IDAHO POWER®
An IDACORP Company

Revised Plan of Development

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ACRONYMS AND ABBREVIATIONS

AC	alternating current
ACEC	Area of Critical Environmental Concern
ASC	Application for Site Certificate
BLM	Bureau of Land Management
BMP	best management practice
BPA	Bonneville Power Administration
CAP	Community Advisory Process
COM	Construction, Operations, and Maintenance (Plan)
CWA	*Clean Water Act of 1972*
EIS	Environmental Impact Statement
EFSC	Energy Facility Siting Council
EPM	environmental protection measure
ERO	Electric Reliability Organization
FERC	Federal Energy Regulatory Commission
Forest Plan	Land and Resource Management Plan
GIS	geographic information system
I-84	Interstate 84
IPC	Idaho Power Company
IPUC	Idaho Public Utilities Commission
IRP	Integrated Resource Plan
kV	kilovolt
MP	milepost
MW	megawatt
NEPA	*National Environmental Policy Act of 1969*
NERC	North American Electrical Reliability Corporation
NHT	National Historic Trail
NTTG	Northern Tier Transmission Group
OATT	Open Access Transmission Tariff
ODEQ	Oregon Department of Environmental Quality
OPUC	Oregon Public Utilities Commission
PAT	Project Advisory Team
PGE	Portland General Electric
POD	Plan of Development
Project	Boardman to Hemingway Transmission Line Project
RMP	Resource Management Plan
ROW	right-of-way
SUP	Special Use Permit
USFS	U.S. Forest Service
WECC	Western Electricity Coordinating Council

1.0 INTRODUCTION

Idaho Power Company (IPC or the Company) is proposing to construct and operate an approximately 305-mile-long, electric transmission line comprising 299.6 miles of single-circuit 500-kilovolt (kV) electric transmission line and a 5.0-mile rebuild of existing 138-kV and 69-kV transmission lines onto double-circuit structures (with relocation of 0.3 mile of a 138-kV transmission line) between Boardman, Oregon, and the Hemingway Substation located in southwestern Idaho, known as the Boardman to Hemingway Transmission Line Project (Project). The purpose of IPC's proposed Project is to provide additional capacity connecting the Pacific Northwest Region and the Intermountain Region of Southwestern Idaho to alleviate existing transmission constraints and to ensure sufficient capacity to allow IPC to meet present and forecasted load requirements. IPC is required, by both federal and state laws, to plan for and meet load and transmission requirements. The Project has been selected by IPC as a critical component of an overall resource portfolio that best balances cost, risk, and environmental concerns.

IPC first proposed an initial route for the Project in 2007. To secure the necessary right-of-ways (ROWs) to use federal lands for portions of the Project, IPC filed Applications for Transportation and Utility Systems and Facilities on Federal Lands (Standard Form 299 or SF 299) with the Bureau of Land Management (BLM) on December 19, 2007, and with the U.S. Forest Service (USFS) on March 25, 2008. Additionally, in August 2008, IPC submitted a Notice of Intent to apply for a site certificate to the Oregon Department of Energy – Energy Facility Siting Council (EFSC) for the proposed route. Following public scoping meetings conducted by the BLM, USFS, and EFSC in October 2008, IPC initiated a process to re-evaluate the 2008 proposed route and engage residents, property owners, business leaders, and local officials in siting the transmission line. Through the Community Advisory Process (CAP), IPC partnered with communities from northeast Oregon to southwest Idaho to identify potential routes for the Project. Based on input received in the CAP, IPC selected a new proposed route for the Project. The Company then submitted revised SF 299 applications to the BLM, USFS, and Bureau of Reclamation requesting the necessary ROW grants and Special Use Permit (SUP) for the new proposed route in June 2010 (June 2010 Proposed Route).

Since June 2010, IPC has engaged in extensive consultations with affected landowners and has prepared detailed engineering studies regarding its June 2010 Proposed Route. As a result of these consultations, the Company has decided to make a number of modifications to its June 2010 Proposed Route.[1] Most of these changes involve relatively minor shifts in the location of the corridor, but some changes shift the corridor greater distances. With regard to alternative route segments, IPC has decided to eliminate four alternative route segments that it proposed in June 2010, but has identified three new alternatives route segments. Additionally, the Company has identified two alternative locations for the substation at the northern terminus of the line. By its revised SF 299 applications submitted in conjunction with this November 2011 Plan of Development, IPC now formally amends the Project description to reflect the November 2011 Proposed Route and Alternatives described in detailed in Section 3.[2]

[1] For a precise description of and explanation for the 42 distinct modifications that IPC has made to its June 2010 Proposed Route and Alternatives, see Appendix D to this Plan of Development.

[2] During the course of Project development, IPC anticipates that it will be required to submit at least one additional revision to this POD. IPC will then submit a Final POD (referred to as a Construction, Operations, and Maintenance [COM] Plan by the USFS) to the federal agencies that, when approved, will be appended as part of the terms and conditions of the ROW grant and SUP.

This Revised Plan of Development (POD) provides general information on the currently proposed Project facilities and the steps that IPC will follow during construction, operations, and maintenance of the Project; this POD supersedes all previous plans.

1.1 Background

IPC is proposing to construct and operate a new, approximately 305-mile-long, electric transmission line between northeastern Oregon and southwestern Idaho (see Figure 1-1) known as the Project. The overhead, 500-kV transmission line will carry energy bi-directionally between a Portland General Electric (PGE) planned substation (Grassland Substation) adjacent to the Boardman Generating Plant, near Boardman in Morrow County, Oregon, and IPC's existing Hemingway Substation, located in Owyhee County, Idaho. IPC has identified two alternative substations locations for the northern terminus of the Project near Boardman, Oregon (see Section 4.3). The proposed transmission line will connect with other transmission lines at the substations indicated above to transmit electricity on a regional scale and serve native loads. Federal, state, and private lands in six counties in Oregon and Idaho will be utilized to construct the proposed transmission line. Table 1-1 describes land ownership by county and major land managing agency and owner.

Table 1-1. Route Mileage Summary by Land Manager/Owner

County	Miles of Line	U.S. Forest Service		Bureau of Reclamation		Bureau of Land Management		State		Private	
		Miles	%	Miles	%	Miles	%	Miles	%	Miles	%
Morrow	45.8									45.8	100%
Umatilla	49.5									49.5	100%
Union	39.4	5.9	15%			1.0	2%			32.6	83%
Baker	74.4[/1]					17.7	24%	2.9	4%	53.8	72%
Malheur	72.1			1.1	1%	50.4	70%	0.0	0%	20.6	29%
Owyhee	23.8					19.2	81%	2.8	12%	1.7	7%
Total Miles of Line	**305.0**	**5.9**	2%	**1.1**	0%	**88.3**	29%	**5.8**	2%	**204.0**	67%

[1] Includes 5.0 miles of rebuild and 0.3 mile of relocation.

The Project is neither required to support any particular new generation project nor justified by any particular existing generation project. Rather, the Project will serve as a crucial high-capacity connection between two key points in the existing bulk electric system. The bulk electric system can be thought of as a network of "hubs" and "spokes," where substations serve as central "hubs" that send and receive electricity along distribution lines or "spokes." For this system to work reliably, there must be a network of high-capacity transmission lines connecting major "hubs." These high-capacity transmission lines are often the only way to transport electricity from where it is generated to where it is needed to serve load. As discussed in detail in Section 2, IPC's proposed Project will serve as a crucial high-capacity "backbone" connecting the load served by IPC's Hemingway Substation to electricity available in the Boardman, Oregon, vicinity, and vice versa, depending on the time of year.

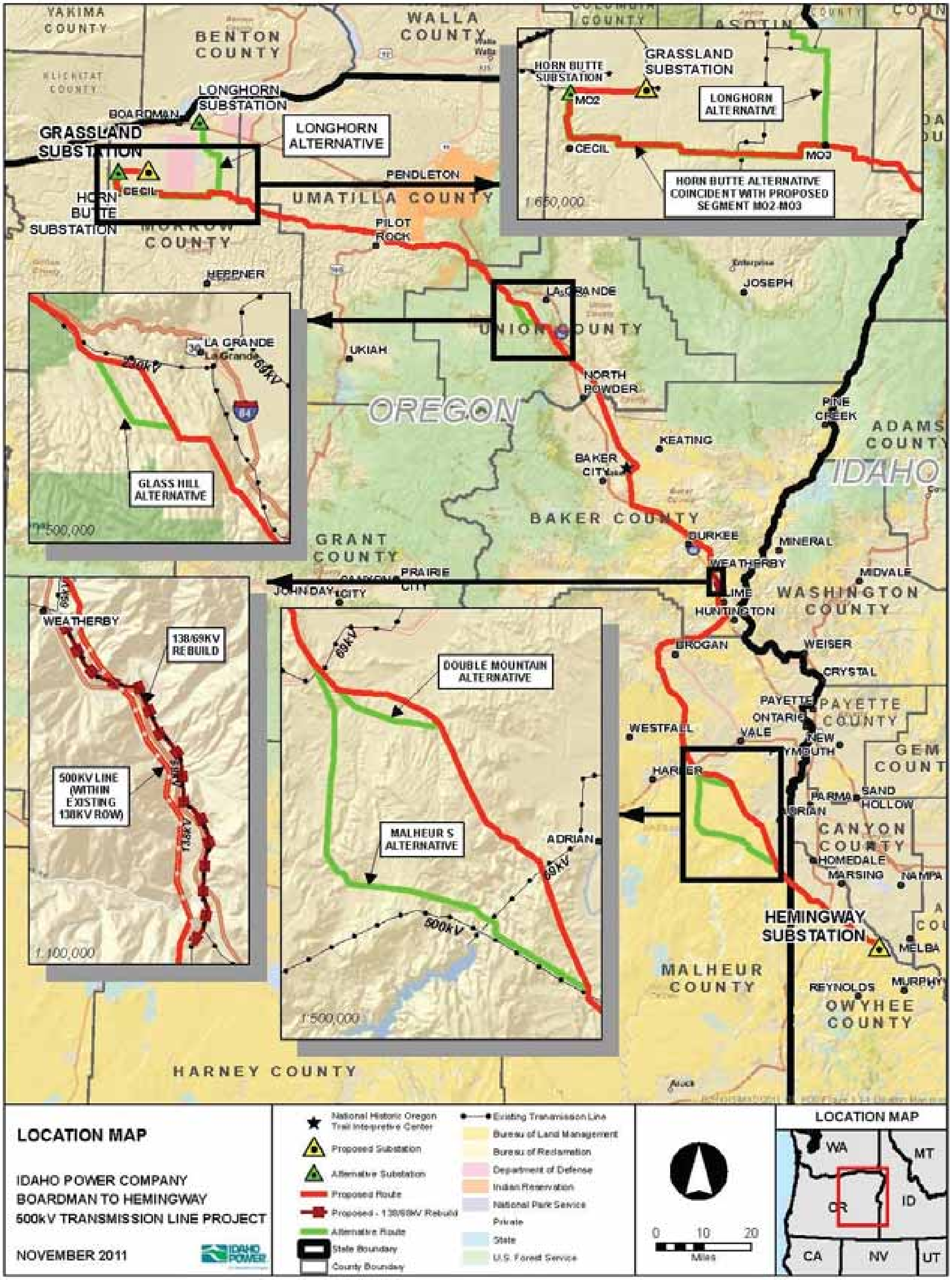

Figure 1-1. Location Map

The Project is proposed for the following reasons:

1. To allow IPC to meet its obligations to serve its retail customers located in the states of Idaho and Oregon.
2. To comply with the requirements of the Federal Energy Regulatory Commission (FERC) that IPC construct adequate transmission infrastructure to provide service to wholesale customers in accordance with IPC's Open Access Transmission Tariff (OATT) (2008).
3. To provide a cost-effective resource which serves as a critical component of the Company's preferred resource portfolio presented in IPC's 2009 Integrated Resource Plan (IRP) which has been acknowledged by both the Idaho Public Utilities Commission (IPUC) and the Oregon Public Utility Commission (OPUC).
4. To allow IPC to maintain reliable electric service pursuant to the standards set forth by the North American Electric Reliability Corporation (NERC) and implemented by the Western Electricity Coordinating Council (WECC).
5. To relieve congestion of the existing transmission system and enhance the reliable, efficient and cost-effective energy transfer capability between the Pacific Northwest and Intermountain regions.

In short, the Project will relieve existing congestion, alleviate reliability constraints, and provide additional capacity for the delivery of up to 250 megawatts (MW) of needed energy to IPC's Boise service area by mid-2016 and an additional 175 MW by 2017.

In this document, the term "Substation" is used generically to describe electrical transmission substations and/or switching stations.

1.2 Document Organization

This POD is divided into nine further sections, as follows:

- Section 2, Purpose and Need, discusses the Project proponent and the reasons the Project is needed.
- Section 3, Proposed Facilities, describes the transmission line, substations, and other Project facilities, including elements common to all alternatives. It also describes the feasible alternatives to the proposed route.
- Section 4, Route Selection, provides a history of the development of the alternative routes.
- Section 5, Transmission Structures and Materials, discusses the proposed and alternative transmission structure types, and also the alternatives for structure finish and treatment.
- Section 6, Underground Alternatives, looks at alternatives for placing the transmission line underground, and provides the rationale for not selecting them.
- Section 7, Permits, Approvals, Consultations, and Consistency With Plans, covers the various permits that may be required and the need for consistency with federal land management plans.
- Section 8, Preliminary Environmental Analysis, describes IPC's proposed approach to data collection and a preliminary assessment of the impact of construction, operations, and maintenance of the Project transmission line along its proposed route.

- Section 9, Resource Reports and Environmental Protection Plans/Environmental Protection Measures, outlines the types of resource reports and framework environmental protection plans IPC will develop.
- Section 10, References, contains a list of references cited in this POD.

Supporting material for the POD is further provided in the appendices attached to the end of the document. An Environmental Resources Phased Study Plan is included in Appendix A. Appendix B offers further details on the various transmission line and substation components. Appendix C lists the Township/Range/Station/Aliquot locations across federal lands for the proposed route. An explanation of the route changes since the original POD is given in Appendix D. Appendix E consists of a table listing all of the environmental protection measures proposed by the Company. Appendices F through N consist of framework plans for the following: blasting; reclamation; plant and wildlife conservation measures; agricultural protection; fire management and suppression; operations, maintenance, and emergency response; traffic and transportation; stormwater pollution prevention; and spill prevention, containment, and countermeasures. Finally, Appendix O contains a series of key and detailed maps illustrating the proposed route and alternatives.

2.0 PURPOSE AND NEED

This section provides basic information about why IPC is proposing to construct this Project and a description of the electrical transmission system needs that will be met by the Project. The purpose of IPC's proposed Project is to increase transmission capacity connecting the Pacific Northwest to the Intermountain Region of Southwestern Idaho to alleviate existing transmission constraints and to ensure sufficient capacity to meet projected increased system loads.

2.1 Project Proponent – IPC

IPC is a wholly owned subsidiary of IDA-CORP, a holding company. IPC is responsible for providing electrical service to its service area, which includes most of southern Idaho and a portion of eastern Oregon. The number of customers in IPC's service area is expected to increase from approximately 490,000 in 2009 to over 680,000 by 2029. Firm peak-hour load (the peak hourly electricity that the system must supply when demand is at its highest) has increased from 2,052 MW in 1990 to over 3,000 MW in 2006, 2007, 2008, and 2009. Average firm load (the average annual demand from customers) has increased from 1,200 average MW in 1990 to 1,800 average MW in 2008. IPC is a regulated public utility under the laws of the states of Idaho and Oregon whose mission is to provide safe and reliable electricity at fair and reasonable prices. IPC is also a public utility under the jurisdiction of the FERC. Under FERC tariff requirements, utilities must plan, design, construct, operate, and maintain an adequate electric transmission system that meets not only the customers' energy demands but also meet the customer's peak load demands. Both are important in determining the need for the Project. IPC is obligated to expand its transmission system to provide requested firm transmission service to third parties, and to construct and place in service sufficient transmission capacity to reliably deliver resources to network customers[3] and native load customers[4].

2.2 Why is IPC Proposing the Project?

IPC is pursuing the Company's primary mandate to provide safe and reliable electrical service to customers within its service area. The Company must also adhere to federal requirements to plan for and construct transmission necessary to serve all network transmission customer requirements in addition to responding to requests for service from current and future customers through IPC's transmission tariff. As will be described below, the Project is a critical component of an overall resource portfolio that will best enable IPC to meet its state and federal requirements.

2.2.1 Federal Energy Regulatory Commission Requirements

IPC has identified the Project as a cost-effective resource allowing the Company to meet the transmission system requirements imposed on it by federal laws implemented by the FERC.

As a public utility under the jurisdiction of the FERC, IPC is obligated to expand its transmission system to provide requested firm transmission service, and to construct and place in service sufficient capacity to reliably deliver resources to native load and network customers as provided in their OATT under Sections 15.4, 28.2, and 28.3, respectively. Attachment K of the

[3] IPC has a regulatory obligation to construct and provide transmission service to network or wholesale customers pursuant to a FERC Tariff.

[4] IPC has a regulatory obligation to construct and operate its system to reliably meet the needs of native load or retail customers.

OATT requires planning for the expansion of the system to ensure that its transmission system meets customer's transmission requirements and reliability standards.

Section 15.4 of IPC's OATT states: "If the Transmission Provider determines that it cannot accommodate a Completed Application for Firm Point-To-Point Transmission Service because of insufficient capability on its Transmission System, the Transmission Provider will use due diligence to expand or modify its Transmission System to provide the requested Firm Transmission Service, consistent with its planning obligations in Attachment K, provided the Transmission Customer agrees to compensate the Transmission Provider for such costs pursuant to the terms of Section 27."

Section 28.3 of the tariff goes on to require: "The Transmission Provider will plan, construct, operate and maintain its Transmission System in accordance with Good Utility Practice and its planning obligations in Attachment K in order to provide the Network Customer with Network Integration Transmission Service over the Transmission Provider's Transmission System" and "The Transmission Provider shall include the Network Customer's Network Load in its Transmission System planning and shall, consistent with Good Utility Practice and Attachment K, endeavor to construct and place into service sufficient transfer capability to deliver the Network Customer's Network Resources to serve its Network Load on a basis comparable to the Transmission Provider's delivery of its own generating and purchased resources to its Native Load Customers."

2.2.2 Idaho and Oregon Public Utility Commission Requirements

At the state level, both the IPUC and OPUC play a significant role in determining the necessity of potential projects and energy delivery by acknowledging IPC's IRP.

IPC operates under the oversight and regulatory controls of the OPUC and IPUC, and is required to furnish to its customers adequate, safe and reliable electrical service (Oregon Revised Statute 756.040; Idaho Code § 61-302). Toward this end, IPC is required to file an IRP with both Commissions every 2 years. The IRP is IPC's primary planning document, demonstrating the Company's analysis and conclusions as to the best and most cost effective portfolio of resources to fulfill its service obligations both in the short and long term. In developing the IRP, IPC considers all relevant contingencies, including projected loads, economic conditions and regulatory changes with the intent of minimizing both energy service and cost risks for customers and owners. The resulting IRP evaluates supply-side resources and demand-side programs that help balance growing energy demand with viable supply. After fully analyzing the data, the IRP presents IPC's preferred portfolio which contains the combination of resources that best balances cost, risk, and environmental concerns. The OPUC requires substantial public participation in the IRP process, which IPC meets by involving its Integrated Resource Planning Advisory Committee.

Notably, the Project—or a general resource similar to—has served as a critical component of every acknowledged IPC IRP since 2000. IPC discussed the Pacific Northwest transmission upgrades in general terms in both the 2000 and 2002 IRPs and identified the 225-MW Project, originally identified as the McNary to Boise transmission path, in the preferred portfolio of the 2006 IRP. IPC filed its 2009 IRP in December 2009 and the preferred portfolio in the new plan includes 425 MW of imports from the Pacific Northwest utilizing the Project transmission line. That plan has been acknowledged by both the Idaho and Oregon public utility commissions.[5]

[5] It is worth noting that IPC's 2009 IRP evaluates the need for additional transmission capacity only as necessary to serve native load customers. The total capacity of proposed transmission line projects may be larger than identified

2.2.3 Regional Planning Studies Identify the Need for the Project

Since 2001, several regional initiatives have evaluated the cost and benefits of new transmission additions in the Northwest. By identifying potential resource areas and load center growth, these studies have identified the transmission capacity expansions required in order to reliably provide service to customers. These studies have all identified constraints on the existing transmission system between the Mid-Columbia market in the Pacific Northwest and load centers in the intermountain region, including southeastern Oregon and southwestern Idaho. They have also identified the need for new transmission additions to alleviate identified constraints. These regional studies, along with a short summary of relevant conclusions, are listed below.

- The Northern Tier Transmission Group (NTTG) *NTTG 2008-2009 Biennial Transmission Plan* (NTTG 2009): Through the NTTG planning process conducted in 2007, along with the current 2008-2009 biennial planning process, NTTG identified a number of potential transmission projects, including the Project. IPC has committed to support NTTG's efforts to establish a coordinated sub-regional study process, involving both economic and reliability components. As part of the sub-regional study process, the Project was identified in the long-term (10-year) bulk transmission expansion plan.
- The Transmission Expansion Plan 2009-2019 prepared by Columbia Grid: Columbia Grid (2010) conducted studies to assess the effect on power transfer through region associated with the planned use of several northwest proposed transmission projects including the Boardman to Hemingway project. The study determined that the Boardman to Hemingway project could add significant parallel capacity to the existing Idaho to Northwest transfer path and denoted as providing "possible significant benefit."

IPC is active in regional transmission planning through the NTTG, along with the WECC's Transmission Expansion Planning Policy Committee and Planning Coordination Committee. In addition to integrated resource planning requirements, coordinated regional and subregional planning studies are being conducted and reviews of various transmission projects are proceeding through technical studies and the WECC rating process.

2.2.4 Will Add Necessary Capacity and Improve Reliability

2.2.4.1 Capacity

The Project is needed to add capacity to transmit electricity during high summer month loading conditions and to accommodate third-party transmission requests. Capacity refers to the amount of power a transmission line can reliably deliver from its sending to its receiving end. Capacity is measured in megawatts and is limited by the current (in amperes) that the wire can carry and the voltage level of the transmission line. In addition, capacity can be limited by transmission line outages and the need to provide acceptable system performance during outages. Acceptable transmission line and equipment loads and substation bus voltages are defined in reliability standards established by NERC[6] and WECC[7]. Under these standards, the

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in the IRP in order to accommodate third-party requests and network customer obligations for capacity on the same transmission path as provided in its OATT under Sections 15.4 and 28.3 (FERC 2008).

[6] In 2005, Congress amended the Federal Power Act to include a new section requiring the FERC to certify an "Electric Reliability Organization" (ERO) to propose and enforce reliability standards for the bulk-power system in the entire United States. FERC adopted rules and criteria for certification of an ERO and certified NERC as the ERO in 2006. FERC Order No. 672, *Rules Concerning Certification of the Electric Reliability Organization and Procedures for the Establishment, Approval, and Enforcement of Electric Reliability Standards* and 116 FERC 61,062, *Order Certifying NERC as the ERO* (July 20, 2006).

equipment and line load along with bus voltage must be maintained within a specific range even during transmission outage conditions. The proposed transmission line is needed to avert considerable resource capacity deficits during the summer months. During peak usage, there is no transmission capacity to transfer additional energy from the Pacific Northwest to Idaho and beyond, limited transmission capacity to deliver resources from the east into the Pacific Northwest, and no existing capacity to integrate new resources proposed for development in eastern Oregon.

IPC has received more than 4,000 MW of transmission service requests on the Idaho to Pacific Northwest path for the 2005 to 2014 time period. Of the service requests, only 133 MW were granted up through 2007 due to the limited available transmission capacity of the system. There are currently active requests in study status that are expected to commence operations when the proposed Project is completed. The development of wind and other renewable resources in response to state renewable portfolio standards is anticipated to further increase the demand for transmission capacity between the Intermountain region and the Pacific Northwest.

Capacity limitations also restrict transmission customers' operations and have the potential to create significant reliability problems. When operating conditions create flow imbalances between adjacent transmission lines to the point of exceeding operating limits, mitigation measures such as resource and load curtailment may be required to relieve actual loading on the transmission system to ensure reliable system operation.

2.2.4.2 Reliability

The Project is critical to IPC's future ability to ensure reliable electrical service. Transmission systems in the United States must be planned, operated, and maintained under NERC reliability standards. Additionally, IPC is governed by the WECC policy, procedures, criteria, and standards that may be more stringent than those required by NERC. In compliance with the above standards, transmission systems must be planned, built, and continually operated with sufficient levels of redundancy to enable the bulk transmission system to reliably operate in the event of the loss of any single element (i.e., generation unit, transmission line segment or substation equipment) or of multiple elements. Adding new transmission facilities to the network allows facilities (new and old) to back each other up during outage conditions where elements of the system are out of service.

In siting new transmission facilities, IPC must prudently site and install facilities to avoid a potential "common mode failure" (lines adjacent to each other on a common transmission tower or two parallel transmission lines in close proximity to each other). As a minimum requirement NERC and WECC reliability standards require that multiple contingency (N-2) analyses be performed to evaluate the impact resulting from the loss of multiple transmission lines to the remaining transmission system. The power flowing on the two transmission lines removed from service must now flow across the remaining transmission system and subsequently overloads portions of the remaining system. In this event, the useable system capacity limit is reduced in order to protect the remaining system from this overload condition. When transmission lines are separated from each other, common mode failures do not pose a risk and prudent planning only requires evaluation of one line out of service at a time. In this single line outage case, it reduces

[7] In keeping with FERC orders and regulations, NERC subsequently adopted electricity reliability standards and delegated compliance, monitoring and enforcement of the electricity reliability standards to nine Regional Reliability Organizations, all with FERC approval. WECC is the regional reliability organization for the Western region. The Western Interconnection encompasses a vast area of nearly 1.8 million square miles. It is the largest and most diverse of the eight regional councils of the NERC. WECC's territory extends from Canada to Mexico. It includes the provinces of Alberta and British Columbia, the northern portion of Baja California, Mexico, and all or portions of the 14 western states in between (WECC 2010).

the risk for overload potential to the remaining system and allows the system to operate at a higher overall capacity than the case where two lines are out of service.

Due to questions that have surfaced recently concerning common mode failure of transmission lines constructed adjacent to other transmission lines, the WECC Board of Directors approved a regional transmission planning criterion (TPL [001-004]-WECC-1-CR), on April 18, 2008. This planning criterion specifies that utilities must plan for two lines to be out of service at the same time if they are located adjacent to each other unless those circuits are separated by at least “the longest span length of the two transmission circuits at the point of separation or 500 feet, whichever is greater, between the transmission circuits” (WECC 2008).

For the purposes of the initial IPC siting study, the longest span was assumed to be 1,500 feet, thereby dictating the minimum distance between existing and proposed transmission lines serving the same load. In the final design, the separation distance could increase where existing line spans are determined to be greater than 1,500 feet thereby requiring the Project to be located the maximum span distance away when adjacent to longer spans. This assumption is also incorporated into the proposed Project description (Chapter 3).

Over the last several years, there have been several instances where outages on IPC and other utility systems could or did lead to serious consequences. IPC declared Stage One Energy Emergency Alerts in 2004, 2006, 2007, and most recently in 2008, primarily due to transmission outages. In 2007, a fire burned through the Jim Bridger transmission line ROW resulting in an outage of all three 345-kV lines and three of the four Jim Bridger generating units (PacifiCorp 2009). Also in 2007, a fire caused the Mona to Huntington and Mona to Bonanza 345-kV lines in Central Utah to de-energize (PacifiCorp 2009). Two adjacent 500-kV line towers failed in 1996, leaving an estimated 5.2 million customers in California, Nevada, Oregon, and Texas without power (WECC 1996). Based on that outage, the construction of a new, third 500-kV transmission line was required. The Project is designed to provide additional capacity that will reduce the likelihood of Energy Emergency Alerts in accordance with national and regional reliability standards.

2.3 The Project Transmission Line Addresses Identified Needs

IPC’s proposal for the 500-kV Project is designed to meet current load requirements, contain substantial capacity for future resources and transfer capability, provide capacity for third-party requests, minimize overall environmental disturbance, and maximize economic benefits.[8] The Project capacity or sizing considerations and general termination locations were developed in the public review process conducted by the NTTG. During the review process, it was determined a 230-kV project is unable to meet IPC’s overall resource planning requirements and will constitute a drastic underutilization of a substantial transmission ROW. Additionally, a project operating voltage of 500-kV was selected to match the existing ultrahigh-voltage transmission grid in the Pacific Northwest. There are a number of reasons that IPC, as well as several regional planning studies, has concluded that a high-capacity transmission line between Boardman, Oregon, and the Hemingway Substation located near Melba, Idaho, is key to the region’s bulk electric system:

- Historically, IPC has been a “summer peaking” utility, while most other utilities in the Pacific Northwest experience system peak loads during the winter. For this reason, IPC is able to purchase energy from the Pacific Northwest market to meet peak summer load

[8] The concept of “right sizing”, or building the Project to an appropriate potential, has been carefully considered. There are many factors involved in the decision process prior to proposing a solution to the identified requirements, including planning horizon perspectives.

and sell excess energy to others during the spring season. This practice benefits Idaho Power's customers by avoiding the construction of additional peaking resources and producing revenue from off-system sales used to offset total power supply expenses.

- Although IPC has transmission interconnections to the south and east, the Pacific Northwest market is the preferred source of purchased power. The Pacific Northwest market has a large number of participants, high transaction volume, and is very liquid. The accessible power markets south and east of Idaho Power's system tend to be smaller, less liquid, and have greater transmission distances.
- Historically, during IPC's peak hour load periods, off-system market purchases from the south and east have proven to be unavailable or very expensive. Many of the utilities to the south and east of IPC also experience a summer peak and the weather conditions that drive IPC's summer peak hour load are often similar across the Intermountain Region. Therefore, IPC does not rely on imports from the Intermountain Region for planning purposes.
- Other transmission providers have expressed interest in the Project and IPC anticipates that several will invest in the Project. Should any excess capacity exist in the near term, additional regional energy transactions will be accommodated. Both of these activities will increase the value of the Project to IPC customers and the region as they allow IPC to invest only in the capacity that it requires over the long term and charge its customers for the actual capacity used to serve load.
- The Project will provide an increase in transfer capability from east to west, not just west to east. The Project is likely to have a thermal continuous rating of about 3,000 MW for the single-circuit 500-kV line. However, due to reliability standards and the WECC's rating process, the initial implementation of the Project is likely to result in directional ratings of 1,400 MW east to west and 1,300 MW west to east. These ratings will result in an increase of the Idaho to Northwest (the Idaho to Northwest rated path and the Project line) transfer capability of 250 MW from east to west (exports into the Pacific Northwest) and 850 MW from west to east (imports into IPC's balancing authority area). When combined with other proposed projects under development to the east, the east to west transfer capability of the Idaho to Northwest increases by 1,400 MW. The ratings are subject to technical peer review and will be revisited as other regional projects continue to develop.

3.0 PROPOSED FACILITIES

As proposed by IPC, a single 299.6-mile 500-kV high-voltage alternating current (AC) transmission line will run between the Grassland and Hemingway substations. The transmission line will begin at the Grassland Substation and cross five counties in Oregon and one county in Idaho. In addition approximately 5.0 miles of existing single circuit 138-kV and 69-kV transmission lines in Baker County will be rebuilt onto double-circuit structures and 0.3 mile of 138-kV line will be relocated. The 138-kV and 69-kV lines occupy two separate ROW; they will be combined into one ROW and the other ROW will be used for the proposed 500-kV line. IPC has identified two alternative substations locations for the northern terminus of the Project near Boardman, Oregon (see Section 4.3.3). An overview map of the entire Project is provided in Figure 3-1 and maps of the proposed facilities in each county are shown in Figure 3-2 through Figure 3-7. Layouts of the planned and existing substations showing how the Project will connect to the existing transmission grid are discussed in Section 3.2. The proposed Project route across federal lands is described by Township/Range/Section/Aliquot location in Appendix C.

This section of the POD has four main sub-sections. Section 3.1 describes the geographic location of the November 2011 Proposed Route by segment and county. Section 3.2 describes the existing and proposed substations that will connect each end of the Project to the existing distribution grid. Section 3.3 describes the physical components of a single-circuit 500-kV transmission line. Section 3.4 provides an overview of the required components of the entire Project, Project construction, Project operations and maintenance, and Project decommissioning. Section 3.5 describes five route segments and two substations that IPC has identified as alternatives to its proposed route. Appendix D lists the location of the changes by milepost of the November 2011 Proposed Route included in the June 2010 POD, February 2011 POD, and in this POD and explains the reason for the change. Detailed route maps are included in Appendix O.

3.1 Transmission Line Descriptions by County

3.1.1 Segment 1 – Morrow County

Segment 1 crosses Morrow County for approximately 45.8 miles, beginning at the proposed Grassland Substation, which is the northern terminus of the B2H Project (see Appendix O, Maps 1 to 9). The proposed substation site is located west of the Boardman Generating Plant and south of the city of Boardman in northern Morrow County.

The proposed route exits the Grassland Substation to the west generally paralleling the south side of the existing Boardman to Slatt 500-kV line for about 6.5 miles. About 250 feet west from the new substation the proposed route crosses an unnamed road and then angles southwest at MP 0.4. At about MP 1.0 the route angles west and continues for about 5.5 miles parallel and offset to the south of the Boardman to Slatt 500-kV line crossing several unnamed roads. The route then angles south at about MP 6.5 and crosses an unnamed road at MP 7.0. The route continues south for 1.9 miles where it crosses State Highway 74 at MP 8.4 before angling southwest to cross Ewing Road at about MP 8.9. It continues along the western edge of the Willow Creek valley, following the now abandoned Union Pacific Railroad (about MP 8.9-MP 10.5). Approximately 1.0 mile north of Cecil, the route angles southeast, crossing State Highway 74 at MP 10.8 and then heading east, south of the Boardman Conservation Area.

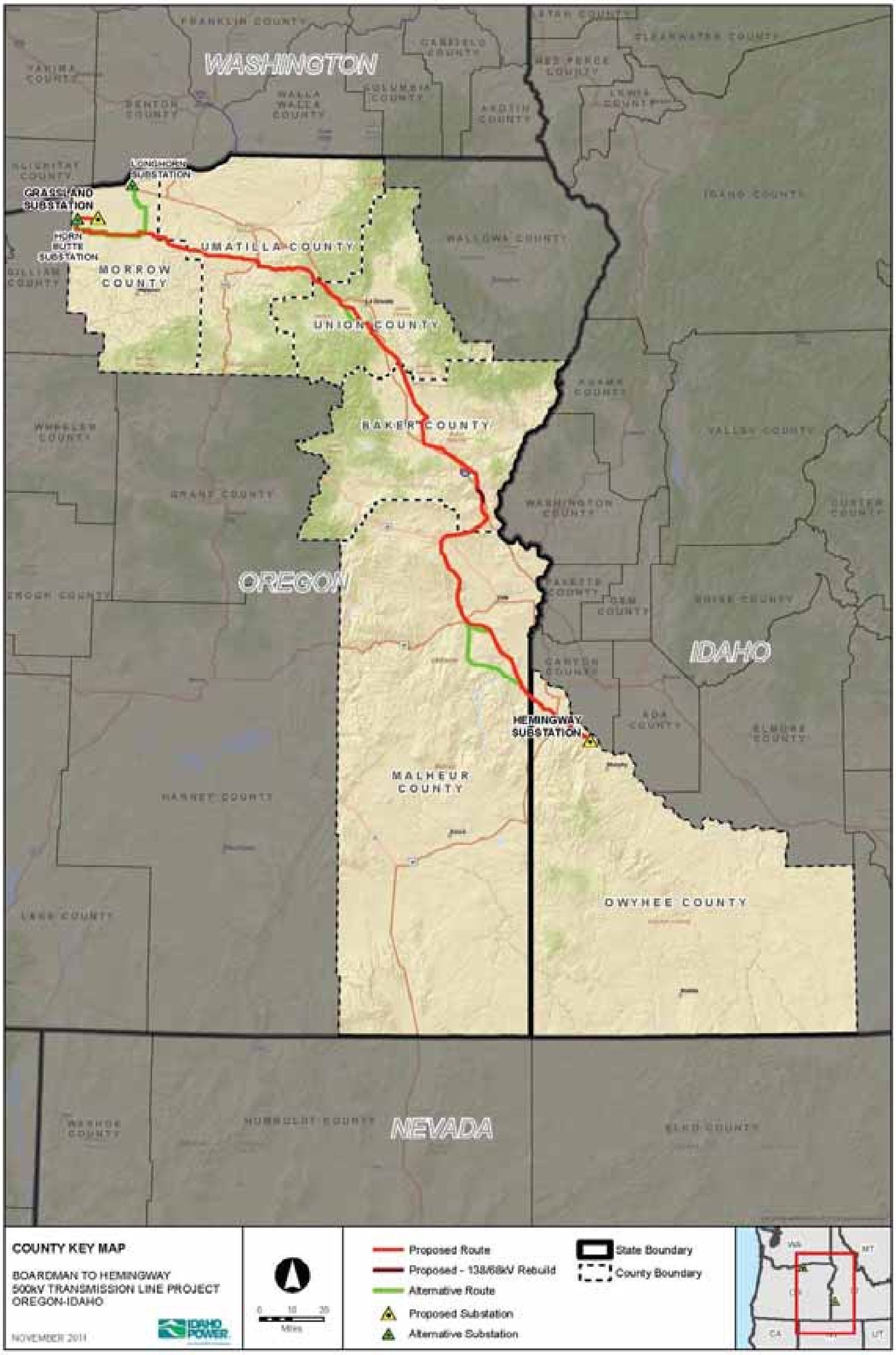

Figure 3-1. Boardman to Hemingway County Key Map

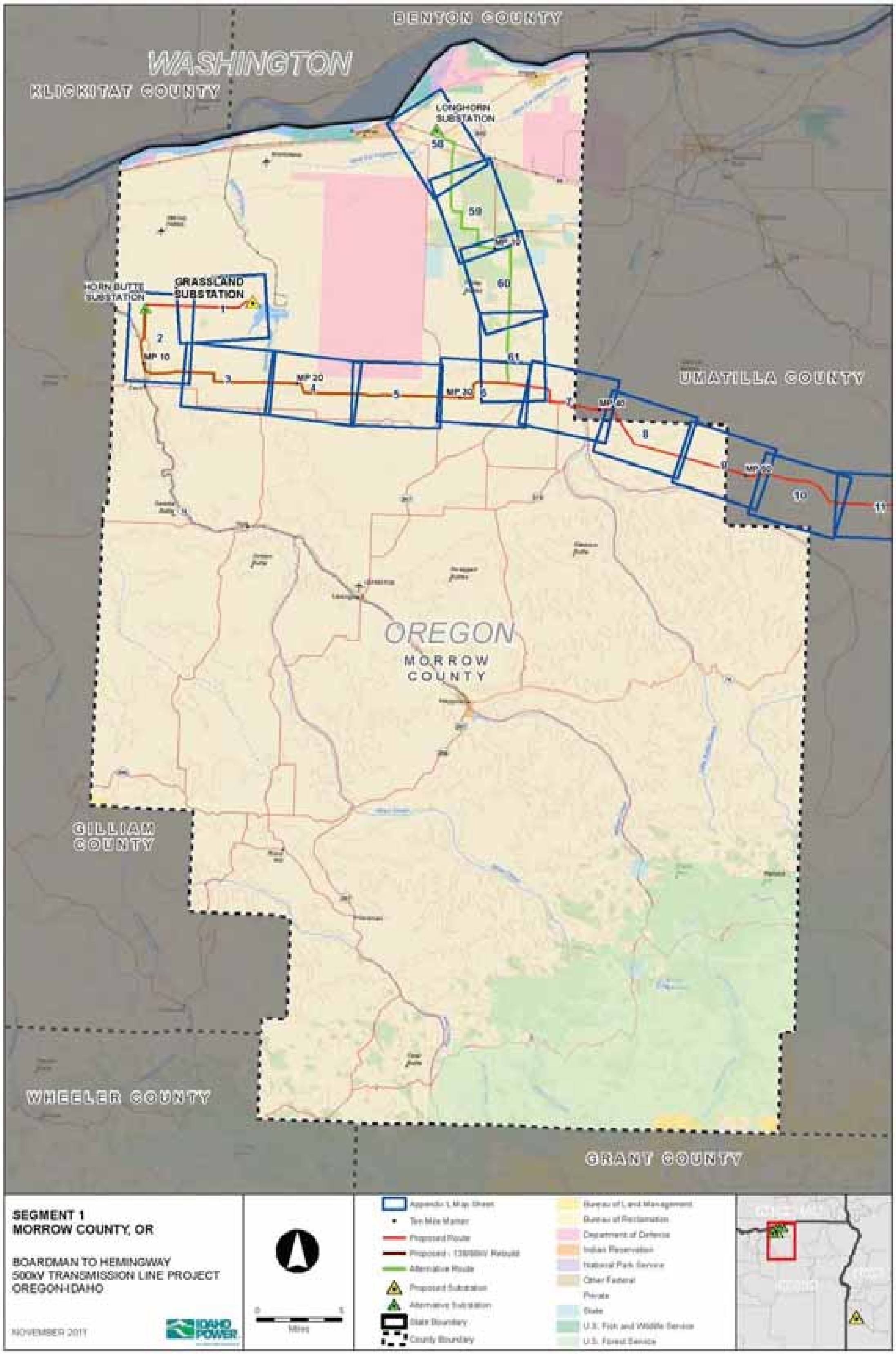

Figure 3-2. Segment 1 Morrow County, OR

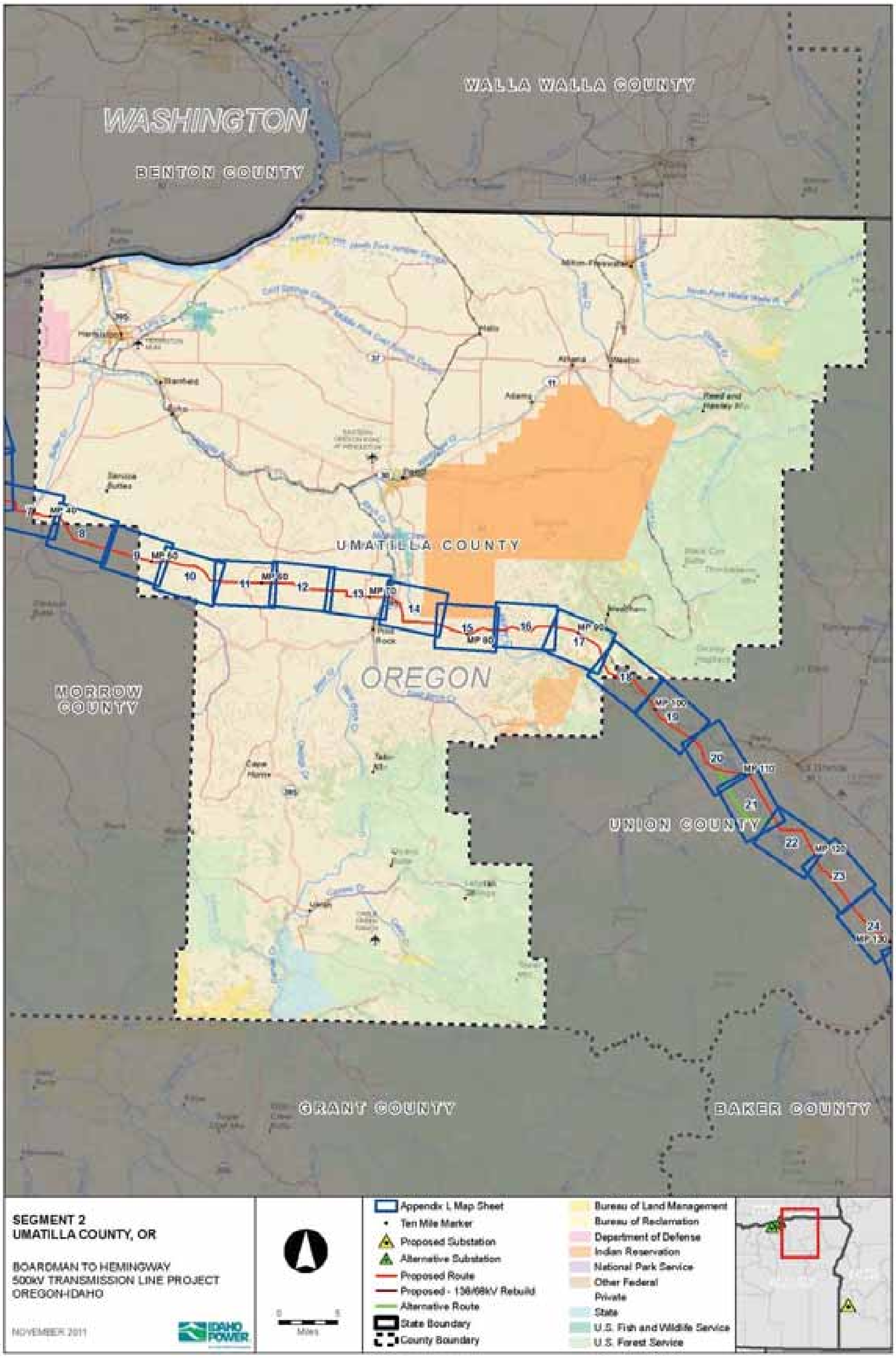

Figure 3-3. Segment 2 Umatilla County, OR

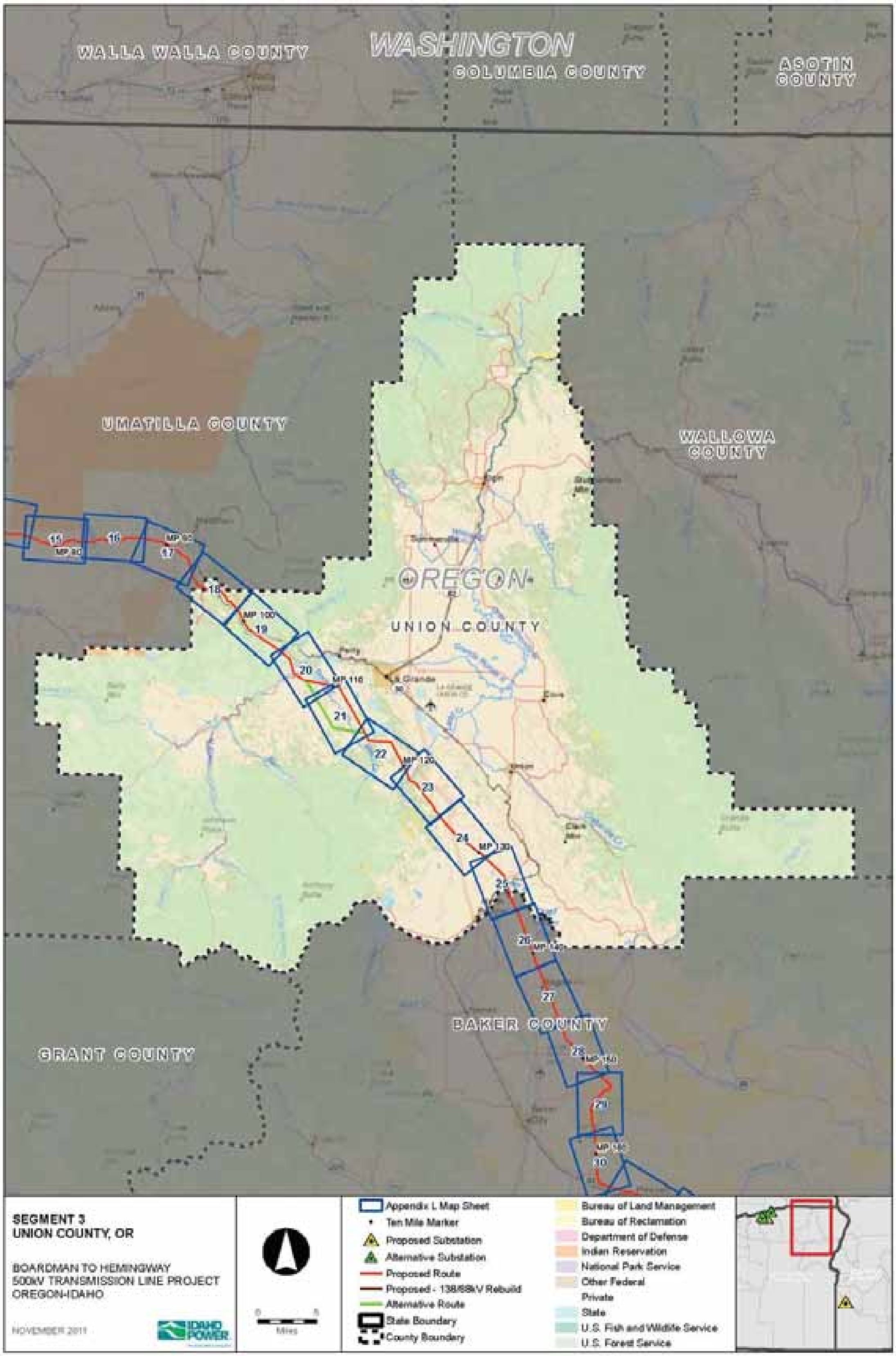

Figure 3-4. Segment 3 Union County, OR

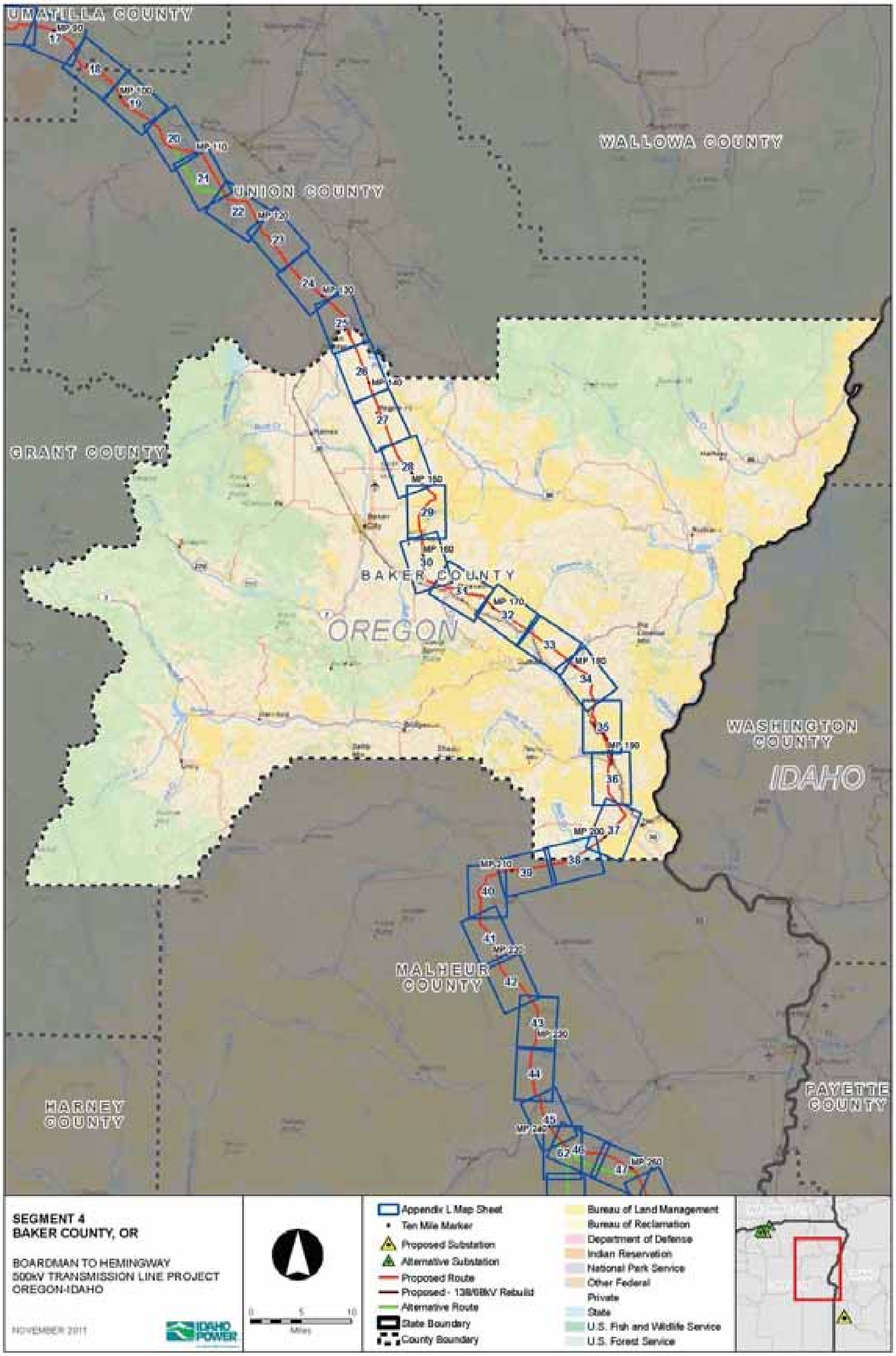

Figure 3-5. Segment 4 Baker County, OR

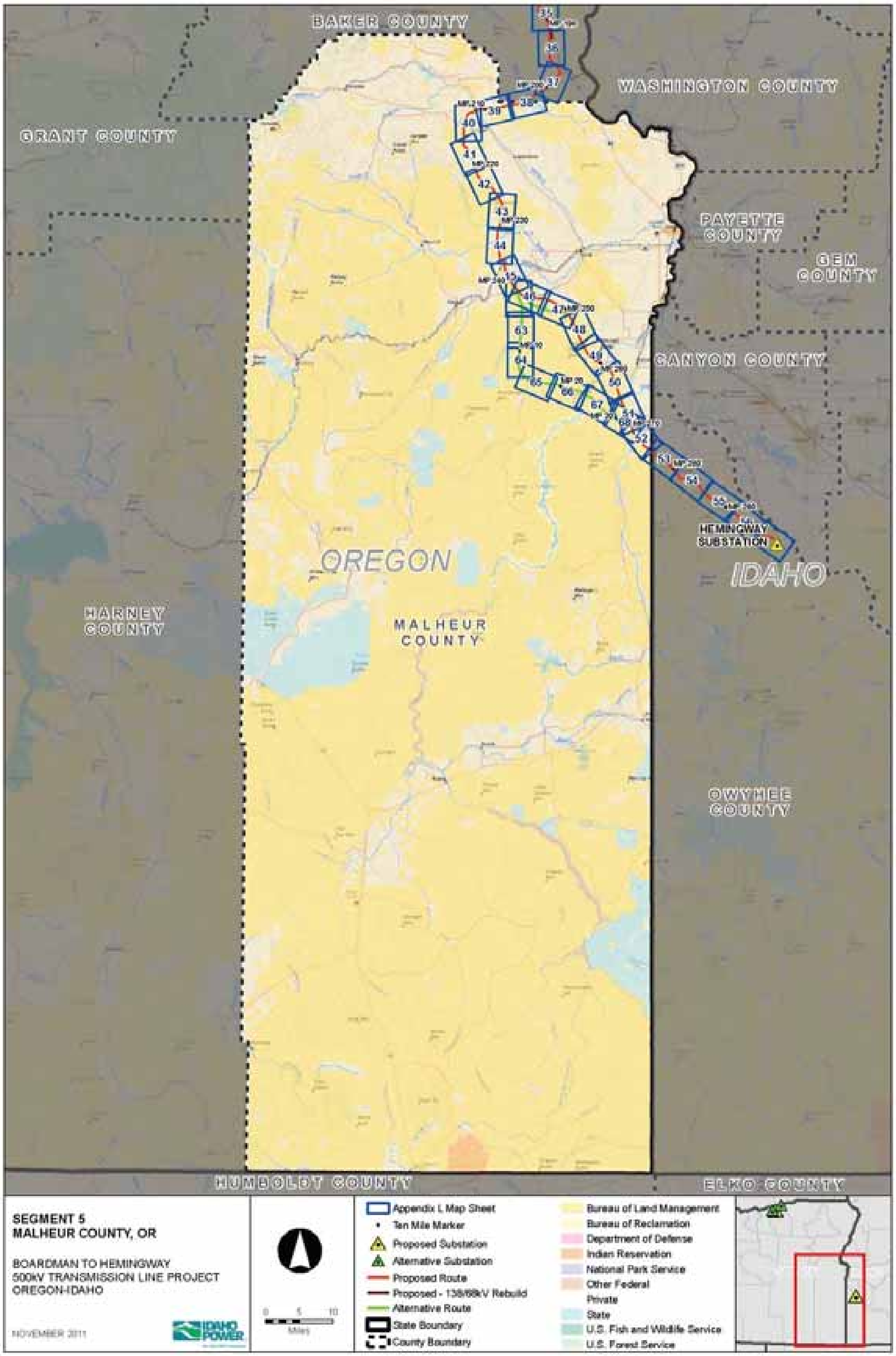

Figure 3-6. Segment 5 Malheur County, OR

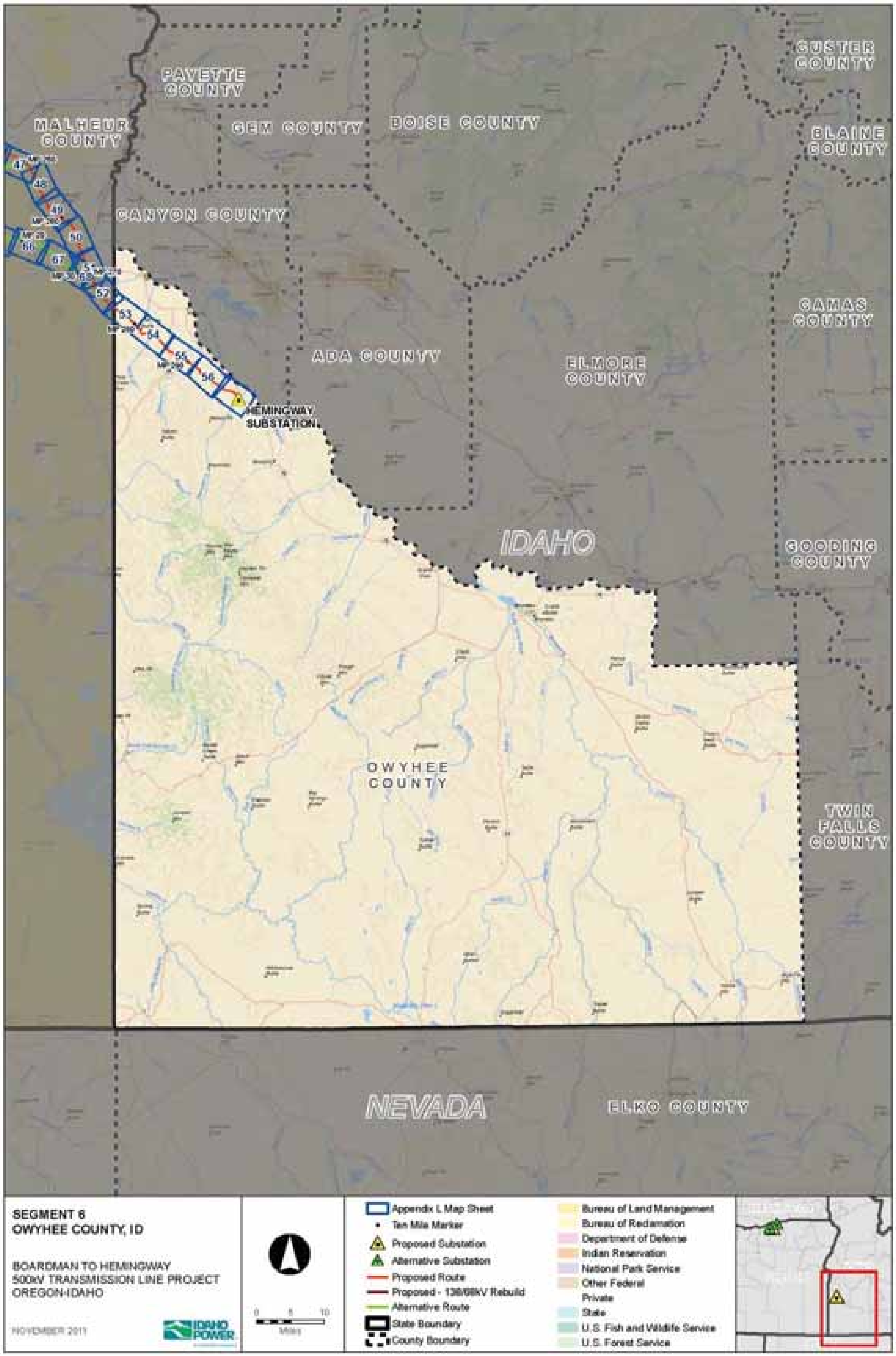

Figure 3-7. Segment 6 Owyhee County, ID

The proposed route proceeds east across Schoolhouse Canyon at about MP 11.6 and Immigrant Road at about MP 13.6 before angling due south at approximately MP 14.6. At about MP 15.1, the route again angles and proceeds east, south of Squaw Butte, crossing the Oregon National Historic Trail (NHT) at MP 15.4 and Fourmile Canyon at about MP 15.9. At MP 20.2 the proposed route angles southeast for 0.6 mile before turning due east again. The route continues east for approximately 10.0 miles from MP 20.8, parallel and offset approximately 1.0 miles from the southern boundary of the Boardman Conservation Area, the Boardman Bombing Range, and Immigrant Road. After crossing the Ione-Boardman Road at MP 21.7, the proposed route crosses Wells Spring Road at approximately MP 24.2 followed by Juniper Canyon and Juniper Canyon Road at about MP 25.5, an existing BPA 115-kV transmission line at approximately MP 25.7, and an unnamed road at MP 26.2.

The proposed route continues due east and crosses Grieb-Wood Road twice at about MP 26.9 and 27.1, before crossing an existing TransCanada gas pipeline and Bombing Range Road at MP 28.7. At MP 30.8, the route turns due north for about 0.8 mile before angling northeast to parallel the south side of Alpine Lane from about MP 31.8 to MP 33.0. The proposed route then crosses Alpine Lane and Sand Hollow and angles southeast at MP 33.7 to MP 36.2. At MP 36.2 the route turns due south, crossing to the south side of State Highway 207 at approximately MP 36.8 before turning due east.

The route then parallels the south side of State Highway 207 for approximately 1.0 mile to MP 38.0. At this point the route angles southeast for 0.3 miles, passing south of Butter Creek Junction and angling northeast at MP 38.3 across Butter Creek, the Morrow/Umatilla County line and Butter Creek Road (CO 1400 Rd) (MP 38.3 -38.7). At MP 40.8, approximately 2.5 miles northeast of Pine City, the proposed route turns southeast, leaving Umatilla County (about MP 41.5) and heading back into Morrow County.

At about MP 43.2, the proposed route angles southeasterly, staying to the north of Mule Hollow and crossing National Forest Development Road 827 at approximately MP 45.1. At MP 48.8, the route leaves Morrow County and enters Umatilla County.

3.1.2 Segment 2 – Umatilla County

Segment 2 of the proposed route is approximately 49.5 miles long and crosses all privately owned lands (see Appendix O, Maps 7 to 18). The proposed route initially crosses into Umatilla County from Morrow County at MP 38.5. The route crosses Butter Creek Road at MP 38.7, turns southeast at MP 38.8, angles east at MP 39.6, and angles southeasterly to about MP 40.8. At MP 41.5, the proposed route crosses back into Morrow County for 7.3 miles before again entering Umatilla County at MP 48.8.

After re-entering Umatilla County, the route continues east and then south, following the path of an unnamed road along the northern rim of Slusher Canyon, south of Spikes Gulch (MP 50.2 – MP 55.6). From MP 55.6, it proceeds nearly due east and crosses Alkali Canyon Road at about MP 56.6, County Road 1361 at MP 58.8, Alkali Canyon at MP 60.1, two unnamed roads (MP 60.6 and MP 61.4), and Blanchet Lane at MP 61.9. At about MP 62.7, the proposed route angles southeast and east, crossing Coombs Canyon at about MP 64.1 before paralleling County Road 1382 to MP 65.0 and Winget Road to MP 67.6.

The route angles south for about 0.4 mile and then turns east, crossing Mill Road at MP 69.6 and continues to MP 71.8 where it turns slightly southeast, about 2.5 miles northeast of Pilot Rock. The route proceeds southeast across the Union Pacific Railroad and Birch Creek at MP 71.9, Stewart Creek at 72.0, and U.S. Highway 395 at MP 72.1. The route continues southeast crossing School House Road at MP 72.7 and then angles south to MP 74.3. The proposed route then turns east, crossing Shaw Road and Little McKay Creek at MP 74.9. South of the Umatilla

Indian Reservation, the route proceeds east, angling southeast at MP 77.0 into steep terrain. The route passes south of McDonald Canyon at MP 78.7 and then continues southeast to MP 80.2 where it angles northeast along a ridgeline and across Timene Canyon (MP 81.3).

Passing approximately 1.0 mile south of the community of McKay, the proposed route crosses McKay Creek and McKay Creek Road at about MP 83.0 before following the ridgeline along the north side of Lawler Canyon easterly up to the mountain summit at MP 84.9. The route continues east, descending the mountain and crossing Little Rail Creek at MP 85.3 before it angles northeast at about MP 85.7, north of Green Spring Draw. At about MP 86.4, the route turns due east, parallel and offset to the south of Ross Road for the next 0.3 miles, before crossing Rail Creek and an unnamed road at approximately MP 87.3. The route angles to the southeast at MP 88.0, passing to the north of Red Spring Canyon before angling farther southeast at MP 89.8.

Approximately 2.5 miles southwest of the community of Meacham, the route passes between scattered parcels of land owned by the Umatilla Indian Reservation, angling across Little Beaver Creek at MP 90.4 and Beaver Creek at MP 91.7. At MP 92.2 the route turns south, crossing an unnamed road at MP 93.5 and National Forest Road 382 at MP 94.4 before proceeding southeast across two unnamed roads to MP 95.3 where the route crosses into Union County

3.1.3 Segment 3 – Union County

Maps 18 to 25 in Appendix O detail the location of the proposed route in Union County. The route traverses Union County for 39.4 miles, crossing 5.9 miles of the Wallowa-Whitman National Forest, 1.0 miles of Vale District, BLM-managed lands, and 32.6 miles of privately owned lands.

After entering Union County at about MP 95.3, the proposed route continues southeast and east for 1.1 miles, across Railroad Canyon, an existing Union Pacific Railroad line, Old Emigrant Hill Scenic Frontage Road, and Summit Road before passing to the north of the Blue Mountain Forest State Scenic Corridor and turning southeast at MP 96.4. At this location the proposed route proceeds southwest of an existing BPA 230-kV transmission line. Approximately 1.7 miles farther, the proposed route diverges from the existing transmission line and continues southeast along the east side of Railroad Canyon. Between MP 101.5 and 101.8, the proposed route traverses Railroad Canyon, which is also designated as a Blue Mountain Forest State Scenic Corridor parcel. Proceeding southeast, the route crosses an unnamed road at MP 101.9 and National Forest Road 21 (MP 102.6) and the existing BPA 230-kV transmission line (MP 102.9) mentioned earlier. At MP 105.2 the proposed route angles to the southeast crossing the existing BPA 230-kV transmission line a second time at MP 105.8. Between MP 96.4 and MP 106.4, the proposed route is approximately 0.25 miles to 1.1 miles southwest of I-84 with a 5.5 mile stretch located within the designated utility corridor of the Wallowa-Whitman National Forest.

At MP 106.4, approximately 0.6 mile southwest of Hilgard Junction State Park, the route proceeds southeast for approximately 4.1 miles, parallel to the south side and offset 2,000 to 2,700 feet from the existing BPA 230-kV transmission line. While generally parallel to the existing 230-kV line, the proposed route crosses the Grande Ronde River and State Highway 244 at about MP 106.7, approximately 1.2 miles south of this highway's intersection with I-84. The proposed route angles to the east at MP 107.5, crossing Mill Canyon Road at MP 107.9 followed by Glass Hill Road and Rock Creek at about MP 109.0, an existing Northwest Pipeline at MP 109.1, and Sheep Creek at MP 109.8.

At approximately MP 110.6, the route angles to the southeast, paralleling the west side of a ridgeline for the next 5.3 miles and crossing the Northwest Pipeline a second time at MP 111.3. At MP 115.8 the route turns eastward and angles up the western slope of Glass Hill toward the summit (MP 117.1). At MP 117.7, the proposed route begins its southeasterly descent down the eastern slope of Glass Hill, crossing several switchbacks and severe terrain as it angles southeasterly toward Ladd Canyon and I-84. Ladd Canyon Road and Ladd Creek are crossed at approximately MP 121.1. The proposed route continues southeasterly for approximately the next 4.6 miles across the foothills of Baldy Mountain, staying to the west of the existing Idaho Power 230-kV line and crossing Clover Creek at MP 124.8 and 125.5.

Between MP 125.9 and MP 127.4, the proposed route traverses southeasterly across the northern end of the Clover Creek Valley, crossing Clover Creek (MP 126.1 and 126.9), the Northwest pipeline (MP 126.7), Ladd Canyon-North Powder Road (MP 127.0), I-84 (MP 127.1), and Heber Road, which is also the Oregon NHT, at about MP 127.4. The route proceeds southeast along the northeast side of Clover Creek Valley, generally parallel to the existing IPC 230-kV line and offset to the southwest by approximately 1,600 to 3,200 feet. At MP 130.5, the proposed route crosses Jimmy Creek Road and at approximately MP 131.8 it crosses Jimmy Creek Reservoir.

The route continues southeast, maintaining an offset of at least 1,500 feet to the west of the existing IPC 230-kV line, crossing State Route 237 at about MP 133.3. Approximately 1.3 miles farther southeast it crosses the Union Pacific Railroad, the Powder River, and the Union County/Baker County line into Baker County at MP 134.6.

3.1.4 Segment 4 – Baker County

The proposed route crosses Baker County for 69.1 miles. Approximately 17.7 miles of Segment 4 cross BLM-managed lands in the Vale District, and about 2.9 miles cross state and local government property (see Appendix O, Maps 25 to 38).

Once across the Powder River, the proposed route continues southeast and generally offset about 1,500 feet west of the existing IPC 230-kV line for about 13.1 miles to MP 147.8. In this segment the terrain is hilly and the proposed route passes along the west side of Riverdale Hill, across Thief Valley Lane (MP 137.8), Gentry Creek (MP 139.7), and over Bidwell Road (MP 142.0) before passing across the east side of Magpie Peak. At MP 146.7, the route crosses Bidwell Road and continues southeast for the next 1.1 miles along the east side of Schetky Road.

From MP 147.8 the proposed route angles to the southeast, crossing the existing IPC 230-kV line at MP 148.6, State Route 203 at about MP 149.3, and another existing IPC 230-kV transmission line at MP 149.9. At about MP 153.3 the proposed 500-kV line turns south and passes between mountain peaks. The route then angles southwest at MP 153.6, crossing State Highway 86 (MP 154.8), Ruckles Creek Road (about MP 155.0), and the Oregon NHT (MP 155.4) before angling south at the ridgeline of the Prospects at MP 156.1. At the closest point, the proposed route is about 1.1 miles southeast of the National Historic Oregon Trail Interpretive Center and 0.4 mile from the Flagstaff ACEC boundary that includes the Center. From MP 156.1, the proposed route proceeds directly south for approximately 6.4 miles to MP 162.5 where it crosses an existing 69/138-kV transmission corridor just northeast of I-84 and about 7.5 miles southeast of Baker City.

The proposed route remains in the same general corridor with the existing IPC 138-kV and 69-kV facilities on the northeast side of I-84 for about 2.3 miles. It then crosses the 69-kV line at MP 164.8 and parallels the south side of the 138-kV line for about the next 2.3 miles (MP 165.0 – 167.3), passing to the north and east of Pleasant Valley. The proposed route then crosses the existing 138-kV transmission line at MP 167.4 before proceeding east across the Oregon NHT at MP 168.0. Angling to the southeast at MP 168.5, the proposed route crosses Straw Ranch Creek (MP 169.6) before paralleling the north side of the existing IPC 138-kV line at MP 170.0

for the next 3.6 miles. The proposed route then passes to the north and east of the community of Durkee, crossing the Union Pacific Railroad twice (MP 174.1 and 174.7), Hindman Road (174.7), Lawrence (Pritchard) Creek (MP 174.8), and Iron Mountain Road (176.0) before passing southwest of Iron Mountain. The route continues southeast, across Durkee Creek, Vandecar Road, Manning Creek Road and Manning Creek, before angling across the North Fork Swayze Creek (MP 181.6) to MP 181.7 where the route turns and proceeds south.

The proposed route continues south, crossing the Middle Fork Swayze Creek (MP 182.0), the Oregon NHT at MP 182.4, and Swayze Creek at MP 182.6. Passing east of Gold Hill and angling south across Plano Road and Pearce Gulch, the route turns southwest meeting with an existing IPC 69-kV line and coming within 0.1 mile of the east side of I-84, the Union Pacific Railroad, and the Burnt River. The proposed route turns southeast staying east of I-84, the existing 69-kV line, the Burnt River, and the Union Pacific Railroad and crosses the Oregon NHT a second and third time at MP 186.4 and MP 186.8 while passing east of the community of Weatherby.

From approximately MP 186.6 south to MP 191.1, the proposed 500-kV transmission line will be constructed approximately along the same centerline as the existing IPC 138-kV transmission line. Following the existing path of the 138-kV line, the proposed route will cross I-84, the Burnt River, and the Union Pacific Railroad at approximately MP 187.9, before passing along the east side of Weatherby Mountain, staying west of Caribou Bar, and crossing Dixie Creek and Rye Valley Lane at MP 190.9. Between approximately MP 186.7 and MP 191.5, the existing 138-kV line, along with the existing IPC 69-kV line, will be rebuilt as a double circuit 69/138-kV line within the existing 69-kV ROW. The double-circuit 138/69-kV line rebuild will span approximately 5.0 miles, proceeding south from Weatherby along the eastern side of I-84 until about MP 4.4 where it will cross I-84, the Burnt River and the Union Pacific Railroad. The rebuild will continue south, across Rye Valley Lane, until MP 5.0, where the double-circuit section will end. At the southern end of the rebuild there will be a 0.3-mile segment of new 138-kV line built to tie the 138-kV part of the double-circuit line back into the existing 138-kV line. See Appendix O, Maps 35 and 36.

At the southern end of the Weatherby Mountains, the proposed route continues south, passing east of Table Rock and staying west of the existing 138-kV line. At MP 193.9, the proposed route crosses Goodman Creek and at MP 194.2 angles southeast, offset approximately 400 feet to the west of the existing 138-kV line. The proposed route crosses Cavanaugh Creek at MP 196.3 and proceeds southeast to MP 197, approximately 1.7 miles northwest of Huntington. At this point the proposed route leaves the 138-kV corridor and proceeds southwest, passing northwest of Lost Tom Mountain and crossing Malheur Line Lane and Durbin Creek at about MP 199.0. The route passes southeast of Limestone Butte, northwest of Little Valley, and continues southwest across Birch Creek (MP 202.9) before entering Malheur County at about MP 203.9.

3.1.5 Segment 5 – Malheur County

The proposed route traverses 72.1 miles across northeast Malheur County as shown on Maps 38 to 52 in Appendix O In addition to 20.6 miles across privately owned lands, 50.4 miles of Segment 5 crosses BLM-managed lands, and 1.1 miles of the route crosses Bureau of Reclamation–managed lands.

Entering Malheur County at MP 203.9, the route crosses to the north of Matthew Gulch. Continuing southwest, the route crosses Phipps Creek at MP 205.4, an unnamed road at MP 205.6, followed by the West Fork Phipps Creek at about MP 206.4, before proceeding across Becker Creek at about MP 210.4. Approximately 2.7 miles north of the community of Brogan, between MP 210.8 and 211.4, the proposed route traverses a steep canyon, crossing Willow Creek Road and Willow Creek before angling across two unnamed roads (MPs 212.3 and 212.8). Heading south, the route crosses an existing IPC 69-kV transmission line at MP 214.0 and then angles across U.S. Highway 26 and Canyon Creek at about MP 214.3. At MP 214.6 the route turns southeast before turning due south at MP 215.0, approximately 3.6 miles west of Brogan. Proceeding south to MP 217.7, the proposed route crosses Pole Creek at MP 215.8, Black Creek at MP 216.2, and South Fork Black Creek at MP 217.0.

At MP 217.7, the proposed route angles southeast across Snake Creek (MP 218.3), Gum Creek Road (MP 218.4), and Gum Creek (218.6) to MP 218.8 where it turns and heads south. Passing east of the Cottonwood Mountains, the route traverses several creeks before angling southeast at MP 222.7 and crosses Turner Creek Road and Turner Creek at MP 224.0. At MP 224.5, the proposed route crosses North Fork Little Willow Creek and then South Fork Little Willow Creek before passing to the southwest of Morrison Reservoir and across Mud Creek at MP 226.4 and Bully Creek Road at MP 226.7. The proposed route then crosses Kern Creek at MP 227.5 and proceeds due south at MP 228.2, passing between Sugarloaf Butte and Hope Butte.

Passing west of the Bully Creek Reservoir, the route crosses Bully Creek Road at MP 232.2 and Cottonwood Creek at MP 232.3, approximately 1.2 miles northwest of its confluence with Bully Creek. At MP 233.8 the proposed route turns southeast across Bully Creek and proceeds south to MP 236.8, where it angles easterly across the Vale Oregon Canal. At about MP 237.1 the proposed route angles to the southeast, crossing the Union Pacific Railroad at MP 237.4 and the Malheur River and Malheur Canyon at about MP 237.5. Approximately 4.3 miles farther south at MP 241.8, the proposed route crosses U.S. Highway 20 near Vines Hill before angling east at MP 243.5.

For the next 3.2 miles the route continues easterly across Malheur County, crossing Sand Hollow, Rock Creek Road, and Rock Canyon (MP 245.7). At MP 246.7 the route turns southeast crossing several unnamed roads and across Cow Hollow and Twin Spring Road at about MP 250.7. Passing west of Lealy Reservoir and east of Chalk Reservoir, the route crosses Chalk Butte (Shell Rock) Road several times until its final crossing of this road at MP 254.7. At about MP 256.9, the proposed route crosses Mitchell Butte Road and Rock Spring Canyon and proceeds south to MP 257.7 where the route then angles southeasterly around the north end of Deer Butte. The proposed route crosses the North Canal at approximately MP 259.8 before turning south at MP 260.2 and crossing Owyhee Lake Road at MP 260.3 followed by the Owyhee River at MP 260.4.

At MP 260.5, the route turns southeast and proceeds across Kingman Aqueduct and an unnamed road before turning south at MP 262.1. At MP 262.7 the route crosses an existing 69-kV transmission line and an unnamed road before passing east of Four Points Reservoir and over Snively Gulch Road (MP 263.0). Proceeding southeast, the route passes east of Blackjack Butte, across Owyhee Tunnel Road (MP 266.0), over Alkali Creek (MP 266.9), Coyote Gulch Siphon (MP 268.8), North Alkali Creek (MP 270.1), and Succor Creek Road (270.4). At MP 270.8 the proposed route angles south, crossing the existing Summer Lake to Midpoint 500-kV transmission line at MP 271.4 before turning southeast at MP 271.6. The proposed route crosses Succor Creek (MP 272.3), several unnamed roads, and the South Canal several times before proceeding to the Oregon/Idaho state line at about MP 276.0.

3.1.6 Segment 6 – Owyhee County

Segment 6 of the proposed route spans approximately 23.8 miles across Owyhee County, Idaho, as shown on Maps 53 to 57 in Appendix O. The route crosses 19.2 miles of BLM-managed lands, 2.8 miles of state and municipal lands, and 1.7 miles of privately owned lands.

The proposed route enters Owyhee County approximately 1.5 miles south of Graveyard Point and 1.8 miles southwest of Rattlesnake Butte and continues southeast for 5.9 miles to MP 281.8. In this segment the route passes along the northeast side of the Owyhee Mountains and crosses Sage Creek (MP 277.4) and Sands Basin Road (MP 279.3 and MP 280.7), before passing southwest of Flat Top Butte and across Poison Creek Grade Road (MP 281.4) and Poison Creek (MP 281.6). At MP 281.8 the proposed route turns and proceeds east, passing south of the South Canal at MP 283.0.

At MP 283.2 the route angles southeast generally parallel and offset to the southwest of the Summer Lake to Midpoint 500-kV line. It then crosses Jump Creek Road (MP 283.3), Jump Creek (MP 283.4), and South Jump Creek Road at about MP 283.6. The proposed route crosses U.S. Highway 95 at MP 287.0, passes south of Elephant Butte, over Sommer Camp Road at MP 288.0, and across Squaw Creek at MP 288.8. At MP 291.1, the route crosses Coyote Grade Road, angles across the north end of Rats Nest Gulch and Opalene Gulch, and crosses Hardtrigger Creek at MP 294.7.

At MP 297.0, the route angles east crossing the existing Summer Lake to Midpoint 500-kV line at MP 297.6 before turning southeast at about MP 298.7. The route then crosses Wilson Creek Road at MP 299.1, Reynolds Creek at MP 299.4, turns southwest, and enters the Hemingway Substation from the north at approximately MP 299.7.

3.2 Substation Descriptions

In order for the Project to connect to the existing distribution grid, both ends of the line must terminate at a substation, where the 500-kV line must be “stepped down” to a lower voltage for distribution. The November 2011 Proposed Route will terminate at PGE’s proposed substation near Boardman, Oregon, currently known as the Grassland Substation. IPC has also identified two alternative termination locations in the Boardman area: (1) the BPA’s proposed Longhorn Substation to the east of Boardman, Oregon; and (2) the Horn Butte Substation located approximately 6 miles west of the proposed Grassland Substation. These alternative substation locations are described in Section 4.3 of this POD. The southeastern end of the line will terminate at IPC’s existing Hemingway Substation, discussed below.

3.2.1 Grassland Substation

PGE has proposed development of a new transmission substation in Morrow County on property adjacent to PGE’s Boardman Coal Plant. For PGE, development of the Grassland Substation will serve a number of purposes. First, PGE has proposed a “highly efficient and environmentally responsible natural gas combined-cycle power plant” known as the Carty Generating Station adjacent to the Grassland Substation location (PGE 2009: 195-196). Second, the Grassland Substation will also serve as the eastern terminus for PGE’s proposed Cascade Crossing Transmission Project, a 200-mile 500-kV transmission line that will connect PGE’s Boardman and Coyote Springs plants to the southern portion of PGE’s service territory near Salem, Oregon. When PGE builds the Grassland Substation, they will include a spare, unequipped bay for future connection of another line such as the Project transmission line.

The Grassland Substation as proposed by PGE will achieve several goals outside of connecting to the Project, as described above and summarized below in Table 3-1. However, if PGE’s proposed Carty Generating Station and Cascade Crossing Transmission Project do not proceed as planned, IPC will build the Grassland Substation and connect into the Boardman to Slatt 500-kV line as part of the Project. For this reason, IPC has included construction of the Grassland Substation as part of the Project in this POD.

Table 3-1. Substations to be Connected by the Project

Substation	Description	Purpose
Grassland	Planned to connect to the existing Boardman – Slatt, and Bethel (part of the Cascade Crossing Transmission Project) 500-kV transmission lines along with interconnections for the existing Boardman and proposed Carty generating plants. If the Cascade Crossing Project is constructed first, then the Project can be terminated within the fenced area provided by the Cascade Crossing Project. If the Project is constructed first, then the same site area would be developed but equipped to support only the Project.	Provide IPC an interconnection to the Boardman end of the existing Boardman – Slatt 500-kV transmission line. This interconnection provides access to the BPA transmission system and the Mid-Columbia resource market.
Hemingway	An existing substation with connections to the Midpoint, Summer Lake, and proposed Project 500-kV transmission lines, with transformation to 230-kV and 230-kV interconnection to the IPC load in the Treasure Valley. This substation is also planned to accommodate the Gateway West and Captain Jack projects, and additional Treasure Valley area transmission. Modifications required to accommodate the Project transmission line bay can be accomplished within existing fenced area.	The substation will serve two purposes: 1) a western Idaho transmission hub with connections to Midpoint, Summer Lake, and the proposed Captain Jack transmission lines along with the Gateway West project lines; and 2) a facility to serve the Treasure Valley load. The substation will be the southwestern 500-kV to 230-kV transformation point in the Treasure Valley 500-kV loop, as defined in the Treasure Valley Electrical Plan (IPC 2006). The Hemingway Substation is the eastern terminus of the Project because it is the major load point for the generation resources brought in from the Pacific Northwest.

Assuming the Grassland Substation is not built by PGE before the Project, the following describes the construction necessary to support the Project. The proposed substation will be located on private lands west of the Boardman Generating Plant. The full yard as would be built by PGE will be developed but with only three fully equipped bays, one of which will be constructed to electrically terminate the Project and connect it into the Boardman to Slatt line. Other terminations at the substation will be constructed later by PGE including one from the Coyote Springs Substation, one from the Boardman Generating Plant, one from the Carty Generating Plant, and the two Cascade Crossing circuits from the Slatt Substation.

A substation “bay” is the physical portion of a substation within the substation fenced area where the high-voltage circuit breakers and associated steel transmission line termination equipment (e.g., structures, high-voltage switches, bus supports, and controls) are installed that are needed to specifically support the termination of the line in the station. The 500-kV transmission line termination structures are approximately 125 to 135 feet tall. A control house will be constructed to accommodate the necessary system communications and control equipment. The specific types of communication and control equipment will be determined during final design. A new all-weather access road will be used to reach the site and the site will be supplied by distribution power brought in from the nearby existing system. Both the access road and electric distribution line will be approximately 4,000 feet in length. Fiber optic signal regeneration equipment will be installed. At full build out, the substation fenced area will be about 22 acres. If constructed for the Project only, the same physical area will be developed for the station pad, but only the equipment required for the Project will be installed. The proposed substation will be located in Morrow County, Oregon, Township 3N, Range 24E, Section 34. Figure 3-8 shows the Grassland Substation footprint area for the operational fence line.

3.2.2 Hemingway Substation

The existing Hemingway Substation is located approximately 30 miles southwest of Boise, Idaho, just off of Highway 78 near Wilson Creek Cemetery. Currently, the Hemingway Substation serves as a hub for IPC's Treasure Valley load. The Hemingway Substation has been designed to accommodate the Project, as well as the PacifiCorp/IPC Gateway West transmission project, the proposed PacifiCorp Hemingway-Captain Jack transmission project, and other additional Treasure Valley area transmission projects. The Project bay will contain high-voltage circuit breakers and switches, bus supports, and control equipment similar to that described for the Grassland Substation. The substation is located in Owyhee County, Idaho, Township 1S, Range R3W, Section 3 (Figure 3-9).

3.3 Project Facilities

The transmission, substation, and associated facilities proposed for the Project are listed in Table 3-2. The transmission line and substation design information presented herein and in subsequent sections is preliminary. The exact quantity, distance between, and placement of the structures will depend on the final detailed design of the transmission line, which is influenced by the terrain, land use, and economics.

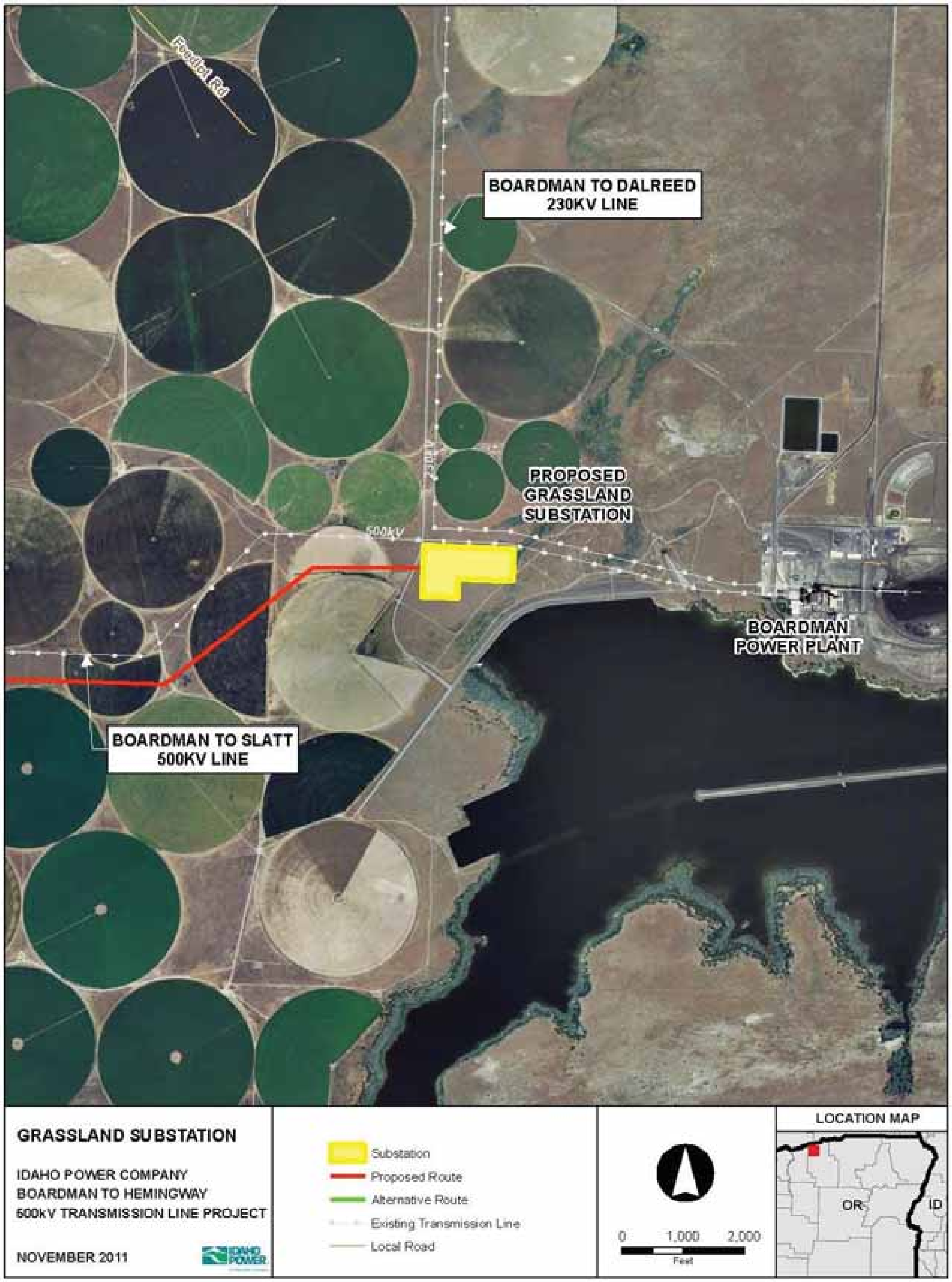

Figure 3-8. Grassland Substation

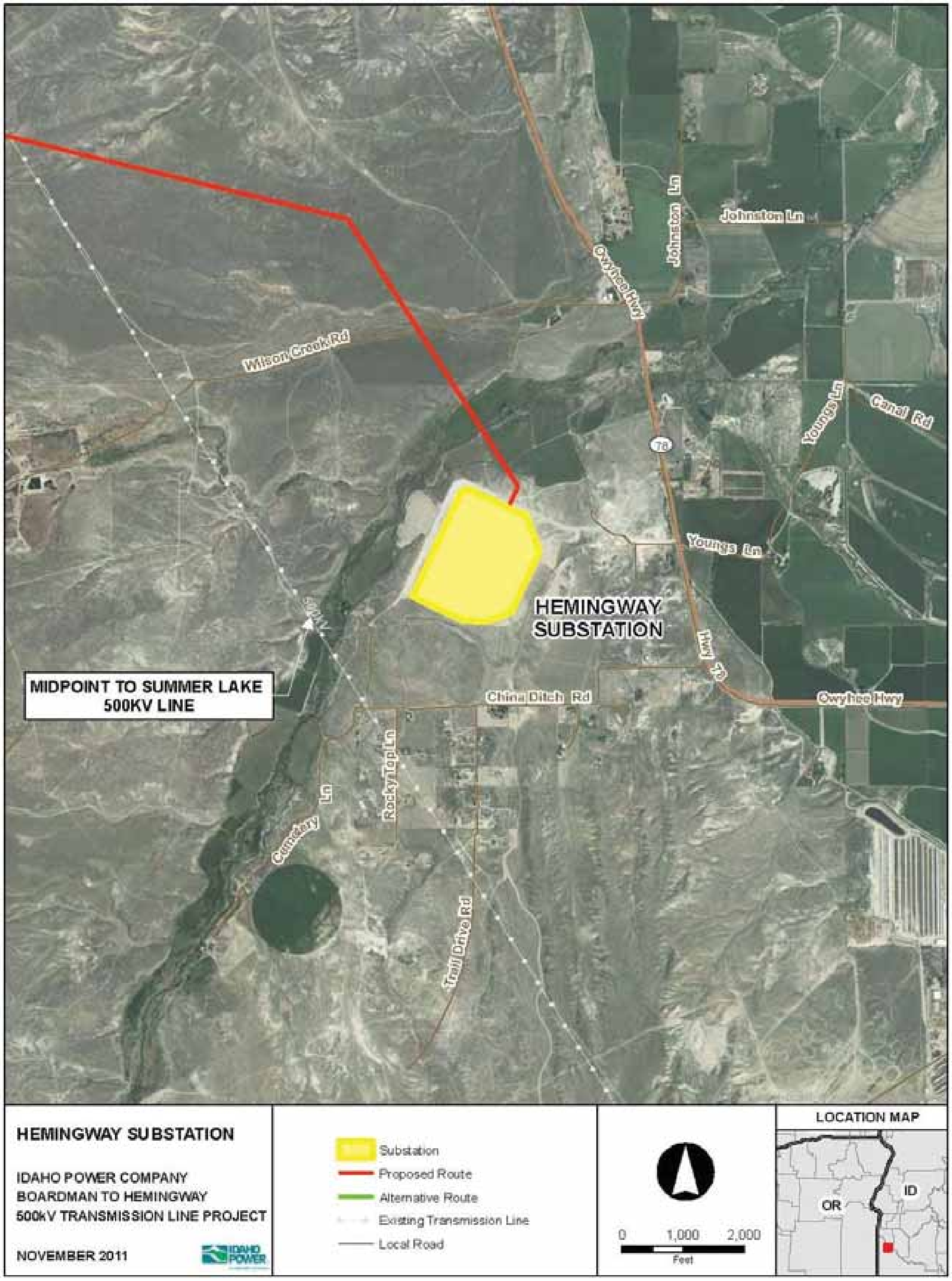

Figure 3-9. Hemingway Substation

Table 3-2. Summary of Project Facilities

Project Facility	Description
Grassland Substation	• Construction of a new substation. • Developed acreage: the fenced area will be approximately 22 acres (will be significantly reduced if only the Project is built – see Section 1). • New all-weather access road. • Distribution supply power from nearby source. • 500-kV circuit breakers and related switching equipment. • Bus and support structures. • 500-kV line termination structures approx. 135 feet in height. • Control, protection, and communications equipment added inside the planned control building. • 500-kV series capacitor bank. • 500-kV shunt reactor bank.
Single Circuit 500-kV Transmission Line  	• Three-phase 500-kV construction for all tower designs, conductor spacing, and clearances. • Conductors: Triple-bundled 1272 KCM 45/7 aluminum conductor steel reinforced (ACSR) "Bittern", with three subconductors per phase. Non-specular finish. • Estimated subconductor diameter: 1.345 inches. • Bundle spacing: Subconductor bundle has a spacing of 25 inches between horizontal subconductors and 18 inches of diagonal spacing between the top two subconductors and the lower subconductor. • Two Shield Wires: o One optical ground wire (OPGW) containing 48 fibers and having an approximate diameter of 0.646 inch. o One overhead ground wire (OHGW) made of extra high strength (EHS) steel and having an approximate diameter of 0.5 inch. • Minimum design ground clearance: 37 feet. • Minimum design ground clearance over agricultural areas: 40 feet. • Proposed structure types: Self-supported steel lattice towers having a dulled galvanized steel finish and self-supported tubular steel h-frame structures having a weathering steel (Cor-ten) finish. • Number of poles per H-frame: Tangent and small angle H-frame structures will require two poles per structure. Medium and large angle structures as well as deadends will require three poles per structure. • Structure heights: Single-circuit lattice tower varies between 110 and 195 feet and tubular steel h-frame varies between 100 and 165 feet. • Approximate distance between structures: 1,200 to 1,300 feet (average) • ROW width for single-circuit: 250 feet. • Approximate number of structures: 1,300. • Line length: 299.6 miles. • The final quantity, heights, span lengths, and clearances provided by the structures will depend on the final detailed design of the transmission line.

Table 3-2. Summary of Project Facilities (continued)

Project Facility	Description
Double Circuit 138/69-kV Transmission Line with 12.5-kV Underbuild Distribution 	• Double-circuit 138/69-kV transmission construction with 12.5-kV underbuild distribution. • Conductors: 397 KCM 26/7 ACSR “Ibis” (138-kV, one conductor per phase), 4/0 6/1 ACSR “Penguin” (69-kV, one conductor per phase), No. 4 Copper (12.5-kV Distribution, one conductor per phase plus neutral). • Conductor Spacing: typical vertical spacing of 8 feet between shield wire and uppermost 69- and 138-kV phase wires, 6 feet vertical spacing between phase wires, minimum of 12’ between lowermost 138and 69-kV phase wires and distribution cross arm. Customized spacing may be required on some structures to address span or terrain limitations. • Shield Wire: one OHGW consisting of EHS steel and having an approximate diameter of 0.375 inch. • Minimum design ground clearance: 22.0 feet (to distribution wires) • Structure types: Self-supported tubular steel poles having a weathering steel (Cor-ten) steel finish. • Structure heights: Variable between 55 and 100 feet. • Approximate distance between structures: 350 feet (average) • ROW width for double-circuit: 100 feet. • Approximate number of structures: 85. • Line length: Approximately 5.3 miles including 0.3 mile of single-circuit 138-kV line relocation. Due to the short 0.3 mile distance of the 138-kV relocation no further information is provided on this structure. • The final quantity, heights, span lengths, and clearances provided by the structures will depend on the final detailed design of the transmission line.
Hemingway Substation	• Install equipment in an existing spare bay of the existing substation for termination of the Project transmission line. • All construction will be inside the existing fence line. • Access roads will be in-place and not impacted by this Project. • 500-kV circuit breakers and related switching equipment. • Bus and support structures. • 500-kV line termination structures approx. 135 feet in height. • Control, protection, and communications equipment added to the existing control building. • 500-kV shunt reactors • 500-kV series capacitor

Table 3-2. Summary of Project Facilities (continued)

Project Facility	Description
Communications and Control Facilities – Fiber Optic Cable Communication Sites	• Communication sites are required to amplify the system control and monitoring signals carried over the fiber optic cable attached to the transmission towers. • A total of up to eight communication sites in addition to existing or proposed substations will be needed for the Project. Most of the locations for the communication sites will be on private property and the final locations determined after the final route is identified and detailed design engineering is completed. A few sites may need to be located on public land. • Communication sites are approximately 100 feet by 100 feet with a 75-foot by 75-foot fenced area. • Typical building dimensions within the fenced area will be 11.5 feet wide by 32 feet long by 12 feet tall. • Construction disturbance is assumed to be 1 acre and operational requirement to be 0.5 acre per site. • The fiber OPGW cable supported on the transmission structures will be routed in and out of the communication site building from the nearest transmission structure either underground or overhead. • Electronic equipment, required to support the fiber optic cable installation, will be located inside the building. • At sites not within a substation, a liquid propane fueled emergency generator will be installed to provide backup power during an outage of the local electric distribution system supply. • Maximum communication site spacing is approximately 40 miles or less depending on access and proximity to local electric distribution lines. • The primary siting criteria for a communication site will be: adjacent to the Project transmission line ROW, proximity to existing low-voltage electric distribution lines to provide power to the facility, and the ability to easily access the site by vehicle.
Distribution Supply Lines	• Distribution lines to communication sites depending on final location. A short distribution line will be required for Grassland Substation. No new distribution line will be required for Hemingway Substation.

3.4 Components Common to All Alternatives

Regardless of the route chosen or the structure type or configuration chosen, the construction, operation, maintenance, and decommissioning of the transmission line will be conducted in the same manner. This section provides a general outline, description, and references portions of Appendix B, which provides details on each component. Both this section and Appendix B are organized into four parts. The first part describes the components of the transmission line system, including the transmission line itself and its supporting structures, substations, and the communication system. The second part describes the construction techniques and addresses both the permanent alterations and the temporary disturbances needed as well as providing a description of the construction workforce, equipment, and traffic. The third part describes the operation and maintenance of the new system, while the fourth part discusses decommissioning and restoration of the ROW.

3.4.1 System Components

The new transmission system is composed of the transmission structures themselves, the conductors, other hardware, the communications system, access roads, and substations. Each is summarized below and detailed in Appendix B.

3.4.1.1 Land Requirements and Construction Disturbance

Appendix B, Section 2.1.1 details the typical ROW land areas needed for the various components over the operational life of the Project. This is a smaller area than that disturbed by the Project during construction, because transmission line disturbances are limited to the areas of structure installation, communication sites, and access roads. Temporary facilities like material laydown yards, fly yards, and batch plants are the exception and are areas that will be disturbed only during construction. Because it is fairly common that these yards will be located outside the requested ROW, their disturbance footprint must be added to the overall disturbance footprint within the ROW.

In addition to discussing the construction disturbance, Appendix B, Section 2.1.2 describes how private easements are obtained for the Project.

3.4.1.2 Transmission Line System

Appendix B, Section 1.1 describes transmission structures, including their types and sizes, the clearances needed between phases of the system and between the lowest conductor and the top of vegetation, and their foundations. It goes on to describe the conductor types and the other hardware used. Both steel H-frames and lattice steel towers are detailed.

3.4.1.3 Communication System

To control the transmission line and manage the flow of electricity, a sophisticated communication system is required. This communication system's backbone is a fiber optic line contained within one of the overhead grounding wires carried along the length of the transmission line. The fiber optic signal needs to be "boosted" or regenerated about every 40 miles along the system, requiring a communication site. The communication sites will be located on private and public lands along the transmission line route. These sites consist of a communication shelter (building), a backup fuel tank, a fenced yard, access road, and distribution power supply from the local distribution system. They are typically built close to the transmission line as land use and physical features allow. Details are found in Appendix B, Section 1.4.2.

3.4.1.4 Access Roads and Staging Areas

Appendix B, Section 1.5 specifies the typical access roads and the general description for staging areas. Staging areas are temporary disturbances or temporary uses of areas outside the ROW. Exact locations for both roads and staging areas will be developed during the detailed design phase once the BLM has selected a preferred alternative, but preliminary design has provided indicative locations for roads and staging areas along the entire ROW. These indicative locations have been used in geographic information system (GIS) analysis to develop the "disturbance footprint" of the Project. Existing roads will be used wherever practical. While many of new access roads to be constructed for use by the Project will be within the transmission ROW, some new access roads will be outside the ROW in order to best follow the terrain. With few exceptions, all access roads are considered permanent, although most will only be used infrequently to conduct line inspections and perform required maintenance. Temporary roads used for pulling and tensioning of conductors and other construction activities and structure construction pads will be re-vegetated but not re-contoured.

3.4.1.5 Concrete Batch Plants

Due to the remote nature of much of the transmission line route, concrete used to install structure foundations will be dispensed from portable concrete batch plants located at the staging areas. Batch plants will occupy 3 to 5 acres each within the staging areas. Concrete will be delivered to structure sites in concrete trucks with a capacity of up to 10 cubic yards. In the more developed areas of the Project, the contractor may use local concrete providers to deliver concrete to the structure sites, if feasible.

3.4.1.6 Substations

The description of substations includes their access roads, the types of buildings, transformers, and other infrastructure needed to connect the incoming line to other lines terminated at the station, and possibly convert incoming voltage to another long-distance transmission voltage. Details of substation contents are found in Appendix B, Section 1.6.1.

3.4.2 System Construction

3.4.2.1 Transmission Line Construction

The installation of transmission structures requires preparation of each site where a structure will be installed, including vegetation removal and grading to obtain a relatively flat surface for the operation of the large cranes used to install the structures. Then, foundations will be installed, either four foundations for each of the four legs of the lattice tower structures or two or three foundations for the tubular H-frame structures (medium and large angle h-frames and deadends will be three-pole structures). Appendix B, Table 1-2 describes in detail the ranges of foundation sizes, depths, and amounts of concrete needed for each. In addition to the general description of foundation installation, Section 2.5.1 of Appendix B discusses the procedures if rock is encountered and blasting is needed. After foundations are installed, the structures are brought in either by truck or helicopter. If ground transportation is used, cranes will be employed for lifting and installing the structures. Structures are assembled at fly yards if helicopters are used (see also Section 2.5.2 of Appendix B specifying helicopter use procedures).

After the structures are assembled and in place, the conductors and the overhead ground wires will be strung from tower to tower. Typically helicopters are used to assist in the wire installation process but may not be necessary if access roads are available along the ROW from tower to tower throughout the section that wire is being installed. Details are found in Section 2.2.7 of Appendix B.

3.4.2.2 Communication Systems

Construction of the fiber optic “backbone” of the communication system will be accomplished at the same time as the conductors are strung. Communication site construction is also detailed in Section 2.3.1 of Appendix B.

3.4.2.3 Substation Construction

Appendix B, Section 2.4 provides details of substation construction, including development of all-weather access roads, staging areas, clearing and grading of the site, establishment of grounding mats and systems, fencing, foundation excavation, structure and equipment installation, oil containment system installation, control building installation, and finally cleanup and landscaping.

3.4.2.4 Construction Elements

Section 2.6 in Appendix B concludes by providing details of the construction workforce to be employed, the construction equipment and likely daily traffic patterns during the peak of construction, and the proposed construction schedule. Removal of temporary facilities and waste disposal are also discussed.

3.4.3 Operations and Maintenance

IPC has prepared Project-specific operations and maintenance policies and procedures designed to meet the requirements of the NERC, WECC, and the state public utility commissions, while remaining in compliance with the applicable codes and standards with respect to maintaining the reliability of the electrical system. Operations and maintenance activities will include transmission line patrols, climbing inspections, tower and wire maintenance, insulator washing in selected areas as needed, and access roads repairs. Periodic inspection and maintenance is also a key part of operating and maintaining the electrical system. The following key topics are described in detail in Appendix B:

1. Routine system inspection, maintenance, and repair;
2. Transmission line maintenance;
3. Hardware maintenance and repairs;
4. Access road and work area repair;
5. Vegetation management; and
6. Substation and communication site maintenance.

3.4.4 Decommissioning

The projected life of the Project is 50 or more years. Typically, transmission lines that have been maintained through that period will continue to provide service for a much longer lifetime. At the end of the service life of the Project, assuming that it is not upgraded or otherwise kept in service, the structures and conductors will be removed. The substations and communication sites, if not needed for other existing projects, will also be removed. Appendix B, Section 4 provides information regarding the removal of materials and the restoration of the sites.

3.5 IPC Feasible Alternatives for Detailed Evaluation

Five route alternatives for portions of the proposed route are identified by IPC. The locations of these alternatives are shown on Figure 1-1 and by county on Figure 3-1 through Figure 3-5 and in Appendix O.

3.5.1 Longhorn Alternative and Substation

The Longhorn Alternative is a 19.0-mile alternative located entirely on private land in Morrow County. See Appendix O, Maps 58 to 61.

The Longhorn Alternative exits the planned Longhorn Substation (see Figure 3-10) to the southeast, leaving an existing transmission corridor comprising three existing BPA transmission lines, one 500-kV line, and two 230-kV lines. At MP 0.5 this alternative continues southeast across the Columbia River Highway (U.S. Highway 730) before proceeding across the West Extension Irrigation Canal at MP 0.7 and along the north side of the Union Pacific Railroad to MP 1.4. At MP 1.4, the alternative turns south and angles across the railroad (MP 1.5) and I-84 (MP 2.0), approximately 1.5 miles east of the Boardman Junction.

This route continues almost due south for the next 3.2 miles to MP 5.2 where it turns to the southeast and proceeds 0.4 mile to the south side of an existing farm road (MP 5.6). At this point, the alternative proceeds east to MP 6.1 then turns south, passing between poplar trees and irrigation pivots to MP 7.1. The route turns and proceeds east again for approximately one mile before turning southeast and angling across an existing farm road to MP 8.1. From MP 8.1 to 9.0, the route proceeds south along the east side of an existing farm road and along the western edge of a dairy farm. At MP 9.0, the route turns and proceeds easterly along the north side of Homestead Lane until about MP 9.4 where it angles southeast across Homestead Lane and continues east along the south side of this road to approximately MP 11.0. Turning and proceeding south, the route passes east of Sand Lake, stays west of Echo Windfarms, and crosses the Oregon NHT at MP 16.6. Continuing south across Sand Hollow, the route crosses the TransCanada gas pipeline at MP 17.0 before crossing Wagon Trail Road at MP 18.9 and joining with the proposed route at the proposed route MP 33.7.

The Longhorn Substation has been proposed by BPA. The Longhorn Substation would be located just west of the Port of Morrow, due north of the Boardman Bombing Range road, about 0.25 to 0.5 mile north of I-84. The substation will be 44 acres in size (Figure 3-10). The BPA would provide space for the Project to terminate at Longhorn, which would require approximately 2 acres of the total substation footprint. The Project would terminate at this substation only if it was first built by BPA. This means that the Project would only have to equip the bay where the line would be terminated in a similar layout as the previously mentioned Grasslands Substation. The connections tying the Longhorn Substation to the McNary to Coyote Springs 500-kV line would already be made by BPA when the station was first constructed.

3.5.2 Horn Butte Alternative and Substation

The proposed Horn Butte Substation is located along the proposed route alignment approximately 6.5 miles west of the proposed Grassland Substation, about 1 mile northeast of State Highway 74 (see Figure 3-11). The Horn Butte Alternative departs from the Horn Butte Substation at approximately proposed route MP 6.8. It then follows the same alignment as the proposed route, heading south along the west side of the Boardman Conservation Area before turning east approximately 1 mile north of Cecil. The route proceeds easterly along the south side of the Boardman Conservation Area and Naval Weapons Systems Facility to proposed route MP 33.7. For a more detailed description of the Horn Butte Alternative, see Section 3.1.1 (discussion between MP 6.8 and 33.7). See Appendix O, Maps 2 to 6.

If IPC ultimately selects this alternative for development, the Horn Butte Substation would be located on private lands approximately 6 miles west of the Boardman Generating Plant. The full yard would be built by IPC to include only three fully equipped bays. The three bays will be constructed to electrically terminate the Project and connect it into the Boardman to Slatt line in a similar layout out as the previously mentioned Grassland Substation. The Horn Butte Substation footprint would be 20 acres in size. The substation would have additional undeveloped area to allow for future users to tie into the Boardman to Hemingway or Boardman to Slatt line.

Figure 3-10. Longhorn Substation

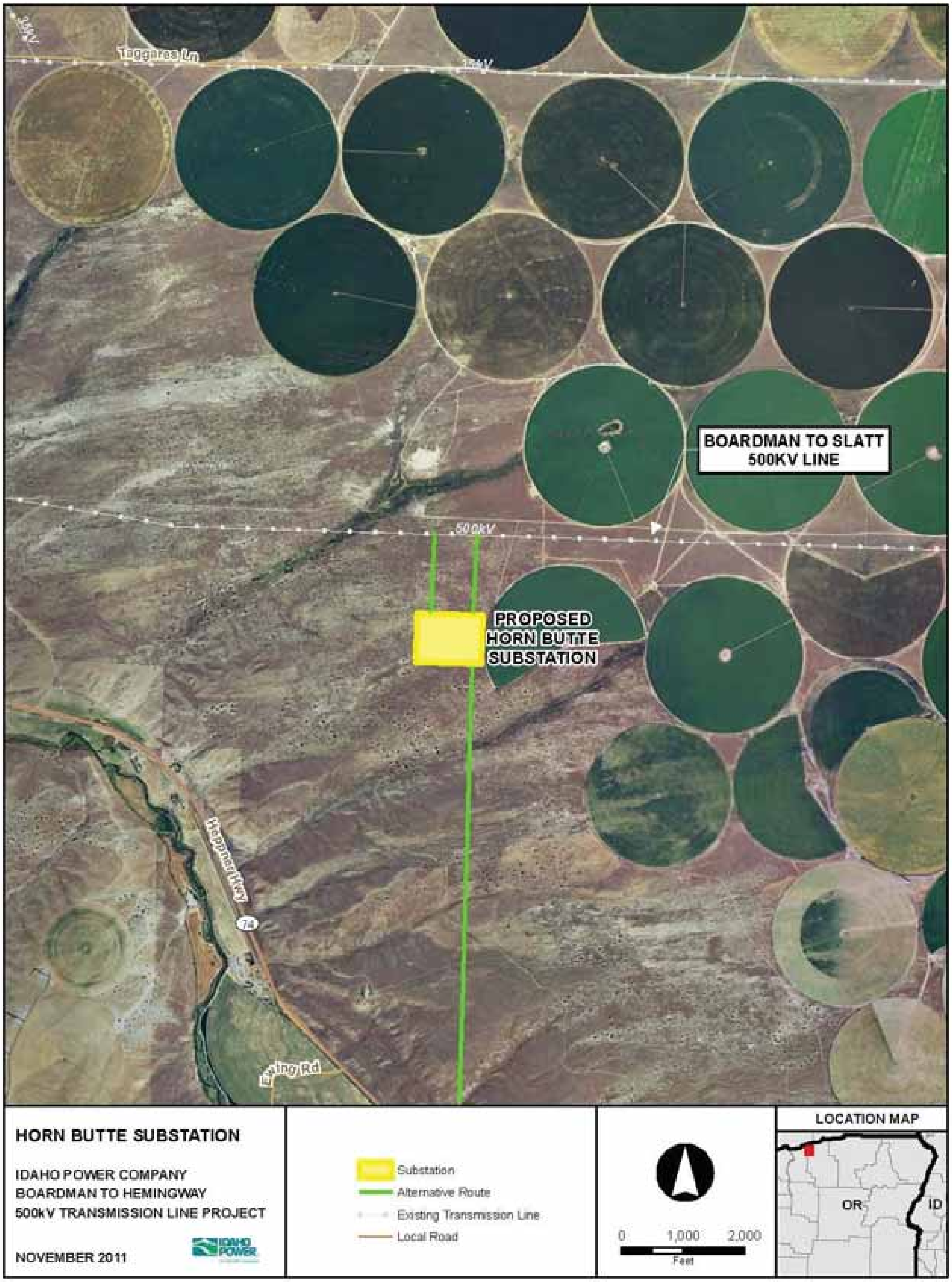

Figure 3-11. Horn Butte Substation

3.5.3 Glass Hill Alternative

The Glass Hill Alternative leaves the proposed route at MP 107.5 and rejoins it at about MP 115.1. This alternative is located west of the proposed route on private land. See Appendix O, Maps 20 to 21.

Leaving the proposed route at MP 107.5, the Glass Hill Alternative proceeds to the southeast, following a ridge to the west of Graves Creek for 4.5 miles. In this segment the alternative crosses a jeep trail at MP 0.7, Whiskey Creek (Mill Canyon) Road at MP 1.6, Little Graves Creek at MP 2.2, and Morgan Lake Road at MP 2.5. At MP 4.9 this route angles to the southeast and crosses several ridges. At MP 5.0 the route crosses an unnamed road before traversing the first canyon and crossing Graves Creek at MP 5.3. The route crosses a second canyon and Little Rock Creek at MP 5.9 and finally a third canyon and Rock Creek at MP 6.6. At MPs 6.9 and 7.3 two unnamed roads are crossed before joining the alternative joins with the proposed route at about MP 115.1.

3.5.4 Double Mountain Alternative

The Double Mountain Alternative in Malheur County is 7.4 miles long and is located north of the Double Mountains, entirely on BLM-managed land. See Appendix O, Maps 46 to 47.

The Double Mountain Alternative leaves the proposed route at MP 243.5 and proceeds southeast across Sand Hollow and an unnamed road at MP 1.5. At MP 1.6 the alternative angles easterly, crosses Rock Canyon between MPs 2.3 and 2.7, and passes north of Bentonite Spring. The alternative then crosses three unnamed roads (MPs 3.7, 5.5, and 5.7) before proceeding across Twin Spring Road at about MP 7.2, an unnamed road, and Cow Hollow to rejoin the proposed route at MP 250.9.

3.5.5 Malheur S Alternative

The Malheur S Alternative is 33.6 miles long and is located southwest of the proposed route in Malheur County almost entirely on BLM-managed land. See Appendix O, Maps 62 to 68.

The Malheur S Alternative departs from the proposed route at approximately MP 241.2, approximately 0.5 mile north of Vines Hill. Proceeding southeasterly, this alternative crosses U.S. Route 20 and an existing IPC 69-kV transmission line at about MP 0.6. It proceeds in this direction to MP 3.2 where it turns almost due south, enters Sand Hollow, and crosses an unnamed road at MP 3.4. Continuing south within Sand Hollow, the route crosses an unnamed road at MP 3.6. At MP 7.2 the route angles southwest and crosses an existing road at MP 7.4 before turning back to the south at MP 7.6. The alternative crosses Hoodoo Creek at MP 9.8 before proceeding to MP 12.6 where it angles to the southeast.

From MP 12.6 this alternative proceeds southeast into Rock Canyon which it follows for approximately 2.5 miles following the south side of Rock Canyon Road, crossing the Wildcat Canyon Reservoir stream at MP 13.7 and passing to the northeast of Poison Spring. At MP 14.7 the route crosses Hoodoo Road, angles southeasterly and crosses Twin Springs Road at MP 15.4. The route continues east, south of both Twin Springs Road and Rock Canyon Road for the next 1.5 miles before passing north of Grassy Mountain Reservoir, across a jeep trail (MP 18.8) and over Sand Hollow Creek (MP 19.0).

The Kern Basin is traversed at about MP 21.0 before the route follows ridges north of the Owyhee River for about 1.5 miles to MP 23.6, crossing Haystack Rock Road at about MP 23.2. At MP 23.6 this alternative angles southeast and across the Owyhee River and Owyhee Lake Road (about MP 23.9). On the south side of the river at MP 24.1 this route angles farther to the east, crossing Upper Tunnel Road and an existing transmission line at approximately MP 24.8.

At MP 25.2 this alternative turns south to MP 25.9 where it angles southeast for the next 6.9 miles parallel and offset approximately 1,500 feet to the north of the existing PacifiCorp Summer Lake to Midpoint 500-kV transmission line. In this segment three unnamed roads are crossed in addition to Long Draw (MP 27.2), Coyote Gulch Siphon (MP 29.0), North Alkali Creek (MP 31.8), and Succor Creek Road (MP 32.0).

At approximately MP 32.8, the alternative meets with the proposed route (MP 271.0) and proceeds south along the proposed route alignment, across the existing PacifiCorp 500-kV line (about MP 33.2) to MP 33.6, which is approximately proposed route MP 271.8.