentally preferable action alternative avoids paralleling the Blue Mountain high-potential trail route segment and adjacent contributing trail segments. The route would have the lowest impact on the Oregon NHT as it is the farthest alternative route from the trail. The environmentally preferable action alternative would affect the lowest number of previously recorded cultural resource sites.

Since the environmentally preferable action alternative does not parallel the existing 230-kV transmission line and, instead, traverses partially forested lands that are mostly undeveloped, this route would have increased impacts on landscape character and scenic quality compared to the Mill Creek Alternative. Impacts on views, including visibility from travel routes, residential viewers, and the recreation viewers at Morgan Lake would be reduced compared to the Applicant's Proposed Action Alternative and Mill Creek Alternative.

Along the southern portion of Segment 2, Variation S2-F2 (environmentally preferable) shares the same alignment with the Agency Preferred Alternative to the end of Segment 2. Variation S2-F2 is environmentally preferable because it parallels an existing 230-kV line, avoids agricultural lands, and reduces effects on Greater Sage-Grouse and the Oregon NHT more than the Applicant's Proposed Action Alternative. Variation S2-F2 crosses Greater Sage-Grouse General Habitat Management Areas (GHMA), but as is the case with the other alternative routes, it would not cross Priority Habitat Management Areas (PHMA) and no leks occur within 3.1 miles. Based on the alignment of Variation S2-F2, impacts on views from residences and Interstate 84 would be reduced further based on the B2H Project's collocation with an existing 230-kV transmission line.

2.6.1.3 SEGMENT 3—BAKER VALLEY

The environmentally preferable action alternative in Segment 3 is the Flagstaff B – Burnt River West Alternative with Variations S3-A2 and S3-B4.

Along the northern portion of Segment 3, all of the alternative route variations (including the environmentally preferable Variation S3-A2), except for the Applicant's Proposed Action Alternative, share the same alignment and would parallel and be colocated closer to the existing 230-kV transmission line. The Applicant's Proposed Action Alternative is parallel to but farther from (approximately 1,500 feet) the existing 230-kV transmission line and would cross more irrigated agriculture and important farmland than Variation S3-A2. All the alternative routes in this northern portion of Segment 3 (including the Applicant's Proposed Action Alternative) cross through the western periphery of Greater Sage-Grouse General and Priority Habitat.

In the area east of Baker City, the environmentally preferable action alternative is Variation S3-B4. It is environmentally preferable because it parallels existing transmission lines and Interstate 84 more than the other alternatives, and it avoids Greater Sage-Grouse habitat. The western four route variations cross through or are in proximity to existing agriculture and residences. Variations S3-B2 and S3-B3 were developed to avoid agricultural land in the area west of Flagstaff Hill, but both variations cross through the edge of Greater Sage-Grouse Priority Habitat. The easternmost route variation, the Applicant's Proposed Action Alternative (Variation S3-B1), is routed east of the NHOTIC and crosses Greater Sage-Grouse Priority Habitat. All of the route variations in this area (except the Timber Canyon Alternative) would highly affect the views from the NHOTIC. Variation S3-B4 (environmentally preferable) would be located adjacent to the existing 230-kV line at the edge of development in Baker Valley thus reducing the extent of change (visual contrast) within the viewshed. Variation S3-B4 would result in reduced impacts on scenic quality based on its parallel alignment with the existing 230-kV transmission line that already has modified the existing landscape setting.

Continuing south, the environmentally preferable action alternative parallels and is colocated closer to the existing 138-kV transmission line to about the point where the alternative route crosses Interstate 84. At this point, the environmentally preferable action alternative is Variation S3-C5, which does not parallel existing linear facilities. Variation S3-C5 was developed in response to comments on the Draft EIS in coordination with Baker County to reduce impacts on agricultural land uses, high-value soils for agricultural use, and privately owned lands in and around the community of Durkee. The route variation does cross through the edge of Bighorn Sheep Occupied Range. The route variation to the west (Variation S3-C6) is similar to the environmentally preferable action alternative route variation—it also does not parallel existing linear facilities and was developed in response to comments on the Draft EIS for similar reasons. However, Variation S3-C6 crosses Greater Sage-Grouse General Habitat and crosses slightly more of Bighorn Sheep Occupied Range.

By siting Variation S3-B4 away from the community of Durkee, trail resources, including a contributing trail segment and the NPS auto tour route (Interstate 84), would be avoided, thereby reducing the extent of impacts on the Oregon Trail compared to the other alternatives. Since Variation S3-B4 does

not parallel Interstate 84 in proximity to Durkee and is not adjacent to an existing transmission line, and instead, traverses steeply rolling hills that are mostly undeveloped, this route would result in increased impacts on landscape character and scenic quality compared to the other alternatives. Impacts on residential views in Durkee and views from Interstate 84 would be reduced by selecting this route west of the community and interstate highway.

2.6.1.4 SEGMENT 4—BROGAN

The environmentally preferable action alternative in Segment 4 is the Tub Mountain South Alternative with Variation S4-A2. Along the northern portion of Segment 4, all three alternative routes parallel the existing 138-kV line; however, Variations S4-A2 and S4-A3 are colocated closer to the existing line than the Applicant's Proposed Action Alternative (or Variation S4-A1). Overall, the Tub Mountain Alternative is environmentally preferable because of less impact on Greater Sage-Grouse habitat than the Applicant's Proposed Action Alternative or Willow Creek Alternative.

The Tub Mountain South Alternative (environmentally preferable action alternative) was developed before the Draft EIS to avoid Greater Sage-Grouse habitat. The environmentally preferable action alternative would have the least impact on Greater Sage-Grouse habitat, as it largely avoids PHMA. Where PHMA is crossed, the alternative route follows the outer edge of the PHMA, which is closer to anthropogenic disturbances and, thus, represents a lower quality habitat. The environmentally preferable action alternative also crosses less GMHA than the Applicant's Proposed Action Alternative and Willow Creek Alternative and crosses a fewer number of leks (within 3.1 miles) than the other two routes. The entire length of the Applicant's Proposed Action Alternative crosses Greater Sage-Grouse habitat; approximately 20 miles of the alternative route cross Priority Habitat and approximately 19 miles cross General Habitat. The Willow Creek Alternative crosses through approximately 16 miles of Greater Sage-Grouse Priority Habitat (in a more peripheral area of the habitat) and approximately 15 miles of General Habitat. Crossing through the Priority Habitat would result in an irreversible high impact on the habitat.

The northern portion of the environmentally preferable action alternative parallels Interstate 84, parallels the existing 138-kV transmission line in the area of Farewell Bend, and uses segments of West-Wide Energy Corridors and BLM-designated utility corridors to the extent practicable. While the Applicant's Proposed Action Alternative would result in less impact on agricultural lands and other land uses, the environmentally preferable action alternative crosses through an area of center-pivot and other irrigated agricultural land northwest of Jamieson and along the southern portion of the route. This alternative route could disrupt and/or alter agricultural practices in the area.

Along the environmentally preferable action alternative, views from the Birch Creek Interpretive Site (in the Oregon Trail ACEC), adjacent to contributing trail segments and Alkali Springs high-potential route segment also would be highly affected. Views from the NPS auto tour route (Interstate 84) would be highly affected by all three of the alternative routes.

The environmentally preferable action alternative would result in the least amount of impact on landscape character and scenic quality since an existing transmission line would be paralleled for a

greater distance than the other alternatives, and because a greater amount of agricultural and ranching landscapes, with existing cultural modifications would be crossed. Compared to the Applicant's Proposed Action Alternative and the Willow Creek Alternative, impacts on views would be increased based on the environmentally preferable action alternative's parallel alignments with the Interstate 84 viewing platform.

Compared to the other alternative routes, the environmentally preferable action alternative would affect the highest number of previously recorded cultural resource sites and crosses more miles of high cultural resource sensitivity. The environmentally preferable action alternative would result in unavoidable, substantial impacts on the Oregon Trail NHT and trail-associated cultural resources (prehistoric and historic), including ACECs and areas of Native American concern. Compensatory mitigation is discussed in Appendix C.

2.6.1.5 SEGMENT 5—MALHEUR

The environmentally preferable action alternative in Segment 5 is the Applicant's Proposed Action Alternative with Variation S5-B2 and is the same as the Agency Preferred Alternative. The alternative route crosses approximately 29.6 miles of BLM-administered land, 0.6 mile of Reclamation-administered land, and 10.5 miles of private land.

This environmentally preferable action alternative would have the least effect on Greater Sage-Grouse, as it largely avoids GHMA. Where GHMA is crossed, the route follows the outer edge of GHMA, which is closer to anthropogenic disturbances and, thus, represents lower quality habitat. This alternative would have the least impact on Columbia spotted frog, as it crosses less habitat than the other alternative routes.

North of Double Mountain, the route crosses private land to avoid crossing lands with wilderness characteristics to the south of the route. (Variation S5-A2, which crosses BLM-administered land to the south, crosses lands with wilderness characteristics.) At the crossing of the Owyhee River, the BLM developed an alternative routing to the east and out of the area identified by the BLM as suitable for designation as a National WSR (whereas, the Applicant's Proposed Action Alternative crosses the area suitable for WSR). Also, just north of the river crossing, the Applicant's Proposed Action Alternative enters and remains within a BLM-designated utility corridor nearly to the end of Segment 5, where it joins the environmentally preferable action alternative and is within a West-wide Energy Corridor at the southern end of Segment 5.

Along the southern portion of Segment 5, both the Malheur S and Malheur A alternative routes are located along the edges of (within or closely parallel to) a West-wide Energy Corridor, within which is an existing 500-kV transmission line. However, both Malheur S and Malheur A alternative routes cross the Owyhee River in the area identified by the BLM as suitable for designation as a National WSR.

Since there are no high-potential historic sites, high-potential historic segments, portions of the NPS auto tour route, or contributing trail segments for the Oregon NHT in Segment 5, the Oregon NHT would be affected minimally.

This route would result in the greatest amount of impact in landscape character and scenic quality since mostly undeveloped landscapes would be traversed, and this route does not parallel the existing 500-kV line, which has already modified existing settings in the vicinity of the Malheur A and Malheur S alternatives. However, this route would result in reduced impacts on the Owyhee River landscape by siting the route farther to the east in the setting of agricultural lands, as compared to the Applicant's Proposed Action Alternative. Impacts on recreation views would be reduced along this alternative compared to the other alternative routes because the Owyhee River would be crossed at the mouth of the canyon (based on the alignment of S5-B2 [environmentally preferable]). Impacts on residential viewers, located on the agricultural lands northeast of the Owyhee River, would be increased since more residences would have views of the transmission line.

This alternative potentially would affect the lowest number of previously recorded cultural resource sites. However, the potential for affecting a greater number of known, high-sensitivity sites is higher along this alternative route than along Malheur A and Malheur S alternatives.

2.6.1.6 SEGMENT 6—TREASURE VALLEY

The environmentally preferable action alternative in Segment 6 is a combination of the Applicant's Proposed Action Alternative and Variations S6-A2 and S6-B2. Overall, the route variations would result in comparable impacts on the environment; therefore, the environmentally preferable action alternative route is located within and along the southern edge of the BLM-designated utility corridor and the West-wide Energy Corridor to maximize future use of this corridor.

The route variations of this alternative route, along with the other route variations, cross Greater Sage-Grouse Important Habitat Management Area (IHMA) in Idaho and do not cross GHMA, PHMA, and no leks occur within 3.1 miles. The IHMA crossed by Variations S6-A2 of this alternative route are not identified as lands used by Greater Sage-Grouse, but are lands that serve as management buffers for PHMA and to connect patches of PHMA. Therefore, identifiable impacts on Greater Sage-Grouse habitat in IHMA would not be expected. Variation S6-B2 is further from the existing 500-kV transmission line than Variation S6-B1 and is farther from the edge of IMHA, and therefore may be located in an area of higher-quality habitat. The route variations of this alternative route would have the least impact on Columbia spotted frog, as it crosses less habitat overall than the other route variations.

The environmentally preferable action alternative is within and along the edge of the BLM-designated utility corridor and the West-wide Energy Corridor.

Variation S6-B2 crosses approximately 1.1 miles less farmland of statewide importance than S6-B1.

There would be no key issues associated with NHT since views from the high-potential historic site (Givens Hot Spring) would be affected minimally by the B2H Project where it would parallel an existing 500-kV transmission line that is already located closer to the historic site. Based on the alignment of Variation S5-B2, these effects would be reduced because the B2H Project components would be located farther from the historic site.

The environmentally preferable action alternative generally parallels an existing 500-kV transmission line. In some areas, due to skylining of transmission line structures, the transmission line would highly affect scenic quality. Moderate impacts on views from residences along Jump Creek Road and Poison Creek Road, as well as on views from recreation viewing platforms, would occur along this route, which would be similar for the other variations in Segment 6.

Variation S6-A2 is closer to two cultural resources (Poison Creek Stage Station, Graveyard Point) than S6-A1. Variation S6-B1 crosses approximately 1.1 miles more farmland of statewide importance than S6-B2 and crosses a NRHP-eligible multi-component cultural site, while Variation S6-B2 crosses along the edge of Greater Sage-Grouse IHMAs for approximately 2.0 miles more than Variation S6-B1.

2.7 APPLICANT’S PROPOSED ACTION ALTERNATIVE

The Applicant’s Proposed Action Alternative was selected by the Applicant based on a combination of several factors, including system planning and reliability, engineering feasibility and constructability, costs, safety, and landowner concerns. Between late 2008 and 2010, the Applicant developed “a strategic public process to find a route that would be acceptable to both the Applicant and the communities in eastern Oregon and southwestern Idaho.” “Through the Community Advisory Process, Idaho Power hosted 27 Project Advisory Team meetings, 15 public meetings and 7 special topic meetings. In all, nearly 1,000 people were involved in the Community Advisory Process either through Project Advisory Team activities or public meetings” (Idaho Power Company 2011:4). The Applicant avoided more densely populated areas when possible. Additionally, the Applicant is a public utility and capitalizes costs through its customers’ rate base; therefore, the Applicant strives to keep costs and the resultant impacts of new infrastructure as low as practicable for the rate payers. Through system planning and engineering studies, the Applicant considered engineering feasibility and constructability in respect to terrain and geologic hazards, which also is related to costs that would be passed onto the customer base. A criterion for siting the alternative routes was to parallel existing linear facilities to the extent practicable; however, the Applicant also had to consider the route in relation to other high-voltage transmission lines and the effect it might have on reliability. By choosing a route that has fewer high-voltage transmission lines or lines that do not share common interconnection points on the power grid improves overall reliability.

The Applicant’s Proposed Action Alternative is summarized in Table 2-17, which is a list of links that comprise the Applicant’s Proposed Action Alternative, and shown on Maps 2-11a and 2-11b.

Table 2-17. Applicant’s Proposed Action Alternative		
Segment Number	Links	Length (miles)¹
Segment 1	1-1, 1-3, 1-7,1-27, 1-35, 1-43,1-45, 1-51,1-53, 1-59, 1-60, 1-61, 1-50, 1-63, 1-65, 1-71, 1-77	91.9
Segment 2	2-1, 2-5, 2-15, 2-20, 2-30, 2-35, 2-45, 2-47, 2-50, 2-52, 2-60, 2-75, 2-85, 2-95	33.6
Segment 3	3-4, 3-22, 3-26, 3-28, 3-52, 3-54, 3-58, 3-78, 3-80, 3-82, 3-86, 3-88, 3-92	55.0
Segment 4	4-1, 4-10, 4-11, 4-13, 4-25, 4-45, 4-50, 4-65, 4-70	40.3

Table 2-17. Applicant’s Proposed Action Alternative

Segment Number	Links	Length (miles) ¹
Segment 5	5-1, 5-5, 5-10, 5-15, 5-40, 5-50, 5-55, 5-65, 5-70, 5-75	40.4
Segment 6	6-1, 6-10, 6-20, 6-25, 6-35	28.0
Total (approximate)		289.2

Table Note: ¹Mileage calculations are approximate as of March 4, 2016.

2.8 AGENCY PREFERRED ALTERNATIVE

The Agency Preferred Alternative route was identified by the BLM in coordination with the USFS and other federal, state, and local agencies (cooperating agencies) using criteria-based key resource concerns and issues, and regulation and policy. The criteria used to help identify the Agency Preferred Alternative are similar to those used to identify the environmentally preferable action alternative with additional considerations. The additional criteria include the following:

- Maximizes use of existing designated utility corridors by locating within the corridors or paralleling existing linear utility right-of-way.
- Avoids or minimizes impacts on resources that are regulated by law, after consideration of design features of the B2H Project for environmental protection and selective mitigation measures. This includes impacts on Greater Sage-Grouse.
- Avoids or minimizes impacts on resource that demonstrate potentially unavoidable adverse impacts after consideration of design features of the B2H Project for environmental protection and selective mitigation measures, even though those resources may not be regulated by law.
- Minimizes the need for plan amendments through conformance to land-use plans.
- Avoids or minimizes proximity to private residences and residential areas, thereby addressing concerns with public health and safety, aesthetics, visual effects, and others.
- Minimizes use of private lands, assuming natural resource impacts are more or less similar.
- If multiple alternatives meet the preceding criteria, the Agency Preferred Alternative would be the alternative that also minimizes technical constraints, construction, operation, and maintenance expense and/or time.

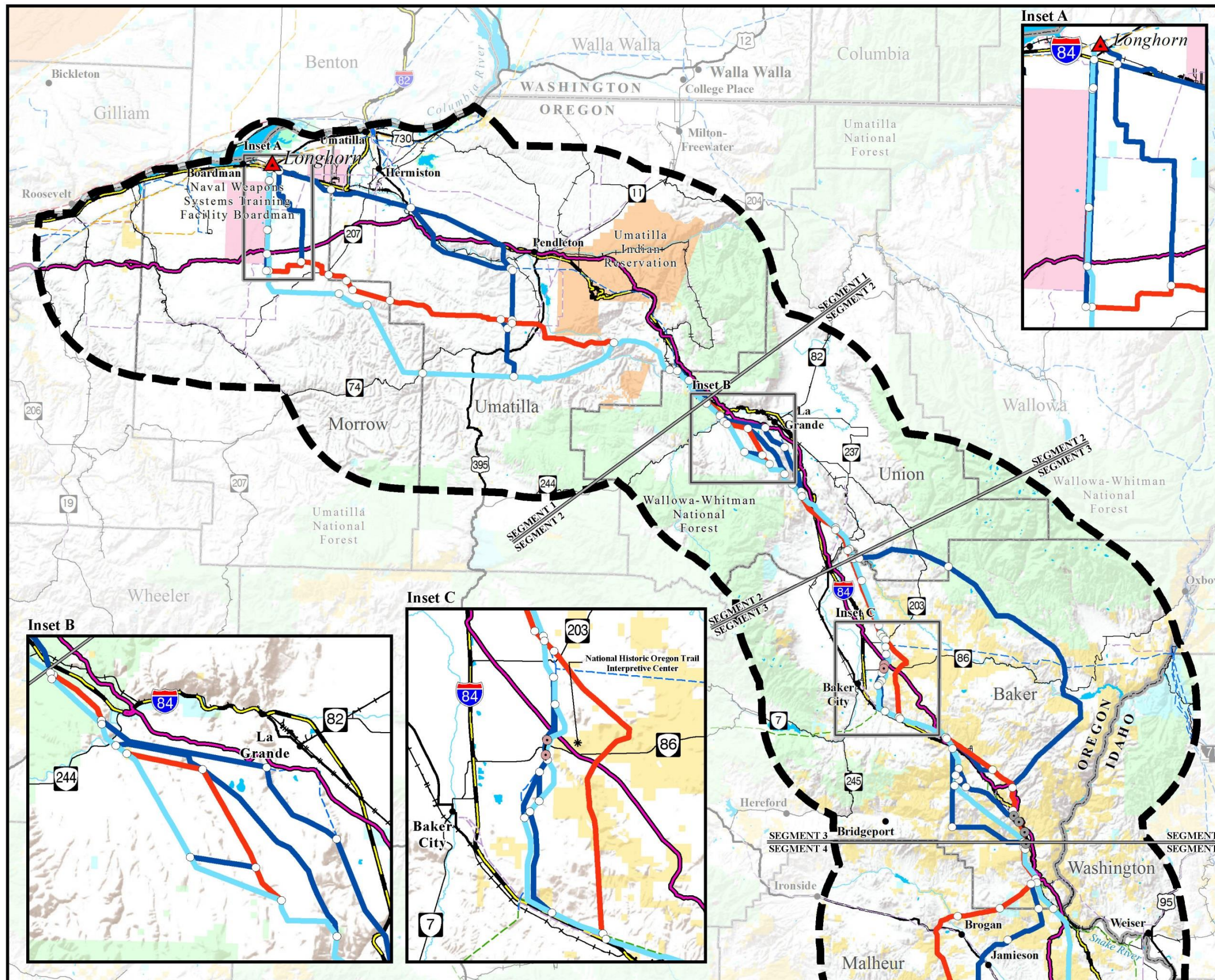
In addition, because a high percentage of the land that would be crossed by the proposed transmission line is privately owned (approximately 70 percent private or state, 30 percent federally administered), the BLM collaborated extensively with the affected counties to identify a route that would be responsive to their concerns.

The Agency Preferred Alternative is summarized in Table 2-18, which is a list of the links that comprise the Agency Preferred Alternative route by segment, and shown on Maps 2-11a and 2-11b. A description of the route follows the table.

Segment Number	Alternative Route	Link(s)	Length (miles)¹
Segment 1	West of Bombing Range Road Crossover to the East of Bombing Range Road to Southern Route Alternative	1-1, 1-3, 1-7, 1-27, 1-26a, 1-25a, 1-35, 1-36, 1-38, 1-62, 1-64, 1-66, 1-65, 1-71, 1-77	95.7
Segment 2	Glass Hill Alternative with Variations S2-A2, S2-D2, and S2-F2	2-3, 2-7, 2-15, 2-20, 2-30, 2-40, 2-46, 2050, 2-52, 2-60, 2-70, 2-80, 2-90	33.7
Segment 3	Flagstaff B – Burnt River West Alternative	3-10, 3-12, 3-14, 3-20, 3-24, 3-31, 3-37, 3-41, 3-46, 3-45, 3-44, 3-48, 3-52, 3-54, 3-56, 3-60, 3-62, 3-66, 3-71, 3-73, 3-94	55.7
Segment 4	Tub Mountain South Alternative	4-1, 4-5, 4-15, 4-17, 4-20, 4-30, 4-75	40.5
Segment 5	Applicant’s Proposed Action Alternative with Variation S5-B2	5-1, 5-5, 5-10, 5-15, 5-40, 5-45, 5-70, 5-75	40.6
Segment 6	Applicant’s Proposed Action Alternative with Variation S6-B2	6-1, 6-10, 6-20, 6-30, 6-35	27.7
Total (approximate)			293.9
<i>Table Note:</i> ¹ Mileage calculations are approximate as of March 4, 2016.			

2.8.1 SEGMENT 1 – MORROW-UMATILLA

The Agency Preferred Alternative route exits the proposed Longhorn Substation to the south, crossing the boundary of the Naval Weapons System Training Facility (NWSTF) Boardman at the northeastern corner and parallels the eastern boundary of the NWSTF Boardman on the west side of Bombing Range Road for approximately 7 miles. At that point, the route crosses over Bombing Range Road to the east, thereby avoiding the Resource Natural Area B, a Resource Management Area, and historic properties of religious and cultural significance to Indian tribes on the NWSTF Boardman. The route proceeds across the road for approximately 350 feet where it intersects with and then parallels along the east side of Bombing Range Road to the south for approximately 3.6 miles. Map 2-12 shows this portion of the alternative route. The Agency Preferred Alternative route then turns to the southeast and then south to a point where it intersects with the southernmost east-west route. This northern portion of the Agency Preferred Alternative (1) repurposes an existing use area currently occupied by the BPA 69-kV transmission line on the NWSTF Boardman (on the west side of and parallel to Bombing Range Road), (2) avoids airspace conflicts by complying with the Navy’s requested 100-foot height restriction for transmission lines along Bombing Range Road, (3) avoids and/or minimize effects on areas planned for potential wind-farm development, (4) avoids and/or minimize effects on high-value agricultural lands, and (5) and was developed and recommended through collaboration with Morrow and Umatilla counties and local stakeholders. The Agency Preferred Alternative route follows the southernmost east-west route, proposed by Morrow and Umatilla counties, to the east. The east-west section of the southern route was selected for a number of reasons. This east-west route minimizes effects on the areas of potential windfarm development and agricultural lands and, farther west, avoids the effects on an area of cultural importance to Native Americans in the area south of McKay Creek.



Map 2-11a Applicant's Proposed Action Alternative and Agency Preferred Alternative Routes (Northern Area)

BOARDMAN TO HEMINGWAY TRANSMISSION LINE PROJECT

Project Features

Project Area Boundary	Link Node
Substation (Project Terminal)	Segment Line
Applicant's Proposed Action Alternative	Flagstaff 230-kV Rebuild (Inset C)
Alternative Route	Double-circuit 138/69-kV Rebuild (Inset D)
Agency Preferred Alternative Route	

Land Ownership

Bureau of Land Management	U.S. Fish and Wildlife Service
Bureau of Reclamation	U.S. Forest Service
Indian Reservation	Other Federal
National Park Service	State Land
U.S. Department of Defense	Private Land

General Reference

City or Town	Interstate Highway
500-kV Transmission Line	U.S. Highway
345-kV Transmission Line	State Highway
230-kV Transmission Line	Lake or Reservoir
138-kV Transmission Line	State Boundary
69- to 115-kV Transmission Line	County Boundary
Railroad	Oregon National Historic Trail Congressionally Designated Alignment

SOURCES:
 Land Status, BLM 2014, 2015; Cities and Towns, ESRI 2013;
 Transmission Lines, Bonneville Power Administration 2009, Idaho Power Company 2007,
 Logan Simpson Design 2011, Ventyx 2012; Pipelines, ESRI 2012;
 Railroads, Idaho DOT 2006, Oregon DOT 2014; Highways, ESRI 2013;
 Waterbodies, ESRI 2013; State and County Boundaries, ESRI 2013;
 Oregon National Historic Trail Congressionally Designated Alignment, BLM 2015

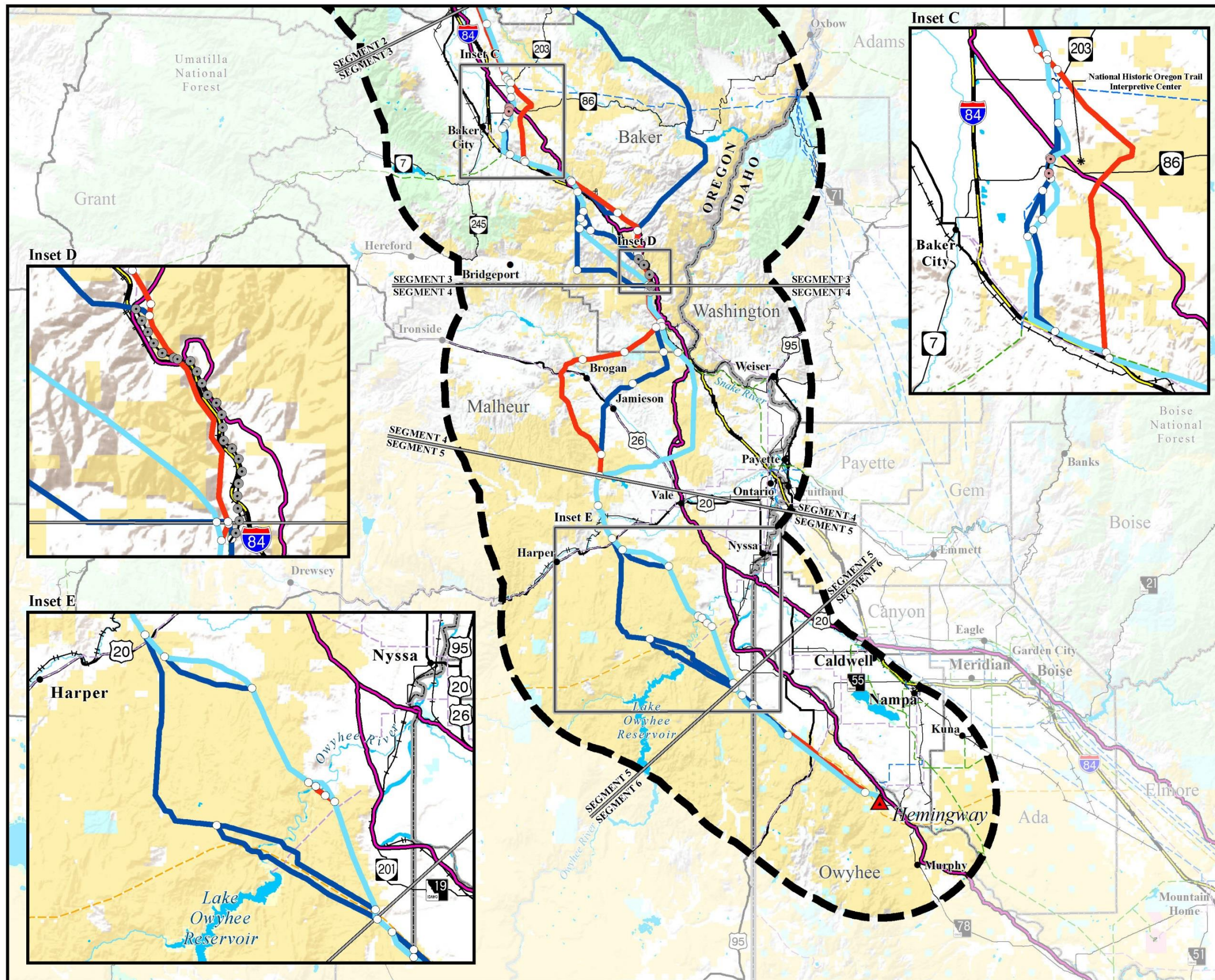
NOTES:

- The alternative routes shown on this map are draft and may be revised or refined throughout the development of the project.
- Substation symbols do not necessarily represent precise locations.
- The B2H Project area boundary is defined by buffering the alternative route centerlines.
- Other federal land ownership may include lands administered by the U.S. Department of Energy, Bonneville Power Administration, Federal Aviation Administration, General Services Administration, or U.S. Department of Agriculture (except U.S. Forest Service).
- Each alternative route is composed of links, which are discrete sections of the route sharing common endpoints determined by the point of intersection with other adjacent links; the common endpoint is referred to as a link node. Links generally are numbered from north to south. Similarly, a segment is composed of alternative routes that share common endpoints determined by the point of intersection with other adjacent alternative routes; the common endpoint is referred to as a segment node.
- No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.

Alternative routes last revised: February 18, 2016
 Final EIS: November 2016

0 5 10 15 30
Miles
1:950,400 or 1 inch = 15 miles

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Map 2-11b
Applicant's Proposed Action Alternative and Agency Preferred Alternative Routes (Southern Area)

BOARDMAN TO HEMINGWAY TRANSMISSION LINE PROJECT

- Project Features**
- Project Area Boundary
 - Substation (Project Terminal)
 - Applicant's Proposed Action Alternative
 - Alternative Route
 - Agency Preferred Alternative Route
 - Link Node
 - Segment Line
 - Flagstaff 230-kV Rebuild (Inset C)
 - Double-circuit 138/69-kV Rebuild (Inset D)

- Land Ownership**
- Bureau of Land Management
 - Bureau of Reclamation
 - Indian Reservation
 - National Park Service
 - U.S. Department of Defense
 - U.S. Fish and Wildlife Service
 - U.S. Forest Service
 - Other Federal
 - State Land
 - Private Land

- General Reference**
- City or Town
 - 500-kV Transmission Line
 - 345-kV Transmission Line
 - 230-kV Transmission Line
 - 138-kV Transmission Line
 - 69- to 115-kV Transmission Line
 - Railroad
 - Interstate Highway
 - U.S. Highway
 - State Highway
 - Lake or Reservoir
 - State Boundary
 - County Boundary
 - Oregon National Historic Trail Congressionally Designated Alignment

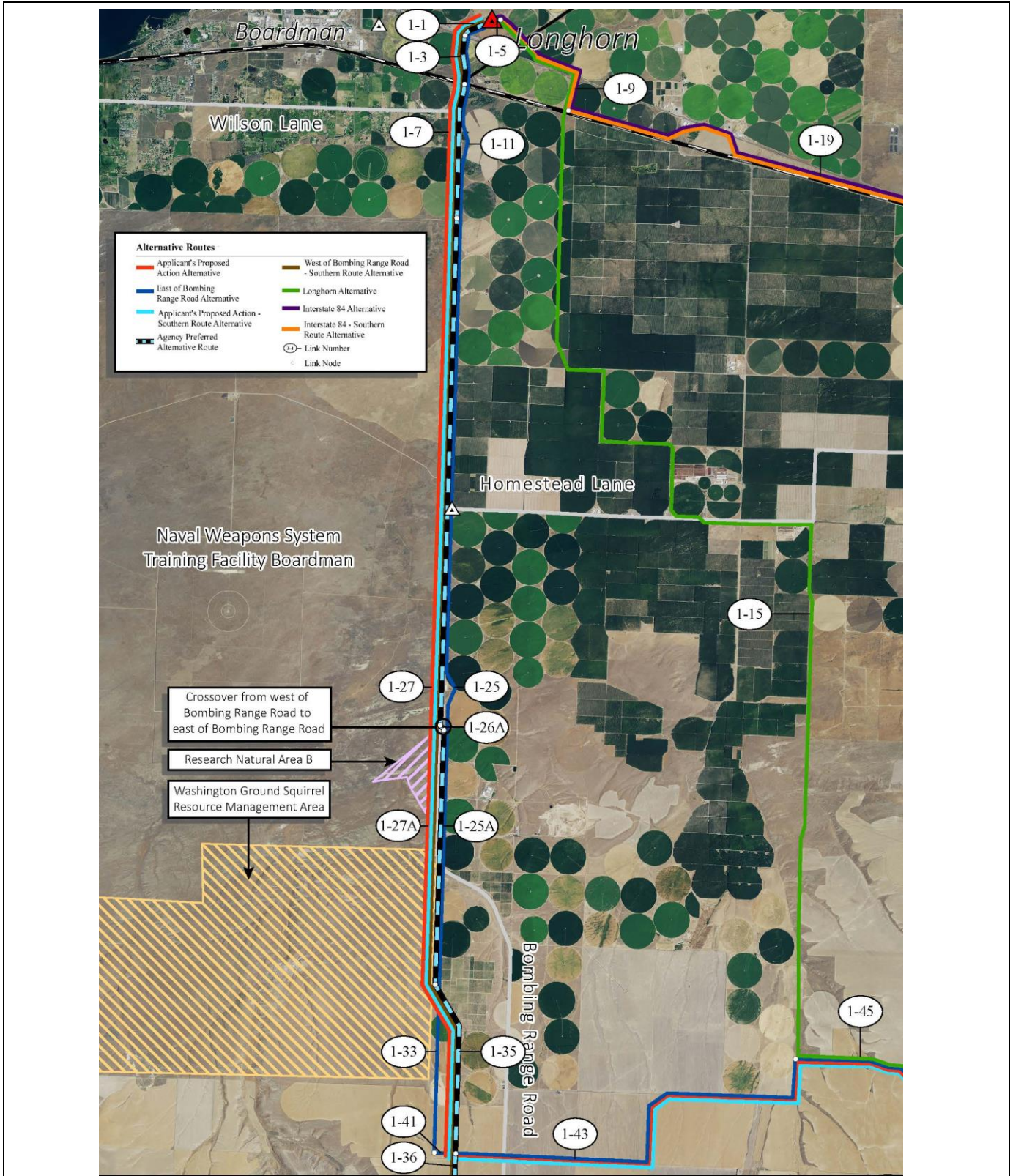
SOURCES:
 Land Status, BLM 2014, 2015; Cities and Towns, ESRI 2013;
 Transmission Lines, Bonneville Power Administration 2009, Idaho Power Company 2007,
 Logan Simpson Design 2011, Ventyx 2012; Pipelines, ESRI 2012;
 Railroads, Idaho DOT 2006, Oregon DOT 2014; Highways, ESRI 2013;
 Waterbodies, ESRI 2013; State and County Boundaries, ESRI 2013;
 Oregon National Historic Trail Congressionally Designated Alignment, BLM 2015

NOTES:

- The alternative routes shown on this map are draft and may be revised or refined throughout the development of the project.
- Substation symbols do not necessarily represent precise locations.
- The B2H Project area boundary is defined by buffering the alternative route centerlines.
- Other federal land ownership may include lands administered by the U.S. Department of Energy, Bonneville Power Administration, Federal Aviation Administration, General Services Administration, or U.S. Department of Agriculture (except U.S. Forest Service).
- Each alternative route is composed of links, which are discrete sections of the route sharing common endpoints determined by the point of intersection with other adjacent links; the common endpoint is referred to as a link node. Links generally are numbered from north to south. Similarly, a segment is composed of alternative routes that share common endpoints determined by the point of intersection with other adjacent alternative routes; the common endpoint is referred to as a segment node.
- No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.

Alternative routes last revised: February 18, 2016
 Final EIS: November 2016

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Map 2-12. Segment 1—South of Longhorn Substation

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In the southernmost portion of Segment 1, on the Wallowa-Whitman National Forest, the U.S. Forest Service (USFS) identified its preference to use of the designated utility corridor, and endorsed the route as the USFS Agency Preferred Alternative on the Forest.

2.8.2 SEGMENT 2—BLUE MOUNTAINS

The Agency Preferred Alternative in Segment 2 is the same as the environmentally preferable action alternative; that is, a combination of Variation S2-A2 on the Wallowa-Whitman National Forest, the Glass Hill Alternative with Variation S2-D2, and Variation S2-F2 along the southern portion of Segment 2.

The preference of the USFS on the Wallowa-Whitman National Forest in this northern portion of the Segment 2 is to collocate closer to the existing 230-kV transmission line within the USFS-designated utility corridor to the extent practicable (Variation S2-A2). The intent is to minimize vegetation removal and surface disturbance by using the existing service roads associated with the existing 230-kV transmission line.

Continuing on to the southeast, the environmentally preferable action alternative and Agency Preferred Alternative follow the Glass Hill Alternative, using the variation (Variation S2-D2, recommended in comments on the Draft EIS). In the area of Glass Hill, this alternative routing does not parallel existing linear facilities, but is west of and the farthest from La Grande and associated land uses and cultural resources (primarily historic sites), the Oregon NHT, associated cultural resource sites (resource issues of significance raised during scoping). Also, the Glass Hill Alternative avoids some high-value soils for potential agriculture, which exist along the other alternative routes to the east. In addition to other streams, the Glass Hill Alternative crosses steelhead, Chinook salmon, and bull trout critical habitat in the Grande Ronde River. The route crosses through elk winter range on Elk Song Ranch. Use of Variation S2-D2 would result in avoiding the high elevation (unique ecology) of Cowboy Ridge and reducing potential views of the line from Morgan Lake recreation area. The route does cross steelhead critical habitat in Rock Creek and Graves Creek.

Along the southern portion of Segment 2, the environmentally preferable and Agency Preferred Alternative route parallels the existing 230-kV transmission line (Variation S2-F2) and avoids potential effects on center-pivot and other irrigated agricultural land, reduces effects on Greater-Sage-Grouse General Habitat, and reduces effects on the Oregon NHT.

2.8.3 SEGMENT 3—BAKER VALLEY

The Agency Preferred Alternative in Segment 3 crosses interspersed private land and BLM-administered lands. Because it is not possible to locate a route entirely on BLM-administered land, the BLM collaborated with Baker County to identify route-variation options in areas of dense agriculture to minimize impacts on agricultural operations. The Agency Preferred Alternative is the Flagstaff B-Burnt River West Alternative.

In the northern portion of Segment 3, the Agency Preferred Alternative is collocated to parallel closer to an existing 230-kV transmission line and is the same as the Applicant's Proposed Action Alternative south to the Flagstaff B Variation. The Flagstaff B Variation is a combination of a portion of a route collocated closer to the existing 230-kV transmission line, the Draft EIS Flagstaff Alternative, and proposed route-variation options recommended by local stakeholders, including Baker County, as part of comments on the Draft EIS. This alternative route has been identified as the Agency Preferred Alternative because the route (1) parallels existing linear facilities along its entire length (existing 230-kV line along the northern portion and existing 138-kV line along the southernmost portion of the variation), (2) avoids and/or minimizes effects on Greater Sage-Grouse Priority Habitat, (3) avoids and/or minimizes effects on irrigated agriculture, (4) minimizes impacts on a large gravel operation, and (5) as mentioned, the route-variation option was recommended by and developed in collaboration with Baker County and other local stakeholders. From the NHOTIC, the proposed transmission line would be viewed in context with consolidated development at the edge of the Baker Valley; that is, the existing 230-kV transmission line and existing agricultural development. As is the case for all of the alternative routes west of the NHOTIC, the Agency Preferred Alternative route would have reduced cumulative effects by consolidating development at the edge of the Baker Valley compared to the Applicant's Proposed Action Alternative, which would include views of the transmission line and development to both the east and west.

At the southern end of the Flagstaff B Variation, where the alternative intersects with the Applicant's Proposed Action Alternative, the Agency Preferred Alternative is the same as the Applicant's Proposed Action Alternative – Burnt River West Variation. This segment of the Agency Preferred Alternative parallels an existing 138-kV transmission line for much of its length, avoids irrigated agriculture, avoids Greater Sage-Grouse Priority Habitat, and avoids the Straw Ranch 1 parcel of the Oregon Trail ACEC.

In the southern portion of Segment 3, the Agency Preferred Alternative is the Burnt River West Variation, a route-variation option developed in coordination with Baker County to reduce impacts on irrigated agriculture, reduce impacts on Greater Sage-Grouse General Habitat, reduce the number of freeway crossings, and reduce visual impacts on the Powell Creek Parcel of the Oregon Trail ACEC.

2.8.4 SEGMENT 4—BROGAN AREA

The Agency Preferred Alternative in Segment 4, with a mixed private and federal land-ownership pattern, is the Tub Mountain South Alternative, which was the Agency Preferred Alternative in the Draft EIS. This alternative route parallels an existing 138-kV transmission line, then parallels Interstate 84 to the area of Farewell Bend. The northern portion (along Links 4-20 and 4-21) is within a West-wide Energy Corridor and is within BLM-designated utility corridor in the area of Farewell Bend. The alternative route then turns south then southwest. This alternative route has been identified as the Agency Preferred Alternative because (1) avoids crossing most Greater Sage-Grouse Priority Habitat and (2) avoids an area of irrigated agriculture of particular concern to local stakeholders. However, there would be substantive impacts on a broad cultural landscape that includes important pre-contact and historic cultural resources extending from the Farewell Bend area to the south. Malheur County

and the Oregon Department of Fish and Wildlife and USFWS support this Agency Preferred Alternative recommendation. The CTUIR supports paralleling the transmission line and Interstate 84 to the Farewell Bend area, but preferred the route to cross over to the Willow Creek Alternative to avoid impacts on the broad cultural landscape south of the Farewell Bend area (however, the Willow Creek alternative crosses a substantive amount of Greater Sage-Grouse Priority Habitat). As part of recent comments on the alternative routes, Baker County did not express an opinion for a preferred alternative route in this area.

2.8.5 SEGMENT 5—MALHEUR

Most of the lands crossed by the alternative routes in Segment 5 are administered by the BLM with some private land interspersed. The Agency Preferred Alternative in Segment 5 is the Applicant's Proposed Action Alternative with a variation at the crossing of the Owyhee River. Without the variation, this alternative route, addressed in the Draft EIS, was developed to avoid lands with wilderness characteristics in the Double Mountain area; avoid impacts on an ACEC; use portions of the BLM-designated utility corridor along the southern portion of Segment 5; and minimize habitat fragmentation, impacts on cultural resources, and impacts on an area of the Owyhee River determined suitable for designation as a National WSR.

The variation at the crossing of the Owyhee River was developed by the BLM between the Draft and Final EIS to relocate the alignment farther to the northeast out of the area determined by the BLM suitable for designation as a National WSR. Malheur County stated it has received no input from residents in the area; therefore, Malheur County is taking a neutral position on this alternative route. The Joint Committee of the Owyhee Project and the Owyhee Irrigation District expressed concern that the transmission line crossing of the river in this area could interfere with operations, and expressed preference for the Malheur A or S alternatives. However, these alternative routes cross the river in the same corridor determined by the BLM as suitable for designation as a National WSR.

2.8.6 SEGMENT 6—TREASURE VALLEY

In Segment 6, most of the lands crossed are administered by the BLM. In the northwestern portion of the segment, the BLM's recommendation for the Agency Preferred Alternative is to use the Applicant's Proposed Action Alternative. There is mixed federal and private land ownership in this portion of the segment and the Applicant's Proposed Action would avoid crossing three additional landowners (at the request of Owyhee County where land-owner permission is required and has not been given by these three additional landowners), and to have more distance from a large cultural resource area known as Graveyard Point. In the southeastern portion of Segment 6, the BLM's recommendation for the Agency Preferred Alternative is to use the route variation, allowing for efficient use of the West-wide Energy Corridor on BLM-administered land to preserve space for future use of the corridor.

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Table 2-19. Alternative Route Comparison Summary for Earth Resources, Water Resources, Vegetation Resources, Wildlife Resources, and Fish Resources in Segment 1—Morrow-Umatilla					
Alternative Route	Earth Resources	Water Resources	Vegetation Resources	Wildlife Resources	Fish Resources
Applicant's Proposed Action	Resource Inventory (miles crossed) <ul style="list-style-type: none"> Older Quaternary faults: 0.1 mile 575 acres of high floodzone percentage 1,212 acres of moderate floodzone percentage Soils with moderate water erosion: 32.7 miles Soils with moderate wind erosion: 0.3 mile Farmlands: 15.8 miles Soils with compaction potential: 2.3 miles Areas with PFYC 3: 10.8 miles Areas with PFYC 4: 19.8 miles 	Residual Impacts <ul style="list-style-type: none"> With mitigation, only moderate residual impacts on forested wetland are anticipated <ul style="list-style-type: none"> Forested Wetland: 0.3 mile With mitigation, only low residual impacts on perennial and intermittent streams, and scrub-shrub, emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 1.4 miles Intermittent Streams: 19.8 miles Scrub-shrub Wetland: 0.5 mile Emergent Wetland: 2.0 miles Open Water: 2.3 miles Wetland permits may be required for any crossing larger than 0.2 acres of impact Crosses 1.0 mile of the Ladd Marsh Wildlife Area 	Residual Impacts <p>Vegetation Communities</p> <ul style="list-style-type: none"> 54.0 miles of moderate residual impacts where alternative route crosses Aspen, Desert Shrub, Dwarf Sagebrush, Mixed Conifer Forest, Mountain Shrub, Native Grasslands, Riparian Conservation Areas, and Tall Sagebrush Steppe Crosses a Research Natural Area on the NWSTF Boardman established to preserve remnant, high-quality Tall Sagebrush Steppe vegetation communities <p>Sensitive Plants</p> <ul style="list-style-type: none"> 10 known sensitive plant species occurrences in the 1-mile study corridor 1 sensitive plant species known to occur in the 1-mile study corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> No federally listed plants known to occur in proximity 	<p>Washington ground squirrel</p> <ul style="list-style-type: none"> 0.1 mile of high residual impacts where occupied colony avoidance areas are crossed 5.9 miles of high residual impacts where occupied colony dispersal areas are crossed 12.5 miles of moderate residual impacts where suitable habitat is crossed Occupied habitat is crossed on the NWSTF Boardman, including the edge of a Washington ground squirrel resource management area <p>Big game</p> <ul style="list-style-type: none"> 14.5 miles of low residual impacts where mule deer and elk winter range is crossed 	Resource Inventory (miles crossed) <ul style="list-style-type: none"> Bull trout critical habitat: none Chinook salmon critical habitat: none MCR steelhead critical habitat: 0.1 mile SRB steelhead critical habitat: 0.1 mile Redband trout occupied streams: 1.6 miles <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: 0.2 mile Low: 1.4 miles None: 90.3 miles With mitigation, only moderate residual impacts on steelhead protected habitats are anticipated With mitigation, only low residual impacts on redband trout occupied streams are anticipated
Variation S1-B1	Resource Inventory (miles crossed) <ul style="list-style-type: none"> Soils with moderate water erosion: 3.3 miles 	Residual Impacts <ul style="list-style-type: none"> With mitigation, only low residual impacts on perennial and intermittent streams, and emergent wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 0.2 mile Intermittent Streams: 1.8 miles Open Water: 0.1 mile Wetland permits may be required for any crossing larger than 0.2 acres of impact 	Residual Impacts <p>Vegetation Communities</p> <ul style="list-style-type: none"> 6.4 miles of moderate residual impacts where alternative route crosses Mixed Conifer Forest, Native Grasslands, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> No sensitive plant species known to occur in the 1-mile study corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> No federally listed plants known to occur in proximity 	<p>Washington ground squirrel</p> <ul style="list-style-type: none"> Occupied colony avoidance and dispersal areas or suitable habitat not crossed, impacts not expected <p>Big game</p> <ul style="list-style-type: none"> 0.7 mile of low residual impacts where mule deer and elk winter range is crossed 	Resource Inventory (miles crossed) <ul style="list-style-type: none"> Bull trout critical habitat: none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: 0.1 mile Redband trout occupied streams: 0.1 mile <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: 0.1 mile Low: none None: 6.3 miles With mitigation, only moderate residual impacts on steelhead protected habitats are anticipated
Variation S1-B2	Resource Inventory (miles crossed) <ul style="list-style-type: none"> Soils with moderate water erosion: 2.4 miles 	Residual Impacts <ul style="list-style-type: none"> With mitigation, only low residual impacts on perennial and intermittent streams, and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 0.4 mile Intermittent Streams: 1.8 miles Open Water: 0.4 mile Wetland permits may be required for any crossing larger than 0.2 acres of impact 	Residual Impacts <p>Vegetation Communities</p> <ul style="list-style-type: none"> 6.3 miles of moderate residual impacts where alternative route crosses Mixed Conifer Forest, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> No sensitive plant species known to occur in the 1-mile study corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> No federally listed plants known to occur in proximity 	<p>Washington ground squirrel</p> <ul style="list-style-type: none"> Occupied colony avoidance and dispersal areas or suitable habitat not crossed, impacts not expected <p>Big game</p> <ul style="list-style-type: none"> 1.2 miles of low residual impacts where mule deer and elk winter range is crossed 	Resource Inventory (miles crossed) <ul style="list-style-type: none"> Bull trout critical habitat: none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: 0.4 mile Redband trout occupied streams: 0.4 mile <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: 0.4 mile Low: none None: 6.0 miles With mitigation, only moderate residual impacts on steelhead protected habitats are anticipated
East of Bombing Range Road	Resource Inventory (miles crossed) <ul style="list-style-type: none"> Older Quaternary faults: 0.1 mile 574 acres of high floodzone percentage 1,212 acres of moderate floodzone percentage Soils with moderate water erosion: 31.3 miles 	Residual Impacts <ul style="list-style-type: none"> With mitigation, only moderate residual impacts on forested wetland are anticipated <ul style="list-style-type: none"> Forested Wetland: 0.3 mile With mitigation, only low residual 	Residual Impacts <p>Vegetation Communities</p> <ul style="list-style-type: none"> 49.2 miles of moderate residual impacts where alternative route crosses Aspen, Desert Shrub, Dwarf Sagebrush, Mixed Conifer Forest, Mountain Shrub, Native 	<p>Washington ground squirrel</p> <ul style="list-style-type: none"> 0.4 mile of high residual impacts where occupied colony avoidance areas are crossed 2.8 miles of high residual impacts where occupied colony dispersal areas are crossed 8.4 miles of moderate residual impacts where 	Resource Inventory (miles crossed) <ul style="list-style-type: none"> Bull trout critical habitat: none Chinook salmon critical habitat: none MCR steelhead critical habitat: 0.1 mile SRB steelhead critical habitat: 0.1 mile Redband trout occupied streams: 1.6 miles

Table 2-19. Alternative Route Comparison Summary for Earth Resources, Water Resources, Vegetation Resources, Wildlife Resources, and Fish Resources in Segment 1—Morrow-Umatilla					
Alternative Route	Earth Resources	Water Resources	Vegetation Resources	Wildlife Resources	Fish Resources
	<ul style="list-style-type: none"> • Soils with moderate wind erosion: 0.3 mile • Farmlands: 15.3 miles • Soils with compaction potential: 2.3 miles • Areas with PFYC 3: 10.8 miles • Areas with PFYC 4: 20.2 miles 	<p>impacts on perennial and intermittent streams, and scrub-shrub, emergent and open water wetlands, are anticipated</p> <ul style="list-style-type: none"> - Perennial Streams: 1.4 miles - Intermittent Streams: 19.5 miles - Scrub-shrub Wetland: 0.5 mile - Emergent Wetland: 2.1 miles - Open Water: 2.1 miles <ul style="list-style-type: none"> • Wetland permits may be required for any crossings larger than 0.2 acres of impact 	<p>Grasslands, Riparian Conservation Areas, and Tall Sagebrush Steppe</p> <p>Sensitive Plants</p> <ul style="list-style-type: none"> • 10 known sensitive plant species occurrences in the 1-mile study corridor • 1 sensitive plant species known to occur in the 1-mile study corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> • No federally listed plants known to occur in proximity 	<p>suitable habitat is crossed</p> <p>Big game</p> <ul style="list-style-type: none"> • 14.5 miles of low residual impacts where mule deer and elk winter range is crossed 	<p>Residual Impacts</p> <ul style="list-style-type: none"> • Moderate: 0.2 mile • Low: 1.4 miles • None: 90.7 miles • With mitigation, only moderate residual impacts on steelhead protected habitats are anticipated • With mitigation, only low residual impacts on redband trout occupied streams are anticipated
Applicant's Proposed Action – Southern Route	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> • Older Quaternary faults: 0.1 mile • 575 acres of high floodzone percentage • 1,212 acres of moderate floodzone percentage • Soils with moderate water erosion: 31.6 miles • Soils with moderate wind erosion: 0.3 mile • Farmlands: 12.4 miles • Soils with compaction potential: 4.4 miles • Areas with PFYC 3: 10.8 miles • Areas with PFYC 4: 16.2 miles 	<p>Residual Impacts</p> <ul style="list-style-type: none"> • With mitigation, only moderate residual impacts on forested wetland are anticipated <ul style="list-style-type: none"> - Forested Wetland: 0.7 mile • With mitigation, only low residual impacts on perennial and intermittent streams, and scrub-shrub, emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> - Perennial Streams: 1.7 miles - Intermittent Streams: 20.5 miles - Scrub-shrub Wetland: 0.7 mile - Emergent Wetland: 2.0 miles - Open Water: 4.0 miles • Most combined stream miles crossed of all alternatives • Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> • 64.6 miles of moderate residual impacts where alternative route crosses Aspen, Desert Shrub, Dwarf Sagebrush, Juniper and Mahogany Woodland, Mixed Conifer Forest, Mountain Shrub, Native Grasslands, Riparian Conservation Areas, and Tall Sagebrush Steppe • Crosses Research Natural Areas on the NWSTF established to preserve remnant, high-quality Tall Sagebrush Steppe vegetation communities <p>Sensitive Plants</p> <ul style="list-style-type: none"> • 10 known sensitive plant species occurrences in the 1-mile study corridor • 1 sensitive plant species known to occur in the 1-mile study corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> • No federally listed plants known to occur 	<p>Washington ground squirrel</p> <ul style="list-style-type: none"> • 0.1 mile of high residual impacts where occupied colony avoidance areas are crossed • 5.9 miles of high residual impacts where occupied colony avoidance areas are crossed • 13.5 miles of moderate residual impacts where suitable habitat is crossed • Occupied habitat is crossed on the NWSTF Boardman, including the edge of a Washington ground squirrel resource management area • Portions of the alternative route have not been surveyed for Washington ground squirrel, therefore additional occupied habitat could be affected <p>Big game</p> <ul style="list-style-type: none"> • 25.4 miles of low residual impacts where mule deer and elk winter range is crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> • Bull trout critical habitat: none • Chinook salmon critical habitat: none • MCR steelhead critical habitat: 0.4 mile • SRB steelhead critical habitat: 0.1 mile • Redband trout occupied streams: 1.6 miles <p>Residual Impacts</p> <ul style="list-style-type: none"> • Moderate: 0.5 mile • Low: 1.1 miles • None: 97.5 miles • With mitigation, only moderate residual impacts on steelhead protected habitats are anticipated • With mitigation, only low residual impacts on redband trout occupied streams are anticipated
West of Bombing Range Road – Southern Route	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> • Older Quaternary faults: 0.1 mile • 61 acres of high floodzone percentage • 931 acres of moderate floodzone percentage • Soils with moderate water erosion: 35.9 miles • Soils with moderate wind erosion: 0.4 mile • Farmlands: 15.1 miles • Soils with compaction potential: 7.7 miles • Leases: 0.5 mile • Areas with PFYC 3: 10.8 miles • Areas with PFYC 4: 13.4 miles 	<p>Residual Impacts</p> <ul style="list-style-type: none"> • With mitigation, only moderate residual impacts on forested wetland are anticipated <ul style="list-style-type: none"> - Forested Wetland: 0.9 mile • With mitigation, only low residual impacts on perennial and intermittent streams, and scrub-shrub, emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> - Perennial Streams: 2.4 miles - Intermittent Streams: 16.6 miles - Scrub-shrub Wetland: 0.8 mile - Emergent Wetland: 2.5 miles - Open Water: 3.8 miles • Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> • 69.0 miles of moderate residual impacts where alternative route crosses Aspen, Desert Shrub, Dwarf Sagebrush, Juniper and Mahogany Woodland, Mixed Conifer Forest, Mountain Shrub, Native Grasslands, Riparian Conservation Areas, and Tall Sagebrush Steppe • Crosses Research Natural Areas on the NWSTF established to preserve remnant, high-quality Tall Sagebrush Steppe vegetation communities <p>Sensitive Plants</p> <ul style="list-style-type: none"> • 1 known sensitive plant species occurrence in the 1-mile study corridor • 1 sensitive plant species known to occur in the 1-mile study corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> • No federally listed plants known to occur in proximity 	<p>Washington ground squirrel</p> <ul style="list-style-type: none"> • 3.8 miles of high residual impacts where occupied colony avoidance areas are crossed • 13.9 miles of moderate residual impacts where suitable habitat is crossed • Occupied colony avoidance areas are not crossed • Occupied habitat is crossed on the NWSTF Boardman, including the edge of a Washington ground squirrel resource management area • Portions of the alternative route have not been surveyed for Washington ground squirrel, therefore additional occupied habitat could be affected <p>Big game</p> <ul style="list-style-type: none"> • 51.7 miles of low residual impacts where mule deer and elk winter range is crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> • Bull trout critical habitat: none • Chinook salmon critical habitat: none • MCR steelhead critical habitat: 0.7 mile • SRB steelhead critical habitat: 0.1 mile • Redband trout occupied streams: 2.0 miles <p>Residual Impacts</p> <ul style="list-style-type: none"> • Moderate: 0.8 mile • Low: 1.2 miles • None: 93.6 miles • With mitigation, only moderate residual impacts on steelhead protected habitats are anticipated • With mitigation, only low residual impacts on redband trout occupied streams are anticipated

Table 2-19. Alternative Route Comparison Summary for Earth Resources, Water Resources, Vegetation Resources, Wildlife Resources, and Fish Resources in Segment 1—Morrow-Umatilla					
Alternative Route	Earth Resources	Water Resources	Vegetation Resources	Wildlife Resources	Fish Resources
Longhorn	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> • Older Quaternary faults: 0.1 mile • 575 acres of high floodzone percentage • 1,998 acres of moderate floodzone percentage • Soils with moderate water erosion: 29.5 miles • Soils with moderate wind erosion: 7.3 miles • Farmlands: 13.7 miles • Soils with compaction potential: 2.3 miles • Leases: 2.9 miles • Areas with PFYC 3: 13.2 miles • Areas with PFYC 4: 13.7 miles 	<p>Residual Impacts</p> <ul style="list-style-type: none"> • With mitigation, only moderate residual impacts on forested wetland are anticipated <ul style="list-style-type: none"> – Forested Wetland: 0.1 mile • With mitigation, only low residual impacts on perennial and intermittent streams, and scrub-shrub, emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> – Perennial Streams: 1.5 miles – Intermittent Streams: 17.4 miles – Scrub-shrub Wetland: 0.5 mile – Emergent Wetland: 2.5 miles – Open Water: 1.9 miles • Least total miles of forested wetlands crossed of all alternatives • Wetland permits may be required for any crossing larger than 0.2 acres 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> • 48.2 miles of moderate residual impacts where alternative route crosses Aspen, Desert Shrub, Dwarf Sagebrush, Mixed Conifer Forest, Mountain Shrub, Native Grasslands, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> • 9 known sensitive plant species occurrences in the 1-mile study corridor • 1 sensitive plant species known to occur in the 1-mile study corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> • No federally listed plants known to occur in proximity 	<p>Washington ground squirrel</p> <ul style="list-style-type: none"> • 0.4 mile of high residual impacts where occupied colony avoidance areas are crossed • 3.9 miles of high residual impacts where occupied colony dispersal areas are crossed • 6.2 miles of moderate residual impacts where suitable habitat is crossed <p>Big game</p> <ul style="list-style-type: none"> • 14.5 miles of low residual impacts where mule deer and elk winter range is crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> • Bull trout critical habitat: none • Chinook salmon critical habitat: none • MCR steelhead critical habitat: 0.1 mile • SRB steelhead critical habitat: 0.1 mile • Redband trout occupied streams: 1.6 miles <p>Residual Impacts</p> <ul style="list-style-type: none"> • None: 86.6 miles • Low: 1.4 miles • Moderate: 0.2 mile • With mitigation, only moderate residual impacts on steelhead protected habitats are anticipated • With mitigation, only low residual impacts on redband trout occupied streams are anticipated
Interstate 84	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> • Older Quaternary faults: 0.1 mile • 6,014 acres of high floodzone percentage • 6,198 acres of moderate floodzone percentage • Soils with moderate water erosion: 18.7 miles • Soils with moderate wind erosion: 5.9 miles • Farmlands: 7.6 miles • Soils with compaction potential: 2.3 miles • Leases: 0.4 mile • Areas with PFYC 3: 22.9 miles • Areas with PFYC 4: 3.6 miles 	<p>Residual Impacts</p> <ul style="list-style-type: none"> • With mitigation, only moderate residual impacts on forested wetland are anticipated <ul style="list-style-type: none"> – Forested Wetland: 0.1 mile • With mitigation, only low residual impacts on perennial and intermittent streams, and scrub-shrub, emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> – Perennial Streams: 1.7 miles – Intermittent Streams: 13.1 miles – Scrub-shrub Wetland: 0.8 mile – Emergent Wetland: 2.9 miles – Open Water: 4.8 miles • Fewest combined stream miles crossed of all alternatives • Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> • 44.5 miles of moderate residual impacts where alternative route crosses Aspen, Dwarf Sagebrush, Mixed Conifer Forest, Mountain Shrub, Native Grasslands, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> • 2 known sensitive plant species occurrences in the 1-mile study corridor • 1 sensitive plant species known to occur in the 1-mile study corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> • No federally listed plants known to occur in proximity 	<p>Washington ground squirrel</p> <ul style="list-style-type: none"> • 4.9 miles of moderate residual impacts where suitable habitat is crossed • Surveys for Washington ground squirrel have not been completed, therefore occupancy is unknown <p>Big game</p> <ul style="list-style-type: none"> • 14.5 miles of low residual impacts where mule deer and elk winter range is crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> • Bull trout critical habitat: 0.2 mile • Chinook salmon EFH: 0.3 mile • MCR steelhead critical habitat: 0.3 mile • SRB steelhead critical habitat: 0.1 mile • Redband trout occupied streams: 2.0 miles <p>Residual Impacts:</p> <ul style="list-style-type: none"> • Moderate: 0.5 mile • Low: 1.5 miles • None: 82.7 miles • With mitigation, only moderate residual impacts on Chinook salmon, steelhead, and bull trout protected habitats are anticipated • With mitigation, only low residual impacts on redband trout occupied streams are anticipated
Variation S1-A1	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> • 1087 acres of high floodzone percentage • 4,342 acres of moderate floodzone percentage • Soils with moderate water erosion: 2.2 miles • Farmlands: 0.7 mile • Areas with PFYC 3: 5.9 miles 	<p>Residual Impacts</p> <ul style="list-style-type: none"> • With mitigation, only low residual impacts on perennial and intermittent streams, and open water wetlands, are anticipated <ul style="list-style-type: none"> – Perennial Streams: 0.2 mile – Intermittent Streams: 3.0 miles – Open Water: 0.6 mile • Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> • 3.2 miles of moderate residual impacts where alternative route crosses Native Grasslands, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> • 2 known sensitive plant species occurrences in the 1-mile study corridor • 1 sensitive plant species known to occur in the 1-mile study corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> • No federally listed plants known to occur in proximity 	<p>Washington ground squirrel</p> <ul style="list-style-type: none"> • 1.0 mile of moderate residual impacts where suitable habitat is crossed • Surveys for Washington ground squirrel have not been completed, therefore occupancy is unknown <p>Big game</p> <ul style="list-style-type: none"> • Big game habitats would not be crossed, no impacts expected 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> • Bull trout critical habitat: 0.1 mile • Chinook salmon EFH: 0.2 mile • MCR steelhead critical habitat: 0.1 mile • SRB steelhead critical habitat: none • Redband trout occupied streams: 0.6 mile <p>Residual Impacts</p> <ul style="list-style-type: none"> • Moderate: 0.2 mile • Low: 0.4 mile • None: 17.9 miles • With mitigation, only moderate residual impacts on Chinook salmon, steelhead, and bull trout protected habitats are anticipated • With mitigation, only low residual impacts on redband trout occupied streams are anticipated

Table 2-19. Alternative Route Comparison Summary for Earth Resources, Water Resources, Vegetation Resources, Wildlife Resources, and Fish Resources in Segment 1—Morrow-Umatilla					
Alternative Route	Earth Resources	Water Resources	Vegetation Resources	Wildlife Resources	Fish Resources
Variation S1-A2	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> 4,544 acres of high floodzone percentage 2,505 acres of moderate floodzone percentage Soils with moderate water erosion: 12.6 miles Soils with moderate wind erosion: 0.2 mile Farmlands: 3.6 miles Areas with PFYC 3: 4.5 miles 	<p>Total Residual Impacts (miles)</p> <ul style="list-style-type: none"> With mitigation, only low residual impacts on perennial and intermittent streams, and scrub-shrub, emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 0.2 mile Intermittent Streams: 3.8 miles Scrub-shrub Wetland: 0.1 mile Emergent Wetland: 0.1 mile Open Water: 0.9 mile Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> 11.2 miles of moderate residual impacts where alternative route crosses Riparian Conservation Areas and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> 2 known sensitive plant species occurrences in the 1-mile study corridor 2 sensitive plant species known to occur in the 1-mile study corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> No federally listed plants known to occur in proximity 	<p>Washington ground squirrel</p> <ul style="list-style-type: none"> 11.0 miles of moderate residual impacts where suitable habitat is crossed Surveys for Washington ground squirrel have not been completed, therefore occupancy is unknown <p>Big game</p> <ul style="list-style-type: none"> Big game habitats would not be crossed, no impacts expected 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Bull trout critical habitat: 0.2 mile Chinook salmon EFH: 0.2 mile MCR steelhead critical habitat: 0.2 mile SRB steelhead critical habitat: none Redband trout occupied streams: 0.3 mile <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: 0.2 mile Low: 0.1 mile None: 18.2 miles With mitigation, only moderate residual impacts on Chinook salmon, steelhead, and bull trout protected habitats are anticipated With mitigation, only low residual impacts on redband trout occupied streams are anticipated
Interstate 84 – Southern Route	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Older Quaternary faults: 0.1 mile 6,014 acres of high floodzone percentage 5,412 acres of moderate floodzone percentage Soils with moderate water erosion: 17.8 miles Soils with moderate wind erosion: 5.9 miles Farmlands: 4.6 miles Soils with compaction potential: 4.4 miles Leases: 0.4 mile Areas with PFYC 3: 22.9 miles 	<p>Residual Impacts</p> <ul style="list-style-type: none"> With mitigation, only moderate residual impacts on forested wetland are anticipated <ul style="list-style-type: none"> Forested Wetland: 0.5 mile With mitigation, only low residual impacts on perennial and intermittent streams, and scrub-shrub, emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 2.0 miles Intermittent Streams: 14.4 miles Scrub-shrub Wetland: 1.0 mile Emergent Wetland: 2.9 miles Open Water: 6.4 miles Greatest amount of total impacts on wetlands of all alternatives Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> 55.1 miles of moderate residual impacts where alternative route crosses Aspen, Dwarf Sagebrush, Juniper and Mahogany Woodland, Mixed Conifer Forest, Mountain Shrub, Native Grasslands, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> 2 known sensitive plant species occurrences in the 1-mile study corridor 1 sensitive plant species known to occur in the 1-mile study corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> No federally listed plants known to occur in proximity 	<p>Washington ground squirrel</p> <ul style="list-style-type: none"> 6.0 miles of moderate residual impacts where suitable habitat is crossed Surveys for Washington ground squirrel have not been completed, therefore occupancy is unknown <p>Big game</p> <ul style="list-style-type: none"> 25.4 miles of low residual impacts where mule deer and elk winter range is crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Bull trout critical habitat: 0.2 mile Chinook salmon critical habitat: 0.3 mile MCR steelhead critical habitat: 0.6 mile SRB steelhead critical habitat: 0.1 mile Redband trout occupied streams: 2.0 miles <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: 0.2 mile Low: 1.4 miles None: 86.6 miles With mitigation, only moderate residual impacts on Chinook salmon, steelhead, and bull trout protected habitats are anticipated With mitigation, only low residual impacts on redband trout occupied streams are anticipated
<p>Table Note:</p> <p>ACEC = area of critical environmental concern</p> <p>APE = area of potential effects</p> <p>BLM = Bureau of Land Management</p> <p>CAFO = confined animal feeding operation</p> <p>CRP = Conservation Reserve Program</p> <p>EFH = essential fish habitat</p> <p>EFU = exclusive farm use</p> <p>FAA = Federal Aviation Authority</p> <p>MCR = Middle Columbia River</p>			<p>NHT = national historic trail</p> <p>NWSTF = Naval Weapons Systems Training Facility</p> <p>P = Private</p> <p>PFYC = Potential Fossil Yield Classification System (BLM classification system)</p> <p>ROS = recreation opportunity spectrum</p> <p>SEORMP = Southeastern Oregon Resource Management Plan</p> <p>SRB = Snake River Basins</p> <p>VRM = visual resource management</p> <p>WSR = Wild and Scenic River</p>		

Table 2-20. Alternative Route Comparison Summary for Land Use, Agriculture, Recreation, Transportation, Lands with Wilderness Characteristics and Potential Congressional Designations in Segment 1—Morrow-Umatilla

Alternative Route	Land Use			Summary	Agriculture	Recreation	Transportation	Lands with Wilderness Characteristics	Potential Congressional Designations
	Land Ownership (Percent)	Percent within Utility Corridors	Total Miles of Parallel Facilities within 2,000 feet						
Applicant's Proposed Action	BLM: 0.1 DOD: 10.6 USFS: 4.5 P: 76.7	4.6	75.1	<p>Existing Land Use</p> <ul style="list-style-type: none"> No high residual impacts 49.5 miles of moderate residual impacts where the alternative route crosses agricultural and forest/woodlands and near residences and other structures 6 residential buildings within right-of-way <p>Zoning</p> <ul style="list-style-type: none"> Crosses 64.0 miles of EFU zoning <p>Military Training Lands</p> <ul style="list-style-type: none"> Crosses 15.1 miles of special use airspace Potential to create restrictions in aircraft movement during training Requires obstruction evaluation/airport airspace analysis in coordination with the FAA Located within a 90-foot-wide use area currently occupied by a 69-kV transmission line owned by BPA Requires repurposing the 90-foot-wide easement (currently used by BPA) Require the development of a new land-use agreement <p>Special Designated Areas</p> <ul style="list-style-type: none"> Crosses 1.3 miles of the RNA – B on NWTSF Boardman which is not consistent with Navy management for the area as identified in the INRMP and underlying governing requirements of designated ecological reserves. 	<p>Existing Agriculture</p> <ul style="list-style-type: none"> 4.4 miles of high residual impacts where the alternative crosses pivot irrigation (one center pivot could not be spanned) 30.5 miles of moderate residual impacts where the alternative crosses flood irrigation, other mechanized irrigation, fallow/idle cropland, field crops, orchards of fruit and tree nuts, and vegetable operations <p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> Crosses 28.8 miles of Prime Farmland if irrigated, 38.9 miles of farmland of statewide importance, and 30.4 miles of high-value soils Crosses 355 acres of CRP lands <p>Livestock Grazing</p> <ul style="list-style-type: none"> Crosses 4.6 miles of grazing allotments 	<ul style="list-style-type: none"> Crosses 0.3 mile of moderate impacts where the alternative crosses Blue Mountain Forest State Scenic Corridor Day Use Area 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No lands with wilderness characteristics are present 	<ul style="list-style-type: none"> No potential congressional designations are present
Variation S1-B1	BLM: 0.1 USFS: 4.5 P: 1.8	65.6	6.4	<p>Existing Land Use</p> <ul style="list-style-type: none"> No high residual impacts 6.2 miles of moderate residual impacts where the route variation crosses forest/woodlands and near residences 1 residential building within right-of-way <p>Zoning Not crossed</p> <p>Military Training Lands Not crossed</p> <p>Special Designated Areas Not crossed</p>	<p>Existing Agriculture</p> <ul style="list-style-type: none"> No high or moderate residual impacts expected <p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> No high-value soils crossed <p>Livestock Grazing</p> <ul style="list-style-type: none"> Crosses 4.6 miles of grazing allotments 	<ul style="list-style-type: none"> Crosses 0.3 mile of moderate impacts where the alternative crosses Blue Mountain Forest State Scenic Corridor Day Use Area 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No lands with wilderness characteristics are present 	<ul style="list-style-type: none"> No potential congressional designations are present
Variation S1-B2	USFS: 3.7 P: 2.7	57.8	6.4	<p>Existing Land Use</p> <ul style="list-style-type: none"> No high residual impacts 5.9 miles of moderate residual impacts where the route variation crosses forest/woodlands No residential buildings within right-of-way <p>Zoning Not crossed</p> <p>Military Training Lands Not crossed</p> <p>Special Designated Areas Not crossed</p>	<p>Existing Agriculture</p> <ul style="list-style-type: none"> No high or moderate residual impacts expected <p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> No high-value soils crossed <p>Livestock Grazing</p> <ul style="list-style-type: none"> Crosses 3.7 miles of grazing allotments 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No lands with wilderness characteristics are present 	<ul style="list-style-type: none"> No potential congressional designations are present

Table 2-20. Alternative Route Comparison Summary for Land Use, Agriculture, Recreation, Transportation, Lands with Wilderness Characteristics and Potential Congressional Designations in Segment 1—Morrow-Umatilla									
Alternative Route	Land Use				Agriculture	Recreation	Transportation	Lands with Wilderness Characteristics	Potential Congressional Designations
	Land Ownership (Percent)	Percent within Utility Corridors	Total Miles of Parallel Facilities within 2,000 feet	Summary					
East of Bombing Range Road	BLM: 0.1 USFS: 4.5 P: 85.8	4.2	76.4	<p>Existing Land Use</p> <ul style="list-style-type: none"> No high residual impacts 55.6 miles of moderate residual impacts where the alternative route crosses agricultural and forest/woodlands and near residences and other structures 1 residential building within right-of-way <p>Zoning</p> <ul style="list-style-type: none"> Crosses 75.2 miles of EFU zoning <p>Military Training Lands</p> <ul style="list-style-type: none"> Crosses 15.2 miles of special use airspace Potential to create restrictions in aircraft movement during training Requires obstruction evaluation/airport airspace analysis in coordination with the FAA Would be built on privately owned (and small portion of state) land east of Bombing Range Road Colocated with existing end-user connection 115-kV transmission line <p>Special Designated Areas: Not crossed</p>	<p>Existing Agriculture</p> <ul style="list-style-type: none"> 11.3 miles of high residual impacts where the alternative crosses pivot irrigation and tree farms (23 center pivots could not be spanned) 31.1 miles of moderate residual impacts where the alternative crosses flood and other mechanized irrigation, fallow/idle cropland, field crops, vegetables, and orchards of fruit and tree nuts <p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> Crosses 29.9 miles of Prime Farmland if irrigated, 38.4 miles of farmland of statewide importance, and 31.6 miles of high-value soils Crosses 355 acres of CRP lands <p>Livestock Grazing</p> <ul style="list-style-type: none"> Crosses 4.6 miles of grazing allotments 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No lands with wilderness characteristics are present 	<ul style="list-style-type: none"> No potential congressional designations are present
Applicant's Proposed Action – Southern Route	BLM: 0.2 DOD: 10.6 USFS: 4.5 P: 83.8	4.2	84.0	<p>Existing Land Use</p> <ul style="list-style-type: none"> No high residual impacts 46.8 miles of moderate residual impacts where the alternative route crosses agricultural and forest/woodlands and near residences and other structures 1 residential building within right-of-way <p>Zoning</p> <ul style="list-style-type: none"> Crosses 70.2 miles of EFU zoning <p>Military Training Lands</p> <ul style="list-style-type: none"> Crosses 15.1 miles of special use airspace Potential to create restrictions in aircraft movement during training Requires obstruction evaluation/airport airspace analysis in coordination with the FAA Located within a 90-foot-wide use area currently occupied by a 69-kV transmission line owned by BPA Requires repurposing the 90-foot-wide easement (currently used by BPA) Require the development of a new land-use agreement <p>Special Designated Areas</p> <ul style="list-style-type: none"> Crosses 1.3 miles of the RNA – B on NWTSF Boardman which is not consistent with Navy management for the area as identified in the INRMP and underlying governing 	<p>Existing Agriculture</p> <ul style="list-style-type: none"> 4.1 miles of high residual impacts where the alternative crosses pivot irrigation (one center pivot could not be spanned) 28.5 miles of moderate residual impacts where the alternative crosses flood and other mechanized irrigation, fallow/idle cropland, field crops, vegetables, and orchards of fruit and tree nuts <p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> Crosses 24.9 miles of Prime Farmland if irrigated, 46.3 miles of farmland of statewide importance, and 75.1 miles of high-value soils Crosses 314 acres of CRP lands <p>Livestock Grazing</p> <ul style="list-style-type: none"> Crosses 4.6 miles of grazing allotments 	<ul style="list-style-type: none"> Crosses 0.3 mile of moderate impacts where the alternative crosses Blue Mountain Forest State Scenic Corridor Day Use Area 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No lands with wilderness characteristics are present 	<ul style="list-style-type: none"> No potential congressional designations are present

Table 2-20. Alternative Route Comparison Summary for Land Use, Agriculture, Recreation, Transportation, Lands with Wilderness Characteristics and Potential Congressional Designations in Segment 1—Morrow-Umatilla

Alternative Route	Land Use			Summary	Agriculture	Recreation	Transportation	Lands with Wilderness Characteristics	Potential Congressional Designations
	Land Ownership (Percent)	Percent within Utility Corridors	Total Miles of Parallel Facilities within 2,000 feet						
				requirements of designated ecological reserves					
West of Bombing Range Road – Southern Route	BLM: 0.4 DOD: 10.6 USFS: 4.5 P: 80.1	4.4	73.3	<p>Existing Land Use</p> <ul style="list-style-type: none"> No high residual impacts 38.3 miles of moderate residual impacts where the alternative route crosses agricultural and forest/woodlands and near residences and other structures 1 residential building within right-of-way <p>Zoning</p> <ul style="list-style-type: none"> Crosses 66.7 miles of EFU zoning <p>Military Training Lands</p> <ul style="list-style-type: none"> Crosses 15.1 miles of special use airspace Potential to create restrictions in aircraft movement during training Requires obstruction evaluation/airport airspace analysis in coordination with the FAA Located within a 90-foot-wide use area currently occupied by a 69-kV transmission line owned by BPA Requires repurposing the 90-foot-wide easement (currently used by BPA) Require the development of a new land-use agreement <p>Special Designated Areas</p> <ul style="list-style-type: none"> Crosses 1.3 miles of the RNA – B on NWTSF Boardman which is not consistent with Navy management for the area as identified in the INRMP and underlying governing requirements of designated ecological reserves 	<p>Existing Agriculture</p> <ul style="list-style-type: none"> 3.1 miles of high residual impacts where the alternative crosses pivot irrigation (one pivot could not be spanned) 15.5 miles of moderate residual impacts where the alternative crosses flood and other mechanized irrigation, fallow/idle cropland, field crops, vegetables, and orchards of fruit and tree nuts <p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> Crosses 21.1 miles of Prime Farmland if irrigated, 36.9 miles of farmland of statewide importance, and 21.5 miles of high-value soils Crosses 144 acres of CRP lands <p>Livestock Grazing</p> <ul style="list-style-type: none"> Crosses 4.6 miles of grazing allotments 	<ul style="list-style-type: none"> Crosses 0.3 mile of moderate impacts where the alternative crosses Blue Mountain Forest State Scenic Corridor Day Use Area 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No lands with wilderness characteristics are present 	<ul style="list-style-type: none"> No potential congressional designations are present
Longhorn	BLM: 0.1 USFS: 4.5 P: 83.6	4.8	70.3	<p>Existing Land Use</p> <ul style="list-style-type: none"> No high residual impacts 51.9 miles of moderate residual impacts where the alternative route crosses agricultural and forest/woodlands and near residences and other structures 2 residential buildings within right-of-way <p>Zoning</p> <ul style="list-style-type: none"> Crosses 71.7 miles of EFU zoning <p>Military Training Lands</p> <ul style="list-style-type: none"> Crosses 17.6 miles of special use airspace Potential to create restrictions in aircraft movement during training Requires obstruction evaluation/airport airspace analysis in coordination with the FAA Located 4 miles east of Bombing Range Road Would not be compatible with training 	<p>Existing Agriculture</p> <ul style="list-style-type: none"> 9.9 miles of high residual impacts where the alternative crosses pivot irrigation, and tree farms (six center pivots could not be spanned) 27.8 miles of moderate residual impacts where the alternative crosses flood and other mechanized irrigation, fallow/idle cropland, field crops, vegetables, confined animal feeding operations, and orchards of fruit and tree nuts <p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> Crosses 22.2 miles of Prime Farmland if irrigated, 39.1 miles of farmland of statewide importance, and 23.4 miles of high-value soils Crosses 355 acres of CRP lands 	<ul style="list-style-type: none"> Crosses 0.3 mile of moderate impacts where the alternative crosses Blue Mountain Forest State Scenic Corridor Day Use Area 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No lands with wilderness characteristics are present 	<ul style="list-style-type: none"> No potential congressional designations are present

Table 2-20. Alternative Route Comparison Summary for Land Use, Agriculture, Recreation, Transportation, Lands with Wilderness Characteristics and Potential Congressional Designations in Segment 1—Morrow-Umatilla

Alternative Route	Land Use			Summary	Agriculture	Recreation	Transportation	Lands with Wilderness Characteristics	Potential Congressional Designations
	Land Ownership (Percent)	Percent within Utility Corridors	Total Miles of Parallel Facilities within 2,000 feet						
				operations <ul style="list-style-type: none"> • Would result in additional obstacles in the existing flight patterns Special Designated Areas Not crossed	Livestock Grazing <ul style="list-style-type: none"> • Crosses 4.6 miles of grazing allotments 				
Interstate 84	BLM: 0.1 DOD: 0.1 USFS: 4.5 P: 80.0	5.0	73.3	Existing Land Use <ul style="list-style-type: none"> • No high residual impacts • 42.2 miles of moderate residual impacts where the alternative route crosses agricultural and forest/woodlands and near residences and rest stops • 2 residential buildings within right-of-way Zoning <ul style="list-style-type: none"> • Crosses 65.6 miles of EFU zoning Military Training Lands <ul style="list-style-type: none"> • Crosses 14.7 miles of special use airspace • Potential to create restrictions in aircraft movement during training • Requires obstruction evaluation/airport airspace analysis in coordination with the FAA • Collocated with Interstate 84 • Would create an east-west obstacle for military training operations along interstate Special Designated Areas Not crossed	Existing Agriculture <ul style="list-style-type: none"> • 10.2 miles of high residual impacts where the alternative crosses pivot irrigation • 21.0 miles of moderate residual impacts where the alternative crosses flood and other mechanized irrigation, fallow/idle cropland, field crops, vegetables, confined animal feeding operations, and orchards of fruit and tree nuts Important Farmland, High-value Soils, and CRP Lands <ul style="list-style-type: none"> • Crosses 28.1 miles of Prime Farmland if irrigated, 23.3 miles of farmland of statewide importance, and 30.1 miles of high-value soils • Crosses 253 acres of CRP lands Livestock Grazing <ul style="list-style-type: none"> • Crosses 6.5 miles of grazing allotments 	<ul style="list-style-type: none"> • Crosses 0.3 mile of moderate impacts where the alternative crosses Blue Mountain Forest State Scenic Corridor Day Use Area 	<ul style="list-style-type: none"> • No high or moderate residual impacts 	<ul style="list-style-type: none"> • No lands with wilderness characteristics are present 	<ul style="list-style-type: none"> • No potential congressional designations are present
Variation S1-A1	USFS: 4.5 P: 18.5	0.0	17.0	Existing Land Use <ul style="list-style-type: none"> • No high residual impacts • 5.4 miles of moderate residual impacts where the alternative route crosses agricultural • No residential buildings within right-of-way Zoning <ul style="list-style-type: none"> • Crosses 18.1 miles of EFU zoning Military Training Lands Not crossed Special Designated Areas Not crossed	Existing Agriculture <ul style="list-style-type: none"> • 1.3 miles of high residual impacts where the alternative crosses pivot irrigation • 7.8 miles of moderate residual impacts where the alternative crosses flood irrigation, fallow/idle cropland, field crops, and vegetables Important Farmland, High-value Soils, and CRP Lands <ul style="list-style-type: none"> • Crosses 14.3 miles of Prime Farmland if irrigated, 2.6 miles of farmland of statewide importance, and 14.7 miles of high-value soils • Crosses 25 acres of CRP lands Livestock Grazing <ul style="list-style-type: none"> • No grazing allotments crossed 	<ul style="list-style-type: none"> • No high or moderate residual impacts 	<ul style="list-style-type: none"> • No high or moderate residual impacts 	<ul style="list-style-type: none"> • No lands with wilderness characteristics are present 	<ul style="list-style-type: none"> • No potential congressional designations are present
Variation S1-A2	USFS: 3.7 P: 18.5	0.0	18.5	Existing Land Use <ul style="list-style-type: none"> • No high residual impacts • 5.8 miles of moderate residual impacts where the alternative route crosses agricultural and near residences • 2 residential buildings within right-of-way Zoning <ul style="list-style-type: none"> • Crosses 18.5 miles of EFU zoning 	Existing Agriculture <ul style="list-style-type: none"> • 0.9 mile of high residual impacts where the alternative crosses pivot irrigation • 3.5 miles of moderate residual impacts where the alternative crosses confined animal feeding operations, flood and other mechanized irrigation, fallow/idle cropland, field crops, and vegetables 	<ul style="list-style-type: none"> • No high or moderate residual impacts 	<ul style="list-style-type: none"> • No high or moderate residual impacts 	<ul style="list-style-type: none"> • No lands with wilderness characteristics are present 	<ul style="list-style-type: none"> • No potential congressional designations are present

Table 2-20. Alternative Route Comparison Summary for Land Use, Agriculture, Recreation, Transportation, Lands with Wilderness Characteristics and Potential Congressional Designations in Segment 1—Morrow-Umatilla

Alternative Route	Land Use				Agriculture	Recreation	Transportation	Lands with Wilderness Characteristics	Potential Congressional Designations
	Land Ownership (Percent)	Percent within Utility Corridors	Total Miles of Parallel Facilities within 2,000 feet	Summary					
				<p>Military Training Lands Not crossed</p> <p>Special Designated Areas Not crossed</p>	<p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> • Crosses 4.3 miles of Prime Farmland if irrigated, 9.3 miles of farmland of statewide importance, and 5.0 miles of high-value soils • Crosses 62 acres of CRP lands <p>Livestock Grazing</p> <ul style="list-style-type: none"> • No grazing allotments crossed 				
Interstate 84 – Southern Route	BLM: 0.2 DOD: 0.1 USFS: 4.5 P: 80.1	4.5	83.3	<p>Existing Land Use</p> <ul style="list-style-type: none"> • No high residual impacts • 41 miles of moderate residual impacts where the alternative route crosses agricultural and forest/woodlands and near residences and rest stops • 2 residential buildings within right-of-way <p>Zoning</p> <ul style="list-style-type: none"> • Crosses 73.3 miles of EFU zoning <p>Military Training Lands</p> <ul style="list-style-type: none"> • Crosses 14.7 miles of special use airspace • Potential to create restrictions in aircraft movement during training • Requires obstruction evaluation/airport airspace analysis in coordination with the FAA • Collocated with Interstate 84 • Would create an east-west obstacle for military training operations along interstate <p>Special Designated Areas Not crossed</p>	<p>Existing Agriculture</p> <ul style="list-style-type: none"> • 9.9 miles of high residual impacts where the alternative crosses center pivot irrigation • 19.8 miles of moderate residual impacts where the alternative crosses confined animal feeding operations, flood and other mechanized irrigation, fallow/idle cropland, orchards of fruit and tree nuts, field crops, and vegetables <p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> • Crosses 25.2 miles of Prime Farmland if irrigated, 31.3 miles of farmland of statewide importance, and 26.6 miles of high-value soils • Crosses 235 acres of CRP lands <p>Livestock Grazing</p> <ul style="list-style-type: none"> • Crosses 6.5 miles of grazing allotments 	<ul style="list-style-type: none"> • Crosses 0.3 mile of moderate impacts where the alternative crosses Blue Mountain Forest State Scenic Corridor Day Use Area 	<ul style="list-style-type: none"> • No high or moderate residual impacts 	<ul style="list-style-type: none"> • No lands with wilderness characteristics are present 	<ul style="list-style-type: none"> • No potential congressional designations are present

Table Note:

ACEC = area of critical environmental concern
 APE = area of potential effects
 BLM = Bureau of Land Management
 BPA = Bonneville Power Administration
 CAFO = confined animal feeding operation
 CRP = Conservation Reserve Program
 EFU = exclusive farm use
 FAA = Federal Aviation Authority

INRMP = Integrated Natural Resources Management Plan
 NHT = national historic trail
 NWSTF = Naval Weapons Systems Training Facility
 P = Private
 RNA = research natural area
 ROS = recreation opportunity spectrum
 SEORMP = Southeastern Oregon Resource Management Plan
 VRM = visual resource management
 WSR = Wild and Scenic River

Table 2-21. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 1—Morrow-Umatilla

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
<p>Applicant's Proposed Action</p>	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 26.7 miles Moderate: 26.1 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 11 VAUs affected <ul style="list-style-type: none"> 8 Foreground 11 Middleground The visible foreground of VAUs crossed would generally experience high impacts and would reduce scenic score however would not lower the overall rating of B scenic quality <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: Viewers would experience high impacts near the McKay Creek VAU area, the Butter Creek VAU area, as well as areas to the north east of Pilot Rock Recreation : Where project is visible from Stationary Sensitive Viewing Platforms associated with recreation, views would experience moderate impacts Travel Routes: The highest impacts on travel routes would be associated with a crossing of I-84 east of Boardman; a crossing of State Highway 207; a crossing of US Highway 395; and close parallel alignment with I-84 in the Blue Mountains <p>Federal Land Conformance</p> <ul style="list-style-type: none"> Non-conformance within the USFS-administered lands through the BA-011 Blue Mountains Forest VAU 	<p>Inventory</p> <ul style="list-style-type: none"> 101 previously recorded sites in the study corridor 11 previously recorded sites in the direct effects APE Key resources include the NRHP-listed Well Spring Segment of the Oregon NHT, the Oregon NHT/Interpretative Park-California Gulch, the Lower Well Springs Diversion of the Well Spring Segment of the Oregon NHT, trail-associated sites, the NWSTF Boardman and associated sites (including two historic properties of religious and cultural significance to Indian tribes), and the McKay Creek area. Of these resources, the Oregon NHT, the two historic properties of religious and cultural significance to Indian tribes in the NWSTF Boardman, and the McKay Creek area are in the direct effects APE. The historic linear site and the McKay Creek area are crossed by this alternative route Additional key resources include the Lewis and Clark NHT, the Upper Columbia River Route Study Trail, and the Umatilla River Route and Columbia River to The Dalles Study Trail (refer to maps MV-25 and MV-26 for inventory data); these resources are located in the vicinity of the study corridor There are sites or areas of Native American concern along this route There is the potential for direct effects on undocumented, pre-contact sites southeast of Kamela Based on RLS cultural data collected for alternative routes in the vicinity of Boardman and Pilot Rock, resources that potentially could be affected visually include the Oregon NHT, waterworks, residential and commercial buildings, and historic transportation corridors <p>Impacts</p> <ul style="list-style-type: none"> 1.3 miles of high cultural resource sensitivity. Additional miles of high cultural resource sensitivity would be anticipated due to sites of tribal concern (two historic properties of religious and cultural significance to Indian tribes in the NWSTF Boardman) identified along this alternative route. There is the potential for additional miles of high cultural resource sensitivity in the McKay Creek area (high potential to encounter undocumented, significant sites) 14.0 miles of moderate cultural resource sensitivity 39.9 miles of low cultural resource 	<ul style="list-style-type: none"> Native American tribes have expressed concern about potential direct and indirect effects on the following resources: <ul style="list-style-type: none"> Archaeological resources (e.g., cairns, rock alignments, lithic scatters, lithic and tool scatters, lithic procurement areas, campsites, habitation site, culturally modified trees locale). These resources are in the indirect effects APE The Oregon NHT (path of the Forced March of 1879 [direct effects APE]) Two historic properties of religious and cultural significance to Indian tribes in the NWSTF Boardman (direct and indirect effects APEs) Sand Hollow Battlefield 1848 (indirect effects APE) Sites of tribal significance near Pilot Rock (indirect effects APE) The McKay Creek area (direct effects APE) Traditional foods There is the potential for undocumented, significant sites (primarily rock features [Kamela area, Wallowa-Whitman National Forest]) Based on the ethnographic records, there are unspecified places of Native American concern along this route Ongoing coordination and consultation with Native American sovereign tribal governments may identify additional resources of concern 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: 2.9 miles Moderate: 8.6 miles Low: 26.0 miles <p>Trail Management</p> <ul style="list-style-type: none"> High impacts on views from Boardman and moderate impacts on the Blue Mountains high potential route segments High impacts on NPS Auto Tour Route Moderate impacts on views from Blue Mountain Crossing Interpretive Park High Potential Historic Segment <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> Moderate impacts on views from Blue Mountain Crossing Interpretive Park <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> High impacts on views from the Sand Hollow Battlefield 1848 trail-associated cultural site One contributing trail segment crossed, high impacts on views from contributing trail segments <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Lewis and Clark NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: none Moderate: 1.5 miles Low: 2.7 miles <p>Trail Management</p> <ul style="list-style-type: none"> Moderate impacts on views from NPS auto tour route <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Upper Columbia River Route Study Trail</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: none Moderate: none Low: 4.1 miles <p>Key Issues</p> <ul style="list-style-type: none"> Potential designation not compromised <p>Umatilla River Route and Columbia River to The Dalles Study Trail</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: none Moderate: none 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population High agricultural impacts with yield losses valued at \$ 408,239 annually during construction and \$109,910 during operations No effects to CAFO operations Minimal impacts on grazing resources: estimated forage losses during construction are equivalent to less than 10 AUMs with residual forage losses of less than 3 AUMs High impacts on timber resources: the B2H Project could disturb 309 acres of timberlands during construction with residual disturbances equal to 83 acres of timberlands Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental justice population

Table 2-21. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 1—Morrow-Umatilla

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
		sensitivity • 36.7 miles of no cultural resource sensitivity		• Low: 4.1 miles Key Issues • Potential designation not compromised	
Variation S1-B1	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 6.2 miles Moderate: 0.1 mile <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 3 VAUs affected <ul style="list-style-type: none"> 1 Foreground 3 Middleground The visible foreground of VAU crossed, BA-011 Blue Mountains Forest VAU, would generally experience high impacts and would reduce scenic score however would not lower the overall rating of B scenic quality <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: Viewers would experience high impacts near the McKay Creek VAU area, the Butter Creek VAU area, as well as areas to the north east of Pilot Rock Recreation : Where project is visible from Stationary Sensitive Viewing Platforms associated with recreation, views would experience moderate impacts within the Blue Forest Mountain area Travel Routes: Viewers using I-84 would experience moderate impacts <p>Federal Land Conformance</p> <ul style="list-style-type: none"> Non-conformance within the USFS-administered lands through the BA-011 Blue Mountains Forest VAU 	<p>Inventory</p> <ul style="list-style-type: none"> 58 previously recorded sites in the study corridor There are no previously recorded sites in the direct effects APE Key resources include the Oregon NHT (previously recorded, contributing segment), the Blue Mountain Crossing Interpretive Park site, the Interpretative Park-California Gulch; these resources are in the indirect effects APE There are sites of Native American concern along this route variation Potential for direct effects on undocumented, significant pre-contact sites (specifically southeast of Kamela) <p>Impacts</p> <ul style="list-style-type: none"> 0 miles of high cultural resource sensitivity 3.8 miles of moderate cultural resource sensitivity 2.6 miles of low cultural resource sensitivity 0 miles of no cultural resource sensitivity 	<ul style="list-style-type: none"> Due to the nature of available data, resources of Native American concern only are discussed by alternative route. Refer to the Applicant’s Proposed Action Alternative 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: 1.3 miles Moderate: 3.8 miles Low: 1.3 miles <p>Trail Management</p> <ul style="list-style-type: none"> High impacts on NPS Auto Tour Route Moderate impacts on views from Blue Mountains High Potential Route Segment Moderate impacts on views from Blue Mountain Crossing Interpretive Park High Potential Historic Segment <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> Moderate impacts on views from Blue Mountain Crossing Interpretive Park <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> No direct impacts on contributing trail segments, moderate impacts on views from contributing trail segments <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Lewis and Clark NHT</p> <ul style="list-style-type: none"> This route variation is not located in proximity to the Lewis and Clark NHT <p>Upper Columbia River Route Study Trail</p> <ul style="list-style-type: none"> This route variation is not located in proximity to the Upper Columbia River Route Study Trail <p>Umatilla River Route and Columbia River to The Dalles Study Trail</p> <ul style="list-style-type: none"> This route variation is not located in proximity to the Umatilla River Route and Columbia River to The Dalles Study Trail 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population Minimal agricultural impacts with yield losses valued at \$5,834 annually during construction and \$2,033 during operations No effects to CAFO operations Minimal impacts on grazing resources: estimated forage losses during construction are equivalent to 10 AUMs with residual forage losses of 3 AUMs Moderate impacts on timber resources: the B2H Project could disturb 119 acres of timberlands during construction with residual disturbances equal to 36 acres of timberlands Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental justice population
Variation S1-B2	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 6.2 miles Moderate: 0.2 mile <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 3 VAUs affected <ul style="list-style-type: none"> 1 Foreground 3 Middleground The visible foreground of VAUs crossed would generally experience high impacts and would reduce scenic score however not lower the overall rating of B scenic quality <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: No key issues identified Recreation: Where project is visible from 	<p>Inventory</p> <ul style="list-style-type: none"> 55 previously recorded sites in the study corridor 1 previously recorded site in the direct effects APE Same key resources as Variation S1-B1 because they occur in an area where the route variations are in proximity to one another. Potential impacts on the Oregon NHT would be similar to Variation S2-B1 except that Variation S1-B2 is located closer to the trail resulting in more intense impacts (indirect effects APE) There are sites of Native American concern along this route variation Potential for direct effects on undocumented, historic transportation 	<ul style="list-style-type: none"> Due to the nature of available data, resources of Native American concern only are discussed by alternative route. Refer to the Applicant’s Proposed Action Alternative 	<p>Oregon NHT</p> <p>Total Residual Impacts</p> <ul style="list-style-type: none"> High: 5.6 miles Moderate: 0.8 mile Low: none <p>Trail Management</p> <ul style="list-style-type: none"> High impacts on views from Blue Mountains High Potential Route Segment High impacts on views from Blue Mountain Crossing Interpretive Park High Potential Historic Segment High impacts on NPS Auto Tour Route High impacts on view from the Oregon Trail ACEC– California Gulch portion <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> High impacts on views from Blue Mountain 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population Minimal agricultural impacts with yield losses valued at \$4,217 annually during construction and \$1,366 during operations No effects to CAFO operations Minimal impacts on grazing resources: estimated forage losses during construction are equivalent to less than 9 AUMs with residual forage losses of approximately 2 AUMs Moderate impacts on timber resources: the B2H Project could disturb 112 acres of timberlands during construction with residual disturbances equal to 31 acres of timberlands Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental

Table 2-21. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 1—Morrow-Umatilla

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
	<p><i>Stationary Sensitive Viewing Platforms associated with recreation, views would experience moderate impacts in the Spring Creek camp areas as well as the Blue Mountain Forest related KOPs</i></p> <ul style="list-style-type: none"> Travel Routes: Viewers using I-84 would experience high impacts due to two separate crossings <p>Federal Land Conformance</p> <ul style="list-style-type: none"> Non-conformance within the USFS-administered lands through the BA-011 Blue Mountains Forest VAU 	<p><i>corridors</i></p> <ul style="list-style-type: none"> Unspecified places of Native American concern (Ethnographic records) <p>Impacts</p> <ul style="list-style-type: none"> 0.3 mile of high cultural resource sensitivity 4.8 miles of moderate cultural resource sensitivity 1.3 miles of low cultural resource sensitivity 0 miles of no cultural resource sensitivity 		<p><i>Crossing Interpretive Park</i></p> <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> No direct impacts on contributing trail segments, high impacts on views from contributing trail segments <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Lewis and Clark NHT</p> <ul style="list-style-type: none"> This route variation is not located in proximity to the Lewis and Clark NHT <p>Upper Columbia River Route Study Trail</p> <ul style="list-style-type: none"> This route variation is not located in proximity to the Upper Columbia River Route Study Trail <p>Umatilla River Route and Columbia River to The Dalles Study Trail</p> <ul style="list-style-type: none"> This route variation is not located in proximity to the Umatilla River Route and Columbia River to The Dalles Study Trail 	<p><i>justice population</i></p>
<p>East of Bombing Range Road</p>	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 27.6 miles Moderate: 25.7 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 11 VAUs affected <ul style="list-style-type: none"> 8 Foreground 11 Middleground The visible foreground of VAUs crossed would generally experience high impacts and would reduce scenic score however not lower the overall rating of B scenic quality <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: Viewers would experience high impacts near the McKay Creek VAU area, the Butter Creek VAU area, as well as areas to the north east of Pilot Rock Recreation: Where project is visible from Stationary Sensitive Viewing Platforms associated with recreation, views would experience moderate impacts in the Spring Creek camp areas as well as the Blue Mountain Forest related KOPs Travel Routes: The highest impacts on travel routes would be associated with a crossing of I-84 east of Boardman; a crossing of State Highway 207; a crossing of US Highway 395; and close parallel alignment with I-84 in the Blue Mountains <p>Federal Land Conformance</p> <ul style="list-style-type: none"> Non-conformance within the USFS-administered lands through the BA-011 Blue Mountains Forest VAU 	<p>Inventory</p> <ul style="list-style-type: none"> 101 previously recorded sites in the study corridor 12 previously recorded sites in the direct effects APE Same key resources as the Applicant's Proposed Action Alternative, since these two alternative routes are identical over the majority of their length (except where the B2H Project would be located along the east side of Bombing Range Road) Crosses the NRHP-listed Well Spring Segment of the Oregon NHT Crosses the McKay Creek area There are sites or areas of Native American concern along this alternative route There is the potential for direct effects on undocumented, pre-contact sites southeast of Kamela Based on RLS cultural data collected for alternative routes in the vicinity of Boardman and Pilot Rock, resources that potentially could be affected visually are the same as those identified along the Applicant's Proposed Action Alternative. Although the alternative routes do not share the same alignment south of the Longhorn Substation, they are in proximity to one another, and the same resources are identified for both alternative routes <p>Impacts</p> <ul style="list-style-type: none"> 1.3 miles of high cultural resource sensitivity. Additional miles of high cultural resource sensitivity would be anticipated due to sites of tribal concern (two historic 	<ul style="list-style-type: none"> Same previously recorded sites of tribal significance as the Applicant's Proposed Action Alternative, since these two alternative routes are identical over the majority of their length. Sites are in the indirect effects APE, except for 1 cairn and the Oregon NHT (path of the Forced March of 1879) Same key resources of Native American concern as the Applicant's Proposed Action Alternative, since these two alternative routes are identical over the majority of their length This alternative route is slightly closer to Sand Hollow Battlefield 1848 Based on the ethnographic records, there are unspecified places of Native American concern along this alternative route There is the potential for undocumented, significant sites (primarily rock features [Kamela area, Wallowa-Whitman National Forest]) Ongoing coordination and consultation with Native American sovereign tribal governments may identify additional resources of concern 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: 2.3 miles Moderate: 9.2 miles Low: 26.3 miles <p>Trail Management:</p> <ul style="list-style-type: none"> High impacts on views from Boardman and moderate impacts on the Blue Mountains high potential route segments High impacts on NPS Auto Tour Route Moderate impacts on views from Blue Mountain Crossing Interpretive Park High Potential Historic Segment <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> Moderate impacts on views from Blue Mountain Crossing Interpretive Park <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> One contributing trail segment crossed, high impacts on views from contributing trail segments High impacts on views from the Sand Hollow Battlefield 1848 trail-associated cultural site <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Lewis and Clark NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: none Moderate: 1.5 miles Low: 2.7 miles <p>Trail Management:</p> <ul style="list-style-type: none"> Moderate impacts on views from NPS auto tour route 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population High agricultural impacts with yield losses valued at \$666,425 annually during construction and \$177,069 during operations No effects to CAFO operations Minimal impacts on grazing resources: estimated forage losses during construction are equivalent to less than 10 AUMs with residual forage losses of approximately 3 AUMs High impacts on timber resources: the B2H Project could disturb 316 acres of timberlands during construction with residual disturbances equal to 103 acres of timberlands Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental justice population

Table 2-21. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 1—Morrow-Umatilla

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
		<p>properties of religious and cultural significance to Indian tribes in the NWSTF Boardman) identified along this alternative route. There is the potential for additional miles of high cultural resource sensitivity in the McKay Creek area (high potential to encounter undocumented, significant sites)</p> <ul style="list-style-type: none"> • 13.9 miles of moderate cultural resource sensitivity • 40.4 miles of low cultural resource sensitivity • 36.7 miles of no cultural resource sensitivity 		<p>Scenic and Recreation Resources:</p> <ul style="list-style-type: none"> • No key issues identified <p>Historic and Cultural Resources:</p> <ul style="list-style-type: none"> • No key issues identified <p>Biological, Natural, and Other Resources:</p> <ul style="list-style-type: none"> • No key issues identified <p>Upper Columbia River Route Study Trail</p> <p>Residual Impacts:</p> <ul style="list-style-type: none"> • High: none • Moderate: none • Low: 4.1 miles <p>Key Issues:</p> <ul style="list-style-type: none"> • Potential designation not compromised <p>Umatilla River Route and Columbia River to The Dalles Study Trail</p> <p>Residual Impacts:</p> <ul style="list-style-type: none"> • High: none • Moderate: none • Low: 4.1 miles <p>Key Issues:</p> <ul style="list-style-type: none"> • Potential designation not compromised 	
<p>Applicant's Proposed Action – Southern</p>	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> • High: 26.4 miles • Moderate: 28.6 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> • 11 VAUs affected <ul style="list-style-type: none"> – 7 Foreground – 11 Middleground • The visible foreground of VAUs crossed would generally experience high impacts and would reduce scenic score however not lower the overall rating of B scenic quality <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> • Residences: Viewers would experience high impacts near the McKay Creek VAU area, the Butter Creek VAU area, as well as areas to the north east of Pilot Rock • Recreation: Where project is visible from Stationary Sensitive Viewing Platforms associated with recreation, views would experience moderate impacts in the Spring Creek camp areas as well as the Blue Mountain Forest related KOPs • Travel Routes: The highest impacts on travel routes would be associated with a crossing of I-84 east of Boardman; a crossing of State Highway 207; a crossing of US Highway 395; and close parallel alignment with I-84 in the Blue Mountains <p>Federal Land Conformance</p>	<p>Inventory</p> <ul style="list-style-type: none"> • 103 previously recorded sites in the study corridor • 8 previously recorded sites in the direct effects APE • Same key resources as the Applicant's Proposed Action Alternative, except that the Applicant's Proposed Action – Southern Route Alternative avoids the McKay Creek area. Although the alternative routes do not follow similar alignments, most of the resources occur in the areas where the alignments are shared (from the Longhorn Substation to Pilot Rock and east of Rocky Ridge) • Crosses the NRHP-listed Well Spring Segment of the Oregon NH • There are sites or areas of Native American concern along this route • There is the potential for direct effects on undocumented, pre-contact sites southeast of Kamela • Based on RLS cultural data collected for alternative routes in the vicinity of Boardman and Pilot Rock, resources that potentially could be affected visually are similar to those identified along the Applicant's Proposed Action Alternative. The Applicant's Proposed Action – Southern Route Alternative (Link 1-83) lies slightly farther from Pilot Rock. Resources are similar because they occur near the 	<ul style="list-style-type: none"> • Same previously recorded sites of tribal significance as the Applicant's Proposed Action Alternative, except for 1 additional site along the Applicant's Proposed Action Alternative. Most of the sites are the same because they occur in the areas where the alignments are shared (from the Longhorn Substation to Pilot Rock and east of Rocky Ridge). Sites are in the indirect effects APE, except for 1 cairn (documented as historic) and the Oregon NHT (path of the Forced March of 1879) • Similar key resources of Native American concern as the Applicant's Proposed Action Alternative, except that the Applicant's Proposed Action – Southern Route Alternative avoids the McKay Creek area and lies slightly farther from significance sites near Pilot Rock • There is the potential for undocumented, significant sites (primarily rock features [Kamela area, Wallowa-Whitman National Forest]) • Ongoing coordination and consultation with Native American sovereign tribal governments may identify additional resources of 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> • High: 2.9 miles • Moderate: 8.6 miles • Low: 26.0 miles <p>Trail Management:</p> <ul style="list-style-type: none"> • High impacts on views from Boardman and moderate impacts on the Blue Mountains high potential route segments • High impacts on NPS Auto Tour Route • Moderate impacts on views from Blue Mountain Crossing Interpretive Park High Potential Historic Segment <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> • Moderate impacts on views from Blue Mountain Crossing Interpretive Park <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> • High impacts on views from the Sand Hollow Battlefield 1848 trail-associated cultural site • One contributing trail segment crossed, high impacts on views from contributing trail segments <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> • No key issues identified <p>Lewis and Clark NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> • High: none • Moderate: 1.5 miles • Low: 2.7 miles 	<ul style="list-style-type: none"> • Minimal and temporary impact on employment and population • High agricultural impacts with yield losses valued at \$411,342 annually during construction and \$113,070 during operations • No effects to CAFO operations • Minimal impacts on grazing resources: estimated forage losses during construction are equivalent to less than 10 AUMs with residual forage losses of less than 4 AUMs • High impacts on timber resources: the B2H Project could disturb 354 acres of timberlands during construction with residual disturbances equal to roughly 123 acres of timberlands • Impacts on property values are minimal and short-term in nature • No disproportionate impact on environmental justice population

Table 2-21. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 1—Morrow-Umatilla

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
	<ul style="list-style-type: none"> Non-conformance within the USFS-administered lands through the BA-011 Blue Mountains Forest VAU 	<p>areas where the alignments are shared or intersect</p> <p>Impacts</p> <ul style="list-style-type: none"> 0.9 mile of high cultural resource sensitivity. Additional miles of high cultural resource sensitivity would be anticipated due to sites of tribal concern (two historic properties of religious and cultural significance to Indian tribes in the NWSTF Boardman) identified along this alternative route 13.6 miles of moderate cultural resource sensitivity 43.9 miles of low cultural resource sensitivity 40.7 miles of no cultural resource sensitivity 	<p>concern</p>	<p>Trail Management</p> <ul style="list-style-type: none"> Moderate impacts on views from NPS auto tour route <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Upper Columbia River Route Study Trail</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: none Moderate: none Low: 4.1 miles <p>Key Issues</p> <ul style="list-style-type: none"> Potential designation not compromised <p>Umatilla River Route and Columbia River to The Dalles Study Trail</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: none Moderate: none Low: 4.1 miles <p>Key Issues</p> <ul style="list-style-type: none"> Potential designation not compromised 	
<p>West of Bombing Range Road – Southern</p>	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 33.1 miles Moderate: 29.7 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 11 VAUs affected <ul style="list-style-type: none"> 7 Foreground 11 Middleground The visible foreground of VAUs crossed would generally experience high impacts and would reduce scenic score however not lower the overall rating of B scenic quality <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: Viewers within 0.5 mile of this alternative would experience high impacts near the McKay Creek VAU area and the Butter Creek VAU area Recreation: Where project is visible from Stationary Sensitive Viewing Platforms associated with recreation, views would experience moderate impacts in the Spring Creek camp areas as well as the Blue Mountain Forest related KOPs Travel Routes: The highest impacts on travel routes would be associated with a crossing of I-84 east of Boardman; a crossing of State Highway 207; a crossing 	<p>Inventory</p> <ul style="list-style-type: none"> 97 previously recorded sites in the study corridor 8 previously recorded sites in the direct effects APE Similar key resources as the Applicant's Proposed Action Alternative, except that the West of Bombing Range Road: Southern Route Alternative avoids the McKay Creek area and sites of tribal significance near Pilot Rock. Although the alternative routes do not follow similar alignments, most of the resources occur in the areas where the alignments are shared (south of the Longhorn Substation and east of Rocky Ridge) Crosses the NRHP-listed Well Spring Segment of the Oregon NHT There are sites or areas of Native American concern along this alternative route There is the potential for direct effects on undocumented, pre-contact sites southeast of Kamela Based on RLS cultural data collected for alternative routes in the vicinity of Boardman, resources that potentially could be affected visually are similar to those identified along the Applicant's Proposed 	<ul style="list-style-type: none"> Same previously recorded sites of tribal significance as the Applicant's Proposed Action Alternative, except for 1 additional site along the West of Bombing Range Road – Southern Route Alternative. Most of the sites occur in the areas where the alignments are shared (south of the Longhorn Substation and east of Rocky Ridge). Sites are in the indirect effects APE, except for the Oregon NHT (path of the Forced March of 1879) Similar key resources of Native American concern as the Applicant's Proposed Action Alternative, except that the West of Bombing Range Road – Southern Route Alternative avoids the McKay Creek area and lies farther from resources of tribal concern near Pilot Rock Birch Creek is located in the vicinity of the study corridor There is the potential for undocumented, significant sites (including rockshelters) that may be relevant to the tribes to occur in or near the indirect effect APE 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: 2.9 miles Moderate: 7.2 miles Low: 17.4 miles <p>Trail Management</p> <ul style="list-style-type: none"> High impacts on views from Boardman and moderate impacts on the Blue Mountains high potential route segments High impacts on NPS Auto Tour Route Moderate impacts on views from Blue Mountain Crossing Interpretive Park High Potential Historic Segment <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> Moderate impacts on views from Blue Mountain Crossing Interpretive Park <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> High impacts on views from the Sand Hollow Battlefield 1848 trail-associated cultural site One contributing trail segment crossed, high impacts on views from contributing trail segments <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Lewis and Clark NHT</p> <p>Residual Impacts</p>	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population High agricultural impacts with yield losses valued at \$266,060 annually during construction and \$83,069 during operations No effects to CAFO operations Minimal impacts on grazing resources: estimated forage losses during construction are equivalent to 10 AUMs with residual forage losses of less than 3 AUMs High impacts on timber resources: the B2H Project could disturb 340 acres of timberlands during construction with residual disturbances equal to 91 acres of timberlands Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental justice population

Table 2-21. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 1—Morrow-Umatilla

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
	<p>of US Highway 395; and close parallel alignment with I-84 in the Blue Mountains; alignment for this alternative crosses State Highway 207 several miles west of Butter Creek VAU, where travelers using the highway would experience continuous, head-on, skylined views of the B2H Project components in a flat agricultural landscape</p> <p>Federal Land Conformance</p> <ul style="list-style-type: none"> • Non-conformance within the -administered lands through the BA-011 Blue Mountains Forest VAU 	<p>Action Alternative. The West of Bombing Range Road – Southern Route Alternative lies farther from Pilot Rock</p> <p>Impacts</p> <ul style="list-style-type: none"> • 0.9 mile of high cultural resource sensitivity. Additional miles of high cultural resource sensitivity would be anticipated due to sites of tribal concern (two historic properties of religious and cultural significance to Indian tribes in the NWSTF Boardman) identified along this alternative route • 12.4 miles of moderate cultural resource sensitivity • 40.2 miles of low cultural resource sensitivity • 42.1 miles of no cultural resource sensitivity 	<ul style="list-style-type: none"> • There is the potential for undocumented, significant sites (primarily rock features [Kamela area, Wallowa-Whitman National Forest]) • Ongoing coordination and consultation with Native American sovereign tribal governments may identify additional resources of concern 	<ul style="list-style-type: none"> • High: none • Moderate: 1.5 miles • Low: 2.7 miles <p>Trail Management</p> <ul style="list-style-type: none"> • Moderate impacts on views from NPS auto tour route <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> • No key issues identified <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> • No key issues identified <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> • No key issues identified <p>Upper Columbia River Route Study Trail</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> • High: none • Moderate: none • Low: 4.1 miles <p>Key Issues</p> <ul style="list-style-type: none"> • Potential designation not compromised <p>Umatilla River Route and Columbia River to The Dalles Study Trail</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> • High: none • Moderate: none • Low: 4.1 miles <p>Key Issues</p> <ul style="list-style-type: none"> • Potential designation not compromised 	
<p>Longhorn</p>	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> • High: 27.9 miles • Moderate: 29.7 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> • 11 VAUs affected <ul style="list-style-type: none"> – 8 Foreground – 11 Middleground • The visible foreground of VAUs crossed would generally experience high impacts and would reduce scenic score however not lower the overall rating of B scenic quality <p>Sensitive Viewing Platforms:</p> <ul style="list-style-type: none"> • Residences: Viewers would experience high impacts near the McKay Creek VAU area, the Butter Creek VAU area, as well as areas to the north east of Pilot Rock • Recreation: Where project is visible from Stationary Sensitive Viewing Platforms associated with recreation, views would experience moderate impacts in the Spring Creek camp areas as well as the Blue Mountain Forest related KOPs 	<p>Inventory</p> <ul style="list-style-type: none"> • 81 previously recorded sites in the study corridor • 10 previously recorded sites in the direct effects APE • Key resources include the Oregon NHT, trail-associated sites, the Interpretative Park-California Gulch of the Oregon NHT, the Upper Columbia River Route Study Trail, the Umatilla River Route and Columbia River to The Dalles Study Trail, and the Lewis and Clark NHT. • Crosses one previously recorded, contributing segment of the Oregon NHT • Crosses the McKay Creek area • Avoids the NRHP-listed Well Spring Segment of the Oregon NHT, the Lower Well Springs Diversion of the Well Spring Segment of the Oregon NHT, and the NWSTF Boardman (including two historic properties of religious and cultural significance to Indian tribes) • There are sites or areas of Native American concern along this alternative route 	<ul style="list-style-type: none"> • Similar previously recorded sites of tribal significance as the Applicant's Proposed Action Alternative, except for 4 additional sites along the Applicant's Proposed Action Alternative. Sites are similar because they occur in the areas where the alignments are shared. Except for the initial north-south portion exiting the Longhorn Substation, the Longhorn Alternative and the Applicant's Proposed Action Alternative follow the same alignment. Sites are in the indirect effects APE, except for the Oregon NHT (path of the Forced March of 1879) • Similar key resources of Native American concern as the Applicant's Proposed Action Alternative, except that the Longhorn Alternative avoids the two historic properties of religious and cultural significance to Indian tribes in the NWSTF Boardman and the Sand Hollow Battlefield 1848 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> • High: 2.4 miles • Moderate: 7.7 miles • Low: 20.2 miles <p>Trail Management</p> <ul style="list-style-type: none"> • High impacts on NPS Auto Tour Route • Moderate impacts on views from Blue Mountain Crossing Interpretive Park High Potential Historic Segment <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> • Moderate impacts on views from Blue Mountain Crossing Interpretive Park <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> • One contributing trail segment crossed, high impacts on views from contributing trail segments <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> • No key issues identified <p>Lewis and Clark NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> • High: none • Moderate: 1.4 miles 	<ul style="list-style-type: none"> • Minimal and temporary impact on employment and population • High agricultural impacts with yield losses valued at \$639,401 annually during construction and \$171,915 during operations • High impacts on CAFO operations: loss operation capacity at affected CAFOs is estimated to be valued at \$15.6 million during construction with residual loss capacity valued at \$4.2 million • Minimal impacts on grazing resources: estimated forage losses during construction are equivalent to less than 10 AUMs with residual forage losses of approximately 3 AUMs • High impacts on timber resources: the B2H Project could disturb 328 acres of timberlands during construction with residual disturbances equal to 103 acres of timberlands • Impacts on property values are minimal and short-term in nature • No disproportionate impact on environmental justice population

Table 2-21. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 1—Morrow-Umatilla

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
	<ul style="list-style-type: none"> Travel Routes: The highest impacts on travel routes would be associated with a crossing of I-84 east of Boardman; a crossing of State Highway 207; a crossing of US Highway 395; and close parallel alignment with I-84 in the Blue Mountains <p>Federal Land Conformance</p> <ul style="list-style-type: none"> Non-conformance within the USFS-administered lands through the BA-011 Blue Mountains Forest VAU 	<ul style="list-style-type: none"> Potential for direct effects on undocumented, pre-contact sites southeast of Kamela High potential for pre-contact sites based on streams Based on RLS cultural data collected for alternative routes in the vicinity of Boardman and Pilot Rock, resources that potentially could be affected visually are similar to those identified along the Applicant’s Proposed Action Alternative. Except for the initial north-south portion exiting the Longhorn Substation, the alternative routes share the same alignment. The Longhorn Alternative lies farther from Boardman <p>Impacts</p> <ul style="list-style-type: none"> 1.4 miles of high cultural resource sensitivity. There is the potential for additional miles of high cultural resource sensitivity in the McKay Creek area (high potential to encounter undocumented, significant sites) 13.0 miles of moderate cultural resource sensitivity 31.6 miles of low cultural resource sensitivity 42.2 miles of no cultural resource sensitivity 	<ul style="list-style-type: none"> Butter Creek is located in the vicinity of the study corridor There is the potential for undocumented, significant sites (primarily rock features [Kamela area, Wallowa-Whitman National Forest]) Ongoing coordination and consultation with Native American sovereign tribal governments may identify additional resources of concern 	<ul style="list-style-type: none"> Low: 2.3 miles <p>Trail Management</p> <ul style="list-style-type: none"> Moderate impacts on views from NPS auto tour route <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Upper Columbia River Route Study Trail</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: none Moderate: none Low: 3.6 miles <p>Key Issues</p> <ul style="list-style-type: none"> Potential designation not compromised <p>Umatilla River Route and Columbia River to The Dalles Study Trail</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: none Moderate: none Low: 3.6 miles <p>Key Issues</p> <ul style="list-style-type: none"> Potential designation not compromised 	
<p>Interstate 84</p>	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 6,059 miles Moderate: 19.4 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 11 VAUs affected <ul style="list-style-type: none"> 7 Foreground 11 Middleground The visible foreground of VAUs crossed would generally experience high impacts and would reduce scenic score however not lower the overall rating of B scenic quality <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: Viewers would experience high impacts near the McKay Creek VAU area, as well as areas to the north east of Pilot Rock and within the Blue Mountain Forest area and the highest impact of all the alternatives on residences near I-84 Recreation: Where project is visible from Stationary Sensitive Viewing Platforms associated with recreation, views would experience moderate impacts in the Spring Creek camp areas as well as the Blue 	<p>Inventory</p> <ul style="list-style-type: none"> 89 previously recorded sites in the study corridor 9 previously recorded sites in the direct effects APE Key resources include the Oregon NHT, trail-associated sites, the Umatilla Army Ordinance Depot, and the McKay Creek area. Of these resources, the McKay Creek area and one unrecorded segment (unknown condition) of the Oregon NHT are in the direct effects APE, and also are crossed by this alternative route (refer to map MV-25 for inventory data) Additional key resources include the Lewis and Clark NHT and the Upper Columbia River Route Study Trail (refer to maps MV-25 and MV-26 for inventory data); these resources are located in the vicinity of the study corridor The Umatilla River Route an Columbia River to The Dalles Study Trail (undocumented segment) is in the direct effects APE (refer to map MV-26 for inventory data) There are sites or areas of Native 	<ul style="list-style-type: none"> Native American tribes have expressed concern about potential direct and indirect effects on the following resources: <ul style="list-style-type: none"> Archaeological resources (e.g., lithic scatters, lithic and tool scatters, lithic procurement areas, cairns, rock alignments, one human burial site/grave goods, “Indian Trails,” one habitation site, one culturally modified trees locale). These resources are in the indirect effects APE The Oregon NHT (path of the Forced March of 1879) is in the direct effects APE Sites of tribal significance near Pilot Rock (indirect effects APE) The McKay Creek area (direct effects APE) Avoids two historic properties of religious and cultural significance to Indian tribes in the NWSTF Boardman and 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: 5.2 miles Moderate: 27.4 miles Low: 16.6 miles <p>Trail Management</p> <ul style="list-style-type: none"> High impacts on NPS Auto Tour Route Moderate impacts on views from Blue Mountains High Potential Route Segment Moderate impacts on views from Blue Mountain Crossing Interpretive Park High Potential Historic Segment <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> Moderate impacts on views from Blue Mountain Crossing Interpretive Park <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> No direct impacts on contributing trail segments, high impacts on views from contributing trail segments <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Lewis and Clark NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: none 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population High agricultural impacts with yield losses valued at \$479,857 annually during construction and \$127,355 during operations Moderate impacts on CAFO operations: loss operation capacity at affected CAFOs is estimated to be valued at \$445,632 during construction with residual loss capacity valued at \$118,272 Minimal impacts on grazing resources: estimated forage losses during construction are equivalent to approximately 9 AUMs with residual forage losses of less than 4 AUMs High impacts on timber resources: the B2H Project could disturb 308 acres of timberlands during construction with residual disturbances equal to 82 acres of timberlands Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental justice population

Table 2-21. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 1—Morrow-Umatilla

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
	<p>Mountain Forest related KOPs</p> <ul style="list-style-type: none"> Travel Routes: The highest impacts on travel routes would be associated with a crossing of I-84 east of Boardman; a crossing of State Highway 207; a crossing of US Highway 395; and close parallel alignment with I-84 in the Blue Mountains <p>Federal Land Conformance</p> <ul style="list-style-type: none"> Non-conformance within the USFS-administered lands through the BA-011 Blue Mountains Forest VAU 	<p>American concern along this alternative route</p> <ul style="list-style-type: none"> There is the potential for direct effects on undocumented, significant sites (pre-contact and historic [transportation corridors]) near the Umatilla River crossings and southeast of Kamela, along with the potential for significant pre-contact sites south of Pendleton Potential to encounter NHT-related sites (Echo area) Based on RLS cultural data collected for alternative routes in the vicinity of Boardman, Echo, and Pilot Rock, resources that potentially could be affected visually include numerous residential and commercial buildings, waterworks, and historic transportation corridors <p>Impacts</p> <ul style="list-style-type: none"> 2.8 miles of high cultural resource sensitivity. Additional miles of high cultural resource sensitivity would be anticipated due to one unrecorded segment of the Oregon NHT along this alternative route. There is the potential for additional miles of high cultural resource sensitivity in the McKay Creek area (high potential to encounter undocumented, significant sites) 13.1 miles of moderate cultural resource sensitivity 37.2 miles of low cultural resource sensitivity 31.6 miles of no cultural resource sensitivity 	<p>Sand Hollow Battlefield 1848</p> <ul style="list-style-type: none"> There is the potential for undocumented, significant sites (primarily rock features [Kamela area, Wallowa-Whitman National Forest]) Traditional foods <ul style="list-style-type: none"> Ongoing coordination and consultation with Native American sovereign tribal governments may identify additional resources of concern 	<ul style="list-style-type: none"> Moderate: 1.4 miles Low: 1.8 miles <p>Trail Management</p> <ul style="list-style-type: none"> Moderate impacts on views from NPS auto tour route <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Upper Columbia River Route Study Trail</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: none Moderate: none Low: 3.2 miles <p>Key Issues</p> <ul style="list-style-type: none"> Potential designation not compromised <p>Umatilla River Route and Columbia River to The Dalles Study Trail</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: none Moderate: 1.1 miles Low: 16.2 miles <p>Key Issues:</p> <ul style="list-style-type: none"> Potential designation could be locally compromised 	
<p>Variation S1-A1</p>	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 17.0 miles Moderate: 1.1 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 5 VAUs affected <ul style="list-style-type: none"> 3 Foreground 5 Middleground Generally moderate impacts on scenery associated with Pendleton area <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: Residences near I-84 would experience high impacts Recreation : No key issues identified Travel Routes: High Impacts on I-84 <p>Federal Land Conformance</p> <ul style="list-style-type: none"> No key issues identified 	<p>Inventory</p> <ul style="list-style-type: none"> 6 previously recorded sites in the study corridor There are no previously recorded sites in the direct effects APE Crosses one unrecorded segment (unknown condition) of the Oregon NHT (refer to map MV-25 for inventory data) Key resources include the Oregon NHT and one human burial site (funerary objects) There are sites of Native American concern along this route variation Potential for undocumented, trail-associated sites in the Echo area There are sites or areas of Native American concern along this route variation <p>Impacts</p> <ul style="list-style-type: none"> 0 miles of high cultural resource sensitivity. Miles of high cultural resource sensitivity 	<ul style="list-style-type: none"> Due to the nature of available data, resources of Native American concern only are discussed by alternative route. Refer to the Interstate 84 Alternative 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: 3.9 miles Moderate: 12.5 miles Low: 2.1 miles <p>Trail Management</p> <ul style="list-style-type: none"> High impacts on views from the NPS Auto Tour Route <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> No direct impacts on contributing trail segments, high indirect impacts on contributing trail segments <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Lewis and Clark NHT</p> <ul style="list-style-type: none"> This route variation is not located in proximity to the Lewis and Clark NHT. <p>Upper Columbia River Route Study Trail</p>	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population Low agricultural impacts with yield losses valued at \$76,850 annually during construction and \$15,764 during operations No identifiable impacts on CAFO operations No identifiable impacts on grazing resources No identifiable impacts on timber resources Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental justice population

Table 2-21. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 1—Morrow-Umatilla

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
		<p>would be anticipated due to one unrecorded segment of the Oregon NHT along this route variation</p> <ul style="list-style-type: none"> 1.4 miles of moderate cultural resource sensitivity 1.3 miles of low cultural resource sensitivity 15.8 miles of no cultural resource sensitivity 		<ul style="list-style-type: none"> This route variation is not located in proximity to the Upper Columbia River Route Study Trail. <p>Umatilla River Route and Columbia River to The Dalles Study Trail</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: none Moderate: 0.1 mile Low: 5.2 miles <p>Key Issues</p> <ul style="list-style-type: none"> Potential designation could be locally compromised 	
Variation S1-A2	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: none Moderate: 7.8 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 5 VAUs affected <ul style="list-style-type: none"> 3 Foreground 5 Middleground Stronger adverse impacts on a VAU with B scenic quality (BA-032 Umatilla River) <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: Lesser number of high impacts due to colocation Recreation : No key issues identified Travel Routes: Less impacts on I-84 <p>Federal Land Conformance</p> <ul style="list-style-type: none"> No key issues identified 	<p>Inventory</p> <ul style="list-style-type: none"> 6 previously recorded sites in the study corridor There are no previously recorded sites in the direct effects APE Crosses one unrecorded segment (unknown condition) of the Oregon NHT (refer to map MV-25 for inventory data) Same key resources as Variation S1-A1. Although these route variations do not share similar alignments, key resources are the same because they occur where the route variations intersect (Echo area) There are sites of Native American concern along this route variation Potential to encounter NHT-related sites (Echo and Nolin areas) <p>Impacts</p> <ul style="list-style-type: none"> 0 miles of high cultural resource sensitivity. Miles of high cultural resource sensitivity would be anticipated due to one unrecorded segment of the Oregon NHT along this route variation 1.6 miles of moderate cultural resource sensitivity 2.0 miles of low cultural resource sensitivity 14.9 miles of no cultural resource sensitivity 	<ul style="list-style-type: none"> Due to the nature of available data, resources of Native American concern only are discussed by alternative route. Refer to the Interstate 84 Alternative 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: 1.0 mile Moderate: 2.8 miles Low: 14.7 miles <p>Trail Management</p> <ul style="list-style-type: none"> No key issues identified <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> No direct impacts on contributing trail segments, high impacts on views from contributing trail segments <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Lewis and Clark NHT</p> <ul style="list-style-type: none"> This route variation is not located in proximity to the Lewis and Clark NHT. <p>Upper Columbia River Route Study Trail</p> <ul style="list-style-type: none"> This route variation is not located in proximity to the Upper Columbia River Route Study Trail. <p>Umatilla River Route and Columbia River to The Dalles Study Trail</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: none Moderate: 0.4 miles Low: 6.0 miles <p>Key Issues</p> <ul style="list-style-type: none"> Potential designation could be locally compromised 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population Minimal agricultural impacts with yield losses valued at \$29,003 annually during construction and \$8,701 during operations Moderate impacts on CAFO operations: loss operation capacity at affected CAFOs is estimated to be valued at \$464,640 during construction with residual loss capacity valued at \$139,392 No identifiable impacts on grazing resources No identifiable impacts on timber resources Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental justice population
Interstate 84 – Southern Route	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 60.7 miles Moderate: 22.9 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 11 VAUs affected <ul style="list-style-type: none"> 7 Foreground 	<p>Inventory</p> <ul style="list-style-type: none"> 92 previously recorded sites in the study corridor 6 previously recorded sites in the direct effects APE Same key resources as the Interstate 84 Alternative, except that the Interstate 84 – Southern Route Alternative avoids the 	<ul style="list-style-type: none"> Same previously recorded sites of tribal significance as the Interstate 84 Alternative, except for 1 additional site along the Interstate 84 – Southern Route Alternative. Most of the sites occur in the areas where the alignments are shared (from Longhorn Substation [to the 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: 5.2 miles Moderate: 27.4 miles Low: 16.6 miles <p>Trail Management</p> <ul style="list-style-type: none"> Moderate impacts on views from Blue 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population Moderate agricultural impacts with yield losses valued at \$492,607 annually during construction and \$136,450 during operations Moderate impacts on CAFO operations: loss operation capacity at affected CAFOs is estimated to be valued at \$449,856 during

Table 2-21. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 1—Morrow-Umatilla

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
	<p>– 11 Middleground</p> <ul style="list-style-type: none"> The visible foreground of VAUs crossed would generally experience high impacts and would reduce scenic score however not lower the overall rating of B scenic quality <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: High impacts on residences adjacent or near I-84 corridor as well as impact views of residences from Birch Creek Valley Recreation: Where project is visible from Stationary Sensitive Viewing Platforms associated with recreation, views would experience moderate impacts in the Spring Creek camp areas as well as the Blue Mountain Forest related KOPs Travel Routes: The highest impacts on travel routes would be associated with a crossing of I-84 east of Boardman; I-82; a crossing of State Highway 207; a crossing of US Highway 395; and close parallel alignment with I-84 in the Blue Mountains <p>Federal Land Conformance</p> <ul style="list-style-type: none"> Non-conformance within the USFS-administered lands through the BA-011 Blue Mountains Forest VAU 	<p>McKay Creek area. Although the alternative routes do not follow similar alignments, most of the resources occur in the areas where the alignments are shared or intersect (from the Longhorn Substation [to the east/southeast] to Pilot Rock)</p> <ul style="list-style-type: none"> Crosses one unrecorded segment (unknown condition) of the Oregon NHT (refer to map MV-25 for inventory data) Crosses one undocumented segment of the Umatilla River Route and Columbia River to The Dalles Study Trail (refer to map MV-26 for inventory data) There are sites or areas of Native American concern along this alternative route There is the potential for direct effects on undocumented, significant sites (pre-contact and historic) near the Umatilla River crossings and southeast of Kamela, along with the potential for significant pre-contact sites south of Pendleton Potential to encounter NHT-related sites (Echo area) Based on RLS cultural data collected for alternative routes in the vicinity of Boardman, Echo, and Pilot Rock, resources that potentially could be affected visually are the same as those identified along the Interstate 84 Alternative. Both alternative routes share the same alignment, passing in proximity to the same resources <p>Impacts</p> <ul style="list-style-type: none"> 2.4 miles of high cultural resource sensitivity. Additional miles of high cultural resource sensitivity would be anticipated due to one unrecorded segment of the Oregon NHT along this alternative route 12.7 miles of moderate cultural resource sensitivity 43.0 miles of low cultural resource sensitivity 35.3 miles of no cultural resource sensitivity 	<p>east/southeast] to Pilot Rock and east of Rocky Ridge)</p> <ul style="list-style-type: none"> Similar key resources of Native American concern as the Interstate 84 Alternative, except that the Interstate 84 – Southern Route Alternative avoids the McKay Creek area and lies slightly farther from significant sites near Pilot Rock There is the potential for undocumented, significant sites (primarily rock features [Kamela area, Wallowa-Whitman National Forest]) Ongoing coordination and consultation with Native American sovereign tribal governments may identify additional resources of concern 	<p>Mountains High Potential Route Segment</p> <ul style="list-style-type: none"> Moderate impacts on views from Blue Mountain Crossing Interpretive Park High Potential Historic Segment High impacts on NPS Auto Tour Route <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> Moderate impacts on views from Blue Mountain Crossing Interpretive Park <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> No direct impacts on contributing trail segments, high impacts on views from contributing trail segments <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Lewis and Clark NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: none Moderate: 1.4 miles Low: 1.8 miles <p>Trail Management</p> <ul style="list-style-type: none"> Moderate impacts on views from NPS auto tour route <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Upper Columbia River Route Study Trail</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: none Moderate: none Low: 3.2 miles <p>Key Issues</p> <ul style="list-style-type: none"> Potential designation not compromised <p>Umatilla River Route and Columbia River to The Dalles Study Trail</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: none Moderate: 1.1 miles Low: 16.2 miles <p>Key Issues</p> <ul style="list-style-type: none"> Potential designation could be locally compromised 	<p>construction with residual loss capacity valued at \$124,608</p> <ul style="list-style-type: none"> Minimal impacts on grazing resources: estimated forage losses during construction are equivalent to approximately 9 AUMs with residual forage losses of approximately 4 AUMs High impacts on timber resources: the B2H Project could disturb 339 acres of timberlands during construction with residual disturbances equal to 93 acres of timberlands Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental justice population

<p><i>Table Note:</i></p> <p>ACEC = area of critical environmental concern</p> <p>APE = area of potential effects</p> <p>AUM = animal unit month</p> <p>BA = Biological Assessment</p> <p>BLM = Bureau of Land Management</p>	<p>CAFO = confined animal feeding operation</p> <p>CRP = Conservation Reserve Program</p> <p>EFU = exclusive farm use</p> <p>FAA = Federal Aviation Authority</p> <p>KOP = key observation point</p> <p>NHT = national historic trail</p>	<p>NPS = National Park Service</p> <p>NRHP = National Register of Historic Places</p> <p>NWSTF = Naval Weapons Systems Training Facility</p> <p>P = Private</p> <p>RLS = reconnaissance level survey</p> <p>ROS = recreation opportunity spectrum</p>		<p>SEORMP = Southeastern Oregon Resource Management Plan</p> <p>USFS = U.S. Forest Service</p> <p>VAU = Visual Analysis Unit</p> <p>VRM = visual resource management</p> <p>WSR = Wild and Scenic River</p>
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Table 2-22. Alternative Route Comparison Summary for Earth Resources, Water Resources, Vegetation Resources, Wildlife Resources, and Fish Resources in Segment 2—Blue Mountains					
Alternative Route	Earth Resources	Water Resources	Vegetation Resources	Wildlife Resources	Fish Resources
Applicant's Proposed Action	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> • 378 acres of high floodzone percentage • 378 acres of moderate floodzone percentage • Soils with moderate water erosion: 4.3 miles • Farmlands: 1.4 miles • Soils with compaction potential: 3.9 miles 	<p>Residual Impacts</p> <ul style="list-style-type: none"> • With mitigation, only low residual impacts on perennial and intermittent streams, and scrub-shrub, emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> – Perennial Streams: 2.2 miles – Intermittent Streams: 5.6 miles – 303(d) Temperature Listed: 0.2 mile – Scrub-shrub Wetland: 0.7 mile – Emergent Wetland: 1.7 miles – Open Water: 2.2 miles • Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> • 33.4 miles of moderate residual impacts where alternative route crosses Aspen, Dwarf Sagebrush, Juniper and Mahogany Woodland, Mixed Conifer Forest, Mountain Shrub, Native Grasslands, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> • 2 known sensitive plant species occurrences in the 1-mile study corridor • 1 sensitive plant species known to occur in 1-mile study corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> • Known occurrences of Howell's spectacular thelypody within 2.0 miles of alternative 	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> • PHMA not crossed, no high residual impacts expected • 3.2 miles of moderate residual impacts where GHMA is crossed <p>Big Game</p> <ul style="list-style-type: none"> • 29.1 miles of low residual impacts where mule deer and elk winter range is crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> • Bull trout critical habitat: 0.1 mile • Chinook salmon critical habitat: 0.3 mile • MCR steelhead critical habitat: none • SRB steelhead critical habitat: 0.7 mile • Redband trout occupied streams: 2.3 miles <p>Residual Impacts</p> <ul style="list-style-type: none"> • Moderate: 0.7 mile • Low: 1.8 miles • None: 31.3 miles • With mitigation, only moderate residual impacts on Chinook salmon, steelhead, and bull trout protected habitats are anticipated • With mitigation, only low residual impacts on redband trout occupied streams are anticipated
Variation S2-A1	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> • 0.21 acres of high floodzone percentage • 321 acres of moderate floodzone percentage • Soils with moderate water erosion: 0.2 mile 	<p>Residual Impacts</p> <ul style="list-style-type: none"> • Intermittent Streams: 0.7 mile • No additional impacts on any wetland type are anticipated with this route variation 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> • 2.8 miles of moderate residual impacts where alternative route crosses Mixed Conifer Forest, Mountain Shrub, Native Grasslands, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> • No sensitive plant species known to occur in 1-mile study corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> • No federally listed plants known to occur in proximity 	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> • PHMA and GHMA not crossed, no impacts expected <p>Big Game</p> <ul style="list-style-type: none"> • 2.8 miles of low residual impacts where mule deer and elk winter range is crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> • Bull trout critical habitat : none • Chinook salmon critical habitat: none • MCR steelhead critical habitat: none • SRB steelhead critical habitat: none • Redband trout occupied streams: none <p>Residual Impacts</p> <ul style="list-style-type: none"> • Moderate: none • Low: none • None: 2.8 miles • Variation S2-A1 does not cross any streams which support special status fish species or protected fish habitats. Impacts are not anticipated
Variation S2-A2	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> • 0.21 acres of high floodzone percentage • 333 acres of moderate floodzone percentage • Soils with moderate water erosion: 0.5 mile 	<p>Residual Impacts</p> <ul style="list-style-type: none"> • With mitigation, only low residual impacts on intermittent streams and open water wetlands are anticipated <ul style="list-style-type: none"> – Intermittent Streams: 1.4 miles – Open Water: 0.1 mile • Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> • 2.9 miles of moderate residual impacts where alternative route crosses Mixed Conifer Forest, Mountain Shrub, Native Grasslands, and Riparian Conservation Areas <p>Sensitive Plants</p> <ul style="list-style-type: none"> • No sensitive plant species known to occur in 1-mile study corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> • No federally listed plants known to occur in proximity 	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> • PHMA and GHMA not crossed, no impacts expected <p>Big game</p> <ul style="list-style-type: none"> • 2.9 miles of low residual impacts where mule deer and elk winter range is crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> • Bull trout critical habitat : none • Chinook salmon critical habitat: none • MCR steelhead critical habitat: none • SRB steelhead critical habitat: none • Redband trout occupied streams: none <p>Residual Impacts</p> <ul style="list-style-type: none"> • Moderate: none • Low: none • None: 2.9 miles • Variation S2-A2 does not cross any streams which support special status fish species or protected fish habitats. Impacts are not anticipated
Variation S2-B1	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> • Soils with moderate water erosion: 0.2 mile • Soils with compaction potential: 0.2 mile 	<p>Residual Impacts</p> <ul style="list-style-type: none"> • With mitigation, only low residual impacts on perennial and intermittent streams, and emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> – Perennial Streams: 0.8 mile 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> • 3.7 miles of moderate residual impacts where alternative route crosses Juniper and Mahogany Woodland, Mixed Conifer Forest, Mountain Shrub, and Riparian Conservation 	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> • PHMA and GHMA not crossed, no impacts expected <p>Big game</p> <ul style="list-style-type: none"> • 3.1 miles of low residual impacts where mule deer and elk winter range is crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> • Bull trout critical habitat : none • Chinook salmon critical habitat: 0.2 mile • MCR steelhead critical habitat: none • SRB steelhead critical habitat: 0.4 mile • Redband trout occupied streams: 0.4 mile

Table 2-22. Alternative Route Comparison Summary for Earth Resources, Water Resources, Vegetation Resources, Wildlife Resources, and Fish Resources in Segment 2—Blue Mountains					
Alternative Route	Earth Resources	Water Resources	Vegetation Resources	Wildlife Resources	Fish Resources
		<ul style="list-style-type: none"> - Intermittent Streams: 0.7 mile - Emergent Wetland: 0.5 mile - Open Water: 0.5 mile • Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Areas</p> <p>Sensitive Plants</p> <ul style="list-style-type: none"> • No sensitive plant species known to occur in 1-mile study corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> • No federally listed plants known to occur in proximity 		<p>Residual Impacts</p> <ul style="list-style-type: none"> • Moderate: 0.4 mile • Low: 0.1 mile • None: 3.2 mile • With mitigation, only moderate residual impacts on Chinook salmon and steelhead protected habitats are anticipated • With mitigation, only low residual impacts on redband trout occupied streams are anticipated
Variation S2-B2	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> • Soils with moderate water erosion: 0.3 mile • Soils with compaction potential: 0.2 mile 	<p>Residual Impacts</p> <ul style="list-style-type: none"> • With mitigation, only low residual impacts on perennial and intermittent streams, and open water wetlands, are anticipated <ul style="list-style-type: none"> - Perennial Streams: 0.7 mile - Intermittent Streams: 0.8 mile - Open Water: 0.7 mile • Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Residual Impacts:</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> • 3.8 miles of moderate residual impacts where alternative route crosses Mixed Conifer Forest, Mountain Shrub, and Riparian Conservation Areas, Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> • No sensitive plant species known to occur in 1-mile study corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> • No federally listed plants known to occur in proximity 	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> • PHMA and GHMA not crossed, no impacts expected <p>Big game</p> <ul style="list-style-type: none"> • 3.8 miles of low residual impacts where mule deer and elk winter range is crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> • Bull trout critical habitat : none • Chinook salmon critical habitat: 0.2 mile • MCR steelhead critical habitat: none • SRB steelhead critical habitat: 0.4 mile • Redband trout occupied streams: 0.3 mile <p>Residual Impacts</p> <ul style="list-style-type: none"> • Moderate: 0.4 mile • Low: none • None: 3.4 miles • With mitigation, only moderate residual impacts on Chinook salmon and steelhead protected habitats are anticipated
Variation S2-C1	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> • Soils with moderate water erosion: 1.3 miles • Soils with compaction potential: 1.5 miles 	<p>Residual Impacts</p> <ul style="list-style-type: none"> • With mitigation, only low residual impacts on perennial and intermittent streams, and emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> - Perennial Streams: 0.3 mile - Intermittent Streams: 0.7 mile - Emergent Wetland: 0.1 mile - Open Water: 0.2 mile • Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> • 9.3 miles of moderate residual impacts where alternative route crosses Juniper and Mahogany Woodland, Mixed Conifer Forest, Mountain Shrub, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> • No sensitive plant species known to occur in 1-mile study corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> • No federally listed plants known to occur in proximity 	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> • PHMA and GHMA not crossed, no impacts expected <p>Big game</p> <ul style="list-style-type: none"> • 7.4 miles of low residual impacts where mule deer and elk winter range is crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> • Bull trout critical habitat : none • Chinook salmon critical habitat: none • MCR steelhead critical habitat: none • SRB steelhead critical habitat: 0.2 mile • Redband trout occupied streams: 0.3 mile <p>Residual Impacts</p> <ul style="list-style-type: none"> • Moderate: 0.2 mile • Low: 0.2 mile • None: 8.9 miles • With mitigation, only moderate residual impacts on steelhead protected habitats are anticipated • With mitigation, only low residual impacts on redband trout occupied streams are anticipated
Variation S2-C2	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> • Soils with moderate water erosion: 0.2 mile: • Soils with compaction potential: 0.9 mile • Areas with PFYC 3: 0.9 mile 	<p>Residual Impacts</p> <ul style="list-style-type: none"> • With mitigation, only low residual impacts on perennial and intermittent streams, and scrub-shrub and open water wetlands, are anticipated <ul style="list-style-type: none"> - Perennial Streams: 0.6 mile - Intermittent Streams: 0.5 mile - Scrub-shrub Wetland: 0.1 mile - Open Water: 0.3 mile • Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> • 8.8 miles of moderate residual impacts where alternative route crosses Dwarf Sagebrush Steppe, Juniper and Mahogany Woodland, Mixed Conifer Forest, Mountain Shrub, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> • 1 known sensitive plant species occurrences in the 1-mile study corridor • 1 sensitive plant species known to occur in 1-mile study corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> • No federally listed plants known to occur in proximity 	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> • PHMA and GHMA not crossed, no impacts expected <p>Big game</p> <ul style="list-style-type: none"> • 6.8 miles of low residual impacts where mule deer and elk winter range is crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> • Bull trout critical habitat : none • Chinook salmon critical habitat: none • MCR steelhead critical habitat: none • SRB steelhead critical habitat: 0.3 mile • Redband trout occupied streams: 0.6 mile <p>Residual Impacts</p> <ul style="list-style-type: none"> • Moderate: 0.3 mile • Low: 0.4 mile • None: 8.1 miles • With mitigation, only moderate residual impacts on steelhead protected habitats are anticipated • With mitigation, only low residual impacts on redband trout occupied streams are anticipated

Table 2-22. Alternative Route Comparison Summary for Earth Resources, Water Resources, Vegetation Resources, Wildlife Resources, and Fish Resources in Segment 2—Blue Mountains					
Alternative Route	Earth Resources	Water Resources	Vegetation Resources	Wildlife Resources	Fish Resources
Variation S2-E1	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> None 	<p>Residual Impacts</p> <ul style="list-style-type: none"> With mitigation, only low residual impacts on intermittent streams and open water wetlands are anticipated <ul style="list-style-type: none"> Intermittent Streams: 0.3 mile Open Water: 0.1 mile Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> 2.3 miles of moderate residual impacts where alternative route crosses, Mixed Conifer Forest, Mountain Shrub, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> No sensitive plant species known to occur in 1-mile study corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> No federally listed plants known to occur in proximity 	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> PHMA and GHMA not crossed, no impacts expected <p>Big game</p> <ul style="list-style-type: none"> 2.3 miles of low residual impacts where mule deer and elk winter range is crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Bull trout critical habitat : none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: none Redband trout occupied streams: 0.1 mile <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: none Low: 0.1 mile None: 2.2 miles With mitigation, only low residual impacts on redband trout occupied streams are anticipated
Variation S2-E2	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Soils with moderate water erosion: 0.1 mile Soils with compaction potential: 0.3 mile 	<p>Residual Impacts</p> <ul style="list-style-type: none"> With mitigation, only low residual impacts on perennial and intermittent streams, and scrub-shrub and emergent wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 0.1 mile Intermittent Streams: 0.2 mile Scrub-shrub Wetland: 0.1 mile Emergent Wetland: 0.1 mile Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> 2.6 miles of moderate residual impacts where alternative route crosses Juniper and Mahogany Woodland, Mixed Conifer Forest, Mountain Shrub, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> 1 known sensitive plant species occurrence in the 1-mile study corridor 1 sensitive plant species known to occur in 1-mile study corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> No federally listed plants known to occur in proximity 	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> PHMA and GHMA not crossed, no impacts expected <p>Big game</p> <ul style="list-style-type: none"> 2.6 miles of low residual impacts where mule deer and elk winter range is crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Bull trout critical habitat : none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: none Redband trout occupied streams: 0.1 mile <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: none Low: 0.1 mile None: 2.5 miles With mitigation, only low residual impacts on redband trout occupied streams are anticipated
Variation S2-F1	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Soils with moderate water erosion: 2.1 miles Farmlands: 1.4 miles Soils with compaction potential: 2.2 miles 	<p>Residual Impacts</p> <ul style="list-style-type: none"> With mitigation, only low residual impacts on perennial and intermittent streams, and scrub-shrub, emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 0.7 mile Intermittent Streams: 2.1 miles 303(d) Temperature Listed: 0.2 mile Scrub-shrub Wetland: 0.6 mile Emergent Wetland: 1.1 miles Open Water: 1.0 mile Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Residual Impact</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> 11.7 miles of moderate residual impacts where alternative route crosses Aspen, Dwarf Sagebrush Steppe, Mixed Conifer Forest, Mountain Shrub, Native Grassland Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> 2 known sensitive plant species occurrences in the 1-mile study corridor 1 sensitive plant species known to occur in 1-mile study corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> Known occurrences of Howell's spectacular thelypody within 2.0 miles of route variation 	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> PHMA not crossed, no high impacts expected 3.2 miles of moderate residual impacts where GHMA is crossed <p>Big game</p> <ul style="list-style-type: none"> 9.3 miles of low residual impacts where mule deer and elk winter range is crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Bull trout critical habitat : none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: none Redband trout occupied streams: 1.3 miles <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: none Low: 1.3 miles None: 10.8 miles With mitigation, only low residual impacts on redband trout occupied streams are anticipated
Variation S2-F2	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Soils with moderate water erosion: 1.2 miles Farmlands: 1.2 miles Soils with compaction potential: 2.1 miles 	<p>Residual Impacts</p> <ul style="list-style-type: none"> With mitigation, only low residual impacts on perennial and intermittent streams, and scrub-shrub, emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 1.1 miles Intermittent Streams: 1.6 miles 303(d) Temperature Listed: 0.2 mile Scrub-shrub Wetland: 0.1 mile 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> 12.0 miles of moderate residual impacts where alternative route crosses Dwarf Sagebrush Steppe, Juniper and Mahogany Woodland, Native Grassland, Mountain Shrub Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p>	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> PHMA not crossed, no high impacts expected 1.9 miles of moderate residual impacts where GHMA is crossed <p>Big game</p> <ul style="list-style-type: none"> 10.2 miles of low residual impacts where mule deer and elk winter range is crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Bull trout critical habitat : none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: none Redband trout occupied streams: 0.9 mile <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: none Low: 0.9 mile

Table 2-22. Alternative Route Comparison Summary for Earth Resources, Water Resources, Vegetation Resources, Wildlife Resources, and Fish Resources in Segment 2—Blue Mountains					
Alternative Route	Earth Resources	Water Resources	Vegetation Resources	Wildlife Resources	Fish Resources
		<ul style="list-style-type: none"> Emergent Wetland: 0.3 mile Open Water: 1.0 mile Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<ul style="list-style-type: none"> No sensitive plant species known to occur in 1-mile study corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> Known occurrences of Howell's spectacular thelypody within 2.0 miles of route variation 		<ul style="list-style-type: none"> None: 11.3 miles With mitigation, only low residual impacts on redband trout occupied streams are anticipated
Glass Hill	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> 77 acres of high floodzone percentage 378 acres of moderate floodzone percentage Soils with moderate water erosion: 3.2 miles Farmlands: 1.4 miles Soils with compaction potential: 2.6 miles 	<p>Residual Impacts</p> <ul style="list-style-type: none"> With mitigation, only low residual impacts on perennial and intermittent streams, and scrub-shrub, emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 2.6 miles Intermittent Streams: 5.5 miles 303(d) Temperature Listed: 0.2 mile Scrub-shrub Wetland: 1.0 mile Emergent Wetland: 1.7 miles Open Water: 2.2 miles Greatest amount of impacts on all stream and wetland types of all alternatives Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> 33.1 miles of moderate residual impacts where alternative route crosses Aspen, Dwarf Sagebrush, Juniper and Mahogany Woodland, Mixed Conifer Forest, Mountain Shrub, Native Grasslands, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> 2 known sensitive plant species occurrences in the 1-mile study corridor 1 sensitive plant species known to occur in 1-mile study corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> Known occurrences of Howell's spectacular thelypody within 2.0 miles of alternative 	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> PHMA not crossed, no high impacts expected 3.2 miles of moderate residual impacts where GHMA is crossed <p>Big game</p> <ul style="list-style-type: none"> 29.0 miles of low residual impacts where mule deer and elk winter range is crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Bull trout critical habitat : 0.1 mile Chinook salmon critical habitat: 0.1 mile MCR steelhead critical habitat: none SRB steelhead critical habitat: 0.6 mile Redband trout occupied streams: 2.6 miles <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: 0.6 mile Low: 2.1 miles None: 31.0 miles With mitigation, only moderate residual impacts on Chinook salmon, steelhead, and bull trout protected habitats are anticipated With mitigation, only low residual impacts on redband trout occupied streams are anticipated
Variation S2-D1	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Soils with moderate water erosion: 0.4 mile 	<p>Residual Impacts</p> <ul style="list-style-type: none"> With mitigation, only low residual impacts on perennial and intermittent streams, and scrub-shrub and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 0.6 mile Intermittent Streams: 0.7 mile Scrub-shrub Wetland: 0.1 mile Open Water: 0.4 mile Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> 4.3 miles of moderate residual impacts where alternative route crosses Juniper and Mahogany Woodland, Mixed Conifer Forest, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> No sensitive plant species known to occur in 1-mile study corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> No federally listed plants known to occur in proximity 	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> PHMA and GHMA not crossed, no impacts expected <p>Big game</p> <ul style="list-style-type: none"> 4.3 miles of low residual impacts where mule deer and elk winter range is crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Bull trout critical habitat : none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: 0.5 mile Redband trout occupied streams: 0.4 mile <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: 0.5 mile Low: none None: 3.8 miles With mitigation, only moderate residual impacts on steelhead protected habitats are anticipated
Variation S2-D2	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Soils with moderate water erosion: 0.7 mile 	<p>Residual Impacts</p> <ul style="list-style-type: none"> With mitigation, only low residual impacts on perennial and intermittent streams, and scrub-shrub and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 0.7 mile Intermittent Streams: 0.2 mile Scrub-shrub Wetland: 0.1 mile Open Water: 0.5 mile Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> 4.0 miles of moderate residual impacts where alternative route crosses Mixed Conifer Forest, Native Grasslands, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> No sensitive plant species known to occur in 1-mile study corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> No federally listed plants known to occur in proximity 	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> PHMA and GHMA not crossed, no impacts expected <p>Big game</p> <ul style="list-style-type: none"> 4.1 miles of low residual impacts where mule deer and elk winter range are crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Bull trout critical habitat : none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: 0.4 mile Redband trout occupied streams: 0.4 mile <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: 0.4 mile Low: none None: 3.7 miles With mitigation, only moderate residual impacts on steelhead protected habitats are anticipated
Mill Creek	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Recent Quaternary faults 0.21 acres of high floodzone percentage 3,380 acres of moderate floodzone 	<p>Residual Impacts</p> <ul style="list-style-type: none"> With mitigation, only low residual impacts on perennial and intermittent streams, and scrub-shrub, emergent and open water wetlands, are anticipated 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> 33.4 miles of moderate residual impacts where alternative route crosses Dwarf Sagebrush, Juniper and Mahogany 	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> PHMA not crossed, no impacts expected 1.9 miles of moderate residual impacts where GHMA is crossed <p>Big game</p>	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Bull trout critical habitat : 0.1 mile Chinook salmon critical habitat: 0.2 mile MCR steelhead critical habitat: none SRB steelhead critical habitat: 0.6 mile

Table 2-22. Alternative Route Comparison Summary for Earth Resources, Water Resources, Vegetation Resources, Wildlife Resources, and Fish Resources in Segment 2—Blue Mountains					
Alternative Route	Earth Resources	Water Resources	Vegetation Resources	Wildlife Resources	Fish Resources
	percentage • Soils with moderate water erosion: 3.0 miles • Farmlands: 1.2 miles • Soils with compaction potential: 3.5 miles	<ul style="list-style-type: none"> - Perennial Streams: 2.4 miles - Intermittent Streams: 5.4 miles - 303(d) Temperature Listed: 0.2 mile - Scrub-shrub Wetland: 0.6 mile - Emergent Wetland: 0.9 mile - Open Water: 2.5 miles • Wetland permits may be required for any crossing larger than 0.2 acres of impact	Woodland, Mixed Conifer Forest, Mountain Shrub, Native Grasslands, Riparian Conservation Areas, and Tall Sagebrush Steppe Sensitive Plants <ul style="list-style-type: none"> • 3 known sensitive plant species occurrences in the 1-mile study corridor • 3 sensitive plant species known to occur in 1-mile study corridor Federally Listed Plants <ul style="list-style-type: none"> • Known occurrences of Howell's spectacular thelypody within 2.0 miles of alternative 	<ul style="list-style-type: none"> • 32.0 miles of low residual impacts where mule deer and elk winter range is crossed 	<ul style="list-style-type: none"> • Redband trout occupied streams: 1.4 miles Residual Impacts <ul style="list-style-type: none"> • Moderate: 0.6 mile • Low: 0.9 mile • None: 32.5 miles • With mitigation, only moderate residual impacts on Chinook salmon, steelhead, and bull trout protected habitats are anticipated • With mitigation, only low residual impacts on redband trout occupied streams are anticipated
<p><i>Table Note:</i></p> <p>ACEC = area of critical environmental concern APE = area of potential effects BLM = Bureau of Land Management CAFO = confined animal feeding operation CRP = Conservation Reserve Program EFU = exclusive farm use FAA = Federal Aviation Authority GHMA = general habitat management area MCR = Middle Columbia River</p> <p style="text-align: right;"> SRB = Snake River Basin NHT = national historic trail NWSTF = Naval Weapons Systems Training Facility P = Private PHMA = priority habitat management area ROS = recreation opportunity spectrum SEORMP = Southeastern Oregon Resource Management Plan VRM = visual resource management WSR = Wild and Scenic River </p>					

Table 2-23. Alternative Route Comparison Summary for Land Use, Agriculture, Recreation, Transportation, Lands with Wilderness Characteristics, and Potential Congressional Designations in Segment 2—Blue Mountains									
Alternative Route	Land Use				Agriculture	Recreation	Transportation	Lands with Wilderness Characteristics	Potential Congressional Designations
	Land Ownership (Percent)	Percent within Utility Corridors	Total Miles of Parallel Facilities within 2,000 feet	Summary					
Applicant's Proposed Action	BLM: 0.8 USFS: 1.3 P: 31.7	3.8	31.2	<p>Existing Land Use</p> <ul style="list-style-type: none"> No high residual impacts 14.6 miles of moderate residual impacts where the alternative route crosses agricultural and forest/woodlands No residential buildings within right-of-way <p>Zoning</p> <ul style="list-style-type: none"> Crosses 4.9 miles of EFU zoning <p>Military Training Lands</p> <ul style="list-style-type: none"> Crosses 3.1 miles of special use airspace Potential to create restrictions in aircraft movement during training Requires obstruction evaluation/airport airspace analysis in coordination with the FAA <p>Special Designated Areas Not crossed</p>	<p>Existing Agriculture</p> <ul style="list-style-type: none"> 0.8 mile moderate residual impacts where the alternative crosses field crops <p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> Crosses 2.4 miles of Prime Farmland if irrigated, 18.6 miles of farmland of statewide importance and 2.6 miles of high-value soils <p>Livestock Grazing</p> <ul style="list-style-type: none"> Crosses 11.5 miles of grazing allotments 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No lands with wilderness characteristics present 	<ul style="list-style-type: none"> No potential congressional designations are present
Variation S2-A1	USFS: 1.3 P: 1.5	46.4	2.9	<p>Existing Land Use</p> <ul style="list-style-type: none"> No high residual impacts 1.6 miles of moderate residual impacts where the alternative route crosses forest/woodlands No residential buildings within right-of-way <p>Zoning No EFU zoning crossed</p> <p>Military Training Lands</p> <ul style="list-style-type: none"> Crosses 2.8 miles of special use airspace Potential to create restrictions in aircraft movement during training Requires obstruction evaluation/airport airspace analysis in coordination with the FAA <p>Special Designated Areas Not crossed</p>	<p>Existing Agriculture</p> <ul style="list-style-type: none"> No moderate or high residual impacts expected <p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> Crosses 0.3 mile of farmland of statewide importance No high-value soils crossed <p>Livestock Grazing</p> <ul style="list-style-type: none"> Crosses 1.3 miles of grazing allotments 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No lands with wilderness characteristics present 	<ul style="list-style-type: none"> No potential congressional designations are present
Variation S2-A2	USFS: 2.5 P: 0.4	86.2	3.0	<p>Existing Land Use</p> <ul style="list-style-type: none"> No high residual impacts 2.1 miles of moderate residual impacts where the alternative route crosses forest/woodlands No residential building within right-of-way <p>Zoning No EFU zoning crossed</p> <p>Military Training Lands</p> <ul style="list-style-type: none"> Crosses 2.9 miles of special use airspace. Potential to create restrictions 	<p>Existing Agriculture</p> <ul style="list-style-type: none"> No moderate or high residual impacts expected No residential buildings within right-of-way <p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> Crosses 2.2 miles of farmland of statewide importance No high-value soils crossed <p>Livestock Grazing</p>	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No lands with wilderness characteristics present 	<ul style="list-style-type: none"> No potential congressional designations are present

Table 2-23. Alternative Route Comparison Summary for Land Use, Agriculture, Recreation, Transportation, Lands with Wilderness Characteristics, and Potential Congressional Designations in Segment 2—Blue Mountains									
Alternative Route	Land Use				Agriculture	Recreation	Transportation	Lands with Wilderness Characteristics	Potential Congressional Designations
	Land Ownership (Percent)	Percent within Utility Corridors	Total Miles of Parallel Facilities within 2,000 feet	Summary					
				in aircraft movement during training • Requires obstruction evaluation/airport airspace analysis in coordination with the FAA Special Designated Areas Not crossed	• Crosses 2.5 miles of grazing allotments				
Variation S2-B1	BLM: 0.8 P: 2.9	0	3.3	Existing Land Use • No high residual impacts • 2.0 miles of moderate residual impacts where the alternative route crosses forest/woodlands • 1 residential building within right-of-way Zoning No EFU zoning crossed Military Training Lands Not crossed Special Designated Areas Not crossed	Existing Agriculture • 0.1 mile moderate residual impacts where the alternative crosses field crops Important Farmland, High-value Soils, and CRP Lands • Crosses 2.9 miles of farmland of statewide importance • No high-value soils crossed Livestock Grazing • Crosses 0.8 mile of grazing allotments	• No high or moderate residual impacts	• No high or moderate residual impacts	• No lands with wilderness characteristics present	• No potential congressional designations are present
Variation S2-B2	P: 3.8	0	3.8	Existing Land Use • No high residual impacts • 2.2 miles of moderate residual impacts where the alternative route crosses forest/woodlands • No residential buildings within right-of-way Zoning No EFU zoning crossed Military Training Lands Not crossed Special Designated Areas Not crossed	Existing Agriculture • No moderate or high residual impacts expected Important Farmland, High-value Soils, and CRP Lands • Crosses 2.9 miles of farmland of statewide importance and 0.1 miles of high-value soils Livestock Grazing • No grazing allotments crossed	• No high or moderate residual impacts	• No high or moderate residual impacts	• No lands with wilderness characteristics present	• No potential congressional designations are present
Variation S2-C1	P: 9.3	0	9.0	Existing Land Use • No high residual impacts • 6.4 miles of moderate residual impacts where the alternative route crosses forest/woodlands • No residential buildings within right-of-way Zoning No EFU zoning crossed Military Training Lands Not crossed Special Designated Areas Not crossed	Existing Agriculture • 0.1 mile moderate residual impacts where the alternative crosses field crops Important Farmland, High-value Soils, and CRP Lands • Crosses 7.8 miles of farmland of statewide importance • No high-value soils crossed Livestock Grazing • Crosses 2.0 miles of grazing allotments	• No high or moderate residual impacts	• No high or moderate residual impacts	• No lands with wilderness characteristics present	• No potential congressional designations are present
Variation S2-C2	P: 8.8	0	8.5	Existing Land Use • No high residual impacts • 6.1 miles of moderate residual impacts where the alternative route crosses forest/woodlands • No residential building within right-of-way Zoning No EFU zoning crossed	Existing Agriculture • No moderate or high residual impacts expected Important Farmland, High-value Soils, and CRP Lands • Crosses 6.5 miles of farmland of statewide importance • No high-value soils crossed	• 0.8 mile of moderate impacts where crossing hunting access areas • Would have the greatest indirect effects to the Morgan Lake Recreation Area	• No high or moderate residual impacts	• No lands with wilderness characteristics present	• No potential congressional designations are present

Table 2-23. Alternative Route Comparison Summary for Land Use, Agriculture, Recreation, Transportation, Lands with Wilderness Characteristics, and Potential Congressional Designations in Segment 2—Blue Mountains									
Alternative Route	Land Use				Agriculture	Recreation	Transportation	Lands with Wilderness Characteristics	Potential Congressional Designations
	Land Ownership (Percent)	Percent within Utility Corridors	Total Miles of Parallel Facilities within 2,000 feet	Summary					
				<p>Military Training Lands Not crossed</p> <p>Special Designated Areas Not crossed</p>	<p>Livestock Grazing</p> <ul style="list-style-type: none"> • Crosses 2.9 miles of grazing allotments 				
Variation S2-E1	P: 2.3	0	2.2	<p>Existing Land Use</p> <ul style="list-style-type: none"> • No high residual impacts • 1.6 miles of moderate residual impacts where the alternative route crosses forest/woodlands • No residential building within right-of-way <p>Zoning No EFU zoning crossed</p> <p>Military Training Lands Not crossed</p> <p>Special Designated Areas Not crossed</p>	<p>Existing Agriculture</p> <ul style="list-style-type: none"> • No moderate or high residual impacts expected <p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> • Crosses 1.5 miles of farmland of statewide importance • No high-value soils crossed <p>Livestock Grazing</p> <ul style="list-style-type: none"> • Crosses 0.9 mile of grazing allotments 	<ul style="list-style-type: none"> • No high or moderate residual impacts 	<ul style="list-style-type: none"> • No high or moderate residual impacts 	<ul style="list-style-type: none"> • No lands with wilderness characteristics present 	<ul style="list-style-type: none"> • No potential congressional designations are present
Variation S2-E2	P: 2.6	0	2.6	<p>Existing Land Use</p> <ul style="list-style-type: none"> • No high residual impacts • 1.4 miles of moderate residual impacts where the alternative route crosses forest/woodlands • No residential building within right-of-way <p>Zoning No EFU zoning crossed</p> <p>Military Training Lands Not crossed</p> <p>Special Designated Areas Not crossed</p>	<p>Existing Agriculture</p> <ul style="list-style-type: none"> • 0.1 mile moderate residual impacts where the alternative crosses field crops <p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> • Crosses 1.4 miles of farmland of statewide importance • No high-value soils crossed <p>Livestock Grazing</p> <ul style="list-style-type: none"> • Crosses 1.4 miles of grazing allotments 	<ul style="list-style-type: none"> • No high or moderate residual impacts 	<ul style="list-style-type: none"> • No high or moderate residual impacts 	<ul style="list-style-type: none"> • No lands with wilderness characteristics present 	<ul style="list-style-type: none"> • No potential congressional designations are present
Variation S2-F1	P: 12.1	0	10.3	<p>Existing Land Use</p> <ul style="list-style-type: none"> • No high residual impacts • 1.2 miles of moderate residual impacts where the alternative route crosses agricultural and forest/woodlands • No residential building within right-of-way <p>Zoning No EFU zoning crossed</p> <p>Military Training Lands Not crossed</p> <p>Special Designated Areas Not crossed</p>	<p>Existing Agriculture</p> <ul style="list-style-type: none"> • 0.6 mile moderate residual impacts where the alternative crosses field crops <p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> • Crosses 2.4 miles of Prime Farmland if irrigated, 4.3 miles of farmland of statewide importance and 2.6 miles of high-value soils <p>Livestock Grazing</p> <ul style="list-style-type: none"> • Crosses 4.4 miles of grazing allotments 	<ul style="list-style-type: none"> • No high or moderate residual impacts 	<ul style="list-style-type: none"> • No high or moderate residual impacts 	<ul style="list-style-type: none"> • No lands with wilderness characteristics present 	<ul style="list-style-type: none"> • No potential congressional designations are present
Variation S2-F2	P: 12.2	0	12.2	<p>Existing Land Use</p> <ul style="list-style-type: none"> • No high residual impacts • 0.2 mile of moderate residual impacts where the alternative route crosses forest/woodlands • No residential building within right-of-way <p>Zoning No EFU zoning crossed</p> <p>Military Training Lands Not crossed</p>	<p>Existing Agriculture</p> <ul style="list-style-type: none"> • 0.2 mile moderate residual impacts where the alternative crosses field crops <p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> • Crosses 1.5 miles of Prime Farmland if irrigated, 3.0 miles of farmland of statewide importance and 1.8 miles of 	<ul style="list-style-type: none"> • No high or moderate residual impacts 	<ul style="list-style-type: none"> • No high or moderate residual impacts 	<ul style="list-style-type: none"> • No lands with wilderness characteristics present 	<ul style="list-style-type: none"> • No potential congressional designations are present

Table 2-23. Alternative Route Comparison Summary for Land Use, Agriculture, Recreation, Transportation, Lands with Wilderness Characteristics, and Potential Congressional Designations in Segment 2—Blue Mountains									
Alternative Route	Land Use			Summary	Agriculture	Recreation	Transportation	Lands with Wilderness Characteristics	Potential Congressional Designations
	Land Ownership (Percent)	Percent within Utility Corridors	Total Miles of Parallel Facilities within 2,000 feet						
				<i>Special Designated Areas Not crossed</i>	<i>high-value soils</i> Livestock Grazing • Crosses 5.7 miles of grazing allotments				
Glass Hill	BLM: 0.5 USFS: 1.3 P: 31.9	3.9	30.4	Existing Land Use • No high residual impacts • 13.4 miles of moderate residual impacts where the alternative route crosses agricultural and forest/woodlands • No residential building within right-of-way Zoning • Crosses 4.9 miles of EFU zoning Military Training Lands • Crosses 3.1 miles of special use airspace • Potential to create restrictions in aircraft movement during training • Requires obstruction evaluation/airport airspace analysis in coordination with the FAA Special Designated Areas Not crossed	Existing Agriculture • 0.6 mile moderate residual impacts where the alternative crosses field crops Important Farmland, High-value Soils, and CRP Lands • Crosses 2.4 miles of Prime Farmland if irrigated, 18.1 miles of farmland of statewide importance and 2.6 miles of high-value soils Livestock Grazing • Crosses 12.4 miles of grazing allotments	• No high or moderate residual impacts	• No high or moderate residual impacts	• No lands with wilderness characteristics present	• No potential congressional designations are present
Variation S2-D1	P: 4.3	0	2.9	Existing Land Use • No high residual impacts • 3.7 miles of moderate residual impacts where the alternative route crosses forest/woodlands • No residential building within right-of-way Zoning No EFU zoning crossed Military Training Lands Not crossed Special Designated Areas Not crossed	Existing Agriculture • No moderate or high residual impacts expected Important Farmland, High-value Soils, and CRP Lands • Crosses 3.5 miles of farmland of statewide importance • No high-value soils crossed Livestock Grazing • No grazing allotments crossed	• No high or moderate residual impacts	• No high or moderate residual impacts	• No lands with wilderness characteristics present	• No potential congressional designations are present
Variation S2-D2	P: 4.1	0	3.1	Existing Land Use • No high residual impacts • 3.2 miles of moderate residual impacts where the alternative route crosses forest/woodlands • No residential building within right-of-way Zoning No EFU zoning crossed Military Training Lands Not crossed Special Designated Areas Not crossed	Existing Agriculture • No moderate or high residual impacts expected Important Farmland, High-value Soils, and CRP Lands • Crosses 3.3 miles of farmland of statewide importance • No high-value soils crossed Livestock Grazing • No grazing allotments crossed	• No high or moderate residual impacts	• No high or moderate residual impacts	• No lands with wilderness characteristics present	• No potential congressional designations are present
Mill Creek	USFS: 2.5 P: 31.5	7.4	33.2	Existing Land Use • No high residual impacts • 10.9 miles of moderate residual impacts where the alternative route crosses agricultural and	Existing Agriculture • 0.8 mile moderate residual impacts where the alternative crosses field crops	• 1.4 miles of moderate impacts where crossing hunting access areas	• No high or moderate residual impacts	• No lands with wilderness characteristics present	• No potential congressional designations are present

Table 2-23. Alternative Route Comparison Summary for Land Use, Agriculture, Recreation, Transportation, Lands with Wilderness Characteristics, and Potential Congressional Designations in Segment 2—Blue Mountains

Alternative Route	Land Use				Agriculture	Recreation	Transportation	Lands with Wilderness Characteristics	Potential Congressional Designations
	Land Ownership (Percent)	Percent within Utility Corridors	Total Miles of Parallel Facilities within 2,000 feet	Summary					
				forest/woodlands <ul style="list-style-type: none"> No residential building within right-of-way Zoning <ul style="list-style-type: none"> Crosses 3.0 miles of EFU zoning Military Training Lands: Not crossed Special Designated Areas <ul style="list-style-type: none"> Crosses 1.0 mile of the Ladd Marsh Wildlife Area. 	Important Farmland, High-value Soils, and CRP Lands <ul style="list-style-type: none"> Crosses 1.6 miles of Prime Farmland if irrigated, 15.3 miles of farmland of statewide importance and 2.4 miles of high-value soils Livestock Grazing <ul style="list-style-type: none"> Crosses 9.8 miles of grazing allotments 				
<i>Table Notes:</i> ACEC = area of critical environmental concern APE = area of potential effects BLM = Bureau of Land Management CAFO = confined animal feeding operation					CRP = Conservation Reserve Program EFU = exclusive farm use FAA = Federal Aviation Authority NHT = national historic trail NWSTF = Naval Weapons Systems Training Facility			P = Private ROS = recreation opportunity spectrum SEORMP = Southeastern Oregon Resource Management Plan VRM = visual resource management WSR = Wild and Scenic River	

Table 2-24. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 2—Blue Mountains

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
Applicant's Proposed Action	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 17.5 miles Moderate: 15.5 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 10 VAUs affected <ul style="list-style-type: none"> 6 Foreground 10 Middleground 1 VAU with Class A within foreground would experience a high degree of impacts. This would lower the score but would not change the rating. 1 VAU with Class B (BA-014 Blue and Wallowa Foothills) would experience a high degree of impacts within the foreground and would change the rating from Class B to Class C <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: High impacts be experienced by residences near Morgan Lake and KOP 4-55 (Elk Song Ranch), along Glass Hill Road as well as residences adjacent to I-84 and Heber Road Recreation: KOP 4-40 (Spring Creek USFS Campground) could experience a moderate degree of impacts due to the project being partially obstructed and partially skylined from a distance of approximately 0.3 mile The Grande Tour Route and the Grande Tour Scenic Bikeway would both be crossed experiencing a moderate degree of impacts Travel Routes: High impacts would be experienced by I-84; Moderate impacts would be experienced by USFS Road 21, State Highway 244 and USFS Road 43—Ladd Canyon Road <p>Federal Land Conformance</p> <ul style="list-style-type: none"> Non-conformance within the USFS-administered lands through the BA-011 Blue Mountains Forest VAU with VQOs established in the Wallowa-Whitman National Forest LRMP 	<p>Inventory</p> <ul style="list-style-type: none"> 103 previously recorded sites in the study corridor 8 previously recorded sites in the direct effects APE Key resources include the Mount Emily Lumber Company Railroad, the Hilgard Cemetery, and Oregon NHT-associated sites. Of these resources, the Mount Emily Lumber Company Railroad is in the direct effects APE, and also is crossed by this alternative route Crosses one unrecorded (unknown condition) of the Oregon NHT (refer to map MV-25 for inventory data) There are sites or areas of Native American concern along this alternative route There is the potential for direct effects on undocumented, significant sites in the Glass Hill area Based on RLS cultural data collected for alternative routes in the vicinity of North Powder and La Grande, resources that potentially could be affected visually include residential and commercial buildings, waterworks, and historic transportation corridors <p>Impacts</p> <ul style="list-style-type: none"> 1.8 miles of high cultural resource sensitivity. Additional miles of high cultural resource sensitivity would be anticipated due to one unrecorded segment of the Oregon NHT along this alternative route 11.4 miles of moderate cultural resource sensitivity 16.5 miles of low cultural resource sensitivity 4.1 miles of no cultural resource sensitivity 	<ul style="list-style-type: none"> Native American tribes have expressed concern about potential direct and indirect effects on the following resources: <ul style="list-style-type: none"> Archaeological resources (e.g., lithic scatters, lithic and tool scatters, cairns, rock alignments, one habitation site). Most of these sites are in the indirect effects APE The Oregon NHT (path of the Forced March of 1879) is in the direct effects APE One historic property of religious and cultural significance to an Indian tribe has been identified along one of the route variations (Variation S2-B2) considered for the Applicant's Proposed Action Alternative (indirect effects APE) Traditional foods There is the potential for direct effects on undocumented, significant sites of potential tribal significance in the Glass Hill area Ongoing coordination and consultation with Native American sovereign tribal governments may identify additional resources of concern 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: 9.7 miles Moderate: 11.4 miles Low: 12.7 miles <p>Trail Management</p> <ul style="list-style-type: none"> High impacts on views from the NPS Auto Tour Route Moderate impacts on views from Blue Mountains High Potential Route Segment Moderate impacts on views from Hilgard Junction High Potential Historic Segment <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> Moderate impacts on views from Hilgard Junction State Park <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> No direct impacts on contributing trail segments, moderate impacts on views from contributing trail segments High impact on views from Oregon Trail Monument and Stone Marker south of Hilgard trail-associated cultural sites. Moderate impacts on views from Emily Doone Grave 1868, Trading Post Site, Pioneer Grave Sites, Pioneer Campsite, D. Dodge 1885 Inscription, Stage Station, and Clover Creek Station trail-associated cultural sites <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population Minimal agricultural impacts with yield losses valued at \$13,178 annually during construction and \$4,198 in residual yield losses during operations No identifiable impacts on CAFO operations Minimal impacts on grazing resources: estimated forage losses during construction are equivalent to approximately 9 AUMs with residual forage losses of 3 AUMs each year of operation Moderate impacts on timber resources: the B2H Project could disturb 279 acres of timberlands during construction with residual disturbances equal to 89 acres of timberlands Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental justice population
Variation S2-A1	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 2.5 miles Moderate: 0.3 mile <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 5 VAUs affected <ul style="list-style-type: none"> 3 Foreground 5 Middleground Lands associated with Class B scenic quality would experience high impacts <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: No key issues identified Recreation: KOPs 4-40 and 4-19 would have 	<p>Inventory</p> <ul style="list-style-type: none"> 47 previously recorded sites in the study corridor 1 previously recorded site in the direct effects APE Key resources include the Hilgard Junction, the Hilgard Cemetery, and the Mount Emily Lumber Company; these resources are in the indirect effects APE An additional key resource is the Oregon NHT (unrecorded segments of unknown condition); this linear site is in the indirect effects APE (refer to map MV-25 for inventory data) There are sites of Native American concern 	<ul style="list-style-type: none"> Due to the nature of available data, resources of Native American concern only are discussed by alternative route. Refer to the Applicant's Proposed Action Alternative 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: 2.4 miles Moderate: 0.4 mile Low: none <p>Trail Management</p> <ul style="list-style-type: none"> High impacts on views from the NPS Auto Tour Route Moderate impacts on views from Blue Mountains High Potential Route Segment Moderate impacts on views from Hilgard Junction High Potential Historic Segment 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population No agricultural impacts No identifiable impacts on CAFO operations Minimal impacts on grazing resources: estimated forage losses during construction are equivalent to nearly 3 AUMs with residual forage losses of less than 1 AUM each year of operation Minimal impacts on timber resources: the B2H Project could disturb 32 acres of timberlands during construction with residual disturbances equal to roughly 11 acres of timberlands Impacts on property values are minimal and

Table 2-24. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 2—Blue Mountains

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
	<p>the same moderate impacts</p> <ul style="list-style-type: none"> Travel Routes: High impacts would be experienced by USFS Road 21; Moderate impacts would be experienced by I-84 <p>Federal Land Conformance</p> <ul style="list-style-type: none"> Non-conformance within the USFS-administered lands through the BA-011 Blue Mountains Forest VAU 	<p>along this route variation</p> <p>Impacts</p> <ul style="list-style-type: none"> 0 miles of high cultural resource sensitivity 1.8 miles of moderate cultural resource sensitivity 1.0 mile of low cultural resource sensitivity 0 miles of no cultural resource sensitivity 		<p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> Moderate impacts on views from Hilgard Junction State Park <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> No direct impacts on contributing trail segments, moderate impacts on views from contributing trail segments <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified 	<p>short-term in nature</p> <ul style="list-style-type: none"> No disproportionate impact on environmental justice population
<p>Variation S2-A2</p>	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 0.8 mile Moderate: 1.9 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 5 VAUs affected <ul style="list-style-type: none"> 3 Foreground 5 Middleground Impacts would be less than S1-A1 due to its colocation with the 230-kV transmission line <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: No key issues identified Recreation: KOPs 4-40 and 4-19 would have the same moderate impacts Travel Routes: High impacts would be experienced by USFS Road 21; Moderate impacts would be experienced by I-84 <p>Federal Land Conformance</p> <ul style="list-style-type: none"> Non-conformance within the USFS-administered lands through the BA-011 Blue Mountains Forest VAU; Non-conformance in Partial Retention VQO and Modification VQO 	<p>Inventory</p> <ul style="list-style-type: none"> 47 previously recorded sites in the study corridor There are no previously recorded sites in the direct effects APE Same key resources as Variation S2-A1 because these route variations follow similar alignments, passing in proximity to the same resources Variation S2-A2 is located farther from unrecorded segments of the Oregon NHT (refer to map MV-25 for inventory data) There are sites of Native American concern along this route variation Potential for direct effects on undocumented, historic transportation corridors along this route variation <p>Impacts</p> <ul style="list-style-type: none"> 0 miles of high cultural resource sensitivity 1.5 miles of moderate cultural resource sensitivity 1.4 miles of low cultural resource sensitivity 0 miles of no cultural resource sensitivity 	<ul style="list-style-type: none"> Due to the nature of available data, resources of Native American concern only are discussed by alternative route. Refer to the Applicant's Proposed Action Alternative 	<p>Oregon NHT</p> <p>Residual Impacts:</p> <ul style="list-style-type: none"> High: 0.1 mile Moderate: 2.8 miles Low: none <p>Trail Management:</p> <ul style="list-style-type: none"> Moderate impacts on views from Blue Mountains High Potential Route Segment Moderate impacts on views from Hilgard Junction High Potential Historic Segment Moderate impacts on views from the NPS Auto Tour Route <p>Scenic and Recreation Resources:</p> <ul style="list-style-type: none"> Moderate impacts on views from Hilgard Junction State Park <p>Historic and Cultural Resources:</p> <ul style="list-style-type: none"> No direct impacts on contributing trail segments, moderate impacts on views from contributing trail segments <p>Biological, Natural, and Other Resources:</p> <ul style="list-style-type: none"> No key issues identified 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population No agricultural impacts No identifiable impacts on CAFO operations Minimal impacts on grazing resources: estimated forage losses during construction are equivalent to approximately 6 AUMs with residual forage losses of less than 2 AUMs each year of operation Minimal impacts on timber resources: the B2H Project could disturb 39 acres of timberlands during construction with residual disturbances equal to roughly 12 acres of timberlands Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental justice population
<p>Variation S2-B1</p>	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 1.1 miles Moderate: 2.3 mile <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 3 VAUs affected <ul style="list-style-type: none"> 1 Foreground 3 Middleground Forested and mostly undeveloped lands associated with Class B scenic quality that are crossed would experience high impacts <p>Sensitive Viewing Platforms:</p> <ul style="list-style-type: none"> Residences: No key issues identified Recreation: No key issues identified Travel Routes: Moderate impacts would be 	<p>Inventory</p> <ul style="list-style-type: none"> 26 previously recorded sites in the study corridor 2 previously recorded sites in the direct effects APE Key resources include one pioneer grave site, the Oregon NHT (contributing segment), and trail-associated sites; these resources are in the indirect effects APE Potential for direct effects on undocumented, mining-related sites There are sites of Native American concern along this route variation Based on RLS cultural data collected for alternative routes in the vicinity of La Grande, historic resources that potentially could be 	<ul style="list-style-type: none"> Due to the nature of available data, resources of Native American concern only are discussed by alternative route. Refer to the Applicant's Proposed Action Alternative 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: 2.2 miles Moderate: 1.5 miles Low: none <p>Trail Management</p> <ul style="list-style-type: none"> Moderate impacts on views from Blue Mountains High Potential Route Segment Moderate impacts on views from Hilgard Junction High Potential Historic Segment Moderate impacts on views from the NPS Auto Tour Route <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> Moderate impacts on views from 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population Minimal agricultural impacts with yield losses valued at \$1,480 annually during construction and \$485 residual yield losses during operations No identifiable impacts on CAFO operations Minimal impacts on grazing resources: estimated forage losses during construction are equivalent to less than 1 AUM with residual forage losses of less than 1 AUM each year of operation Minimal impacts on timber resources: the B2H Project could disturb 43 acres of timberlands during construction with residual disturbances equal to roughly 15 acres of timberlands Impacts on property values are minimal and

Table 2-24. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 2—Blue Mountains

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
	<p>experienced by U.S. Forest Service Road 21 and State Highway 244</p> <p>Federal Land Conformance:</p> <ul style="list-style-type: none"> No key issues identified 	<p>affected visually include residential and commercial buildings, waterworks, and historic transportation corridors</p> <p>Impacts</p> <ul style="list-style-type: none"> 0.4 mile of high cultural resource sensitivity 3.3 miles of moderate cultural resource sensitivity 0 miles of low cultural resource sensitivity 0 miles of no cultural resource sensitivity 		<p>Hilgard Junction State Park</p> <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> High impacts on views from the Oregon Trail Monument and Stone Marker south of Hilgard trail-associated cultural site. Moderate impacts on views from Emily Doone Grave 1868 trail-associated cultural site No direct impacts on contributing trail segments, moderate impacts on views from contributing trail segments <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified 	<p>short-term in nature</p> <ul style="list-style-type: none"> No disproportionate impact on environmental justice population
<p>Variation S2-B2</p>	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 0.8 mile Moderate: 1.8 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 4 VAUs affected <ul style="list-style-type: none"> 2 Foreground 4 Middleground Forested and mostly undeveloped lands associated with Class B scenic quality that are crossed would experience high impacts <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: 1 residence would be found within 0.5 mile from the alignment higher impacts than S2-B1 Recreation: No key issues identified Travel Routes: Moderate impacts would be experienced by U.S. Forest Service Road 21 and State Highway 244 <p>Federal Land Conformance</p> <ul style="list-style-type: none"> No key issues identified 	<p>Inventory</p> <ul style="list-style-type: none"> 27 previously recorded sites in the study corridor 1 previously recorded site in the direct effects APE Key resources include one pioneer grave site, one contributing segment of the Oregon NHT, trail-associated sites, and one site of Native American concern (historic property of religious and cultural significance to an Indian tribe); these resources are in the indirect effects APE Variation S2-B2 is closer to the Oregon NHT than Variation S2-B1 (indirect effects APE) There are sites of Native American concern along this route variation Based on RLS cultural data collected for alternative routes in the vicinity of La Grande, historic resources that potentially could be affected visually are the same as those identified along Variation S2-B1. Resources are the same because they occur near an area where the route variations intersect (east/northeast of Sheep Creek) <p>Impacts</p> <ul style="list-style-type: none"> 0 miles of high and low cultural resource sensitivity 3.8 miles of moderate cultural resource sensitivity 0 miles of no cultural resource sensitivity 	<ul style="list-style-type: none"> Due to the nature of available data, resources of Native American concern only are discussed by alternative route. Refer to the Applicant's Proposed Action Alternative 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: 0.7 mile Moderate: 3.1 miles Low: none <p>Trail Management</p> <ul style="list-style-type: none"> Moderate impacts on views from Blue Mountains High Potential Route Segment Moderate impacts on views from Hilgard Junction High Potential Historic Segment Moderate impacts on views from the NPS Auto Tour Route <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> Moderate impacts on views from Hilgard Junction State Park <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> High impacts on views from the Oregon Trail Monument and Stone Marker south of Hilgard trail-associated cultural site. Moderate impacts on views from Emily Doone Grave 1868 trail-associated cultural site No direct impacts on contributing trail segments, moderate impacts on views from contributing trail segments <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population No agricultural impacts No identifiable impacts on CAFO operations No identifiable impacts on grazing resources Minimal impacts on timber resources: the B2H Project could disturb 44 acres of timberlands during construction with residual disturbances equal to roughly 17 acres of timberlands Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental justice population
<p>Variation S2-C1</p>	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 1.9 miles Moderate: 7.4 miles 	<p>Inventory</p> <ul style="list-style-type: none"> 19 previously recorded sites in the study corridor There are no previously recorded sites in the direct effects APE 	<ul style="list-style-type: none"> Due to the nature of available data, resources of Native American concern only are discussed by alternative route. Refer to the Applicant's Proposed 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: none Moderate: 2.4 miles Low: 6.9 miles 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population Minimal agricultural impacts with yield losses during construction valued at \$1,538 and \$543 in residual yield losses during operations

Table 2-24. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 2—Blue Mountains

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
	<p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> • 4 VAUs affected <ul style="list-style-type: none"> – 2 Foreground – 4 Middleground • Mostly undeveloped lands varying from dense forest to grasslands that are associated with Class B scenic quality that are crossed would experience high to moderate impacts <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> • Residences: 2 residences; 1 near Morgan Lake Road and 1 Near Glass Hill Road would experience skylined mostly unimpeded views of the project experiencing high impacts • Recreation: No key issues identified • Travel Routes: No key issues identified <p>Federal Land Conformance</p> <ul style="list-style-type: none"> • No key issues identified 	<ul style="list-style-type: none"> • Key resources include pioneer grave sites, the Oregon NHT (unrecorded, intact segment), and trail-associated sites (refer to map MV-25 for inventory data); these resources are located in the indirect effects APE • Potential for direct effects on undocumented, mining-related sites • There are sites of Native American concern along this route variation • Based on RLS cultural data collected for alternative routes in the vicinity of La Grande, historic resources that potentially could be affected visually, include residential and commercial buildings, waterworks, and historic transportation corridors <p>Impacts</p> <ul style="list-style-type: none"> • 0 miles of high cultural resource sensitivity • 1.9 miles of moderate cultural resource sensitivity • 3.3 miles of low cultural resource sensitivity • 4.1 miles of no cultural resource sensitivity 	<p>Action Alternative</p>	<p>Trail Management</p> <ul style="list-style-type: none"> • Moderate impacts on views from Blue Mountains High Potential Route Segment • Moderate impacts on views from Hilgard Junction High Potential Historic Segment • Moderate impacts on views from the NPS Auto Tour Route <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> • Moderate impacts on views from Hilgard Junction State Park <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> • No direct impacts on contributing trail segments, moderate impacts on views from contributing trail segments • Moderate impacts on views from Emily Doone Grave 1868, Trading Post Site, Pioneer Grave Sites, Pioneer Campsite, and Stage Station trail-associated cultural site <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> • No key issues identified 	<ul style="list-style-type: none"> • No identifiable impacts on CAFO operations • Minimal impacts on grazing resources: estimated forage losses during construction are equivalent to less than 1 AUM with residual forage losses of less than 1 AUM each year of operation • Moderate impacts on timber resources: the B2H Project could disturb 129 acres of timberlands during construction with residual disturbances equal to roughly 42 acres of timberlands • Impacts on property values are minimal and short-term in nature • No disproportionate impact on environmental justice population
<p>Variation S2-C2</p>	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> • High: 6.1 miles • Moderate: 2.7 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> • 11 VAUs affected <ul style="list-style-type: none"> – 7 Foreground – 11 Middleground • Mostly undeveloped lands varying from dense forest to grasslands that are associated with Class B scenic quality that are crossed would experience high to moderate impacts <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> • Residences: Several residences including KOP 4-55 (Elk Song Ranch) would have their views of the alignment partially to fully obstructed by tall evergreen vegetation • Recreation: High impacts on KOP 4-28 (Morgan Lake) • Travel Routes: No key issues identified <p>Federal Land Conformance</p> <ul style="list-style-type: none"> • No key issues identified 	<p>Inventory</p> <ul style="list-style-type: none"> • 25 previously recorded sites in the study corridor • 1 previously recorded site in the direct effects APE • Same key resources as Variation S2-C1 because they occur near the areas where the route variations become closer to one another or intersect • Variation S2-C2 is closer to the Oregon NHT (unrecorded, intact segment) and trail-associated sites than Variation S2-C1; the trail is in the indirect effects APE (refer to map MV-25 for inventory data) • There are sites of Native American concern along this route variation • Potential for direct effects on undocumented, significant sites in the Ladd Marsh Wildlife Area, along with the potential for undocumented, mining-related sites south of Morgan Lake • Based on RLS cultural data collected for alternative routes in the vicinity of La Grande, resources that potentially could be affected visually are the same as those identified along Variation S2-C1. Resources are the same because they occur near an area where the route variations intersect (west/northwest of Morgan Lake) 	<ul style="list-style-type: none"> • Due to the nature of available data, resources of Native American concern only are discussed by alternative route. Refer to the Applicant's Proposed Action Alternative 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> • High: none • Moderate: 3.4 miles • Low: 5.4 miles <p>Trail Management</p> <ul style="list-style-type: none"> • Moderate impacts on views from Blue Mountains High Potential Route Segment • Moderate impacts on views from Hilgard Junction High Potential Historic Segment • Moderate impacts on views from the NPS Auto Tour Route <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> • Moderate impacts on views from Hilgard Junction State Park <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> • No direct impacts on contributing trail segments, moderate impacts on views from contributing trail segments • Moderate impacts on views from Emily Doone Grave 1868, Trading Post Site, Pioneer Grave Sites, Pioneer Campsite, and Stage Station trail-associated cultural site <p>Biological, Natural, and Other Resources</p>	<ul style="list-style-type: none"> • Minimal and temporary impact on employment and population • Minimal agricultural impacts with yield losses during construction valued at \$1,432 and \$409 residual yield losses during operations • No identifiable impacts on CAFO operations • Minimal impacts on grazing resources: estimated forage losses during construction are equivalent to less than 1 AUM with residual forage losses of less than 1 AUM each year of operation • Moderate impacts on timber resources: the B2H Project could disturb 126 acres of timberlands during construction with residual disturbances equal to roughly 40 acres of timberlands • Impacts on property values are minimal and short-term in nature • No disproportionate impact on environmental justice population

Table 2-24. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 2—Blue Mountains

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
		<p>Impacts</p> <ul style="list-style-type: none"> 0 miles of high cultural resource sensitivity 3.0 miles of moderate cultural resource sensitivity 5.7 miles of low cultural resource sensitivity 0.2 mile of no cultural resource sensitivity 		<p>Resources</p> <ul style="list-style-type: none"> No key issues identified 	
Variation S2-E1	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 1.7 miles Moderate: 0.6 mile <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 4 VAUs affected <ul style="list-style-type: none"> 2 Foreground 4 Middleground Mostly undeveloped lands varying from dense forest to grasslands that are associated with Class B scenic quality that are crossed would experience high to moderate impacts <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: No key issues identified Recreation: No key issues identified Travel Routes: Moderate impacts would be experienced by I-84 due to the existing 230-kV <p>Federal Land Conformance</p> <ul style="list-style-type: none"> No key issues identified 	<p>Inventory</p> <ul style="list-style-type: none"> 6 previously recorded sites in the study corridor There are no previously recorded sites in the direct effects APE A key resource is the Oregon NHT (unrecorded segments); the trail is in the indirect effects APE (refer to map MV-25 for inventory data) There is an extensive pre-contact lithic procurement area/homestead in the indirect effects APE There are sites of Native American concern along this route variation Potential for direct effects on undocumented, trail-associated sites <p>Impacts</p> <ul style="list-style-type: none"> 0 miles of high and moderate cultural resource sensitivity 2.3 miles of low cultural resource sensitivity 0 miles of no cultural resource sensitivity 	<ul style="list-style-type: none"> Due to the nature of available data, resources of Native American concern only are discussed by alternative route. Refer to the Applicant's Proposed Action Alternative 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: 0.9 mile Moderate: 1.4 miles Low: none <p>Trail Management</p> <ul style="list-style-type: none"> High impacts on views from the NPS Auto Tour Route <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> Moderate impacts on views from D. Dodge 1885 Inscription and Possible Pioneer Graves trail-associated cultural site <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population No agricultural impacts No identifiable impacts on CAFO operations Minimal impacts on grazing resources: estimated forage losses during construction are equivalent to less than 1 AUM with residual forage losses equivalent to 0 AUM each year of operation Minimal impacts on timber resources: the B2H Project could disturb 31 acres of timberlands during construction with residual disturbances equal to roughly 10 acres of timberlands Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental justice population
Variation S2-E2	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 1.8 miles Moderate: 0.8 mile <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 4 VAUs affected <ul style="list-style-type: none"> 2 Foreground 4 Middleground Mostly undeveloped lands varying from dense forest to grasslands that are associated with Class B scenic quality that are crossed would experience less impacts when compared to impacts from S2-E1 due to the 230-kV transmission line and less undeveloped land being crossed. <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: 1 residence would have partially skylined views of the B2H Project Recreation: No key issues identified Travel Routes: less impacts would be experienced by I-84 due to the distance compared to S2-E1 <p>Federal Land Conformance</p> <ul style="list-style-type: none"> No key issues identified 	<p>Inventory</p> <ul style="list-style-type: none"> 7 previously recorded sites in the study corridor 1 previously recorded site in the direct effects APE Same key resource as Variation S2-E1. Although these route variations do not share similar alignments, resources are the same because they occur in the areas where the route variations become closer to one another Variation S2-E2 is closer to unrecorded segments of the Oregon NHT (including intact segment) than Variation S2-E1; the trail is in the indirect effects APE (refer to map MV-25 for inventory data) There is an extensive pre-contact lithic procurement area/homestead in the direct effects APE There are sites of Native American concern along this route variation There is the potential for direct effects on undocumented, trail-associated sites along this route variation <p>Impacts</p> <ul style="list-style-type: none"> 0.0 miles of high cultural resource sensitivity 1.1 miles of moderate cultural resource 	<ul style="list-style-type: none"> Due to the nature of available data, resources of Native American concern only are discussed by alternative route. Refer to the Applicant's Proposed Action Alternative 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: 1.4 miles Moderate: 1.2 miles Low: none <p>Trail Management</p> <ul style="list-style-type: none"> High impacts on views from the NPS Auto Tour Route <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> No direct impacts on contributing trail segments, high impacts on views from contributing trail segments Moderate impacts on views from D. Dodge 1885 Inscription and Possible Pioneer Graves trail-associated cultural site <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population Minimal agricultural impacts with yield losses valued at \$1,448 annually during construction and residual yield losses of \$452 each year of operation No identifiable impacts on CAFO operations Minimal impacts on grazing resources: estimated forage losses during construction are equivalent to less than 1 AUM with residual forage losses equivalent to 0 AUM each year of operation Minimal impacts on timber resources: the B2H Project could disturb 30 acres of timberlands during construction with residual disturbances equal to approximately 12 acres of timberlands Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental justice population

Table 2-24. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 2—Blue Mountains

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
Variation S2-F1	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 7.2 miles Moderate: 4.4 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 6 VAUs affected <ul style="list-style-type: none"> 4 Foreground 6 Middleground Rolling sage steppe-covered hills that are associated with Class B and Class C scenic quality that are crossed would experience moderate to high impacts <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: No key issues identified Recreation: No key issues identified Travel Routes: Moderate impacts would be experienced by U.S. Forest Service Road 21 and State Highway 244 <p>Federal Land Conformance</p> <ul style="list-style-type: none"> No key issues identified 	<p>sensitivity</p> <ul style="list-style-type: none"> 1.5 miles of low cultural resource sensitivity 0.0 miles of no cultural resource sensitivity <p>Inventory</p> <ul style="list-style-type: none"> 32 previously recorded sites in the study corridor 2 previously recorded sites in the direct effects APE Key resources include the Clover Creek Station of the Oregon NHT and unrecorded segment (unknown condition) of the Oregon NHT (refer to map MV-25 for inventory data). Of these resources, only the Oregon NHT is in the direct effect APE, and also is crossed by this route variation There are sites of Native American concern along this route variation Based on RLS cultural data collected for alternative routes in the vicinity of North Powder, resources that potentially could be affected visually include buildings, waterworks, and historic transportation corridors <p>Impacts</p> <ul style="list-style-type: none"> 1.0 mile of high cultural resource sensitivity. Additional miles of high cultural resource sensitivity would be anticipated due to one unrecorded segment of the Oregon NHT along this route variation 3.4 miles of moderate cultural resource sensitivity 7.7 miles of low cultural resource sensitivity 0 miles of no cultural resource sensitivity 	<ul style="list-style-type: none"> Due to the nature of available data, resources of Native American concern only are discussed by alternative route. Refer to the Applicant's Proposed Action Alternative 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: 4.0 miles Moderate: 2.4 miles Low: 5.7 miles <p>Trail Management</p> <ul style="list-style-type: none"> High impacts on views from the NPS Auto Tour Route <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> No direct impacts on contributing trail segments, moderate impacts on views from contributing trail segments Moderate impacts on views from D. Dodge 1885 Inscription, Possible Pioneer Graves, and Clover Creek Station trail-associated cultural site <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population Minimal agricultural impacts with yield losses valued at \$8,338 annually during construction and residual yield losses of \$2,366 each year of operation No identifiable impacts on CAFO operations Minimal impacts on grazing resources: estimated forage losses during construction are equivalent to less than 1 AUM with residual forage losses of less than 1 AUM each year of operation Minimal impacts on timber resources: the B2H Project could disturb 14 acres of timberlands during construction with residual disturbances equal to approximately 5 acres of timberlands Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental justice population
Variation S2-F2	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 1.3 mile Moderate: 6.3 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 6 VAUs affected <ul style="list-style-type: none"> 4 Foreground 6 Middleground Rolling sage steppe-covered hills that are associated with Class B and Class C scenic quality that are crossed would experience moderate to high impacts and is collocated with an existing 230-kV transmission line <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: Impacts associated with residences for this route variation would be associated with the residence near I-84 and Heber Road, and the residence along Jimmy Creek Road experiencing high impacts Recreation: No key issues identified 	<p>Inventory</p> <ul style="list-style-type: none"> 43 previously recorded sites in the study corridor There are no previously recorded sites in the direct effects APE Same key resources as Variation S2-F2, since these route variations follow similar alignments, passing in proximity to the same resources (primarily in the vicinity of Jimmy Creek) Crosses one unrecorded segment (unknown condition) of the Oregon NHT (refer to map MV-25 for inventory data) There are sites of Native American concern along this route variation Based on RLS cultural data collected for alternative routes in the vicinity of North Powder, resources that potentially could be affected visually along this route variation are the same as those identified along Variation S2-F1. Resources are the same because they occur near an area where the route variations are in proximity to one another. Variation S2- 	<ul style="list-style-type: none"> Due to the nature of available data, resources of Native American concern only are discussed by alternative route. Refer to the Applicant's Proposed Action Alternative 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: 1.8 miles Moderate: 3.9 miles Low: 6.5 miles <p>Trail Management</p> <ul style="list-style-type: none"> High impacts on views from the NPS Auto Tour Route <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> No direct impacts on contributing trail segments, moderate impacts on views from contributing trail segments Moderate impacts on views from D. Dodge 1885 Inscription, Possible Pioneer Graves, and Clover Creek Station trail-associated cultural site <p>Biological, Natural, and Other Resources</p>	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population Minimal agricultural impacts with yield losses valued at \$2,818 annually during construction and residual yield losses of \$827 each year of operation No identifiable impacts on CAFO operations Minimal impacts on grazing resources: estimated forage losses during construction are equivalent to less than 1 AUM with residual forage losses of less than 1 AUM each year of operation Minimal impacts on timber resources: the B2H Project could disturb 5 acres of timberlands during construction with residual disturbances equal to less than 2 acres of timberlands Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental justice population

Table 2-24. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 2—Blue Mountains

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
	<ul style="list-style-type: none"> Travel Routes: Moderate impacts would be experienced by U.S. Forest Service Road 21 and State Highway 244 <p>Federal Land Conformance No key issues identified</p>	<p>F2 lies slightly farther from North Powder</p> <p>Impacts</p> <ul style="list-style-type: none"> 0 miles of high cultural resource sensitivity. Miles of high cultural resource sensitivity would be anticipated due to one unrecorded segment of the Oregon NHT along this route variation 3.5 miles of moderate cultural resource sensitivity 8.7 miles of low cultural resource sensitivity 0 miles of no cultural resource sensitivity 		<ul style="list-style-type: none"> No key issues identified 	
Glass Hill	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 15.7 miles Moderate: 12.4 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 7 VAUs affected <ul style="list-style-type: none"> 5 Foreground 7 Middleground Lands associated with Class B scenic quality that are crossed would experience high impacts <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: High impacts would be experienced by residences near Morgan Lake and, along Glass Hill Road as well as residences adjacent to I-84 and Heber Road Recreation: KOP 4-40 (Spring Creek USFS Campground) could experience a moderate degree of impacts due to the project being partially obstructed and partially skylined from a distance of approximately 0.3 mile The Grande Tour Route and the Grande Tour Scenic Bikeway would both be crossed experiencing a moderate degree of impacts Travel Routes: High impacts would be experienced by I-84; Moderate impacts would be experienced by USFS Road 21, State Highway 244 and USFS Road 43—Ladd Canyon Road <p>Federal Land Conformance</p> <ul style="list-style-type: none"> Non-conformance within the USFS-administered lands through the BA-011 Blue Mountains Forest VAU with VQOs established in the Wallowa-Whitman National Forest LRMP 	<p>Inventory</p> <ul style="list-style-type: none"> 95 previously recorded sites in the study corridor 8 previously recorded sites in the direct effects APE Same key resources as the Applicant's Proposed Action Alternative, since these two alternative routes are identical over the majority of their length (except where the B2H Project would be located southwest of La Grande) Crosses the Mount Emily Lumber Company Railroad and one unrecorded segment (unknown condition) of the Oregon NHT (refer to map MV-25 for inventory data) There are sites or areas of Native American concern along this alternative route Potential for direct effects on undocumented, significant sites in the Glass Hill area Based on RLS cultural data collected for alternative routes in the vicinity of North Powder and La Grande, resources that potentially could be affected visually are similar those identified along the Applicant's Proposed Action Alternative, since these two alternative routes are identical over the majority of their length (except where the B2H Project would be located southwest of La Grande). The Glass Hill Alternative is farther from North Powder and La Grande <p>Impacts</p> <ul style="list-style-type: none"> 2.1 miles of high cultural resource sensitivity. Miles of high cultural resource sensitivity would be anticipated due to one unrecorded segment of the Oregon NHT along this route variation 9.1 miles of moderate cultural resource sensitivity 17.2 miles of low cultural resource sensitivity 5.3 miles of no cultural resource sensitivity 	<ul style="list-style-type: none"> Similar previously recorded sites of tribal significance as the Applicant's Proposed Action Alternative, except for 6 additional pre-contact sites along the Applicant's Proposed Action Alternative. Sites identified along these two alternative routes are similar because they occur in the areas where the alignments are shared. Sites are in the indirect effects APE, except for 1 cairn and the Oregon NHT (path of the Forced March of 1879) Potential for direct effects on undocumented, significant sites of potential tribal significance in the Glass Hill area Ongoing coordination and consultation with Native American sovereign tribal governments may identify additional resources of concern 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: 9.6 miles Moderate: 9.2 miles Low: 14.9 miles <p>Trail Management</p> <ul style="list-style-type: none"> Moderate impacts on views from Blue Mountains High Potential Route Segment Moderate impacts on views from Hilgard Junction High Potential Historic Segment High impacts on views from the NPS Auto Tour Route <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> Moderate impacts on views from Hilgard Junction State Park <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> No direct impacts on contributing trail segments, moderate impacts on views from contributing trail segments High impact on views from Oregon Trail Monument and Stone Marker south of Hilgard trail-associated cultural sites. Moderate impacts on views from Trading Post Site, Pioneer Grave Sites, Pioneer Campsite, D. Dodge 1885 Inscription, Stage Station, and Clover Creek Station trail-associated cultural sites <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population Minimal agricultural impacts with yield losses valued at \$10,120 annually during construction and residual yield losses of \$3,131 each year of operation No identifiable impacts on CAFO operations Minimal impacts on grazing resources: estimated forage losses during construction are equivalent to 10 AUMs with residual forage losses of 3 AUMs each year of operation Moderate impacts on timber resources: the B2H Project could disturb approximately 236 acres of timberlands during construction with residual disturbances equal to 61 acres of timberlands Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental justice population
Variation S2-D1	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: none 	<p>Inventory</p> <ul style="list-style-type: none"> There are no previously recorded sites along this route variation 	<ul style="list-style-type: none"> Due to the nature of available data, resources of Native American concern only are discussed by alternative route. 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: none Moderate: none 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population No agricultural impacts No identifiable impacts on CAFO operations

Table 2-24. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 2—Blue Mountains

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
	<ul style="list-style-type: none"> Moderate: 2.3 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 4 VAUs affected <ul style="list-style-type: none"> 1 Foreground 4 Middleground Lands associated with Class B scenic quality that are crossed would experience high impacts <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: No key issues identified Recreation: No key issues identified Travel Routes: No key issues identified <p>Federal Land Conformance</p> <ul style="list-style-type: none"> No key issues identified 	<p>Impacts</p> <ul style="list-style-type: none"> There is no evidence of cultural resource sensitivity along Variation S2-D1, as no previously recorded sites have been identified along this route variation 	<p>Refer to the Glass Hill Alternative</p>	<ul style="list-style-type: none"> Low: 4.3 miles <p>Trail Management</p> <ul style="list-style-type: none"> No key issues identified <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified 	<ul style="list-style-type: none"> No identifiable impacts on grazing resources Minimal impacts on timber resources: the B2H Project could disturb approximately 63 acres of timberlands during construction with residual disturbances equal to 21 acres of timberlands Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental justice population
Variation S2-D2	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: none Moderate: 1.5 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 4 VAUs affected <ul style="list-style-type: none"> 1 Foreground 4 Middleground Lands associated with Class B scenic quality that are crossed would experience high impacts <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: No key issues identified Recreation: No key issues identified Travel Routes: No key issues identified <p>Federal Land Conformance</p> <ul style="list-style-type: none"> No key issues identified 	<p>Inventory</p> <ul style="list-style-type: none"> There are no previously recorded sites along this route variation <p>Impacts</p> <ul style="list-style-type: none"> There is no evidence of cultural resource sensitivity along Variation S2-D2, as no previously recorded sites have been identified along this route variation 	<ul style="list-style-type: none"> Due to the nature of available data, resources of Native American concern only are discussed by alternative route. Refer to the Glass Hill Alternative 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: none Moderate: none Low: 4.1 miles <p>Trail Management</p> <ul style="list-style-type: none"> No key issues identified <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population No agricultural impacts No identifiable impacts on CAFO operations No identifiable impacts on grazing resources Minimal impacts on timber resources: the B2H Project could disturb approximately 63 acres of timberlands during construction with residual disturbances equal to 19 acres of timberlands Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental justice population
Mill Creek	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 12.4 miles Moderate: 15.9 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 7 VAUs affected <ul style="list-style-type: none"> 6 Foreground 7 Middleground Affects to the landscape would be similar however impacts would be less due to the collocation of the existing 230-kV transmission line. Lands associated with Class B scenic quality that are crossed would experience high impacts VAU BA-014 Blue and Wallowa Foothills would result in a score drop in scenic quality that would result in the VAU changing from Class B to Class C <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: Highest impacts on residents of segment 2 alternatives. Views from the residences in the Rock Creek Canyon area 	<p>Inventory</p> <ul style="list-style-type: none"> 128 previously recorded sites in the study corridor 5 previously recorded sites in the direct effects APE Key resources include pioneer graves, the Hilgard Cemetery, the Mount Emily Lumber Company Railroad, and one NRHP-listed property (Administrative Building, Eastern Oregon State College [La Grande]). Of these resources, the Mount Emily Lumber Company Railroad is in the direct effects APE, and also is crossed by this alternative route Crosses one unrecorded segment of the Oregon NHT (unknown condition) (refer to map MV-25 for inventory data) There are sites or areas of Native American concern along this alternative route There is the potential for direct effects on undocumented, significant sites in the Ladd Marsh Wildlife Area 	<ul style="list-style-type: none"> Similar previously recorded sites of tribal significance as the Applicant's Proposed Action Alternative, except for 15 additional sites along the Mill Creek Alternative (including one historic property of religious and cultural significance to an Indian tribe [traditional fishery/campsite]). Although the alternative routes do not follow similar alignments, most of the sites occur in the areas where the alignments become closer to one another or intersect. Most of the sites are in the indirect effects APE The Oregon NHT (path of the Forced March of 1879) is in the direct effects APE The Mill Creek Alternative is closer to the historic property of religious and cultural significance to an 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: 9.5 miles Moderate: 18.0 miles Low: 6.5 miles <p>Trail Management</p> <ul style="list-style-type: none"> High impacts on views from Blue Mountains High Potential Route Segment and moderate impacts on views from the Ladd Canyon High Potential Route Segment High impacts on views from the NPS Auto Tour Route Moderate impacts on views from Hilgard Junction High Potential Historic Segment <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> Moderate impacts on views from Hilgard Junction State Park <p>Historic and Cultural Resources</p>	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population Minimal agricultural impacts with yield losses valued at \$14,994 annually during construction and residual yield losses of \$4,933 each year of operation No identifiable impacts on CAFO operations Minimal impacts on grazing resources: estimated forage losses during construction are equivalent to approximately 10 AUMs with residual forage losses of approximately 3 AUMs each year of operation Moderate impacts on timber resources: the B2H Project could disturb approximately 193 acres of timberlands during construction with residual disturbances equal to 50 acres of timberlands Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental justice population

Table 2-24. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 2—Blue Mountains

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
	<p>and La Grande area (including the City of La Grande sensitive viewing platform: 4-51) would vary, but generally include skylined views that would be partially to fully obstructed by tall evergreen vegetation. Impacts associated with residences for this route variation would be associated with the residence near I-84 and Heber Road, and the residence along Jimmy Creek Road experiencing high impacts</p> <ul style="list-style-type: none"> • Recreation: High impacts on KOP 2-26 and impacts on the views from KOP 4-19 and KOP 4-40 would both be moderate, including skylined views that would be partially obstructed by tall evergreen trees, and where the alternative route would be co-located with an existing 230-kV transmission line. • Travel Routes: This alternative is generally collocated with an existing 230-kV transmission line thus would have lesser impacts on travel routes than the Applicant's Proposed Action Alternative <p>Federal Land Conformance:</p> <ul style="list-style-type: none"> • Non-conformance within the USFS-administered lands through the BA-011 Blue Mountains Forest VAU with VQOs established in the Wallowa-Whitman National Forest LRMP 	<ul style="list-style-type: none"> • Avoids the Glass Hill area • Based on RLS cultural data collected for alternative routes in the vicinity of North Powder and La Grande (La Grande Commercial Historic District), resources that potentially could be affected visually are similar to those identified along the Applicant's Proposed Action Alternative. Compared to the Applicant's Proposed Action Alternative, the Mill Creek Alternative is considerably closer to La Grande and lies slightly farther from North Powder <p>Impacts</p> <ul style="list-style-type: none"> • 0.5 mile of high cultural resource sensitivity. Additional miles of high cultural resource sensitivity would be anticipated due to one unrecorded segment of the Oregon NHT along this alternative route • 18.9 miles of moderate cultural resource sensitivity • 14.6 miles of low cultural resource sensitivity • 0 miles of no cultural resource sensitivity 	<p>Indian tribe than Variation S2-B2</p> <ul style="list-style-type: none"> • Avoids potential resources of Native American concern in the Glass Hill area • Ongoing coordination and consultation with Native American sovereign tribal governments may identify additional resources of concern 	<ul style="list-style-type: none"> • No direct impacts on contributing trail segments, high impacts on views from contributing trail segments • High impact on views from Emily Doone Grave 1868 trail-associated cultural site. Moderate impacts on views from the Oregon Trail Monument and Stone Marker south of Hilgard, Trading Post Site, Pioneer Grave Sites, Pioneer Campsite, D. Dodge 1885 Inscription, Stage Station, and Clover Creek Station trail-associated cultural sites <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> • No key issues identified 	

Table Note:

ACEC = area of critical environmental concern
 APE = area of potential effects
 AUM = animal unit month
 BLM = Bureau of Land Management
 CAFO = confined animal feeding operation
 CRP = Conservation Reserve Program
 EFU = exclusive farm use
 FAA = Federal Aviation Authority
 LRMP = land and resource management plan
 KOP = key observation point
 NHT = national historic trail

NPS – National Park Service
 NRHP = National Register of Historic Places
 NWSTF = Naval Weapons Systems Training Facility
 P = Private
 RLS = reconnaissance level survey
 ROS = recreation opportunity spectrum
 SEORMP = Southeastern Oregon Resource Management Plan
 USFS = U.S. Forest Service
 VAU = Visual Analysis Unit
 VQO = Visual Quality Objective
 VRM = visual resource management
 WSR = Wild and Scenic River

Table 2-25. Alternative Route Comparison Summary for Earth Resources, Water Resources, Vegetation Resources, Wildlife Resources, and Fish Resources in Segment 3—Baker Valley					
Alternative Route	Earth Resources	Water Resources	Vegetation Resources	Wildlife Resources	Fish Resources
Applicant's Proposed Action	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Older Quaternary faults: 0.6 mile 73 acres of high floodzone percentage 5,900 acres of moderate floodzone percentage Moderate water erosion: 12.0 miles Moderate wind erosion: 3.0 miles Farmlands: 1.8 miles Soils with high compaction potential: 6.1 miles Active mines: 1.9 miles Areas with PFYC 3: 4.8 miles Areas with PFYC 4: 15.1 miles 	<p>Residual Impacts</p> <ul style="list-style-type: none"> With mitigation, only moderate residual impacts on forested wetland are anticipated <ul style="list-style-type: none"> Forested Wetland: 0.5 mile With mitigation, only low residual impacts on perennial, intermittent and 303(d) listed temperature impaired streams, and scrub-shrub, emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 4.6 miles Intermittent Streams: 7.0 miles 303(d) Listed Temperature: 1.4 miles Scrub-shrub Wetland: 0.4 mile Emergent Wetland: 3.2 miles Open Water: 5.0 miles Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> 53.8 miles of moderate residual impacts where alternative route crosses Dwarf Sagebrush, Mountain Shrub, Native Grasslands, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> 33 known sensitive plant species occurrences in the 1-mile analysis corridor 3 sensitive plant species known to occur in 1-mile analysis corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> Known occurrences of Howell's spectacular thelypody within 2.0 miles of alternative 	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> 30.2 miles of high residual impacts where PHMA is crossed 17.1 miles of moderate residual impacts where GHMA is crossed <p>Big game</p> <ul style="list-style-type: none"> 26.0 miles of low residual impacts where mule deer and elk winter range is crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Bull trout critical habitat: none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: none Redband trout occupied streams: 3.8 miles <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: none Low: 3.8 miles None: 51.4 miles With mitigation, only low residual impacts on redband trout occupied streams are anticipated
Variation S3-A1	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Older Quaternary faults: 0.1 mile 189 acres of moderate floodzone percentage Moderate water erosion: 0.5 mile Soils with high compaction potential: 1.4 miles 	<p>Residual Impacts</p> <ul style="list-style-type: none"> With mitigation, only low residual impacts on perennial and intermittent streams, and emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 1.1 miles Intermittent Streams: 2.2 miles Emergent Wetland: 1.1 miles Open Water: 0.9 mile Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> 12.3 miles of moderate residual impacts where alternative route crosses Dwarf Sagebrush, Mountain Shrub, Native Grasslands, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> No sensitive plant species known to occur in 1-mile analysis corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> No federally listed plants are known to occur in proximity 	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> 8.1 miles of high residual impacts where PHMA is crossed 4.3 miles of moderate residual impacts where GHMA is crossed <p>Big game</p> <ul style="list-style-type: none"> No habitats are crossed, no impacts expected 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Bull trout critical habitat: none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: none Redband trout occupied streams: 1.1 miles <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: none Low: 1.1 miles None: 11.3 miles With mitigation, only low residual impacts on redband trout occupied streams are anticipated
Variation S3-A2	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Older Quaternary faults: 0.8 mile 147 acres of moderate floodzone percentage Soils with high compaction potential: 2.9 miles 	<p>Residual Impacts</p> <ul style="list-style-type: none"> With mitigation, only low residual impacts on perennial and intermittent streams, and emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 0.1 mile Intermittent Streams: 2.2 miles Emergent Wetland: 0.2 mile Open Water: 0.8 mile Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> 11.9 miles of moderate residual impacts where alternative route crosses Mountain Shrub, Native Grasslands, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> No sensitive plant species known to occur in 1-mile analysis corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> No federally listed plants are known to occur in proximity 	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> 9.0 miles of high residual impacts where PHMA is crossed 3.2 miles of moderate residual impacts where GHMA is crossed <p>Big game</p> <ul style="list-style-type: none"> No habitats crossed, no impacts expected 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Bull trout critical habitat: none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: none Redband trout occupied streams: 0.5 mile <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: none Low: 0.5 mile None: 11.7 miles With mitigation, only low residual impacts on redband trout occupied streams are anticipated
Variation S3-B1	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Older Quaternary faults: 0.5 mile 899 acres of moderate floodzone percentage Moderate water erosion: 3.4 miles Farmlands: 0.6 mile Soils with high compaction potential: 1.3 miles 	<p>Residual Impacts</p> <ul style="list-style-type: none"> With mitigation, only low residual impacts on perennial and intermittent streams, and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 0.6 mile Intermittent Streams: 0.7 mile Open Water: 0.7 mile Wetland permits may be required for any crossing larger 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> 13.8 miles of moderate residual impacts where alternative route crosses Dwarf Sagebrush Steppe, Native Grasslands, Riparian Conservation Areas, and Tall Sagebrush Steppe 	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> 13.6 miles of high residual impacts where PHMA is crossed 0.3 miles of moderate residual impacts where GHMA is crossed <p>Big game</p> <ul style="list-style-type: none"> 0.7 miles of low residual impacts where mule deer winter range is crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Bull trout critical habitat: none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: none Redband trout occupied streams: none <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: none

Table 2-25. Alternative Route Comparison Summary for Earth Resources, Water Resources, Vegetation Resources, Wildlife Resources, and Fish Resources in Segment 3—Baker Valley					
Alternative Route	Earth Resources	Water Resources	Vegetation Resources	Wildlife Resources	Fish Resources
	<ul style="list-style-type: none"> Active mines: 1.1 miles Areas with PFYC 4: 1.8 miles 	<p>than 0.2 acres of impact</p>	<p>Sensitive Plants</p> <ul style="list-style-type: none"> No sensitive plant species known to occur in 1-mile analysis corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> Known occurrences of Howell's spectacular thelypody within 2.0 miles of alternative 		<ul style="list-style-type: none"> Low: none None: 13.9 miles Variation S3-B1 does not cross any streams which support special status fish species or protected fish habitats. No impacts from this route variation are anticipated
Variation S3-B2	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Older Quaternary faults: 1.0 miles 1,045 acres of moderate floodzone percentage Moderate water erosion: 1.3 miles Farmlands: 0.4 mile Soils with high compaction potential: 1.9 miles Active mines: 0.3 mile Areas with PFYC 4: 3.9 miles 	<p>Residual Impacts</p> <ul style="list-style-type: none"> With mitigation, only low residual impacts on perennial and intermittent streams, and emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 0.6 mile Intermittent Streams: 3.1 miles Emergent Wetland: 1.1 miles Open Water: 1.5 miles Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> 13.8 miles of moderate residual impacts where alternative route crosses Dwarf Sagebrush Steppe, Juniper and Mahogany Woodlands, Mountain Shrub, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> No sensitive plant species known to occur in 1-mile analysis corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> Known occurrences of Howell's spectacular thelypody within 2.0 miles of alternative 	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> 4.2 miles of high residual impacts where PHMA is crossed 3.6 miles of moderate residual impacts where GHMA is crossed <p>Big game</p> <ul style="list-style-type: none"> 4.3 miles of low residual impacts where mule deer winter range is crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Bull trout critical habitat: none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: none Redband trout occupied streams: none <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: none Low: none None: 14.4 miles Variation S3-B2 does not cross any streams which support special status fish species or protected fish habitats. No impacts from this route variation are anticipated
Variation S3-B3	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Older Quaternary faults: 0.9 mile 1,045 acres of moderate floodzone percentage Moderate water erosion: 1.4 miles Farmlands: 0.4 mile Soils with high compaction potential: 1.5 miles Active mines: 0.3 mile Areas with PFYC 4: 4.4 miles 	<p>Residual Impacts</p> <ul style="list-style-type: none"> With mitigation, only low residual impacts on perennial and intermittent streams, and emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 0.6 mile Intermittent Streams: 2.7 miles Emergent Wetland: 1.1 miles Open Water: 1.5 miles Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> 13.9 miles of moderate residual impacts where alternative route crosses Dwarf Sagebrush Steppe, Juniper and Mahogany Woodlands, Mountain Shrub, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> No sensitive plant species known to occur in 1-mile analysis corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> Known occurrences of Howell's spectacular thelypody within 2.0 miles of alternative 	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> 4.2 miles of high residual impacts where PHMA is crossed 1.9 miles of moderate residual impacts where GHMA is crossed <p>Big game</p> <ul style="list-style-type: none"> 4.6 miles of low residual impacts where mule deer winter range is crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Bull trout critical habitat: none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: none Redband trout occupied streams: none <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: none Low: none None: 14.7 miles Variation S3-B3 does not cross any streams which support special status fish species or protected fish habitats. No impacts from this route variation are anticipated
Variation S3-B4	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Older Quaternary faults: 0.9 mile 1,069 acres of moderate floodzone percentage Moderate water erosion: 1.9 miles Farmlands: 2.2 miles Soils with high compaction potential: 0.9 mile Active mines: Areas with PFYC 4: 5.6 miles 	<p>Residual Impact</p> <ul style="list-style-type: none"> With mitigation, only low residual impacts on perennial and intermittent streams, and emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 0.5 mile Intermittent Streams: 2.2 miles Emergent Wetland: 1.0 mile Open Water: 1.7 miles Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> 12.4 miles of moderate residual impacts where alternative route crosses Dwarf Sagebrush Steppe, Juniper and Mahogany Woodlands, Mountain Shrub, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> 1 known sensitive plant species occurrence in the 1-mile analysis corridor 1 sensitive plant species known to occur in 1-mile analysis corridor 	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> 2.3 miles of high residual impacts where PHMA is crossed 1.2 miles of moderate residual impacts where GHMA is crossed <p>Big game</p> <ul style="list-style-type: none"> 4.6 miles of low residual impacts where mule deer winter range is crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Bull trout critical habitat: none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: none Redband trout occupied streams: none <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: none Low: none None: 14.3 miles Variation S3-B4 does not cross any streams which support special status fish species or protected fish habitats. No impacts from this route variation are anticipated

Table 2-25. Alternative Route Comparison Summary for Earth Resources, Water Resources, Vegetation Resources, Wildlife Resources, and Fish Resources in Segment 3—Baker Valley					
Alternative Route	Earth Resources	Water Resources	Vegetation Resources	Wildlife Resources	Fish Resources
			<p>Federally Listed Plants</p> <ul style="list-style-type: none"> Known occurrences of Howell's spectacular thelypody within 2.0 miles of alternative 		<p>anticipated</p>
Variation S3-B5	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Older Quaternary faults: 1.1 miles 1,110 acres of moderate floodzone percentage Moderate water erosion: 1.8 miles Farmlands: 2.5 miles Soils with high compaction potential: 1.2 miles Areas with PFYC 4: 4.0 miles 	<p>Residual Impacts</p> <ul style="list-style-type: none"> With mitigation, only low residual impacts on perennial and intermittent streams, and emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 0.5 mile Intermittent Streams: 2.7 miles Emergent Wetland: 1.6 miles Open Water: 1.6 miles Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> 12.5 miles of moderate residual impacts where alternative route crosses Dwarf Sagebrush Steppe, Juniper and Mahogany Woodlands, Mountain Shrub, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> No sensitive plant species known to occur in 1-mile analysis corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> Known occurrences of Howell's spectacular thelypody within 2.0 miles of alternative 	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> 2.3 miles of high residual impacts where PHMA is crossed 4.3 miles of moderate residual impacts where GHMA is crossed <p>Big game</p> <ul style="list-style-type: none"> 4.3 miles of low residual impacts where mule deer winter range is crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Bull trout critical habitat: none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: none Redband trout occupied streams: none <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: none Low: none None: 14.0 miles Variation S3-B5 does not cross any streams which support special status fish species or protected fish habitats. No impacts from this route variation are anticipated
Variation S3-C1	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> 4,820 acres of moderate floodzone percentage Moderate water erosion: 7.0 miles Moderate wind erosion: 3.0 miles Farmlands: 1.2 miles Soils with high compaction potential: 1.8 miles Active mines: 0.8 mile Areas with PFYC 3: 4.8 miles Areas with PFYC 4: 9.7 miles 	<p>Residual Impacts</p> <ul style="list-style-type: none"> With mitigation, only moderate residual impacts on forested wetland are anticipated <ul style="list-style-type: none"> Forested Wetland: 0.5 mile With mitigation, only low residual impacts on perennial and intermittent streams, and scrub-shrub, emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 2.6 miles Intermittent Streams: 2.2 miles 303(d) Listed Temperature: 1.4 miles Scrub-shrub Wetland: 0.4 mile Emergent Wetland: 1.0 mile Open Water: 2.3 miles Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> 20.0 miles of moderate residual impacts where alternative route crosses Dwarf Sagebrush Steppe, Mountain Shrub, Native Grassland, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> 33 known sensitive plant species occurrences in the 1-mile analysis corridor 3 sensitive plant species known to occur in 1-mile analysis corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> No federally listed plants are known to occur in proximity 	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> 8.5 miles of high residual impacts where PHMA is crossed 5.3 miles of moderate residual impacts where GHMA is crossed <p>Big game</p> <ul style="list-style-type: none"> 17.5 miles of low residual impacts where mule deer and elk winter range is crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Bull trout critical habitat: none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: none Redband trout occupied streams: 2.6 miles <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: none Low: 2.6 miles None: 18.5 miles With mitigation, only low residual impacts on redband trout occupied streams are anticipated
Variation S3-C2	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> 4,410 acres of moderate floodzone percentage Moderate water erosion: 6.0 miles Moderate wind erosion: 2.8 miles Farmlands: 0.9 mile Soils with high compaction potential: 1.9 miles Active mines: 1.8 miles Areas with PFYC 3: 4.8 miles Areas with PFYC 4: 9.5 miles 	<p>Residual Impacts</p> <ul style="list-style-type: none"> With mitigation, only moderate residual impacts on forested wetland are anticipated <ul style="list-style-type: none"> Forested Wetland: 0.5 mile With mitigation, only low residual impacts on perennial and intermittent streams, and scrub-shrub, emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 2.7 miles Intermittent Streams: 2.3 miles 303(d) Listed Temperature: 1.5 miles Scrub-shrub Wetland: 0.7 mile Emergent Wetland: 0.9 mile Open Water: 2.4 miles Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> 20.2 miles of moderate residual impacts where alternative route crosses Dwarf Sagebrush Steppe, Mountain Shrub, Native Grassland, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> 34 known sensitive plant species occurrences in the 1-mile analysis corridor 4 sensitive plant species known to occur in 1-mile analysis corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> No federally listed plants are known 	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> 8.7 miles of high residual impacts where PHMA is crossed 5.7 miles of moderate residual impacts where GHMA is crossed <p>Big game</p> <ul style="list-style-type: none"> 18.7 miles of low residual impacts where mule deer and elk winter range is crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Bull trout critical habitat: none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: none Redband trout occupied streams: 2.8 miles <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: none Low: 2.8 miles None: 18.9 miles With mitigation, only low residual impacts on redband trout occupied streams are anticipated

Table 2-25. Alternative Route Comparison Summary for Earth Resources, Water Resources, Vegetation Resources, Wildlife Resources, and Fish Resources in Segment 3—Baker Valley					
Alternative Route	Earth Resources	Water Resources	Vegetation Resources	Wildlife Resources	Fish Resources
Variation S3-C3	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> 3,945 acres of moderate floodzone percentage Moderate water erosion: 4.5 miles Moderate wind erosion: 0.1 miles Farmlands: 1.1 miles Soils with high compaction potential: 5.6 miles Active mines: 3.3 miles Areas with PFYC 3: 5.8 miles Areas with PFYC 4: 4.2 miles 	<p>Residual Impacts</p> <ul style="list-style-type: none"> With mitigation, only moderate residual impacts on forested wetland are anticipated <ul style="list-style-type: none"> Forested Wetland: 0.4 mile With mitigation, only low residual impacts on perennial and intermittent streams, and scrub-shrub, emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 2.8 miles Intermittent Streams: 3.1 miles 303(d) Listed Temperature: 1.5 miles Scrub-shrub Wetland: 0.6 mile Emergent Wetland: 2.0 miles Open Water: 3.7 miles Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p><i>to occur in proximity</i></p> <p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> 19.7 miles of moderate residual impacts where alternative route crosses Dwarf Sagebrush Steppe, Juniper and Mahogany Woodlands, Mountain Shrub, Native Grassland, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> 20 known sensitive plant species occurrences in the 1-mile analysis corridor 1 sensitive plant species known to occur in 1-mile analysis corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> No federally listed plants are known to occur in proximity 	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> PHMA not crossed, no high residual impacts expected 1.1 miles of moderate residual impacts where GHMA is crossed <p>Big game</p> <ul style="list-style-type: none"> 21.1 miles of low residual impacts where mule deer and elk winter range is crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Bull trout critical habitat: none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: none Redband trout occupied streams: 2.2 miles <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: none Low: 2.2 miles None: 18.9 miles With mitigation, only low residual impacts on redband trout occupied streams are anticipated
Variation S3-C4	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> 4,210 acres of moderate floodzone percentage Moderate water erosion: 4.7 miles Farmlands: 1.1 miles Soils with high compaction potential: 5.4 miles Active mines: 3.3 miles Areas with PFYC 3: 5.8 miles Areas with PFYC 4: 3.1 miles 	<p>Residual Impacts</p> <ul style="list-style-type: none"> With mitigation, only moderate residual impacts on forested wetland are anticipated <ul style="list-style-type: none"> Forested Wetland: 0.4 mile With mitigation, only low residual impacts on perennial and intermittent streams, and scrub-shrub, emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 2.3 miles Intermittent Streams: 2.4 miles 303(d) Listed Temperature: 1.5 miles Scrub-shrub Wetland: 0.6 mile Emergent Wetland: 1.1 miles Open Water: 3.1 miles Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p><i>to occur in proximity</i></p> <p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> 19.8 miles of moderate residual impacts where alternative route crosses Dwarf Sagebrush Steppe, Juniper and Mahogany Woodlands, Mountain Shrub, Native Grassland, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> 20 known sensitive plant species occurrences in the 1-mile analysis corridor 1 sensitive plant species known to occur in 1-mile analysis corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> No federally listed plants are known to occur in proximity 	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> PHMA not crossed, no high residual impacts expected 1.1 miles of moderate residual impacts where GHMA is crossed <p>Big game</p> <ul style="list-style-type: none"> 21.4 miles of low residual impacts where mule deer and elk winter range is crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Bull trout critical habitat: none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: none Redband trout occupied streams: 2.0 miles <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: none Low: 2.0 miles None: 19.4 miles With mitigation, only low residual impacts on redband trout occupied streams are anticipated
Variation S3-C5	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> 1,472 acres of moderate floodzone percentage Moderate water erosion: 3.2 miles Farmlands: 0.4 mile Soils with high compaction potential: 4.2 miles Active mines: 1.6 miles Areas with PFYC 3: 5.9 miles Areas with PFYC 4: 2.5 miles 	<p>Residual Impacts</p> <ul style="list-style-type: none"> With mitigation, only moderate residual impacts on forested wetland are anticipated <ul style="list-style-type: none"> Forested Wetland: 0.5 mile With mitigation, only low residual impacts on perennial and intermittent streams, and scrub-shrub, emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 1.7 miles Intermittent Streams: 3.7 miles 303(d) Listed Temperature: 0.4 mile Scrub-shrub Wetland: 0.1 mile Emergent Wetland: 0.5 mile Open Water: 3.1 miles Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p><i>to occur in proximity</i></p> <p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> 18.5 miles of moderate residual impacts where alternative route crosses Dwarf Sagebrush Steppe, Juniper and Mahogany Woodlands, Mixed Conifer Forests, Mountain Shrub, Native Grassland, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> 7 known sensitive plant species occurrences in the 1-mile analysis corridor 1 sensitive plant species known to occur in 1-mile analysis corridor <p>Federally Listed Plants</p>	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> PHMA not crossed, no high residual impacts expected 1.1 miles of moderate residual impacts where GHMA is crossed <p>Big game</p> <ul style="list-style-type: none"> 21.0 miles of low residual impacts where mule deer and elk winter range, and bighorn sheep occupied range is crossed 	<p>Resource Inventory (miles crossed):</p> <ul style="list-style-type: none"> Bull trout critical habitat: none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: none Redband trout occupied streams: 1.1 miles <p>Residual Impacts:</p> <ul style="list-style-type: none"> Moderate: none Low: 1.1 miles None: 19.9 miles With mitigation, only low residual impacts on redband trout occupied streams are anticipated

Table 2-25. Alternative Route Comparison Summary for Earth Resources, Water Resources, Vegetation Resources, Wildlife Resources, and Fish Resources in Segment 3—Baker Valley					
Alternative Route	Earth Resources	Water Resources	Vegetation Resources	Wildlife Resources	Fish Resources
Variation S3-C6	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> 1,264 acres of moderate floodzone percentage Moderate water erosion: 3.6 miles Farmlands: 0.5 mile Soils with high compaction potential: 4.2 miles Active mines: 4.2 miles Areas with PFYC 3: 5.8 miles Areas with PFYC 4: 3.6 miles 	<p>Residual Impacts</p> <ul style="list-style-type: none"> With mitigation, only moderate residual impacts on forested wetland are anticipated <ul style="list-style-type: none"> Forested Wetland: 1.2 miles With mitigation, only low residual impacts on perennial and intermittent streams, and scrub-shrub, emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 2.0 miles Intermittent Streams: 5.5 miles 303(d) Listed Temperature: 0.7 mile Scrub-shrub Wetland: 0.4 mile Emergent Wetland: 0.7 mile Open Water: 4.2 miles Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<ul style="list-style-type: none"> No federally listed plants are known to occur in proximity <p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> 18.5 miles of moderate residual impacts where alternative route crosses Aspen, Dwarf Sagebrush Steppe, Juniper and Mahogany Woodlands, Mixed Conifer Forests, Mountain Shrub, Native Grassland, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> 18 known sensitive plant species occurrences in the 1-mile analysis corridor 1 sensitive plant species known to occur in 1-mile analysis corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> No federally listed plants are known to occur in proximity 	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> PHMA not crossed, no high residual impacts expected 9.4 miles of moderate residual impacts where GHMA is crossed <p>Big game</p> <ul style="list-style-type: none"> 24.7 miles of low residual impacts where mule deer and elk winter range, and bighorn sheep occupied range is crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Bull trout critical habitat: none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: none Redband trout occupied streams: 1.4 miles <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: none Low: 1.4 miles None: 23.3 miles With mitigation, only low residual impacts on redband trout occupied streams are anticipated
Flagstaff A	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Older Quaternary faults: 1.2 miles 6,109 acres of moderate floodzone percentage Moderate water erosion: 10.4 miles Moderate wind erosion: 3.0 miles Farmlands: 3.7 miles Soils with high compaction potential: 6.0 miles Active mines: 0.8 mile Areas with PFYC 3: 4.8 miles Areas with PFYC 4: 17.3 miles 	<p>Residual Impacts</p> <ul style="list-style-type: none"> With mitigation, only moderate residual impacts on forested wetland are anticipated <ul style="list-style-type: none"> Forested Wetland: 0.5 mile With mitigation, only low residual impacts on perennial and intermittent streams, and scrub-shrub, emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 4.5 miles Intermittent Streams: 9.0 miles 303(d) Listed Temperature: 1.4 miles Scrub-shrub Wetland: 0.4 mile Emergent Wetland: 4.8 miles Open Water: 5.9 miles Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> 52.5 miles of moderate residual impacts where alternative route crosses Dwarf Sagebrush, Juniper and Mahogany Woodland, Mountain Shrub, Native Grasslands, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> 33 known sensitive plant species occurrences in the 1-mile analysis corridor 3 sensitive plant species known to occur in 1-mile analysis corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> Known occurrences of Howell's spectacular thelypody within 2.0 miles of alternative 	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> 18.9 miles of high residual impacts where PHMA is crossed 21.1 miles of moderate residual impacts where GHMA is crossed <p>Big game</p> <ul style="list-style-type: none"> 29.6 miles of low residual impacts where mule deer and elk winter range is crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Bull trout critical habitat: none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: none Redband trout occupied streams: 3.8 miles <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: none Low: 3.8 miles None: 51.5 miles With mitigation, only low residual impacts on redband trout occupied streams are anticipated
Timber Canyon Alternative	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> 4,862 acres of moderate floodzone percentage Moderate landslide potential: 1.6 miles Moderate water erosion: 11.8 miles Moderate wind erosion: 0.9 mile Farmlands: 1.0 mile Soils with high compaction potential: 7.1 miles Active mines: 2.5 miles Areas with PFYC 3: 4.8 miles Areas with PFYC 4: 8.8 miles 	<p>Residual Impacts</p> <ul style="list-style-type: none"> With mitigation, only moderate residual impacts on forested wetland are anticipated <ul style="list-style-type: none"> Forested Wetland: 1.5 miles With mitigation, only low residual impacts on perennial and intermittent streams, and scrub-shrub, emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 6.8 miles Intermittent Streams: 12.5 miles 303(d) Listed Temperature: 1.8 miles Scrub-shrub Wetland: 2.1 miles Emergent Wetland: 4.0 miles Open Water: 6.6 miles Crosses the most amount of perennial and intermittent streams of all alternatives 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> 66.9 miles of moderate residual impacts where alternative route crosses Aspen, Dwarf Sagebrush, Juniper and Mahogany Woodland, Mixed Conifer Forest, Mountain Shrub, Native Grasslands, Riparian Conservation Areas, and Tall Sagebrush Steppe Dominant vegetation community crossed would be relatively undisturbed Mixed Conifer Forest and Mountain Shrub 	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> PHMA not crossed, no high residual impacts expected 28.8 miles of moderate residual impacts where GHMA is crossed <p>Big game</p> <ul style="list-style-type: none"> 59.0 miles of low residual impacts where mule deer and elk winter range is crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Bull trout critical habitat: none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: none Redband trout occupied streams: 5.1 miles <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: none Low: 5.1 miles None: 65.2 miles With mitigation, only low residual impacts on redband trout occupied streams are anticipated

Table 2-25. Alternative Route Comparison Summary for Earth Resources, Water Resources, Vegetation Resources, Wildlife Resources, and Fish Resources in Segment 3—Baker Valley					
Alternative Route	Earth Resources	Water Resources	Vegetation Resources	Wildlife Resources	Fish Resources
		<ul style="list-style-type: none"> Crosses the greatest total amount of all wetlands of all alternatives Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Sensitive Plants</p> <ul style="list-style-type: none"> 31 known sensitive plant species occurrences in the 1-mile analysis corridor 6 sensitive plant species known to occur in 1-mile analysis corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> Known occurrences of Howell's spectacular thelypody within 2.0 miles of alternative 		
Flagstaff A – Burnt River Mountain	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Older Quaternary faults: 1.2 miles 5,233 acres of moderate floodzone percentage Moderate water erosion: 7.9 miles Moderate wind erosion: 0.1 mile Farmlands: 3.6 miles Soils with high compaction potential: 9.8 miles Active mines: 3.3 miles Areas with PFYC 3: 5.8 miles Areas with PFYC 4: 11.8 miles 	<p>Residual Impacts</p> <ul style="list-style-type: none"> With mitigation, only moderate residual impacts on forested wetland are anticipated <ul style="list-style-type: none"> Forested Wetland: 0.4 mile With mitigation, only low residual impacts on perennial and intermittent streams, and scrub-shrub, emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 4.7 miles Intermittent Streams: 9.9 miles 303(d) Listed Temperature: 1.5 miles Scrub-shrub Wetland: 0.6 mile Emergent Wetland: 5.8 miles Open Water: 7.3 miles Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> 52.2 miles of moderate residual impacts where alternative route crosses Dwarf Sagebrush, Juniper and Mahogany Woodland, Mountain Shrub, Native Grasslands, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> 20 known sensitive plant species occurrences in the 1-mile analysis corridor 1 sensitive plant species known to occur in 1-mile analysis corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> Known occurrences of Howell's spectacular thelypody within 2.0 miles of alternative 	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> 10.4 miles of high residual impacts where PHMA is crossed 16.9 miles of moderate residual impacts where GHMA is crossed <p>Big game</p> <ul style="list-style-type: none"> 33.2 miles of low residual impacts where mule deer and elk winter range is crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Bull trout critical habitat: none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: none Redband trout occupied streams: 3.4 miles <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: none Low: 3.4 miles None: 51.9 miles With mitigation, only low residual impacts on redband trout occupied streams are anticipated
Flagstaff B	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Older Quaternary faults: 1.0 mile 6,044 acres of moderate floodzone percentage Moderate water erosion: 10.0 miles Moderate wind erosion: 3.0 miles Farmlands: 1.6 miles Soils with high compaction potential: 6.3 miles Active mines: 1.1 miles Areas with PFYC 3: 4.8 miles Areas with PFYC 4: 17.7 miles 	<p>Residual Impacts</p> <ul style="list-style-type: none"> With mitigation, only moderate residual impacts on forested wetland are anticipated <ul style="list-style-type: none"> Forested Wetland: 0.5 mile With mitigation, only low residual impacts on perennial and intermittent streams, and scrub-shrub, emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 4.6 miles Intermittent Streams: 9.0 miles 303(d) Listed Temperature: 1.4 miles Scrub-shrub Wetland: 0.4 mile Emergent Wetland: 4.3 miles Open Water: 5.8 miles Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> 53.9 miles of moderate residual impacts where alternative route crosses Dwarf Sagebrush, Juniper and Mahogany Woodland, Mountain Shrub, Native Grasslands, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> 33 known sensitive plant species occurrences in the 1-mile analysis corridor 3 sensitive plant species known to occur in 1-mile analysis corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> Known occurrences of Howell's spectacular thelypody within 2.0 miles of alternative 	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> 20.8 miles of high residual impacts where PHMA is crossed 18.7 miles of moderate residual impacts where GHMA is crossed <p>Big game</p> <ul style="list-style-type: none"> 29.9 miles of low residual impacts where mule deer and elk winter range is crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Bull trout critical habitat: none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: none Redband trout occupied streams: 3.8 miles <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: none Low: 3.8 miles None: 52.2 miles With mitigation, only low residual impacts on redband trout occupied streams are anticipated

Table 2-25. Alternative Route Comparison Summary for Earth Resources, Water Resources, Vegetation Resources, Wildlife Resources, and Fish Resources in Segment 3—Baker Valley					
Alternative Route	Earth Resources	Water Resources	Vegetation Resources	Wildlife Resources	Fish Resources
Flagstaff B – Burnt River West	Resource Inventory (miles crossed) <ul style="list-style-type: none"> Older Quaternary faults: 1.7 miles 2,656 acres of moderate floodzone percentage Moderate water erosion: 5.7 miles Farmlands: 0.8 mile Soils with high compaction potential: 10.2 miles Active mines: 1.9 miles Areas with PFYC 3: 5.9 miles Areas with PFYC 4: 10.5 miles 	Residual Impacts <ul style="list-style-type: none"> With mitigation, only moderate residual impacts on forested wetland are anticipated <ul style="list-style-type: none"> Forested Wetland: 0.5 Moderate With mitigation, only low residual impacts on perennial and intermittent streams, and scrub-shrub, emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 2.7 miles Intermittent Streams: 10.5 miles 303(d) Listed Temperature: 0.4 mile Scrub-shrub Wetland: 0.1 mile Emergent Wetland: 2.9 miles Open Water: 6.5 miles Wetland permits may be required for any crossing larger than 0.2 acres of impact 	Residual Impacts <p>Vegetation Communities</p> <ul style="list-style-type: none"> 52.0 miles of moderate residual impacts where alternative route crosses Dwarf Sagebrush, Juniper and Mahogany Woodland, Mixed Conifer Forest, Mountain Shrub, Native Grasslands, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> 7 known sensitive plant species occurrences in the 1-mile analysis corridor 1 sensitive plant species known to occur in 1-mile analysis corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> Known occurrences of Howell's spectacular thelypody within 2.0 miles of alternative 	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> 13.2 miles of high residual impacts where PHMA is crossed 13.4 miles of moderate residual impacts where GHMA is crossed <p>Big game</p> <ul style="list-style-type: none"> 33.4 miles of low residual impacts where mule deer and elk winter range, and bighorn sheep occupied range is crossed 	Resource Inventory (miles crossed) <ul style="list-style-type: none"> Bull trout critical habitat: none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: none Redband trout occupied streams: 1.7 miles <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: none Low: 1.7 miles None: 54.0 miles With mitigation, only low residual impacts on redband trout occupied streams are anticipated
Flagstaff B – Durkee	Resource Inventory (miles crossed) <ul style="list-style-type: none"> Older Quaternary faults: 1.0 mile 2,488 acres of moderate floodzone percentage Moderate water erosion: 6.6 miles Farmlands: 0.9 mile Soils with high compaction potential: 8.7 miles Active mines: 4.5 miles Areas with PFYC 3: 5.8 miles Areas with PFYC 4: 11.6 miles 	Residual Impacts <ul style="list-style-type: none"> With mitigation, only moderate residual impacts on forested wetland are anticipated <ul style="list-style-type: none"> Forested Wetland: 1.2 miles With mitigation, only low residual impacts on perennial and intermittent streams, and scrub-shrub, emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 4.0 miles Intermittent Streams: 12.3 miles 303(d) Listed Temperature: 0.7 mile Scrub-shrub Wetland: 0.4 mile Emergent Wetland: 4.0 miles Open Water: 7.7 miles Wetland permits may be required for any crossing larger than 0.2 acres of impact 	Residual Impacts <p>Vegetation Communities</p> <ul style="list-style-type: none"> 57.0 miles of moderate residual impacts where alternative route crosses Aspen, Dwarf Sagebrush, Juniper and Mahogany Woodland, Mixed Conifer Forest, Mountain Shrub, Native Grasslands, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> 18 known sensitive plant species occurrences in the 1-mile analysis corridor 1 sensitive plant species known to occur in 1-mile analysis corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> Known occurrences of Howell's spectacular thelypody within 2.0 miles of alternative 	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> 12.3 miles of high residual impacts where PHMA is crossed 22.8 miles of moderate residual impacts where GHMA is crossed <p>Big game</p> <ul style="list-style-type: none"> 37.1 miles of low residual impacts where mule deer and elk winter range, and bighorn sheep occupied range is crossed 	Resource Inventory (miles crossed) <ul style="list-style-type: none"> Bull trout critical habitat: none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: none Redband trout occupied streams: 2.6 miles <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: none Low: 2.6 miles None: 57.0 miles With mitigation, only low residual impacts on redband trout occupied streams are anticipated
<p><i>Table Notes:</i></p> <p>ACEC = area of critical environmental concern APE = area of potential effects BLM = Bureau of Land Management CAFO = confined animal feeding operation CRP = Conservation Reserve Program EFU = exclusive farm use FAA = Federal Aviation Authority GHMA = general habitat management area MCR = Middle Columbia River</p>			<p>NHT = national historic trail NWSTF = Naval Weapons Systems Training Facility P = Private PFYC = Potential Fossil Yield Classification system PHMA = priority habitat management area ROS = recreation opportunity spectrum SEORMP = Southeastern Oregon Resource Management Plan SRB = Snake River Basin VRM = visual resource management WSR = Wild and Scenic River</p>		

Table 2-26. Alternative Route Comparison Summary for Land Use, Agriculture, Recreation, Transportation, Lands with Wilderness Characteristics, and Potential Congressional Designations in Segment 3—Baker Valley									
Alternative Route	Land Use			Summary	Agriculture	Recreation	Transportation	Lands with Wilderness Characteristics	Potential Congressional Designations
	Land Ownership (Percent)	Percent within Utility Corridors	Total Miles of Parallel Facilities within 2,000 feet						
Applicant's Proposed Action	BLM: 15.1 P: 40.1	2.5	48.6	<p>Existing Land Use</p> <ul style="list-style-type: none"> No high residual impacts 0.9 mile of moderate residual impacts where the alternative route crosses agricultural and near residences 1 residential building within right-of-way <p>Zoning</p> <ul style="list-style-type: none"> Crosses 55.2 miles of EFU zoning <p>Military Training Lands</p> <ul style="list-style-type: none"> Crosses 18.4 miles of special use airspace Potential to create restrictions in aircraft movement during training Requires obstruction evaluation/airport airspace analysis in coordination with the FAA <p>Special Designated Areas Not crossed</p>	<p>Existing Agriculture</p> <ul style="list-style-type: none"> 0.3 miles of high residual impacts where the alternative crosses pivot irrigation 0.7 miles of moderate residual impacts where the alternative crosses flood irrigation, other mechanized irrigation, and field crops <p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> Crosses 4.3 miles of Prime Farmland if irrigated, 36.9 miles of farmland of statewide importance, and 4.6 miles of high-value soils Crosses 2.49 acres of CRP lands <p>Livestock Grazing</p> <ul style="list-style-type: none"> Crosses 35.5 miles of grazing allotments 	<ul style="list-style-type: none"> 6.3 miles of moderate impacts where crossing hunting access areas 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No lands with wilderness characteristics present 	<ul style="list-style-type: none"> No potential congressional designations are present
Variation S3-A1	BLM: 1.3 P: 11.1	0.0	12.3	<p>Existing Land Use</p> <ul style="list-style-type: none"> No high residual impacts No residential buildings within right-of-way <p>Zoning</p> <ul style="list-style-type: none"> Crosses 12.4 miles of EFU zoning Potential to create restrictions in aircraft movement during training Requires obstruction evaluation/airport airspace analysis in coordination with the FAA <p>Military Training Lands Not crossed</p> <p>Special Designated Area Not crossed</p>	<p>Existing Agriculture</p> <ul style="list-style-type: none"> 0.3 miles of high residual impacts where the alternative crosses pivot irrigation 0.1 miles of moderate residual impacts where the alternative crosses field crops <p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> Crosses 6.4 miles of farmland of statewide importance No high-value soils crossed <p>Livestock Grazing</p> <ul style="list-style-type: none"> Crosses 4.1 miles of grazing allotments 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No lands with wilderness characteristics present 	<ul style="list-style-type: none"> No potential congressional designations are present
Variation S3-A2	BLM: 0.4 P: 11.8	0.0	12.2	<p>Existing Land Use</p> <ul style="list-style-type: none"> No high residual impacts No residential buildings within right-of-way <p>Zoning</p> <ul style="list-style-type: none"> Crosses 12.2 miles of EFU zoning <p>Military Training Lands Not crossed</p> <p>Special Designated Areas Not crossed</p>	<p>Existing Agriculture</p> <ul style="list-style-type: none"> 0.1 miles of moderate residual impacts where the alternative crosses field crops <p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> Crosses 3.2 miles of farmland of statewide importance No high-value soils crossed <p>Livestock Grazing</p> <ul style="list-style-type: none"> Crosses 3.9 miles of grazing allotments 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No lands with wilderness characteristics present 	<ul style="list-style-type: none"> No potential congressional designations are present
Variation S3-B1	BLM: 5.5 P: 8.4	0.0	11.3	<p>Existing Land Use</p> <ul style="list-style-type: none"> No high residual impacts No residential buildings within right-of-way <p>Zoning</p> <ul style="list-style-type: none"> Crosses 13.9 miles of EFU zoning 	<p>Existing Agriculture</p> <ul style="list-style-type: none"> No moderate or high impacts expected <p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> Crosses 2.3 miles of Prime Farmland if 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No lands with wilderness characteristics present 	<ul style="list-style-type: none"> No potential congressional designations are present

Table 2-26. Alternative Route Comparison Summary for Land Use, Agriculture, Recreation, Transportation, Lands with Wilderness Characteristics, and Potential Congressional Designations in Segment 3—Baker Valley									
Alternative Route	Land Use			Summary	Agriculture	Recreation	Transportation	Lands with Wilderness Characteristics	Potential Congressional Designations
	Land Ownership (Percent)	Percent within Utility Corridors	Total Miles of Parallel Facilities within 2,000 feet						
				<p>Military Training Lands Not crossed</p> <p>Special Designated Areas Not crossed.</p>	<p>irrigated, 8.3 miles of farmland of statewide importance, and 2.5 miles of high-value soils</p> <p>Livestock Grazing</p> <ul style="list-style-type: none"> • Crosses 12.4 miles of grazing allotments 				
Variation S3-B2	BLM: 0.3 P: 14.1	0.0	14.0	<p>Existing Land Use</p> <ul style="list-style-type: none"> • No high residual impacts • 1.4 miles of moderate residual impacts where the alternative route crosses agricultural and forest/woodlands • No residential buildings within right-of-way <p>Zoning</p> <ul style="list-style-type: none"> • Crosses 14.4 miles of EFU zoning <p>Military Training Lands Not crossed</p> <p>Special Designated Areas Not crossed</p>	<p>Existing Agriculture</p> <ul style="list-style-type: none"> • 0.2 miles of high residual impacts where the alternative crosses pivot irrigation • 0.6 miles of moderate residual impacts where the alternative crosses other mechanized irrigation and field crops <p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> • Crosses 1.6 miles of Prime Farmland if irrigated, 8.6 miles of farmland of statewide importance, and 2.0 miles of high-value soils <p>Livestock Grazing</p> <ul style="list-style-type: none"> • Crosses 9.0 miles of grazing allotments 	<ul style="list-style-type: none"> • No high or moderate residual impacts 	<ul style="list-style-type: none"> • No high or moderate residual impacts 	<ul style="list-style-type: none"> • No lands with wilderness characteristics present 	<ul style="list-style-type: none"> • No potential congressional designations are present
Variation S3-B3	P: 14.7	0.0	14.4	<p>Existing Land Use</p> <ul style="list-style-type: none"> • No high residual impacts • 1.4 miles of moderate residual impacts where the alternative route crosses agricultural and forest/woodlands • No residential buildings within right-of-way <p>Zoning</p> <ul style="list-style-type: none"> • Crosses 14.7 miles of EFU zoning <p>Military Training Lands Not crossed</p> <p>Special Designated Areas Not crossed</p>	<p>Existing Agriculture</p> <ul style="list-style-type: none"> • 0.2 miles of high residual impacts where the alternative crosses pivot irrigation • 0.6 miles of moderate residual impacts where the alternative crosses other mechanized irrigation and field crops <p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> • Crosses 1.6 miles of Prime Farmland if irrigated, 9.2 miles of farmland of statewide importance, and 2.0 miles of high-value soils <p>Livestock Grazing</p> <ul style="list-style-type: none"> • Crosses 9.3 miles of grazing allotments 	<ul style="list-style-type: none"> • No high or moderate residual impacts 	<ul style="list-style-type: none"> • No high or moderate residual impacts 	<ul style="list-style-type: none"> • No lands with wilderness characteristics present 	<ul style="list-style-type: none"> • No potential congressional designations are present
Variation S3-B4	P: 14.3	0.0	14.2	<p>Existing Land Use</p> <ul style="list-style-type: none"> • No high residual impacts • 2.6 miles of moderate residual impacts where the alternative route crosses agricultural and forest/woodlands • No residential buildings within right-of-way <p>Zoning</p> <ul style="list-style-type: none"> • Crosses 14.3 miles of EFU zoning <p>Military Training Lands Not crossed</p> <p>Special Designated Areas Not crossed</p>	<p>Existing Agriculture</p> <ul style="list-style-type: none"> • 1.8 miles of moderate residual impacts where the alternative crosses other mechanized irrigation, field crops, and vegetable operations <p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> • Crosses 2.7 miles of Prime Farmland if irrigated, 8.7 miles of farmland of statewide importance, and 3.0 miles of high-value soils <p>Livestock Grazing</p> <ul style="list-style-type: none"> • Crosses 7.8 miles of grazing allotments 	<ul style="list-style-type: none"> • No high or moderate residual impacts 	<ul style="list-style-type: none"> • No high or moderate residual impacts 	<ul style="list-style-type: none"> • No lands with wilderness characteristics present 	<ul style="list-style-type: none"> • No potential congressional designations are present
Variation S3-B5	BLM: 0.3 P: 13.7	0.0	13.4	<p>Existing Land Use</p> <ul style="list-style-type: none"> • No high residual impacts • 2.6 miles of moderate residual impacts where the alternative route crosses agricultural and 	<p>Existing Agriculture</p> <ul style="list-style-type: none"> • 0.2 miles of high residual impacts where the alternative crosses pivot irrigation • 1.6 miles of moderate residual impacts 	<ul style="list-style-type: none"> • No high or moderate residual impacts 	<ul style="list-style-type: none"> • No high or moderate residual impacts 	<ul style="list-style-type: none"> • No lands with wilderness characteristics present 	<ul style="list-style-type: none"> • No potential congressional designations are present

Table 2-26. Alternative Route Comparison Summary for Land Use, Agriculture, Recreation, Transportation, Lands with Wilderness Characteristics, and Potential Congressional Designations in Segment 3—Baker Valley									
Alternative Route	Land Use			Summary	Agriculture	Recreation	Transportation	Lands with Wilderness Characteristics	Potential Congressional Designations
	Land Ownership (Percent)	Percent within Utility Corridors	Total Miles of Parallel Facilities within 2,000 feet						
				forest/woodlands <ul style="list-style-type: none"> No residential buildings within right-of-way Zoning <ul style="list-style-type: none"> Crosses 14.0 miles of EFU zoning Military Training Lands Not crossed Special Designated Areas Not crossed	where the alternative crosses other mechanized irrigation, fallow/idle cropland, field crops, and vegetable operations Important Farmland, High-value Soils, and CRP Lands <ul style="list-style-type: none"> Crosses 2.9 miles of Prime Farmland if irrigated, 7.7 miles of farmland of statewide importance, and 2.9 miles of high-value soils Livestock Grazing <ul style="list-style-type: none"> Crosses 7.6 miles of grazing allotments 				
Variation S3-C1	BLM: 7.6 P: 13.5	6.6	17.3	Existing Land Use <ul style="list-style-type: none"> No high residual impacts 0.9 miles of moderate residual impacts where the alternative route crosses agricultural and near residences One residential building within right-of-way Zoning <ul style="list-style-type: none"> Crosses 21.1 miles of EFU zoning Military Training Lands <ul style="list-style-type: none"> Crosses 18.4 miles of special use airspace <ul style="list-style-type: none"> Potential to create restrictions in aircraft movement during training Requires obstruction evaluation/airport airspace analysis in coordination with the FAA Special Designated Areas Not crossed	Existing Agriculture <ul style="list-style-type: none"> 0.6 miles of moderate residual impacts where the alternative crosses flood irrigation, other mechanized irrigation, and field crops Important Farmland, High-value Soils, and CRP Lands <ul style="list-style-type: none"> Crosses 2.0 miles of Prime Farmland if irrigated, 15.3 miles of farmland of statewide importance, and 2.1 miles of high-value soils Crosses 2.49 acres of CRP lands Livestock Grazing <ul style="list-style-type: none"> Crosses 14.1 miles of grazing allotments 	<ul style="list-style-type: none"> 2.6 miles of moderate impacts where crossing hunting access areas 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No lands with wilderness characteristics present 	<ul style="list-style-type: none"> No potential congressional designations are present
Variation S3-C2	BLM: 5.8 P: 15.9	11.5	18.3	Existing Land Use <ul style="list-style-type: none"> No high residual impacts 0.9 miles of moderate residual impacts where the alternative route crosses agricultural and near residences One residential building within right-of-way Zoning <ul style="list-style-type: none"> Crosses 21.7 miles of EFU zoning Military Training Lands <ul style="list-style-type: none"> Crosses 19.0 miles of special use airspace <ul style="list-style-type: none"> Potential to create restrictions in aircraft movement during training Requires obstruction evaluation/airport airspace analysis in coordination with the FAA Special Designated Areas Not crossed	Existing Agriculture <ul style="list-style-type: none"> 0.6 miles of moderate residual impacts where the alternative crosses flood irrigation or field crops Important Farmland, High-value Soils, and CRP Lands <ul style="list-style-type: none"> Crosses 1.9 miles of Prime Farmland if irrigated, 15.9 miles of farmland of statewide importance, and 2.1 miles of high-value soils Crosses 5.85 acres of CRP lands Livestock Grazing <ul style="list-style-type: none"> Crosses 14.1 miles of grazing allotments 	<ul style="list-style-type: none"> 3.7 miles of moderate impacts where crossing hunting access areas 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No lands with wilderness characteristics present 	<ul style="list-style-type: none"> No potential congressional designations are present
Variation S3-C3	BLM 5.7 P: 15.4	6.6	16.8	Existing Land Use <ul style="list-style-type: none"> No high residual impacts 2.0 miles of moderate residual impacts where 	Existing Agriculture <ul style="list-style-type: none"> 0.5 miles of moderate residual impacts where the alternative crosses flood irrigation or field crops 	<ul style="list-style-type: none"> 3.9 miles of moderate impacts where crossing hunting access areas 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No lands with wilderness characteristics present 	<ul style="list-style-type: none"> No potential congressional designations are present

Table 2-26. Alternative Route Comparison Summary for Land Use, Agriculture, Recreation, Transportation, Lands with Wilderness Characteristics, and Potential Congressional Designations in Segment 3—Baker Valley									
Alternative Route	Land Use			Summary	Agriculture	Recreation	Transportation	Lands with Wilderness Characteristics	Potential Congressional Designations
	Land Ownership (Percent)	Percent within Utility Corridors	Total Miles of Parallel Facilities within 2,000 feet						
				<p><i>the alternative route crosses agricultural and forest/woodlands and near residences</i></p> <ul style="list-style-type: none"> • 2 residential buildings within right-of-way <p>Zoning</p> <ul style="list-style-type: none"> • Crosses 21.1 miles of EFU zoning <p>Military Training Lands</p> <ul style="list-style-type: none"> • Crosses 18.5 miles of special use airspace • Potential to create restrictions in aircraft movement during training • Requires obstruction evaluation/airport airspace analysis in coordination with the FAA <p>Special Designated Areas Not crossed</p>	<p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> • Crosses 2.1 miles of Prime Farmland if irrigated, 11.8 miles of farmland of statewide importance, and 2.4 miles of high-value soils • Crosses 18.83 acres of CRP lands <p>Livestock Grazing</p> <ul style="list-style-type: none"> • Crosses 11.1 miles of grazing allotments 				
Variation S3-C4	BLM: 6.0 P: 15.4	6.5	17.1	<p>Existing Land Use</p> <ul style="list-style-type: none"> • No high residual impacts • 1.7 miles of moderate residual impacts where the alternative route crosses agricultural and forest/woodlands and near residences • 2 residential buildings within right-of-way <p>Zoning</p> <ul style="list-style-type: none"> • Crosses 21.4 miles of EFU zoning <p>Military Training Lands</p> <ul style="list-style-type: none"> • Crosses 18.8 miles of special use airspace • Potential to create restrictions in aircraft movement during training • Requires obstruction evaluation/airport airspace analysis in coordination with the FAA <p>Special Designated Areas Not crossed</p>	<p>Existing Agriculture</p> <ul style="list-style-type: none"> • 0.3 miles of moderate residual impacts where the alternative crosses flood irrigation or field crops <p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> • Crosses 2.0 miles of Prime Farmland if irrigated, 12.4 miles of farmland of statewide importance, and 2.2 miles of high-value soils • Crosses 9.79 acres of CRP lands <p>Livestock Grazing</p> <ul style="list-style-type: none"> • Crosses 11.6 miles of grazing allotments 	<ul style="list-style-type: none"> • 3.9 miles of moderate impacts where crossing hunting access areas 	<ul style="list-style-type: none"> • No high or moderate residual impacts 	<ul style="list-style-type: none"> • No lands with wilderness characteristics present 	<ul style="list-style-type: none"> • No potential congressional designations are present
Variation S3-C5	BLM: 7.2 P: 13.8	0.0	11.5	<p>Existing Land Use</p> <ul style="list-style-type: none"> • No high residual impacts • 2.1 miles of moderate residual impacts where the alternative route crosses agricultural and forest/woodlands • No residential buildings within right-of-way <p>Zoning</p> <ul style="list-style-type: none"> • Crosses 21.0 miles of EFU zoning <p>Military Training Lands</p> <ul style="list-style-type: none"> • Crosses 17.0 miles of special use airspace • Potential to create restrictions in aircraft movement during training • Requires obstruction evaluation/airport airspace analysis in coordination with the FAA <p>Special Designated Areas Not crossed</p>	<p>Existing Agriculture</p> <ul style="list-style-type: none"> • 0.1 miles of moderate residual impacts where the alternative crosses flood irrigation or field crops <p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> • Crosses 0.5 mile of Prime Farmland if irrigated, 11.5 miles of farmland of statewide importance, and 0.5 miles of high-value soils • Crosses 6.75 acres of CRP lands <p>Livestock Grazing</p> <ul style="list-style-type: none"> • Crosses 18.2 miles of grazing allotments 	<ul style="list-style-type: none"> • 5.2 miles of moderate impacts where crossing hunting access areas 	<ul style="list-style-type: none"> • No high or moderate residual impacts 	<ul style="list-style-type: none"> • No lands with wilderness characteristics present 	<ul style="list-style-type: none"> • No potential congressional designations are present

Table 2-26. Alternative Route Comparison Summary for Land Use, Agriculture, Recreation, Transportation, Lands with Wilderness Characteristics, and Potential Congressional Designations in Segment 3—Baker Valley									
Alternative Route	Land Use			Summary	Agriculture	Recreation	Transportation	Lands with Wilderness Characteristics	Potential Congressional Designations
	Land Ownership (Percent)	Percent within Utility Corridors	Total Miles of Parallel Facilities within 2,000 feet						
Variation S3-C6	BLM: 10.5 P: 14.2	0.0	13.2	<p>Existing Land Use</p> <ul style="list-style-type: none"> No high residual impacts 4.3 miles of moderate residual impacts where the alternative route crosses agricultural and forest/woodlands No residential buildings within right-of-way <p>Zoning</p> <ul style="list-style-type: none"> Crosses 23.5 miles of EFU zoning <p>Military Training Lands</p> <ul style="list-style-type: none"> Crosses 16.4 miles of special use airspace Potential to create restrictions in aircraft movement during training Requires obstruction evaluation/airport airspace analysis in coordination with the FAA <p>Special Designated Areas Not crossed</p>	<p>Existing Agriculture</p> <ul style="list-style-type: none"> 0.3 miles of moderate residual impacts where the alternative crosses flood irrigation or field crops <p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> Crosses 0.6 mile of Prime Farmland if irrigated, 18.4 miles of farmland of statewide importance, and 0.7 miles of high-value soils Crosses 5.47 acres of CRP lands <p>Livestock Grazing</p> <ul style="list-style-type: none"> Crosses 19.9 miles of grazing allotments 	<ul style="list-style-type: none"> 2.5 miles of moderate impacts where crossing hunting access areas 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No lands with wilderness characteristics present 	<ul style="list-style-type: none"> No potential congressional designations are present
Flagstaff A	BLM: 9.9 P: 45.4	2.5	50.7	<p>Existing Land Use</p> <ul style="list-style-type: none"> No high residual impacts 3.5 miles of moderate residual impacts where the alternative route crosses agricultural and forest/woodlands and near residences 1 residential building within right-of-way <p>Zoning</p> <ul style="list-style-type: none"> Crosses 55.3 miles of EFU zoning <p>Military Training Lands</p> <ul style="list-style-type: none"> Crosses 18.4 miles of special use airspace Potential to create restrictions in aircraft movement during training Requires obstruction evaluation/airport airspace analysis in coordination with the FAA <p>Special Designated Areas Not crossed</p>	<p>Existing Agriculture</p> <ul style="list-style-type: none"> 0.5 mile of high residual impacts where the alternative crosses pivot irrigation 2.3 miles of moderate residual impacts where the alternative crosses flood irrigation, other mechanized irrigation, fallow/idle cropland, field crops, and vegetable operations <p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> Crosses 4.9 miles of Prime Farmland if irrigated, 36.3 miles of farmland of statewide importance, and 5.0 miles of high-value soils Crosses 2.49 acres of CRP lands <p>Livestock Grazing</p> <ul style="list-style-type: none"> Crosses 30.7 miles of grazing allotments 	<ul style="list-style-type: none"> 6.3 miles of moderate impacts where crossing hunting access areas 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No lands with wilderness characteristics present 	<ul style="list-style-type: none"> No potential congressional designations are present
Timber Canyon Alternative	BLM: 8.4 USFS: 19.7 P: 42.2	2.5	57.0	<p>Existing Land Use</p> <ul style="list-style-type: none"> No high residual impacts 27.6 miles of moderate residual impacts where the alternative route crosses agricultural and forest/woodlands and near residences 3 residential buildings within right-of-way <p>Zoning</p> <ul style="list-style-type: none"> Crosses 38.0 miles of EFU zoning <p>Military Training Lands</p> <ul style="list-style-type: none"> Crosses 3.6 miles of special use airspace Potential to create restrictions in aircraft 	<p>Existing Agriculture</p> <ul style="list-style-type: none"> 2.3 miles of moderate residual impacts where the alternative crosses flood irrigation, other mechanized irrigation, fallow/idle cropland, field crops, orchards of fruit and tree nuts, and, vegetable operations <p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> Crosses 2.3 miles of Prime Farmland if irrigated, 32.0 miles of farmland of statewide importance, and 2.9 miles of high-value soils Crosses 12.01 acres of CRP lands <p>Livestock Grazing</p>	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No lands with wilderness characteristics present 	<ul style="list-style-type: none"> No potential congressional designations are present

Table 2-26. Alternative Route Comparison Summary for Land Use, Agriculture, Recreation, Transportation, Lands with Wilderness Characteristics, and Potential Congressional Designations in Segment 3—Baker Valley									
Alternative Route	Land Use			Summary	Agriculture	Recreation	Transportation	Lands with Wilderness Characteristics	Potential Congressional Designations
	Land Ownership (Percent)	Percent within Utility Corridors	Total Miles of Parallel Facilities within 2,000 feet						
				movement during training • Requires obstruction evaluation/airport airspace analysis in coordination with the FAA Special Designated Areas Not crossed	• Crosses 50.4 miles of grazing allotments				
Flagstaff A – Burnt River Mountain	BLM: 8 P: 47.3	2.5	50.2	Existing Land Use <ul style="list-style-type: none"> No high residual impacts 4.6 miles of moderate residual impacts where the alternative route crosses agricultural and forest/woodlands and near residences 2 residential buildings within right-of-way Zoning <ul style="list-style-type: none"> Crosses 55.3 miles of EFU zoning Military Training Lands <ul style="list-style-type: none"> Crosses 18.5 miles of special use airspace <ul style="list-style-type: none"> Potential to create restrictions in aircraft movement during training Requires obstruction evaluation/airport airspace analysis in coordination with the FAA Special Designated Areas Not crossed	Existing Agriculture <ul style="list-style-type: none"> 0.5 miles of high residual impacts where the alternative crosses pivot irrigation 2.2 miles of moderate residual impacts where the alternative crosses flood irrigation, other mechanized irrigation, fallow/idle cropland, field crops, and vegetable operations Important Farmland, High-value Soils, and CRP Lands <ul style="list-style-type: none"> Crosses 5.0 miles of Prime Farmland if irrigated, 32.8 miles of farmland of statewide importance, and 5.3 miles of high-value soils Crosses 18.83 acres of CRP lands Livestock Grazing <ul style="list-style-type: none"> Crosses 27.7 miles of grazing allotments 	• 7.6 miles of moderate impacts where crossing hunting access areas	• No high or moderate residual impacts	• No lands with wilderness characteristics present	• No potential congressional designations are present
Flagstaff B	BLM: 9.6 P: 46.4	2.5	51.7	Existing Land Use <ul style="list-style-type: none"> No high residual impacts 2.3 miles of moderate residual impacts where the alternative route crosses agricultural and forest/woodlands and near residences 1 residential building within right-of-way Zoning <ul style="list-style-type: none"> Crosses 56 miles of EFU zoning Military Training Lands <ul style="list-style-type: none"> Crosses 18.5 miles of special use airspace <ul style="list-style-type: none"> Potential to create restrictions in aircraft movement during training Requires obstruction evaluation/airport airspace analysis in coordination with the FAA Special Designated Areas Not crossed	Existing Agriculture <ul style="list-style-type: none"> 0.5 miles of high residual impacts where the alternative crosses pivot irrigation 1.3 miles of moderate residual impacts where the alternative crosses flood irrigation, other mechanized irrigation, and field crops Important Farmland, High-value Soils, and CRP Lands <ul style="list-style-type: none"> Crosses 3.6 miles of Prime Farmland if irrigated, 37.8 miles of farmland of statewide importance, and 4.1 miles of high-value soils Crosses 2.49 acres of CRP lands Livestock Grazing <ul style="list-style-type: none"> Crosses 32.4 miles of grazing allotments 	• 6.3 miles of moderate impacts where crossing hunting access areas	• No high or moderate residual impacts	• No lands with wilderness characteristics present	• No potential congressional designations are present
Flagstaff B – Burnt River West	BLM: 8.3 P: 47.4	0.0	45.8	Existing Land Use <ul style="list-style-type: none"> No high residual impacts 3.5 miles of moderate residual impacts where the alternative route crosses agricultural and forest/woodlands No residential buildings within right-of-way Zoning <ul style="list-style-type: none"> Crosses 55.7 miles of EFU zoning Military Training Lands	Existing Agriculture <ul style="list-style-type: none"> 0.2 miles of high residual impacts where the alternative crosses pivot irrigation 2.2 miles of moderate residual impacts where the alternative crosses flood irrigation, other mechanized irrigation, and field crops Important Farmland, High-value Soils, and CRP Lands	• 8.9 miles of moderate impacts where crossing hunting access areas	• No high or moderate residual impacts	• No lands with wilderness characteristics present	• No potential congressional designations are present

Table 2-26. Alternative Route Comparison Summary for Land Use, Agriculture, Recreation, Transportation, Lands with Wilderness Characteristics, and Potential Congressional Designations in Segment 3—Baker Valley

Alternative Route	Land Use			Summary	Agriculture	Recreation	Transportation	Lands with Wilderness Characteristics	Potential Congressional Designations
	Land Ownership (Percent)	Percent within Utility Corridors	Total Miles of Parallel Facilities within 2,000 feet						
				<ul style="list-style-type: none"> Crosses 17.0 miles of special use airspace Potential to create restrictions in aircraft movement during training Requires obstruction evaluation/airport airspace analysis in coordination with the FAA <p>Special Designated Areas Not crossed</p>	<ul style="list-style-type: none"> Crosses 2.1 miles of Prime Farmland if irrigated, 30.8 miles of farmland of statewide importance, and 2.5 miles of high-value soils Crosses 6.75 acres of CRP lands <p>Livestock Grazing:</p> <ul style="list-style-type: none"> Crosses 36.3 miles of grazing allotments 				
Flagstaff B - Durkee	BLM: 12.5 P: 47.4	0.0	47.5	<p>Existing Land Use</p> <ul style="list-style-type: none"> No high residual impacts 5.7 miles of moderate residual impacts where the alternative route crosses agricultural and forest/woodlands and near residences No residential buildings within right-of-way <p>Zoning</p> <ul style="list-style-type: none"> Crosses 58.4 miles of EFU zoning <p>Military Training Lands</p> <ul style="list-style-type: none"> Crosses 16.4 miles of special use airspace Potential to create restrictions in aircraft movement during training Requires obstruction evaluation/airport airspace analysis in coordination with the FAA <p>Special Designated Areas Not crossed</p>	<p>Existing Agriculture</p> <ul style="list-style-type: none"> 0.5 miles of high residual impacts where the alternative crosses pivot irrigation 2.2 miles of moderate residual impacts where the alternative crosses flood irrigation, other mechanized irrigation, fallow/idle cropland, field crops, and vegetable operations <p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> Crosses 2.2 miles of Prime Farmland if irrigated, 40.9 miles of farmland of statewide importance, and 2.7 miles of high-value soils Crosses 5.47 acres of CRP lands <p>Livestock Grazing</p> <ul style="list-style-type: none"> Crosses 38.2 miles of grazing allotments 	<ul style="list-style-type: none"> 6.2 miles of moderate impacts where crossing hunting access areas 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No lands with wilderness characteristics present 	<ul style="list-style-type: none"> No potential congressional designations are present

Table Note:
 ACEC = area of critical environmental concern
 APE = area of potential effects
 BLM = Bureau of Land Management
 CAFO = confined animal feeding operation
 CRP = Conservation Reserve Program
 EFU = exclusive farm use
 FAA = Federal Aviation Authority

NHT = national historic trail
 NWSTF = Naval Weapons Systems Training Facility
 P = Private
 ROS = recreation opportunity spectrum
 SEORMP = Southeastern Oregon Resource Management Plan
 VRM = visual resource management
 WSR = Wild and Scenic River

Table 2-27. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 3—Baker Valley

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
Applicant's Proposed Action	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 28.9 miles Moderate: 17.6 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 10 VAUs affected <ul style="list-style-type: none"> 6 Foreground 10 Middleground 1 VAU with B scenic quality would experience high impacts on visible areas within the foreground, and 1 VAU with B scenic quality would experience moderate impacts on visible areas within the foreground change from B to C scenic quality within the visible foreground <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: High impacts would result in the following; the communities of Durkee, Weatherby, and Dixie, along with scattered residences along the I-84 corridor Fewer impacts on residence with where alignment would be collocated with existing 138-kV and 230-kV transmission lines Recreation: Hells Canyon All American Road, Grande Tour Scenic Bikeway and also the Snake River-Mormon Basin Back Country Byway would all experience high impacts Travel Routes: Views from I-84 and Highway 203 would experience high impacts <p>Federal Land Conformance</p> <ul style="list-style-type: none"> BLM Management Objectives in a few areas including NHT related KOP 5-60 (National Historic Oregon Trail Interpretive Center Entrance State Highway 86) with 0.7 visible miles in VRM Class III, and Goodale's Cutoff NHT related linear viewing platform with a strong residual impact in VRM Class III with 0.8 visible miles that would not be in conformance. Hells Canyon linear viewing platform also would have a strong residual contrast within VRM Class III with 0.8 mile of visible miles that would not be in conformance 	<p>Inventory</p> <ul style="list-style-type: none"> 72 previously recorded sites in the study corridor 10 previously recorded sites in the direct effects APE Key resources include the Lime-Dixie Cemetery, the Oregon NHT, trail-associated sites, and the Goodale's Cutoff Study Trail. Of these resources, the Oregon NHT and the Goodale's Cutoff Study Trail are in the direct effects APE, and also are crossed by the alternative route Crosses two previously recorded, contributing segments of the Oregon NHT Crosses unrecorded segments of the Oregon NHT multiple times (refer to map MV-25 for inventory data) Crosses one previously recorded, contributing segment of the Goodale's Cutoff Study Trail An additional key resource is the historic Slough House Stage Station (indirect effects APE) There are sites or areas of Native American concern along this route Potential for direct effects on unrecorded, significant sites along the Burnt River Canyon and the Durkee areas Based on RLS cultural data collected for alternative routes in the vicinity of North Powder, Durkee, Weatherby, and the Virtue Flat Mining Area, resources that potentially could be affected visually include numerous historic buildings and structures, waterworks, mining operations, and historic transportation corridors. The Virtue Flat Mining Area is crossed at Link 3-28. Signature Rock is located 3 miles to the east of Link 3-28. This alternative route avoids the Baker City Historic District <p>Impacts</p> <ul style="list-style-type: none"> 3.6 miles of high cultural resource sensitivity 21.9 miles of moderate cultural resource sensitivity 27.7 miles of low cultural resource sensitivity 2.0 miles of no cultural resource sensitivity 	<ul style="list-style-type: none"> Native American tribes have expressed concern about potential direct and indirect effects on the following resources: <ul style="list-style-type: none"> Archaeological resources (e.g., lithic scatters, lithic procurement areas, cairns, rock alignments); most of the sites are in the indirect effects APE The Oregon NHT (path of the Forced March of 1879) is in the direct effects APE There is the potential for direct effects on unrecorded, significant sites (primarily rock features) of tribal significance along the Burnt River Canyon and the Durkee areas Traditional foods Ongoing coordination and consultation with Native American sovereign tribal governments may identify additional resources of concern 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: 19.9 miles Moderate: 16.2 miles Low: 19.1 miles <p>Trail Management</p> <ul style="list-style-type: none"> High impacts on views from Flagstaff Hill/NHOTIC High Potential Historic Segment High impacts on views from the NPS Auto Tour Route High impacts on views from the Oregon Trail ACEC – Flagstaff Hill and Straw Ranch I portions <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> High impacts on views from the NHOTIC <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> Two contributing trail segment crossed, high impacts on views from contributing trail segments High impact on views from Oregon Trail Monument trail-associated cultural site <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Goodale's Cutoff Study Trail</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: 2.9 miles Moderate: 2.8 miles Low: 7.3 miles <p>Key Issues</p> <ul style="list-style-type: none"> Potential designation could be locally compromised 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population Moderate agricultural impacts with yield losses valued at \$48,543 annually during construction and residual yield losses of \$15,170 each year of operation No identifiable impacts on CAFO operations High impacts on grazing resources with annual forage losses of approximately 72 AUMs during construction and a residual loss of approximately 23 AUMs each year of operation Minimal impacts on timber resources: the B2H Project could disturb approximately 5 acres of timberlands during construction with residual disturbances equal to less than 2 acres of timberlands Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental justice population
Variation S3-A1	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: none Moderate: 5.7 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 6 VAUs affected <ul style="list-style-type: none"> 2 Foreground 6 Middleground 1 VAU with B scenic quality would experience moderate impacts on visible areas within the foreground change from B to C scenic quality within the visible foreground through lands which 	<p>Inventory</p> <ul style="list-style-type: none"> 8 previously recorded sites in the study corridor 2 previously recorded sites in the direct effects APE A key resource is the Oregon NHT (unrecorded, segments); this resource is in the indirect effects APE (refer to map MV-25 for inventory data) There are sites of Native American concern along this route variation Based on RLS cultural data collected for alternative routes in the vicinity of North Powder, resources that potentially could be affected visually, include numerous historic buildings, structures, and waterworks 	<ul style="list-style-type: none"> Due to the nature of available data, resources of Native American concern only are discussed by alternative route. Refer to the Applicant's Proposed Action Alternative 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: none Moderate: none Low: 12.4 miles <p>Trail Management</p> <ul style="list-style-type: none"> No key issues identified <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Biological, Natural, and Other</p>	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population Minimal agricultural impacts with yield losses valued at \$5,432 annually during construction and residual yield losses of \$1,429 each year of operation No identifiable impacts on CAFO operations Minimal impacts on grazing resources with annual forage losses of approximately 3 AUMs during construction and a residual loss of less than 1 AUM each year of operation Minimal impacts on timber resources: the

Table 2-27. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 3—Baker Valley

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
	<p>are forested and mostly undeveloped</p> <p>Sensitive Viewing Platforms:</p> <ul style="list-style-type: none"> Residences: Residences would not have a view of the B2H Project within the foreground thus only moderate impacts on views from residences Recreation: No key issues identified Travel Routes: No key issues identified <p>Federal Land Conformance:</p> <ul style="list-style-type: none"> No key issues identified 	<p>Impacts</p> <ul style="list-style-type: none"> 0 miles of high and moderate cultural resource sensitivity 10.9 miles of low cultural resource sensitivity 1.5 miles of no cultural resource sensitivity 		<p>Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Goodale's Cutoff Study Trail</p> <ul style="list-style-type: none"> This route variation is not located in proximity to the Goodale's Cutoff Study Trail 	<p>B2H Project could disturb less than 1 acre of timberlands during construction and continued operations</p> <ul style="list-style-type: none"> Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental justice population
Variation S3-A2	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: none Moderate: 1.3 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 6 VAUs affected <ul style="list-style-type: none"> 3 Foreground 6 Middleground This route is Collocated with an existing 230-kV transmission line and would result in less than S3-A1 and would still result in Class B change to Class C landscape <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: Residences would not have a view of the B2H Project within the foreground thus only moderate impacts on views from residences Recreation: No key issues identified Travel Routes: No key issues identified <p>Federal Land Conformance</p> <ul style="list-style-type: none"> No key issues identified 	<p>Inventory</p> <ul style="list-style-type: none"> 8 previously recorded sites in the study corridor There are no previously recorded sites in the direct effects APE Same key resource as Variation S3-A1 because these two route variations follow similar alignments, passing in proximity to the same resources There are sites of Native American concern along this route variation Although Variation S3-A2 and Variation S3-A1 do not share the same alignment, they are in proximity to one another, and the same resources that potentially could be affected visually along Variation S3-A1 are the same as those identified along Variation S3-A2 <p>Impacts</p> <ul style="list-style-type: none"> 0 miles of high and moderate cultural resource sensitivity 11.3 miles of low cultural resource sensitivity 0.9 mile of no cultural resource sensitivity 	<ul style="list-style-type: none"> Due to the nature of available data, resources of Native American concern only are discussed by alternative route. Refer to the Applicant's Proposed Action Alternative 	<p>Oregon NHT</p> <p>Residual Impacts:</p> <ul style="list-style-type: none"> High: none Moderate: none Low: 12.2 miles <p>Trail Management:</p> <ul style="list-style-type: none"> No key issues identified <p>Scenic and Recreation Resources:</p> <ul style="list-style-type: none"> No key issues identified <p>Historic and Cultural Resources:</p> <ul style="list-style-type: none"> No key issues identified <p>Biological, Natural, and Other Resources:</p> <ul style="list-style-type: none"> No key issues identified <p>Goodale's Cutoff Study Trail</p> <ul style="list-style-type: none"> This route variation is not located in proximity to the Goodale's Cutoff Study Trail 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population Minimal agricultural impacts with yield losses valued at \$2,691 annually during construction and residual yield losses of \$679 each year of operation No identifiable impacts on CAFO operations Minimal impacts on grazing resources with annual forage losses of approximately 3 AUMs during construction and a residual loss of less than 1 AUM each year of operation No identifiable impacts on timber resources Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental justice population
Variation S3-B1	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 4.2 miles Moderate: 8.4 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 7 VAUs affected <ul style="list-style-type: none"> 3 Foreground 7 Middleground Class B and Class C landscapes with project contrast varying from moderate to high and would result in Class B change to Class C landscape <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: High impacts on views of the 4 residences found near the northernmost portion of the route variation Recreation: Hells Canyon All American Road, Grande Tour Scenic Bikeway and also the Snake River-Mormon Basin Back Country Byway would all experience high impacts Travel Routes: Moderate impacts on I-84 and Highway 203 <p>Federal Land Conformance</p>	<p>Inventory</p> <ul style="list-style-type: none"> 34 previously recorded sites in the study corridor 2 previously recorded sites in the direct effects APE Key resources include the Oregon NHT, trail-associated sites/components (monuments and landmarks), and the Goodale's Cutoff Study Trail. Of these resources, the Oregon NHT (one previously recorded, contributing segment) and the Goodale's Cutoff Study Trail (one previously recorded, contributing segment) are in the direct effects APE, and also are crossed by the route variation An additional key resource is the historic Slough House Stage Station (indirect effects APE) There are sites of Native American concern along this route variation Based on RLS cultural data collected for alternative routes in the vicinity the Virtue Flat Mining Area, resources that potentially could be affected visually, include numerous historic mining operations. Signature Rock has been documented approximately 3 miles east of the route variation. Variation S3-B1 avoids the Baker City Commercial 	<ul style="list-style-type: none"> Due to the nature of available data, resources of Native American concern only are discussed by alternative route. Refer to the Applicant's Proposed Action Alternative 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: 2.1 miles Moderate: 5.1 miles Low: 6.7 miles <p>Trail Management</p> <ul style="list-style-type: none"> High impacts on views from Flagstaff Hill/NHOTIC High Potential Historic Segment Moderate impacts on views from the NPS Auto Tour Route – Flagstaff Hill portion <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> High impacts on views from the NHOTIC <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> One contributing trail segment crossed, high impacts on views from contributing trail segments High impact on views from Oregon Trail Monument trail-associated cultural site 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population Minimal agricultural impacts with yield losses valued at \$1,478 annually during construction and residual yield losses of \$462 each year of operation No identifiable impacts on CAFO operations Moderate impacts on grazing resources with annual forage losses of approximately 28 AUMs during construction and a residual loss of approximately 9 AUMs each year of operation Minimal impacts on timber resources: the B2H Project could disturb approximately 2 acre of timberlands during construction with a residual disturbance to less than 1 acre of timberland during continued operations Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental justice population

Table 2-27. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 3—Baker Valley

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
	<ul style="list-style-type: none"> Goodale’s Cutoff NHT related linear viewing platform would be affected with strong residual impact in VRM Class III with 0.8 visible miles of the B2H Project that would not be in conformance, Hells Canyon linear viewing platform also would have a strong residual contrast within VRM Class III with 0.8 mile of visible miles of the B2H Project that would not be in conformance 	<p>Historic District</p> <p>Impacts</p> <ul style="list-style-type: none"> 1.1 miles of high cultural resource sensitivity 7.4 miles of moderate cultural resource sensitivity 4.9 miles of low cultural resource sensitivity 0.5 mile of no cultural resource sensitivity 		<p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Goodale’s Cutoff Study Trail</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: 2.9 miles Moderate: 2.8 miles Low: 6.9 miles <p>Key Issues</p> <ul style="list-style-type: none"> Potential designation could be locally compromised 	
Variation S3-B2	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 6.6 miles Moderate: 7.5 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 8 VAUs affected <ul style="list-style-type: none"> 3 Foreground 8 Middleground The project contrast associated with this route variation would be predominately moderate and would result in Class B change to Class C landscape <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: High impacts on views of the 4 residences found near the northernmost portion of the route variation Recreation: Hells Canyon All American Road, Grande Tour Scenic Bikeway and also the Snake River-Mormon Basin Back Country Byway Would all experience high impacts Travel Routes: High impacts on views associated with Highway 203 and moderate impacts on I-84 due to existing transmission lines <p>Federal Land Conformance</p> <ul style="list-style-type: none"> No key issues identified 	<p>Inventory</p> <ul style="list-style-type: none"> 27 previously recorded sites in the study corridor 1 previously recorded site in the direct effects APE Same key resources as Variation S3-B1. Although these route variations do not share similar alignments, key resources are the same because they occur near the areas where the route variations become closer to one another or intersect Crosses the Virtue Flat Segment of the Oregon NHT Crosses one unrecorded segment of the Goodale’s Cutoff Study Trail (refer to map MV-26 for inventory data) There are sites of Native American concern along this route variation Based on RLS cultural data collected for alternative routes in the vicinity of the community of Baker and the Virtue Flat Mining Area, resources that potentially could be affected visually, along this route variation, include numerous historic buildings, structures, waterworks, mining operations, and transportation corridors. This route variation does not cross the historic mining area and lies farther from Signature Rock. One unidentified Goal 5 Resource is located approximately 4.2 miles northwest of this route variation. In addition, this route variation is closer to resources associated with the Baker City Historic District than Variation S3-B1 <p>Impacts</p> <p>1.1 miles of high cultural resource sensitivity. Additional miles of high cultural resource sensitivity would be anticipated due to one unrecorded segment of the Goodale’s Cutoff Study Trail along this route variation</p> <ul style="list-style-type: none"> 4.9 miles of moderate cultural resource sensitivity 8.2 miles of low cultural resource sensitivity 0.2 mile of no cultural resource sensitivity 	<ul style="list-style-type: none"> Due to the nature of available data, resources of Native American concern only are discussed by alternative route. Refer to the Applicant’s Proposed Action Alternative 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: 1.7 miles Moderate: 6.7 miles Low: 4.5 miles <p>Trail Management</p> <ul style="list-style-type: none"> High impacts on views from Flagstaff Hill/NHOTIC High Potential Historic Segment Moderate impacts on views from the NPS Auto Tour Route High impacts on views from the Oregon Trail ACEC – Flagstaff Hill portion <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> High impacts on views from the NHOTIC <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> One contributing trail segment crossed, high impacts on views from contributing trail segments Moderate impact on views from the possible site of the “Lone Tree” trail-associated cultural site <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Goodale’s Cutoff Study Trail</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: none Moderate: 0.6 mile Low: 9.7 miles <p>Key Issues</p> <ul style="list-style-type: none"> Potential designation could be locally compromised 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population Minimal agricultural impacts with yield losses valued at \$8,454 annually during construction and residual yield losses of \$2,482 each year of operation No identifiable impacts on CAFO operations Minimal impacts on grazing resources with annual forage losses of approximately 4 AUMs during construction and a residual loss of approximately 1 AUM each year of operation Minimal impacts on timber resources: the B2H Project could disturb 9 acre of timberlands during construction with a residual disturbance of approximately 3 acre of timberland during continued operations Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental justice population
Variation S3-B3	<p>Residual Impacts</p> <p>Viewers</p>	<p>Inventory</p> <ul style="list-style-type: none"> 28 previously recorded sites in the study corridor 	<ul style="list-style-type: none"> Due to the nature of available data, resources of Native American concern only are discussed by alternative route. Refer to the 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: 1.7 miles 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population Minimal agricultural impacts with yield

Table 2-27. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 3—Baker Valley

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
	<ul style="list-style-type: none"> High: 6.4 miles Moderate: 6.7 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 10 VAUs affected <ul style="list-style-type: none"> 6 Foreground 10 Middleground <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: Similar to Variation S3-B2, High impacts on views of the 4 residences found near the northernmost portion of the route variation and would moderately impact the southernmost residences with views of larger turning structures Recreation: Hells Canyon All American Road, Grande Tour Scenic Bikeway and also the Snake River-Mormon Basin Back Country Byway Would all experience high impacts Travel Routes: Similar to Variation S3-B2 <p>Federal Land Conformance</p> <ul style="list-style-type: none"> No key issues identified 	<ul style="list-style-type: none"> 1 previously recorded site in the direct effects APE Same key resources as Variation S3-B1. Although these route variations do not share similar alignments, key resources are the same because they occur near the areas where the route variations become closer to one another or intersect Crosses the Virtue Flat Segment of the Oregon NHT Crosses one unrecorded segment of the Goodale's Cutoff Study Trail (refer to map MV-26 for inventory data) There are sites of Native American concern along this route variation Based on RLS cultural data collected for alternative routes in the vicinity of the community of Baker and the Virtue Flat Mining Area, resources that potentially could be affected visually are the same as those identified along Variation S3-B2. These route variations follow similar alignments, passing in proximity to the same resources <p>Impacts</p> <ul style="list-style-type: none"> 1.1 miles of high cultural resource sensitivity. Additional miles of high cultural resource sensitivity would be anticipated due to one unrecorded segment of the Goodale's Cutoff Study Trail along this route variation 4.9 miles of moderate cultural resource sensitivity 8.5 miles of low cultural resource sensitivity 0.2 mile of no cultural resource sensitivity 	<p>Applicant's Proposed Action Alternative</p>	<ul style="list-style-type: none"> Moderate: 6.6 miles Low: 4.4 miles <p>Trail Management</p> <ul style="list-style-type: none"> High impacts on views from Flagstaff Hill/NHOTIC High Potential Historic Segment Moderate impacts on views from the NPS Auto Tour Route High impacts on views from the Oregon Trail ACEC – Flagstaff Hill portion <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> High impacts on views from the NHOTIC <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> One contributing trail segment crossed, high impacts on views from contributing trail segments Moderate impact on views from the possible site of the "Lone Tree" trail-associated cultural site <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Goodale's Cutoff Study Trail Residual Impacts</p> <ul style="list-style-type: none"> High: none Moderate: 0.6 mile Low: 9.7 miles <p>Key Issues</p> <ul style="list-style-type: none"> Potential designation could be locally compromised 	<p>losses valued at \$8,222 annually during construction and residual yield losses of \$2,249 each year of operation</p> <ul style="list-style-type: none"> No identifiable impacts on CAFO operations Minimal impacts on grazing resources with annual forage losses of approximately 4 AUMs during construction and a residual loss of approximately 1 AUM each year of operation Minimal impacts on timber resources: the B2H Project could disturb less than 7 acre of timberlands during construction with a residual disturbance of approximately 2 acre of timberland during continued operations Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental justice population
<p>Variation S3-B4</p>	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 5.2 miles Moderate: 6.97 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 8 VAUs affected <ul style="list-style-type: none"> 3 Foreground 8 Middleground Collocated to a higher degree than S3-B2 with predominantly moderate impacts and would have less of an impact compared to Variation S3-B2, Variation S3-B3, or Variation S3-B5 <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: Similar to S3-B3 Recreation: Similar to S3-B2 Travel Routes: Similar to S3-B2 <p>Federal Land Conformance</p> <ul style="list-style-type: none"> No key issues identified 	<p>Inventory</p> <ul style="list-style-type: none"> 25 previously recorded sites in the study corridor 1 previously recorded site in the direct effects APE Same key resources as Variation S3-B1 because these route variations follow similar alignments, passing in proximity to the same resources Crosses the Virtue Flat Segment of the Oregon NHT Crosses one unrecorded segment of the Goodale's Cutoff Study Trail (refer to map MV-26 for inventory data) There are sites of Native American concern along this route variation Based on RLS cultural data collected for alternative routes in the vicinity of Baker City Historic District and the Virtue Flat Mining Area, resources that potentially could be affected visually are the same as those identified along Variation S3-B2. These two route variations follow similar alignments, passing in proximity to the same resources 	<ul style="list-style-type: none"> Due to the nature of available data, resources of Native American concern only are discussed by alternative route. Refer to the Applicant's Proposed Action Alternative 	<p>Oregon NHT Residual Impacts</p> <ul style="list-style-type: none"> High: 1.2 miles Moderate: 6.4 miles Low: 4.7 miles <p>Trail Management</p> <ul style="list-style-type: none"> High impacts on views from Flagstaff Hill/NHOTIC High Potential Historic Segment Moderate impacts on views from the NPS Auto Tour Route High impacts on views from the Oregon Trail ACEC – Flagstaff Hill portion <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> High impacts on views from the NHOTIC <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> One contributing trail segment 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population Moderate agricultural impacts with yield losses valued at \$29,083 annually during construction and residual yield losses of \$7,653 each year of operation No identifiable impacts on CAFO operations Minimal impacts on grazing resources with annual forage losses of approximately 2 AUMs during construction and a residual loss of less than 1 AUM each year of operation Minimal impacts on timber resources: the B2H Project could disturb approximately 7 acre of timberlands during construction with a residual disturbance of approximately 3 acre of timberland during continued operations Impacts on property values are minimal and short-term in nature

Table 2-27. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 3—Baker Valley

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
		<p>Impacts</p> <ul style="list-style-type: none"> • 1.2 miles of high cultural resource sensitivity. Additional miles of high cultural resource sensitivity would be anticipated due to one unrecorded segment of the Goodale’s Cutoff Study Trail along this route variation • 4.2 miles of moderate cultural resource sensitivity • 8.7 miles of low cultural resource sensitivity • 0.2 mile of no cultural resource sensitivity 		<p>crossed, high impacts on views from contributing trail segments</p> <ul style="list-style-type: none"> • Moderate impact on views from the possible site of the “Lone Tree” trail-associated cultural site <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> • No key issues identified <p>Goodale’s Cutoff Study Trail</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> • High: none • Moderate: none • Low: 9.9 miles <p>Key Issues</p> <ul style="list-style-type: none"> • Views of B2H Project screened 	<ul style="list-style-type: none"> • No disproportionate impact on environmental justice population
Variation S3-B5	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> • High: 6.3 miles • Moderate: 7.5 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> • 8 VAUs affected <ul style="list-style-type: none"> – 3 Foreground – 8 Middleground • Collocated with an existing 230-kV transmission line, impacts on scenic quality would be slightly less than that of Variation S3-B2 or Variation S3-B3 <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> • Residences: 4 northernmost residences would experience high impacts on views southernmost residences would be moderately affected with views similar to Variation S3-B2 • Recreation: Passes 2 of the previously mentioned routes with less impacts as it is through agricultural lands • Travel Routes: Similar to S3-B2 <p>Federal Land Conformance</p> <ul style="list-style-type: none"> • No key issues identified 	<p>Inventory</p> <ul style="list-style-type: none"> • 23 previously recorded sites in the study corridor • 1 previously recorded site in the direct effects APE • Same key resources as Variation S3-B1 because these route variations follow similar alignments, passing in proximity to the same resources • Crosses the Virtue Flat Segment of the Oregon NHT • Crosses one unrecorded segment of the Goodale’s Cutoff Study Trail (refer to map MV-26 for inventory data) • There are sites of Native American concern along this route variation • Based on RLS cultural data collected for alternative routes in the vicinity of Baker City Historic District and the Virtue Flat Mining Area, resources that potentially could be affected visually are the same as those identified along Variation S3-B2. These route variations follow similar alignments, passing in proximity to the same resources <p>Impacts</p> <ul style="list-style-type: none"> • 1.1 miles of high cultural resource sensitivity. Additional miles of high cultural resource sensitivity would be anticipated due to one unrecorded segment of the Goodale’s Cutoff Study Trail along this route variation • 4.3 miles of moderate cultural resource sensitivity • 8.4 miles of low cultural resource sensitivity • 0.2 mile of no cultural resource sensitivity 	<ul style="list-style-type: none"> • Due to the nature of available data, resources of Native American concern only are discussed by alternative route. Refer to the Applicant’s Proposed Action Alternative 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> • High: 1.1 miles • Moderate: 7.0 miles • Low: 4.4 miles <p>Trail Management</p> <ul style="list-style-type: none"> • High impacts on views from Flagstaff Hill/NHOTIC High Potential Historic Segment • Moderate impacts on views from the NPS Auto Tour Route • High impacts on views from the Oregon Trail ACEC – Flagstaff Hill portion <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> • High impacts on views from the NHOTIC <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> • One contributing trail segment crossed, high impacts on views from contributing trail segments • Moderate impact on views from the possible site of the “Lone Tree” trail-associated cultural site <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> • No key issues identified <p>Goodale’s Cutoff Study Trail</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> • High: none • Moderate: none • Low: 9.9 miles <p>Key Issues</p> <ul style="list-style-type: none"> • Views of B2H Project screened 	<ul style="list-style-type: none"> • Minimal and temporary impact on employment and population • Moderate agricultural impacts with yield losses valued at \$28,587 annually during construction and residual yield losses of \$8,111 each year of operation • No identifiable impacts on CAFO operations • Minimal impacts on grazing resources with annual forage losses of approximately 2 AUMs during construction and a residual loss of less than 1 AUM each year of operation • Minimal impacts on timber resources: the B2H Project could disturb approximately 10 acres of timberlands during construction with a residual disturbance of approximately 5 acre of timberland during continued operations • Impacts on property values are minimal and short-term in nature • No disproportionate impact on environmental justice population
Variation S3-C1	Residual Impacts	Inventory	<ul style="list-style-type: none"> • Due to the nature of available data, resources of Native American concern only are 	Oregon NHT	<ul style="list-style-type: none"> • Minimal and temporary impact on employment and population

Table 2-27. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 3—Baker Valley

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
	<p>Viewers</p> <ul style="list-style-type: none"> High: 17.4 miles Moderate: 3.0 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 4 VAUs affected <ul style="list-style-type: none"> 4 Foreground 4 Middleground Predominantly high impacts on Class B and Class C landscapes. Impacts on scenic quality associated with Variation S3-C1 would decrease the existing B scenic quality rating to C scenic quality within the visible foreground of one VAU <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: High impacts on views associated with these areas; the communities of Durkee, Weatherby, and Dixie and areas along I-84 Recreation: Snake River-Mormon Basin Back Country Byway would be affected with high impacts Travel Routes: Moderate impacts on views associated with I-84 <p>Federal Land Conformance</p> <ul style="list-style-type: none"> No key issues identified 	<ul style="list-style-type: none"> 30 previously recorded sites in the study corridor 6 previously recorded sites in the direct effects APE Key resources include the Lime-Dixie Cemetery, the Oregon NHT, and the Rattlesnake Springs Landmark of the Oregon NHT. Of these resources, the Oregon NHT is in the direct effects APE Crosses one previously recorded, contributing segment of the Oregon NHT Crosses unrecorded segments of the Oregon NHT (refer to map MV-25 for inventory data) multiple times There are sites of Native American concern along this route variation Based on RLS cultural data collected for alternative routes in the vicinity of Durkee and Weatherby, resources that potentially could be affected visually, include numerous historic buildings, structures, waterworks, and historic transportation corridors <p>Impacts</p> <ul style="list-style-type: none"> 2.5 miles of high cultural resource sensitivity 12.0 miles of moderate cultural resource sensitivity 6.6 miles of low cultural resource sensitivity 0 miles of no cultural resource sensitivity 	<p>discussed by alternative route. Refer to the Applicant's Proposed Action Alternative</p>	<p>Residual Impacts</p> <ul style="list-style-type: none"> High: 15.5 miles Moderate: 5.6 miles Low: none <p>Trail Management:</p> <ul style="list-style-type: none"> High impacts on views from the NPS Auto Tour Route High impacts on views from the Oregon Trail ACEC – Straw Ranch 1 portion <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> One contributing trail segment crossed, high impacts on views from contributing trail segments <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Goodale's Cutoff Study Trail</p> <ul style="list-style-type: none"> This route variation is not located in proximity to the Goodale's Cutoff Study Trail 	<ul style="list-style-type: none"> Moderate agricultural impacts with yield losses valued at \$40,678 annually during construction and residual yield losses of \$14,357 each year of operation No identifiable impacts on CAFO operations Moderate impacts on grazing resources with annual forage losses of 41 AUMs during construction and a residual loss of approximately 14 AUMs each year of operation Minimal impacts on timber resources: the B2H Project could disturb approximately 2 acres of timberlands during construction with a residual disturbance of less than 1 acre of timberland during continued operations Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental justice population
Variation S3-C2	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 19.3 miles Moderate: 1.7 mile <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 4 VAUs affected <ul style="list-style-type: none"> 4 Foreground 4 Middleground Predominantly high impacts on Class B and Class C landscapes. Impacts on scenic quality associated with this route variation would be similar to Variation S3-C1 <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: Similar impacts as Variation S3-C1 yet would be closer in proximity to through the community of Durkee Recreation: Similar to S3-C1 Travel Routes: High impacts on views associated with I-84 due to head-on views <p>Federal Land Conformance</p> <ul style="list-style-type: none"> No key issues identified 	<p>Inventory</p> <ul style="list-style-type: none"> 37 previously recorded sites in the study corridor 5 previously recorded sites in the direct effects APE Same key resources as Variation S3-C1 because these route variations follow similar alignments, passing in proximity to the same resources Crosses one previously recorded, contributing segment of the Oregon NHT Crosses unrecorded segments of the Oregon NHT (refer to map MV-25 for inventory data) multiple times There are sites of Native American concern along this route variation Based on RLS cultural data collected for alternative routes in the vicinity of Durkee and Weatherby, resources that potentially could be affected visually are the same as those identified along Variation S3-C1. These route variations follow the same alignment, passing in proximity to the same resources <p>Impacts</p> <ul style="list-style-type: none"> 2.5 miles of high cultural resource sensitivity 11.7 miles of moderate cultural resource sensitivity 7.5 miles of low cultural resource sensitivity 0 miles of no cultural resource sensitivity 	<ul style="list-style-type: none"> Due to the nature of available data, resources of Native American concern only are discussed by alternative route. Refer to the Applicant's Proposed Action Alternative 	<p>Oregon NHT</p> <p>Residual Impacts:</p> <ul style="list-style-type: none"> High: 18.0 miles Moderate: 3.7 miles Low: none <p>Trail Management:</p> <ul style="list-style-type: none"> High impacts on views from the NPS Auto Tour Route High impacts on views from the Oregon Trail ACEC – Straw Ranch 1 portion <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> One contributing trail segment crossed, high impacts on views from contributing trail segments <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Goodale's Cutoff Study Trail</p> <ul style="list-style-type: none"> This route variation is not located in proximity to the Goodale's Cutoff Study Trail 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population Moderate agricultural impacts with yield losses valued at \$46,535 annually during construction and residual yield losses of \$16,169 each year of operation No identifiable impacts on CAFO operations Moderate impacts on grazing resources with annual forage losses of approximately 45 AUMs during construction and a residual loss of approximately 16 AUMs each year of operation Minimal impacts on timber resources: the B2H Project could disturb 2 acres of timberlands during construction with a residual disturbance of less than 1 acre of timberland during continued operations Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental justice population
Variation S3-C3	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 16.2 miles 	<p>Inventory</p> <ul style="list-style-type: none"> 33 previously recorded sites in the study corridor 2 previously recorded sites in the direct effects APE 	<ul style="list-style-type: none"> Due to the nature of available data, resources of Native American concern only are discussed by alternative route. Refer to the Applicant's Proposed Action Alternative 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: 11.7 miles 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population Moderate agricultural impacts with yield losses valued at \$27,210 annually during

Table 2-27. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 3—Baker Valley

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
	<ul style="list-style-type: none"> Moderate: 4.9 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 4 VAUs affected <ul style="list-style-type: none"> 4 Foreground 4 Middleground Predominantly high impacts through Class B and Class C landscapes and would decrease the existing B scenic quality rating to C scenic quality within the visible foreground of one VAU <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: Less visible to views associated with residences and would not come within 0.5 mile of residences as Variation S3-C1 and Variation S3-C2 Recreation: Similar to S3-C1 Travel Routes: High impacts on views associated with I-84 due to two crossings with head-on views <p>Federal Land Conformance:</p> <ul style="list-style-type: none"> No key issues identified 	<ul style="list-style-type: none"> Same key resources as Variation S3-C1. Although the route variations do not follow similar alignments, most of the resources occur in the areas where the alignments become closer to one another Variation S3-C3 crosses one unrecorded segment (unknown condition) of the Oregon NHT at Link 3-60 and avoids the trail crossing near Durkee (refer to map MV-25 for inventory data) There are sites of Native American concern along this route variation Potential for direct effects on unrecorded, significant sites along the Burnt River Canyon area Based on RLS cultural data collected for alternative routes in the vicinity of Durkee and Weatherby, resources that potentially could be affected visually are similar to those identified along Variation S3-C1. Variation S3-C3 lies farther from Durkee <p>Impacts</p> <ul style="list-style-type: none"> 1.8 miles of high cultural resource sensitivity. Additional miles of high cultural resource sensitivity would be anticipated due to one unrecorded segment of the Oregon NHT along this route variation 10.9 miles of moderate cultural resource sensitivity 6.8 miles of low cultural resource sensitivity 1.6 miles of no cultural resource sensitivity 		<ul style="list-style-type: none"> Moderate: 4.3 miles Low: 5.1 miles <p>Trail Management</p> <ul style="list-style-type: none"> High impacts on views from the NPS Auto Tour Route High impacts on views from the Oregon Trail ACEC – Straw Ranch 1 portion <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Historic and Cultural Resources:</p> <ul style="list-style-type: none"> No direct impacts on contributing trail segments, high impacts on views from contributing trail segments <p>Biological, Natural, and Other Resources:</p> <ul style="list-style-type: none"> No key issues identified <p>Goodale's Cutoff Study Trail</p> <ul style="list-style-type: none"> This route variation is not located in proximity to the Goodale's Cutoff Study Trail 	<p>construction and residual yield losses of \$10,037 each year of operation</p> <ul style="list-style-type: none"> No identifiable impacts on CAFO operations Moderate impacts on grazing resources with annual forage losses of approximately 32 AUMs during construction and a residual loss of 12 AUMs each year of operation Minimal impacts on timber resources: the B2H Project could disturb approximately 25 acres of timberlands during construction with a residual disturbance of less than 8 acre of timberland during continued operations Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental justice population
<p>Variation S3-C4</p>	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 15.7 miles Moderate: 5.7 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 4 VAUs affected <ul style="list-style-type: none"> 4 Foreground 4 Middleground Higher impacts through Class B when compared to Variation S3-C3 and would decrease the existing B scenic quality rating to C scenic quality within the visible foreground of one VAU <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: Less visible to views associated with residences and would not come within 0.5 mile of residences as Variation S3-C1 and Variation S3-C2 and would affect views of one less residence Recreation: High impacts on Snake River-Mormon Basin Back Country Byway and also would moderately impact KOP 5-81 (Burnt River) Travel Routes: High impacts on views associated with I-84 due to two crossings with head-on views <p>Federal Land Conformance</p> <ul style="list-style-type: none"> No key issues identified 	<p>Inventory</p> <ul style="list-style-type: none"> 33 previously recorded sites in the study corridor 3 previously recorded sites in the direct effects APE Same key resources as Variation S3-C1 because these route variations share the same alignment, passing in proximity to the same resources Variation S3-C4 crosses one unrecorded segment (unknown condition) of the Oregon NHT at Link 3-60 and avoids the trail crossing near Durkee (refer to map MV-25 for inventory data) There are sites of Native American concern along this route variation Potential for direct effects on unrecorded, significant sites along the Burnt River Canyon area Based on RLS cultural data collected for alternative routes in the vicinity of Durkee and Weatherby, resources that potentially could be affected visually are the same as those identified along Variation S3-C3. These route variations share the same alignment, passing in proximity to the same resources <p>Impacts</p> <ul style="list-style-type: none"> 1.8 miles of high cultural resource sensitivity. Additional miles of high cultural resource sensitivity would be anticipated due to one unrecorded segment of the Oregon NHT along this route variation 	<ul style="list-style-type: none"> Due to the nature of available data, resources of Native American concern only are discussed by alternative route. Refer to the Applicant's Proposed Action Alternative 	<p>Oregon NHT</p> <p>Residual Impacts:</p> <ul style="list-style-type: none"> High: 11.7 miles Moderate: 4.3 miles Low: 5.4 miles <p>Trail Management:</p> <ul style="list-style-type: none"> High impacts on views from the NPS Auto Tour Route High impacts on views from the Oregon Trail ACEC – Straw Ranch 1 portion <p>Scenic and Recreation Resources:</p> <ul style="list-style-type: none"> No key issues identified <p>Historic and Cultural Resources:</p> <ul style="list-style-type: none"> No direct impacts on contributing trail segments, high impacts on views from contributing trail segments <p>Biological, Natural, and Other Resources:</p> <ul style="list-style-type: none"> No key issues identified <p>Goodale's Cutoff Study Trail</p> <ul style="list-style-type: none"> This route variation is not located in proximity to the Goodale's Cutoff Study Trail 	<ul style="list-style-type: none"> Low and temporary impact on employment and population Moderate agricultural impacts with yield losses valued at \$24,155 annually during construction and residual yield losses of \$8,873 each year of operation No identifiable impacts on CAFO operations Moderate impacts on grazing resources with annual forage losses of approximately 32 AUMs during construction and a residual loss of 12 AUMs each year of operation Minimal impacts on timber resources: the B2H Project could disturb approximately 24 acres of timberlands during construction with a residual disturbance of approximately 7 acre of timberland during continued operations Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental justice population

Table 2-27. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 3—Baker Valley

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
Variation S3-C5	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 8.1 miles Moderate: 8.7 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 4 VAUs affected <ul style="list-style-type: none"> 3 Foreground 4 Middleground Predominantly high impacts through Class B and Class C landscapes and would decrease the existing B scenic quality rating to C scenic quality within the visible foreground of one VAU <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: This route would only affect the views associated with three residences that are within 0.5 mile away from the B2H Project at the southernmost part of segment 3 Recreation: High impacts on Snake River-Mormon Basin Back Country Byway and KOP 5-81 (Burnt River) Travel Routes: High impacts on views associated with I-84 due to head-on views <p>Federal Land Conformance</p> <ul style="list-style-type: none"> This route would not be in conformance with VRM Class II with 0.8 visible miles of the B2H Project from KOP Burnt River Canyon affecting the KOP with strong residual impacts 	<p>Inventory</p> <ul style="list-style-type: none"> 10.8 miles of moderate cultural resource sensitivity 7.2 miles of low cultural resource sensitivity 1.6 miles of no cultural resource sensitivity <p>Inventory</p> <ul style="list-style-type: none"> 31 previously recorded sites in the study corridor 2 previously recorded sites in the direct effects APE Same key resources as Variation S3-C1. Although the route variations do not follow similar alignments, most of the resources occur in the areas where the alignments become closer to one another Variation S3-C5 crosses one unrecorded segment (unknown condition) of the Oregon NHT at Link 3-60 and then deviates significantly from the historic trail for the majority of its length (refer to map MV-25 for inventory data) There are sites of Native American concern along this route variation Potential for direct effects on unrecorded, significant sites along the Burnt River Canyon area Based on RLS cultural data collected for alternative routes in the vicinity of Durkee and Weatherby, resources that potentially could be affected visually are similar to those identified along Variation S3-C3. Variation S3-C5 lies farther from Durkee and Weatherby <p>Impacts</p> <ul style="list-style-type: none"> 0.9 mile of high cultural resource sensitivity. Additional miles of high cultural resource sensitivity would be anticipated due to one unrecorded segment of the Oregon NHT along this route variation 6.6 miles of moderate cultural resource sensitivity 9.7 miles of low cultural resource sensitivity 3.8 miles of no cultural resource sensitivity 	<ul style="list-style-type: none"> Due to the nature of available data, resources of Native American concern only are discussed by alternative route. Refer to the Applicant's Proposed Action Alternative 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: 5.0 miles Moderate: 2.4 miles Low: 13.6 miles <p>Trail Management</p> <ul style="list-style-type: none"> High impacts on views from the NPS Auto Tour Route High impacts on views from the Oregon Trail ACEC – Straw Ranch 1 portion <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> No direct impacts on contributing trail segments, high impacts on views from contributing trail segments <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Goodale's Cutoff Study Trail</p> <ul style="list-style-type: none"> This route variation is not located in proximity to the Goodale's Cutoff Study Trail 	<ul style="list-style-type: none"> Low and temporary impact on employment and population Moderate agricultural impacts with yield losses valued at \$30,705 annually during construction and residual yield losses of \$13,448 each year of operation No identifiable impacts on CAFO operations Moderate impacts on grazing resources with annual forage losses of approximately 62 AUMs during construction and a residual loss of 27 AUMs each year of operation Minimal impacts on timber resources: the B2H Project could disturb approximately 36 acres of timberlands during construction with a residual disturbance of approximately 12 acre of timberland during continued operations Impacts on property values are minimal and short-term in nature <p>No disproportionate impact on environmental justice population</p>
Variation S3-C6	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 13.8 miles Moderate: 6.1 miles <p>Scenic Quality and Landscape Character:</p> <ul style="list-style-type: none"> 4 VAUs affected <ul style="list-style-type: none"> 3 Foreground 4 Middleground Higher impacts through Class B when compared to other route variations through this section of the project and would decrease the existing B scenic quality rating to C scenic quality within the visible foreground of one VAU <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: This would avoid affecting most residences except for three residences found at the southernmost part of Segment 3 Recreation: Similar to S3-C3 	<p>Inventory</p> <ul style="list-style-type: none"> 27 previously recorded sites in the study corridor 1 previously recorded site in the direct effects APE Similar to key resources identified along Variation S3-C3, except that Variation S3-C6 avoids the Rattlesnake Springs Landmark of the Oregon NHT. Although the route variations do not follow similar alignments, most of the resources occur in the areas where the alignments become closer to one another Crosses one unrecorded segment (unknown condition) of the Oregon NHT at Link 3-60 and then deviates significantly from the historic trail (refer to map MV-25 for inventory data) There are sites of Native American concern along this route variation Potential for direct effects on unrecorded, significant sites (primarily rock features) along the Burnt River Canyon area 	<ul style="list-style-type: none"> Due to the nature of available data, resources of Native American concern only are discussed by alternative route. Refer to the Applicant's Proposed Action Alternative 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: 3.5 miles Moderate: 2.4 miles Low: 9.6 miles <p>Trail Management</p> <ul style="list-style-type: none"> High impacts on views from the NPS Auto Tour Route High impacts on views from the Oregon Trail ACEC – Straw Ranch 1 portion <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> No direct impacts on contributing trail segments, high impacts on views from contributing trail segments <p>Biological, Natural, and Other</p>	<ul style="list-style-type: none"> Low and temporary impact on employment and population Low agricultural impacts with yield losses valued at \$14,603 annually during construction and residual yield losses of \$6,461 each year of operation No identifiable impacts on CAFO operations Moderate impacts on grazing resources with annual forage losses of approximately 75 AUMs during construction and a residual loss of 33 AUMs each year of operation Moderate impacts on timber resources: the B2H Project could disturb approximately 88 acres of timberlands during construction with a residual disturbance of less than 31 acres of timberland during continued operations Impacts on property values are minimal and short-term in nature

Table 2-27. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 3—Baker Valley

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
	<ul style="list-style-type: none"> Travel Routes: Similar to S3-C3 <p>Federal Land Conformance</p> <ul style="list-style-type: none"> This route would not be in conformance with VRM Class II with 0.1 visible miles of the B2H Project from KOP Burnt River Canyon affecting the KOP with strong residual impacts 	<ul style="list-style-type: none"> Based on RLS cultural data collected for alternative routes in the vicinity of Durkee and Weatherby, resources that potentially could be affected visually are similar to those identified along Variation S3-C3. Variation S3-C6 lies farther from Durkee and Weatherby <p>Impacts</p> <ul style="list-style-type: none"> 0.5 mile of high cultural resource sensitivity. Additional miles of high cultural resource sensitivity would be anticipated due to one unrecorded segment of the Oregon NHT along this route variation 3.6 miles of moderate cultural resource sensitivity 9.5 miles of low cultural resource sensitivity 11.1 miles of no cultural resource sensitivity 		<p>Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Goodale's Cutoff Study Trail</p> <ul style="list-style-type: none"> This route variation is not located in proximity to the Goodale's Cutoff Study Trail 	<p>No disproportionate impact on environmental justice population</p>
<p>Flagstaff A</p>	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 31.0 miles Moderate: 16.7 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 11 VAUs affected <ul style="list-style-type: none"> 6 Foreground 11 Middleground Similar impacts on the landscape character yet scenic quality would experience less of an impact due to the collocation with an existing 230-kV transmission line along the east edge of Baker <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: High impacts would result in the following; the communities of Durkee, Weatherby, and Dixie, along with scattered residences along the I-84 corridor Recreation: Hells Canyon All American Road, Grande Tour Scenic Bikeway and also the Snake River-Mormon Basin Back Country Byway would all experience high impacts Travel Routes: Similar to the Applicant's Proposed Action, views from I-84 and Highway 203 would experience high impacts this Alternative would parallel I-84 for a longer distance <p>Federal Land Conformance</p> <ul style="list-style-type: none"> Flagstaff A Alternative does not cross U.S. Forest Service land. This alternative would not be in conformance with VRM Class II with 0.6 visible miles of the B2H Project from KOP Burnt River Canyon and would affect the KOP with strong residual impacts 	<p>Inventory</p> <ul style="list-style-type: none"> 61 previously recorded sites in the study corridor 9 previously recorded sites in the direct effects APE Same key resources as the Applicant's Proposed Action Alternative, except that the Flagstaff A Alternative avoids the historic Slough House Stage Station (Stop). Although the alternative routes do not follow similar alignments, most of the resources occur in the areas where the alignments are shared, or are in proximity to one another North Powder Valley and east/southeast of Lone Pine Mountain) Crosses two previously recorded, contributing segments of the Oregon NHT Crosses unrecorded segments of the Oregon NHT multiple times (refer to map MV-25 for inventory data) Crosses one unrecorded segment of the Goodale's Cutoff Study Trail (refer to map MV-26 for inventory data) There are sites or areas of Native American concern along this alternative route Based on RLS cultural data collected for alternative routes in the vicinity of North Powder, Baker City, Durkee, Weatherby, and the Virtue Flat Mining Area, resources that potentially could be affected visually are similar to those identified along the Applicant's Proposed Action Alternative. The Flagstaff A Alternative is located in the vicinity of one undetermined Goal 5 Resource and lies farther from the Virtue Flat Mining Area. Compared to the Applicant's Proposed Action Alternative, the Flagstaff A Alternative is closer to the Baker City Historic District <p>Impacts</p> <ul style="list-style-type: none"> 3.6 miles of high cultural resource sensitivity. Additional miles of high cultural resource sensitivity would be anticipated due to one unrecorded segment of the Goodale's Cutoff Study Trail along 	<ul style="list-style-type: none"> Similar previously recorded sites of tribal significance as the Applicant's Proposed Action Alternative, except for four additional sites along the Flagstaff A Alternative. Most of the sites identified along these alternative routes occur in the areas where the alignments are shared (North Powder Valley and east/southeast of Lone Pine Mountain), or are in proximity to one another. Most of the sites are in the indirect effects APE The Oregon NHT (path of the Forced March of 1879) is in the direct effects APE Potential for direct effects on unrecorded, significant sites (primarily rock features) along the Durkee area Avoids potential resources of Native American concern in the Burnt River Canyon area. Ongoing coordination and consultation with Native American sovereign tribal governments may identify additional resources of concern 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: 18.9 miles Moderate: 18.1 miles Low: 16.8 miles <p>Trail Management</p> <ul style="list-style-type: none"> High impacts on views from Flagstaff Hill/NHOTIC High Potential Historic Segment High impacts on views from the NPS Auto Tour Route High impacts on views from the Oregon Trail ACEC – Flagstaff Hill and Straw Ranch I portions <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> High impacts on views from the NHOTIC <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> Two contributing trail segment crossed, high impacts on views from contributing trail segments Moderate impact on views from the possible site of the "Lone Tree" trail-associated cultural site <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Goodale's Cutoff Study Trail</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: none Moderate: none Low: 10.3 miles <p>Key Issues</p> <ul style="list-style-type: none"> Views of B2H Project screened 	<ul style="list-style-type: none"> Low and temporary impact on employment and population Moderate agricultural impacts with yield losses valued at \$76,161 annually during construction and residual yield losses of \$23,329 each year of operation No identifiable impacts on CAFO operations Moderate impacts on grazing resources with annual forage losses of approximately 55 AUMs during construction and a residual loss of approximately 17 AUMs each year of operation Minimal impacts on timber resources: the B2H Project could disturb approximately 11 acres of timberlands during construction with a residual disturbance of less than 3 acres of timberland during continued operations Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental justice population

Table 2-27. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 3—Baker Valley

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
		this alternative route <ul style="list-style-type: none"> • 18.8 miles of moderate cultural resource sensitivity • 31.2 miles of low cultural resource sensitivity • 1.7 miles of no cultural resource sensitivity 			
Timber Canyon Alternative	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> • High: 56.3 miles • Moderate: 10.2 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> • 10 VAUs affected <ul style="list-style-type: none"> – 8 Foreground – 10 Middleground • 1 Class A would experience high impacts and 6 Class B crossed and 2 Class B VAUs would drop in rating to a Class C <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> • Residences: KOP 4-60 (Medical Springs Community) would experience high levels of residual impacts Views of residences west of Richland would experience high impacts as well. Views associated with residences north of New Bridge would be moderately affected • Recreation: Head-on views of the B2H Project to the Grande Tour Scenic Bikeway as well as the Grande Tour Route, the Snake River-Mormon Basin Back Country Byway, Powder River Wild and Scenic/Thief Valley Road, and Hells Canyon All American Road, all experiencing high impacts on views • Travel Routes: Daly Creek, Eagle Creek, Manning Creek Road, Sparta Road, State Highway 203, U.S. Forest Service Road 67-Big Creek, U.S. Forest Service Road 70, and U.S. Forest Service Road 250 would all experience introduce high levels of residual impacts <p>Federal Land Conformance</p> <ul style="list-style-type: none"> • Sparta Road would have moderate residual impacts on 1.0 visible mile of views associated with VRM Class II. There also would be areas of non-conformance on USFS-administered lands in the BA-013 Wallowa Mountains VAU and BA-014 Blue and Wallowa Foothills VAU. The areas of non-conformance with VQOs in the BA-013 Wallowa Mountains VAU established in the Wallowa-Whitman National Forest LRMP would include 21 acres of non-conformance with the Retention VQO and 18 acres of non-compliance with the Partial Retention VQO. 	<p>Inventory</p> <ul style="list-style-type: none"> • 225 previously recorded sites in the study corridor • 15 previously recorded sites in the direct effects APE • Key resources include the Lime-Dixie Cemetery, the Oregon NHT, the Rattlesnake Springs Landmark of the Oregon NHT, and the Goodale's Cutoff Study Trail. Of these sites, the Oregon NHT and the Goodale's Cutoff Study Trail are in the direct effects APE, and also are crossed by this alternative route • Crosses one previously recorded, contributing segment of the Oregon NHT • Crosses unrecorded segments of the Oregon NHT multiple times (refer to map MV-25 for inventory data) • Crosses two previously recorded, contributing segments (including a spur) of the Goodale's Cutoff Study Trail • There are sites or areas of Native American concern along this alternative route • Based on RLS cultural data collected for alternative routes in the vicinity of Sparta, Weatherby, and North Powder, resources that potentially could be affected visually, include numerous historic buildings, waterworks, and historic transportation corridors <p>Impacts</p> <ul style="list-style-type: none"> • 7.8 miles of high cultural resource sensitivity • 23.4 miles of moderate cultural resource sensitivity • 33.2 miles of low cultural resource sensitivity • 5.9 miles of no cultural resource sensitivity 	<ul style="list-style-type: none"> • Native American tribes have expressed concern about potential direct and indirect effects on the following resources: <ul style="list-style-type: none"> – Archaeological resources (e.g., lithic scatters, lithic and tool scatters, lithic procurement areas, cairns, rock alignments, rockshelters, potential medicine wheel); most of these sites are in the indirect effects APE – The Oregon NHT (path of the Forced March of 1879) is in the direct effects APE – The Medical Hot Springs and surroundings (indirect effects APE) – Avoids potential resources of Native American concern in the Burnt River Canyon area – Traditional foods • Ongoing coordination and consultation with Native American sovereign tribal governments may identify additional resources of concern 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> • High: 9.2 miles • Moderate: 1.7 miles • Low: 5.8 miles <p>Trail Management</p> <ul style="list-style-type: none"> • High impacts on views from the NPS Auto Tour Route <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> • No key issues identified <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> • One contributing trail segment crossed, high impacts on views from contributing trail segments <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> • No key issues identified <p>Goodale's Cutoff Study Trail</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> • High: 8.8 miles • Moderate: 5.3 miles • Low: 10.4 miles <p>Key Issues</p> <ul style="list-style-type: none"> • Potential designation could be locally compromised 	<ul style="list-style-type: none"> • Low and temporary impact on employment and population • Moderate agricultural impacts with yield losses valued at \$57,920 annually during construction and residual yield losses of \$20,755 each year of operation • No identifiable impacts on CAFO operations • High impacts on grazing resources with annual forage losses of approximately 79 AUMs during construction and a residual loss of approximately 28 AUMs each year of operation • Moderate impacts on timber resources: the B2H Project could disturb less than 476 acres of timberlands during construction with a residual disturbance of approximately 125 acres of timberland during continued operations • Impacts on property values are minimal and short-term in nature • No disproportionate impact on environmental justice population
Flagstaff A – Burnt River Mountain	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> • High: 29.8 miles • Moderate: 18.6 miles 	<p>Inventory</p> <ul style="list-style-type: none"> • 64 previously recorded sites in the study corridor • 6 previously recorded sites in the direct effects APE • Same key resources as the Applicant's Proposed Action Alternative, except that the Flagstaff A: Burnt 	<ul style="list-style-type: none"> • Similar previously recorded sites of tribal significance as the Applicant's Proposed Action Alternative, except for 12 additional sites along the Flagstaff A – Burnt River Mountain Alternative. Sites are similar 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> • High: 15.1 miles • Moderate: 16.8 miles • Low: 21.9 miles 	<ul style="list-style-type: none"> • Low and temporary impact on employment and population • Moderate agricultural impacts with yield losses valued at \$63,542 annually during construction and residual yield losses of

Table 2-27. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 3—Baker Valley

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
	<p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 11 VAUs affected <ul style="list-style-type: none"> 6 Foreground 11 Middleground Similar to Flagstaff A Alternative however this alternative will extend to the west of Durkee Valley and would be collocated with a 138-kV and a 69-kV transmission line for less of the distance when compared to the Applicant's Proposed Alternative resulting in a higher degree of impacts on scenic quality <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: Highest impacts on residences happen near Weatherby and Dixie as well as northeast of Baker City as well as areas paralleling I-84 but would residences where I-84 crosses Durkee Recreation: High impacts on views would result for the following; Hells Canyon All American Road, The Grande Tour Scenic Bikeway following U.S. 203, and The Snake River-Mormon Basin Back Country Byway Travel Routes: I-84 linear viewing platform and Highway 203 linear viewing platform would have high impacts on views Alder Creek Road also would have strong residual impacts <p>Federal Land Conformance</p> <ul style="list-style-type: none"> No key issues identified 	<p>River Mountain Alternative avoids the historic Slough House Stage Station. Although these alternative routes do not follow similar alignments, most of the resources occur in the areas where the alignments are shared, or are in proximity to one another</p> <ul style="list-style-type: none"> Crosses one previously recorded, contributing segment of the Oregon NHT Crosses one unrecorded segment of the Goodale's Cutoff Study Trail (refer to map MV-26 for inventory data) There are sites or areas of Native American concern along this alternative route There is the potential for direct effects on unrecorded, significant sites (primarily rock features) along the Burnt River Canyon area Based on RLS cultural data collected for alternative routes in the vicinity of North Powder, Baker City, Durkee, Weatherby, and the Virtue Flat Mining Area, resources that potentially could be affected visually are similar to those identified along the Applicant's Proposed Action Alternative. The Flagstaff A – Burnt River Mountain Alternative lies farther from Durkee and the Virtue Flat Mining Area. In addition, this alternative route is located in the vicinity of one undetermined Goal 5 Resource. Compared to the Applicant's Proposed Action Alternative, the Flagstaff A – Burnt River Mountain Alternative is closer to the Baker City Historic District <p>Impacts</p> <ul style="list-style-type: none"> 2.9 miles of high cultural resource sensitivity. Additional miles of high cultural resource sensitivity would be anticipated due to one unrecorded segment of the Goodale's Cutoff Study Trail along this alternative route 17.7 miles of moderate cultural resource sensitivity 31.4 miles of low cultural resource sensitivity 3.3 miles of no cultural resource sensitivity 	<p>because they occur in the areas where the alignments are shared (North Powder Valley and between the Dry Creek area and Ranch Creek), or are in proximity to one another. Most of the sites are in the indirect effects APE</p> <ul style="list-style-type: none"> The Oregon NHT (path of the Forced March of 1879) is in the direct effects APE Potential for direct effects on unrecorded, significant sites (primarily rock features) along the Burnt River Canyon and Durkee areas Ongoing coordination and consultation with Native American sovereign tribal governments may identify additional resources of concern. 	<p>Trail Management</p> <ul style="list-style-type: none"> High impacts on views from Flagstaff Hill/NHOTIC High Potential Historic Segment High impacts on views from the NPS Auto Tour Route High impacts on views from the Oregon Trail ACEC – Flagstaff Hill and Straw Ranch I portions <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> High impacts on views from the NHOTIC <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> One contributing trail segment crossed, high impacts on views from contributing trail segments Moderate impact on views from the possible site of the "Lone Tree" trail-associated cultural site <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Goodale's Cutoff Study Trail Residual Impacts</p> <ul style="list-style-type: none"> High: none Moderate: none Low: 10.3 miles <p>Key Issues</p> <ul style="list-style-type: none"> Views of B2H Project screened 	<p>\$19,857 each year of operation</p> <ul style="list-style-type: none"> No identifiable impacts on CAFO operations Moderate impacts on grazing resources with annual forage losses of approximately 47 AUMs during construction and a residual loss of approximately 15 AUMs each year of operation Minimal impacts on timber resources: the B2H Project could disturb approximately 31 acres of timberlands during construction with a residual disturbance of less than 8 acres of timberland during continued operations Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental justice population
Flagstaff B	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 31.1 miles Moderate: 15.9 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 11 VAUs affected <ul style="list-style-type: none"> 6 Foreground 11 Middleground Similar to Applicant's Proposed Alternative yet would be predominantly collocated with the existing 230-kV transmission line and have less of an impact to scenic quality <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: The highest impacts on residences 	<p>Inventory</p> <ul style="list-style-type: none"> 66 previously recorded sites in the study corridor 9 previously recorded sites in the direct effects APE Same key resources as the Applicant's Proposed Action Alternative, except that the Flagstaff B Alternative avoids the historic Slough House Stage Station. Although these alternative routes do not follow similar alignments, most of the resources occur in the areas where the alignments are shared, or are in proximity to one another Crosses two previously recorded, contributing segments of the Oregon NHT Crosses unrecorded segments of the Oregon NHT multiple times (refer to map MV-25 for inventory data) 	<ul style="list-style-type: none"> Similar previously recorded sites of tribal significance as the Applicant's Proposed Action Alternative, except for slight variations in the number of sites and site types. Most of the sites occur in the areas where the alignments are shared (North Powder Valley and east/southeast of Lone Pine) or are in proximity to one another. Most of the sites are in the indirect effects APE The Oregon NHT (path of the Forced March of 1879) is in the direct effects APE Avoids potential resources of Native American concern in the Burnt River Canyon area Ongoing coordination and consultation with Native American sovereign tribal 	<p>Oregon NHT Residual Impacts</p> <ul style="list-style-type: none"> High: 19.5 miles Moderate: 17.7 miles Low: 16.8 miles <p>Trail Management</p> <ul style="list-style-type: none"> High impacts on views from Flagstaff Hill/NHOTIC High Potential Historic Segment High impacts on views from the NPS Auto Tour Route High impacts on views from the Oregon Trail ACEC – Flagstaff Hill and Straw Ranch I portions 	<ul style="list-style-type: none"> Low and temporary impact on employment and population Moderate agricultural impacts with yield losses valued at \$55,005 annually during construction and residual yield losses of \$16,676 each year of operation No identifiable impacts on CAFO operations Moderate impacts on grazing resources with annual forage losses of approximately 57 AUMs during construction and a residual loss of approximately 17 AUMs each year of operation Minimal impacts on timber resources: the B2H Project could disturb less than 9 acres of timberlands during construction with a

Table 2-27. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 3—Baker Valley

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
	<p>happen near Weatherby and Dixie as well as northeast of Baker City as well as areas paralleling interstate 84</p> <ul style="list-style-type: none"> Recreation: High impacts on views would result for the following; Hells Canyon All American Road, The Grande Tour Scenic Bikeway following U.S. 203, and The Snake River-Mormon Basin Back Country Byway Travel Routes: The highest impacts on travel routes would be associated with views associated with the I-84 linear viewing platform and Highway 203 linear viewing platform <p>Federal Land Conformance</p> <ul style="list-style-type: none"> No key issues identified 	<ul style="list-style-type: none"> Crosses one unrecorded segment of the Goodale’s Cutoff Study Trail (refer to map MV-26 for inventory data) There are sites or areas of Native American concern along this alternative route Based on RLS cultural data collected for alternative routes in the vicinity of North Powder, Baker City, Durkee, Weatherby, and the Virtue Flat Mining Area, resources that potentially could be affected visually are similar to those identified along the Applicant’s Proposed Action Alternative. The Flagstaff B Alternative lies farther from the Virtue Flat Mining Area. In addition, this alternative route is located in the vicinity of one undetermined Goal 5 Resource. Compared to the Applicant’s Proposed Action Alternative, the Flagstaff B Alternative is closer to the Baker City Historic District <p>Impacts</p> <ul style="list-style-type: none"> 3.6 miles of high cultural resource sensitivity. Additional miles of high cultural resource sensitivity would be anticipated due to one unrecorded segment of the Goodale’s Cutoff Study Trail along this alternative route 19.4 miles of moderate cultural resource sensitivity 31.3 miles of low cultural resource sensitivity 1.7 miles of no cultural resource sensitivity 	<p>governments may identify additional resources of concern</p>	<p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> High impacts on views from the NHOTIC <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> Two contributing trail segments crossed, high impacts on views from contributing trail segments Moderate impact on views from the possible site of the “Lone Tree” trail-associated cultural site <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified <p><u>Goodale’s Cutoff Study Trail</u></p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: none Moderate: 0.6 mile Low: 10.1 miles <p>Key Issues</p> <ul style="list-style-type: none"> Potential designation could be locally compromised 	<p>residual disturbance of less than 3 acres of timberland during continued operations</p> <ul style="list-style-type: none"> Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental justice population
<p>Flagstaff B – Burnt River West</p>	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 21.8 miles Moderate: 17.2 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 11 VAUs affected <ul style="list-style-type: none"> 6 Foreground 11 Middleground Located west of the Applicant’s Proposed Action, would have a higher degree of impacts on scenic quality <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: The highest impacts on residences happen near Old U.S. 30 west of I-84 and Dixie as well as northeast of Baker City adjacent to agricultural lands and would not affect views to residences in Durkee Recreation: high impacts on KOP 5-81 (Burnt River) as well as the following linear viewing platforms; Hells Canyon All American Road, The Grande Tour Scenic Bikeway following U.S. 203, and The Snake River-Mormon Basin Back Country Byway Travel Routes: High impacts on I-84 linear viewing platform and Highway 203 linear viewing platform <p>Federal Land Conformance</p> <ul style="list-style-type: none"> Non-conformance to BLM VRM Class II 	<p>Inventory</p> <ul style="list-style-type: none"> 67 previously recorded sites in the study corridor 4 previously recorded sites in the direct effects APE Same key resources as the Applicant’s Proposed Action Alternative, except that the Flagstaff B: Burnt River West Alternative avoids the historic Slough House Stage Station. Although these alternative routes do not follow similar alignments, most of the resources occur in the areas where the alignments are shared, or are in proximity to one another Crosses one previously recorded, contributing segment of the Oregon NHT Crosses one unrecorded segment of the Goodale’s Cutoff Study Trail (refer to map MV-26 for inventory data) There are sites or areas of Native American concern along this alternative route Potential for direct effects on unrecorded, significant sites (primarily rock features) along the Burnt River Canyon area Based on RLS cultural data collected for alternative routes in the vicinity of North Powder, Baker City, Durkee, Weatherby, and the Virtue Flat Mining Area, resources that potentially could be affected visually are similar to those identified along the Applicant’s Proposed Action Alternative. The Flagstaff B – Burnt River West Alternative lies 	<ul style="list-style-type: none"> Similar previously recorded sites of tribal significance as the Applicant’s Proposed Action Alternative, except for 12 additional sites along the Flagstaff B – Burnt River West Alternative. Sites are similar because they occur in the areas where the alignments are shared (North Powder Valley and between the Dry Creek area and Ranch Creek) or are in proximity to one another. Most of the sites are in the indirect effects APE The Oregon NHT (path of the Forced March of 1879) is in the direct effects APE Potential for direct effects on unrecorded, significant sites (primarily rock features) along the Burnt River Canyon and Durkee areas Ongoing coordination and consultation with Native American sovereign tribal governments may identify additional resources of concern 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: 9.0 miles Moderate: 14.5 miles Low: 30.2 miles <p>Trail Management</p> <ul style="list-style-type: none"> High impacts on views from Flagstaff Hill/NHOTIC High Potential Historic Segment High impacts on views from the NPS Auto Tour Route High impacts on views from the Oregon Trail ACEC – Flagstaff Hill and Straw Ranch I portions <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> High impacts on views from the NHOTIC <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> One contributing trail segment crossed, high impacts on views from contributing trail segments Moderate impact on views from the possible site of the “Lone Tree” trail-associated cultural site <p>Biological, Natural, and Other Resources</p>	<ul style="list-style-type: none"> Low and temporary impact on employment and population Moderate agricultural impacts with yield losses valued at \$41,443 annually during construction and residual yield losses of \$14,169 each year of operation No identifiable impacts on CAFO operations Moderate impacts on grazing resources with annual forage losses of approximately 73 AUMs during construction and a residual loss of approximately 25 AUMs each year of operation Minimal impacts on timber resources: the B2H Project could disturb approximately 31 acres of timberlands during construction with a residual disturbance of less than 8 acres of timberland during continued operations Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental justice population

Table 2-27. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 3—Baker Valley

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
	<p>Management Objectives, 0.6 mile of the B2H being visible from KOP 5-81 Burnt River would not be in conformance due to the strong impacts</p>	<p>farther from Durkee, Weatherby, and the Virtue Flat Mining Area. In addition, this alternative route is located in the vicinity of one undetermined Goal 5 Resource. Compared to the Applicant's Proposed Action Alternative, the Flagstaff B – Burnt River West Alternative is closer to the Baker City Historic District</p> <p>Impacts</p> <ul style="list-style-type: none"> • 2.0 miles of high cultural resource sensitivity. Additional miles of high cultural resource sensitivity would be anticipated due to one unrecorded segment of the Goodale's Cutoff Study Trail along this alternative route • 14.0 miles of moderate cultural resource sensitivity • 34.8 miles of low cultural resource sensitivity • 4.9 miles of no cultural resource sensitivity 		<ul style="list-style-type: none"> • No key issues identified <p>Goodale's Cutoff Study Trail</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> • High: none • Moderate: 0.6 mile • Low: 10.1 miles <p>Key Issues</p> <ul style="list-style-type: none"> • Potential designation could be locally compromised 	
<p>Flagstaff B – Durkee</p>	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> • High: 27.5 miles • Moderate: 19.0 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> • 11 VAUs affected <ul style="list-style-type: none"> – 5 Foreground – 11 Middleground • Further west and south than Flagstaff B–Burnt River West Alternative, this would cross a higher degree of visual variety thus would result in higher impacts <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> • Residences: Highest impacts on residences happen near Old U.S. 30 west of I-84 and Dixie as well as northeast of Baker City adjacent to agricultural lands • Recreation: High impacts on views would result for on the following linear viewing platforms; Hells Canyon All American Road, The Grande Tour Scenic Bikeway following U.S. 203, and The Snake River-Mormon Basin Back Country Byway • Travel Routes: The highest impacts on travel routes would be associated with views associated with one crossing of the I-84 linear viewing platform <p>Federal Land Conformance</p> <ul style="list-style-type: none"> • Non-conformance to BLM VRM Class II Management Objectives, 0.6 mile of the B2H being visible from KOP 5-81 Burnt River would not be in conformance due to the strong impacts 	<p>Inventory</p> <ul style="list-style-type: none"> • 63 previously recorded sites in the study corridor • 4 previously recorded sites in the direct effects APE • Same key resources as the Applicant's Proposed Action Alternative, except that the Flagstaff B: Durkee Alternative avoids the historic Slough House Stage Station. Although these alternative routes do not follow similar alignments, most of the resources occur in the areas where the alignments are shared, or are in proximity to one another • Crosses one previously recorded, contributing segment of the Oregon NHT • Crosses one unrecorded segment of the Goodale's Cutoff Study Trail (refer to map MV-26 for inventory data) • There are sites or areas of Native American concern along this alternative route • Potential for direct effects on undocumented, significant sites south of Alder Creek and west of the Durkee Valley • Based on RLS cultural data collected for alternative routes in the vicinity of North Powder, Baker City, Durkee, Weatherby, and the Virtue Flat Mining Area, resources that potentially could be affected visually are similar to those identified along the Applicant's Proposed Action Alternative. The Flagstaff B – Durkee Alternative lies farther from Durkee, Weatherby, and the Virtue Flat Mining Area. In addition, this alternative route is located in the vicinity of one undetermined Goal 5 Resource. Compared to the Applicant's Proposed Action Alternative, the Flagstaff B – Durkee Alternative is closer to the Baker City Historic District <p>Impacts</p> <ul style="list-style-type: none"> • 1.6 miles of high cultural resource sensitivity. Additional miles of high cultural resource sensitivity would be anticipated due to one unrecorded segment of the Goodale's Cutoff Study Trail along 	<ul style="list-style-type: none"> • Similar previously recorded sites of tribal significance as the Applicant's Proposed Action Alternative, except for 11 additional sites of tribal significance along the Flagstaff B – Durkee Alternative. Sites are similar because they occur in the areas where the alignments are shared (North Powder Valley and between the Dry Creek area and Ranch Creek) or are in proximity to one another. Most of the sites are in the indirect effects APE • The Oregon NHT (path of the Forced March of 1879) is in the direct effects APE • Potential for direct effects on unrecorded, significant sites (primarily rock features) along the Burnt River Canyon and Durkee areas. • There is the potential for direct effects on undocumented, significant sites south of Alder Creek and west of the Durkee Valley. • Ongoing coordination and consultation with Native American sovereign tribal governments may identify additional resources of concern. 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> • High: 7.5 miles • Moderate: 14.5 miles • Low: 26.4 miles <p>Trail Management</p> <ul style="list-style-type: none"> • High impacts on views from Flagstaff Hill/NHOTIC High Potential Historic Segment • High impacts on views from the NPS Auto Tour Route • High impacts on views from the Oregon Trail ACEC – Flagstaff Hill and Straw Ranch I portions <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> • High impacts on views from the NHOTIC <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> • One contributing trail segment crossed, high impacts on views from contributing trail segments • Moderate impact on views from the possible site of the "Lone Tree" trail-associated cultural site <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> • No key issues identified <p>Goodale's Cutoff Study Trail</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> • High: none • Moderate: 0.6 mile • Low: 10.1 miles <p>Key Issues</p> <ul style="list-style-type: none"> • Potential designation could be locally compromised 	<ul style="list-style-type: none"> • Low and temporary impact on employment and population • Moderate agricultural impacts with yield losses valued at \$31,189 annually during construction and residual yield losses of \$10,962 each year of operation • No identifiable impacts on CAFO operations • Moderate impacts on grazing resources with annual forage losses of approximately 88 AUMs during construction and a residual loss of approximately 31 AUMs each year of operation • Moderate impacts on timber resources: the B2H Project could disturb approximately 84 acres of timberlands during construction with a residual disturbance of less than 23 acres of timberland during continued operations • Impacts on property values are minimal and short-term in nature • No disproportionate impact on environmental justice population

Table 2-27. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 3—Baker Valley

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
		this alternative route <ul style="list-style-type: none"> • 11.0 miles of moderate cultural resource sensitivity • 34.2 miles of low cultural resource sensitivity • 12.8 miles of no cultural resource sensitivity 			
Table Note: ACEC = area of critical environmental concern APE = area of potential effects AUM = animal unit month BLM = Bureau of Land Management CAFO = confined animal feeding operation CRP = Conservation Reserve Program EFU = exclusive farm use FAA = Federal Aviation Authority KOP = key observation point LRMP = land and resource management plan NHT = national historic trail			NHOTIC = National Historic Oregon Trail Interpretive Center NPS = National Park Service NWSTF = Naval Weapons Systems Training Facility P = Private RLS = reconnaissance level survey ROS = recreation opportunity spectrum SEORMP = Southeastern Oregon Resource Management Plan VAU = Visual Analysis Unit VQO = Visual Quality Objective VRM = visual resource management WSR = Wild and Scenic River		

Table 2-28. Alternative Route Comparison Summary for Earth Resources, Water Resources, Vegetation Resources, Wildlife Resources, and Fish Resources in Segment 4—Brogan

Alternative Route	Earth Resources	Water Resources	Vegetation Resources	Wildlife Resources	Fish Resources
Applicant's Proposed Action	Resource Inventory (miles crossed) <ul style="list-style-type: none"> • Recent Quaternary faults: 0.8 mile • Older Quaternary faults: 0.4 mile • Moderate water erosion: 13.2 miles • Moderate wind erosion: 1.5 miles • Compaction potential: 26.5 miles • Active Mines: 3.8 miles • Leases: 6.0 miles • Producing wells: 1.1 miles • PFYC 3: 5.8 miles • PFYC 4: 11.0 miles 	Residual Impacts <ul style="list-style-type: none"> • With mitigation, only moderate residual impacts on forested wetland are anticipated <ul style="list-style-type: none"> – Forested Wetland: 0.4 mile • With mitigation, only low residual impacts on perennial and intermittent streams, and scrub-shrub, emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> – Perennial Streams: 1.9 miles – Intermittent Streams: 11.4 miles – Scrub-shrub Wetland: 0.1 mile – Emergent Wetland: 0.9 mile – Open Water: 5.2 miles • Fewest amount of residual impacts on all wetland types of all alternatives • Wetland permits may be required for any crossing larger than 0.2 acres of impact 	Residual Impacts Vegetation Communities <ul style="list-style-type: none"> • 30.0 miles of moderate residual impacts where alternative route crosses Dwarf Sagebrush, Mountain Shrub, Native Grasslands, Riparian Conservation Areas, and Tall Sagebrush Steppe Sensitive Plants <ul style="list-style-type: none"> • 10 known sensitive plant species occurrences in the 1-mile study corridor • 2 sensitive plant species known to occur in 1-mile study corridor Federally Listed Plants <ul style="list-style-type: none"> • No federally listed plants known to occur in proximity 	Greater Sage-Grouse <ul style="list-style-type: none"> • 20.3 miles of high residual impacts where PHMA is crossed • 18.7 miles of moderate residual impacts where GHMA is crossed Big Game <ul style="list-style-type: none"> • 40.1 miles of low residual impacts where mule deer and elk winter range is crossed 	Resource Inventory (miles crossed) <ul style="list-style-type: none"> • Bull trout critical habitat: none • Chinook salmon critical habitat: none • MCR steelhead critical habitat: none • SRB steelhead critical habitat: none • Redband trout occupied streams: 1.0 mile Residual Impacts <ul style="list-style-type: none"> • Moderate: none • Low: 1.0 mile • None: 39.1 miles • With mitigation, only low residual impacts on redband trout occupied streams are anticipated
Variation S4-A1	Resource Inventory (miles crossed) <ul style="list-style-type: none"> • 1,891 acres of moderate floodzone percentage • Moderate water erosion: 1.2 miles • Moderate wind erosion: 0.5 mile • Compaction potential: 0.9 mile • PFYC 3: 2.7 miles • PFYC 4: 0.5 mile 	Residual Impacts <ul style="list-style-type: none"> • With mitigation, only moderate residual impacts on forested wetland are anticipated <ul style="list-style-type: none"> – Forested Wetland: 0.1 mile • With mitigation, only low residual impacts on perennial and intermittent streams, and emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> – Perennial Streams: 0.6 mile – Intermittent Streams: 0.6 mile – Emergent Wetland: 0.4 mile – Open Water: 0.1 mile • Wetland permits may be required for any crossing larger than 0.2 acres of impact 	Residual Impacts Vegetation Communities <ul style="list-style-type: none"> • 4.2 miles of moderate residual impacts where alternative route crosses Dwarf Sagebrush, Mountain Shrub, Native Grasslands, Riparian Conservation Areas, and Tall Sagebrush Steppe. Sensitive Plants <ul style="list-style-type: none"> • 10 known sensitive plant species occurrences in the 1-mile study corridor • 2 sensitive plant species known to occur in 1-mile study corridor Federally Listed Plants <ul style="list-style-type: none"> • No federally listed plants known to occur 	Greater Sage-Grouse <ul style="list-style-type: none"> • PHMA not crossed, high residual impacts not expected • 4.8 miles of moderate residual impacts where GHMA are crossed Big Game <ul style="list-style-type: none"> • 5.9 miles of low residual impacts where mule deer and elk winter range is crossed 	Resource Inventory (miles crossed) <ul style="list-style-type: none"> • Bull trout critical habitat: none • Chinook salmon critical habitat: none • MCR steelhead critical habitat: none • SRB steelhead critical habitat: none • Redband trout occupied streams: 0.3 mile Residual Impacts <ul style="list-style-type: none"> • Moderate: none • Low: 0.3 mile • None: 5.6 miles • With mitigation, only low residual impacts on redband trout occupied streams are anticipated

Table 2-28. Alternative Route Comparison Summary for Earth Resources, Water Resources, Vegetation Resources, Wildlife Resources, and Fish Resources in Segment 4—Brogan					
Alternative Route	Earth Resources	Water Resources	Vegetation Resources	Wildlife Resources	Fish Resources
Variation S4-A2	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> 2,392 acres of moderate floodzone percentage Moderate water erosion: 2.4 miles Moderate wind erosion: 0.7 mile Compaction potential: 0.7 mile PFYC 3: 3.1 miles PFYC 4: 0.6 mile 	<p>Residual Impacts</p> <ul style="list-style-type: none"> With mitigation, only moderate residual impacts on forested wetland are anticipated <ul style="list-style-type: none"> Forested Wetland: 0.3 mile With mitigation, only low residual impacts on perennial and intermittent streams, and scrub-shrub and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 0.6 mile Intermittent Streams: 0.4 mile Scrub-shrub Wetland: 0.3 mile Open Water: 0.3 mile Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p><i>in proximity</i></p> <p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> 4.3 miles of moderate residual impacts where alternative route crosses Dwarf Sagebrush, Mountain Shrub, Native Grasslands, Riparian Conservation Areas, and Tall Sagebrush Steppe. <p>Sensitive Plants</p> <ul style="list-style-type: none"> 10 known sensitive plant species occurrences in the 1-mile study corridor 2 sensitive plant species known to occur in 1-mile study corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> No federally listed plants known to occur in proximity 	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> PHMA are not crossed, high residual impacts not expected 4.8 miles of moderate residual impacts where GHMA is crossed <p>Big Game Species</p> <ul style="list-style-type: none"> 6.0 miles of low residual impacts where mule deer and elk winter range is crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Bull trout critical habitat : none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: none Redband trout occupied streams: 0.3 mile <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: none Low: 0.3 mile None: 5.7 miles With mitigation, only low residual impacts on redband trout occupied streams are anticipated
Variation S4-A3	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> 2,346 acres of moderate floodzone percentage Moderate water erosion: 2.4 miles Moderate wind erosion: 0.7 mile Compaction potential: 0.8 mile PFYC 3: 3.3 miles PFYC 4: 0.6 mile 	<p>Residual Impacts</p> <ul style="list-style-type: none"> With mitigation, only moderate residual impacts on forested wetland are anticipated <ul style="list-style-type: none"> Forested Wetland: 0.3 mile With mitigation, only low residual impacts on perennial and intermittent streams, and scrub-shrub and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 0.6 mile Intermittent Streams: 0.4 mile 303(d) Temperature Listed: 0.1 mile Scrub-shrub Wetland: 0.3 mile Open Water: 0.3 mile Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> 4.6 miles of moderate residual impacts where alternative route crosses Dwarf Sagebrush, Mountain Shrub, Native Grasslands, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> 9 known sensitive plant species occurrences in the 1-mile study corridor 2 sensitive plant species known to occur in 1-mile study corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> No federally listed plants known to occur in proximity 	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> PHMA not crossed, high residual impacts not expected 4.8 miles of moderate residual impacts where GHMA is crossed <p>Big Game</p> <ul style="list-style-type: none"> 6.1 miles of low residual impacts where mule deer and elk winter range is crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Bull trout critical habitat : none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: none Redband trout occupied streams: 0.3 mile <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: none Low: 0.3 mile None: 5.8 miles With mitigation, only low residual impacts on redband trout occupied streams are anticipated
Tub Mountain South	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Recent Quaternary faults: 0.1 mile 3,355 acres of high floodzone percentage 7,083 acres of moderate floodzone percentage Moderate water erosion: 24.8 miles Moderate wind erosion: 6.9 miles Farmlands: 1.5 miles Compaction potential: 23.8 miles Active Mines: 3.7 miles Leases: 22.7 miles Producing wells: 3.7 miles PFYC 3: 3.1 miles PFYC 4: 27.4 miles 	<p>Residual Impacts</p> <ul style="list-style-type: none"> With mitigation, only moderate residual impacts on forested wetland are anticipated <ul style="list-style-type: none"> Forested Wetland: 1.0 mile With mitigation, only low residual impacts on perennial and intermittent streams, and scrub-shrub, emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 1.9 miles Intermittent Streams: 8.9 miles Scrub-shrub Wetland: 0.9 mile Emergent Wetland: 0.9 mile Open Water: 5.1 miles Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> 20.2 miles of moderate residual impacts where alternative route crosses Desert Shrub, Dwarf Sagebrush, Mountain Shrub, Native Grasslands, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> 29 known sensitive plant species occurrences in the 1-mile study corridor 3 sensitive plant species known to occur in 1-mile study corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> No federally listed plants known to occur in proximity 	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> 6.8 miles of high residual impacts where PHMA is crossed 10.2 miles of moderate residual impacts where GHMA is crossed <p>Big Game</p> <ul style="list-style-type: none"> 38.3 miles of low residual impacts where mule deer, elk, and pronghorn winter range is crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Bull trout critical habitat : none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: none Redband trout occupied streams: 1.5 miles <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: none Low: 1.5 miles None: 39 miles With mitigation, only low residual impacts on redband trout occupied streams are anticipated
Willow Creek	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Recent Quaternary faults: 0.1 mile 452 acres of high floodzone percentage 3,478 acres of moderate floodzone percentage Moderate water erosion: 15.5 miles 	<p>Residual Impacts</p> <ul style="list-style-type: none"> With mitigation, only moderate residual impacts on forested wetland are anticipated <ul style="list-style-type: none"> Forested Wetland: 0.4 mile With mitigation, only low residual impacts on perennial and intermittent streams, and scrub- 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> 22.6 miles of moderate residual impacts where alternative route crosses Dwarf Sagebrush, Mountain Shrub, Native Grasslands, Riparian Conservation 	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> 15.5 miles of high residual impacts where PHMA is crossed 14.5 miles of moderate residual impacts where GHMA is crossed <p>Big Game</p>	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Bull trout critical habitat : none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: none Redband trout occupied streams: 0.9 mile

Table 2-28. Alternative Route Comparison Summary for Earth Resources, Water Resources, Vegetation Resources, Wildlife Resources, and Fish Resources in Segment 4—Brogan					
Alternative Route	Earth Resources	Water Resources	Vegetation Resources	Wildlife Resources	Fish Resources
	<ul style="list-style-type: none"> Moderate wind erosion :5.5 miles Farmlands: 0.5 mile Compaction potential: 20.5 miles Active Mines: 2.7 miles Leases: 4.6 miles Producing wells: 1.1 miles PFYC 3: 2.7 miles PFYC 4: 21.7 miles 	shrub, emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 1.4 miles Intermittent Streams: 9.1 miles Scrub-shrub Wetland: 0.1 mile Emergent Wetland: 0.7 mile Open Water: 5.5 miles <ul style="list-style-type: none"> Wetland permits may be required for any crossing larger than 0.2 acres of impact 	Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> 17 known sensitive plant species occurrences in the 1-mile study corridor 4 sensitive plant species known to occur in 1-mile study corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> No federally listed plants known to occur in proximity 	<ul style="list-style-type: none"> 32.3 miles of low residual impacts where mule deer, elk, and pronghorn winter range is crossed 	<p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: none Low: 0.9 mile None: 33.7 miles With mitigation, only low residual impacts on redband trout occupied streams are anticipated
<p><i>Table Notes:</i></p> ACEC = area of critical environmental concern APE = area of potential effects BLM = Bureau of Land Management CAFO = confined animal feeding operation CRP = Conservation Reserve Program EFU = exclusive farm use FAA = Federal Aviation Authority GHMA = general habitat management area MCR = Middle Columbia River			NHT = national historic trail NWSTF = Naval Weapons Systems Training Facility P = Private PFYC = Potential Fossil Yield Classification system PHMA = priority management area ROS = recreation opportunity spectrum SEORMP = Southeastern Oregon Resource Management Plan SRB = Snake River Basin VRM = visual resource management WSR = Wild and Scenic River		

Table 2-29. Alternative Route Comparison Summary for Land Use, Agriculture, Recreation, Transportation, Lands with Wilderness Characteristics, and Potential Congressional Designations in Segment 4—Brogan									
Alternative Route	Land Use			Summary	Agriculture	Recreation	Transportation	Lands with Wilderness Characteristics	Potential Congressional Designations
	Land Ownership (Percent)	Percent within Utility Corridors	Total Miles of Parallel Facilities within 2,000 feet						
Applicant's Proposed Action	BLM: 20.2 State: 2.9 P: 17.0	0.0	20.0	<p>Existing Land Use</p> <ul style="list-style-type: none"> No high residual impacts 0.1 miles of moderate residual impacts where the alternative route crosses agricultural. No residential buildings within right-of-way <p>Zoning</p> <ul style="list-style-type: none"> Crosses 12.7 miles of EFU zoning and 27.3 miles of ERU Zoning <p>Military Training Lands</p> <ul style="list-style-type: none"> Crosses 4.6 miles of special use airspace Potential to create restrictions in aircraft movement during training Requires obstruction evaluation/airport airspace analysis in coordination with the FAA <p>Special Designated Areas Not crossed</p>	<p>Existing Agriculture</p> <ul style="list-style-type: none"> No moderate or high residual impacts expected <p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> Crosses 7.9 miles of farmland of statewide importance No high-value soils crossed <p>Livestock Grazing</p> <ul style="list-style-type: none"> Crosses 26.1 miles of grazing allotments 	<ul style="list-style-type: none"> No high or moderate residual impacts Crosses semi-primitive non-motorized ROS; motorized vehicle should avoid crossing but if a vehicle must cross, existing trails or roads should be used 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No lands with wilderness characteristics present 	<ul style="list-style-type: none"> No potential congressional designations are present
Variation S4-A1	BLM: 0.7 P: 5.2	0.0	5.9	<p>Existing Land Use</p> <ul style="list-style-type: none"> No high residual impacts 0.1 miles of moderate residual impacts where the alternative route crosses agricultural No residential buildings within right-of-way 	<p>Existing Agriculture</p> <ul style="list-style-type: none"> No moderate or high residual impacts expected <p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> Crosses 5.1 miles of farmland of 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No lands with wilderness characteristics present 	<ul style="list-style-type: none"> No potential congressional designations are present

Table 2-29. Alternative Route Comparison Summary for Land Use, Agriculture, Recreation, Transportation, Lands with Wilderness Characteristics, and Potential Congressional Designations in Segment 4—Brogan									
Alternative Route	Land Use			Summary	Agriculture	Recreation	Transportation	Lands with Wilderness Characteristics	Potential Congressional Designations
	Land Ownership (Percent)	Percent within Utility Corridors	Total Miles of Parallel Facilities within 2,000 feet						
				Zoning <ul style="list-style-type: none"> Crosses 5.9 miles of EFU zoning Military Training Lands Not crossed Special Designated Areas Not crossed	<i>statewide importance</i> <ul style="list-style-type: none"> No high-value soils crossed Livestock Grazing <ul style="list-style-type: none"> Crosses 0.6 miles of grazing allotments 				
Variation S4-A2	BLM: 0.7 P: 5.3	0.0	5.9	Existing Land Use <ul style="list-style-type: none"> No high residual impacts No residential buildings within right-of-way Zoning <ul style="list-style-type: none"> Crosses 6.0 miles of EFU zoning Military Training Lands Not crossed Special Designated Areas Not crossed	Existing Agriculture <ul style="list-style-type: none"> No moderate or high residual impacts expected Important Farmland, High-value Soils, and CRP Lands <ul style="list-style-type: none"> Crosses 5.4 miles of farmland of statewide importance No high-value soils crossed Livestock Grazing <ul style="list-style-type: none"> Crosses 0.6 miles of grazing allotments 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No lands with wilderness characteristics present 	<ul style="list-style-type: none"> No potential congressional designations are present
Variation S4-A3	BLM: 0.8 P: 5.3	0.0	6.0	Existing Land Use <ul style="list-style-type: none"> No high residual impacts No residential buildings within right-of-way Zoning <ul style="list-style-type: none"> Crosses 6.1 miles of EFU zoning Military Training Land Not crossed Special Designated Areas Not crossed	Existing Agriculture <ul style="list-style-type: none"> No moderate or high residual impacts expected Important Farmland, High-value Soils, and CRP Lands <ul style="list-style-type: none"> Crosses 0.1 mile of Prime Farmland if irrigated, 5.3 miles of farmland of statewide importance No high-value soils crossed Livestock Grazing <ul style="list-style-type: none"> Crosses 0.7 miles of grazing allotments 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No lands with wilderness characteristics present 	<ul style="list-style-type: none"> No potential congressional designations are present
Tub Mountain South	BLM: 25.7 P: 14.8	11.1	28.3	Existing Land Use <ul style="list-style-type: none"> No high residual impacts 3.0 miles of moderate residual impacts where the alternative route crosses agricultural No residential buildings within right-of-way Zoning <ul style="list-style-type: none"> Crosses 14.1 miles of EFU zoning Military Training Lands Not crossed Special Designated Areas Not crossed	Existing Agriculture <ul style="list-style-type: none"> 0.7 miles high residual impacts where the alternative crosses pivot irrigation 2.1 miles moderate residual impacts where the alternative crosses field crops, flood and other mechanized irrigation Important Farmland, High-value Soils, and CRP Lands <ul style="list-style-type: none"> Crosses 2.8 miles of Prime Farmland if irrigated, 9.7 miles of farmland of statewide importance and 3.6 miles of high-value soils Livestock Grazing <ul style="list-style-type: none"> Crosses 28.9 miles of grazing allotments 	<ul style="list-style-type: none"> No high or moderate residual impacts Crosses semi-primitive non-motorized ROS; motorized vehicle should avoid crossing but if a vehicle must cross, existing trails or roads should be used 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No lands with wilderness characteristics present 	<ul style="list-style-type: none"> No potential congressional designations are present
Willow Creek	BLM: 15.2 P: 19.4	0.0	25.7	Existing Land Use <ul style="list-style-type: none"> No high residual impacts 	Existing Agriculture <ul style="list-style-type: none"> 1.8 miles high residual impacts 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No high or moderate residual 	<ul style="list-style-type: none"> No lands with wilderness 	<ul style="list-style-type: none"> No potential congressional

Table 2-29. Alternative Route Comparison Summary for Land Use, Agriculture, Recreation, Transportation, Lands with Wilderness Characteristics, and Potential Congressional Designations in Segment 4—Brogan

Alternative Route	Land Use				Agriculture	Recreation	Transportation	Lands with Wilderness Characteristics	Potential Congressional Designations
	Land Ownership (Percent)	Percent within Utility Corridors	Total Miles of Parallel Facilities within 2,000 feet	Summary					
				<ul style="list-style-type: none"> 2.1 miles of moderate residual impacts where the alternative route crosses agricultural and forest/woodlands. No residential buildings within right-of-way Zoning <ul style="list-style-type: none"> Crosses 12.0 miles of EFU zoning Military Training Lands Not crossed Special Designated Areas Not crossed	where the alternative crosses pivot irrigation <ul style="list-style-type: none"> 0.6 miles moderate residual impacts where the alternative crosses field crops, flood and other mechanized irrigation Alternative crosses an airstrip used for aerial spraying Important Farmland, High-value Soils, and CRP Lands <ul style="list-style-type: none"> Crosses 1.1 miles of Prime Farmland if irrigated, 7.4 miles of farmland of statewide importance and 1.1 miles of high-value soils Livestock Grazing <ul style="list-style-type: none"> Crosses 19.3 miles of grazing allotments 		impacts on road facilities. Moderate level of impacts associated with crossing an existing airstrip	characteristics present	designations are present
Table Note: ACEC = area of critical environmental concern APE = area of potential effects BLM = Bureau of Land Management CAFO = confined animal feeding operation CRP = Conservation Reserve Program					EFU = exclusive farm use ERU = Exclusive Range Use FAA = Federal Aviation Authority NHT = national historic trail NWSTF = Naval Weapons Systems Training Facility P = Private	ROS = recreation opportunity spectrum SEORMP = Southeastern Oregon Resource Management Plan VRM = visual resource management WSR = Wild and Scenic River			

Table 2-30. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 4—Brogan

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
Applicant's Proposed Action	Residual Impacts Viewers <ul style="list-style-type: none"> High: 7.1 miles Moderate: 9.0 miles Scenic Quality and Landscape Character <ul style="list-style-type: none"> 17 VAUs affected <ul style="list-style-type: none"> 9 Foreground 17 Middleground 5 VAU with Class B. High impacts occur on two VAUs, BA-014 Blue and Wallowa Foothills and MA-011 Cow Creek, where the B2H Project would dominate the landscape through the introduction of skylined transmission line structures within the foreground and would change the rating from Class B to Class C Sensitive Viewing Platforms <ul style="list-style-type: none"> Residences: 2 residences in the community of Dixie and a residence found north of U.S. Highway 26 would have views with high impacts due to the 	Inventory <ul style="list-style-type: none"> 81 previously recorded sites in the study corridor 10 previously recorded sites in the direct effects APE Key resources include one NRHP-listed property (Oregon Commercial Company Building [Huntington]), the Huntington Old Cemetery, the Lime-Dixie Cemetery, the Oregon NHT, and trail-associated landmarks. These resources are in the indirect effects APE There are sites or areas of Native American concern along this route Based on RLS cultural data collected for alternative routes in the vicinity of Huntington and the Vale Irrigation District, resources that potentially could be affected visually, include numerous historic buildings, structures, waterworks, 	<ul style="list-style-type: none"> Native American tribes have expressed concern about potential direct and indirect effects on the following resources: <ul style="list-style-type: none"> Archaeological resources (e.g., lithic scatters, lithic and tool scatters, cairns, rock alignments); these resources are in the indirect effects APE The Oregon NHT (path of the Forced March 1879) is in the indirect effects APE Traditional foods Ongoing coordination and consultation with Native American sovereign tribal governments may identify additional resources of concern 	Oregon NHT Residual Impacts <ul style="list-style-type: none"> High: 4.3 miles Moderate: 3.6 miles Low: 2.6 miles Trail Management <ul style="list-style-type: none"> High impacts on views from the NPS Auto Tour Route Scenic and Recreation Resources <ul style="list-style-type: none"> No key issues identified Historic and Cultural Resources <ul style="list-style-type: none"> No direct impacts on contributing trail segments, moderate impacts on views from contributing trail segments Biological, Natural, and Other Resources <ul style="list-style-type: none"> No key issues identified Olds Ferry Road Study Trail <ul style="list-style-type: none"> This alternative is not located in proximity to the Olds Ferry Road Study Trail 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population High agricultural impacts with yield losses valued at \$122,522 annually during construction and residual yield losses of \$42,728 each year of operation No identifiable impacts on CAFO operations High impacts on grazing resources with annual forage losses of approximately 73 AUMs during construction and a residual loss of approximately 25 AUMs each year of operation Minimal impacts on timber resources: the B2H Project could disturb less than 1 acre of timberlands during construction and continued operations Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental justice population

Table 2-30. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 4—Brogan

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
	<p>B2H Project</p> <ul style="list-style-type: none"> Recreation: Views of the Snake River-Mormon Back Country Byway would experience high impacts due to the B2H Project being partially skylined at approximately 0.25 mile away from the linear viewing platform Travel Routes: The highest impacts on travel routes would be associated with U.S. Highway 26 where the B2H Project would Cross with head-on views <p>Federal Land Conformance</p> <ul style="list-style-type: none"> No key issues identified 	<p>and transportation corridors. Historic resources associated with the Vale Irrigation District are located east of Link 4-70 in the indirect effects APE. Additional resources include one unidentified Goal 5 Resource and Emigrant Graves (Goal 5 Resource)</p> <p>Impacts</p> <ul style="list-style-type: none"> 0.1 mile of high cultural resource sensitivity 6.3 miles of moderate cultural resource sensitivity 24.5 miles of low cultural resource sensitivity 9.2 miles of no cultural resource sensitivity 			
<p>Variation S4-A1</p>	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 3.5 miles Moderate: 2.4 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 7 VAUs affected <ul style="list-style-type: none"> 3 Foreground 7 Middleground High impacts would occur on VAU BA-014 Blue and Wallowa Foothills and would change the rating from Class B to Class C <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: 2 residences in the community of Dixie would have views with high impacts due to the B2H Project Recreation: Views of the Snake River-Mormon Back Country Byway would experience high impacts due to the B2H Project being partially skylined at approximately 0.25 mile away from the linear viewing platform Travel Routes: No key issues identified <p>Federal Land Conformance</p> <ul style="list-style-type: none"> No key issues identified 	<p>Inventory</p> <ul style="list-style-type: none"> 16 previously recorded sites in the study corridor There are no previously recorded sites in the direct effects APE Key resources include one NRHP-listed property (Oregon Commercial Company Building [Huntington]), the Huntington Cemetery, the Lime-Dixie Cemetery, and the Oregon NHT. These cultural resources are in the indirect effects APE There are sites of Native American concern along this route variation Based on RLS cultural data collected for alternative routes in the vicinity of Huntington, resources that potentially could be affected visually include numerous historic buildings and structures. Additional resources include one unidentified Goal 5 Resource and Emigrant Graves (Goal 5 Resource) <p>Impacts</p> <ul style="list-style-type: none"> 0.1 mile of high cultural resource sensitivity 2.8 miles of moderate cultural resource sensitivity 0.6 mile of low cultural resource sensitivity 2.4 miles of no cultural resource sensitivity 	<ul style="list-style-type: none"> Due to the nature of available data, resources of Native American concern only are discussed by alternative route. Refer to the Applicant's Proposed Action Alternative 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: 3.5 miles Moderate: 2.4 miles Low: none <p>Trail Management</p> <ul style="list-style-type: none"> High impacts on views from the NPS Auto Tour Route <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> No direct impacts on contributing trail segments, moderate impacts on views from contributing trail segments <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Olds Ferry Road Study Trail</p> <ul style="list-style-type: none"> This route variation is not located in proximity to the Olds Ferry Road Study Trail 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population Moderate agricultural impacts with yield losses valued at \$34,320 annually during construction and residual yield losses of \$13,992 each year of operation No identifiable impacts on CAFO operations Minimal impacts on grazing resources with annual forage losses of approximately 4 AUMs during construction and a residual loss of less than 2 AUMs each year of operation No identifiable impacts on timber resources Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental justice population
<p>Variation S4-A2</p>	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 4.6 miles Moderate: 1.4 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 7 VAUs affected <ul style="list-style-type: none"> 3 Foreground 7 Middleground Moderate impacts would occur on VAU BA-014 Blue and Wallowa Foothills and would change the 	<p>Inventory</p> <ul style="list-style-type: none"> 16 previously recorded sites in the study corridor There are no previously recorded sites in the direct effects APE Same key resources as Variation S4-A1 because these two route variations follow similar alignments, passing in proximity to the same resources There are sites of Native American concern along this route variation 	<ul style="list-style-type: none"> Due to the nature of available data, resources of Native American concern only are discussed by alternative route. Refer to the Applicant's Proposed Action Alternative 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: 4.1 miles Moderate: 1.9 miles Low: none <p>Trail Management</p> <ul style="list-style-type: none"> High impacts on views from the NPS Auto Tour Route <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> No key issues identified 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population Moderate agricultural impacts with yield losses valued at \$26,294 annually during construction and residual yield losses of \$9,926 each year of operation No identifiable impacts on CAFO operations Minimal impacts on grazing resources with annual forage losses of approximately 4 AUMs during construction and a residual loss of approximately 1 AUMs each year of operation

Table 2-30. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 4—Brogan

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
	<p>rating from Class B to Class C</p> <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: Similar impacts as Variation S4-A1 Recreation: Similar to Variation S4-A1 Travel Routes: Moderate impacts would be experienced by viewers of I-84 due to the partially obstructed views due to topography <p>Federal Land Conformance</p> <ul style="list-style-type: none"> No key issues identified 	<ul style="list-style-type: none"> Although Variation S4-A2 and Variation S4-A1 do not share the same alignment, they are in proximity to one another, and the same resources that potentially could be affected visually along Variation S4-A2 are the same as those identified along Variation S4-A1 <p>Impacts</p> <ul style="list-style-type: none"> 0.1 mile of high cultural resource sensitivity 3.1 miles of moderate cultural resource sensitivity 0.5 mile of low cultural resource sensitivity 2.3 miles of no cultural resource sensitivity 		<p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> No direct impacts on contributing trail segments, moderate impacts on views from contributing trail segments <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Olds Ferry Road Study Trail</p> <ul style="list-style-type: none"> This route variation is not located in proximity to the Olds Ferry Road Study Trail 	<ul style="list-style-type: none"> No identifiable impacts on timber resources Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental justice population
<p>Variation S4-A3</p>	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 4.7 miles Moderate: 1.4 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 7 VAUs affected <ul style="list-style-type: none"> 3 Foreground 7 Middleground Similar alignment as Variation S4-A2 and would have similar impacts on the scenic quality <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: Similar impacts as Variation S4-A1 Recreation: Similar to Variation S4-A1 Travel Routes: No key issues identified <p>Federal Land Conformance</p> <ul style="list-style-type: none"> No key issues identified 	<p>Inventory</p> <ul style="list-style-type: none"> 16 previously recorded sites in the study corridor There are no previously recorded sites in the direct effects APE Same key resources as Variation S4-A1 because these two route variations follow similar alignments, passing in proximity to the same resources There are sites of Native American concern along this route variation Although Variation S4-A3 and Variation S4-A1 do not share the same alignment, they are in proximity to one another, and the same resources that potentially could be affected visually along Variation S4-A3 are the same as those identified along Variation S4-A1 <p>Impacts</p> <ul style="list-style-type: none"> 0 miles of high cultural resource sensitivity 3.3 miles of moderate cultural resource sensitivity 0.5 mile of low cultural resource sensitivity 2.3 miles of no cultural resource sensitivity 	<ul style="list-style-type: none"> Due to the nature of available data, resources of Native American concern only are discussed by alternative route. Refer to the Applicant's Proposed Action Alternative 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: 4.2 miles Moderate: 1.9 miles Low: none <p>Trail Management</p> <ul style="list-style-type: none"> High impacts on views from the NPS Auto Tour Route <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> No direct impacts on contributing trail segments, moderate impacts on views from contributing trail segments <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Olds Ferry Road Study Trail</p> <ul style="list-style-type: none"> This route variation is not located in proximity to the Olds Ferry Road Study Trail 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population Moderate agricultural impacts with yield losses valued at \$24,750 annually during construction and residual yield losses of \$9,504 each year of operation No identifiable impacts on CAFO operations Minimal impacts on grazing resources with annual forage losses of approximately 4 AUMs during construction and a residual loss of less than 2 AUMs each year of operation No identifiable impacts on timber resources Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental justice population
<p>Tub Mountain South</p>	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 18.7 miles Moderate: 18.2 miles <p>Scenic Quality and Landscape Character:</p> <ul style="list-style-type: none"> 13 VAUs affected <ul style="list-style-type: none"> 10 Foreground 13 Middleground 4 VAUs with Class B scenery High impacts would occur on VAU MA-039 Treasure Valley with a Class B rating VAUs would experience decreases in scenic quality rating scores. The decreases in scores associated with MA-039 Treasure Valley and moderate impacts would reduce the scores in BA-014 Blue and Wallowa Foothills and MA-119 Danger Point to the threshold where their scenic 	<p>Inventory</p> <ul style="list-style-type: none"> 122 previously recorded sites in the study corridor 9 previously recorded sites in the direct effects APE Key resources include one NRHP-listed property (Oregon Commercial Company Building [Huntington]), the Huntington Old Cemetery, the Lime-Dixie Cemetery, the Olds Ferry Railroad Station, the Olds Ferry Road Study Trail, and the Sand Dunes site. These resources are in the indirect effects APE Additional key resources include the Oregon NHT and trail-associated sites. Of these resources, only the Oregon NHT 	<ul style="list-style-type: none"> Native American tribes have expressed concern about potential direct and indirect effects on the following resources: <ul style="list-style-type: none"> Archaeological resources (e.g., lithic and tool scatters, lithic scatters, lithic procurement areas, human burial sites, campsites, cairns, rock alignments, one rockshelter). Most of the sites are in the indirect effects APE The Oregon NHT (path of the Forced March 1879) 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: 15.1 miles Moderate: 9.8 miles Low: 10.1 miles <p>Trail Management</p> <ul style="list-style-type: none"> High impacts on views from Alkali Springs High Potential Route Segment Moderate impacts on views from Farewell Bend High Potential Historic Segment High impacts on views from the NPS Auto Tour Route High impacts on views from the Oregon Trail ACEC – Birch Creek portion <p>Scenic and Recreation Resources</p>	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population High agricultural impacts with yield losses valued at \$421,676 annually during construction and residual yield losses of \$128,583 each year of operation No identifiable impacts on CAFO operations Moderate impacts on grazing resources with annual forage losses of 134 AUMs during construction and a residual loss of approximately 41 AUMs each year of operation No identifiable impacts on timber resources Impacts on property values are minimal and short-term in nature No disproportionate impact on

Table 2-30. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 4—Brogan

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
	<p>quality rating would change from Class B to Class C</p> <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: Two residences in the Community of Dixie and Residences located southeast of Willow Creek would experience high impacts on their views due to the unobstructed views across flat agricultural land Recreation: No key issues identified Travel Routes: I-84 and would experience high impacts on views associated with this travel route due to views of partially skylined transmission line structures U.S. Highway 26 also would experience high residual impacts <p>Federal Land Conformance</p> <ul style="list-style-type: none"> Views from NHT-related KOP 8-3 (Oregon Trail Area of Critical Environmental Concern—Birch Creek) would include 2.1 miles where the B2H Project would not meet VRM Class III objectives 	<p>(five unrecorded, intact segments) are crossed by this alternative route (refer to map MV-25 for inventory data)</p> <ul style="list-style-type: none"> There are numerous sites or areas of Native American concern along this alternative route Based on RLS cultural data collected for alternative routes in the vicinity of Huntington and the Vale Irrigation District, resources that potentially could be affected visually are similar to those identified along the Applicant’s Proposed Action Alternative. Although these alternative routes do not follow similar alignments, most of the resources occur in the areas where the alignments are shared (from Dixie Creek to Durbin Creek, northwest of Huntington or intersect (near Bully Creek). Compared to the Applicant’s Proposed Action Alternative, the Tub Mountain South Alternative is closer to the Huntington Survey District’s western boundary <p>Impacts</p> <ul style="list-style-type: none"> 1.4 miles of high cultural resource sensitivity. Additional miles of high cultural resource sensitivity would be anticipated due to one unrecorded segment of the Oregon NHT along this alternative route 18.7 miles of moderate cultural resource sensitivity 14.0 miles of low cultural resource sensitivity 6.4 miles of no cultural resource sensitivity 	<p>is in the direct effects APE</p> <ul style="list-style-type: none"> Farewell Bend (indirect effects APE) Traditional foods There is the potential for direct effects on unrecorded, significant sites of tribal significance in or near a broad cultural landscape that extends from the Farewell Bend area to the south, just east of this alternative route Nonspecific tribal concerns <ul style="list-style-type: none"> Ongoing coordination and consultation with Native American sovereign tribal governments may identify additional resources of concern 	<ul style="list-style-type: none"> High impacts on views from the Birch Creek Interpretive Site. Moderate impacts on views from Farewell Bend State Recreation Area, Alkali Springs Interpretive Site, and Tub Mountain Interpretive Site. <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> Five contributing trail segment crossed, high impacts on views from contributing trail segments High impacts on views from Birch Creek trail-associated cultural site. Moderate impacts on views from Pioneer Graves near Farewell Bend, Olds Ferry Site, Tub Springs, and Mud Springs trail-associated cultural sites <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Olds Ferry Road Study Trail</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: none Moderate: 5.6 miles Low: 6.9 miles <p>Key Issues</p> <ul style="list-style-type: none"> Potential designation could be locally compromised 	<p>environmental justice population</p>
<p>Willow Creek</p>	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 6.7 miles Moderate: 14.4 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 13 VAUs affected <ul style="list-style-type: none"> 7 Foreground 13 Middleground Due to high impacts MA-039 Treasure Valley from Class A and VAUs BA-014 Blue and Wallow Foothills would experience decreases in scenic quality rating scores <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: Highest impacts on residential viewers would occur in two general areas; residences in Dixie would be similar to those described for the Applicant’s Proposed Action Alternative Action. Residences located northwest of Jamieson less than 0.5 mile from this alternative, would have their views highly affected as well Recreation: Views of the Snake River-Mormon 	<p>Inventory</p> <ul style="list-style-type: none"> 93 previously recorded sites in the study corridor 5 previously recorded sites in the direct effects APE Key resources include one NRHP-listed property (Oregon Commercial Company Building [Huntington]), the Huntington Cemetery, the Lime-Dixie Cemetery, the Dell Cemetery, the Dalles-Boise Military Road, the Oregon NHT, and Oregon NHT-associated landmarks. These resources are in the indirect effects APE There are sites or areas of Native American concern along this alternative route Potential to encounter undocumented, significant pre-contact and historic sites near the Striped Mountain area Based on RLS cultural data collected for alternative routes in the vicinity of 	<ul style="list-style-type: none"> Native American tribes have expressed concern about potential direct and indirect effects on the following resources: <ul style="list-style-type: none"> Archaeological resources (e.g., lithic scatters, lithic and tool scatters, cairns, rock alignments, one rock image site). Of these resources, only one rock feature is in the direct effects APE The Oregon NHT (path of the Forced March of 1879) is in the indirect effects APE The Striped Mountain area (indirect effects APE) Holt Pictograph (vicinity of the study corridor) 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: 4.3 miles Moderate: 7.2 miles Low: 6.0 miles <p>Trail Management</p> <ul style="list-style-type: none"> High impacts on views from the NPS Auto Tour Route <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> No direct impacts on contributing trail segments, moderate impacts on views from contributing trail segments <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Olds Ferry Road Study Trail</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: none Moderate: none 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population High agricultural impacts with yield losses valued at \$233,924 annually during construction and residual yield losses of \$72,776 each year of operation No identifiable impacts on CAFO operations Moderate impacts on grazing resources with annual forage losses of approximately 84 AUMs during construction and a residual loss of approximately 26 AUMs each year of operation Minimal impacts on timber resources: the B2H Project could disturb approximately 2 acres of timberlands during construction with residual impacts affecting less than 1 acre during continued operations Impacts on property values are minimal and short-term in nature No disproportionate impact on environmental justice population

Table 2-30. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 4—Brogan

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
	<p>Back Country Byway would experience high impacts due to the B2H Project being partially skylined at approximately 0.25 mile away from the linear viewing platform</p> <ul style="list-style-type: none"> Travel Routes: The highest impacts on travel routes would be associated with U.S. Highway 26 where the B2H Project would Cross with head-on views <p>Federal Land Conformance</p> <ul style="list-style-type: none"> No key issues identified 	<p>Huntington and the Vale Irrigation District, resources that potentially could be affected visually are the same as those identified along the Applicant’s Proposed Action Alternative. Although the alternative routes do not follow similar alignments, most of the resources occur in the areas where the alignments are shared (northwest of Huntington and southwest of Hope Flat)</p> <p>Impacts</p> <ul style="list-style-type: none"> 0.6 mile of high cultural resource sensitivity 10.2 miles of moderate cultural resource sensitivity 19.7 miles of low cultural resource sensitivity 4.1 miles of no cultural resource sensitivity 	<ul style="list-style-type: none"> Traditional foods Ongoing coordination and consultation with Native American sovereign tribal governments may identify additional resources of concern. 	<ul style="list-style-type: none"> Low: 6.7 miles <p>Key Issues</p> <ul style="list-style-type: none"> Potential designation would not be compromised 	
<p><i>Table Notes:</i> ACEC = area of critical environmental concern APE = area of potential effects AUM = animal unit month CAFO = confined animal feeding operation CRP = Conservation Reserve Program EFU = exclusive farm use FAA = Federal Aviation Authority KOP = key observation point NHT = national historic trail</p>			<p>NPS = National Park Service NRHP = National Register of Historic Places NWSTF = Naval Weapons Systems Training Facility P = Private RLS = reconnaissance level survey ROS = recreation opportunity spectrum SEORMP = Southeastern Oregon Resource Management Plan VAU = Visual Analysis Unit VRM = visual resource management WSR = Wild and Scenic River</p>		

Table 2-31. Alternative Route Comparison Summary for Earth Resources, Water Resources, Vegetation Resources, Wildlife Resources, and Fish Resources in Segment 5—Malheur

Alternative Route	Earth Resources	Water Resources	Vegetation Resources	Wildlife Resources	Fish Resources
Applicant’s Proposed Action	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> 497 acres of high floodzone percentage 706 acres of moderate floodzone percentage Moderate water erosion: 13.3 miles Moderate wind erosion: 0.8 mile Compaction potential: 25.2 miles Active mines: 0.3 mile Leases: 16.5 miles Producing wells: 2.0 miles PFYC 4: 25.9 miles 	<p>Residual Impacts</p> <ul style="list-style-type: none"> With mitigation, only low residual impacts on perennial and intermittent streams, and scrub-shrub, emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 1.5 miles Intermittent Streams: 10.7 miles Scrub-shrub Wetland: 0.1 mile Emergent Wetland: 0.6 mile Open Water: 3.6 miles Fewest impacts on all stream types of all alternatives Fewest total impacts on all wetland types of all alternatives Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> 22.2 miles of moderate residual impacts where alternative route crosses Native Grasslands, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> 20 known sensitive plant species occurrences in the 1-mile analysis corridor 5 sensitive plant species known to occur in 1-mile analysis corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> No federally listed plants known to occur in proximity 	<p>Columbia spotted frog</p> <ul style="list-style-type: none"> Potentially occupied habitats are not crossed, moderate residual impacts not expected 1.8 miles of low residual impacts where suitable habitats are crossed <p>Greater Sage-Grouse:</p> <ul style="list-style-type: none"> PHMA not crossed, high residual impacts not expected 11.2 miles of moderate residual impacts where GHMA is crossed <p>Big game</p> <ul style="list-style-type: none"> 38.2 miles of low residual impacts where mule deer, elk, and pronghorn winter range are crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Bull trout critical habitat: none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: none Redband trout occupied streams: 1.1 miles <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: none Low: 1.1 miles None: 39.3 miles With mitigation, only low residual impacts on redband trout occupied streams are anticipated
Variation S5-A1	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Moderate water erosion: 1.0 mile Compaction potential: 5.0 miles Leases: 4.3 miles PFYC 4: 6.1 miles 	<p>Residual Impacts</p> <ul style="list-style-type: none"> With mitigation, only low residual impacts on perennial and intermittent streams, and emergent and open water wetlands, are anticipated 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> 1.9 miles of moderate residual impacts where alternative route crosses Riparian Conservation Areas and Tall Sagebrush Steppe 	<p>Columbia spotted frog</p> <ul style="list-style-type: none"> Potentially occupied habitats are not crossed, moderate residual impacts not expected 0.5 mile of low residual impacts where suitable habitats are crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Bull trout critical habitat: none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: none

Table 2-31. Alternative Route Comparison Summary for Earth Resources, Water Resources, Vegetation Resources, Wildlife Resources, and Fish Resources in Segment 5—Malheur					
Alternative Route	Earth Resources	Water Resources	Vegetation Resources	Wildlife Resources	Fish Resources
		<ul style="list-style-type: none"> Perennial Streams: 0.1 mile Intermittent Streams: 1.6 miles Emergent Wetland: 0.2 mile Open Water: 1.0 mile Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Sensitive Plants</p> <ul style="list-style-type: none"> 2 known sensitive plant species occurrences in the 1-mile analysis corridor 1 sensitive plant species known to occur in 1-mile analysis corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> No federally listed plants known to occur in proximity 	<p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> PHMA or GHMA not crossed, impacts not expected <p>Big game</p> <ul style="list-style-type: none"> 5.8 miles of low residual impacts where mule deer and pronghorn winter range are crossed 	<ul style="list-style-type: none"> Redband trout occupied streams: none <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: none Low: none None: 7.4 miles Variation S5-A1 does not cross any streams which support special status fish species or protected fish habitats. Impacts are not anticipated
Variation S5-A2	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Compaction potential: 4.8 miles Leases: 6.7 miles PFYC 4: 7.4 miles 	<p>Residual Impacts</p> <ul style="list-style-type: none"> With mitigation, only low residual impacts on perennial and intermittent streams, and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 0.2 mile Intermittent Streams: 2.0 miles Open Water: 0.9 mile Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> 2.7 miles of moderate residual impacts where alternative route crosses Desert Shrub, Riparian Conservation Areas and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> 3 known sensitive plant species occurrences in the 1-mile analysis corridor 2 sensitive plant species known to occur in 1-mile analysis corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> No federally listed plants known to occur in proximity 	<p>Columbia spotted frog</p> <ul style="list-style-type: none"> 0.1 mile of moderate residual impacts where potentially occupied habitats are crossed 0.6 mile of low residual impacts where suitable habitats are crossed <p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> PHMA or GHMA not crossed, impacts not expected <p>Big game</p> <ul style="list-style-type: none"> 6.2 miles of low residual impacts where mule deer and pronghorn winter range are crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Bull trout critical habitat: none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: none Redband trout occupied streams: none <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: none Low: none None: 7.4 miles Variation S5-A2 does not cross any streams which support special status fish species or protected fish habitats. Impacts are not anticipated
Variation S5-B1	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> 497 acres of high floodzone percentage 112 acres of moderate floodzone percentage Moderate water erosion: 1.5 miles Compaction potential: 1.5 miles PFYC 4: 1.1 miles 	<p>Residual Impacts</p> <ul style="list-style-type: none"> With mitigation, only low residual impacts on perennial and intermittent streams, and scrub-shrub, emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 0.6 mile Intermittent Streams: 0.2 mile Scrub-shrub Wetland: 0.1 mile Emergent Wetland: 0.1 mile Open Water: 0.7 mile Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> 2.2 miles of moderate residual impacts where alternative route crosses Native Grasslands, Riparian Conservation Areas and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> 2 known sensitive plant species occurrences in the 1-mile analysis corridor 1 sensitive plant species known to occur in 1-mile analysis corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> No federally listed plants known to occur in proximity 	<p>Columbia spotted frog</p> <ul style="list-style-type: none"> Potentially occupied habitats are not crossed, moderate residual impacts not expected 0.7 mile of low residual impacts where suitable habitats are crossed <p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> PHMA not crossed, impacts not expected 0.2 mile of moderate residual impacts where GHMA is crossed <p>Big game</p> <ul style="list-style-type: none"> 2.5 miles of low residual impacts where mule deer winter range is crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Bull trout critical habitat: none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: none Redband trout occupied streams: 0.6 mile <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: none Low: 0.6 mile None: 1.9 miles With mitigation, only low residual impacts on redband trout occupied streams are anticipated
Variation S5-B2	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> 749 acres of high floodzone percentage 109 acres of moderate floodzone percentage Moderate water erosion: 1.3 miles Farmlands: 0.1 mile Compaction potential: 0.6 mile PFYC 4: 1.4 miles 	<p>Total Residual Impacts (miles crossed)</p> <ul style="list-style-type: none"> With mitigation, only moderate residual impacts on forested wetland are anticipated <ul style="list-style-type: none"> Forested Wetland: 0.1 mile With mitigation, only low residual impacts on perennial and intermittent streams, and scrub-shrub, emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 0.3 mile Intermittent Streams: 0.1 mile Scrub-shrub Wetland: 0.6 mile Emergent Wetland: 0.4 mile Open Water: 0.8 mile Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> 2.0 miles of moderate residual impacts where alternative route crosses Riparian Conservation Areas and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> 2 known sensitive plant species occurrences in the 1-mile analysis corridor 1 sensitive plant species known to occur in 1-mile analysis corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> No federally listed plants known to occur in proximity 	<p>Columbia spotted frog</p> <ul style="list-style-type: none"> Potentially occupied habitats are not crossed, moderate residual impacts not expected 0.8 mile of low residual impacts where suitable habitats are crossed <p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> PHMA not crossed, high residual impacts not expected 1.1 miles of moderate residual impacts where GHMA is crossed <p>Big game</p> <ul style="list-style-type: none"> 2.8 miles of low residual impacts where mule deer winter range is crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Bull trout critical habitat: none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: none Redband trout occupied streams: 0.2 mile <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: none Low: 0.2 mile None: 2.6 miles With mitigation, only low residual impacts on redband trout occupied streams are anticipated
Malheur S	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Class B faults: 0.1 mile 	<p>Residual Impacts</p> <ul style="list-style-type: none"> With mitigation, only low residual impacts on 	<p>Residual Impacts</p>	<p>Columbia spotted frog</p> <ul style="list-style-type: none"> 0.9 mile of moderate residual impacts where 	<p>Resource Inventory (miles crossed):</p> <ul style="list-style-type: none"> Bull trout critical habitat: none

Table 2-31. Alternative Route Comparison Summary for Earth Resources, Water Resources, Vegetation Resources, Wildlife Resources, and Fish Resources in Segment 5—Malheur					
Alternative Route	Earth Resources	Water Resources	Vegetation Resources	Wildlife Resources	Fish Resources
	<ul style="list-style-type: none"> 2,026 acres of moderate floodzone percentage Moderate water erosion: 11.5 miles Moderate wind erosion: 0.2 mile Compaction potential: 28.7 miles Active mines: 3.9 miles Leases: 12.1 miles Producing wells: 2.0 miles PFYC 4: 22.9 miles 	perennial and intermittent streams, and scrub-shrub, emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 1.3 miles Intermittent Streams: 11.4 miles 303(d) Listed Temperature: 0.1 mile Scrub-shrub Wetland: 0.2 mile Emergent Wetland: 0.3 mile Open Water: 4.7 miles <ul style="list-style-type: none"> Greatest amount of impact on all total streams Wetland permits may be required for any crossing larger than 0.2 acres of impact 	Vegetation Communities <ul style="list-style-type: none"> 28.6 miles of moderate residual impacts where alternative route crosses Desert Shrub, Native Grasslands, Riparian Conservation Areas, and Tall Sagebrush Steppe Sensitive Plants <ul style="list-style-type: none"> 16 known sensitive plant species occurrences in the 1-mile analysis corridor 5 sensitive plant species known to occur in 1-mile analysis corridor Federally Listed Plants <ul style="list-style-type: none"> No federally listed plants known to occur in proximity 	potentially occupied habitats are crossed <ul style="list-style-type: none"> 2.0 miles of low residual impacts where suitable habitats are crossed Greater Sage-Grouse <ul style="list-style-type: none"> PHMA not crossed, high residual impacts not expected 22.4 miles of moderate residual impacts where GHMA is crossed Big game <ul style="list-style-type: none"> 32.6 miles of low residual impacts where mule deer, elk, and pronghorn winter range are crossed 	<ul style="list-style-type: none"> Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: none Redband trout occupied streams: 0.5 mile Residual Impacts: <ul style="list-style-type: none"> Moderate: none Low: 0.5 mile None: 43.0 miles With mitigation, only low residual impacts on redband trout occupied streams are anticipated
Malheur A	Resource Inventory (miles crossed) <ul style="list-style-type: none"> Class B faults: 0.1 mile 1,005 acres of moderate floodzone percentage Moderate water erosion: 10.6 miles Moderate wind erosion: 0.5 mile Compaction potential: 29.1 miles Active mines: 6.0 miles Leases: 12.1 miles Producing wells: 2.0 miles PFYC 4: 23.3 miles 	Residual Impacts <ul style="list-style-type: none"> With mitigation, only low residual impacts on perennial and intermittent streams are anticipated <ul style="list-style-type: none"> Perennial Streams: 1.3 miles Intermittent Streams: 11.2 miles 303(d) Listed Temperature: 0.1 mile Emergent Wetland: 0.3 mile Open Water: 4.7 miles Wetland permits may be required for any crossing larger than 0.2 acres of impact 	Residual Impacts Vegetation Communities <ul style="list-style-type: none"> 30.3 miles of moderate residual impacts where alternative route crosses Desert Shrub, Dwarf Sagebrush Steppe, Native Grasslands, Riparian Conservation Areas, and Tall Sagebrush Steppe Sensitive Plants <ul style="list-style-type: none"> 13 known sensitive plant species occurrences in the 1-mile analysis corridor 5 sensitive plant species known to occur in 1-mile analysis corridor Federally Listed Plants <ul style="list-style-type: none"> No federally listed plants known to occur in proximity 	Columbia spotted frog <ul style="list-style-type: none"> 0.9 mile of moderate residual effects where potentially suitable habitats crossed 2.0 miles of low residual impacts where suitable habitats are crossed Greater Sage-Grouse <ul style="list-style-type: none"> PHMA not crossed, high residual impacts not expected 25.6 miles of moderate residual impacts where GHMA is crossed Big game <ul style="list-style-type: none"> 32.0 miles of low residual impacts where mule deer, elk, and pronghorn winter range are crossed 	Resource Inventory (miles crossed) <ul style="list-style-type: none"> Bull trout critical habitat: none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: none Redband trout occupied streams: 0.5 mile Residual Impacts <ul style="list-style-type: none"> Moderate: none Low: 0.5 mile None: 42.6 miles With mitigation, only low residual impacts on redband trout occupied streams are anticipated
Table Notes: ACEC = area of critical environmental concern APE = area of potential effects BLM = Bureau of Land Management CAFO = confined animal feeding operation		GHMA = general habitat management area CRP = Conservation Reserve Program EFU = exclusive farm use FAA = Federal Aviation Authority MCR = Middle Columbia River	NHT = national historic trail NWSTF = Naval Weapons Systems Training Facility P = Private PFYC = Potential Fossil Yield Classification system PHMA = priority habitat management area	ROS = recreation opportunity spectrum SEORMP = Southeastern Oregon Resource Management Plan SRB = Snake River Basin VRM = visual resource management WSR = Wild and Scenic River	

Table 2-32. Alternative Route Comparison Summary for Land Use, Agriculture, Recreation, Transportation, Lands with Wilderness Characteristics, and Potential Congressional Designations in Segment 5—Malheur									
Alternative Route	Land Use			Summary	Agriculture	Recreation	Transportation	Lands with Wilderness Characteristics	Potential Congressional Designations
	Land Ownership (Percent)	Percent within Utility Corridors	Total Miles of Parallel Facilities within 2,000 feet						
Applicant's Proposed Action	BLM: 30.4 BOR: 0.8 P: 9.2	30.2	24.9	Existing Land Use <ul style="list-style-type: none"> No high residual impacts 0.3 mile of moderate residual impacts where the alternative route crosses agricultural and forest/woodlands. No residential buildings within right-of-way Zoning <ul style="list-style-type: none"> Crosses 1.9 miles of EFU zoning and 38.4 miles of ERU zoning 	Existing Agriculture <ul style="list-style-type: none"> 0.1 mile moderate residual impacts where the alternative crosses field crops Important Farmland, High-value Soils, and CRP Lands <ul style="list-style-type: none"> Crosses 0.1 mile of farmland of statewide importance and 7.0 miles of high-value soils 	<ul style="list-style-type: none"> No high or moderate residual impacts Crosses semi-primitive non-motorized ROS; motorized vehicles should avoid crossing but if a vehicle must cross, existing trails and roads should be 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No lands with wilderness characteristics crossed 	<ul style="list-style-type: none"> Crosses the Owyhee River below the Dam suitable WSR segment for 0.9 mile adjacent (but outside of a utility corridor designated in the SEORMP)

Table 2-32. Alternative Route Comparison Summary for Land Use, Agriculture, Recreation, Transportation, Lands with Wilderness Characteristics, and Potential Congressional Designations in Segment 5—Malheur

Alternative Route	Land Use			Summary	Agriculture	Recreation	Transportation	Lands with Wilderness Characteristics	Potential Congressional Designations
	Land Ownership (Percent)	Percent within Utility Corridors	Total Miles of Parallel Facilities within 2,000 feet						
				<p>Military Training Lands</p> <ul style="list-style-type: none"> Crosses 37.9 miles of special use airspace Potential to create restrictions in aircraft movement during training Requires obstruction evaluation/airport airspace analysis in coordination with the FAA <p>Special Designated Areas Not crossed</p>	<p>Livestock Grazing</p> <ul style="list-style-type: none"> Crosses 38.8 miles of grazing allotments 	used			<ul style="list-style-type: none"> Short term increase in noise and dust and increased activity along both sides of the river Would not alter the river's free-flowing condition
Variation S5-A1	BLM: 1.1 P: 6.3	0.0	3.7	<p>Existing Land Use</p> <ul style="list-style-type: none"> No high residual impacts No residential buildings within right-of-way <p>Zoning</p> <ul style="list-style-type: none"> Crosses 1.4 miles of EFU zoning and 6.0 miles of ERU zoning <p>Military Training Lands</p> <ul style="list-style-type: none"> Crosses 7.4 miles of special use airspace Potential to create restrictions in aircraft movement during training Requires obstruction evaluation/airport airspace analysis in coordination with the FAA <p>Special Designated Areas Not crossed</p>	<p>Existing Agriculture</p> <ul style="list-style-type: none"> No moderate or high residual impacts expected <p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> Crosses 1.5 miles of high-value soils <p>Livestock Grazing</p> <ul style="list-style-type: none"> Crosses 7.1 miles of grazing allotments 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> Developed to avoid lands with wilderness characteristics. Does not cross No lands with wilderness characteristics crossed 	<ul style="list-style-type: none"> Avoids the Owyhee River below the Dam suitable WSR segment
Variation S5-A2	BLM: 7.4 P: 0.0	0.0	3.1	<p>Existing Land Use</p> <ul style="list-style-type: none"> No high residual impacts No residential buildings within right-of-way <p>Zoning:</p> <ul style="list-style-type: none"> No EFU zoning crossed and 2.5 miles of ERU zoning crossed <p>Military Training Lands</p> <ul style="list-style-type: none"> Crosses 7.4 miles of special use airspace Potential to create restrictions in aircraft movement during training Requires obstruction evaluation/airport airspace analysis in coordination with the FAA <p>Special Designated Areas Not crossed</p>	<p>Existing Agriculture</p> <ul style="list-style-type: none"> No moderate or high residual impacts expected <p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> Crosses 1.9 miles of high-value soils <p>Livestock Grazing</p> <ul style="list-style-type: none"> Crosses 7.4 miles of grazing allotments 	<ul style="list-style-type: none"> No high or moderate residual impacts Crosses semi-primitive non-motorized ROS; motorized vehicles should avoid crossing but if a vehicle must cross, existing trails and roads should be used 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> 4.7 miles of Variation S5-A2 would cross the Double Mountain Unit. This crossing would create a new unit boundary and remove 1,890 acres from the contiguous unit. 	<ul style="list-style-type: none"> Avoids the Owyhee River below the Dam suitable WSR segment

Table 2-32. Alternative Route Comparison Summary for Land Use, Agriculture, Recreation, Transportation, Lands with Wilderness Characteristics, and Potential Congressional Designations in Segment 5—Malheur

Alternative Route	Land Use			Summary	Agriculture	Recreation	Transportation	Lands with Wilderness Characteristics	Potential Congressional Designations
	Land Ownership (Percent)	Percent within Utility Corridors	Total Miles of Parallel Facilities within 2,000 feet						
Variation S5-B1	BLM: 2.1 BOR: 0.4	52.0	2.6	<p>Existing Land Use</p> <ul style="list-style-type: none"> No high residual impacts 0.1 mile of moderate residual impacts where the alternative route crosses forest/woodlands No residential buildings within right-of-way <p>Zoning</p> <ul style="list-style-type: none"> No EFU zoning crossed and 6.0 miles of ERU zoning crossed <p>Military Training Lands</p> <ul style="list-style-type: none"> Crosses 2.5 miles of special use airspace Potential to create restrictions in aircraft movement during training Requires obstruction evaluation/airport airspace analysis in coordination with the FAA <p>Special Designated Areas Not crossed</p>	<p>Existing Agriculture</p> <ul style="list-style-type: none"> No moderate or high residual impacts expected <p>Important Farmland, High-value Soils, and CRP Lands:</p> <ul style="list-style-type: none"> Crosses 1.0 miles of high-value soils <p>Livestock Grazing:</p> <ul style="list-style-type: none"> Crosses 2.0 miles of grazing allotments 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No lands with wilderness characteristics crossed 	<ul style="list-style-type: none"> Crosses the Owyhee River below the Dam suitable WSR segment for 0.9 mile adjacent (but outside of a utility corridor designated in the SEORMP) Short term increase in noise and dust and increased activity along both sides of the river Would not alter the river's free-flowing condition
Variation S5-B2	BLM: 1.3 BOR: 0.2	46.4	2.8	<p>Existing Land Use</p> <ul style="list-style-type: none"> No high residual impacts 0.9 mile of moderate residual impacts where the alternative route crosses agricultural. No residential buildings within right-of-way <p>Zoning</p> <ul style="list-style-type: none"> Crosses 1.4 miles of EFU zoning and 1.4 miles of ERU zoning <p>Military Training Lands</p> <ul style="list-style-type: none"> Crosses 2.8 miles of special use airspace Potential to create restrictions in aircraft movement during training Requires obstruction evaluation/airport airspace analysis in coordination with the FAA <p>Special Designated Areas Not crossed</p>	<p>Existing Agriculture</p> <ul style="list-style-type: none"> 0.5 mile moderate residual impacts where the alternative crosses flood irrigation, fallow/idle cropland, and field crops <p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> Crosses 0.3 mile of Prime Farmland if irrigated, 1.1 miles of farmland of statewide importance, and 0.8 miles of high-value soils <p>Livestock Grazing</p> <ul style="list-style-type: none"> Crosses 0.8 mile of grazing allotments 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No lands with wilderness characteristics crossed 	<ul style="list-style-type: none"> Avoids the Owyhee River Below the Dam suitable WSR segment. Right-of-way of route variation crosses the suitable segment for 80 feet. Short term increase in noise and dust and increased activity along both sides of the river
Malheur S	BLM: 39.2 BOR: 0.5 P: 3.8	20.0	25.4	<p>Existing Land Use</p> <ul style="list-style-type: none"> No high residual impacts 0.1 mile of moderate residual impacts where the alternative route crosses agricultural No residential buildings within right-of-way <p>Zoning</p> <ul style="list-style-type: none"> Crosses 0.5 mile of EFU zoning and 42.9 miles of ERU zoning <p>Military Training Lands</p> <ul style="list-style-type: none"> Crosses 26.5 miles of special use airspace Potential to create restrictions in aircraft movement during training Requires obstruction evaluation/airport airspace analysis in coordination with the FAA 	<p>Existing Agriculture</p> <ul style="list-style-type: none"> 0.4 mile moderate residual impacts where the alternative crosses fallow/idle cropland and field crops <p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> Crosses 3.3 miles of high-value soils <p>Livestock Grazing</p> <ul style="list-style-type: none"> Crosses 42.8 miles of grazing allotments 	<ul style="list-style-type: none"> No high or moderate residual impacts Crosses 1.3 miles Owyhee River Below the Dam SRMA; SRMA coincides with Owyhee River Below the Suitable WSR and Owyhee River Below the Dam ACEC (these designations are considered utility avoidance areas) Crosses semi-primitive non-motorized ROS; motorized vehicles 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> Developed to avoid lands with wilderness characteristics. Does not cross No lands with wilderness characteristics crossed 	<ul style="list-style-type: none"> Crosses the suitable WSR for 1.1 miles, and is located in the utility avoidance area Short term increase in noise and dust and increased activity along both sides of the river Would not alter the river's free-flowing condition

Table 2-32. Alternative Route Comparison Summary for Land Use, Agriculture, Recreation, Transportation, Lands with Wilderness Characteristics, and Potential Congressional Designations in Segment 5—Malheur

Alternative Route	Land Use			Summary	Agriculture	Recreation	Transportation	Lands with Wilderness Characteristics	Potential Congressional Designations
	Land Ownership (Percent)	Percent within Utility Corridors	Total Miles of Parallel Facilities within 2,000 feet						
				Special Designated Areas <ul style="list-style-type: none"> Crosses 1.5 miles of the Owyhee River Below the Dam ACEC 		should avoid crossing but if a vehicle must cross, existing trails and roads should be used			
Malheur A	BLM: 37.9 BOR: 0.8 P: 4.3	14.2	25.6	Existing Land Use <ul style="list-style-type: none"> No high residual impacts 0.1 mile of moderate residual impacts where the alternative route crosses agricultural No residential buildings within right-of-way Zoning <ul style="list-style-type: none"> Crosses 0.5 miles of EFU zoning and 42.5 miles of ERU zoning Military Training Lands <ul style="list-style-type: none"> Crosses 26.1 miles of special use airspace Potential to create restrictions in aircraft movement during training Requires obstruction evaluation/airport airspace analysis in coordination with the FAA Special Designated Areas <ul style="list-style-type: none"> Crosses 2.5 miles of the Owyhee River Below the Dam ACEC (1 mile of this is within West-wide Energy Corridor) 	Existing Agriculture: <ul style="list-style-type: none"> 0.2 mile moderate residual impacts where the alternative crosses field crops Important Farmland, High-value Soils, and CRP Lands: <ul style="list-style-type: none"> Crosses 3.0 miles of high-value soils Livestock Grazing: <ul style="list-style-type: none"> Crosses 42.4 miles of grazing allotments 	<ul style="list-style-type: none"> No high or moderate residual impacts Crosses 2.4 miles Owyhee River Below the Dam SRMA; SRMA coincides with Owyhee River Below the Suitable WSR and Owyhee River Below the Dam ACEC (these designations are considered utility avoidance areas) Crosses semi-primitive non-motorized ROS; motorized vehicles should avoid crossing but if a vehicle must cross, existing trails and roads should be used 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No lands with wilderness characteristics crossed 	<ul style="list-style-type: none"> Crosses the suitable WSR for 1.1 miles. Colocated in a BLM utility corridor and West Wide Energy Corridor and would parallel an existing 500-kV transmission line Short term increase in noise and dust and increased activity along both sides of the river Would not alter the river's free-flowing condition

Table Note:
 ACEC = area of critical environmental concern
 APE = area of potential effects
 BLM = Bureau of Land Management
 CAFO = confined animal feeding operation
 CRP = Conservation Reserve Program
 EFU = exclusive farm use
 ERU = Exclusive Range Use
 FAA = Federal Aviation Authority
 NHT = national historic trail
 NWSTF = Naval Weapons Systems Training Facility
 P = Private
 ROS = recreation opportunity spectrum
 SEORMP = Southeastern Oregon Resource Management Plan
 VRM = visual resource management
 WSR = Wild and Scenic River

Table 2-33. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 5—Malheur

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
Applicant's Proposed Action	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 8.7 miles Moderate: 10.8 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 17 VAUs affected <ul style="list-style-type: none"> 9 Foreground 17 Middleground Of the 7 VAUs with Class B scenic quality, 4 would experience high impacts MA-039 Treasure Valley, MA-060 Owyhee Tunnel, MA-119 Danger Point, and MA-122 Owyhee River. MA-060 Owyhee Tunnel and MA-119 Danger Point would change from Class B to Class C scenic quality ratings in the foreground <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: 1 residence along the Owyhee River would experience skylined, partially backdropped views of the B2H Project Recreation: KOP 8-33 (Double Mountain-Twin Spring Rd North) KOP 8-52 (Lower Owyhee Interpretive Site), KOP 8-52 (Lower Owyhee Interpretive Site) and the Owyhee Below the Dam ACEC would all experience high impacts on views Travel Routes: No key issues identified <p>Federal Land Conformance</p> <ul style="list-style-type: none"> The B2H Project would not be in conformance with the BLM VRM Class objectives adjacent to KOP 13-1 (Owyhee WSR). Specifically, 1.5 miles of the B2H Project would be visible crossing BLM VRM Class II and 1.1 miles would be visible crossing BLM VRM Class III 	<p>Inventory</p> <ul style="list-style-type: none"> 59 previously recorded sites in the study corridor 22 previously recorded sites in the direct effects APE A key resource is the Meek Cutoff Study Trail (noncontributing segment); this resource is in the direct effects APE, and also is crossed by the alternative route The Oregon NHT is located outside of the study corridor There are sites or areas of Native American concern along this alternative route Potential for direct effects on undocumented, significant sites along this alternative route, primarily along the Malheur and Owyhee river crossings Based on RLS cultural data collected for alternative routes in the vicinity of Owyhee Dam Historic District (NRHP-listed), resources that potentially could be affected visually include numerous historic water control features, ditches, and canals. Of the alternative routes considered for Segment 5, the Applicant's Proposed Action Alternative lies farther from the historic district <p>Impacts</p> <ul style="list-style-type: none"> 4.6 miles of high cultural resource sensitivity 9.4 miles of moderate cultural resource sensitivity 20.5 miles of low cultural resource sensitivity 5.9 miles of no cultural resource sensitivity 	<ul style="list-style-type: none"> Native American tribes have expressed concern about potential direct and indirect effects on the following resources: <ul style="list-style-type: none"> Archaeological resources (e.g., pre-contact lithic scatters, lithic and tool scatters, campsites, cairn). Most of the sites are in the indirect effects APE Avoids the Oregon NHT (path of the Forced March of 1879) Traditional foods Ongoing coordination and consultation with Native American sovereign tribal governments may identify additional resources of concern 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: none Moderate: none Low: 11.9 miles <p>Trail Management</p> <ul style="list-style-type: none"> No key issues identified <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Meek Cutoff Study Trail</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: 5.4 miles Moderate: 2.9 miles Low: 8.8 miles <p>Key Issues</p> <ul style="list-style-type: none"> Potential designation could be locally compromised 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population High agricultural impacts with yield losses valued at \$396,010 annually during construction and residual yield losses of \$112,112 each year of operation No identifiable impacts on CAFO operations High impacts on grazing resources with annual forage losses of approximately 95 AUMs during construction and a residual loss of less than 27 AUMs each year of operation Minimal impacts on timber resources with construction and continued operations affecting less than 1 acre of timberland Impacts on property values are minimal and short term in nature No disproportionate impact on environmental justice population
Variation S5-A1	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 0.9 mile Moderate: 0.4 mile <p>Scenic Quality and Landscape Character:</p> <ul style="list-style-type: none"> 6 VAUs affected <ul style="list-style-type: none"> 1 Foreground 6 Middleground VAU MA-041 Sourdough Basin would experience high impacts <p>Sensitive Viewing Platforms:</p> <ul style="list-style-type: none"> Residences: No key issues identified Recreation: KOP 8-33 (Double Mountain-Twin Spring Rd North) would experience high impacts on views Travel Routes: The high impacts would occur on the following travel routes: U.S. Highway 20, Mitchell Butte Road, and Owyhee River Canyon Entry Road <p>Federal Land Conformance</p> <ul style="list-style-type: none"> No key issues identified 	<p>Inventory</p> <ul style="list-style-type: none"> 2 previously recorded sites in the study corridor There are no previously recorded sites in the direct effects APE There are no known key resources identified along this route variation <p>Impacts</p> <ul style="list-style-type: none"> 0 miles of high and moderate cultural resource sensitivity 2.8 miles of low cultural resource sensitivity 4.6 miles of no cultural resource sensitivity 	<ul style="list-style-type: none"> Due to the nature of available data, resources of Native American concern only are discussed by alternative route. Refer to the Applicant's Proposed Action Alternative 	<p>Oregon NHT</p> <ul style="list-style-type: none"> This route variation is not located in proximity to the Oregon NHT <p>Meek Cutoff Study Trail</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: none Moderate: none Low: 5.5 miles <p>Key Issues</p> <ul style="list-style-type: none"> Potential designation could be locally compromised 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population Moderate agricultural impacts with yield losses valued at \$81,939 annually during construction and residual yield losses of \$21,021 each year of operation No identifiable impacts on CAFO operations Minimal impacts on grazing resources with annual forage losses of approximately 15 AUMs during construction and a residual loss of less than 4 AUMs each year of operation No identifiable impacts on timber resources Impacts on property values are minimal and short term in nature No disproportionate impact on environmental justice population

Table 2-33. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 5—Malheur

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
Variation S5-A2	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 2.3 miles Moderate: 2.3 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 6 VAUs affected <ul style="list-style-type: none"> 1 Foreground 6 Middleground Similar to S5-A1 <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: No key issues identified Recreation: KOP 8-90 (Double Mountain Wilderness Characteristic Area–Negro Rock Creek North) and KOP 8-33 (Double Mountain-Twin Spring Rd North) would experience high impacts on views Travel Routes: No key issues identified <p>Federal Land Conformance</p> <ul style="list-style-type: none"> No key issues identified 	<p>Inventory</p> <ul style="list-style-type: none"> 4 previously recorded sites in the study corridor There are no previously recorded sites in the direct effects APE There are no known key resources identified along this route variation <p>Impacts</p> <ul style="list-style-type: none"> 0 miles of high and moderate cultural resource sensitivity 5.8 miles of low cultural resource sensitivity 1.6 miles of no cultural resource sensitivity 	<ul style="list-style-type: none"> Due to the nature of available data, resources of Native American concern only are discussed by alternative route. Refer to the Applicant’s Proposed Action Alternative 	<p>Oregon NHT</p> <ul style="list-style-type: none"> This route variation is not located in proximity to the Oregon NHT <p>Meek Cutoff Study Trail</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: none Moderate: none Low: 3.1 miles <p>Key Issues</p> <ul style="list-style-type: none"> Potential designation could be locally compromised 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population Moderate agricultural impacts with yield losses valued at \$88,862 annually during construction and residual yield losses of \$19,747 each year of operation No identifiable impacts on CAFO operations Minimal impacts on grazing resources with annual forage losses of approximately 16 AUMs during construction and a residual loss of less than 4 AUMs each year of operation No identifiable impacts on timber resources Impacts on property values are minimal and short term in nature No disproportionate impact on environmental justice population
Variation S5-B1	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 2.1 miles Moderate: 0.4 mile <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 6 VAUs affected <ul style="list-style-type: none"> 1 Foreground 6 Middleground High impacts would occur on 3 Class B VAUs (MA-039 Treasure Valley, MA-060 Owyhee Tunnel, and MA-122 Owyhee River) <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: 1 residence along the Owyhee River would experience skylined, partially backdropped views of the B2H Project Recreation: High impacts on views of KOP 8-52 (Lower Owyhee Interpretive Site), KOP 13-1 (Owyhee WSR) and the Owyhee Below the Dam ACEC Travel Routes: High impacts would be experienced by views of the Owyhee River Canyon Entry Road travel route <p>Federal Land Conformance</p> <ul style="list-style-type: none"> The B2H Project would not be in conformance due to views from KOP 13-1 (Owyhee WSR) for 1.5 miles crossing BLM VRM Class II and 1.1 miles would crossing BLM VRM Class III 	<p>Inventory</p> <ul style="list-style-type: none"> 7 previously recorded sites in the study corridor 4 previously recorded sites in the direct effects APE There are no known key resources identified along this route variation There are sites or areas of Native American concern along this route variation Potential for direct effects on undocumented, archaeological sites along this route variation, primarily along the Owyhee River crossing <p>Impacts</p> <ul style="list-style-type: none"> 1.1 miles of high cultural resource sensitivity 1.0 mile of moderate cultural resource sensitivity 0.4 mile of low cultural resource sensitivity 0 miles of no cultural resource sensitivity 	<ul style="list-style-type: none"> Due to the nature of available data, resources of Native American concern only are discussed by alternative route. Refer to the Applicant’s Proposed Action Alternative 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: none Moderate: none Low: 2.5 miles <p>Trail Management</p> <ul style="list-style-type: none"> No key issues identified <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Meek Cutoff Study Trail</p> <ul style="list-style-type: none"> This route variation is not located in proximity to the Meek Cutoff Study Trail 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population Minimal agricultural impacts with yield losses valued at \$5,914 annually during construction and residual yield losses of \$1,980 each year of operation No identifiable impacts on CAFO operations Minimal impacts on grazing resources with annual forage losses of approximately 3 AUMs during construction and a residual loss of approximately 1 AUMs each year of operation Minimal impacts on timber resources with construction and continued operations affecting less than 1 acre of timberland Impacts on property values are minimal and short term in nature No disproportionate impact on environmental justice population
Variation S5-B2	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 2.1 miles Moderate: 0.7 mile <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 6 VAUs affected 	<p>Inventory</p> <ul style="list-style-type: none"> 7 previously recorded sites in the study corridor 3 previously recorded sites in the direct effects APE There are no known key resources identified along this route variation There are sites or areas of Native American 	<ul style="list-style-type: none"> Due to the nature of available data, resources of Native American concern only are discussed by alternative route. Refer to the Applicant’s Proposed Action Alternative 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: none Moderate: none Low: 2.8 miles <p>Trail Management:</p> <ul style="list-style-type: none"> No key issues identified 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population Minimal agricultural impacts with yield losses valued at \$18,646 annually during construction and residual yield losses of \$4,501 each year of operation No identifiable impacts on CAFO operations

Table 2-33. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 5—Malheur

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
	<ul style="list-style-type: none"> - 1 Foreground - 6 Middleground • Moderate impacts would result on VAU MA-122 (Owyhee River) as this route is located further east on agricultural lands when compared to S5-B1 <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> • Residences: This route variation would be in closer proximity to more residences introducing views of the B2H route traversing the steep slopes, creating partially to fully skylined views of the route • Recreation: Less impacts on KOP 8-52 (Lower Owyhee Interpretive Site), KOP 13-1 (Owyhee WSR) and the Owyhee Below the Dam ACEC when compared to S5-B2 • Travel Routes: Lower duration of high impacts would be experienced by views of the Owyhee River Canyon Entry Road travel route when compared to S5-B1 <p>Federal Land Conformance</p> <ul style="list-style-type: none"> • No key issues identified 	<p>concern along this route variation</p> <ul style="list-style-type: none"> • Potential for direct effects on undocumented, archaeological sites along this route variation, primarily along the Owyhee River crossing <p>Impacts</p> <ul style="list-style-type: none"> • 1.0 mile of high cultural resource sensitivity • 0.7 mile of moderate cultural resource sensitivity • 1.1 miles of low cultural resource sensitivity • 0 miles of no cultural resource sensitivity 		<p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> • No key issues identified <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> • No key issues identified <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> • No key issues identified <p>Meek Cutoff Study Trail</p> <ul style="list-style-type: none"> • This route variation is not located in proximity to the Meek Cutoff Study Trail 	<ul style="list-style-type: none"> • Minimal impacts on grazing resources with annual forage losses of less than 2 AUMs during construction and a residual loss of less than 1 AUMs each year of operation • No identifiable impacts on timber resources • Impacts on property values are minimal and short term in nature • No disproportionate impact on environmental justice population
Malheur S	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> • High: 9.2 miles • Moderate: 13.4 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> • 18 VAUs affected <ul style="list-style-type: none"> - 9 Foreground - 18 Middleground • 1 VAU with Class A and 3 VAUs with Class B would experience high residual impacts <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> • Residences: 1 residence would be have partially obstructed views of the B2H Project • Recreation: KOP 8-94 (Double Mountain Wilderness Characteristic Area: Negro Rock Creek South) and KOP 8-85 (Sourdough Mountain Wilderness Characteristic Area: Twin Spring Road) would be highly affected due to views of a partially backdropped partially skylined transmission line structures • Travel Routes: U.S. Highway 20 and the Owyhee River Canyon Entry Road linear viewing platforms would have similar high impacts as the Applicant's Proposed Action Alternative <p>Federal Land Conformance</p> <ul style="list-style-type: none"> • This route would not be in conformance with VRM Class II objectives on views from KOP 8-96 (Owyhee River Recreation Site) for 0.6 mile 	<p>Inventory</p> <ul style="list-style-type: none"> • 100 previously recorded sites in the study corridor • 16 previously recorded sites in the direct effects APE • A key resource is the Meek Cutoff Study Trail (noncontributing segment); this resource is in the direct effects APE, and also is crossed by the alternative route • The Oregon NHT is located outside of the study corridor • There are sites or areas of Native American concern along this alternative route • Potential for direct effects on undocumented, significant sites along the Negro Rock Canyon area and the Malheur and Owyhee river crossings • Based on RLS cultural data collected for alternative routes in the vicinity of Owyhee Dam Historic District (NRHP-listed), resources that potentially could be affected are similar to those identified along the Applicant's Proposed Action Alternative. The Malheur S Alternative is significantly closer to the Owyhee Dam Historic District <p>Impacts</p> <ul style="list-style-type: none"> • 3.0 miles of high cultural resource sensitivity • 7.1 miles of moderate cultural resource sensitivity • 32.1 miles of low cultural resource sensitivity • 1.3 miles of no cultural resource sensitivity 	<ul style="list-style-type: none"> • Native American tribes have expressed concern about potential direct and indirect effects on the following resources: <ul style="list-style-type: none"> - Archaeological resources (e.g., lithic and tool scatters, lithic scatters, campsites, lithic procurement areas, rockshelters, cairn). Most of the sites are in the indirect effects APE - Avoids the Oregon NHT (path of the Forced March of 1879) - Crosses the Negro Rock Canyon area - Traditional foods • Ongoing coordination and consultation with Native American sovereign tribal governments may identify additional resources of concern 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> • High: none • Moderate: none • Low: 5.4 miles <p>Trail Management</p> <ul style="list-style-type: none"> • No key issues identified <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> • No key issues identified <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> • No key issues identified <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> • No key issues identified <p>Meek Cutoff Study Trail</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> • High: 5.6 miles • Moderate: 2.9 miles • Low: 6.8 miles <p>Key Issues</p> <ul style="list-style-type: none"> • Potential designation could be locally compromised 	<ul style="list-style-type: none"> • Minimal and temporary impact on employment and population • High agricultural impacts with yield losses valued at \$320,752 annually during construction and residual yield losses of \$95,939 each year of operation • No identifiable impacts on CAFO operations • High impacts on grazing resources with annual forage losses of approximately 102 AUMs during construction and a residual loss of approximately 31 AUMs each year of operation • Minimal impacts on timber resources with construction and continued operations affecting less than 1 acre of timberland • Impacts on property values are minimal and short term in nature • No disproportionate impact on environmental justice population

Table 2-33. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails, and Socioeconomics and Environmental Justice in Segment 5—Malheur

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
Malheur A	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 8.1 miles Moderate: 15.8 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 18 VAUs affected <ul style="list-style-type: none"> 11 Foreground 18 Middleground Similar to Malheur S Alternative except where this alternative would be in closer proximity to an existing 500-kV transmission line <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: Highly impact views from a single residence along the Owyhee River Recreation: KOP 8-4 (Buck Gulch Proposed Wilderness Study Area), KOP 8-84 (Burnt Mountain Wilderness Characteristic Area: (Old Mormon hand cart trail)), and Viewers associated with the Owyhee Below the Dam ACEC would experience high impacts Travel Routes: Similar to Malheur S Alternative <p>Federal Land Conformance</p> <ul style="list-style-type: none"> Non-conformance with VRM Class II objectives as viewed from KOP 8-96 (Owyhee River Recreation Site) for 0.6 mile and 0.8 mile as viewed from KOP 8-95 (Owyhee Canyon Recreation Site) 	<p>Inventory</p> <ul style="list-style-type: none"> 91 previously recorded sites in the study corridor 16 previously recorded sites in the direct effects APE A key resource is the Meek Cutoff Study Trail (noncontributing segment); this resource is in the direct effects APE, and also is crossed by the alternative route The Oregon NHT is located outside of the study corridor There are sites or areas of Native American concern along this alternative route Same potential for direct effects on undocumented, significant sites along the Negro Rock Canyon area and the Malheur and Owyhee river crossings, as described for the Malheur A Alternative Based on RLS cultural data collected for alternative routes in the vicinity of Owyhee Dam Historic District (NRHP-listed), resources that potentially could be affected visually are similar to those identified along the Malheur S Alternative, except that the Malheur A Alternative encompasses a portion of the historic district <p>Impacts</p> <ul style="list-style-type: none"> 1.7 miles of high cultural resource sensitivity 7.8 miles of moderate cultural resource sensitivity 32.3 miles of low cultural resource sensitivity 1.3 miles of no cultural resource sensitivity 	<ul style="list-style-type: none"> Similar previously recorded sites of tribal significance as the Malheur S Alternative, except for 8 fewer sites along the Malheur A Alternative. Sites are similar because they occur in the areas where the alignments are shared (between Bully Creek and Sand Hollow Creek [north of Grassy Mountain] or are in proximity to one another. Most of the sites are in the indirect effects APE Avoids the Oregon NHT (path of the Forced March of 1879) Crosses the Negro Rock Canyon area Ongoing coordination and consultation with Native American sovereign tribal governments may identify additional resources of concern 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: none Moderate: none Low: 5.4 miles <p>Trail Management</p> <ul style="list-style-type: none"> No key issues identified <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Meek Cutoff Study Trail</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: 5.6 miles Moderate: 2.9 miles Low: 6.8 miles <p>Key Issues</p> <ul style="list-style-type: none"> Potential designation could be locally compromised 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population High agricultural impacts with yield losses valued at \$289,338 annually during construction and residual yield losses of \$83,051 each year of operation No identifiable impacts on CAFO operations High impacts on grazing resources with annual forage losses of approximately 98 AUMs during construction and a residual loss of less than 28 AUMs each year of operation Minimal impacts on timber resources with construction and continued operations affecting less than 1 acre of timberland Impacts on property values are minimal and short term in nature No disproportionate impact on environmental justice population

Table Note:

ACEC = area of critical environmental concern
 APE = area of potential effects
 AUM = animal unit month
 BLM = Bureau of Land Management
 CAFO = confined animal feeding operation
 CRP = Conservation Reserve Program
 EFU = exclusive farm use
 ERU = Exclusive Range Use
 FAA = Federal Aviation Authority
 KOP = key observation point

NHT = national historic trail
 NRHP = National Register of Historic Places
 NWSTF = Naval Weapons Systems Training Facility
 P = Private
 RLS = reconnaissance level survey
 ROS = recreation opportunity spectrum
 SEORMP = Southeastern Oregon Resource Management Plan
 VAU = Visual Analysis Unit
 VRM = visual resource management
 WSR = Wild and Scenic River

Table 2-34. Alternative Route Comparison Summary for Earth Resources, Water Resources, Vegetation Resources, Wildlife Resources, and Fish Resources in Segment 6—Treasure Valley					
Alternative Route	Earth Resources	Water Resources	Vegetation Resources	Wildlife Resources	Fish Resources
Applicant's Proposed Action	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> • Older Quaternary faults: 1.4 miles • 1,541 acres of high floodzone percentage • 564 acres of moderate floodzone percentage • Moderate susceptibility water erosion: 2.1 miles • Moderate susceptibility wind erosion: 0.6 mile • Farmlands: 3.0 miles • Compaction potential: 2.1 miles • Active mines: 4.3 miles • PFYC 3: 14.5 miles • PFYC 4: 2.8 miles 	<p>Residual Impacts</p> <ul style="list-style-type: none"> • With mitigation, only moderate residual impacts on forested wetland are anticipated <ul style="list-style-type: none"> – Forested Wetland: 0.2 mile • With mitigation, only low residual impacts on perennial, intermittent and 303(d) listed sediment impaired streams, and scrub-shrub, emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> – Perennial Streams: 0.7 mile – Intermittent Streams: 5.7 miles – 303(d) Listed Sediment: 0.2 mile – Scrub-shrub Wetland: 0.3 mile – Emergent Wetland: 0.4 mile – Open Water: 2.3 miles • Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Residual Impacts</p> <p>Vegetation Communities</p> <ul style="list-style-type: none"> • 15.0 miles of moderate residual impacts where alternative route crosses Desert Shrub, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> • 20 known sensitive plant species occurrences in the 1-mile analysis corridor • 8 sensitive plant species known to occur in 1-mile analysis corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> • No federally listed plants known to occur in proximity 	<p>Columbia spotted frog</p> <ul style="list-style-type: none"> • 2.1 miles of low residual impacts where suitable habitat is crossed <p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> • PHMA not crossed, high residual impacts not expected • 7.6 miles of moderate residual impacts where GHMA is crossed <p>Big game</p> <ul style="list-style-type: none"> • 38.2 miles of low residual impacts where mule deer winter range and bighorn sheep population management units are crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> • Bull trout critical habitat: none • Chinook salmon critical habitat: none • MCR steelhead critical habitat: none • SRB steelhead critical habitat: none • Redband trout occupied streams: 0.8 mile <p>Residual Impacts</p> <ul style="list-style-type: none"> • Moderate: none • Low: 0.8 mile • None: 27.2 miles • With mitigation, only low residual impacts on redband trout occupied streams are anticipated
Variation S6-A1	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> • Older Quaternary faults: 0.8 mile • Moderate susceptibility water erosion: 0.8 mile • Moderate susceptibility wind erosion: 0.1 mile • Farmlands: 0.4 mile • Compaction potential: 1.4 miles • Active mines: 2.3 miles • PFYC 3: 3.7 miles • PFYC 4: 2.1 miles 	<p>Residual Impacts</p> <ul style="list-style-type: none"> • With mitigation, only low residual impacts on perennial and intermittent streams, and scrub-shrub, emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> – Perennial Streams: 0.2 mile – Intermittent Streams: 2.3 miles – Scrub-shrub Wetland: 0.2 mile – Emergent Wetland: 0.3 mile – Open Water: 1.2 miles • Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Vegetation Communities</p> <ul style="list-style-type: none"> • 5.1 miles of moderate residual impacts where alternative route crosses Desert Shrub, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> • 6 known sensitive plant species occurrences in the 1-mile analysis corridor • 2 sensitive plant species known to occur in 1-mile analysis corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> • No federally listed plants known to occur in proximity 	<p>Columbia spotted frog</p> <ul style="list-style-type: none"> • 1.0 mile of low residual impacts where suitable habitat is crossed <p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> • PHMA and GHMA not crossed, impacts not expected <p>Big game</p> <ul style="list-style-type: none"> • 9.0 miles of low residual impacts where mule deer winter range and bighorn sheep population management units are crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> • Bull trout critical habitat: none • Chinook salmon critical habitat: none • MCR steelhead critical habitat: none • SRB steelhead critical habitat: none • Redband trout occupied streams: 0.1 mile <p>Residual Impacts</p> <ul style="list-style-type: none"> • Moderate: none • Low: 0.1 mile • None: 9.2 miles • With mitigation, only low residual impacts on redband trout occupied streams are anticipated
Variation S6-A2	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> • Older Quaternary faults: 0.2 mile • Moderate susceptibility water erosion: 0.6 mile • Moderate susceptibility wind erosion: 0.1 mile • Farmlands: 0.8 mile • Compaction potential: 1.5 miles • Active Mines: 1.9 miles • PFYC 3: 1.9 miles • PFYC 4: 8.9 miles 	<p>Residual Impacts</p> <ul style="list-style-type: none"> • With mitigation, only low residual impacts on perennial and intermittent streams, and emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> – Perennial Streams: 0.1 mile – Intermittent Streams: 2.2 mile – Emergent Wetland: 0.3 mile – Open Water: 0.4 mile • Fewest additional impacts on all stream types of all route variations • Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Vegetation Communities</p> <ul style="list-style-type: none"> • 5.0 miles of moderate residual impacts where alternative route crosses Desert Shrub, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> • 8 known sensitive plant species occurrences in the 1-mile analysis corridor • 3 sensitive plant species known to occur in 1-mile analysis corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> • No federally listed plants known to occur in proximity 	<p>Columbia spotted frog</p> <ul style="list-style-type: none"> • 0.3 mile of low residual impacts where suitable habitat is crossed <p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> • PHMA or GHMA not crossed, impacts not expected <p>Big game</p> <ul style="list-style-type: none"> • 8.7 miles of low residual impacts on big game species habitats where mule deer winter range and bighorn sheep population management units are crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> • Bull trout critical habitat: none • Chinook salmon critical habitat: none • MCR steelhead critical habitat: none • SRB steelhead critical habitat: none • Redband trout occupied streams: 0.1 mile <p>Residual Impacts</p> <ul style="list-style-type: none"> • Moderate: none • Low: 0.1 mile • None: 8.8 miles • With mitigation, only low residual impacts on redband trout occupied streams are anticipated
Variation S6-B1	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> • Older Quaternary faults: 0.6 mile • 785 acres of high floodzone percentage • 294 acres of moderate floodzone percentage • Moderate susceptibility water erosion: 1.0 mile • Moderate susceptibility wind erosion: 0.3 mile • Farmlands: 0.7 mile 	<p>Residual Impacts</p> <ul style="list-style-type: none"> • With mitigation, only moderate residual impacts on forested wetland are anticipated <ul style="list-style-type: none"> – Forested Wetland: 0.2 mile • With mitigation, only low residual impacts on perennial, intermittent and 303(d) listed sediment impaired streams, and scrub-shrub, emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> – Perennial Streams: 0.2 mile – Intermittent Streams: 3.1 miles – 303(d) Listed Sediment: 0.2 mile 	<p>Vegetation Communities</p> <ul style="list-style-type: none"> • 7.9 miles of moderate residual impacts where alternative route crosses Desert Shrub, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> • 10 known sensitive plant species occurrences in the 1-mile analysis corridor • 6 sensitive plant species known to occur 	<p>Columbia spotted frog</p> <ul style="list-style-type: none"> • 0.7 mile of low residual impacts where suitable habitat is crossed <p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> • PHMA not crossed, high residual impacts not expected • 7.6 miles of moderate residual impacts where GHMA is crossed <p>Big game</p> <ul style="list-style-type: none"> • 10.8 miles of low residual impacts 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> • Bull trout critical habitat: none • Chinook salmon critical habitat: none • MCR steelhead critical habitat: none • SRB steelhead critical habitat: none • Redband trout occupied streams: 0.4 mile <p>Residual Impacts</p> <ul style="list-style-type: none"> • Moderate: none • Low: 0.4 mile • None: 14.0 miles

Table 2-34. Alternative Route Comparison Summary for Earth Resources, Water Resources, Vegetation Resources, Wildlife Resources, and Fish Resources in Segment 6—Treasure Valley					
Alternative Route	Earth Resources	Water Resources	Vegetation Resources	Wildlife Resources	Fish Resources
	<ul style="list-style-type: none"> Active mines: 2.0 miles 	<ul style="list-style-type: none"> Scrub-shrub Wetland: 0.1 mile Emergent Wetland: 0.1 mile Open Water: 0.3 mile Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>in 1-mile analysis corridor</p> <p>Federally Listed Plants</p> <ul style="list-style-type: none"> No federally listed plants known to occur in proximity 	<p>where mule deer winter range and bighorn sheep population management units are crossed</p>	<ul style="list-style-type: none"> With mitigation, only low residual impacts on redband trout occupied streams are anticipated
Variation S6-B2	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Older Quaternary faults: 1.2 miles 768 acres of high floodzone percentage 185 acres of moderate floodzone percentage Moderate susceptibility water erosion: 0.4 mile Farmlands: 0.1 mile Active mines: 1.7 miles PFYC 3: 8.2 miles 	<p>Residual Impacts</p> <ul style="list-style-type: none"> With mitigation, only moderate residual impacts on forested wetland are anticipated <ul style="list-style-type: none"> Forested Wetland: 0.2 mile With mitigation, only low residual impacts on perennial, intermittent and 303(d) listed sediment impaired streams, and emergent and open water wetlands, are anticipated <ul style="list-style-type: none"> Perennial Streams: 0.3 mile Intermittent Streams: 3.0 miles 303(d) Listed Sediment: 0.1 mile Emergent Wetland: 0.1 mile Open Water: 0.3 mile Fewest additional impacts on wetlands of all route variations Wetland permits may be required for any crossing larger than 0.2 acres of impact 	<p>Vegetation Communities</p> <ul style="list-style-type: none"> 9.5 miles of moderate residual impacts where alternative route crosses Desert Shrub, Juniper and Mahogany Woodland, Native Grasslands, Riparian Conservation Areas, and Tall Sagebrush Steppe <p>Sensitive Plants</p> <ul style="list-style-type: none"> 10 known sensitive plant species occurrences in the 1-mile analysis corridor 6 sensitive plant species known to occur in 1-mile analysis corridor <p>Federally Listed Plants</p> <ul style="list-style-type: none"> No federally listed plants known to occur in proximity 	<p>Columbia spotted frog</p> <ul style="list-style-type: none"> 0.5 mile of low residual impacts where suitable habitat is crossed <p>Greater Sage-Grouse</p> <ul style="list-style-type: none"> PHMA not crossed, high residual impacts not expected 9.7 miles of moderate residual impacts where GHMA is crossed <p>Big game</p> <ul style="list-style-type: none"> 13.2 miles of low residual impacts where mule deer winter range and bighorn sheep population management units are crossed 	<p>Resource Inventory (miles crossed)</p> <ul style="list-style-type: none"> Bull trout critical habitat: none Chinook salmon critical habitat: none MCR steelhead critical habitat: none SRB steelhead critical habitat: none Redband trout occupied streams: 0.4 mile <p>Residual Impacts</p> <ul style="list-style-type: none"> Moderate: none Low: 0.4 mile None: 13.7 miles With mitigation, only low residual impacts on redband trout occupied streams are anticipated
<p>Table Note:</p> <p>ACEC = area of critical environmental concern APE = area of potential effects BLM = Bureau of Land Management CAFO = confined animal feeding operation CRP = Conservation Reserve Program EFU = exclusive farm use FAA = Federal Aviation Authority GHMA = general habitat management area MCR = Middle Columbia River</p>			<p>NHT = national historic trail NWSTF = Naval Weapons Systems Training Facility P = Private PFYC = Potential Fossil Yield Classification system PHMA = priority habitat management area ROS = recreation opportunity spectrum SEORMP = Southeastern Oregon Resource Management Plan SRB = Snake River Basin VRM = visual resource management WSR = Wild and Scenic River</p>		

Table 2-35. Alternative Route Comparison Summary for Land Use, Agriculture, Recreation, Transportation, Lands with Wilderness Characteristics, and Potential Congressional Designations in Segment 6—Treasure Valley									
Alternative Route	Land Use			Summary	Agriculture	Recreation	Transportation	Lands with Wilderness Characteristics	Potential Congressional Designations
	Land Ownership (Percent)	Percent within Utility Corridors	Total Miles of Parallel Facilities within 2,000 feet						
Applicant's Proposed Action	BLM: 21.4 State: 2.4 P: 4.2	40.7	24.6	<p>Existing Land Use</p> <ul style="list-style-type: none"> No high residual impacts 0.8 mile of moderate residual impacts where the alternative route crosses agricultural and forest/woodlands and near other structures No residential buildings within right-of-way <p>Zoning</p> <ul style="list-style-type: none"> No EFU zoning crossed and crosses 4.1 miles of ERU zoning <p>Military Training Lands</p> <ul style="list-style-type: none"> Crosses 1.0 mile of special use airspace 	<p>Existing Agriculture</p> <ul style="list-style-type: none"> 0.3 mile moderate residual impacts where the alternative crosses flood irrigation <p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> Crosses 5.7 miles of Prime Farmland if irrigated, 2.6 miles of farmland of statewide importance, and 5.4 miles of high-value soils <p>Livestock Grazing</p>	<ul style="list-style-type: none"> No high or moderate residual impacts Crosses primitive and semi-primitive non-motorized ROS area; motorized vehicles should avoid crossing these areas; if vehicle must cross, existing trails and roads should be used 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No lands with wilderness characteristics present 	<ul style="list-style-type: none"> No potential congressional designations are present

Table 2-35. Alternative Route Comparison Summary for Land Use, Agriculture, Recreation, Transportation, Lands with Wilderness Characteristics, and Potential Congressional Designations in Segment 6—Treasure Valley									
Alternative Route	Land Use				Agriculture	Recreation	Transportation	Lands with Wilderness Characteristics	Potential Congressional Designations
	Land Ownership (Percent)	Percent within Utility Corridors	Total Miles of Parallel Facilities within 2,000 feet	Summary					
				<ul style="list-style-type: none"> Potential to create restrictions in aircraft movement during training Requires obstruction evaluation/airport airspace analysis in coordination with the FAA <p>Special Designated Areas</p> <ul style="list-style-type: none"> Would temporarily disturb 193 acres of the Hard Trigger herd management area during construction. 	<ul style="list-style-type: none"> Crosses 24.6 miles of grazing allotments 				
Variation S6-A1	BLM: 8.1 P: 1.2	0	6.7	<p>Existing Land Use</p> <ul style="list-style-type: none"> No high residual impacts No residential buildings within right-of-way <p>Zoning</p> <ul style="list-style-type: none"> No EFU zoning crossed and crosses 2.6 miles of ERU zoning <p>Military Training Lands Not crossed</p> <p>Special Designated Areas Not crossed</p>	<p>Existing Agriculture</p> <ul style="list-style-type: none"> No moderate or high residual impacts expected <p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> Crosses 0.7 mile of Prime Farmland if irrigated, no miles of farmland of statewide importance, and 0.6 miles of high-value soils <p>Livestock Grazing</p> <ul style="list-style-type: none"> Crosses 8.4 miles of grazing allotments 	<ul style="list-style-type: none"> No high or moderate residual impacts Crosses semi-primitive non-motorized ROS area; motorized vehicles should avoid crossing this area; if vehicle must cross existing trails and roads should be used 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No lands with wilderness characteristics present 	<ul style="list-style-type: none"> No potential congressional designations are present
Variation S6-A2	BLM: 5.8 State: 0.7 P: 2.4	30.3	8.5	<p>Existing Land Use</p> <ul style="list-style-type: none"> No high residual impacts No residential buildings within right-of-way <p>Zoning</p> <ul style="list-style-type: none"> Crosses 0.3 mile of EFU zoning and 1.8 miles of ERU zoning <p>Military Training Lands Not crossed</p> <p>Special Designated Areas Not crossed</p>	<p>Existing Agriculture</p> <ul style="list-style-type: none"> No moderate or high residual impacts expected <p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> Crosses 0.9 mile of Prime Farmland if irrigated, 0.5 mile of farmland of statewide importance, and 1.4 miles of high-value soils <p>Livestock Grazing</p> <ul style="list-style-type: none"> Crosses 6.6 miles of grazing allotments 	<ul style="list-style-type: none"> No high or moderate residual impacts Crosses primitive ROS area; motorized vehicles should avoid crossing this area; if vehicle must cross existing trails and roads should be used 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No lands with wilderness characteristics present 	<ul style="list-style-type: none"> No potential congressional designations are present
Variation S6-B1	BLM: 10.7 State: 2.4 P: 1.3	74.3	13.7	<p>Existing Land Us</p> <ul style="list-style-type: none"> No high residual impacts 0.3 mile of moderate residual impacts where the alternative route crosses agricultural and forest/woodlands and near other structures No residential buildings within right-of-way <p>Zoning No EFU or ERU zoning crossed</p> <p>Military Training Lands Not crossed</p> <p>Special Designated Areas</p> <ul style="list-style-type: none"> Would temporarily disturb 193 acres of the Hard Trigger herd management area during construction. 	<p>Existing Agriculture</p> <ul style="list-style-type: none"> No moderate or high residual impacts expected <p>Important Farmland, High-value Soils, and CRP Lands</p> <ul style="list-style-type: none"> Crosses 2.5 miles of Prime Farmland if irrigated, 2.6 miles of farmland of statewide importance, and 2.2 miles of high-value soils <p>Livestock Grazing</p> <ul style="list-style-type: none"> Crosses 13.5 miles of grazing allotments 	<ul style="list-style-type: none"> No high or moderate residual impacts Crosses primitive ROS area; motorized vehicles should avoid crossing this area; if vehicle must cross, existing trails and roads should be used 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No lands with wilderness characteristics present 	<ul style="list-style-type: none"> No potential congressional designations are present
Variation S6-B2	BLM: 10.3 State: 2.8 P: 1.0	73.0	11.9	<p>Existing Land Use</p> <ul style="list-style-type: none"> No high residual impacts 0.3 mile of moderate residual impacts where the 	<p>Existing Agriculture</p> <ul style="list-style-type: none"> No moderate or high residual impacts expected 	<ul style="list-style-type: none"> No high or moderate residual impacts Crosses primitive ROS 	<ul style="list-style-type: none"> No high or moderate residual impacts 	<ul style="list-style-type: none"> No lands with wilderness characteristics 	<ul style="list-style-type: none"> No potential congressional designations are

Table 2-35. Alternative Route Comparison Summary for Land Use, Agriculture, Recreation, Transportation, Lands with Wilderness Characteristics, and Potential Congressional Designations in Segment 6—Treasure Valley

Alternative Route	Land Use				Agriculture	Recreation	Transportation	Lands with Wilderness Characteristics	Potential Congressional Designations
	Land Ownership (Percent)	Percent within Utility Corridors	Total Miles of Parallel Facilities within 2,000 feet	Summary					
				alternative route crosses agricultural and forest/woodlands <ul style="list-style-type: none"> No residential buildings within right-of-way Zoning No EFU or ERU zoning crossed Military Training Lands Not crossed Special Designated Areas <ul style="list-style-type: none"> Would temporarily disturb 193 acres of the Hard Trigger herd management area during construction. 	Important Farmland, High-value Soils, and CRP Lands <ul style="list-style-type: none"> Crosses 1.4 miles of Prime Farmland if irrigated, 3.0 miles of farmland of statewide importance, and 1.6 miles of high-value soils Livestock Grazing <ul style="list-style-type: none"> Crosses 13.6 miles of grazing allotments 	area; motorized vehicles should avoid crossing this area; if vehicle must cross, existing trails and roads should be used		present	present

Table Notes:
 APE = area of potential effect
 BLM = Bureau of Land Management
 CRP = Conservation Reserve Program
 EFU = exclusive farm use
 ERU = Exclusive Range Use
 FAA = Federal Aviation Administration
 NHT = National historic trail
 NWSTF = Naval Weapons Systems Training Facility
 P = Private
 ROS = Recreation opportunity spectrum
 VAU = visual analysis unit

Table 2-36. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails and Socioeconomics and Environmental Justice in Segment 6—Treasure Valley

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
Applicant's Proposed Action	Residual Impacts Viewers <ul style="list-style-type: none"> High: 2.3 miles Moderate: 11.3 miles Scenic Quality and Landscape Character <ul style="list-style-type: none"> 15 VAUs affected <ul style="list-style-type: none"> 10 Foreground 15 Middleground 1 Class A VAU, MA-078 Succor Creek, would be highly affected and OW-020 Jump Creek, also a Class A landscape, would be moderately affected by the B2H Project. Additionally, two of the four Class B VAUs (MA-039 Treasure Valley and OW-019 Treasure Valley) would experience high residual impacts VAUs MA-078 Succor Creek and OW-020 Jump Creek from Class A to Class B Sensitive Viewing Platforms <ul style="list-style-type: none"> Residences: KOP 12-28 Residences on Jump Creek Road) and residences on Poison Creek Road would 	Inventory <ul style="list-style-type: none"> 175 previously recorded sites in the study corridor 26 previously recorded sites in the direct effects APE Key resources include the Alkali Springs Site (pre-contact village/campsite with Paleoindian component), the Wilson Cemetery, the WWII Marsing Bomb Range, the NRHP-listed Bernard's Ferry, the NHT-listed Poison Creek Stage Station, and the Southern Alternate Route of the Oregon NHT. These resources are in the indirect effects APE An additional key resource, Graveyard Point, is in the indirect effects APE Potential for direct effects on undocumented, historic road corridors along this route Givens Hot Spring (Oregon NHT-associated resource) is in the vicinity of the study corridor There are sites or areas of Native American 	<ul style="list-style-type: none"> Native American tribes have expressed concern about potential direct and indirect effects on the following resources: <ul style="list-style-type: none"> Archaeological resources (e.g., lithic scatters, lithic and tool scatters, campsites, lithic procurement areas, human burial sites, cairns, rock alignments, rockshelters). Most of the sites are in the indirect effects APE The Oregon NHT (path of the Forced March of 1879) is in the indirect effects APE Graveyard Point (indirect effects APE) Traditional foods One extensive, pre-contact lithic procurement area has been documented within the boundaries of Graveyard Point (historic resource) and 	Oregon NHT Residual Impacts <ul style="list-style-type: none"> High: none Moderate: none Low: 15.0 miles Trail Management <ul style="list-style-type: none"> No key issues identified Scenic and Recreation Resources <ul style="list-style-type: none"> No key issues identified Historic and Cultural Resources <ul style="list-style-type: none"> No key issues identified Biological, Natural, and Other Resources <ul style="list-style-type: none"> No key issues identified 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population High agricultural impacts with yield losses valued at \$174,834 annually during construction and residual yield losses of \$49,496 each year of operation No identifiable impacts on CAFO operations Moderate impacts on grazing resources with annual forage losses of 49 AUMs during construction and a residual loss of less than 14 AUM each year of operation Minimal impacts on timber resources with construction and operations affecting less than 1 acre of timberland Impacts on property values are minimal and short term in nature No disproportionate impact on environmental justice population

Table 2-36. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails and Socioeconomics and Environmental Justice in Segment 6—Treasure Valley

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
	<p>experience high impacts on views</p> <ul style="list-style-type: none"> Recreation: Only moderate impacts would result due to existing 500-kV transmission line as well as an existing 230-kV transmission line. Travel Routes: No key issues identified <p>Federal Land Conformance</p> <ul style="list-style-type: none"> No key issues identified 	<p>concern along this route</p> <ul style="list-style-type: none"> Potential to encounter pre-contact rock art and habitation sites (pithouses) in the Givens Hot Springs area Based on RLS cultural data, resources that potentially could be affected visually include the NRHP-listed Map Rock Petroglyphs Historic District and the Givens Hot Springs area <p>Impacts</p> <ul style="list-style-type: none"> 5.2 miles of high cultural resource sensitivity 15.6 miles of moderate cultural resource sensitivity 7.2 miles of low cultural resource sensitivity 0 miles of no cultural resource sensitivity 	<p>in the indirect effects APE for this route</p> <ul style="list-style-type: none"> Ongoing coordination and consultation with Native American sovereign tribal governments may identify additional resources of concern 		
<p>Variation S6-A1</p>	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 1.8 miles Moderate: 2.0 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 7 VAUs affected <ul style="list-style-type: none"> 3 Foreground 7 Middleground High impacts on a Class B VAU (OW-019 Treasure Valley) would reduce the scenic quality rating. Moderate impacts would reduce the scenic quality rating in MA-078 Succor Creek from Class A to Class B within the middleground <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: High impacts on views on residences found near Poison Creek Road Recreation: No key issues identified Travel Routes: No key issues identified <p>Federal Land Conformance</p> <ul style="list-style-type: none"> No key issues identified 	<p>Inventory</p> <ul style="list-style-type: none"> 52 previously recorded sites in the study corridor 15 previously recorded sites in the direct effects APE Key resources include the NHT-listed Poison Creek Stage Station and Graveyard Point. These resources are in the indirect effects APE The Southern Alternate Route of the Oregon NHT is in the vicinity of the study corridor There are sites or areas of Native American concern along this route variation <p>Impacts</p> <ul style="list-style-type: none"> 1.4 miles of high cultural resource sensitivity 4.0 miles of moderate cultural resource sensitivity 3.9 miles of low cultural resource sensitivity 0 miles of no cultural resource sensitivity 	<ul style="list-style-type: none"> Due to the nature of available data, resources of Native American concern only are discussed by alternative route. Refer to the Applicant's Proposed Action Alternative 	<p>Oregon NHT</p> <ul style="list-style-type: none"> This route variation is not located in proximity to the Oregon NHT 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population Moderate agricultural impacts with yield losses valued at \$52,510 annually during construction and residual yield losses of \$17,107 each year of operation No identifiable impacts on CAFO operations Minimal impacts on grazing resources with annual forage losses of approximately 23 AUMs during construction and a residual loss of approximately 7 AUM each year of operation No identifiable impacts on timber resources Impacts on property values are minimal and short term in nature No disproportionate impact on environmental justice population
<p>Variation S6-A2</p>	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 1.1 miles Moderate: 3.5 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 7 VAUs affected <ul style="list-style-type: none"> 3 Foreground 7 Middleground High impacts on a Class B VAU (OW-019 Treasure Valley) would reduce the scenic quality rating. Moderate impacts would reduce the scenic quality rating in MA-078 Succor Creek from Class A to Class B within the middleground <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: Similar to Variation S6-A1 Recreation: No key issues identified Travel Routes: No key issues identified 	<p>Inventory</p> <ul style="list-style-type: none"> 49 previously recorded sites in the study corridor 7 previously recorded sites in the direct effects APE Same key resource as Variation S6-A1, except that Variation S6-A2 is considerably closer to the NRHP-listed Poison Creek Stage Station and Graveyard Point The Southern Alternate Route of the Oregon NHT is in the vicinity of the study corridor There are sites or areas of Native American concern along this route variation <p>Impacts</p> <ul style="list-style-type: none"> 2.7 miles of high cultural resource sensitivity 3.7 miles of moderate cultural resource sensitivity 	<ul style="list-style-type: none"> Due to the nature of available data, resources of Native American concern only are discussed by alternative route. Refer to the Applicant's Proposed Action Alternative 	<p>Oregon NHT</p> <ul style="list-style-type: none"> This route variation is not located in proximity to the Oregon NHT 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population Moderate agricultural impacts with yield losses valued at \$74,052 annually during construction and residual yield losses of \$22,216 each year of operation No identifiable impacts on CAFO operations Minimal impacts on grazing resources with annual forage losses of approximately 17 AUMs during construction and a residual loss of approximately 5 AUM each year of operation No identifiable impacts on timber resources Impacts on property values are minimal and short term in nature No disproportionate impact on environmental justice population

Table 2-36. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails and Socioeconomics and Environmental Justice in Segment 6—Treasure Valley

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
Variation S6-B1	<p>Federal Land Conformance</p> <ul style="list-style-type: none"> No key issues identified <p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 0.5 miles Moderate: 7.5 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 9 VAUs affected <ul style="list-style-type: none"> 6 Foreground 9 Middleground This alternative would lower the existing scenic quality scores in adjacent Class B VAUs, including high impacts on a Class B VAU OW-019 Treasure Valley and would moderately impact the Class A VAU OW-020 Jump Creek and lower its rating to Class B within the foreground distance zone, by being influenced by the B2H Project located closer to the VAU than the existing 500-kV transmission line <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: High impacts on views from residential KOP 12-28 Residences on Jump Creek Road Recreation: Moderate impacts on views from KOP 12-17 (Squaw Creek Canyon) and KOP 12-21 (Wilson Creek Trailhead) Travel Routes: No key issues identified <p>Federal Land Conformance</p> <ul style="list-style-type: none"> No key issues identified 	<ul style="list-style-type: none"> 2.5 miles of low cultural resource sensitivity 0 miles of no cultural resource sensitivity <p>Inventory</p> <ul style="list-style-type: none"> 112 previously recorded sites in the study corridor 10 previously recorded sites in the direct effects APE Key resources include the Alkali Springs Site (pre-contact village/campsite with Paleoindian component), WWII Marsing Bomb Range, the NHT-listed Poison Creek Stage Station, and the Southern Alternate Route of the Oregon NHT. These resources are in the indirect effects APE Crosses one multi-component site (pre-contact rock shelter/inscriptions [NRHP eligible]) Givens Hot Spring (Oregon NHT-associated resource) is in the vicinity of the study corridor There are numerous sites or areas of Native American concern along this route variation Potential to encounter pre-contact rock art and habitation sites (pithouses) in the Givens Hot Springs area Based on RLS cultural data collected for the Applicant's Proposed Action Alternative, resources that potentially could be affected visually include the NRHP-listed Map Rock Petroglyphs Historic District and the Givens Hot Springs area <p>Impacts</p> <ul style="list-style-type: none"> 1.5 miles of high cultural resource sensitivity 9.6 miles of moderate cultural resource sensitivity 3.3 miles of low cultural resource sensitivity 0 miles of no cultural resource sensitivity 	<ul style="list-style-type: none"> Due to the nature of available data, resources of Native American concern only are discussed by alternative route. Refer to the Applicant's Proposed Action Alternative 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: none Moderate: none Low: 12.2 miles <p>Trail Management</p> <ul style="list-style-type: none"> No key issues identified <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population Moderate agricultural impacts with yield losses valued at \$83,068 annually during construction and residual yield losses of \$23,351 each year of operation No identifiable impacts on CAFO operations Minimal impacts on grazing resources with annual forage losses of 22 AUMs during construction and a residual loss of approximately 6 AUM each year of operation Minimal impacts on timber resources with construction and operations affecting less than 1 acre of timberland Impacts on property values are minimal and short term in nature No disproportionate impact on environmental justice population
Variation S6-B2	<p>Residual Impacts</p> <p>Viewers</p> <ul style="list-style-type: none"> High: 1.1 miles Moderate: 6.2 miles <p>Scenic Quality and Landscape Character</p> <ul style="list-style-type: none"> 9 VAUs affected <ul style="list-style-type: none"> 6 Foreground 9 Middleground Two Class A VAUs would be moderately affected by the B2H Project (OW-007 Salmon Butte and OW-020 Jump Creek) in addition to moderate impacts on a Class B VAU (OW-019 Treasure Valley) and would lower the existing scenic quality scores in adjacent Class A and B VAUs, including reducing OW-020 Jump Creek from Class A to Class B within the foreground distance zone <p>Sensitive Viewing Platforms</p> <ul style="list-style-type: none"> Residences: High impacts on views from residential 	<p>Inventory</p> <ul style="list-style-type: none"> 109 previously recorded sites in the study corridor 8 previously recorded sites in the direct effects APE Same key resource as Variation S6-B1 because these route variations follow similar alignments, passing in proximity to the same resources The Southern Alternate Route of the Oregon NHT is in the indirect effects APE There are numerous sites or areas of Native American concern along this route variation Potential to encounter undocumented, significant pre-contact sites in the Givens Hot Springs area Based on RLS cultural data collected for the Applicant's Proposed Action Alternative, resources that potentially could be affected 	<ul style="list-style-type: none"> Due to the nature of available data, resources of Native American concern only are discussed by alternative route. Refer to the Applicant's Proposed Action Alternative 	<p>Oregon NHT</p> <p>Residual Impacts</p> <ul style="list-style-type: none"> High: none Moderate: none Low: 11.5 miles <p>Trail Management</p> <ul style="list-style-type: none"> No key issues identified <p>Scenic and Recreation Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Historic and Cultural Resources</p> <ul style="list-style-type: none"> No key issues identified <p>Biological, Natural, and Other Resources</p> <ul style="list-style-type: none"> No key issues identified 	<ul style="list-style-type: none"> Minimal and temporary impact on employment and population Moderate agricultural impacts with yield losses valued at \$60,707 annually during construction and residual yield losses of \$18,018 each year of operation No identifiable impacts on CAFO operations Minimal impacts on grazing resources with annual forage losses of approximately 23 AUMs during construction and a residual loss of less than 7 AUM each year of operation Minimal impacts on timber resources with construction and operations affecting less than 1 acre of timberland Impacts on property values are minimal and short term in nature No disproportionate impact on environmental justice population

Table 2-36. Alternative Route Comparison Summary for Visual Resources, Cultural Resources, Native American Concerns, National Historic Trails and Socioeconomics and Environmental Justice in Segment 6—Treasure Valley

Alternative Route	Visual Resources	Cultural Resources	Native American Concerns	National Historic Trails	Socioeconomics and Environmental Justice
	<p><i>KOP 12-28 Residences on Jump Creek Road</i></p> <ul style="list-style-type: none"> • <i>Recreation: Moderate impacts on views from KOP 12-21 (Wilson Creek Trailhead)</i> • <i>Travel Routes: No key issues identified</i> <p>Federal Land Conformance</p> <ul style="list-style-type: none"> • <i>No key issues identified</i> 	<p><i>visually are the same as those identified along Variation S6-B1. Variation S6-B2 is slightly closer to resources associated with the NRHP-listed Map Rock Petroglyphs Historic District and the Givens Hot Springs area</i></p> <p>Impacts</p> <ul style="list-style-type: none"> • <i>3.1 miles of high cultural resource sensitivity</i> • <i>4.9 miles of moderate cultural resource sensitivity</i> • <i>6.1 miles of low cultural resource sensitivity</i> • <i>0 miles of no cultural resource sensitivity</i> 			

Table Notes:

APE = area of potential effect

AUM = animal unit month

BLM = Bureau of Land Management

CAFO = confined animal feeding operations

CRP = Conservation Reserve Program

EFU = exclusive farm use

KOP = key observation point

NHT = National historic trail

NRHP = National Register of Historic Places

NWSTF = Naval Weapons Systems Training Facility

P = Private

RLS = reconnaissance level survey

ROS = Recreation opportunity spectrum

VAU = visual analysis unit