2.0 Project Description and Alternatives

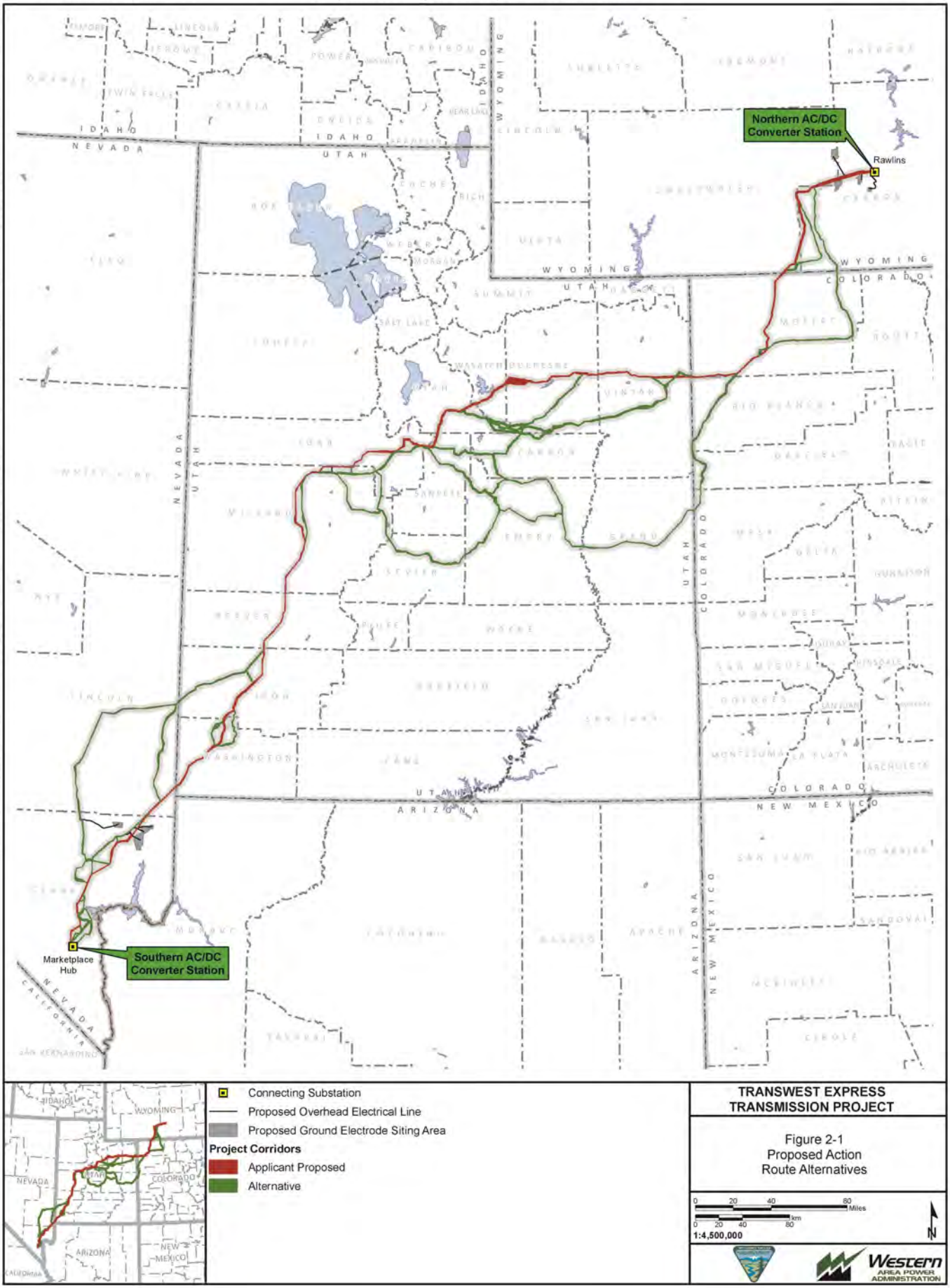
2.1 Project Overview

2.1.1 TransWest's Proposed Action

The proposed action would consist of the following Project facilities and improvements. Additional details can be found in Section 2.4.2, Applicant Project Description and Design Features.

- A 600-kV DC transmission line, approximately 727 miles in length, extending across public (state and federal) and private lands in Wyoming, Colorado, Utah, and Nevada. The transmission line ROW would be approximately 250 feet wide. The proposed action, along with alternative transmission line routes are depicted in **Figure 2-1**.
- Two terminals would be located at either end of the transmission line, near Sinclair, Wyoming, and at the Marketplace Hub in the Eldorado Valley within Boulder City, Nevada. Terminal facilities would include converter stations and related substation facilities necessary for interconnections to existing and planned regional AC transmission systems.
  - Facilities within the Northern Terminal would be situated on approximately 205 acres and would include facilities to convert alternating current to direct current, thereby allowing power from the AC system to be transmitted on the Project transmission system.
  - Facilities within the Southern Terminal would be situated on approximately 140 acres and would include facilities to convert direct current to alternating current, allowing power transmitted on the Project transmission system to enter the regional grid serving California, Nevada, and Arizona. The Project also would be capable of transmitting power in a south-to-north direction, although the primary purpose of the line would be for north-to-south power transfers.
- Access routes, including improvements to existing roads, new overland access and new unpaved roads to access the proposed Project facilities and work areas during the construction, operation, and maintenance phases.
- Ancillary facilities including:
  - Communications systems: a network of 15 to 20 fiber optic communication and regeneration sites, typically within the 250-foot-wide transmission line ROW, and microwave facilities at each terminal.
  - Two ground electrode facilities: each facility would be connected to the respective terminal with a low voltage electrical line, sited on approximately 160 acres of private or public lands in Wyoming and Nevada, with 20 to 60 acres of ground disturbance during operation. A low voltage electrical line would connect the ground electrode facilities to the terminals. A ground electrode is required to maintain an electrical circuit through the ground if emergency events resulted in unexpected loss of one of the two poles (or circuits) of the Project terminal or converter station equipment. One ground electrode facility would be located within 100 miles of each of the Northern and Southern terminals.

The proposed action has the capability to transmit power generated by existing and/or reasonably foreseeable renewable or non-renewable sources in Wyoming. These reasonably foreseeable projects include a variety of proposed wind projects, which are analyzed through separate NEPA analyses and the associated cumulative impacts, if applicable, are disclosed in Chapter 5.0 of this EIS. While these reasonably foreseeable energy generating projects may ultimately transmit through this Project once operational, none of these projects are exclusively dependent upon this proposed transmission line, nor is this transmission line exclusively dependent on any of those projects.



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2.1.2 Design Options

A range of design options have been evaluated for the Project. TransWest identified three design options in the SF 299 ROW application that may have the potential to meet the Project goals and objectives. In August 2012, TransWest submitted an amendment to the application eliminating Design Option 1 from further consideration. Consideration of the remaining Design Options 2 and 3 would provide the Project flexibility to adapt to potential regional transmission system changes, which could occur in the next several years. The feasibility of the design options depends on future permitting decisions for other regional systems and/or future energy and transmission market conditions.

Design options would meet the stated objectives of the Project only if sufficient transmission capacity becomes available to transmit the energy delivered from Sinclair, Wyoming, to Delta, Utah, by the Project then to Southern California via the existing IPP, 400-MW, 500-kV DC Southern Transmission Systems (STS). Design Options 2 and 3 currently do not meet the interests and objectives of the Project because capacity currently is not available on the STS. Therefore, implementation of the design options only would be considered if sufficient capacity (approximately 1,500-MW) became commercially available to transmit energy delivered by the Project to California, and if commercial interconnection agreements with the utility owning and operating the IPP transmission line (currently Los Angeles Department of Water and Power [LADWP]) could be established.

If implemented, these design options would consider the same alternative transmission line routes as the proposed action; however, each would require development of different terminal locations, ground electrode facility locations, tower types, and ancillary facilities as summarized below.

2.1.2.1 Design Option 2 – DC from Wyoming to IPP; AC from IPP to Marketplace Hub

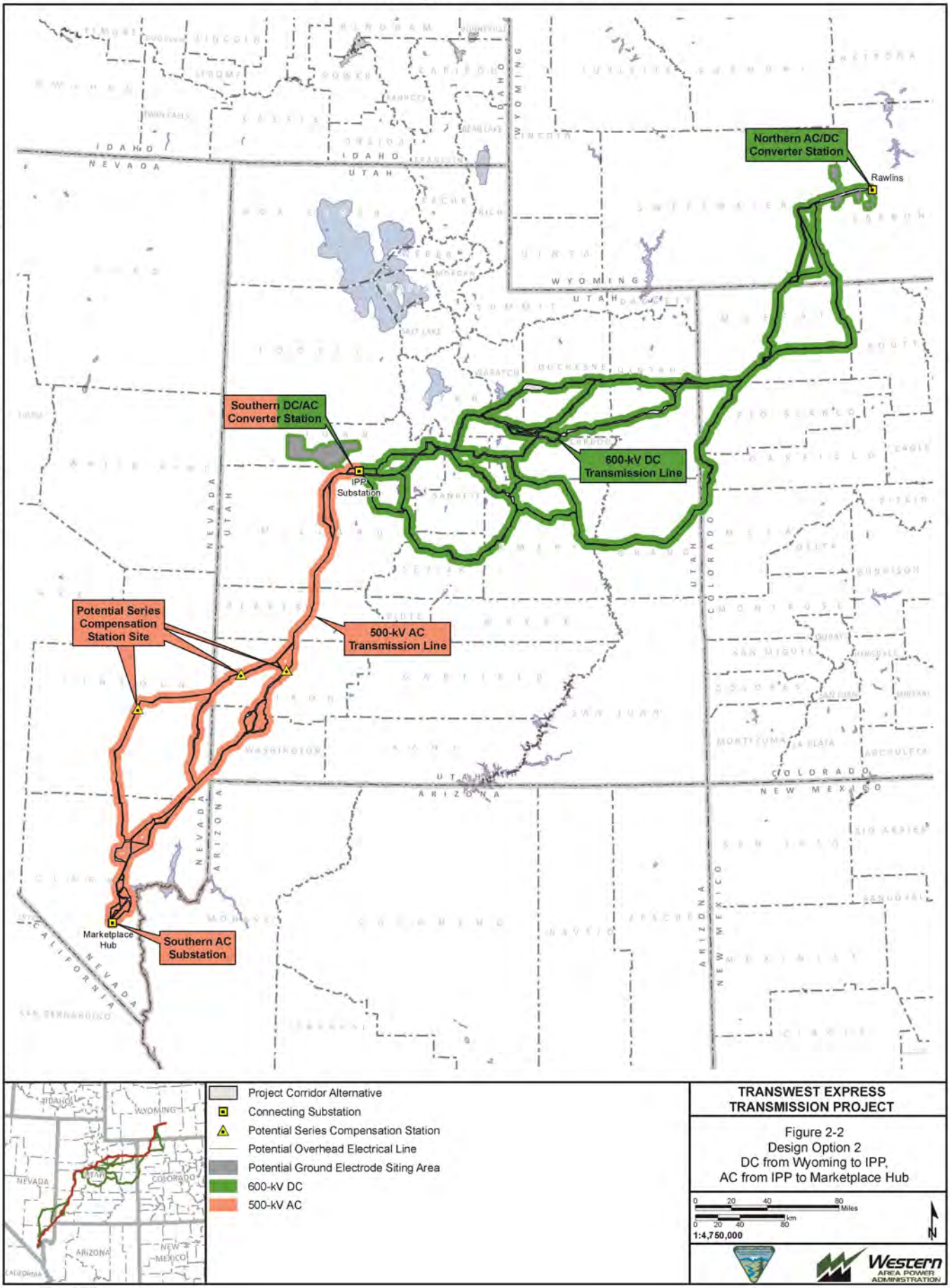
Under this design option, this project would deliver energy to the IPP near Delta, Utah, then complete delivery of energy to markets in the Desert Southwest region through both the 1,500-MW, 500-kV transmission line proposed as part of this project and the existing STS between Delta, Utah, and Adelanto, California.

Design Option 2 would entail construction of a 3,000-MW, 600-kV DC transmission line approximately 414 miles in length, from the Northern Terminal in Sinclair, Wyoming, to a new DC/AC converter station near the existing IPP substation near Delta, Utah. From the new DC/AC converter station in Utah, a single circuit 1,500-MW, 500-kV AC transmission line approximately 314 miles in length would be constructed to one of the existing substations in the Eldorado Valley, in Boulder City, Nevada (Marketplace Hub).

Compared to the proposed action, Design Option 2 would:

- Replace the 600-kV DC transmission line with a single circuit 500-kV AC line from near IPP in Millard County, Utah, to one of the existing Marketplace Hub substations in Clark County, Nevada;
- Eliminate the Southern Terminal and ground electrode system in Clark County, Nevada, and replace these facilities with similar facilities near IPP in Millard County, Utah; and
- Require additional new facilities, including a 500/345-kV AC substation, double circuit 345-kV transmission line (less than 5 miles in length and similar in configuration to those described for the 600-kV DC transmission line) for interconnection at IPP and a 500-kV series compensation station (similar to a 500-kV substation) located near the halfway point in the southern 500-kV AC line.

Figure 2-2 depicts the configuration of Design Option 2.



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2.1.2.2 Design Option 3 – Phased Build Out

This design option would use a two-phase approach. The phased approach is more costly than building out the full system as a single non-phased project and only would be required if the demand for Wyoming resources in the Desert Southwest proves to be slower in development than expected.

Phase one would entail construction of a 3,000-MW, 600-kV DC transmission line approximately 414 miles in length between the proposed Northern Terminal in Sinclair, Wyoming, to the IPP substation near Delta, Utah. This portion of transmission line would require an AC configuration (three conductors and structures to support them), because this phase initially would be operated as a 1,500-MW, 500-kV AC transmission system.

Phase two would occur in the future when market demands warrant converting the operation of the line from 1,500-MW to 3,000-MW. This phase would involve constructing the remaining portion of the 3,000-MW, 600-kV DC line from IPP to the Southern Terminal, in Boulder City, Nevada, construction of the Northern and Southern terminals and ground electrode systems, and converting operations to a DC system would be required. The subsequent conversion from 500-kV AC to 600-kV DC would not require physical changes to the structure or conductors system constructed in phase one; one of the three conductor bundle sets would be de-energized and left in place.

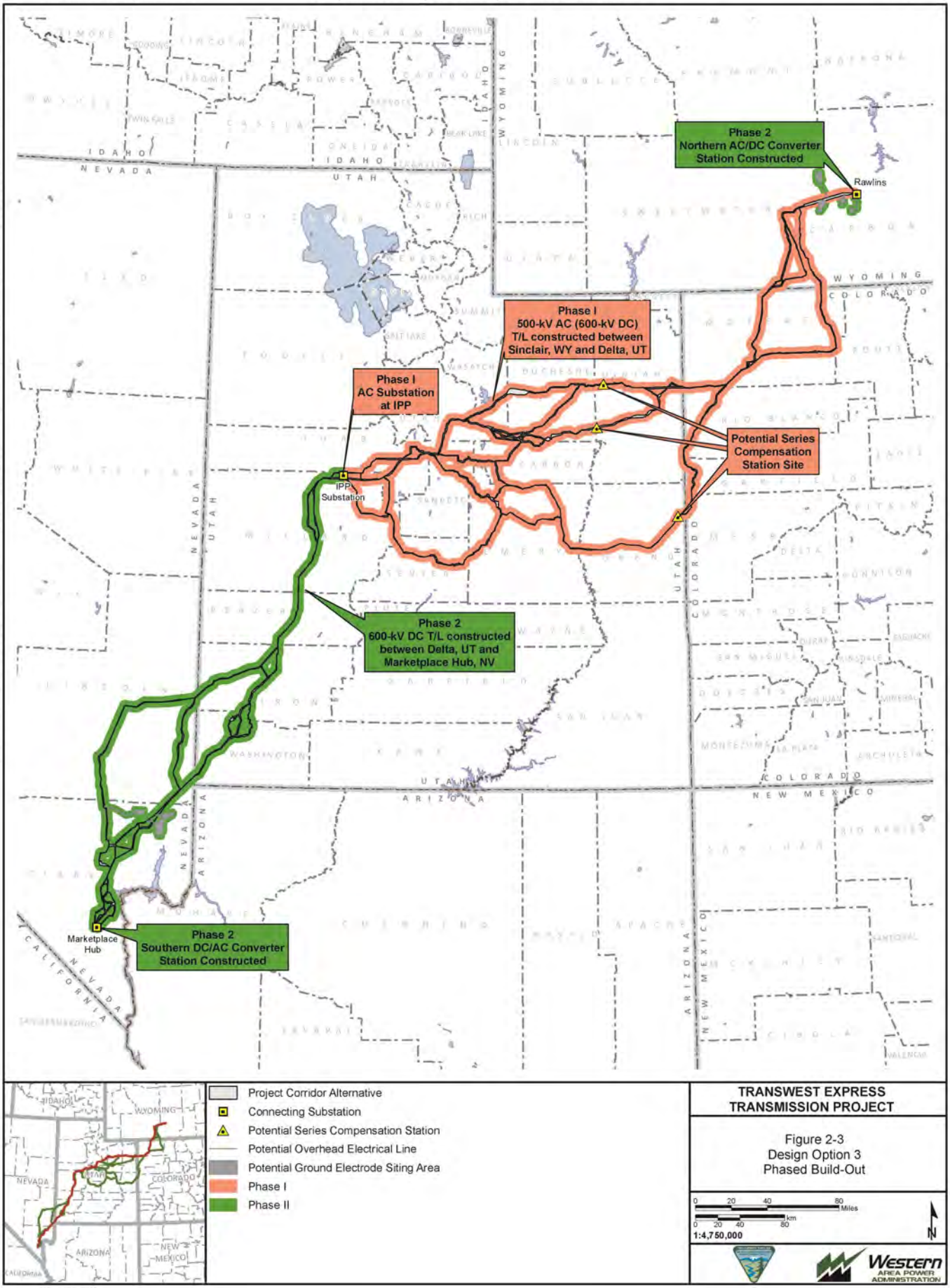
Compared to the proposed action, Design Option 3 would:

- Construct a 600-kV DC transmission line from Sinclair, Wyoming, to IPP near Delta, Utah, with an AC configuration (three conductors and structures to support them) for AC operation until phase two completion.
- Construct a 500/345-kV substation near the IPP in Millard County, Utah, for AC operation until phase two completion.
- Require additional new facilities including a double circuit 345-kV transmission line (less than 5 miles in length for interconnection at IPP) and a 500-kV series compensation station located near the halfway point in the northern 500-kV AC line for operation until phase two completion.
- Delay construction of the southern 600-kV DC transmission line from IPP to Marketplace Hub, the Northern and Southern terminals, and ground electrode systems.

Figure 2-3 depicts the configuration of Design Option 3.

2.2 TransWest Express Transmission Project Planning

System planning studies have been underway since 2005 to assist in identifying a range of alternatives for the Project. The Project was included in a Regional Planning Project Review (RPPR) conducted in accordance with WECC Planning Procedures (TransWest 2008). Findings included in the RPPR Conceptual Technical Report concluded that this Project would help to serve the needs of the broad region of Utah, Arizona, Nevada, and southern California in a cost-effective manner while minimizing potential environmental impacts. Studies carried out by the Northern Tier Transmission Group (NTTG) (a subregional transmission group of WECC) and WestConnect supported the development of lines from southern Wyoming to the Desert Southwest (NTTG 2007; WestConnect 2008). Three important criterion evaluated while planning and developing the proposed route for the Project were: 1) capacity of the facility; 2) reliability standards; and 3) the use of designated corridors.



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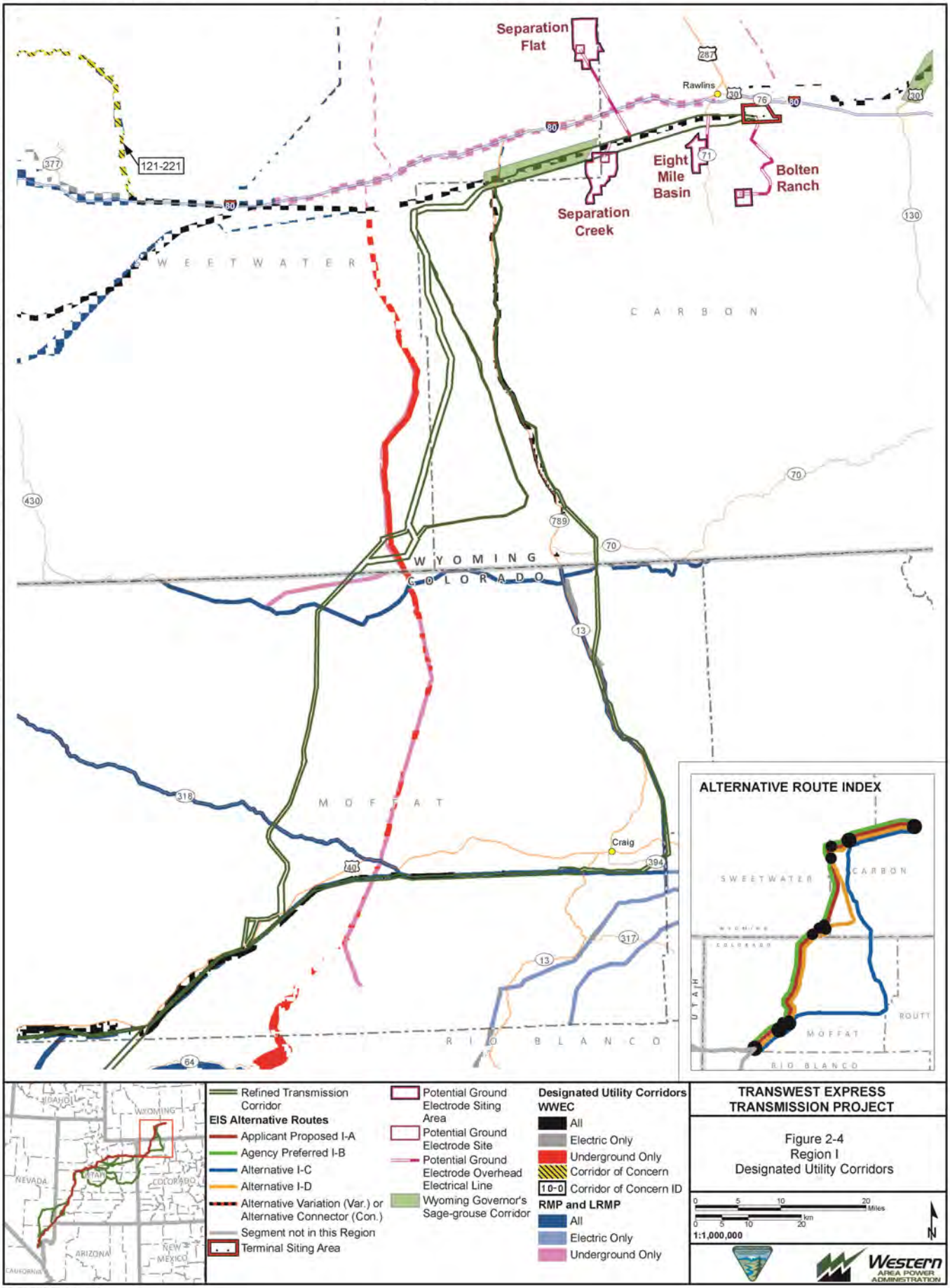
Capacity. The Project would provide the transmission infrastructure necessary to reliably and cost-effectively provide up to 3,000-MW of electric power capacity from Wyoming to the desert southwest (TransWest 2010). The 3,000-MW capacity would be sufficient to support the reasonably foreseeable renewable generation sources anticipated in south-central Wyoming as well as other existing sources. At 3,000-MW, the Project would be one of the largest transmission elements within the WECC system and could facilitate achieving renewable energy goals and Renewable Portfolio Standards in the southwest.

Reliability. Transmission systems in the U.S. are planned, operated, and maintained to meet reliability standards and guidelines of the NERC. Additionally, transmission owners and operators are governed by WECC reliability standards that may be in addition to, or more stringent than those required by NERC. The WECC reliability standards affect the Project ROW requirements as well as separation distance requirements from other high voltage lines. See the POD (**Appendix D**) for additional information on reliability standards and other required criteria.

Reliability standards that limit the operational capacity of any single transmission system element are based on a complex contingency analysis that considers the impact to system operations following various events (i.e., equipment failures, line outages). The minimum separation distance of 1,500 feet from parallel transmission lines identified in the Draft EIS, has been updated in the Final EIS to reflect the NERC and WECC reliability standards updated in 2012. TransWest has updated the minimum line separation requirements based on the “tower height” dimensions adopted by WECC in 2012. These tower height dimensions take into consideration both the height and width of typical transmission line structures and is meant to prevent a tower failure along one transmission line from affecting other adjacent transmission lines. Application of the NERC and WECC reliability standards and preliminary transmission system contingency analyses indicate that the proposed Project transmission line centerline should be optimally no closer than 250 feet from parallel transmission line centerlines rated 230-kV and above.

Use of Designated Corridors. Proposed and alternative Project corridors follow designated energy corridors on public lands to the greatest extent practicable, including those collectively recommended by the DOE in November 2008 as WWECs pursuant to Section 368 of the Energy Policy Act of 2005; corridors identified by the BLM and the USFS in their respective land management plans; and corridors designated within state and county plans. The ROD to designate the WWECs served to amend the federal land management plans to incorporate the corridors. The decision also adopts Interagency Operating Procedures for the administration of energy transport development within the corridors. These agency-designated utility corridors and the Project proposed and alternative corridors are depicted in **Figure 2-4** through **Figure 2-7**. Generally, the designated corridors encompass existing transmission lines and other existing and planned linear facilities. The designated corridors represent opportunities for siting transmission lines, particularly when a linear ROW has been permitted or constructed through an environmentally sensitive area. In this situation, the existing ROW would be treated as a corridor that provides an opportunity to minimize additional environmental impacts.

Environmental organizations filed a complaint in federal court challenging the designation of multiple corridors identified in the WWEC programmatic EIS, including several corridors along the proposed Project and alternatives considered in this EIS. Those WWEC programmatic EIS “corridors of concern” identified by the plaintiffs that overlap with the proposed Project route and alternatives are depicted in **Figure 2-4** through **Figure 2-7**. The complaint was dismissed as a result of a settlement agreement between the plaintiffs and the federal defendants dated July 11, 2012. Per the settlement agreement, an inter-agency MOU, work plan, and BLM policy guidance (BLM IM 2014-080) were developed that provides for the review of the WWECs. This information has been considered and fulfilled in preparation of this EIS.



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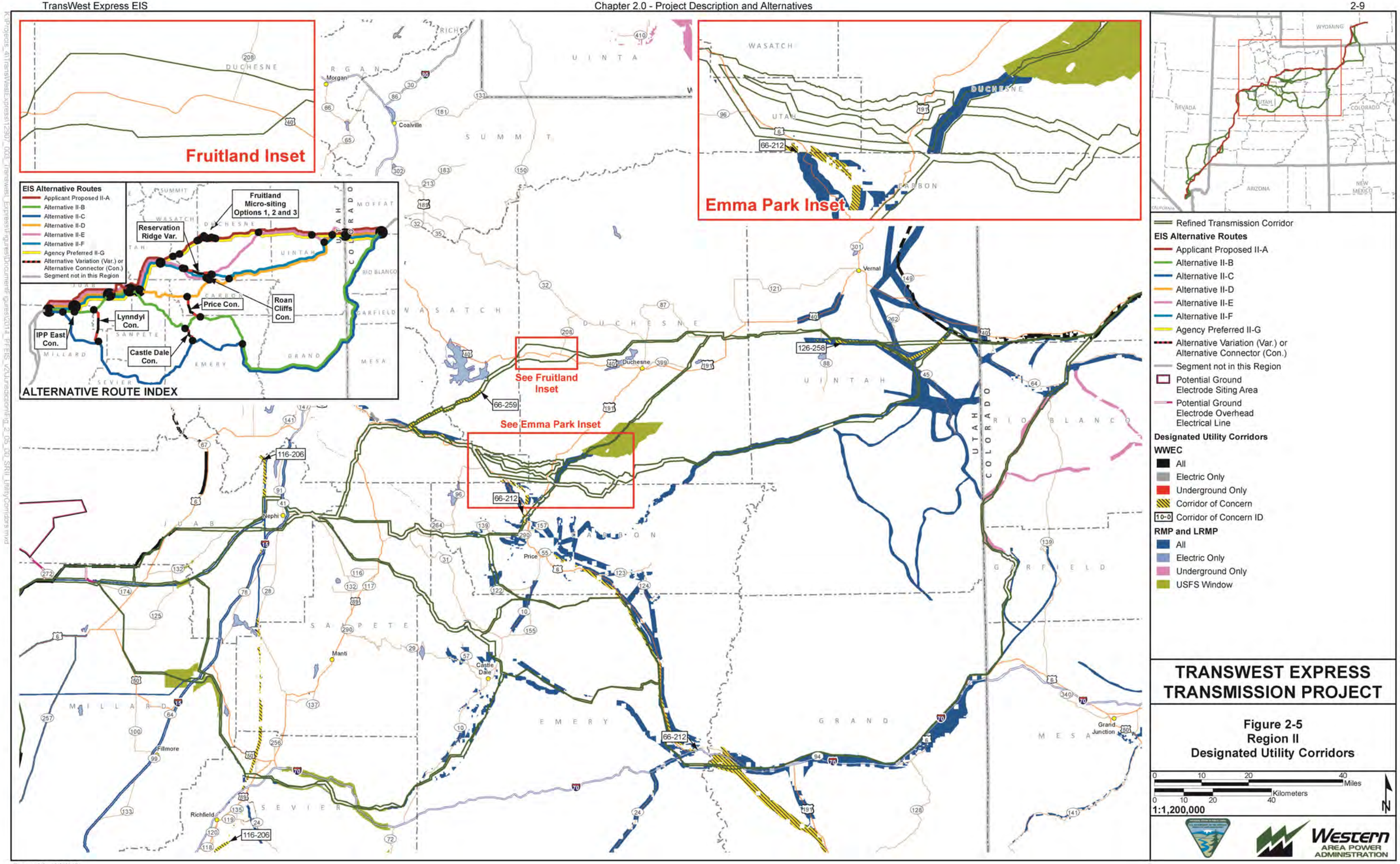

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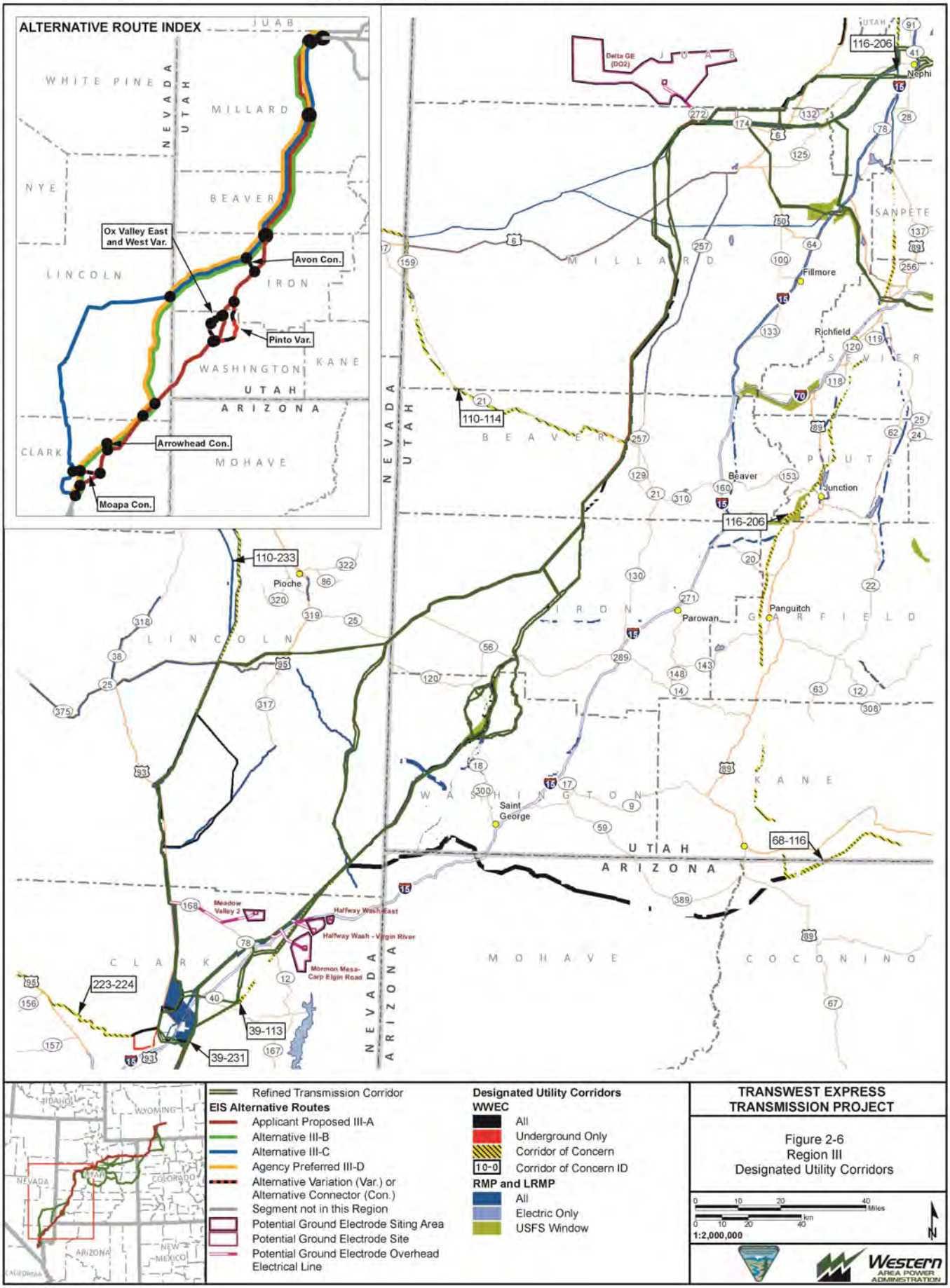
ALTERNATIVE ROUTE INDEX
WHITE PINE
NEVADA
UTAH
MILLARD
NYE
BEAVER
Ox Valley East and West Var.
Avon Con.
LINCOLN
IRON
Pinto Var.
WASHINGTON
KANE
UTAH
ARIZONA
Arrowhead Con.
CLARK
MOHAVE
Moapa Con.
Delta GE (DO2)
116-206
Nephi
Fillmore
Richfield
SANPETE
SEVIER
110-114
Beaver
Junction
PIUTE
110-233
Pioche
Parowan
Panguitch
GARFIELD
Saint George
68-116
Meadow Valley 2
Halfway Wash East
Halfway Wash - Virgin River
Mormon Mesa-Carp Elgin Road
223-224
39-113
39-231
COCONINO
Refined Transmission Corridor
EIS Alternative Routes
Applicant Proposed III-A
Alternative III-B
Alternative III-C
Agency Preferred III-D
Alternative Variation (Var.) or Alternative Connector (Con.)
Segment not in this Region
Potential Ground Electrode Siting Area
Potential Ground Electrode Site
Potential Ground Electrode Overhead Electrical Line
Designated Utility Corridors
WWEC
All
Underground Only
Corridor of Concern
10-0 Corridor of Concern ID
RMP and LRMP
All
Electric Only
USFS Window
TRANSWEST EXPRESS TRANSMISSION PROJECT
Figure 2-6
Region III
Designated Utility Corridors
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Western AREA POWER ADMINISTRATION
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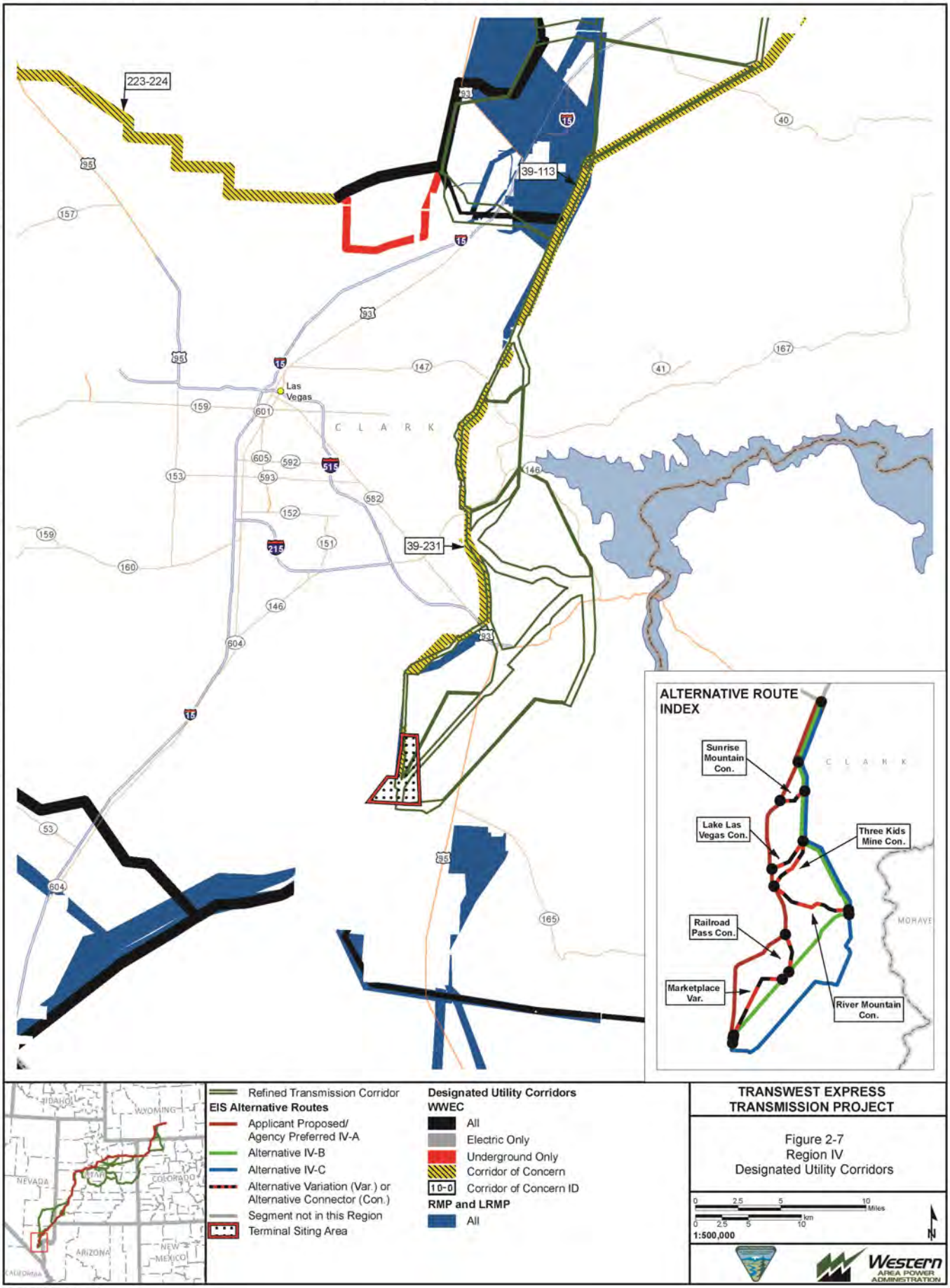
223-224
39-113
39-231
Las Vegas
C L A R K
ALTERNATIVE ROUTE INDEX
Sunrise Mountain Con.
Lake Las Vegas Con.
Three Kids Mine Con.
Railroad Pass Con.
Marketplace Var.
River Mountain Con.
MOHAVE
Refined Transmission Corridor
EIS Alternative Routes
Applicant Proposed/ Agency Preferred IV-A
Alternative IV-B
Alternative IV-C
Alternative Variation (Var.) or Alternative Connector (Con.)
Segment not in this Region
Terminal Siting Area
Designated Utility Corridors
WWEC
All
Electric Only
Underground Only
Corridor of Concern
10-0 Corridor of Concern ID
RMP and LRMP
All
TRANSWEST EXPRESS TRANSMISSION PROJECT
Figure 2-7
Region IV
Designated Utility Corridors
1:500,000
Western AREA POWER ADMINISTRATION
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2.3 Alternative Corridor Development and Selection Process

An iterative, adaptive process was used for this Project to identify an adequate range of alternative transmission corridors that directly respond to addressing potential resource or siting constraints and help to inform decision-makers. Resource and/or siting constraints identified through the NEPA process and associated cooperating agency coordination were then used to guide further refinements to the alternative transmission alignments and reduce the width of the transmission line corridors previously analyzed in the Draft EIS. The goals of this approach are to:

- Meet the requirements of the Presidential Memorandum – Transforming our Nation's Electrical Grid Through Improved Siting, Permitting, and Review to:
  - Apply adaptive management methods and ensure accountability and the long-term effectiveness of mitigation activities.
- Allow flexibility in routing to:
  - minimize environmental impacts to the maximum extent possible; and
  - address physical constraints (terrain, etc.).
- Ensure transparency with the public and agencies regarding transmission line routing, construction, and operation.
- Minimize project variances during construction.

This process involves the following key steps (as depicted in **Figure 2-8**):

1. For the Draft EIS, use a reference line centered within a nominal 250-foot-wide transmission line ROW that is located within a 2-mile-wide transmission line corridor as the basis for resource analysis. As representations of the likely location of the transmission line, the reference lines represented buildable locations within each corridor to provide a basis for quantifying and comparing the range and degree of impacts associated with topographical constraints, existing transmission lines, and resource constraints of the various alternatives. Using a 2-mile-wide corridor in the Draft EIS allows for flexibility in the routing of the transmission alignment, to minimize potential impacts to sensitive resources, and address siting constraints identified through the NEPA process.
2. For the Final EIS, use preliminary engineered alignments with an associated 250-foot-wide transmission line ROW and reduce the width of the 2-mile-wide corridor to exclude areas that would not be affected by the transmission alignments. The preliminary engineered alignments and refined transmission corridors are based upon additional engineering, aerial terrain surveys, field engineering surveys, and siting opportunity and constraint data from the Draft EIS to avoid those areas with large-scale resource concerns or physical constraints that are not consistent with siting a transmission line. The refined transmission corridors are variable with consideration given to terrain, access restrictions, existing access, designated utility corridors, environmental constraints, jurisdictional constraints, co-location, landowner requests, and the potential for additional changes in areas with constraints.
3. Use the Draft EIS and Final EIS to develop and disclose the impacts and effectiveness of design features, applicant-committed measures, and mitigation measures that guide the final engineered alignment (routing) of the transmission line.
4. Include all required design features, applicant-committed measures, and mitigation measures in the ROD to ensure that the final engineered alignment of the transmission line in the final project POD conforms to all requirements of the ROD and is within the range of impacts disclosed in the Final EIS.

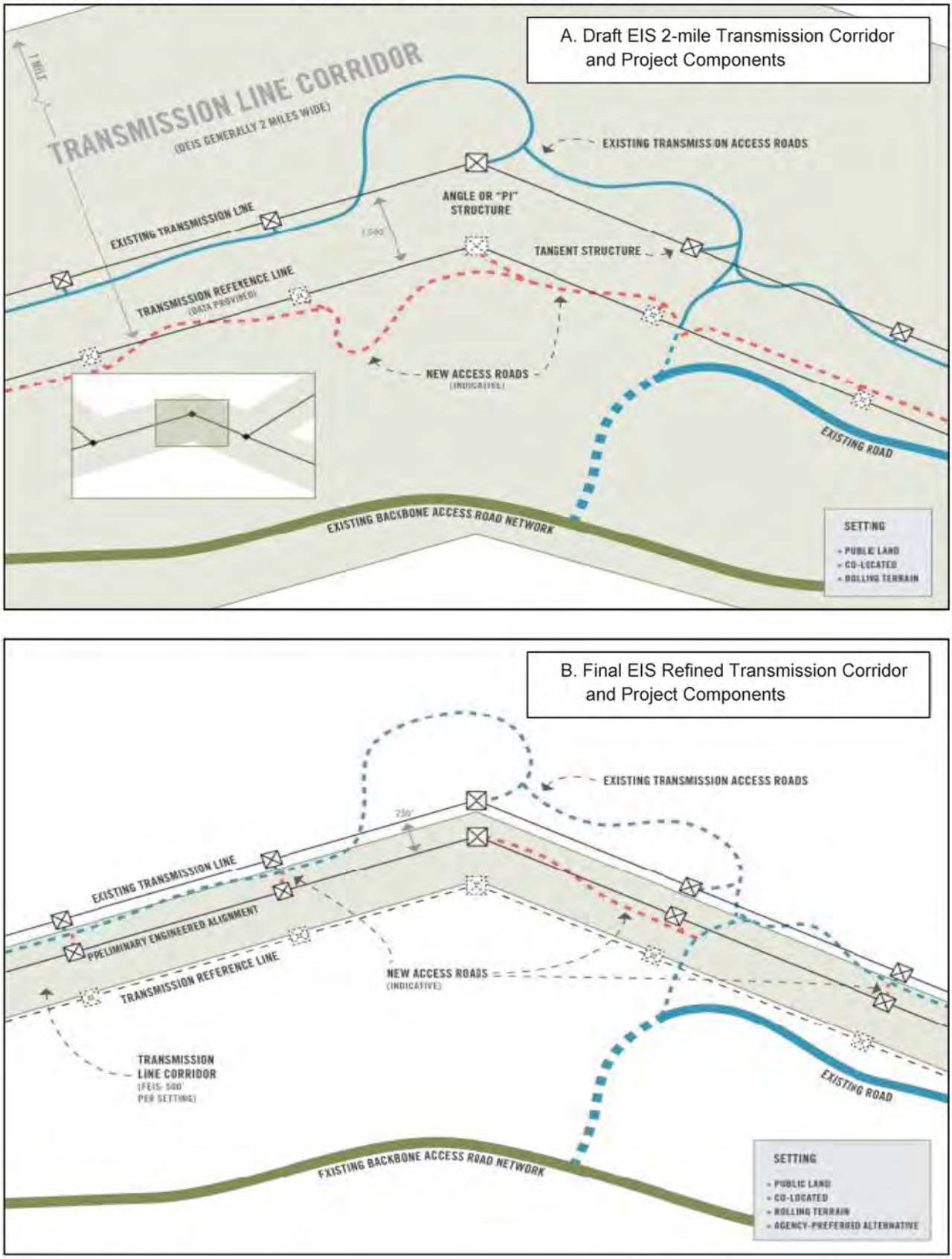


Figure 2-8 Schematic Representations of Project Development through the Corridor Approach

TRANSWEST EXPRESS TRANSMISSION PROJECT

Source: TransWest 2013

5. Conduct site-specific resource surveys (Class III cultural surveys, threatened and endangered species location surveys, etc.) prior to the Project Notice to Proceed and prior to construction to ensure that the final engineered alignment of the transmission line conforms to all requirements for resource avoidance, design features, and mitigation measures. If variances are required that deviate from the conditions of approval in the ROW grant in order to minimize or avoid impacts to resources identified in the site-specific surveys, the impacts disclosed in the NEPA process for the transmission line corridor could facilitate and inform agency approvals.

This iterative process allows for the systematic identification of alternatives and mitigation measures to reduce resource impacts. This reduction in resource impacts occurs by allowing the flexibility for site-specific transmission line routing within the refined transmission corridor described in the Final EIS. The boundaries of the corridor restrict routing options based on large-scale resource constraints. Subsequent fine-scale routing of the transmission line would then avoid site-specific sensitive resources and ensure implementation of required mitigation as disclosed in the Final EIS and required in the ROD. Site-specific resource surveys conducted prior to the Project's Notice to Proceed, combined with the flexibility of the refined transmission corridor, ensure that this routing minimizes resource impacts. This approach ensures transparency through the NEPA analysis by minimizing Project variances.

2.3.1 Pre-scoping Corridor Screening

When initially developing a proposed route to facilitate the transmission of power to market hubs in the Desert Southwest, TransWest conducted multiple regional corridor studies. These studies focused on corridors that had been identified as desirable by electrical system planners. During this process, environmental data and federal land management plans were reviewed and federal agency communication and coordination was undertaken to refine the corridor segments and alignments based on environmental and engineering constraints and a constructability review (see Section 2.5, Alternative Transmission Line Routes and Ancillary Facilities). The Project history and process used to evaluate the applicant's proposed route is documented in the Project Description Technical Report (which was appended to the Draft EIS).

In SF 299 ROW filings with the BLM, TransWest provided maps illustrating a proposed Project corridor from Project origin to terminus as well as corridors identified through the TransWest regional siting studies. The lead agencies reviewed potential corridors, solicited additional agency-developed alternative corridors, and screened the corridors included in the January 2010 Amended SF 299 as well as the corridors updated in the July 2010 Preliminary POD.

The lead agencies conducted a corridor refinement process to identify potentially feasible corridors to be analyzed in the EIS, eliminating corridors that were duplicative or presented extensive resource constraints. This review used available data from government and other sources, aerial photography, and input from land management agencies received during pre-scoping meetings. A description of the methods and the results of this process are presented in the TransWest Express Transmission Project Corridor Screening Report (**Appendix B**).

The following criteria were used to retain alternatives for detailed analysis in the EIS:

- Does the alternative result in measurably diminished adverse environmental effects (fewer detrimental effects, less severe effects, or shorter-term effects) than the applicant's proposed corridor for any resource?
- Does the alternative address resource conflicts?
- Is the alternative technically and economically feasible?

Comparative reviews of alternative corridors also were conducted to arrive at a reasonable range of alternative corridor segments to carry into public scoping. The screening review considered the identified environmental constraints, agency input, length within existing utility corridors, and overall Project length. The rationale for not advancing a particular corridor segment for further analysis was based on the criteria listed above. See Section 2.7, Alternatives Considered but Eliminated from Detailed Analysis, for additional information. In some instances, corridor segments were added or modified to address environmental concerns identified or changes in Project design.

The results of the pre-scoping review were shared with lead agency interdisciplinary (ID) teams, and cooperating agencies in the form of maps and supporting rationale for alternative corridor selection. After receiving and addressing input from reviewers, a range of alternative corridors were presented to the public during the public scoping period (January through April 2011). These alternative corridors are illustrated on maps in **Appendix B**.

2.3.2 Formulation of EIS Transmission Line Alternatives

Numerous comments on the alternatives were received during public scoping as well as public comment on the Draft EIS. These comments were recorded and evaluated in the public scoping summary report (BLM and Western 2011) and in the response to Draft EIS comments contained in **Appendix J**, respectively. The evaluation of scoping comments identified several issues that helped to inform the lead agencies' identification of those alternative corridors to retain for further analysis. Public comments on the Draft EIS continued to inform those alternatives retained for further analysis. In addition, alternative variations and connectors were adjusted to address specific regional or local concerns or to provide additional routing flexibility in constrained areas.

Due to the length of the transmission line, the alternative transmission routes were split into four distinct regions for the purpose of presenting clear impact comparisons between alternative segments:

- Region I: Sinclair, Wyoming, to Northwest Colorado near Rangely, Colorado;
- Region II: Northwest Colorado to IPP near Delta, Utah;
- Region III: IPP to North Las Vegas, Nevada; and
- Region IV: North Las Vegas to Marketplace Hub in Boulder City, Nevada.

Region boundaries largely were based on areas where the alternative alignment routes converge (i.e., have common nodes or intersection points). The regions were developed so that the alternatives within each region could be selected independent of the alternatives selected in the other regions so long as an action alternative is selected in each. Alternative variations, alternative connectors, and micrositing options (see Section 2.5, Alternative Transmission Line Routes and Ancillary Facilities) within each region were added and/or removed for analysis in response to public and agency input on specific issues. Because these variations, connectors, and micrositing options were linked with specific alternatives within a region and analyzed with their respective alternative, they were not considered or analyzed as independent alternatives.

In late October 2011, after completing adjustments to the alternatives based on input received during public scoping, the lead agencies presented the alternatives to be retained for detailed analysis in the EIS to the ID teams and the cooperating agencies. TransWest reviewed the alternatives proposed for inclusion in the EIS analysis and provided revised alignments, accounting for utility separation criteria and, to the extent practicable, resource constraints. This process of alternatives adjustments was repeated in May of 2012, in response to the review of the Preliminary Draft EIS by the ID teams and cooperating agencies. At this time, the BLM also began development of the agency preferred alternative. The Draft EIS, including the agency preferred alternative, was released for public review in July 2013. Based on public review and comment (including comments by the ID teams and cooperating agencies),

the team again made adjustments to alternatives and TransWest provided revised alignments for use in the Final EIS.

Figure 2-9 provides the corridors retained for further analysis. The corridors not recommended for further analysis also are shown and discussed in Section 2.7.

The corridor proposed by TransWest as its proposed action, including modifications by TransWest in southern Wyoming, adjacent northern Colorado, west-central Utah between Nephi and Delta, and west of Delta, was analyzed (see **Appendix B**). The following factors influenced the selection of corridor alternatives to be carried forward in the analysis:

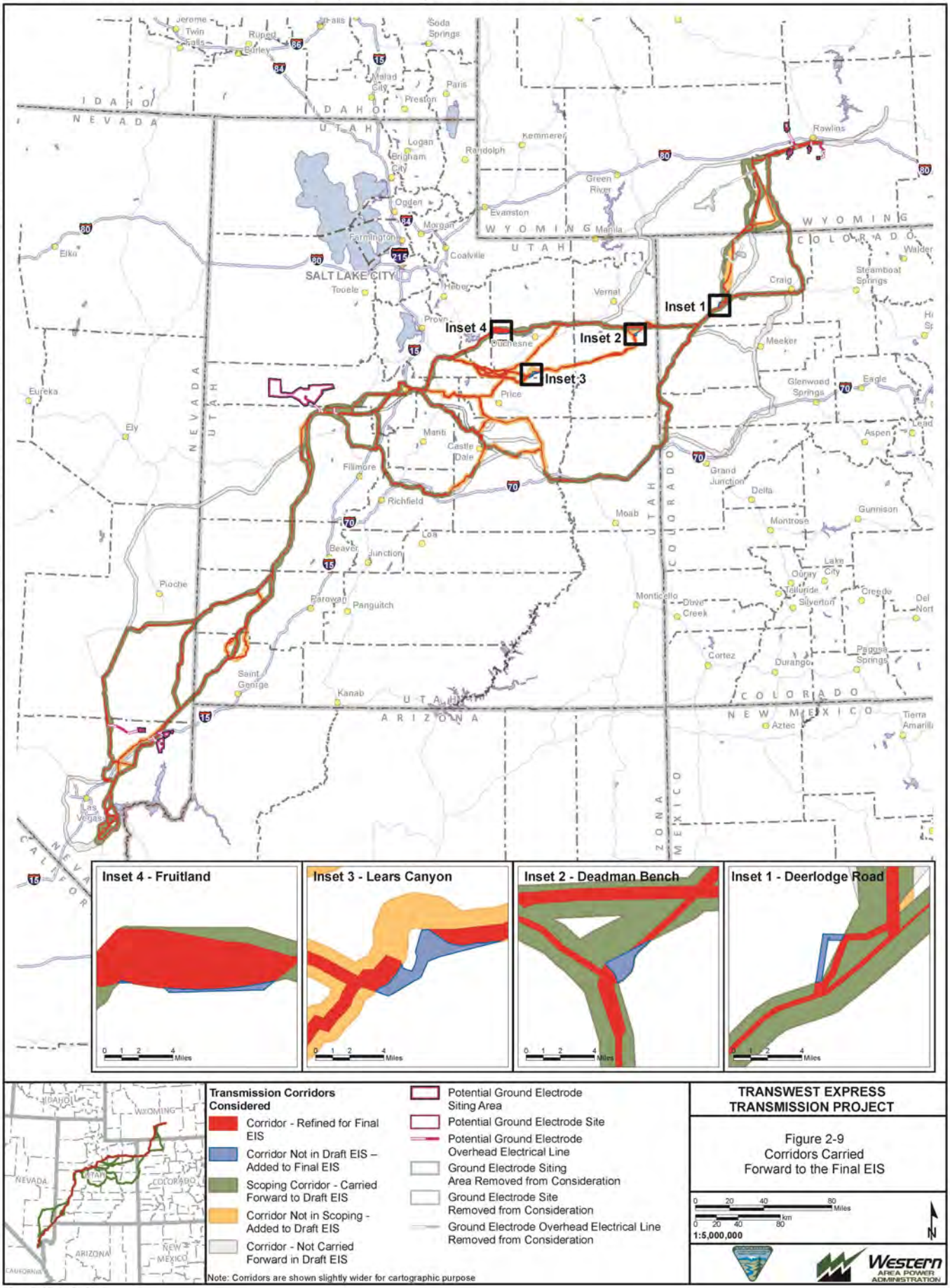
- The TransWest-proposed corridor crossed the recently released Sunrise Mountain ISA. In recognition of the siting issues surrounding the narrow existing utility corridor, corridor alternatives were developed for analysis on Lake Mead NRA land administered by the NPS. However, Congress released this area from ISA status in January 2014, through the Consolodated Appropriations Act (H.R. 3547-309, Sec. 115[a]), and it no longer must be managed to wilderness standards; however, the agencies retained all options for TWE analyzed in the Draft EIS due to the abundance of potential siting conflicts and resource concerns in the area.
- The TransWest-proposed corridor includes potential alignments that would cross IRAs in the Uinta National Forest Planning Area[1] and the Manti-La Sal, and Dixie national forests. In recognition of these potential crossings, corridor alternatives and micrositing options for transmission alignments within alternative corridors have been developed that avoid or minimize impacts to those areas.

2.3.2.1 Transmission Line Alternative Corridors Added Before the Draft EIS

The following alternative corridors were added for analysis prior to the Draft EIS based on input received from public scoping, the ID teams, and cooperating agencies:

- Five alternative segments were added between I-80 and the Wyoming-Colorado state line to decrease impacts to visual and other resources in the area (recommendation of the BLM Rawlins FO).
- Six alternative segments were added in Utah through Uintah, Duchesne, Carbon, Utah, Wasatch, and Sanpete counties to decrease impacts to NHTs, land use, and other resources in the area (recommendation of the USFS and the BLM).
- Seven alternative segments were added in Utah through Duchesne, Carbon, Utah, and Wasatch counties in consideration of sage-grouse planning efforts while also considering the decreased impacts to NHTs, land use, and other resources in the area (recommendation of the BLM Utah State Office).
- Eight alternative segments were added (and four segments removed) near Castle Dale, Utah, to avoid a NHT (recommendation of the BLM Price FO).
- A segment was added west of Delta, Utah, to avoid cultural and other resources in the Sevier River area (recommendation from the BLM Fillmore FO).

[1] In March 2008, the Uinta National Forest and the Wasatch-Cache National Forest were combined into one administrative unit (Uinta-Wasatch-Cache National Forest). Each of these forests continues to operate under individual forest plans approved in 2003. The term “Uinta National Forest Planning Area” is used to refer to the portion of the Uinta-Wasatch-Cache National Forest managed under the 2003 LRMP for the Uinta National Forest.


Inset 1
Inset 2
Inset 3
Inset 4
SALT LAKE CITY
Inset 4 - Fruitland
Inset 3 - Lears Canyon
Inset 2 - Deadman Bench
Inset 1 - Deerlodge Road
Miles
Transmission Corridors Considered
Corridor - Refined for Final EIS
Corridor Not in Draft EIS – Added to Final EIS
Scoping Corridor - Carried Forward to Draft EIS
Corridor Not in Scoping - Added to Draft EIS
Corridor - Not Carried Forward in Draft EIS
Potential Ground Electrode Siting Area
Potential Ground Electrode Site
Potential Ground Electrode Overhead Electrical Line
Ground Electrode Siting Area Removed from Consideration
Ground Electrode Site Removed from Consideration
Ground Electrode Overhead Electrical Line Removed from Consideration
Note: Corridors are shown slightly wider for cartographic purpose
TRANSWEST EXPRESS TRANSMISSION PROJECT
Figure 2-9
Corridors Carried Forward to the Final EIS
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Western AREA POWER ADMINISTRATION
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- An alternative segment was added in Iron County, Utah, to avoid sage-grouse habitat in the Escalante Desert area (recommendation of the BLM Cedar City FO).
- Four alternative segments were added near Central, Utah, to avoid or decrease multiple resource impacts (recommendation of the USFS and public scoping comments).
- An alternative segment was added within an existing transmission line utility corridor and co-located with existing utilities across the Moapa Indian Reservation to avoid the proliferation of utility corridors (recommendation from the BLM Southern Nevada District, and public scoping comments from the Logandale area).
- One alternative segment was added between the Wyoming-Colorado state line and US-40 to decrease impacts to visual, land use, and other resources in the area (recommendation of the BLM Little Snake FO).

2.3.2.2 Transmission Line Alternative Corridors Added Between the Draft and Final EIS

Additionally, there were three locations where engineering constraints or agency and public input required expansion of the Project corridors previously considered in the Draft EIS for analysis in the Final EIS, as depicted in **Figure 2-9** and described below:

- In Moffat County, Colorado, a micro-siting option outside the previously analyzed corridor was added due to agency and public concerns related to several land use issues, including the NPS Deerlodge Road and the Colorado Parks and Wildlife (CPW)-held Tuttle Ranch Conservation Easement.
- In Uintah County, Utah, the corridor was slightly expanded in the Deadman Bench area based on ongoing engineering performed by TransWest to facilitate crossing the existing 345-kV Mona-Bonanza transmission line.
- In Duchesne County, Utah, the corridor was slightly expanded by TransWest as ongoing engineering revealed the need for an adjustment to the alignment in an area of extreme topography near Lears Canyon.
- Also in Duchesne and Utah counties, the corridor was expanded slightly to contain multiple micro-siting options that were added to analyze a balance of impacts through the area.

2.4 Elements Common to All Action Alternatives

Regardless of the transmission route or design option selected, there are specific Project requirements, constraints, and elements that apply to all action alternatives. These elements include federal environmental protection requirements and plan amendments, applicant-committed design features, and facilities associated with the Northern and Southern terminals.

2.4.1 Federal Requirements

In accordance with laws governing the management and use of federal lands and interstate commerce, federal agencies are empowered to grant long-term utility uses on federal lands subject to compensation, environmental stipulations, and renewal at the end of the term specified. To reach decisions to grant utility uses, involved agencies evaluate Project conformance with agency plans and policies to ensure proponent commitments and agency BMPs are sufficient to adequately protect the natural and human environment. After consideration of any residual environmental impacts, these factors help the agencies determine if the Project is in the public interest. A plan conformance review for all alternatives, the need for plan amendments, and a list of proposed plan amendments by alternative are contained in Chapter 4.0 of this EIS.

The performance standards contained in the WWEC programmatic EIS provide a framework for the environmental protection measures to be implemented by the lead and cooperating agencies on federal

lands under their jurisdiction. Implementation of these standards was a required step in evaluating effects on resources in the impact analysis. In addition to these broad-based practices, additional local plan decisions and guidelines are included to supplement the WWEC measures. A summary of the WWEC measures and other relevant agency BMPs are included in **Appendix C**.

The BLM and USFS may require mitigation measures and conservation actions in order to achieve land use plan goals and objectives and provide for sustained yield of natural resources on Public Lands, while continuing to honor the agency's multiple-use missions. The sequence of mitigation action would be the mitigation hierarchy (avoid, minimize, rectify, reduce or eliminate over time, compensate), as identified by the White House CEQ (40 CFR 1508.20) and the BLM *Draft - Regional Mitigation* Manual Section-1794. Certain alternatives also may identify compensatory mitigation requirements for those implementation level activities whose impacts the agency(s) cannot adequately avoid, minimize, rectify, reduce, or eliminate over time (i.e., residual impacts).

The priority is to mitigate impacts at the site of the activity in conformance with the land use plan goals and objectives, through impact avoidance, minimization, rectification, and reduction over time of the impact, including those measures described in laws, regulations, policies, and the land use plans. When these types of mitigation measures are not sufficient to ameliorate anticipated direct, indirect, and cumulative impacts and substantial or significant residual impacts remain, additional measures to reduce these residual impacts to meet applicable land use plan goals and objectives could be required (compensatory mitigation).

The Project will apply the mitigation hierarchy and will identify or incorporate by reference applicable land use plan mitigation measures for:

- Avoiding
  - Identification of avoidance areas and/or measures (e.g., ROW avoidance areas or prohibitions and restrictions, No Surface Occupancy areas) already included in laws, regulations, and/or governmental decision documents (e.g., RMPs, state, Tribal, or county plans that govern site or permit authorizations).
  - Identification of additional avoidance measures for the BLM to consider (e.g., additional avoidance BMPs).
- Minimizing
  - Identification of minimization measures (e.g., surface use controls, conservation measures, best management practices) already included in BLM decision documents (e.g., RMPs; USFWS BOs, other project decision documents and ROW authorizations).
  - Identification of additional minimization measures for the BLM to consider (e.g., applicant-committed design features).
- Rectifying
  - Identification of measures for the BLM to consider including repairing, rehabilitating, or restoring affected landscapes.
- Reducing or Eliminating
  - Identification of measures for the BLM to consider for reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- Compensating
  - Identification of measures for the BLM to consider for compensating for the impact by replacing or providing substitute resources or environments.

When applying mitigation at any level of the mitigation hierarchy, there will be requirements for monitoring the effectiveness of the mitigation as well as the durability of the mitigation. This monitoring is necessary, especially in relation to durability for compensatory mitigation to identify when it may be appropriate to consider applying adaptive management concepts to ensure continued durability for the life of the Project.

Two important concepts related to durability are 1) Ecological Durability: The length of time the benefits from mitigation measures persist on and influence the landscape and meet or exceed the length of time that projected impacts will affect resources and 2) Protective Durability: Ecological values in compensatory mitigation project areas are unaffected by future and conflicting land-uses or disturbances.

The ecological durability of compensatory mitigation is greatest if the projects are large enough or properly located so that they will, either in themselves or in conjunction with other projects, adjacent landscape conditions, or climate change predictions, provide the targeted conservation benefits.

Ecological durability may be compromised when the benefits of a compensatory mitigation project do not persist for the full duration of the impact intended to be offset (i.e., from initial surface disturbance to final reclamation, rehabilitation, or restoration). Damage to functioning compensatory mitigation measures may be caused by natural disturbances (such as wildland fire) or anthropogenic disturbances (such as other authorized development), which shorten the intended duration of applicable mitigation.

The BLM will require that mitigation measures have a degree of protective durability. Financial protections (e.g., bonding for construction, endowment for mitigation management) are an important tool to achieve protective durability. The BLM will expressly condition its approval of the project on the applicant's commitment to perform or cover the costs of mitigation, both onsite and outside the area of impact.

Other examples of compensatory mitigation that could offset the residual impacts of a project include, but are not limited to, restoration of terrestrial, aquatic, wetland, and riparian resources, and purchase conservation easements to provide long-term protection. Additionally, per BLM Manual 6280 - *Management of National Scenic and Historic Trails and Trails under Study or Recommended as Suitable for Congressional Designation,* compensatory funds could be used to purchase non-BLM parcels in the management corridor of trails affected by the proposal or to increase opportunities for additional interpretation.

2.4.2 Applicant Project Description and Design Features

2.4.2.1 Project Description

The EIS description of alternatives and ancillary facilities was developed from the Project Preliminary POD (TransWest 2010), from the Project Description Technical Report appended to the Draft EIS, and the Final EIS preliminary POD (**Appendix D,** TransWest 2014). **Table 2-1** summarizes the Project's properties and lists the facility areas necessary for construction and operation of the transmission line.

Additional details on proposed Project facilities, construction methods, Project operation and maintenance practices (including vegetation management), and decommissioning are provided in **Appendix D**. **Table C-3** (**Appendix C**) provides the applicant-committed design features, which are part of the proposed Project.

Table 2-1 Project Properties and Transmission Line Facility Areas

Electrical Properties					
Nominal Voltage	±600-kV DC				
Nominal Capacity	3,000-MW (as measured at the Southern Terminal)				
Circuit Configuration	DC Bi-Pole Bundled				
Conductor Size	Approximately 1.5-inch-diameter aluminum conductor steel reinforced bundled with three or four subconductors per pole				
Conductor Ground Clearance	37 feet minimum at a conductor temperature of 176 degrees Fahrenheit				
Facility Properties					
Line Length	721 to 903 miles; varies by routing alternatives				
ROW Width	250 feet; Increased ROW may be required in site-specific locations to accommodate rough terrain or unusually long spans				
Access Roads	Paved Roads	Typically highways and state routes; used for travel to existing and new dirt roads for ROW access			
	Dirt/Gravel Roads (no improvement)	No improvement to dirt/gravel roads required			
	Dirt Road (with improvements)	Improvement of existing dirt roads 16 to 24 feet wide depending on terrain			
	New Access Road (bladed)	Typically, 14-foot-wide bladed surface with 2- to 3-foot-wide berms or ditches on either side, but can be wider in steep and mountainous terrain because of cut and fill requirements according to ground slope			
	Overland Access	Non-graded overland access ("drive and crush") where terrain and soil conditions are suitable			
Structure Designs[1]	**Type**	**Typical Application**	**Typical Interval (Span)**	**Typical Height**	**Typical Foundation**
	Guyed steel lattice (tangent)	Flat to rolling terrain, open areas	3 to 4 structures per mi (900-1,500 feet)	120-180 feet	One 3- to 6-foot dia, 4 to 6 feet deep precast concrete support pedestal; four anchors for guy cables designed for soil/rock conditions
	Self supporting steel lattice (tangent)	Steep terrain with side hills, agriculture, and urban areas	3 to 4 structures per mi (900-1,500 feet)	120-180 feet	Four 3- to 4-foot dia, 12 to 25 feet deep reinforced cast-in-place concrete drilled pier
	Tubular steel poles (tangent)	Urban and other highly constrained areas	5 to 6 structures per mi (700-1,200 feet)	100-150 feet	One 6- to 10-foot dia, 20 to 60 feet deep reinforced cast-in-place concrete
	Self supporting steel lattice (angle)	Angles 2° or less	site-specific	120-140 feet	Four 5- to 8-foot dia, 20 to 50 feet deep reinforced cast-in-place concrete drilled pier
	Self supporting steel lattice (dead-end)	Angles from 3°-90°	site-specific	120-140 feet	Four 5- to 8-foot dia, 20 to 50 feet deep reinforced cast-in-place concrete drilled pier

Table 2-1 Project Properties and Transmission Line Facility Areas

Land Disturbance			
Construction Areas	**Type**	**Footprint[2]**	**Interval**
Structure Work Areas	All Tower Structures	ROW width x 200 feet (50,000 sq feet)	each structure location
Wire-Pulling and Tensioning Sites	Mid-span conductor and shield wire	ROW width x 500 feet (125,000 sq feet)	9,000 feet (approx.)
	Dead-end structures	ROW width x 500 feet (125,000 sq feet)	two sites at all dead-end structures
	Communication fiber optic cable	100 x 500 feet (50,000 sq feet)	18,000 feet (approx.)
Staging Areas/Fly Yards		7 ac (approx.) outside ROW	5 mi (approx.)
Material Storage Yards		20 ac (approx.) outside ROW	30 mi (approx.)
Batch Plant Sites		5 ac (approx. stand-alone) outside ROW	15 mi (approx.)
Guard Structures		100 x 100 feet (10,000 sq feet)	each road and existing overhead electrical line crossings
Series Compensation Station	Required for AC transmission line (Design Options 2 and 3)	23 ac (approx.) in/outside ROW	One for either design option – not necessary for DC
Operation Areas	**Type**	**Footprint[2]**	**Interval**
Structure Bases[1]	Guyed steel lattice (tangent)	10- x 10-foot mast foundation; four 10- x 10-foot anchors (500 sq feet total)	3 to 4 areas per mi
	Self supporting steel lattice (tangent)	30 x 30 feet (900 sq feet)	3 to 4 areas per mi
	Tubular steel poles (tangent)	7-foot-dia (40 sq feet)	5 to 6 areas per mi
	Self supporting steel lattice (angle)	35 x 35 feet (1,225 sq feet)	Angles 2° or less
	Self supporting steel lattice (dead-end)	40 x 40 feet (1,600 sq feet)	Angles from 3°-90°
Communication Regeneration Sites		100 x 100 feet (10,000 sq feet)	50 mi (approx.)
Series Compensation Station	Required for AC transmission line (Design Options 2 and 3)	15 ac (approx.) in/outside ROW	One for either design option – not necessary for DC

[1] Structure types, applications, intervals, heights, and foundations to be used in site-specific settings will be determined during engineering and design of the agency preferred alternative.

[2] Footprint areas within ROW unless specified otherwise.

During the construction of the transmission line, areas for access roads, tower construction sites, communication sites, line stringing and tensioning sites, and other temporary work areas (e.g., staging areas, concrete batch plants, storage yards, helicopter fly yards) would be disturbed.

During the operation and maintenance of the transmission line, tower location sites and communication sites would remain disturbed in place within the ROW. Access roads would remain to the extent they are required for structure and facility access and in coordination with the landowner or land managing agency. All construction sites and temporary work areas would be reclaimed upon completion of construction.

At the end of the Project's operational life (50 years or longer), and if the facilities were no longer required, the transmission line would be decommissioned. At such time, conductors, insulators, and hardware would be dismantled and removed from the ROW. Structures would be removed and foundations removed to below ground surface. Following abandonment and removal of the transmission line structures and equipment from the ROW, any areas disturbed during line dismantling would be restored and rehabilitated. TransWest would be responsible for the decommissioning and reclamation of access roads following abandonment in accordance with the landowner's or land agency's direction.

The Project terminals and ground electrode system sites are detailed in Section 2.4.3, Facilities Common to All Action Alternatives, and the alternative routes of the transmission line are detailed in Section 2.5, Alternative Transmission Line Routes and Ancillary Facilities.

Pre-construction Work

Prior to construction, TransWest would obtain all applicable federal, state, and local permits; acquire easements and ROW grants for the Project facilities; conduct geotechnical surveys and testing; and conduct pre-construction engineering and environmental surveys. Studies would be conducted to select structure sites based on engineering design criteria, terrain, geologic investigations, and property owner input regarding land use and how to minimize potential impacts to properties.

Geologic and geotechnical surveys would be completed at structure locations to evaluate potential geologic and geotechnical hazards and to determine specific requirements (ground conditions, soil types, depth to rock, depth to water, soil strength properties, etc.) for foundation design and construction. The work would be completed in time to develop final engineering specifications necessary for construction. The primary purpose of the geologic evaluation is to identify potential hazards with sufficient lead time to evaluate options for avoiding or mitigating potential hazards. To determine proper structure foundation requirements, geotechnical investigations would be performed in the field to evaluate the strength and bearing capacity of site soils. Both engineering and environmental surveys would be conducted to identify the ROW centerline and width, structure sites, vegetation clearance and property boundaries, access routes, temporary work areas, and sensitive resources. Surveys would be performed within the structure construction work areas and ROW after the ROW grant.

Access Roads

The Project would require surface access to all structures and work areas during construction and operation to allow equipment to access each transmission structure. The construction of new access roads would occur only as necessary to access structure sites lacking direct access from existing roads, or where topographic conditions (e.g., steep terrain, rocky outcrops, and drainages) prohibit safe overland access to the site. Where terrain and soil conditions are suitable, non-graded overland access ("drive and crush") would be employed. New access roads would be located within the ROW whenever practical and would be sited to minimize potential environmental impacts. A new access road refers to implementing all activities required to establish a travel-way that allows vehicular access from an existing road to the required work location and does not necessarily imply construction of a new gravel-top road. The number of new access roads would be held to a minimum, consistent with their intended use (e.g., structure construction or conductor stringing and tensioning). Project design would seek to use existing

roads prior to creating new roads for construction, operation, and maintenance activities. Construction roads that are not currently part of the USFS road system would only be temporary and would be restored and reclaimed upon completing construction.

Where new roads are required or where improvements to existing roads are required, access roads would be designed in accordance with standards and guidelines for Non-constructed Roads and Routes as described in "The Gold Book – Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development" (BLM and USFS 2007). Portions of the access road network requiring design and construction to a more stringent standard will be identified in the Access Road Siting and Management Plan submitted with the Notice to Proceed POD.

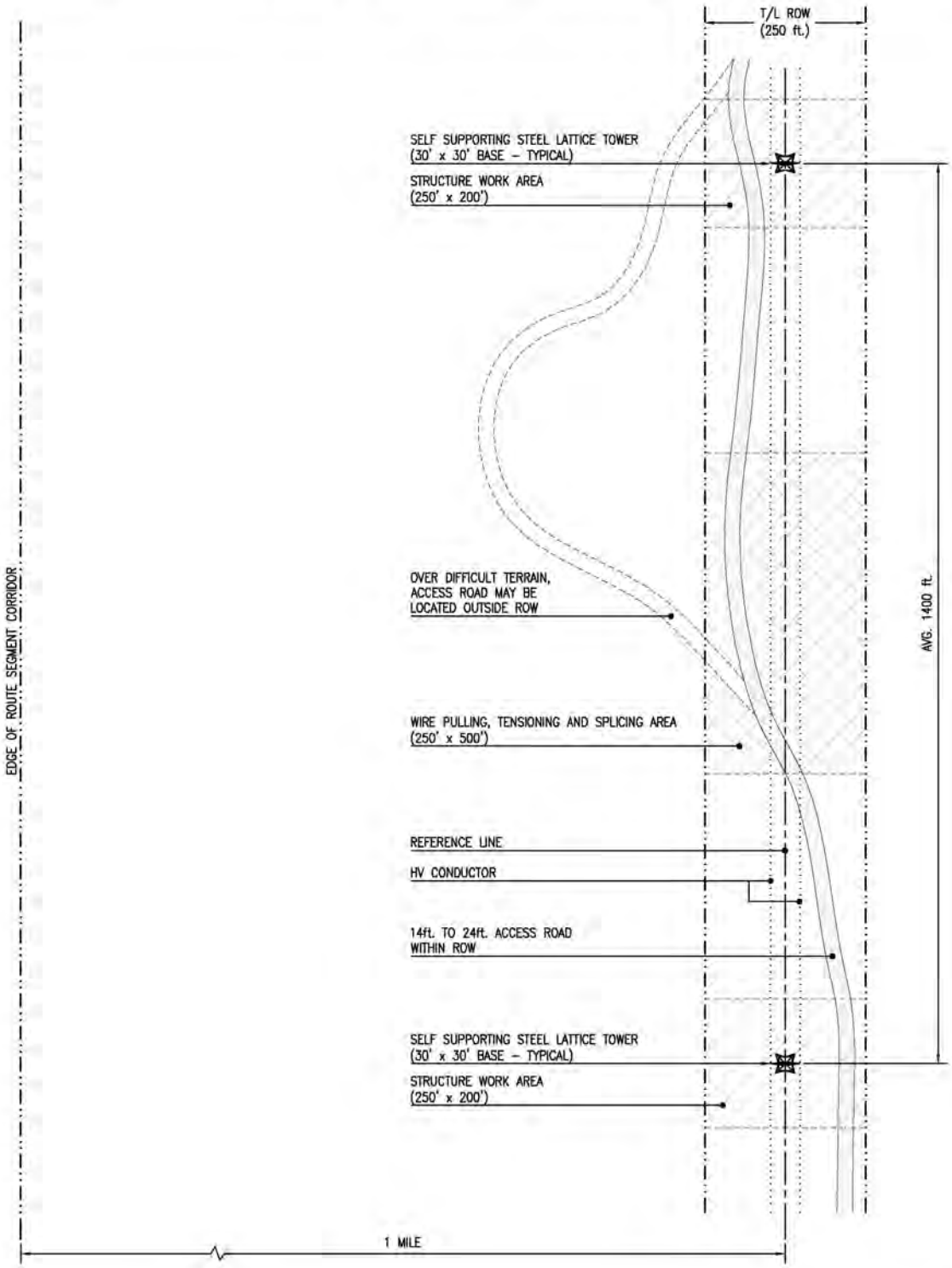
Existing, maintained roads as part of the backbone road network were identified and analyzed in the EIS; however, new or improved access road locations are not determined until the Final Engineering Design prepared for the ROW grant. For assessment in this EIS, a programmatic methodology was developed to estimate miles of new access roads, differentiating between required access roads both inside and outside the refined transmission corridor. In addition, four terrain types (flat, rolling, steep, and mountainous) were considered to determine different road improvement needs along the routes. The methodology used the results obtained from the 39 example segments and the slope of the 250-foot-wide transmission line ROW to estimate miles of new access roads required for every transmission line segment. The segment totals were then aggregated to create a total number of access road miles needed for each alternative in each Region. Access road miles along with other metrics were used to make comparisons between the alternatives. This programmatic methodology and the results were reviewed and approved by the lead agencies for use in the EIS analysis.

ROW and Temporary Work Areas

Figure 2-10 depicts a typical transmission line construction ROW and temporary work areas. Vegetation within the ROW would be cleared and maintained in accordance with a Vegetation Management Program developed specifically for this Project as described in Section 3.5, Vegetation, and according to the mitigation that will be prescribed within the Project's ROD and ROW grant. The proposed approach is to clear the ROW of any vegetation greater than 6 feet in height while leaving low-growing vegetation, stumps, and roots to provide cover and soil stabilization. The Vegetation Management Program describes additional "levels" of management, which have been prescribed in suggested mitigation in resource sections of Chapter 3.0. See Section 3.5.6.2 for a detailed description of the vegetation management levels.

Temporary work areas would include work areas at each structure site; pulling, tensioning and splicing sites; staging areas; material storage yards; batch plant sites; fly yards; and guard structures. Temporary work areas would be cleared of vegetation or flagged for drive-and-crush, as needed, prior to construction.

Individual sites would be cleared to install the transmission line structures and facilitate access for future transmission line and structure maintenance. The area cleared would provide the space for construction laydown, structure assembly, and erecting towers at each structure site within the ROW. To the extent necessary, the work area would be cleared of vegetation and bladed to create a safe working area for placing equipment, vehicles, and materials. Wire pulling, tensioning and splicing sites would be cleared and bladed only to the extent necessary to perform safe wire installation construction activities. During planning for wire installation activities, wire pulling and tensioning and splicing sites would be selected to minimize clearing and blading to the extent practical such that actual disturbance areas would be minimized.



TRANSWEST EXPRESS TRANSMISSION PROJECT

Figure 2-10
Typical Transmission ROW
and
Temporary Work Areas

Source: TransWest 2014.

09/02/14

The staging areas would be located in previously disturbed sites or in areas of minimal vegetation cover where possible. The staging areas would serve as FOs; reporting locations for workers; parking space for vehicles and equipment; and sites for material storage, fabrication assembly, concrete batch plants, and stations for equipment maintenance. Staging area locations would be finalized following discussion with the land management agency or negotiations with landowners. In some areas, the staging area may need to be scraped by a bulldozer and a temporary layer of rock laid to provide an all-weather surface. Additionally, fly yards for helicopter operations would be located where helicopter construction is planned.

After line construction, all areas disturbed for temporary work will be restored as described in the ROW Preparation and Vegetation Management Plan, which is Appendix Q of the POD (**Appendix D**). Unless otherwise directed by the landowner, the rock will be removed from the staging area upon completion of construction and the area will be restored.

Transmission Structures

Structure Foundations

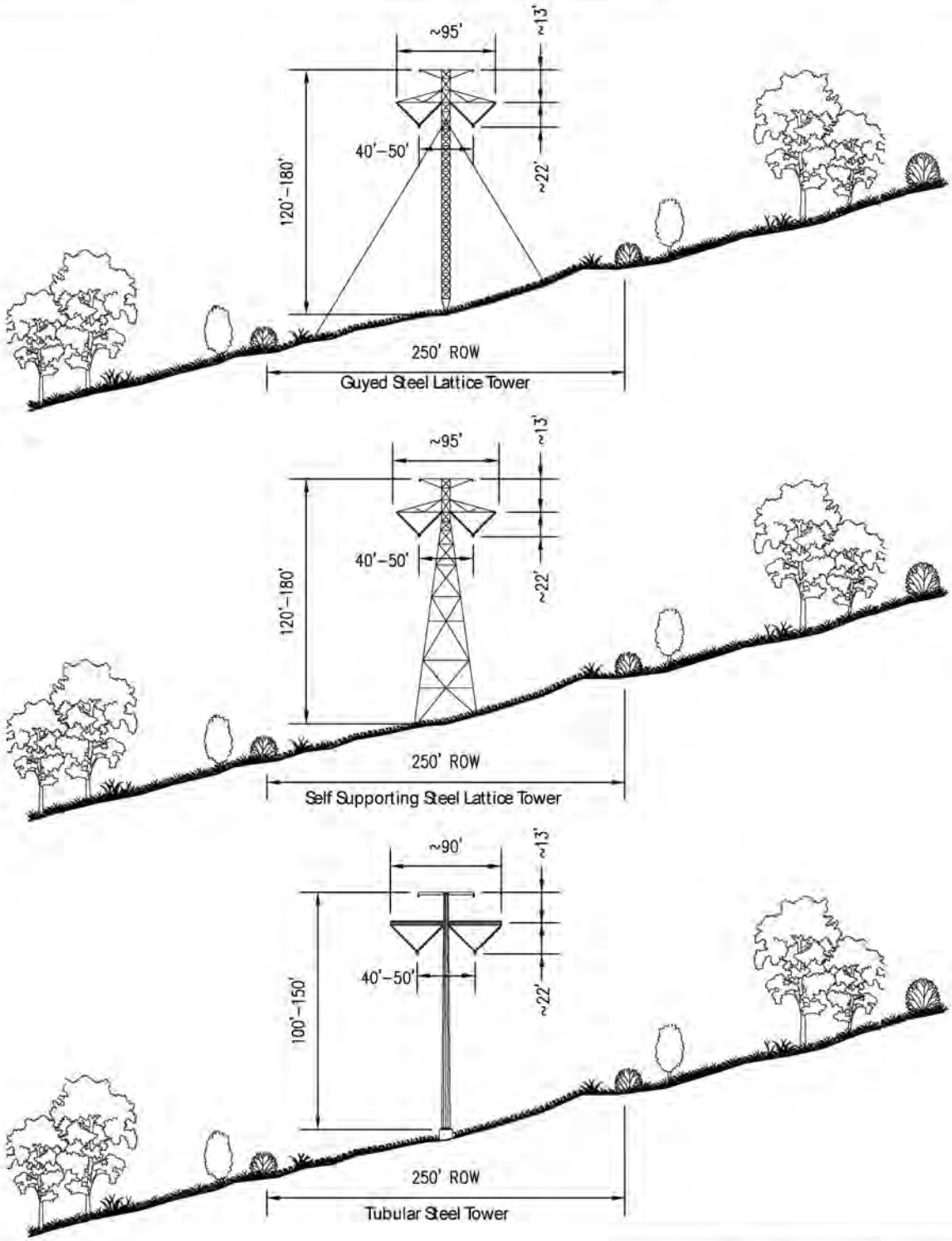
Figure 2-11 depicts the three types of transmission line structures under consideration. Foundations for guyed steel lattice towers typically would be small precast or cast-in-place concrete pedestals. The precast pedestals would be transported to the tower site on a flatbed truck and set in a small excavation dug by a backhoe or auger-type hole digger.

Guyed lattice structures require the installation of anchors and guy wires to support the structure. Depending upon the soil type and engineering strength requirements, anchors would be either excavated plate anchors, grouted anchors, drilled anchors secured with epoxy, or rock anchors. Drilled anchors (including rock anchors) would require truck- or track-mounted drilling equipment to drill a hole 4 to 8 inches in diameter, 20 to 40 feet or more in depth. The anchor rod would be inserted into the open bore and secured to the soil or rock with epoxy or grout. Plate anchors are installed in a 3- to 4-foot-diameter excavation, 10 to 20 feet in depth, drilled by a truck- or track-mounted drilling rig. The anchor rod is attached to the plate anchor and the excavation is backfilled and compacted.

The single-shaft tubular steel poles and self-supporting steel lattice towers typically would be supported by cast-in-place drilled concrete pier foundations. For these structure types, vertical excavations for foundations would be made. Where soils permit, truck- or track-mounted augers of various sizes, depending on the diameter and depth requirements of the hole to be drilled, would be used. In rocky areas, the foundation holes may be excavated by drilling or blasting methods, or installing special rock anchor or micro-pile type foundations would be installed. The rock anchoring or micro-pile system would be used in areas where site access is limited, or where adjacent structures could be damaged as a result of blasting or rock hauling activities.

After excavation and prior to structure installation, reinforced-steel anchor bolt cages would be installed. These cages would be assembled at the nearest laydown yard or staging area and delivered to the tower site via flatbed truck. These cages would be inserted in the holes then filled with concrete.

Typically, and because of the remote location of much of the transmission line route, concrete would be provided from portable batch plant areas as described above. Concrete would be delivered directly to the site in concrete trucks with a capacity of up to ten cubic yards. In the more developed areas along the route, the Contractor may use local concrete providers to deliver concrete to the site when economically feasible.



TRANSWEST EXPRESS TRANSMISSION PROJECT

Figure 2-11
Potential
Transmission Line
Structure Types

Source: TransWest 2014.

09/02/14

Tower Erection

Typical tower erection and conductor stringing construction is depicted in **Figure 2-12**. Bundles of steel members and associated hardware (insulators, hardware, and stringing sheaves) would be transported to each structure site by truck. Wood blocking would be hauled to each location and laid out; the tower steel bundles would be opened and laid out for assembly by sections and assembled into subsections of convenient size and weight. Typically, the leg extensions for the towers would be assembled and erected by separate crews with smaller cranes to prepare for setting of the main tower assembly. The assembled subsections would be hoisted into place using a large crane and fastened together to form a complete tower. A follow-up crew then would tighten all the bolts in the required joints. Refer to **Figure 2-12** for a general illustration of this procedure.

The use of helicopters for tower erection is similar to that described above; however, the initial assembly is completed at a fly yard according to the lift capacity of the helicopter. Completed tower assemblies are attached to the helicopter by cable and flown to the tower site. There, the assembly is placed on the foundation or atop the previous tower section. Guide brackets attached on the top of each section assist in aligning the stacked sections. Once aligned correctly, line crews climb the towers to permanently bolt the sections together.

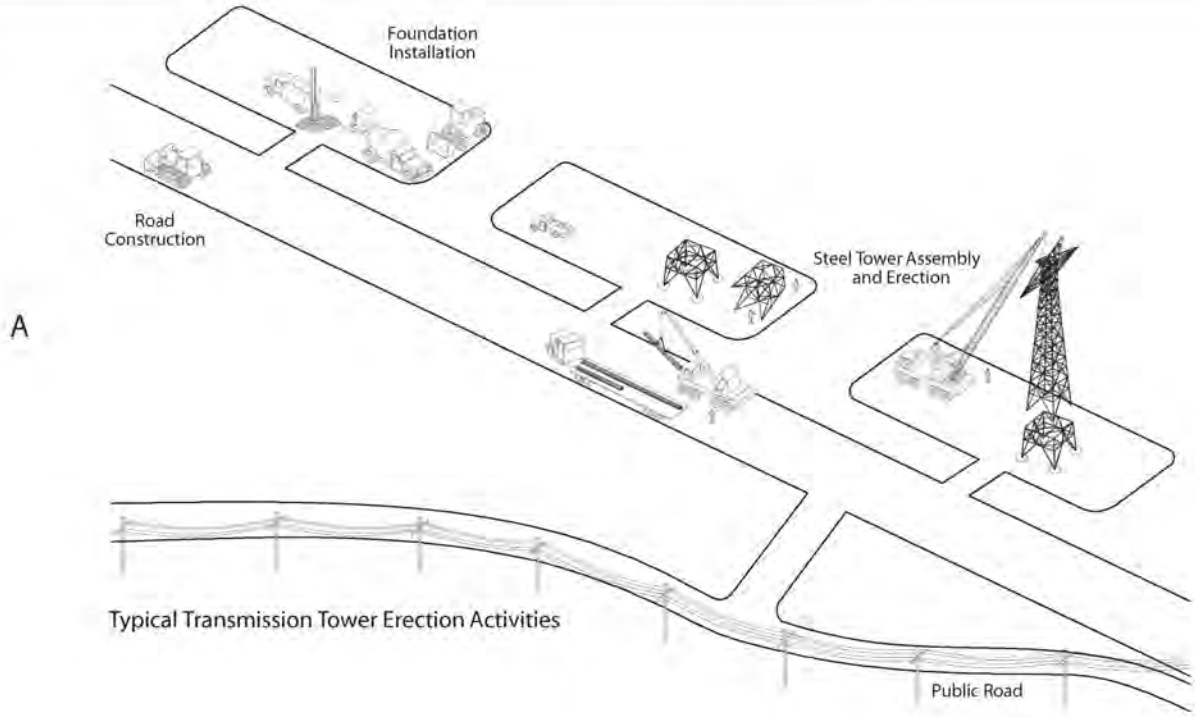
Stringing of Conductors, Shield Wire, and Fiber Optic Ground Wire

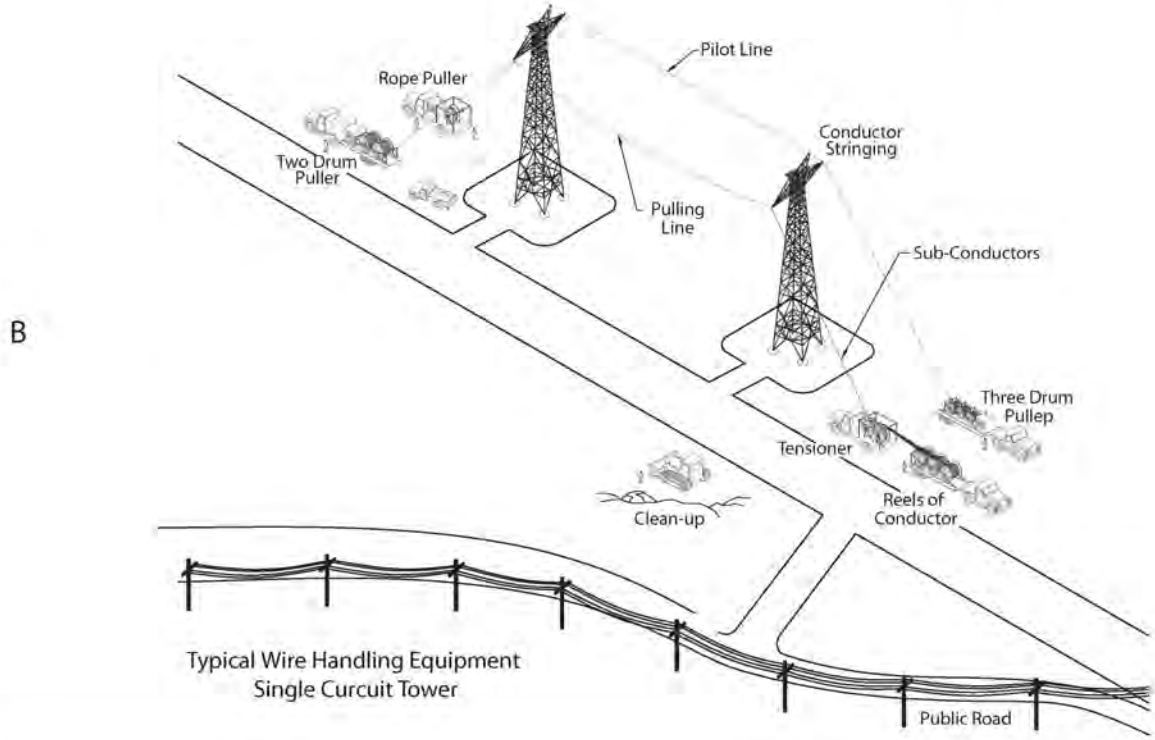
For protection of the public during stringing activities, temporary guard structures would be erected at road crossing locations where necessary. Guard structures would consist of H-frame wood poles placed on either side of the road to prevent ground wires, conductors, or equipment from falling on underlying facilities and disrupting road traffic. Equipment for erecting guard structures would include augers, backhoes, line trucks, boom trucks, pole trailers, and cranes. Guard structures may not be required for small roads. In such cases, other safety measures such as barriers, flaggers, or other traffic controls would be used. Following stringing and tensioning of all ground wires and conductors, the guard structures would be removed and the area restored.

Insulators, hardware, and stringing sheaves would be delivered to each tower site. The towers would be rigged with insulator strings and stringing sheaves at each shield (ground) wire and conductor position.

Pilot lines would be pulled (strung) from tower to tower by either a helicopter or land operated equipment, and threaded through the stringing sheaves at each tower. Following pilot lines, a stronger, larger diameter line would be attached to conductors to pull them onto towers. This process would be repeated until the shield wire, optical ground wire, and conductor is pulled through all sheaves.

Shield wires, fiber optic cable, and conductors would be strung using powered pulling equipment at one end and powered braking or tensioning equipment at the other end of a conductor segment. The tensioner, in concert with the puller, would maintain tension on the ground wires or conductor while they are fastened to the towers. Once each type of wire has been pulled in, the tension and sag would be adjusted, stringing sheaves would be removed, and the conductors would be permanently attached to the insulators. At tangent and small-angle towers, the conductors would be attached to the insulators using clamps while at the larger angle dead-end structures the conductors are cut and attached to the insulator assemblies by “dead-ending” the conductors using industry-recognized methods.





TRANSWEST EXPRESS TRANSMISSION PROJECT

Figure 2-12
Typical Tower Erection and Conductor Stringing Construction

Source: TransWest 2014.

Communication System

The Project would require a number of critical telecommunications support subsystems. The primary communications for protection and control would be provided via the one fiber optic ground wire installed in the shield wire position on the transmission line. For redundancy purposes, a secondary communications path would be provided via existing or expanded/upgraded microwave systems or existing alternate buried fiber paths in the area.

The primary fiber optic system would require signal regeneration sites to amplify the signals if the distance between stations or regeneration sites exceeds approximately 50 miles. In most cases, the regeneration communication sites would be located within the transmission line ROW. TransWest also may contract with third parties for the sale and use of excess fiber optic capacity if authorized under a separate ROW grant. No additional facilities are anticipated for third-party use of excess fiber optic capacity.

The secondary communications path would be provided either by a private Project microwave system or purchasing/leasing capacity on existing utility dedicated communication networks within the Project region. If required, a private microwave system would be structured to utilize existing developed communications sites, access roads and utility held sites to the maximum extent possible. A small number of new microwave sites may be required for the Project.

To facilitate mobile communications along the transmission line route for transmission line patrol, inspection, routine maintenance and emergency operations, a mobile ultra high frequency (UHF)/very high frequency (VHF) radio communications system would be implemented. For planning purposes, UHF/VHF radio equipment, towers, antennae and repeaters are assumed to be installed at each regeneration station.

2.4.2.2 Project Design Features, Best Management Practices, and Required Stipulations

Project design features, BMPs, and required stipulations are requirements for the construction, operation, maintenance, and decommissioning of the transmission line, regardless of which alternative is presented in the ROD. These actions all were developed or mandated to avoid or reduce impacts to resources, and they are required for implementation of the Project on BLM and USFS lands.

Applicant-committed design features are environmental protection measures that TransWest has voluntarily proposed to minimize and/or avoid resource impacts; regardless of land jurisdiction. TransWest has committed to review and augment the list of applicant-committed design features as needed to minimize impacts to the extent possible, and to ensure conformance with all pertinent RMPs and LRMPs. A description of the current applicant-committed design features organized by major resource topics and project phase is presented in **Appendix C**.

BMPs from the BLM FO RMPs and standards and guidelines from the USFS LRMPs are general requirements that minimize environmental impacts by ensuring compliance with laws, agency policies, and regulatory requirements. BMPs required by land use plans are included in **Appendix C;** however, this is not an exhaustive listing as the plans are extensive and many requirements are addressed by the applicant-committed design features, also presented in **Appendix C**. Further information regarding these BMPs can be found in the respective RMPs and LRMPs listed in **Tables 1-3** and **1-4**.

Required stipulations are resource- or area-specific conditions related to surface disturbing activities required for any permitted project on BLM or USFS lands. BLM and USFS stipulations are specific to each forest and BLM FO. Stipulations are described in **Appendix C**, and locations along the Project alternatives identified as relevant no surface use (NSU) areas are depicted in **Figures 2-13** through **2-16**. Details regarding the effectiveness of these stipulations in addressing resource impacts can be found in the respective Final EIS analyses for the RMPs and the LRMPs listed in **Tables 1-3** and **1-4**. Specific disclosure of the effects of these stipulations on impacts of this Project is provided by resource area in Chapter 3.0 of this EIS.

2.4.3 Facilities Common to All Action Alternatives

Several facilities would be required regardless of the action alternative selected. Terminals and ground electrode sites would be located at both the northern and southern ends of the Project. The following sections provide a summary of these facilities. A detailed description of these facilities is provided in the POD (**Appendix D**).

2.4.3.1 Northern and Southern Terminals

Northern and southern terminals would be required for all transmission line action alternatives. The Northern Terminal would be located approximately 3 miles southwest of Sinclair, Wyoming; the Southern Terminal would be located approximately 1 mile northeast of the Marketplace Hub in the Eldorado Valley within the city limits of Boulder City, Nevada. Design Option 2 would require that the Southern Terminal be relocated to the IPP in Millard County near Delta, Utah. Design Option 3 would require that an AC substation be constructed at the IPP site.

The terminal stations would include an AC/DC converter station and adjacent AC substation. The AC/DC converter station would include a 600-kV DC switchyard; AC/DC conversion equipment; transformers; and multiple equipment, control, maintenance, and administrative buildings.

Two buildings would house the AC/DC conversion equipment, each approximately 200 feet long by 80 feet wide and 60 to 80 feet high. Smaller buildings would house the control room, control and protection equipment, auxiliary equipment, and cooling equipment. The AC substation at the Northern Terminal would be a 500-/230-kV substation, and the AC substation at the Southern Terminal would be a 500-kV substation. The AC substations would include a switchyard, transformers, control equipment, and control buildings. Connections to the existing transmission infrastructure also would be constructed. **Table 2-2** summarizes the general terminal facility lengths and areas of disturbance.

Table 2-2 Terminal Facility Lengths and Areas of Disturbance

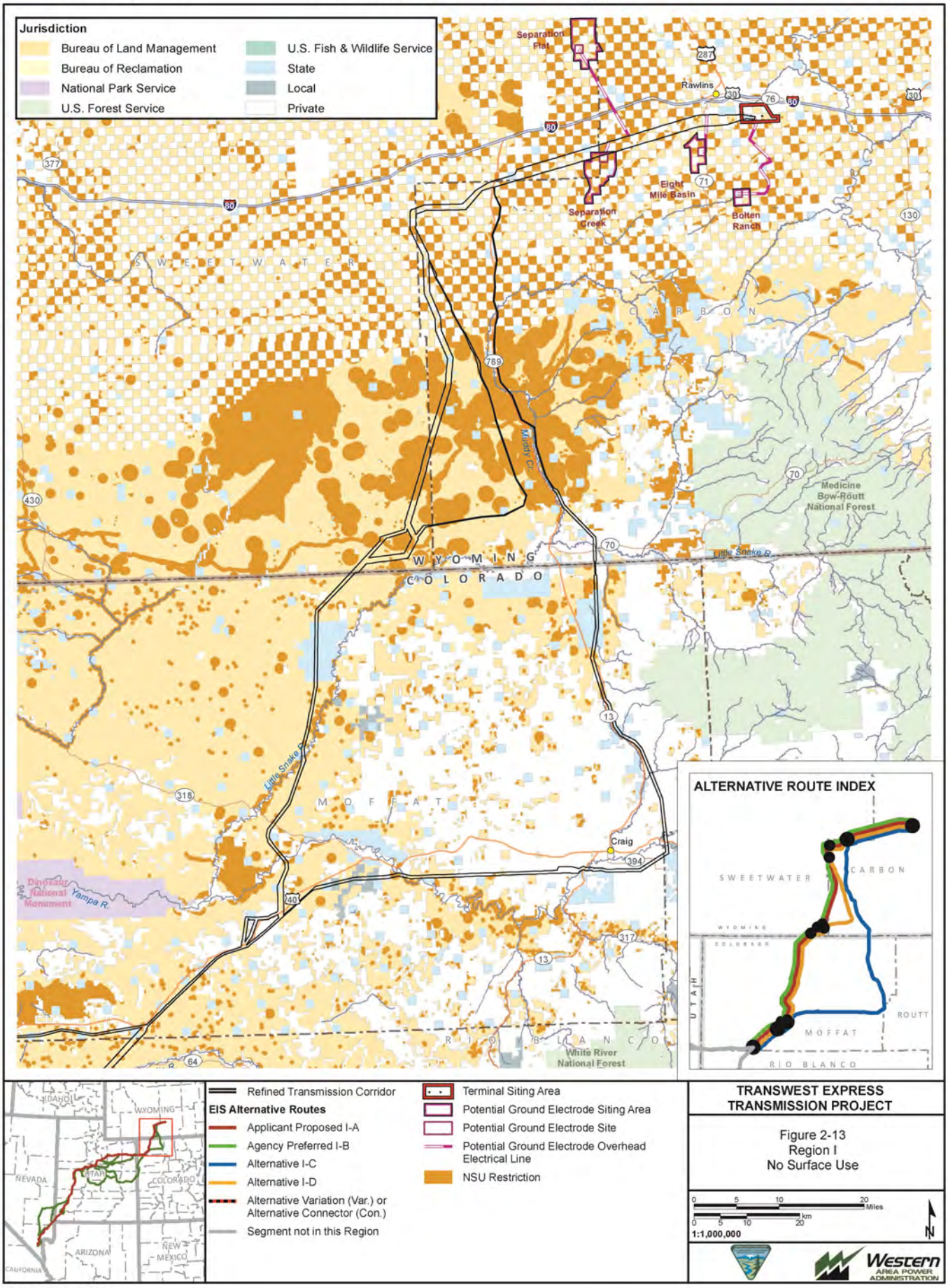
Terminal	Length (miles)		Construction Disturbance (acres)				Operation Disturbance (acres)			
	Inter-connection T-Lines	Access Roads	Converter, Substation, Switchyard	Inter-connection T-Lines	Access Roads	Total	Converter, Substation, Switchyard	Inter-connection T-Lines	Access Roads	Total
Northern	13	17	213	263	43	519	205	1	43	249
Southern	10	34	148	328	81	557	140	5	81	226
Southern Alternative	19	47	148	496	111	755	140	9	111	260
Southern near IPP (Design Option 2)	6	7	77	56	23	156	70	<1	23	93
Substation near IPP (Design Option 3)	5	7	62	56	20	138	55	<1	20	75
Series Compensation Station (Design Options)	--	--	18	--	5	23	10	--	5	15

Northern Terminal

The Northern Terminal facilities would be located on private lands in Carbon County, Wyoming, approximately 3 miles southwest of the Town of Sinclair, Wyoming (**Figure 2-17**). The Northern Terminal would connect to the existing Platte – Point of Rocks 230-kV line located within 1 mile of the terminal. If needed to provide connection to the Aeolus and Anticline substations, the Northern Terminal also could connect to the Energy Gateway West and Energy Gateway South 500-kV transmission lines currently proposed by PacifiCorp. TransWest requested an interconnection with both projects from PacifiCorp in 2009. Based on the current alternative routes being analyzed in the respective NEPA processes for the Energy Gateway West and Energy Gateway South projects, it is reasonably foreseeable that the interconnections between these two projects and the proposed Project would be at the Northern Terminal. The Northern Terminal would require the following components:

- An AC/DC converter station (a 600-kV DC switchyard and a converter building containing electronics and control equipment) approximately 30 acres in size.
- A 500-kV/230-kV AC substation approximately 135 acres in size.
- A 230-kV AC substation approximately 40 acres in size.
- An electrical connection from the AC/DC converter station to the 600-kV DC transmission line connecting to the Southern Terminal. All facilities for this connection are incorporated into the 600-kV DC transmission line.
- Two electrical connections from each (four connections total) of the proposed single circuit Energy Gateway West and Energy Gateway South 500-kV transmission lines (if approved) to the 500-/230-kV substation. These connections would connect the Northern Terminal to both the Aeolus and Anticline substations via the Energy Gateway West and Energy Gateway South 500-kV transmission lines (if approved). These two connections may require 500-kV transmission facilities, approximately 4 miles total or less in length, to connect the 500-/230-kV substation to the route of the Energy Gateway South 500-kV transmission line (if approved).
- Two electrical interconnections to the existing Platte – Point of Rocks 230-kV line, which would be rerouted into and out of the 230-kV substation. This 230-kV connection is assumed to require approximately 4 miles or less of double-circuit 230-kV transmission line.
- Up to six electrical interconnections from proposed and planned generation facilities by 230-kV transmission lines.

The three major components of the Northern Terminal (AC/DC converter station, 500-/230-kV AC substation, and 230-kV AC substation) would be co-located and contiguous. Although these three components would be stand-alone facilities and could be located on separate parcels connected together by short transmission lines, it is common practice and preferable for the AC/DC converter station and 500-/230-kV AC substation(s) to be adjacent to each other. It also is preferable to locate the 230-kV AC substation next to the 500-kV AC substation. However, depending on the availability of space and other constraints in this area, these stand-alone facilities could be separated by a distance of up to 2 miles.



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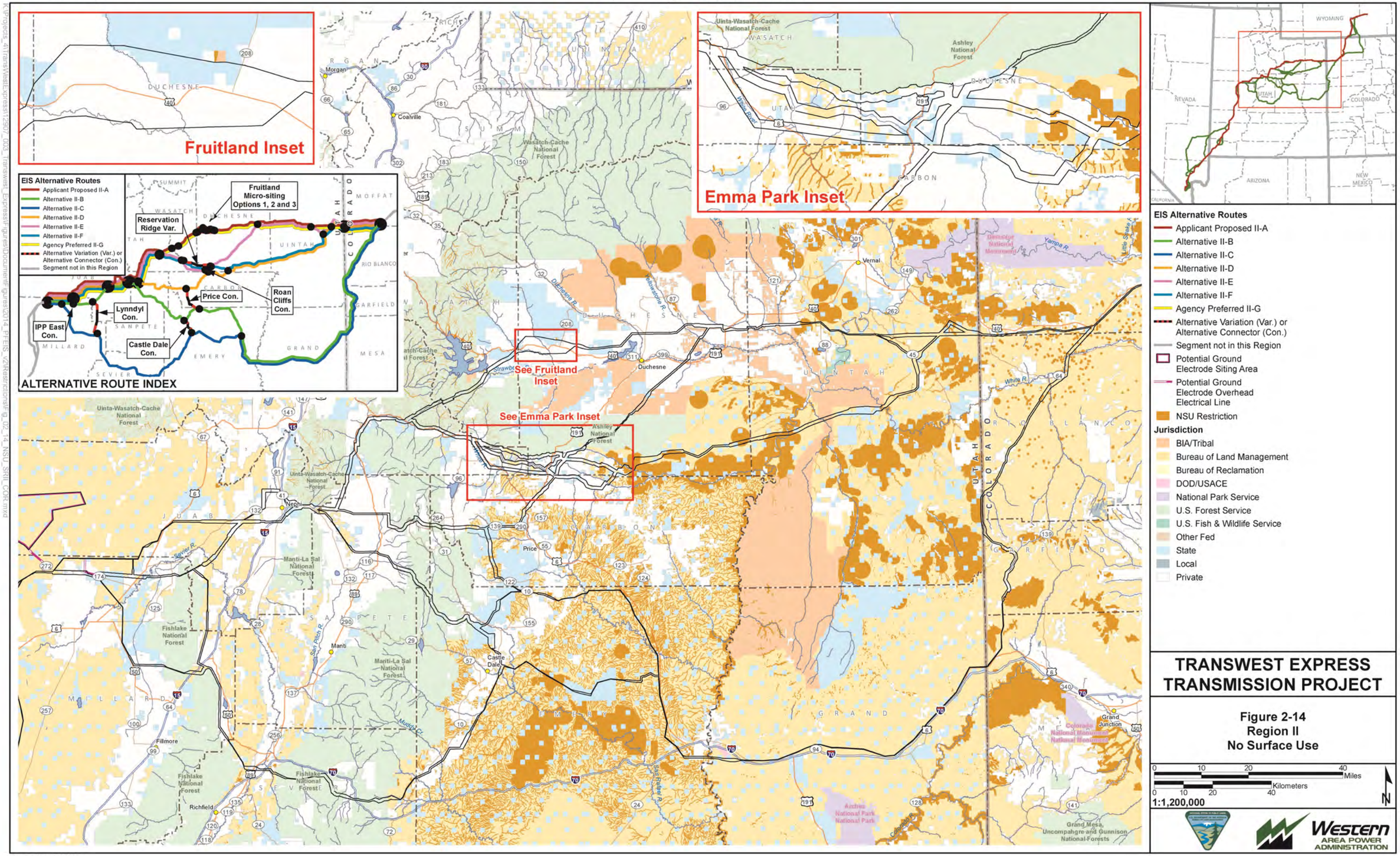

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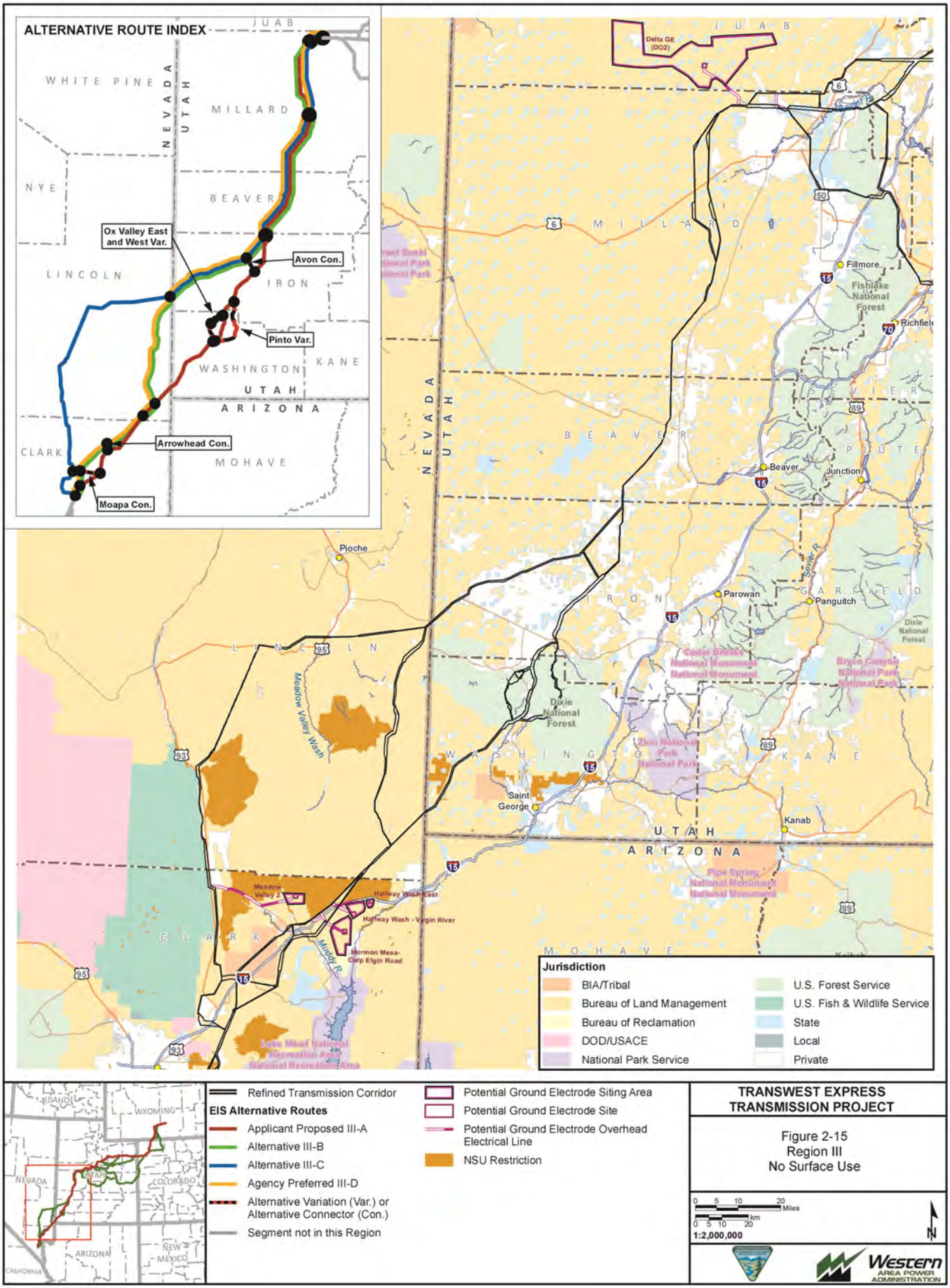

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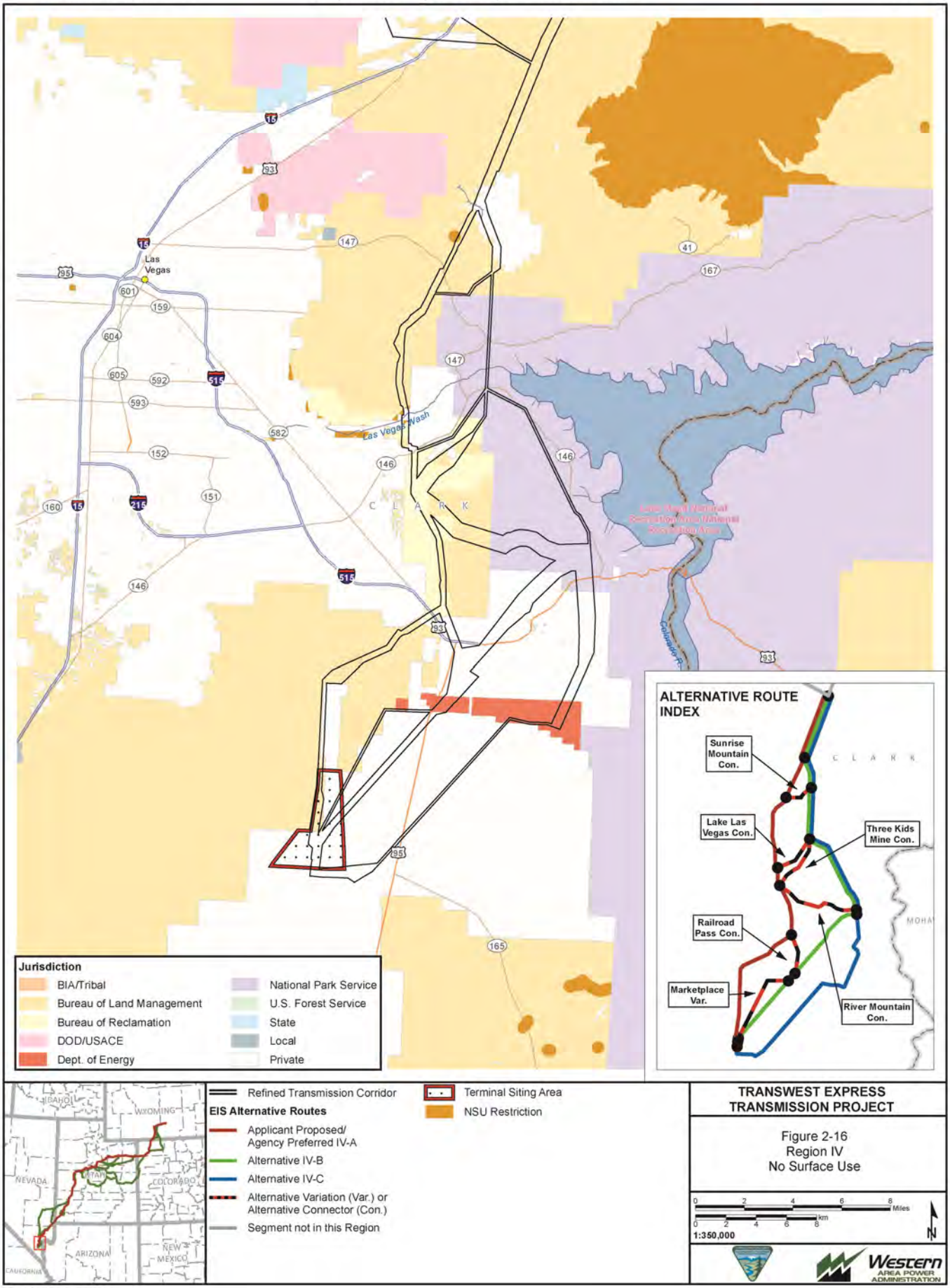

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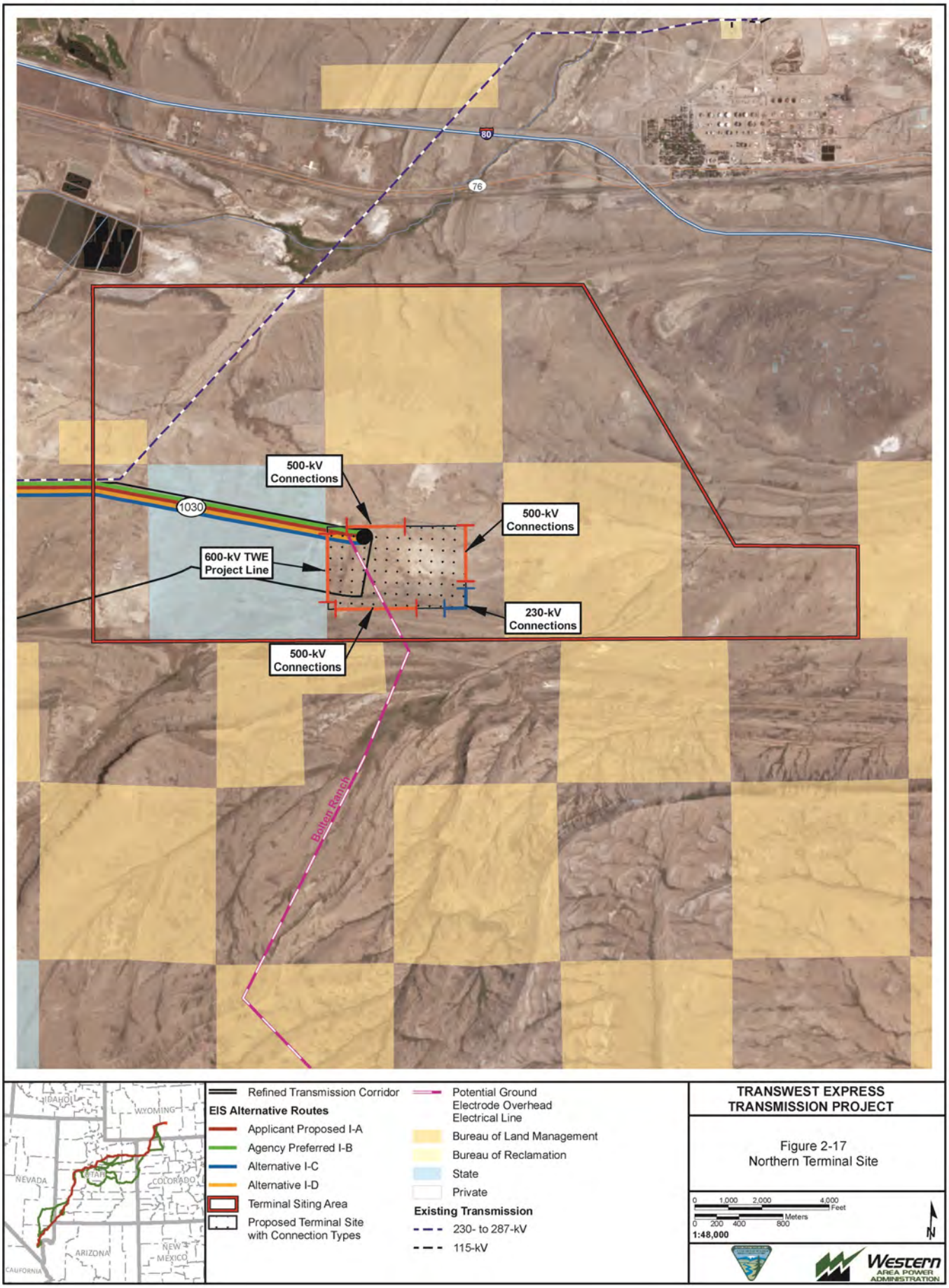

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Southern Terminal

The Southern Terminal facilities would be located in the Eldorado Valley on private or public land, within the city limits of Boulder City, in Clark County, Nevada (**Figure 2-18**). Two alternative sites are being analyzed for the Southern Terminal in the Eldorado Valley; either would contain the same facilities. The Southern Terminal would connect to all four of the existing 500-kV substations (Eldorado, Marketplace, Mead, and McCullough) located at the Marketplace Hub.

The Southern Terminal would require the following components:

- An AC/DC converter station (a 600-kV DC switchyard and a converter building containing power electronics and control equipment) approximately 30 acres in size.
- A 500-kV AC substation approximately 110 acres in size.
- An electrical connection from the AC/DC converter station to the 600-kV DC transmission line. All facilities for this connection would be incorporated into the 600-kV DC transmission line.
- Two electrical connections from the existing Mead – Marketplace 500-kV transmission line to the new 500-kV AC Substation. These connections would connect the Southern Terminal to both the Mead and Marketplace substations via the existing Mead – Marketplace 500-kV transmission line. These two connections may require 500-kV transmission facilities, assumed to total 4 miles or less in length, to connect the new 500-kV AC substation to the existing Mead – Marketplace 500-kV transmission line.
- Construction of 500-kV transmission line from the new 500-kV AC substation to each of the Eldorado and McCullough substations. These single circuit 500-kV transmission lines are each estimated to be 5 miles or less in length.
- Although not anticipated at this time, one or more of the existing 138-/230-kV lines within the Proposed Terminal Siting Area may need to be re-routed/re-configured to accommodate the Southern Terminal due to congestion within the area. If necessary, this reroute or reconfiguration of 138-/230-kV transmission line facilities is not anticipated to impact more than 5 miles of existing lines.

The two major components of the Southern Terminal (AC/DC converter station and the 500-kV AC substation) would be co-located and contiguous. Although these two components would be stand-alone facilities and could be located on separate parcels connected together by short transmission lines, it is common practice and preferable for the AC/DC converter station and 500-kV AC substation to be adjacent to each other.

If Design Option 2 were implemented (**Figure 2-2**), the Northern Terminal would be located in Wyoming and configured as described in the proposed action. However, the Southern Terminal would be constructed near IPP in Utah instead of in Nevada (**Figure 2-19**). Facilities would be similar to those described above, and are as follows:

- An AC/DC converter station and an adjacent 500-/345-kV AC substation near the IPP in Millard County, Utah; and
- A double circuit 345-kV AC line (approximately 5 miles) between the new 500-/345-kV AC substation near IPP to the existing IPP 345-kV AC substation adjacent to the existing IPP AC/DC converter station.

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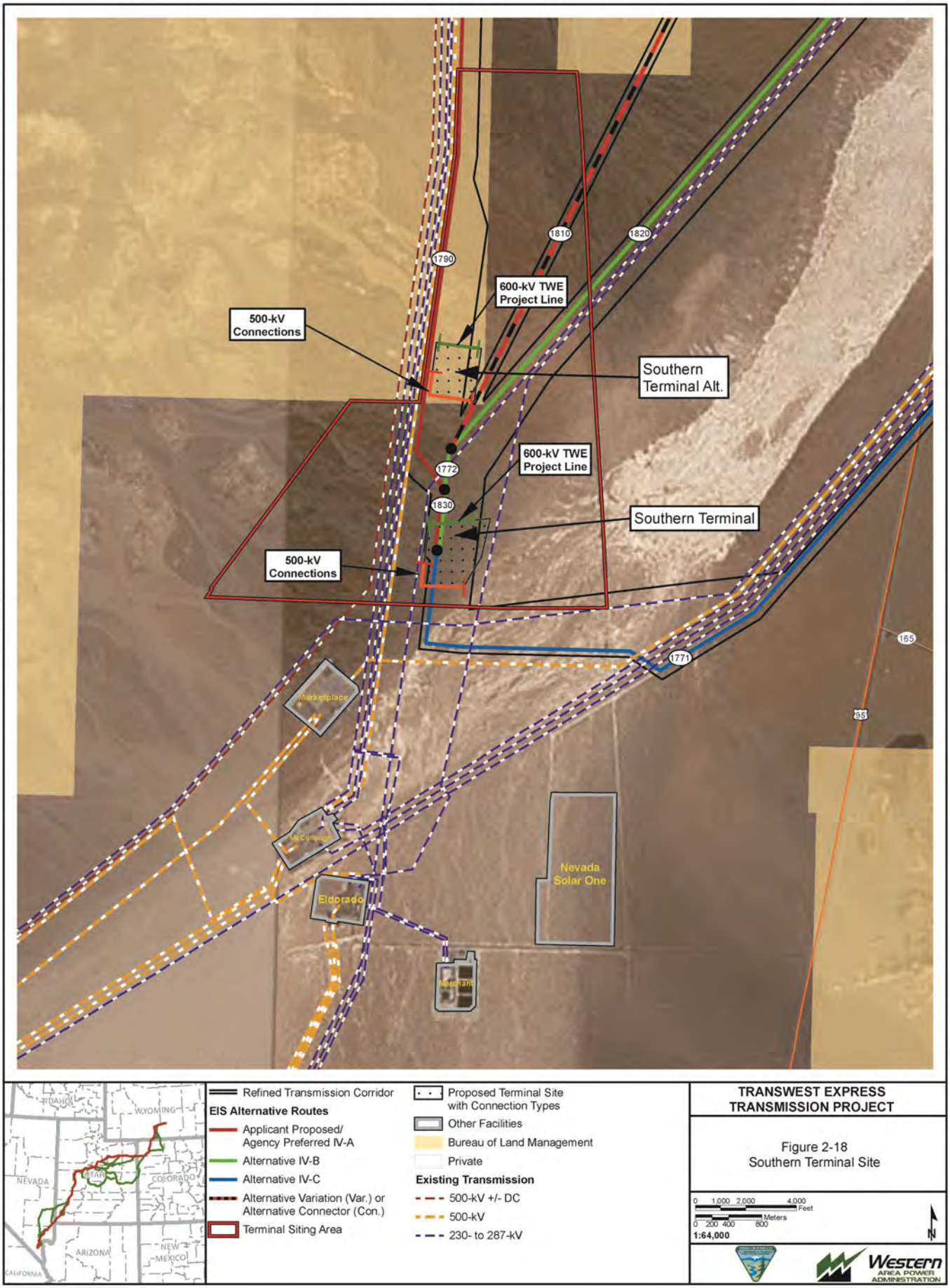

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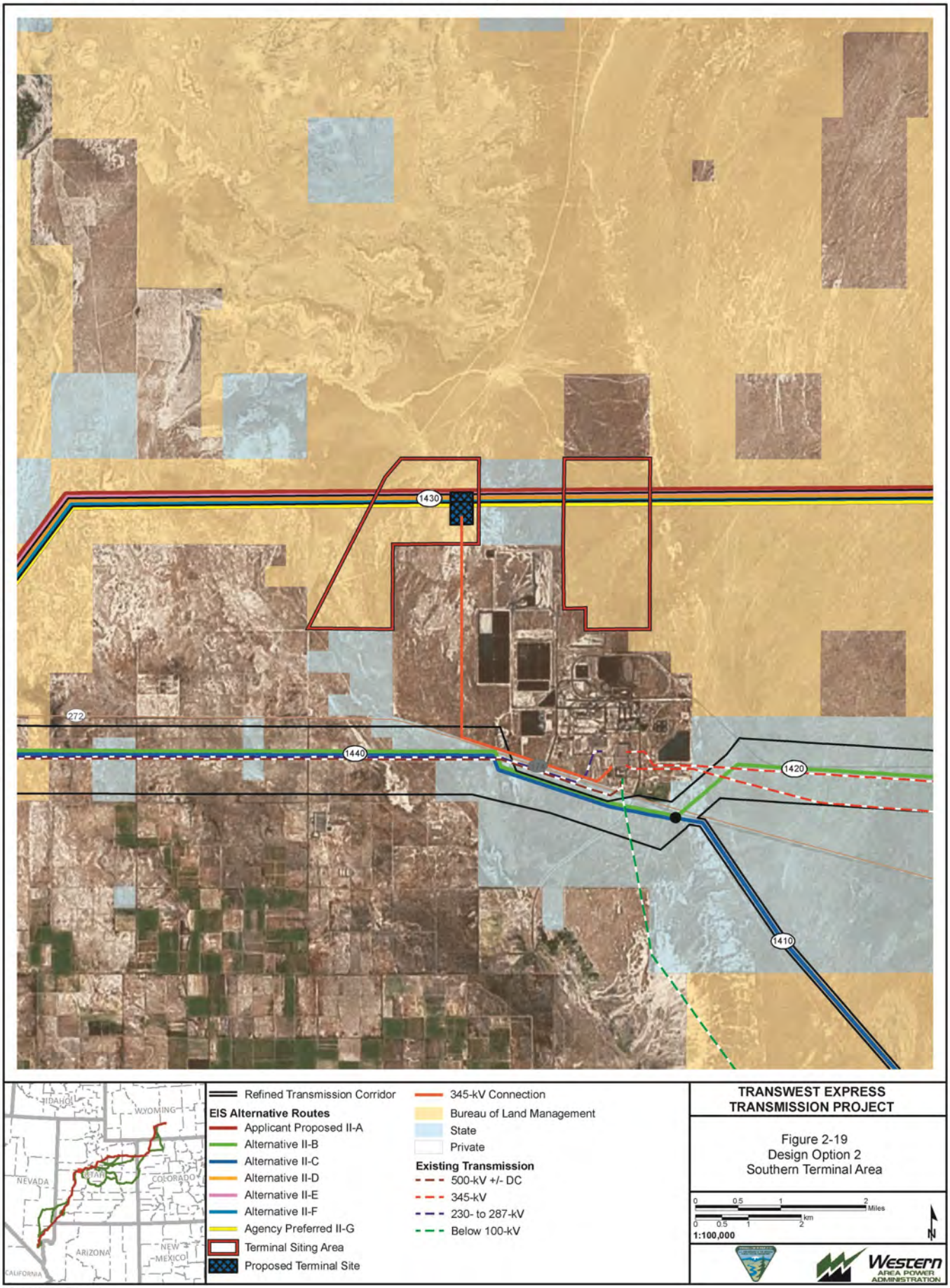

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If Design Option 3 were implemented (**Figure 2-3**), a substation would be constructed near IPP under phase one (**Figure 2-20**), and the Southern Terminal would be constructed in Nevada under phase two (**Figure 2-18**). The Northern Terminal would be constructed under phase two and configured as described in the proposed action. Facilities would be similar to those described above, and are as follows:

- A 500-/345-kV AC substation near the IPP in Millard County, Utah; and
- A double circuit 345-kV AC line (approximately 5 miles) between the new 500-/345-kV AC substation near IPP to the existing IPP 345-kV AC substation adjacent to the existing IPP AC/DC converter station.

2.4.3.2 Ground Electrode Facilities

One ground electrode facility consisting of a small aboveground building and surrounding underground deep earth electrode wells (see **Figure 2-21** and additional description in **Appendix D**) would be required within approximately 100 miles of each of the Northern and Southern terminals. This would establish and maintain electrical current continuity during normal operations and during any unexpected outage of the 600-kV DC terminal or converter station equipment.

Each ground electrode facility would consist of a network of approximately 60 deep-earth electrode wells arranged along the perimeter of a circle expected to be about 3,000 feet in diameter. Each electrode well would be a 12- to 18-inch-diameter bore drilled to a depth of 200 to 700 feet (depth based upon engineering and design). All wells at a site would be electrically interconnected and wired via approximately 10 low voltage underground cable “spokes” to a small control building. A low voltage electrode line would connect the ground electrode facilities to the AC/DC converter stations. To the extent practical, the overhead electrode line would be located on the 600-kV DC structures in the overhead shield wire position. If the electrode line occupies both shield wire peak positions of the 600-kV DC structures, the Optical Ground Wire will be carried at a lower elevation on these structures. Where the electrode line diverges from the 600-kV DC transmission line, it would be located on single-pole structures, similar to those used for a modified 34.5-kV subtransmission line, built within a separate 50-foot-wide ROW.

During a DC transmission disturbance where one circuit becomes inoperable, the ground electrodes would carry a short-term large current that was previously flowing in the inoperable circuit. Contingency conditions that result in high ground electrode currents are most often the result of an unexpected outage on the transmission line or equipment in the AC/DC converter station. The high current operation of the ground electrode facilities and the use of the earth as a return path is limited to unexpected emergency conditions and typically only operated for 10 minutes to less than 1 hour following the loss of a circuit. Although the ground electrode facilities would be designed to operate at high current levels for up to 200 hours per year, typical yearly use at high currents is expected to be less than 30 hours per year. The use of these ground electrode facilities allows system operators to maintain a portion of the power transmission capacity to support power network reliability. This feature would allow critical time for network operators to determine the extent of the electrical disturbance and reconfigure the transmission and generation systems into a more stable configuration that minimizes disruption of customer loads.

The specific location of the ground electrode systems would be identified during final engineering and design; however, general siting areas and conceptual alternative site locations have been identified in Regions I (4 alternative locations) and III (5 alternative locations, including one for Design Option 2) and have been analyzed in this EIS. Additionally, the lower voltage connector lines from the 600-kV DC transmission line to each of the conceptual ground electrode sites have been analyzed. The alternative route selected would influence which set of ground electrode location alternatives could be considered for use; therefore, the alternative ground electrode facilities are discussed in the following regional descriptions and depicted in the regional alternative figures.

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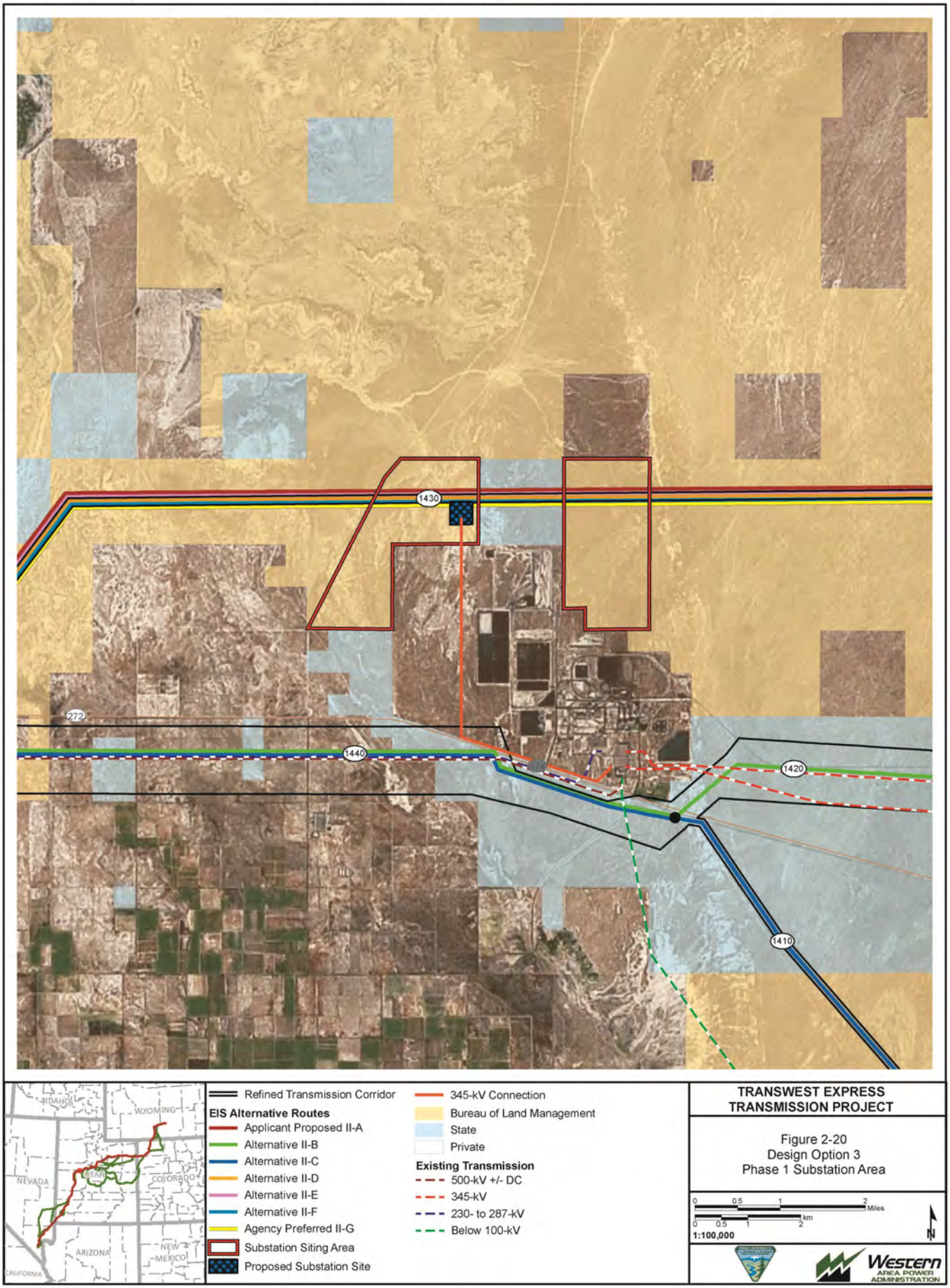

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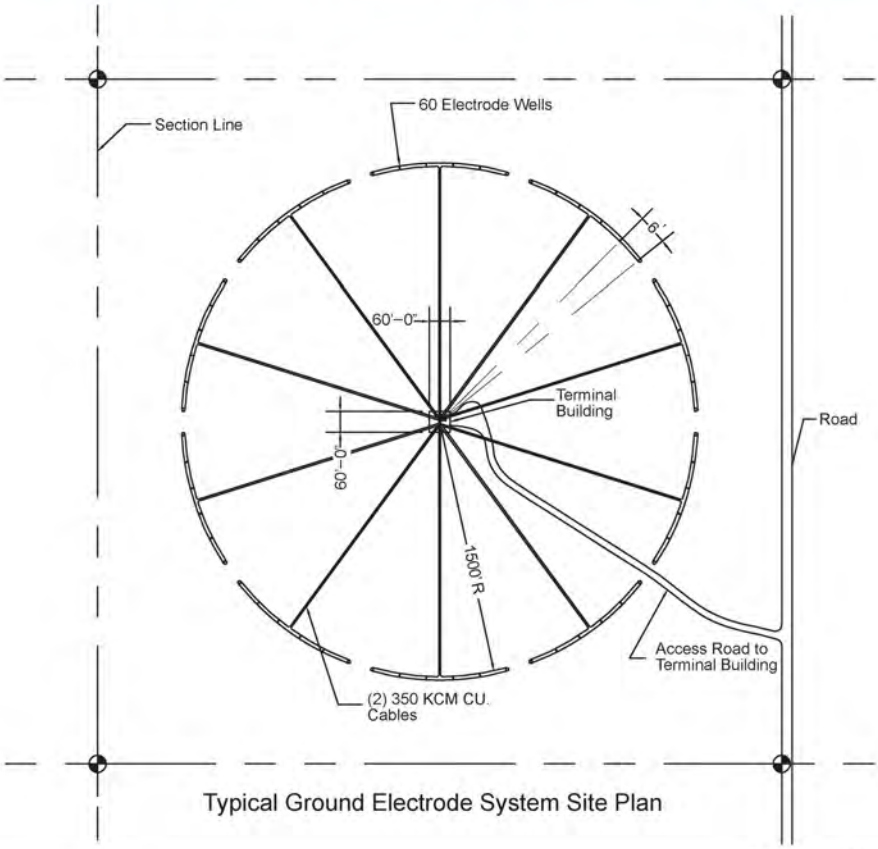
A

Typical Above Ground Installation at the Ground Electrode Facility

B



Typical Ground Electrode System Site Plan

TRANSWEST EXPRESS TRANSMISSION PROJECT

Figure 2-21
Typical Ground Electrode System Above Ground Installation and Site Plan

Source: TransWest 2014.

09/02/14

2.5 Alternative Transmission Line Routes and Ancillary Facilities

The Project has been split into four distinct regions, each of which would require independent alternatives decisions regarding transmission line routing based on region-specific topographical or resource constraints. The result would be a complete Project decision across all Project Regions. The alternative transmission line routes are depicted by region in **Figure 2-22** through **Figure 2-25**. The alternatives within each of these regions can be combined to define a distinct end-to-end route from Wyoming to Nevada.

The alternative routes were defined in the Draft EIS by a transmission line corridor that was generally 2 miles wide. The area within this transmission line corridor represented potential buildable locations where Project facilities disturbance (both construction and operation) could occur. Prior to the Final EIS, TransWest refined the transmission line corridors based on the best available data (including results disclosed in the Draft EIS) to represent the area in which the transmission line ROW would be located. The refined transmission corridors in the Final EIS range from approximately the ROW width (250 feet) to several thousand feet wide depending upon terrain, access restrictions, existing access, designated utility corridors, environmental constraints, jurisdictional constraints, co-location, landowner requests, and the potential for additional changes in areas with constraints.

Each alternative route is further defined by a transmission alignment within the transmission corridor. While the Draft EIS used a general reference line as representations of buildable locations for the transmission line, additional data gathering and engineering work since then have allowed for an analysis of preliminary engineered alignments in the Final EIS. The preliminary engineered alignments within the refined transmission corridors are based upon additional engineering, aerial terrain surveys, field engineering surveys, and siting opportunity and constraint data from the Draft EIS to avoid those areas with large-scale resource concerns or physical constraints that are not consistent with siting a transmission line. As representations of the likely location of the transmission line, alignments provide a basis for quantifying and comparing the range and degree of impacts associated with the various alternatives. The impacts also consider topographical constraints, existing transmission lines, and resource constraints within the transmission line corridor as well as disturbance by Project facilities that extend beyond those boundaries. Ongoing refinements are being considered during the NEPA process, and are referred to as micro-siting options to the alignment. These micro-siting options represent adjustments that remain within the transmission line corridor in areas to minimize resource or siting constraints. Final transmission alignments and 250-foot-wide transmission line ROW locations would be determined during final engineering and design and may vary from the alignments presented in this document. However, any alignment changes must remain within the Final EIS tranmission line corridor to the extent practicable, and comply with all avoidance, minimization, and mitigation requirements described in this EIS, pertinent BLM RMPs, and USFS LRMPs.

During construction, unforeseen or unavoidable site conditions could result in the need for changes from the approved mitigation measures and construction procedures or the need to move outside of the analyzed transmission line corridor to avoid impacts or address engineering concerns. Changes to previously approved mitigation measures, construction procedures, and shifts outside the corridor will be handled in the form of variance requests to be submitted by the applicant and reviewed and approved or denied by the BLM or USFS, as appropriate. There are three types of these variances:Level 1 variances would be site-specific, minor, performance-based changes to project specifications, construction methods, or mitigation measures that provide equal or better protection to environmental resources or better constructability. These minor variance requests would be reviewed and either approved or denied by the construction monitors/designated biologists in the field during normal construction operations.

Level 2 variances exceed the field decision authority of the construction monitor/designated biologist and would require processing by the Compliance Manager. Before the Compliance Manager can issue approval of a Level 2 variance request on federal land, the Compliance Manager must approve the request. Level 2 variance requests generally involve project changes that would affect an area outside the previously approved work area, but within the areas previously surveyed for cultural resources,

sensitive species, and biological resources. Level 2 variance requests typically require the review of supplemental documents, correspondence, and records.

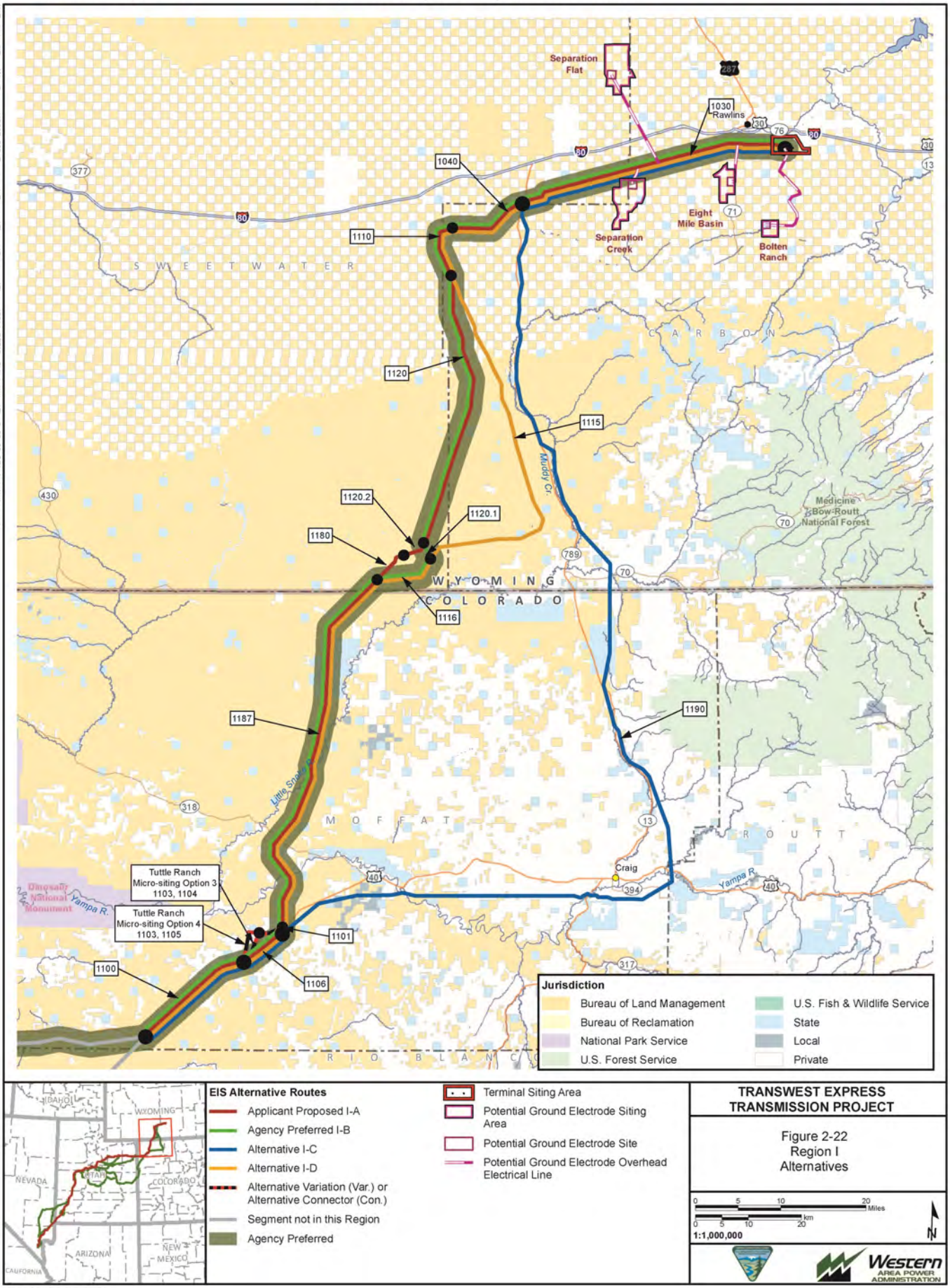
Level 3 variance requests generally involve project changes that would affect an area outside the previously approved work area that are outside the areas previously surveyed for cultural resources, sensitive species, and biological resources, or one that would change the function, structure, technology required, or other part of the project previously approved in the POD. Level 3 variances may need to be implemented through an amendment to the ROW grant.

To facilitate alternatives discussion and impacts disclosure in this EIS, segments were defined between nodes or points where preliminary engineered alignments diverge and/or converge within a region. Each of these segments was given a unique identification number as listed in **Table 2-3**. The identification numbers generally were assigned beginning in the northeast and moving to the southwest. These segments were grouped within the regions to create alternative comparisons from the beginning point in each region to the ending point in the same region. Because there are locations in each region where multiple alternatives overlap, some segments are analyzed multiple times as part of each alternative (e.g., segments 20, 30, and 40 in Region I). Summaries of alternative transmission line routes, associated access road lengths, and disturbance areas are included in the regional descriptions below.

Also, individual impact descriptions or comparisons of shorter sections have been considered in locations where alternative variation possibilities are shorter in length than the entire region or where segments act as alternative connectors. **Table 2-4** lists the alternative variations and micro-siting options that have been considered by region. Alternative variation impacts are described and directly compared to that portion of the alternative routes that begin and end in the same locations as the variation. The segments that make up the alternative variation and those used to directly compare the variation to an alternative route are included in **Table 2-4**. **Table 2-5** lists the alternative connectors that have been considered by region. The direct comparison of impacts from alternative connectors in relation to segments of the alternative routes is not as straightforward as there are many potential route combinations that would result and many of which would have virtually identical impacts leaving any potential differences indiscernable. Therefore, Chapter 3.0 discloses the impacts of connectors independently, allowing the reader to determine potential additive impacts of the connectors across alternative combinations.

2.5.1 Alternative Transmission Line Routes and Ancillary Facilities by Region

The length and surface disturbance from the proposed and alternative routes are described in this section. This includes transmission line alternative routes, variations, connectors, and ground electrode systems. Facilities considered part of the construction disturbance for each alternative include access roads, structure erection sites, communication sites, line stringing and tensioning sites (both transmission and communication), and other temporary work areas (e.g., staging areas, concrete batch plants, storage yards, helicopter fly yards). Facilities considered part of operation and maintenance disturbance include access roads, structure foundation sites, and communication sites. The majority of the disturbance areas calculated for the access roads, stringing and tensioning sites, and work areas are anticipated to be surface disturbance only. Only in areas with severe terrain and steep side slopes would benching be required for work areas and cuts and fills required for access roads. Although certain tower types suit specific terrain types better, the self supported lattice towers and the guyed lattice towers have been designed to accommodate all terrain types. All construction disturbance not included in operation disturbance (e.g., stringing and tensioning sites, work areas, decrease in structures and communication sites) would be reclaimed after construction was completed. Areas within the ROW that are not included


Separation Flat
1030 Rawlins
1040
1110
Separation Creek
Eight Mile Basin
Bolten Ranch
S W E E T W A T E R
C A R B O N
1120
1115
Muddy Cr.
1120.2
1120.1
1180
Medicine Bow-Routt National Forest
W Y O M I N G
C O L O R A D O
1116
1187
1190
Little Snake R.
M O F A T
R O U T T
Craig
Yampa R.
Dinosaur National Monument
Tuttle Ranch Micro-siting Option 3 1103, 1104
Tuttle Ranch Micro-siting Option 4 1103, 1105
1101
1100
1106
R I O B L A N C O
Jurisdiction
Bureau of Land Management
Bureau of Reclamation
National Park Service
U.S. Forest Service
U.S. Fish & Wildlife Service
State
Local
Private
IDAHO
WYOMING
NEVADA
UTAH
COLORADO
ARIZONA
NEW MEXICO
CALIFORNIA
EIS Alternative Routes
Applicant Proposed I-A
Agency Preferred I-B
Alternative I-C
Alternative I-D
Alternative Variation (Var.) or Alternative Connector (Con.)
Segment not in this Region
Agency Preferred
Terminal Siting Area
Potential Ground Electrode Siting Area
Potential Ground Electrode Site
Potential Ground Electrode Overhead Electrical Line
TRANSWEST EXPRESS TRANSMISSION PROJECT
Figure 2-22
Region I
Alternatives
Miles
km
1:1,000,000
N
Western AREA POWER ADMINISTRATION
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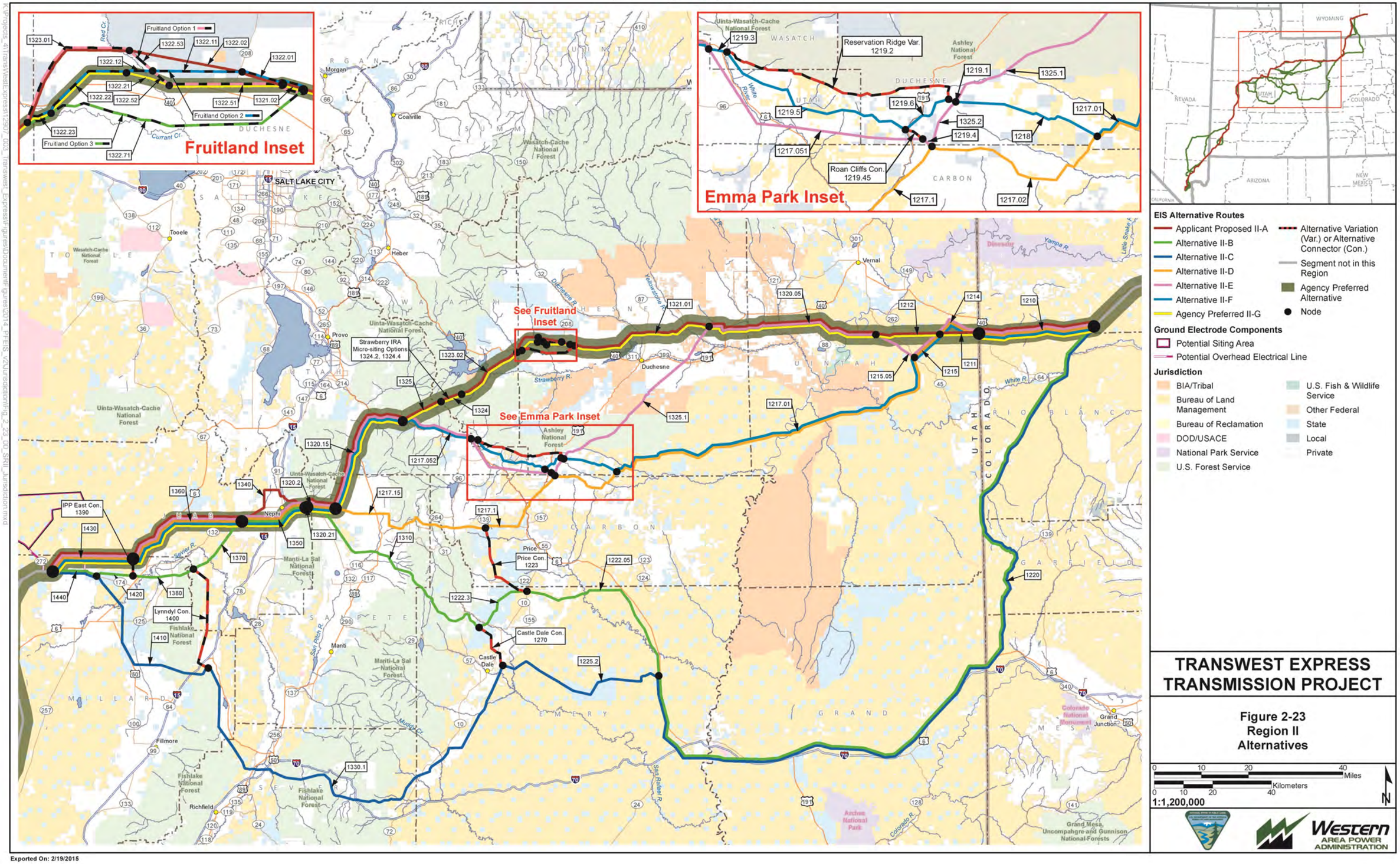

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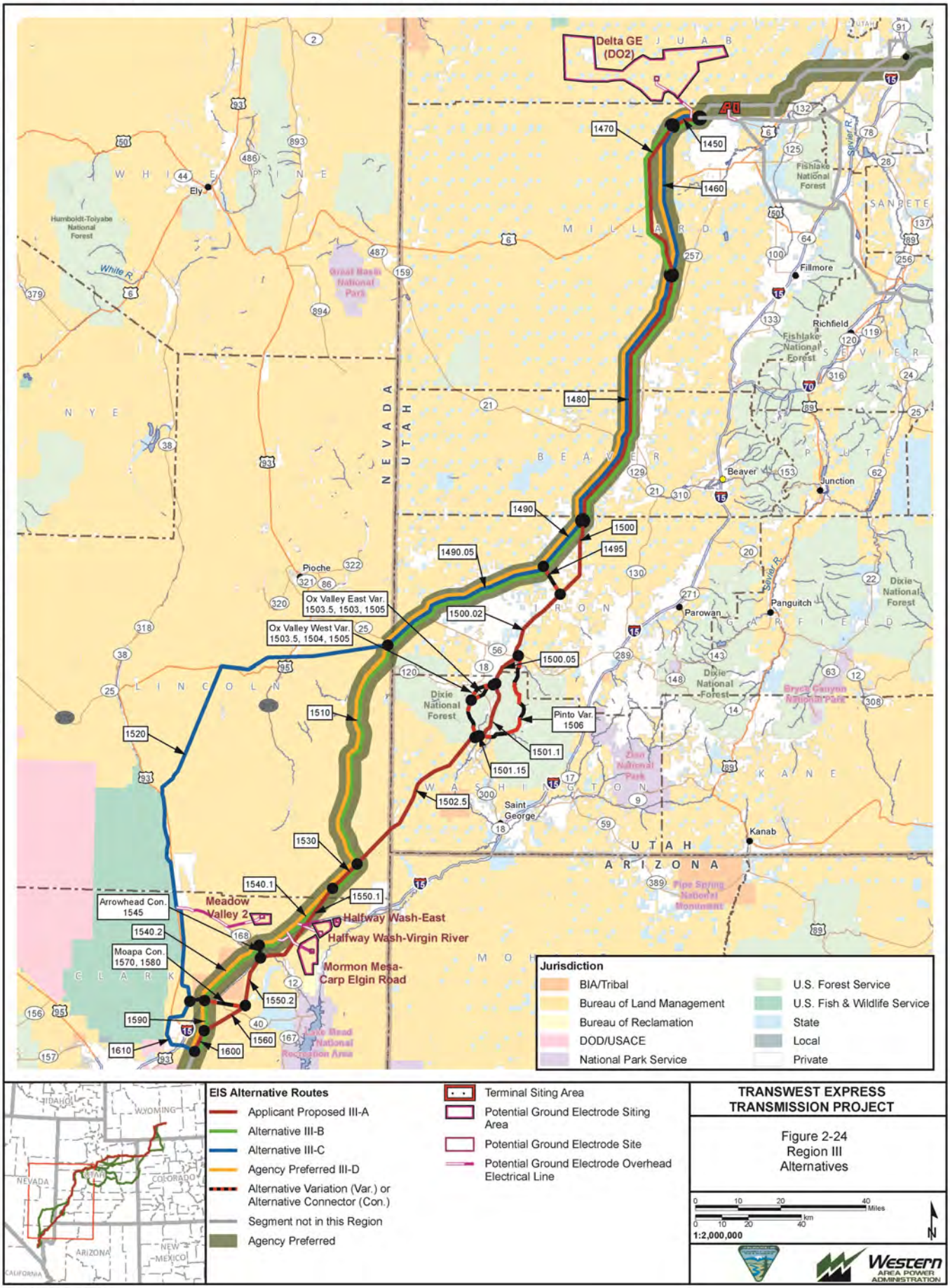
Delta GE (DO2)
1470
1450
1460
1480
1490
1500
1495
1490.05
1500.02
1500.05
1501.1
1501.15
1502.5
1510
1520
1530
1540.1
1550.1
1540.2
1550.2
1560
1590
1600
1610
Ox Valley East Var. 1503.5, 1503, 1505
Ox Valley West Var. 1503.5, 1504, 1505
Pinto Var. 1506
Arrowhead Con. 1545
Moapa Con. 1570, 1580
Meadow Valley 2
Halfway Wash-East
Halfway Wash-Virgin River
Mormon Mesa-Carp Elgin Road
Ely
Fillmore
Richfield
Beaver
Junction
Pioche
Parowan
Panguitch
Saint George
Kanab
Humboldt-Toiyabe National Forest
Great Basin National Park
Fishlake National Forest
Dixie National Forest
Zion National Park
Bryce Canyon National Park
Pipe Spring National Monument
Lake Mead National Recreation Area
WHITE PINE
MILLARD
SANPETE
SEVIER
PIUTE
BEAVER
IRON
GARFIELD
KANE
WASHINGTON
LINCOLN
NYE
CLARK
NEVADA
UTAH
ARIZONA
Jurisdiction
BIA/Tribal
Bureau of Land Management
Bureau of Reclamation
DOD/USACE
National Park Service
U.S. Forest Service
U.S. Fish & Wildlife Service
State
Local
Private
EIS Alternative Routes
Applicant Proposed III-A
Alternative III-B
Alternative III-C
Agency Preferred III-D
Alternative Variation (Var.) or Alternative Connector (Con.)
Segment not in this Region
Agency Preferred
Terminal Siting Area
Potential Ground Electrode Siting Area
Potential Ground Electrode Site
Potential Ground Electrode Overhead Electrical Line
TRANSWEST EXPRESS TRANSMISSION PROJECT
Figure 2-24
Region III
Alternatives
1:2,000,000
Western AREA POWER ADMINISTRATION
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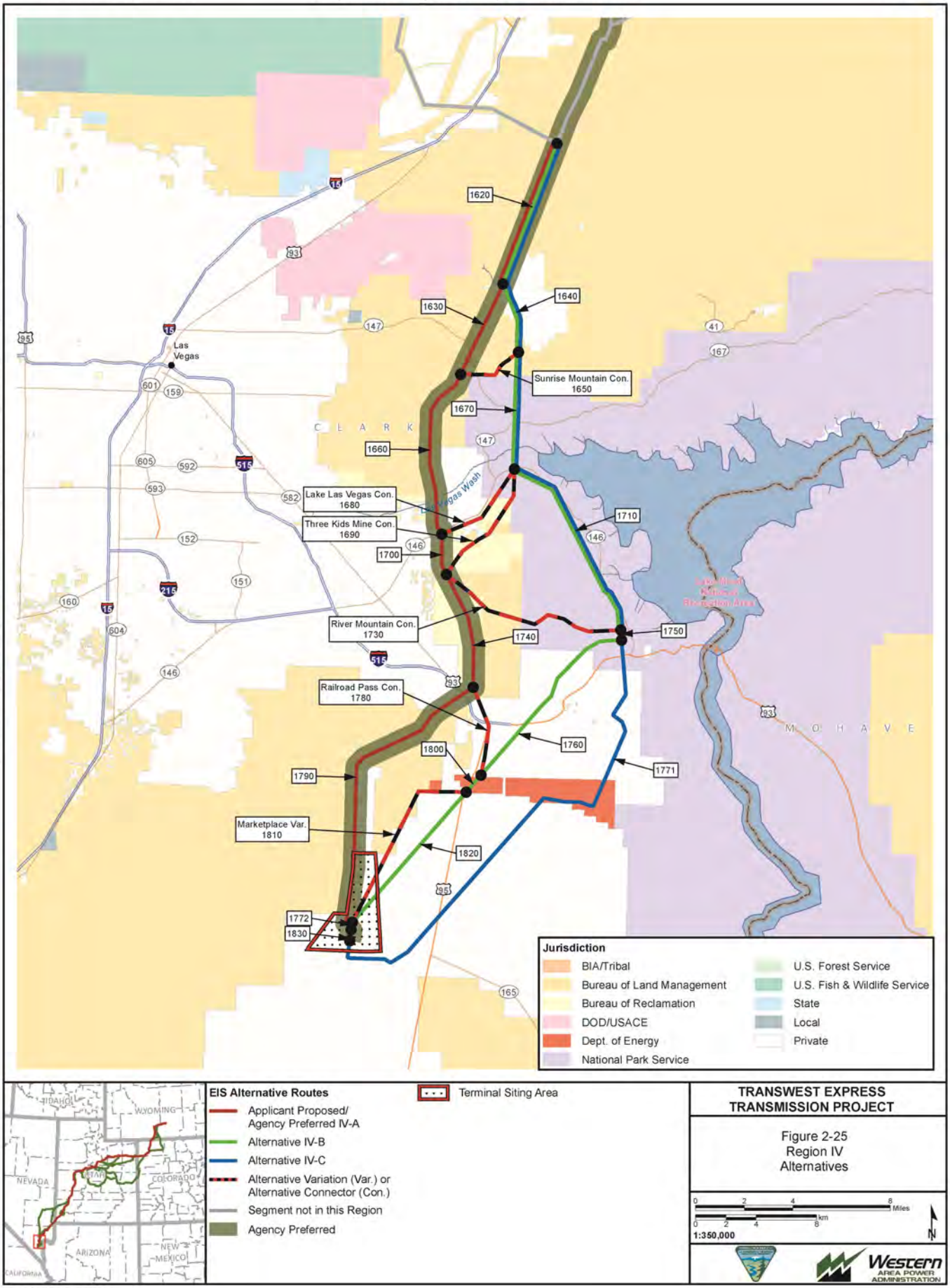

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in the disturbance area for construction or operation facilities may experience vegetation clearing (e.g., mowing, woody vegetation clearing, overland travel) during construction. As such, these areas are reported as additional ROW vegetation clearing. Ground electrode systems would be necessary in Regions I and III. **Appendix D** contains additional information on the above facilities and their associated disturbances. Within the tables that follow, the construction disturbance acreages are intended to identify temporary disturbances while the operation disturbance acreages are intended to identify disturbances for the life of the Project. The construction disturbance acreages and the operation disturbance acreages are not additive.

Table 2-3 Alignment Segments Comprising Alternative Routes by Region

Region	Applicant Proposed Alternative A Segment IDs	Alternative B Segment IDs	Alternative C Segment IDs	Alternative D Segments IDs	Alternative E Segment IDs	Alternative F Segment IDs	Alternative G Segment IDs
I	**I-A** 1030, 1040, 1100, 1101, 1106, 1110, 1120, 1120.2, 1180, 1187	**I-B** *Agency Preferred Alternative* 1030, 1040, 1100, 1101, 1106, 1110, 1116, 1120, 1120.1, 1187	**I-C** 1030, 1100, 1106, 1190	**I-D** 1030, 1040, 1100, 1101, 1106, 1110, 1115, 1116, 1187	Not applicable in Region I	Not applicable in Region I	Not applicable in Region I
II	**II-A** 1210, 1211, 1212, 1320.05, 1320.15, 1320.2, 1320.21, 1321.01, 1321.02, 1322.01, 1322.02, 1322.03, 1323.01, 1323.02, 1324, 1325, 1340, 1360, 1430	**II-B** 1220, 1222.05, 1222.3, 1310, 1320.21, 1350, 1370, 1380, 1420, 1440	**II-C** 1220, 1225.2, 1330.1, 1410, 1440	**II-D** 1210, 1214, 1215, 1217.01, 1217.02, 1217.1, 1217.15, 1320.2, 1320.21, 1350, 1360, 1430	**II-E** 1210, 1214, 1215, 1215.05, 1217.051, 1217.052, 1219.4, 1320.05, 1320.15, 1320.2, 1320.21, 1325.1, 1325.2, 1350, 1360, 1430	**II-F** 1210, 1214, 1215, 1217.01, 1217.052, 1218, 1219.1, 1219.3, 1219.5, 1219.6, 1320.15, 1320.2, 1320.21, 1350, 1360, 1430	**II-G** *Agency Preferred Alternative* 1210, 1211, 1212,, 1320.05, 1320.15, 1320.2, 1320.21, 1321.01, 1321.02, 1322.21, 1322.22, 1322.23, 1322.51, 1323.02, 1324, 1325, 1350, 1360, 1430
III	**III-A** 1450, 1470, 1480, 1500, 1500.02, 1500.05, 1501.1, 1501.15, 1502.5, 1530, 1550.1, 1550.2, 1560, 1600	**III-B** 1450, 1470, 1480, 1490, 1490.05, 1510, 1530, 1540.1, 1540.2, 1590, 1600	**III-C** 1450, 1460, 1480, 1490, 1490.05, 1520, 1610	**III-D** *Agency Preferred Alternative* 1450, 1460, 1480, 1490, 1490.05, 1510, 1530, 1540.1, 1540.2, 1590, 1600	Not applicable in Region III	Not applicable in Region III	Not applicable in Region III
IV	**IV-A** *Agency Preferred Alternative* 1620, 1630, 1660, 1700, 1740, 1790, 1830	**IV-B** 1620, 1640, 1670, 1710, 1750, 1760, 1772, 1800, 1820, 1830	**IV-C** 1620, 1640, 1670, 1710, 1750, 1771	Not applicable in Region IV	Not applicable in Region IV	Not applicable in Region IV	Not applicable in Region III

Table 2-4 Alternative Variations and Micro-siting Options Considered by Region

Region	Alternative Variation or Micro-siting Option		Comparison Segment IDs	Alternative(s) Necessary for Variation	
	Name	Segment IDs		Beginning	Ending
I	Tuttle Ranch Micro-siting Option 3	1103, 1104	1101, 1106	I-A, I-B, I-D	I-All
I	Tuttle Ranch Micro-siting Option 4	1103, 1105			
II	Fruitland Micro-siting Option 1	1321.02, 1322.51, 1322.52, 1322.53, 1323.01	II-A: 1321.02, 1322.01, 1322.02, 1323.01 II-G: 1321.02, 1322.21, 1321.22, 1322.23, 1322.51	II-A, II-G	II-A, II-G
II	Fruitland Micro-siting Option 2	1321.02, 1322.01, 1322.11, 1322.12, 1322.22, 1322.23			
II	Fruitland Micro-siting Option 3	1322.23, 1322.71			
II	Reservation Ridge Alternative Variation	1219.2	1219.5, 1219.6	II-F	II-F
II	Strawberry IRA Micro-siting Option 2	1324.2	1324	II-A, II-G	II-A, II-G
II	Strawberry IRA Micro-siting Option 3	1324.4			
III	Ox Valley East Alternative Variation	1503, 1503.5, 1505	1501.1, 1501.15	III-A	III-A
III	Ox Valley West Alternative Variation	1503.5, 1504, 1505			
III	Pinto Alternative Variation	1506	1500.05, 1501.1	III-A	III-A
IV	Marketplace Alternative Variation	1810	1820	IV-B	IV-A, IV-B

Table 2-5 Alternative Connectors Considered by Region

Region	Alternative Connector		Alternative(s) Necessary for Connector	
	Name	Segment IDs	Beginning	Ending
II	Roan Cliffs Alternative Connector	1219.45	II-E	II-F
II	Castle Dale Alternative Connector	1270	II-C	II-B
II	Price Alternative Connector	1223	II-B	II-D
II	Lynndyl Alternative Connector	1400	II-C	II-B
II	IPP East Alternative Connector	1390	II-B, II-C	II-B, II-C
III	Avon Alternative Connector	1495	III-B, III-C, III-D	III-A
III	Arrowhead Alternative Connector	1545	III-B, III-D	III-A
III	Moapa Alternative Connector	1570, 1580	III-All	III-All
IV	Sunrise Mountain Alternative Connector	1650	IV-B, IV-C	IV-A
IV	Lake Las Vegas Alternative Connector	1680	IV-B, IV-C	IV-A
IV	Three Kids Mine Alternative Connector	1690	IV-B, IV-C	IV-A
IV	River Mountain Alternative Connector	1730	IV-B, IV-C	IV-A
IV	Railroad Pass Alternative Connector	1780	IV-B	IV-A, IV-B

Note: The impacts of using connectors will be described; however, the impacts of the alternatives they connect are disclosed in the specific alternative discussions.

2.5.1.1 Region I: Sinclair, Wyoming to Northwest Colorado near Rangely, Colorado

Region I alternatives are depicted in **Figure 2-22**. Alternative I-B is the agency preferred alternative in Region I. The length of alternative routes and associated access roads in Region I are summarized in **Table 2-6** and the disturbance associated with construction and operation of each is summarized in **Table 2-7**. If Design Option 3 were implemented, the transmission lines in this region would be

constructed with an AC configuration (three conductors and structures to support them) for AC operation during phase one of Project implementation (see **Figure 2-3**).

Table 2-6 Length of Alternative Routes and Associated Access Roads in Region I

Facilities	Length (miles)			
	Alt. I-A	Alt. I-B	Alt. I-C	Alt. I-D
600-kV T-Line	156	158	186	168
Access Roads	201	204	237	213

Table 2-7 Transmission Line Alternative Route Areas of Disturbance in Region I

Facilities	Construction Disturbance (acres)				Operation Disturbance (acres)			
	Alt. I-A	Alt. I-B	Alt. I-C	Alt. I-D	Alt. I-A	Alt. I-B	Alt. I-C	Alt. I-D
Access Roads	447	456	537	464	447	456	537	464
Structures and Communication Sites	735	746	866	793	15	15	17	16
Stringing and Tensioning Sites	516	520	634	552	–	–	–	–
Work Areas[1]	374	379	447	403	–	–	–	–
Facilities Total	**2,072**	**2,101**	**2,484**	**2,212**	**462**	**471**	**554**	**480**
Additional ROW-vegetation clearing[2]	3,269	3,310	3,925	3,524	–	–	–	–

[1] Work areas include staging areas, concrete batch plants, storage yards, and helicopter fly yards.

[2] Additional ROW-vegetation clearing is the remainder of the area within the ROW that is not included in construction or operation facilities disturbance that may experience some degree of vegetation clearing (e.g., mowing, woody vegetation clearing, and overland travel) during construction.

Alternative I-A (Applicant Proposed)

TransWest's proposed preliminary engineered alignment would begin in Sinclair, Wyoming, and would travel west just south of the I-80 corridor to Wamsutter. At Wamsutter, it would turn south and generally follow the Carbon-Sweetwater county line along a corridor preferred by the Wyoming Governor's Office and Carbon and Sweetwater counties. It then would continue south-southwest across the Wyoming-Colorado state line and south along a corridor preferred by Moffat County and coordinated with the BLM Northwest Colorado District Office's ongoing sage grouse planning effort. It would then intersect with US-40 just west of Maybell, Colorado. The alignment would then generally parallel US-40, turning southwest toward the Colorado-Utah border.

Alternative I-B (Agency Preferred)

The Alternative I-B that was in the Draft EIS was removed (see **Table 2-22**) and replaced by a new alternative that closely resembles Alternative I-A for nearly its entire length with one minor variation just north of the Wyoming-Colorado state border. A length of approximately 8 miles of Alternative I-B diverges to the southeast from Alternative I-A just north of the Wyoming-Colorado state border to minimize potential impacts to areas eligible for historic trail designation (see the cultural and special designation area Sections 3.11.6.3 and 3.15.4.3, respectively, for additional information).

Alternative I-C

This alternative was developed to reduce the overall proliferation of utility corridors and associated impacts by following existing designated utility corridors. Alternative I-C begins by following Alternative I-A to near Creston, Wyoming, where Alternative I-C would turn south and parallel Wyoming State Highway (SH)-789 toward Baggs, Wyoming. From there, Alternative I-C would continue south, deviating from SH-789 to the east and passing east of Baggs. After crossing into Colorado, this alternative would parallel Colorado SH-13 into Craig, Colorado. Alternative I-C would pass east and

south of Craig, turning to the west after crossing US-40, generally paralleling the highway and joining with Alternative I-A to the end of Region I.

Alternative I-D

Alternative I-D was developed to reduce multiple resource concerns, including impacts to visual resources, sensitive plants, and sage-grouse. It would follow the route of Alternative I-A, going west from Sinclair, Wyoming (Carbon County, Wyoming), basically paralleling I-80 in the designated WWEC, until turning south near Wamsutter. It would follow Alternative I-A south for approximately 15 miles. Alternative I-D then would diverge to the east, where it generally would parallel SH-789 at an offset distance of 2 to 5 miles to the west. Before reaching the Baggs area, Alternative I-D would turn west and follow the Shell Creek Stock Trail road for approximately 20 miles, where it would cross into Sweetwater County and again join Alternative I-A while turning south into Colorado (Moffat County).

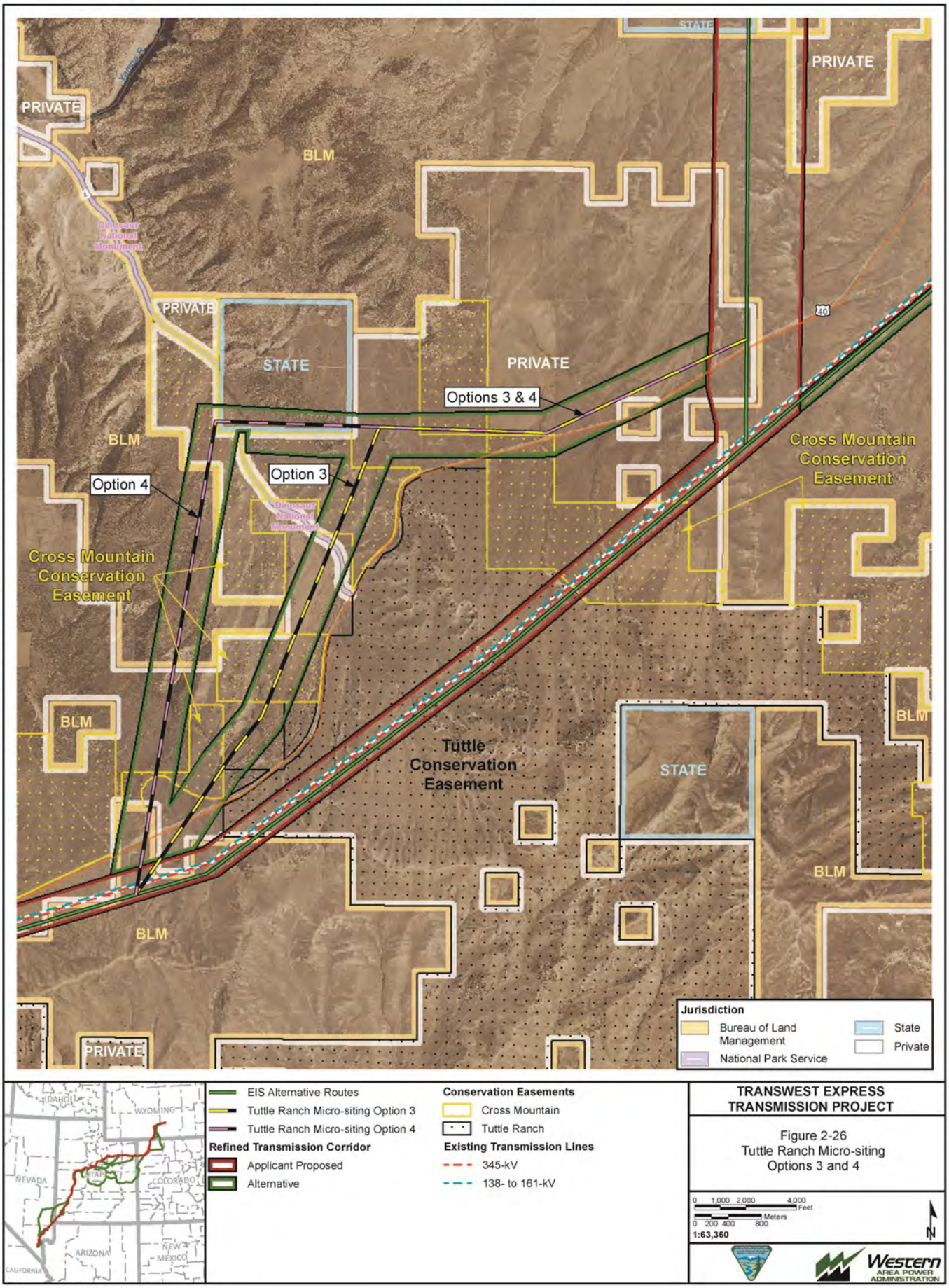
Tuttle Ranch Micro-siting Options 3 and 4

The Tuttle Ranch micro-siting options address concerns related to the NPS Dinosaur National Monument's Deerlodge Road, the Tuttle Ranch Conservation Easement, and the Cross Mountain Ranch's proposed conservation easement. All alternatives would cross some portion of the Cross Mountain Ranch property. Out of the three micro-siting options considered in this area, only two micro-siting options (Micro-siting Options 3 and 4) have been included in the Final EIS to inform decision-makers on options to address these specific resource concerns in Region I (**Figure 2-26**). Tuttle Ranch Micro-siting Option 1 is now the main alternative (applicant proposed and agency preferred) crossing the Tuttle Ranch Conservation Easement co-located with two existing transmission lines, and Tuttle Ranch Micro-siting Option 2 has been removed from further consideration (see Section 2.7 for more information).

Tuttle Ranch Micro-siting Option 3 would avoid the Tuttle Ranch Conservation Easement, but would cross the NPS Deerlodge Road west of US-40 and would cross the largest portion of the Cross Mountain Ranch property. Tuttle Ranch Micro-siting Option 4 would avoid the Tuttle Ranch Conservation Easement and the NPS Deerlodge Road, and would cross the least amount of the Cross Mountain Ranch property. These micro-siting options are compared with the portion of Alternative I-B they might replace, but could be combined with any of the alternatives in Region I. Because they are near each other and share a road corridor, general resource impacts are similar to the other alternatives; the notable exceptions being impacts to land use and special designations, discussed in Sections 3.14 and 3.15, respectively.

Region I Alternative Connectors

The Region I alternative connectors have been removed from further consideration at the request of the lead agencies in response to public comments received on the Draft EIS (see Section 2.7 for more information).



TRANSWEST EXPRESS TRANSMISSION PROJECT

Figure 2-26
Tuttle Ranch Micro-siting
Options 3 and 4

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Region I Ground Electrode System Alternative Facilities

The ground electrode system alternative locations in Region I are depicted in **Figure 2-22**, and the lengths and disturbance areas are summarized in **Table 2-8**. These alternative locations are dependent on the alternative route selected, as noted in **Table 2-8** with the alternatives listed in parentheses.

Table 2-8 Ground Electrode System Alternative Facility Lengths and Areas of Disturbance in Region I

Northern Ground Electrode System Site Alternatives[1]	Length (miles)		Construction Disturbance (acres)				Operation Disturbance (acres)			
	34.5-kV AC Overhead Line	Access Road	Ground Electrode Sites	Over-head Lines	Access Roads	Total	Ground Electrode Sites	Over-head Lines	Access Roads	Total
Bolten Ranch (All Alternatives)	15	21	65	40	46	151	6	<1	46	52
Separation Flat (All Alternatives)	12	15	65	27	30	121	6	<1	30	36
Separation Creek (All Alternatives)	2	3	65	5	6	76	6	<1	6	11
Eight Mile Basin (All Alternatives)	5	1	65	11	12	89	6	<1	12	18

[1] Note in parentheses indicates which alternatives in Region I would be necessary to utilize the ground electrode system site.

2.5.1.2 Region II: Northwest Colorado to IPP near Delta, Utah

Region II alternative preliminary engineered alignments are depicted in **Figure 2-23**. Alternative II-G is the agency preferred alternative in Region II. The length of alternative routes and associated access roads in Region II are summarized in **Table 2-9** and disturbance associated with construction and operation of each is summarized in **Table 2-10**. If Design Option 3 were implemented, the transmission lines in this region would be constructed with an AC configuration (three conductors and structures to support them) for AC operation during phase one Project implementation (see **Figure 2-3**).

Table 2-9 Length of Alternative Routes and Associated Access Roads in Region II

Facilities	Length (miles)						
	Alt. II-A	Alt. II-B	Alt. II-C	Alt. II-D	Alt. II-E	Alt. II-F	Alt. II-G
600-kV T-Line	258	346	365	259	268	265	252
Access Roads	395	492	488	422	412	455	395

Table 2-10 Transmission Line Alternative Route Areas of Disturbance in Region II

Facilities	Construction Disturbance (acres)							Operation Disturbance (acres)						
	Alt. II-A	Alt. II-B	Alt. II-C	Alt. II-D	Alt. II-E	Alt. II-F	Alt. II-G	Alt. II-A	Alt. II-B	Alt. II-C	Alt. II-D	Alt. II-E	Alt. II-F	Alt. II-G
Access Roads	987	1,178	1,129	1,064	1,032	1,200	990	987	1,178	1,129	1,064	1,032	1,200	990
Structures and Communication Sites	1,206	1,603	1,686	1,205	1,254	1,236	1,181	24	32	34	25	26	26	24
Stringing and Tensioning Sites	946	1,262	1,289	1,080	1,047	1,103	927	–	–	–	–	–	–	–
Work Areas[1]	620	831	877	621	644	636	604	–	–	–	–	–	–	–
Facilities Total	**3,759**	**4,874**	**4,981**	**3,970**	**3,977**	**4,226**	**3,703**	**1,011**	**1,210**	**1,163**	**1,089**	**1,058**	**1,196**	**1,014**
Additional ROW-vegetation clearing[2]	5,406	7,192	7,662	5,185	5,538	5,428	5,250	–	–	–	–	–	–	–

[1] Work areas include staging areas, concrete batch plants, storage yards, and helicopter fly yards.

[2] Additional ROW-vegetation clearing is the remainder of the area within the ROW that is not included in construction or operation facilities disturbance that may experience some degree of vegetation clearing (e.g., mowing, woody vegetation clearing, and overland travel) during construction.

Alternative II-A (Applicant Proposed)

The TransWest proposed alignment would continue into Utah in a westerly direction, then deviate south from US-40 toward Roosevelt, Utah. From Roosevelt, it would pass north of Duchesne, again paralleling US-40 for several miles, then turn southwest and cross the UintaNational Forest Planning Area generally within a WWEC-designated utility corridor, then turn west along US-6 and Soldier Creek. At the junction with US-89, Alternative II-A would then turn south generally along US-89 where it would cross a portion of the Manti-La Sal National Forest. The alignment would pass through Salt Creek Canyon then north around Nephi. It would continue west and then turn southwest following a path north of and adjacent to IPP. Portions of this corridor have been identified as preferred in a joint resolution by representatives of Juab and Millard counties.

Within the Uinta National Forest Planning Area, the refined transmission corridor would cross the Diamond Fork, Strawberry Reservoir, Thistle, Upper Spanish Fork Canyon, and Willow Creek management areas (MAs). The area in which roads would be located would cross the Nephi and Mona MAs. Within the Manti-La Sal National Forest, the refined transmission line corridor would cross the General Big-Game Winter Range MA. The area in which roads would be located would also cross Key Big-Game Winter Range and Range Forage Production MAs. Impacts to management areas are discussed in Section 3.14, Land Use.

Fruitland Micro-siting Options 1, 2, and 3

The Fruitland Micro-siting Options have been developed to analyze a range of impacts considering concerns with siting through the Town of Fruitland, a Utah Division of Wildlife Resources (UDWR) conservation easement, and greater sage-grouse habitat (**Figure 2-27**). These micro-siting options can be compared with the portion of Alternative II-A or Alternative II-G they might replace.

Strawberry IRA Micro-siting Options 2 and 3

The Strawberry IRA micro-siting options have been developed to address concerns with construction in Uinta National Forest Planning Area IRAs at a location the designated WWEC offsets from a continual corridor (**Figure 2-28**). Strawberry IRA Micro-siting Option 1 is now the proposed alternative alignment considered in Alternative II-A. Strawberry IRA Micro-siting Option 2 would be located with a 250-foot offset from the existing transmission line and within, but on the edge, of the IRA. Strawberry IRA Micro-siting Option 3 would cross the existing transmission line twice, remaining in the designated WWEC and avoiding the USFS IRA. These micro-siting options are compared with the portion of Alternative II-A they might replace.

Alternative II-B

Alternative II-B was developed to address impacts to private lands and to generally follow established utility corridors. These corridors are designated for underground utilities only and use of the corridor for overhead transmission would require a plan amendment. The route would travel southwest in Colorado from the beginning of Region II, cross the Yampa River, and pass east of Rangely, Colorado. It would continue southwest where it would cross the Colorado-Utah state line and turn generally south, crossing back into Colorado in the Baxter Pass area. At that location, it would intersect the I-70 corridor, turning in a southwesterly and westerly direction, paralleling I-70. After passing south of Green River, Utah, Alternative II-B would diverge from I-70 and turn to the north along US-191. This highway generally would be followed until just south of the Emery-Carbon county line, where Alternative II-B would turn west and pass near the county line for approximately 25 miles. It generally would turn south, pass west of Huntington, Utah, turn northwest, cross a portion of the Manti-La Sal National Forest, and pass northeast of Mount Pleasant, Utah. From there, it would pass through Salt Creek Canyon to Nephi, and then south around Nephi. It then would turn southwest and west adjacent to IPP, following a path south of Alternative II-A across a portion of the Fishlake National Forest.

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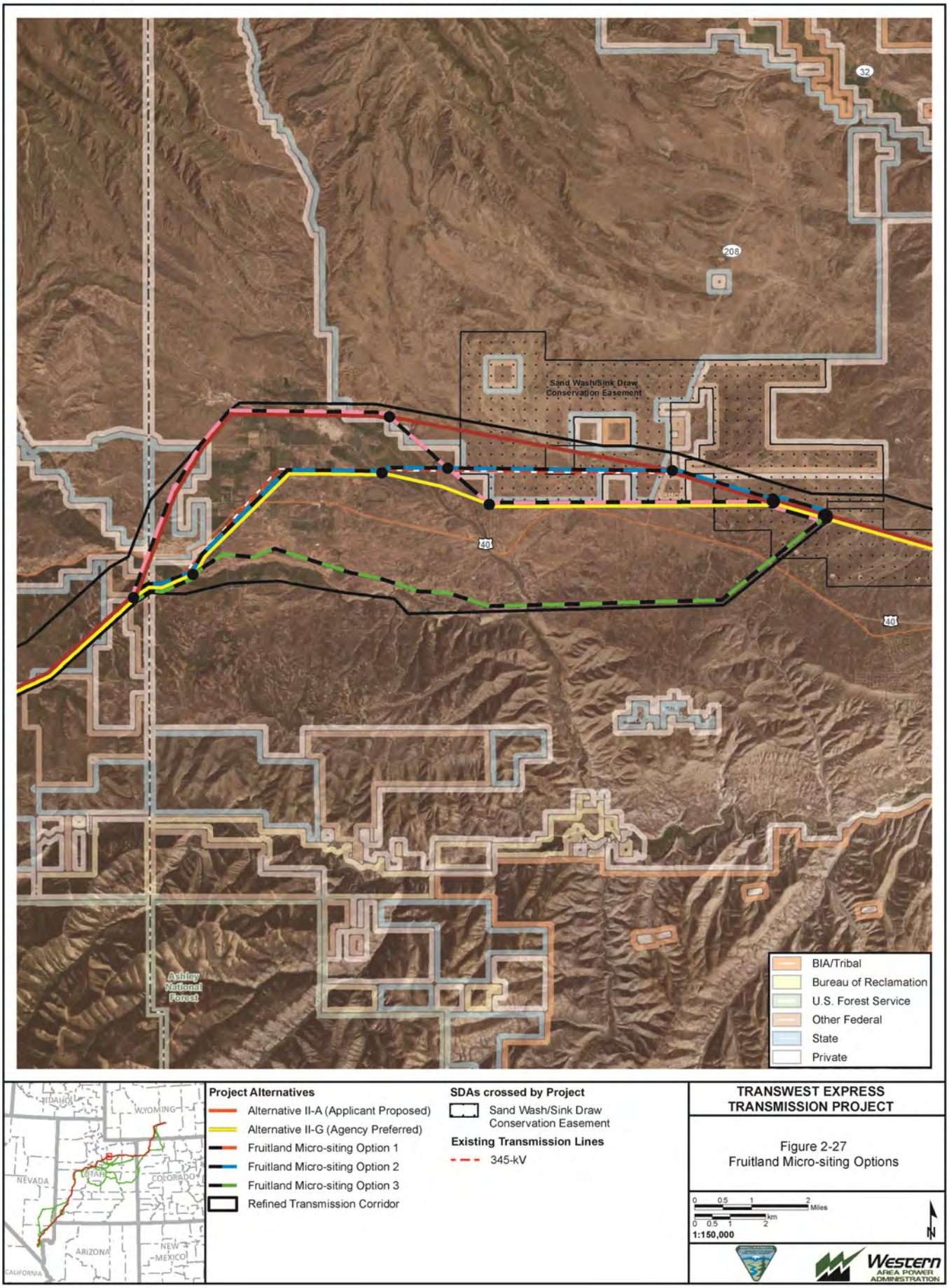

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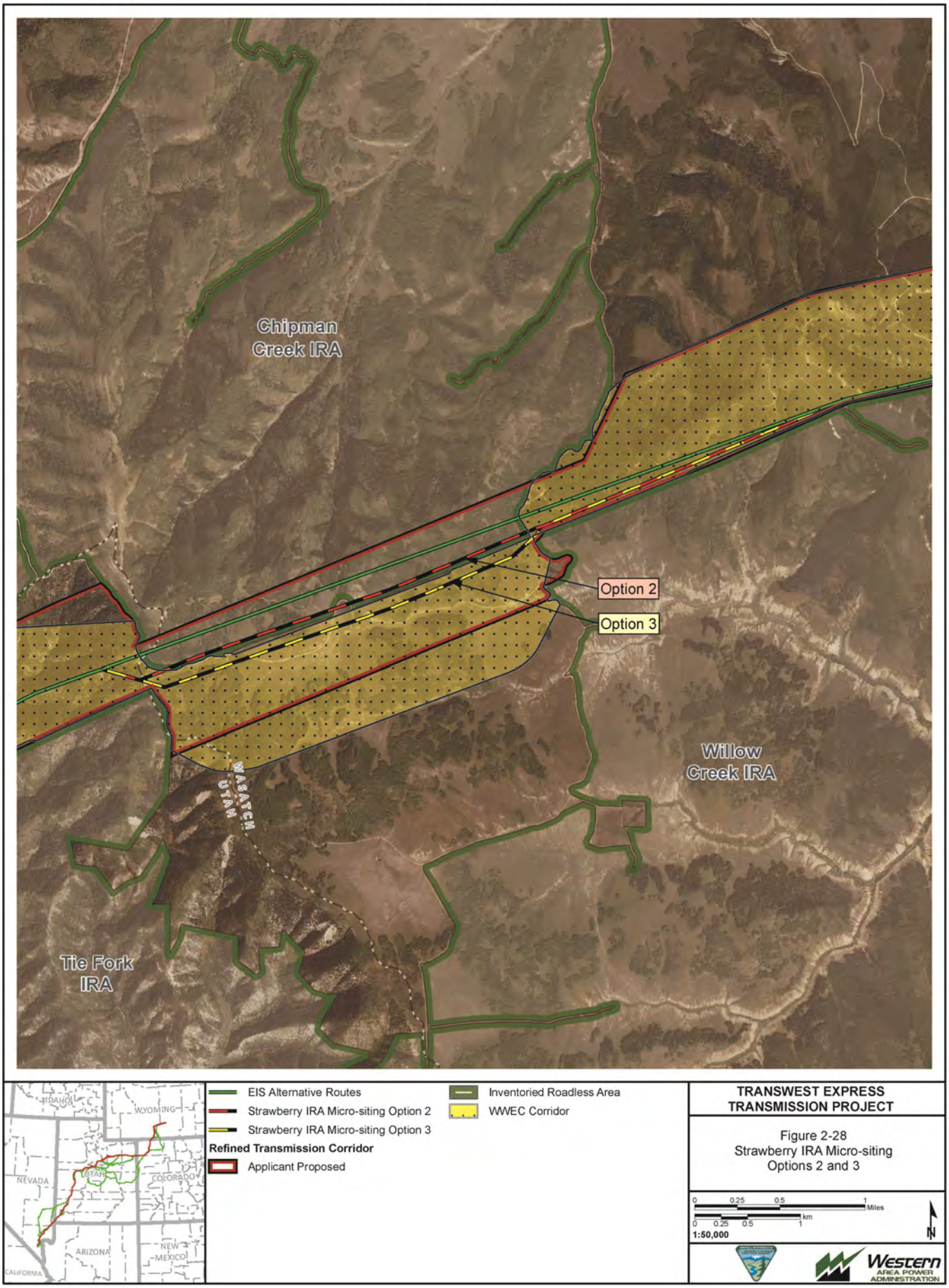

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Within the Manti-La Sal National Forest, the refined transmission corridor would cross General Big-Game Winter Range, Minerals Management Area, Range Forage Production, Wood Fiber Production and Utilization, Utility Corridor, and Developed Recreation Site MAs. The area in which roads would be located would cross the Watershed Protection/Improvement MA. Within the Fishlake National Forest, the refined transmission corridor would cross the Livestock Grazing MA. Within the Uinta National Forest Planning Area, the area in which roads would be located would cross the Nephi MA. Impacts to management areas are discussed in Section 3.14, Land Use.

Alternative II-C

Alternative II-C also would decrease impacts to private lands and generally would follow established utility corridors as well as avoid USFS IRAs. Alternative II-C would follow Alternative II-B through Colorado, along I-70 into Utah, and north at US-191. Approximately 15 miles north on US-191, Alternative II-C would diverge from Alternative II-B and turn in a general westerly direction toward Castle Dale. Approximately 3 miles east of Castle Dale, this alternative would turn south and roughly parallel Utah State Route (SR)-10 at a distance of approximately 3 miles to the east. The alternative would cross SR-10 near the Emery-Sevier county line and turn west, again generally following the I-70 corridor across a portion of the Fishlake National Forest into the Salina, Utah, area. Alternative II-C would pass south of Salina, turn north, and parallel US-50 toward Scipio, Utah. The alternative would turn west and pass Scipio on the south, again crossing a portion of the Fishlake National Forest, then turn north, passing east of Delta, Utah, continuing into IPP.

Within the Fishlake National Forest, the refined transmission corridor would cross Rural and Roaded-Natural Recreation Opportunities, Management Indicator Species, Big Game Winter Range, Livestock Grazing, and Improved Watershed Condition MAs. The area in which roads would be located would cross Semi-primitive Non-motorized Recreation and Fish Habitat Improvement MAs. Impacts to management areas are discussed in Section 3.14, Land Use.

Alternative II-D

This alternative was developed to avoid USFS IRAs and to provide additional northern route options to avoid impacts to historic trails and areas designated for special resource management along the southern routes (Alternatives II-B and II-C). It would begin along the same route as Alternative II-A; however, as it would enter Utah, it would diverge briefly to follow a designated utility corridor, causing it to zigzag once across Alternative II-A. It then would diverge to the south of the designated utility corridor and turn west-southwest, skirting the edge of the Ashley National Forest. Alternative II-D would cross into Carbon County northwest of Price, and then turn southwest in the Emma Park area along US-191. It would follow this highway west of Helper, across a portion of the Manti-La Sal Nationa Forest and, then turn west toward Salt Creek Canyon where it would join and follow Alternative II-B, skirt the edge of the Uinta National Forest Planning Area, then join and follow Alternative II-A into IPP.

Within the Ashley National Forest, the refined transmission corridor would cross Livestock Grazing and Wildlife Habitat Emphasis MAs.Within the Manti-La Sal National Forest, the refined transmission corridor would cross Range Forage Production, Wood Fiber Production and Utilization, and Utility Corridor MAs. The area in which roads would be located would cross Developed Recreation Site, Big Game Winter Range, Special Land Designation, Research Protection and Interpretation, and Undeveloped Motorized Recreation MAs. Within the Uinta National Forest Planning Area, the area in which roads would be located would cross the Nephi MA. Impacts to management areas are discussed in Section 3.14, Land Use.

Alternative II-E

Alternative II-E also was developed to provide additional northern route options to address the previously mentioned resource impacts from the southern routes. This alternative would follow Alternative II-D into Utah and along the designated utility corridor, zigzagging across Alternative II-A. It then would rejoin Alternative II-A to continue west across the Uintah/Duchesne county line. Approximately 10 miles east of Duchesne, Alternative II-E would turn southwest and generally parallel SH-191, offset by 1 to 6 miles,

through a utility window of the Ashley National Forest. At the Utah-Carbon county line, this alternative would turn west through the Emma Park area, then northwest along US-6 through a utility window of the Uinta National Forest Planning Area until it would rejoin with Alternative II-A, following its siting through the Manti-La Sal National Forest to Salt Creek Canyon. At this canyon, Alternative II-E would begin to follow the alignment of Alternative II-B south of Nephi, then join and follow Alternative II-A adjacent and into IPP.

Within the Ashley National Forest, the refined transmission corridor would cross Livestock Grazing, Dispersed Recreation Roaded, and Existing Low Management Emphasis MAs. Within the Uinta National Forest Planning Area, the refined transmission corridor would cross the Thistle and Upper Spanish Fork Canyon MAs. The area in which roads would be located would cross the Nephi and White River MAs. Within the Manti-La Sal National Forest, the refined transmission corridor would cross General Big-Game Winter Range and Range Forage Production MAs. The area in which roads would be located would also cross the Key Big-Game Winter Range MA. Impacts to management areas are discussed in Section 3.14, Land Use.

Alternative II-F

Alternative II-F has been adjusted compared to the alternative disclosed in the Draft EIS at the request of the lead agencies in response to public comments on the Draft EIS. This alternative combines portions of other alternatives in the region and contains unique segments in the Emma Park area that together would minimize impacts to USFS IRAs, Tribal and private lands, sage-grouse habitat, and avoid impacts to NHTs. It would begin in southwest Moffat County (Colorado) by following Alternative II-A in designated WWEC and BLM utility corridors. As it enters Utah (Uintah County), it would separate from Alternative II-A to the northwest and follow the designated utility corridors, which then turn southwest and cross Alternative II-A. It then would diverge to the south off of the designated WWEC (still following the BLM-designated corridor) and turn west-southwest, crossing the Uintah and Ouray Indian Reservation. It then would cross into Duchesne County, where it would turn west-southwest out of the BLM utility corridor, skirt the Ashley National Forest and generally follow the southern county line. The alternative would follow Argyle Ridge west and US-191 to the southwest for a short distance, then would turn west and follow the base of Reservation Ridge. It would then turn northwest and cross US-6 at Soldier Summit where it would turn west-northwest and follow US-6 to Thistle (Utah County) through a portion of designated WWEC and BLM utility corridors and utility window of the Uinta National Forest Planning Area. It then would turn south, following US-89 for about 10 miles and through a portion of the Manti-La Sal National Forest before cutting south-southwest (Sanpete County) to SR-132. At this highway, it would turn west into Nephi (Juab County) and follow a path south around the community and continue west until turning southwest where it would parallel US-6 north of Lynndyl for a short distance, then diverging west-southwest and finally west along the southern edge of the Millard-Juab county line into IPP north of Delta (Millard County); the end of Region II.

Within the Ashley National Forest, the refined transmission corridor would cross Livestock Grazing and Wildlife Habitat Emphasis MAs. Within the Uinta National Forest Planning Area, the refined transmission corridor would cross the Thistle and Upper Spanish Fork Canyon MAs. The area in which roads would be located would cross the Mona, Nephi, and White River MAs. Within the Manti-La Sal National Forest, the refined transmission corridor would cross the General Big-Game Winter Range MA. The area in which roads would be located would also cross Key Big-Game Winter Range and Range Forage Production MAs. Impacts to management areas are discussed in Section 3.14, Land Use.

Alternative II-G (Agency Preferred)

Alternative II-G is a reconfiguration of segments that are also included in multiple other alternatives, mainly Alternatives II-A and II-F. This specific alternative configuration was not included in the Draft EIS, and has been included in the Final EIS to reflect the agency preferred alternative in Region II. This alternative avoids crossing Tribal trust lands of the Uintah and Ouray Indian Reservation, while also avoiding National Historic Trails, maximizing avoidance of potential habitat of federally protected plant

species, and maximizing co-location with existing above-ground utilities. It would begin in southwest Moffat County (Colorado) by following the other alternatives in designated WWEC and BLM utility corridors. After entering Utah, this alternative would follow Alternatives II-F, II-D and II-E and continue along the designated utility corridor, zigzagging across Alternative II-A. At this point, it would follow Alternative II-E to the northwest, and rejoin Alternative II-A to continue west across the Uintah/Duchesne county line. Alternative II-G would continue to follow Alternative II-A to near Fruitland. East of Fruitland it would diverge from Alternative II-A but parallel closely to the south for several miles avoiding a conservation easement, and then rejoin Alternative II-A. The alignment would then turn southwest and cross portions of the Uinta National Forest Planning Area, then turn west along US-6 and Soldier Creek, rejoining Alternative II-F. At the junction with US-89, Alternative II-G would then turn south generally along US-89 where it would cross a portion of the Manti-La Sal National Forest. The alignment would pass through Salt Creek Canyon. Here Alternative II-G would again diverge from Alternative II-A and pass south around Nephi. It would continue west and then turn southwest following a path north of and adjacent to IPP. Portions of this corridor have been identified as preferred in a joint resolution by representatives of Juab and Millard counties.

The Fruitland and Strawberry IRA micro-siting options are also applicable to this alternative. See the description of these micro-siting option under the previous Alternative II-A discussion.

Within the Uinta National Forest Planning Area, the refined transmission corridor would cross the Diamond Fork, Strawberry Reservoir, Thistle, Upper Spanish Fork Canyon and Willow Creek MAs. The area in which roads would be located would cross the Nephi and Mona MAs. Within the Manti-La Sal National Forest, the refined transmission line corridor would cross the General Big-Game Winter Range MA. The area in which roads would be located would also cross Key Big-Game Winter Range and Range Forage Production MAs. Impacts to management areas are discussed in Section 3.14, Land Use.

Region II Alternative Variation

Reservation Ridge Alternative Variation

The Reservation Ridge Alternative Variation would address potential impacts to greater-sage grouse concerns along the comparable portions of Alternative II-F. This variation is compared to the portion of Alternative II-F it might replace in the Emma Park area north of Price, Utah (**Figure 2-23**), and the length and associated construction and operation disturbance are summarized in **Table 2-11**. It would deviate from Alternative II-F near the top of Argyle Ridge, and would traverse Reservation Ridge toward the west until rejoining with Alternative II-F just east of Soldier Summit, Utah.

Table 2-11 Alternative Variation and Comparison Areas of Disturbance in Region II

Facilities	Length (miles)		Construction Disturbance (acres)						Operation Disturbance (acres)		
	600-kV T-Line	Access Road	Access Roads	Structures & Comm Sites	Stringing & Tensioning Sites	Work Areas	Facilities Total	Additional ROW-Veg Clearing	Access Roads	Structures & Comm Sites	Facilities Total
Reservation Ridge	20	49	140	92	143	47	422	334	140	2	142
Alternative II-F Comparable	21	50	141	100	152	51	444	362	141	2	143

Region II Alternative Connectors

The alternative connectors analyzed in Region II are described below and depicted in **Figure 2-23**. The length of the alternative connectors and associated access roads along with construction and operation disturbance areas are summarized in **Table 2-12**.

Roan Cliffs Alternative Connector (Alternatives II-D, II-E, and II-F)

The Roan Cliffs Alternative Connector would connect Alternatives II-D or II-E with Alternative II-F to provide an additional routing alternative around the Argyle Ridge area to address resource concerns (i.e., biological, scenic, recreation, land use, and management areas).

Table 2-12 Alternative Connectors Areas of Disturbance in Region II

Facilities	Length (miles)		Construction Disturbance (acres)						Operation Disturbance (acres)		
	600-kV T-Line	Access Road	Access Road	Structures & Comm Sites	Stringing & Tensioning Sites	Work Areas[1]	Facilities Total	Additional ROW-Veg Clearing[2]	Access Road	Structures & Comm Sites	Facilities Total
Roan Clifs	2	4	13	8	9	4	**34**	29	13	<1	**13**
Castle Dale	11	13	28	51	45	26	**150**	219	28	1	**29**
Price	18	26	64	84	71	44	**263**	376	64	2	**66**
Lynndyl	24	31	65	111	72	58	**306**	503	65	2	**67**
IPP East	4	4	8	17	19	9	**53**	68	8	<1	**8**

[1] Work areas include staging areas, concrete batch plants, storage yards, and helicopter fly yards.

[2] Additional ROW-vegetation clearing is the remainder of the area within the ROW that is not included in construction or operation facilities disturbance that may experience some degree of vegetation clearing (e.g., mowing, woody vegetation clearing, and overland travel) during construction.

Castle Dale Alternative Connector (Alternatives II-B and II-C)

The Castle Dale Alternative Connector would connect Alternative II-C near Castle Dale with Alternative II-B near Huntington. This connector also could be utilized to pass from Alternative II-B to Alternative II-C.

Price Alternative Connector (Alternatives II-B and II-D)

The Price Alternative Connector would connect Alternative II-B north of Huntington along the Emery-Carbon county line with Alternative II-D west of Price. This connector potentially also could be utilized to pass from Alternative II-D to Alternative II-B.

Lynndyl Alternative Connector (Alternatives II-B and II-C)

The Lynndyl Alternative Connector would deviate from Alternative II-C just south of Scipio, turning north and joining with Alternative II-B between Nephi and IPP.

IPP East Alternative Connector (Alternatives II-A and II-B)

The IPP East Alternative Connector would connect Alternative II-A to Alternative II-B, allowing either of these to cross to the other and approach IPP from either the north or the south.

Region II Series Compensation Station (Design Option 3)

If Design Option 3 were implemented, a series compensation station would be necessary along the alternative routes of Region II during the first phase (AC operation) and additional studies would be performed to identify specific locations. However, the EIS contains three indicative sites, each corresponding to specific alternative routes. Upon completion of Phase 2 of Design Option 3, when the utility of the station ceases, it would be deconstructed and reclaimed to the original condition. These series compensation station alternatives are depicted in **Figure 2-3**.

Series Compensation Station 1 – Design Option 3 corresponds to Alternatives II-A and II-E, and would be located near the Uintah-Duchesne County line approximately 7 miles east of the Town of Roosevelt, Utah, and 2 miles south of US-40.

Series Compensation Station 2 – Design Option 3 corresponds to Alternatives II-B and II-C, and would be located approximately 5 miles west of the Utah-Colorado State line on the north side of I-70.

Series Compensation Station 3 – Design Option 3 corresponds to Alternatives II-D and II-F, and would be located in the Uinta Basin area approximately 8 miles west of the Green River and near the Uintah-Duchesne County line.

2.5.1.3 Region III: IPP to North Las Vegas, Nevada

Region III alternative preliminary engineered alignments are depicted in **Figure 2-24**. Alternative III-D is the agency preferred alternative in Region III. The length of alternative routes and associated access roads in Region III are summarized in **Table 2-13** and disturbance associated with construction and operation of each is summarized in **Table 2-14**. If Design Option 2 were implemented, the transmission lines in this region would be constructed and operated as an AC transmission line (three conductors and structures to support them) in this region (see **Figure 2-2**).

Table 2-13 Length of Alternative Routes and Associated Access Roads in Region III

Facilities	Length (miles)			
	Alternative III-A	Alternative III-B	Alternative III-C	Alternative III-D
600-kV T-Line	276	284	308	281
Access Roads	335	320	338	303

Table 2-14 Transmission Line Alternative Route Areas of Disturbance in Region III

Facilities	Construction Disturbance (acres)				Operation Disturbance (acres)			
	Alt. III-A	Alt. III-B	Alt. III-C	Alt. III-D	Alt. III-A	Alt. III-B	Alt. III-C	Alt. III-D
Access Roads	765	671	721	638	765	671	721	638
Structures and Communication Sites	1,286	1,317	1,422	1,303	26	26	28	27
Stringing and Tensioning Sites	874	889	915	884	–	–	–	–
Work Areas[1]	663	681	739	675	–	–	–	–
Facilities Total	**3,588**	**3,558**	**3,797**	**3,500**	**791**	**697**	**749**	665
Additional ROW-vegetation clearing[2]	5,981	6,092	6,727	6,089	–	–	–	–

[1] Work areas include staging areas, concrete batch plants, storage yards, and helicopter fly yards.

[2] Additional ROW-vegetation clearing is the remainder of the area within the ROW that is not included in construction or operation facilities disturbance that may experience some degree of vegetation clearing (e.g., mowing, woody vegetation clearing, and overland travel) during construction.

Alternative III-A (Applicant Proposed)

The TransWest proposed preliminary engineered alignment would leave IPP to the west and turn south toward Milford, Utah, following the WWEC. For the remainder of Utah, the preliminary engineered alignment roughly would parallel I-15 approximately 20 miles west of the highway. The preliminary engineered alignment would pass west of Milford, then generally trend south-southwest, passing east of Enterprise, Utah, across a portion of the Dixie National Forest, and directly west of Central, Utah; exiting Utah just north of the southwest corner of the state. In Nevada, the line would cross I-15 west of

Mesquite, Nevada, and remain on the south side of I-15 until reaching the North Las Vegas area northeast of Nellis Air Force Base (AFB).

Within the Dixie National Forest, the refined transmission corridor would cross General Forest Direction, Roaded Natural Recreation, Big Game Winter Range and Livestock Grazing MAs. The areas in which roads would be located would cross the Wildlife Habitat: Brushy Range MA. Impacts to management areas are discussed in Section 3.14, Land Use.

Alternative III-A could incorporate the Mormon Mesa-Carp Elgin Road, the Halfway Wash East, or the Halfway Wash-Virgin River locations for the ground electrode system.

Alternative III-B

Alternative III-B was developed to decrease resource impacts in southwestern Utah (including potential impacts to the Mountain Meadows NHL and Site and IRAs in the Dixie National Forest). It would begin following Alternative III-A through Millard and Beaver counties. Near the Beaver-Iron county line, it would diverge toward the west. Alternative III-B would follow a west-southwest course, crossing into Lincoln County, Nevada, near Uvada, Utah, where it would turn to a general southerly direction, rejoining Alternative III-A to the northwest of Mesquite. It then would diverge to the west from Alternative III-A approximately 16 miles west of Mesquite, cross into Clark County, pass southeast of Moapa, Nevada, pass through the designated utility corridor on the Moapa Reservation, and rejoin Alternative III-A approximately 4 miles north of the end of Region III.

Alternative III-B could incorporate the Mormon Mesa-Carp Elgin Road, the Halfway Wash East, or the Halfway Wash-Virgin River locations for the ground electrode system.

Alternative III-C

Alternative III-C also was developed to address the same resource impacts as Alternative III-B and to take advantage of an existing corridor with existing transmission line development, thereby potentially consolidating cumulative transmission line impacts. This alternative would follow Alternatives III-A and III-B before diverging from them shortly after traveling west out of IPP, where it would follow the existing IPP power line to the south for approximately 30 miles and then rejoin Alternative III-B to the Utah-Nevada state line. After passing into Nevada at Uvada, Alternative III-C would turn west away from Alternative III-B, passing north of Caliente, Nevada; turning south approximately 15 miles west of Caliente. This alternative would follow that southern course, intersecting with US-93 and paralleling the highway for all but the last 15 miles into North Las Vegas. Alternative III-C would rejoin Alternative III-A northeast of Nellis AFB at the end of Region III.

Alternative III-C would incorporate the Meadow Valley 2 location for the ground electrode system.

Alternative III-D (Agency Preferred)

Alternative III-D was developed as a minor reconfiguration to Alternative III-B for the purpose of decreased resource impacts in southwestern Utah (including potential impacts to the Mountain Meadows NHL and Site and IRAs in the Dixie National Forest) as well as addressing concerns raised by the DOD. It would begin following Alternative III-B, then diverge through Millard County to maintain co-location with the existing IPP power line to the south for approximately 30 miles and then rejoin Alternative III-B. It would then follow Alternative III-B for the remainder of Region III to, crossing into Lincoln County, Nevada, near Uvada, Utah, where it would turn to a general southerly direction, rejoining Alternative III-A to the northwest of Mesquite. It then would diverge to the west from Alternative III-A approximately 16 miles west of Mesquite, cross into Clark County, pass southeast of Moapa, Nevada, pass through the designated utility corridor on the Moapa Reservation, and rejoin Alternative III-A approximately 4 miles north of the end of Region III.

Alternative III-D could incorporate the Mormon Mesa-Carp Elgin Road, the Halfway Wash East, or the Halfway Wash-Virgin River locations for the ground electrode system.

Region III Alternative Variations

The alternative variations analyzed in Region III are described below and depicted in **Figure 2-24**. The length of the alternative variations, associated access roads, and construction and operation disturbance areas along with those same statistics for the comparable portion of alternative routes are summarized in **Table 2-15**.

Table 2-15 Alternative Variation and Comparison Areas of Disturbance in Region III

Facilities	Length (miles)		Construction Disturbance (acres)						Operation Disturbance (acres)		
	600-kV T-Line	Access Road	Access Roads	Structures & Comm Sites	Stringing & Tensioning Sites	Work Areas[1]	Facilities Total	Additional ROW-veg clearing[2]	Access Roads	Structures & Comm Sites	Facilities Total
Ox Valley East	17	38	106	77	96	40	**319**	300	106	2	**108**
Alternative III-A Comparable	*15*	*28*	*77*	*75*	*94*	*36*	***282***	*282*	*77*	*2*	***79***
Ox Valley West	17	38	108	78	86	41	**313**	321	108	2	**110**
Alternative III-A Comparable	*15*	*28*	*77*	*75*	*94*	*36*	***282***	*282*	*77*	*2*	***79***
Pinto	29	45	111	132	150	69	**462**	532	111	3	**114**
Alternative III-A Comparable	*23*	*42*	*113*	*113*	*133*	*56*	***415***	*445*	*113*	*2*	***115***

[1] Work areas include staging areas, concrete batch plants, storage yards, and helicopter fly yards.

[2] Additional ROW-vegetation clearing is the remainder of the area within the ROW that is not included in construction or operation facilities disturbance that may experience some degree of vegetation clearing (e.g., mowing, woody vegetation clearing, and overland travel) during construction.

Ox Valley East Alternative Variation (Alternative III-A)

The Ox Valley East Alternative Variation was developed to address potential impacts to the Mountain Meadows NHL resulting from Alternative III-A. It would deviate from Alternative III-A toward the west near Enterprise, Utah, then run south through Ox Valley, rejoining Alternative III-A just south of Central, Utah.

Ox Valley West Alternative Variation (Alternative III-A)

The Ox Valley West Alternative Variation also was developed to address potential impacts to the Mountain Meadows NHL. It would begin and end with the Ox Valley East route, but follow a route further west near Enterprise.

Pinto Alternative Variation (Alternative III-A)

The Pinto Alternative Variation also addresses potential impacts to the Mountain Meadows NHL, as well as USFS IRAs. This variation would deviate from Alternative III-A to the east where the routes cross Utah SR-56 west of Cedar City. This variation generally would travel south, near the Pinto Canyon Road and rejoin Alternative III-A just north of the Ox Valley variations near Central.

Region III Alternative Connectors

The alternative connectors analyzed in Region III are described below and depicted in **Figure 2-24**. The length of the alternative connectors and associated access roads along with construction and operation disturbance areas are summarized in **Table 2-16**.

Table 2-16 Alternative Connector Area of Disturbance in Region III

Facilities	Length (miles)		Construction Disturbance (acres)						Operation Disturbance (acres)		
	600-kV T-Line	Access Road	Access Roads	Structures & Comm Sites	Stringing & Tensioning Sites	Work Areas[1]	Facilities Total	Additional ROW-veg clearing[2]	Access Roads	Structures & Comm Sites	Facilities Total
Avon	8	9	18	36	27	18	**99**	156	18	1	**19**
Arrowhead	3	4	9	15	23	7	**54**	49	9	<1	**9**
Moapa	13	16	32	62	50	32	**176**	270	32	1	**33**

[1] Work areas include staging areas, concrete batch plants, storage yards, and helicopter fly yards.

[2] Additional ROW-vegetation clearing is the remainder of the area within the ROW that is not included in construction or operation facilities disturbance that may experience some degree of vegetation clearing (e.g., mowing, woody vegetation clearing, and overland travel) during construction.

Avon Alternative Connector (Alternatives III-A, III-B, and III-C)

The Avon Alternative Connector would connect Alternatives III-B and III-C with Alternative III-A south of the area where these routes diverge near the Iron-Beaver county line. This connector also could be potentially utilized to pass from Alternative III-A to Alternatives III-B or III-C. The Avon connector was added to avoid potential impacts to sage-grouse.

Arrowhead Alternative Connector (Alternatives III-A and III-B)

The Arrowhead Alternative Connector would be located near Moapa, Nevada, and act as a connector between Alternatives III-A and III-B on the northeast side of the Moapa Indian Reservation.

Moapa Alternative Connector (Alternatives III-A, III-B, and III-C)

The Moapa Alternative Connector would be located near Dry Lake, Nevada, and act as a connector between Alternatives III-A, III-B, and III-C on the south side of the Moapa Indian Reservation.

Region III Ground Electrode System Alternative Facilities

The ground electrode system alternative locations in Region III are depicted in **Figure 2-24** and the lengths and disturbance areas are summarized in **Table 2-17**.

Table 2-17 Ground Electrode System Alternative Facility Lengths and Areas of Disturbance in Region III

Southern Ground Electrode System Site Alternatives	Length (miles)		Construction Disturbance (acres)				Operation Disturbance (acres)			
	34.5-kV AC Overhead Line	Access Road	Ground Electrode Sites	Over-head Lines	Access Roads	Total	Ground Electrode Sites	Over-head Lines	Access Roads	Total
Mormon Mesa-Carp Elgin Rd (Alternative III-A)	6	7	65	12	13	**90**	6	<1	13	**18**
Halfway Wash - Virgin River (Alternative III-A)	8	10	65	9	9	**83**	6	<1	9	**15**
Halfway Wash East (Alternative III-A)	4	5	65	18	18	**101**	6	<1	18	**24**
Mormon Mesa-Carp Elgin Rd (Alts III-B, III-D)	6	7	65	18	19	**102**	6	<1	19	**24**
Halfway Wash - Virgin River (Alts III-B, III-D)	8	9	65	13	13	**92**	6	<1	13	**19**
Halfway Wash East (Alts III-B, III-D)	10	12	65	23	23	**111**	6	<1	23	**29**
Meadow Valley 2 (Alternative III-C)	22	27	65	49	56	**170**	6	<1	56	**61**
Delta (Design Option 2)	14	16	65	31	31	**127**	6	<1	31	**37**

Region III Series Compensation Station (Design Option 2)

If Design Option 2 were implemented, a series compensation station would be necessary along the AC-configured alternative routes of Region III and additional studies would be performed to identify specific locations. However, the EIS contains three indicative sites, each corresponding to a specific alternative route. These series compensation station alternatives are depicted in **Figure 2-2**.

Series Compensation Station 1 – Design Option 2 corresponds to Alternative III-A, and would be located approximately 17 miles northwest of Cedar City, Utah, in the Escalante Desert.

Series Compensation Station 2 – Design Option 2 corresponds to Alternative III-C, and would be located approximately 2 miles south of US-93 on the east side of the Delmar Mountains.

Series Compensation Station 3 – Design Option 2 corresponds to Alternative II-B, and would be located approximately 5 miles west of Beryl, Utah, north of the existing railroad line.

2.5.1.4 Region IV: North Las Vegas to Marketplace Hub near Boulder City, Nevada

Region IV alternative preliminary engineered alignments are depicted in **Figure 2-25**. Alternative IV-A is the agency preferred alternative in Region IV. The length of alternative routes and associated access roads in Region IV are summarized in **Table 2-18**, and disturbance associated with construction and operation of each is summarized in **Table 2-19**. If Design Option 2 were implemented, the transmission line in this region would be constructed and operated as an AC transmission line (three conductors and structures to support them) (see **Figure 2-2**).

Table 2-18 Length of Alternative Routes and Associated Access Roads in Region IV

Facilities	Length (miles)		
	Alternative IV-A	Alternative IV-B	Alternative IV-C
600-kV T-Line	37	40	44
Access Roads	49	51	54

Table 2-19 Transmission Line Alternative Route Areas of Disturbance in Region IV

Facilities	Construction Disturbance (acres)			Operation Disturbance (acres)		
	Alt. IV-A	Alt. IV-B	Alt. IV-C	Alt. IV-A	Alt. IV-B	Alt. IV-C
Access Roads	120	119	124	120	119	124
Structures and Communication Sites	177	190	207	4	4	4
Stringing and Tensioning Sites	161	161	186	–	–	–
Work Areas[1]	89	95	106	–	–	–
Facilities Total	**547**	**565**	**623**	**124**	**123**	**128**
Additional ROW-vegetation clearing[2]	771	818	901	–	–	–

[1] Work areas include staging areas, concrete batch plants, storage yards, and helicopter fly yards.

[2] Additional ROW-vegetation clearing is the remainder of the area within the ROW that is not included in construction or operation facilities disturbance that may experience some degree of vegetation clearing (e.g., mowing, woody vegetation clearing, and overland travel) during construction.

Alternative IV-A (Applicant Proposed and Agency Preferred)

The TransWest proposed action would follow a designated WWEC parallel to existing transmission lines running to the south, passing North Las Vegas to the east, and through the Rainbow Gardens ACEC. It would run between Whitney, Nevada, and the Lake Las Vegas development skirting the edge of

Henderson, Nevada. It would then turn in a general southwest direction at Railroad Pass, and then southern direction to the Marketplace endpoint.

Alternative IV-B

Alternative IV-B would follow the proposed alternative for approximately 7 miles, diverge to the southeast as it passed directly east of Nellis AFB and travel south through the Lake Mead NRA, passing between the Lake Las Vegas development and Lake Mead. Along the south edge of Lake Las Vegas, it would turn southwest, north of the City of Boulder, Nevada, then turn west and join with Alternative IV-A west of Henderson to the Marketplace endpoint. It was originally developed to provide an alternative that did not require crossing the former Sunrise Mountain ISA, which has been released from wilderness study by Congress in January 2014.

Alternative IV-C

Alternative IV-C it would decrease impacts to populated areas. This alternative would follow Alternative IV-B through the Lake Mead NRA and between the Lake Las Vegas development and Lake Mead to north of Boulder City. It would then continue south before it turned southwest around the southeast edge of the metropolitan area of Boulder City, and into the Marketplace endpoint. It also was developed to provide an alternative that did not require crossing the former Sunrise Mountain ISA that has since been released from wilderness study by Congress in January 2014.

Region IV Alternative Variation

Marketplace Variation (Alternative IV-B)

The alternative variation analyzed in Region IV is described below and depicted in **Figure 2-25**. The length of the alternative variation, associated access roads, and construction and operation disturbance areas along with those same statistics for a comparable portion of an alternative route are summarized in **Table 2-20**.

Table 2-20 Alternative Variation and Comparison Areas of Disturbance in Region IV

	Length (miles)		Construction Disturbance (acres)						Operation Disturbance (acres)		
Facilities	600-kV T-Line	Access Road	Access Roads	Structures & Comm Sites	Stringing & Tensioning Sites	Work Areas[1]	Facilities Total	Additional ROW-veg clearing[2]	Access Roads	Structures & Comm Sites	Facilities Total
Marketplace	8	10	19	37	33	19	**108**	159	19	1	**20**
Alternative IV-B Comparable	*7*	*6*	*11*	*33*	*20*	*17*	***81***	*161*	*11*	*1*	***12***

[1] Work areas include staging areas, concrete batch plants, storage yards, and helicopter fly yards.

[2] Additional ROW-vegetation clearing is the remainder of the area within the ROW that is not included in construction or operation facilities disturbance that may experience some degree of vegetation clearing (e.g., mowing, woody vegetation clearing, and overland travel) during construction.

The Marketplace Alternative Variation would decrease impacts to private lands. It would diverge from Alternative IV-B toward the west near Boulder City, Nevada, and reconnect with the Alternatives IV-A and IV-B near the proposed Southern Terminal.

Region IV Alternative Connectors

The alternative connectors analyzed in Region IV are described below and depicted in **Figure 2-25**. The length of the alternative connectors and associated access roads along with construction and operation disturbance areas are summarized in **Table 2-21**.

Table 2-21 Alternative Connectors Areas of Disturbance in Region IV

Facilities	Length (miles)		Construction Disturbance (acres)						Operation Disturbance (acres)		
	600-kV T-Line	Access Road	Access Roads	Structures & Comm Sites	Stringing & Tensioning Sites	Work Areas[1]	Facilities Total	Additional ROW-veg clearing[2]	Access Roads	Structures & Comm Sites	Facilities Total
Sunrise Mountain	3	4	8	14	23	7	**52**	42	8	<1	**8**
Lake Las Vegas	4	8	20	20	26	10	**76**	74	20	<1	**20**
Three Kids Mine	5	10	26	25	34	13	**98**	95	26	1	**27**
River Mountain	8	20	57	38	51	19	**165**	146	57	1	**58**
Railroad Pass	4	6	16	18	25	9	**68**	65	16	<1	**16**

[1] Work areas include staging areas, concrete batch plants, storage yards, and helicopter fly yards.

[2] Additional ROW-vegetation clearing is the remainder of the area within the ROW that is not included in construction or operation facilities disturbance that may experience some degree of vegetation clearing (e.g., mowing, woody vegetation clearing, overland travel) during construction.

Sunrise Mountain Alternative Connector (Alternatives IV-A, IV-B, and IV-C)

The Sunrise Mountain Alternative Connector would pass between Alternative IV-B (and IV-C) and Alternative IV-A on the northern border of the Lake Mead NRA.

Lake Las Vegas Alternative Connector (Alternatives IV-A, IV-B, and IV-C)

The Lake Las Vegas Alternative Connector would connect Alternative IV-B (and IV-C) and Alternative IV-A just south of where each alternative crosses Las Vegas Wash, and would be located south of Lake Las Vegas along Lake Mead Boulevard.

Three Kids Mine Alternative Connector (Alternatives IV-A, IV-B, and IV-C)

The Three Kids Mine Alternative Connector would connect Alternative IV-B (and IV-C) and Alternative IV-A just south of the Lake Las Vegas Alternative Connector, and would be located south of the Three Kids Mine.

River Mountains Alternative Connector (Alternatives IV-A, IV-B, and IV-C)

The River Mountains Alternative Connector variation would connect Alternative IV-B (and IV-C) and Alternative IV-A from the point where Alternatives IV-B and IV-C would deviate north of Boulder City, to the point where Alternative IV-A would turn southwest toward the Marketplace endpoint.

Railroad Pass Alternative Connector (Alternatives IV-A and IV-B)

The Railroad Pass Alternative Connector would connect Alternative IV-A with Alternative IV-B from the point where Alternative IV-A would turn southwest on the west side of Boulder City to a point directly south on Alternative IV-B.

2.6 No Action Alternative

Under the No Action Alternative, the BLM or USFS would not issue ROW grants or special use permits and the Project would not be constructed.

Under the No Action Alternative, Western would choose not to participate in the Project nor request the associated funding from the treasury.

2.7 Alternatives Considered but Eliminated from Detailed Analysis

Figure 2-9 depicts the corridors considered during the scoping period, those that were added as a result of scoping comments, and those that were eliminated from further consideration in the EIS. The

alternative corridor segments listed in **Table 2-22** were considered through the public scoping period, but have subsequently been eliminated from detailed analysis in this EIS by the lead agencies for the reasons noted. Evaluations of segments that were eliminated from further analysis and more detailed rationales for their removal are provided in **Appendix B**.

Table 2-22 Alternatives Considered but Eliminated from Detailed Analysis

Rationale for Elimination from Detailed Analysis
Sweetwater and Carbon County Pipeline Corridor (Region I)
Provides no benefits beyond those provided by the existing range of alternatives; equal or greater impacts to alternatives being retained for detailed analysis: • This was TransWest's original proposed action (January 2010 SF 299 ROW application). It was subsequently withdrawn and replaced by a revised ROW application (August 2011) reflecting their current proposed action in Alternative I-A. This alternative was retained in the Draft EIS as Alternative I-B because it would follow an existing utility corridor (underground-only designation), thereby reducing the proliferation of new corridors. However, Alternative I-C, which is retained in the Final EIS, is within an existing utility corridor that is designated for both aboveground and underground utilities. Therefore, Alternative I-B from the Draft EIS has been removed and replaced. • Land Use: Although the alignment would be located within an existing utility corridor, it would conflict with the underground-only designation and require a plan amendment to allow overhead utlities.
Tuttle Ranch Micro-siting Option 2 (Region I)
Provides no benefits beyond those provided by the existing range of alternatives; equal or greater impacts to alternatives being retained for detailed analysis: • Land Use: This option was an attempt to avoid both the Tuttle Ranch Conservation Easement and the NPS Dinosaur National Monument's Deerlodge Road by passing between the easement abutments on the east side and the NPS road intersection on the west side of US-40; however, this option would not have avoided either area because of the 250-foot-wide transmission line ROW.
Wyoming Alternative Connectors (multiple short segments-Region I)
Provides no benefits beyond those provided by the existing range of alternatives; equal or greater impacts to alternatives being retained for detailed analysis. The following alternative connectors included in the Draft EIS were removed from further consideration because they did not provide any resource benefits, and caused additional impacts in some cases as noted by public comments received on the Draft EIS: • Mexican Flats Alternative Connector – Provided no additional benefit; greater transmission line length and resulting disturbance. • Baggs Alternative Connector – Increased visual impacts from the Town of Baggs; greater transmission line length and resulting disturbance. • Fivemile Point North Alternative Connector – Increased visual impacts from the Town of Baggs; greater transmission line length and resulting disturbance. • Fivemile Point South Alternative Connector – Increased visual impacts from the Town of Baggs; greater transmission line length and resulting disturbance.
Western Wyoming: Rock Springs (Region I)
Provides no benefits beyond those provided by the existing range of alternatives; equal or greater impacts to alternatives being retained for detailed analysis: • Land Use: Crossing of ROW exclusion area (Red Creek ACEC). Not compliant with Wyoming Governor's Executive Order (EO) 2011-5. • Visual Resources: Visibility from Dinosaur National Monument and Flaming Gorge National Scenic Byway. • Special Designations: Proximity to multiple areas with wilderness characteristics, ACECs, and crossed the upper Green River in a segment eligible for Wild and Scenic status.
Wyoming-Colorado: Craig, Meeker, Rifle, Parachute, Grand Junction, and connector to the west (Region I)
Provides no benefits beyond those provided by the existing range of alternatives; equal or greater impacts to alternatives being retained for detailed analysis: • Land commitment: Greater transmission line length and resulting disturbance. • More disturbance to private lands. • Visual Resources: Overall visibility to the public in the Grand Valley. • Siting: Requires construction across steep side slope terrain in narrow valleys.

Table 2-22 Alternatives Considered but Eliminated from Detailed Analysis

Rationale for Elimination from Detailed Analysis
Fruitland Area Options, Duchesne and Wasatch Counties, Utah: micro-siting option crossing Strawberry River (Region II)
Provides no benefits beyond those provided by the existing range of alternatives; equal or greater impacts to alternatives being retained for detailed analysis.
Emery County, Utah: multiple corridors near the San Rafael Swell (Region II)
Provides no benefits beyond those provided by the existing range of alternatives; equal or greater impacts to alternatives being retained for detailed analysis: • Cultural Resources: Old Spanish NHT impacts. • Visual Resources: Scenic quality and setting changes to historic sites.
Emery, Sanpete, and Juab counties Utah: two USFWS proposed re-routes (Region II)
Provides no benefits beyond those provided by the existing range of alternatives; equal or greater impacts to alternatives being retained for detailed analysis : • Land Use: Eastern reroute bisects IRAs for approximately 15 miles and western reroute deviates from designated utility corridor and crosses private lands, including center-pivot irrigated agricultural lands. • Visual Resources: Eastern reroute passes through relatively undisturbed areas noted for scenic quality. • Biological Resources: Stated intent was to avoid mapped sage-grouse habitat; however existing alternatives to the south avoid said habitat.
Cedar Knoll IRA Micro-siting Option 2 (Region II)
The Cedar Knoll IRA Micro-siting Option 2 was eliminated from detailed analysis because of its potential direct and indirect impacts to the federally threatened Deseret milkvetch. Cedar Knoll IRA Micro-siting Option 1 from the Draft EIS has been incorporated as part of Alternative II-A/II-E/II-F.
Far west corridor between Delta, Utah, and US-93 crossing, Nevada (Region III)
Provides no benefits beyond those provided by the existing range of alternatives; equal or greater impacts to alternatives being retained for detailed analysis: • Land commitment: Greater length relative to other corridors near I-15. • Visual Resources: Large section in western Utah where no other transmission lines or other utilities currently exist. • Visual Resources: Greater visibility from the Great Basin National Park.
West side of Las Vegas (Region IV)
Provides no benefits beyond those provided by the existing range of alternatives; equal or greater impacts to alternatives being retained for detailed analysis: • Land Use: No available buffer to avoid both residential lands and Red Rocks National Conservation Area (NCA).
Ground Electrode System Alternatives (Region I)
Provides no benefits beyond those provided by the existing range of alternatives; equal or greater impacts to alternatives being retained for detailed analysis: Little Snake East – Greater impacts to areas identified as greater-sage grouse preliminary priority habitat. Little Snake West – Greater impacts to areas identified as greater-sage grouse preliminary priority habitat. Shell Creek – Greater potential impacts to Adobe Town WSA and Monument Valley Special Management Area (SMA).

During scoping, numerous questions were raised regarding the ability to route all or portions of the Project underground. The use of undergrounding for large transmission lines has been considered for other transmission projects. For example, the Champlain Hudson Power Express project proposes a 1,000-MW underground power line from Canada to New York (approximately 300 miles). However, there are substantial issues with undergrounding that make it unsuitable for very long transmission lines crossing the multiple physiographic areas that the Project crosses. In contrast to the Champlain Hudson Power Express project, this Project is approximately double in length and would not be able to use pre-disturbed existing railway and road ROWs to minimize impacts to undisturbed areas.

The length of the Project and the fact that it crosses large areas of undisturbed habitat with large variations in topography raises several environmental, technical, and economic issues. These include the following.

- Economic Issues—Undergrounding increases the costs of a transmission line from 12 to 17 times over an overhead transmission line (National Grid 2009). In the case of the TWE Project, this would make project construction economically infeasible.
- Technical Issues—Burying long, high-voltage transmission lines requires consideration of two key issues: 1) providing sufficient insulation so that cables can be within inches of grounded material; and 2) dissipating the heat produced during the operation of the electrical cables. Addressing these issues require the use of special fluid-filled or gas-filled pipe or the use of solid cable with cross-linked polyethylene. These systems have the potential for fluid leaks or corrosion that can cause additional environmental concerns or have potential long-term maintenance requirements. The use of undergrounding requires installation of ancillary facilities, including large buried vaults for cable splicing and maintenance. The vaults are large concrete boxes approximately 10 x 10 x 30 feet, and, depending on the type of cable used, they would be required every 900 to 2,000 feet along the entire length of the transmission lines. For large voltage lines such as the Project, two vaults may need to be constructed next to each other (Public Service Commission of Wisconsin 2011) at each of these intervals.
- Environmental Issues—Burying the TransWest transmission line and required ancillary facilities (such as vaults) would require continuous excavation through all habitat types along the entire length of the transmission line. This would result in large-scale impacts related to visual resources, habitat loss, erosion, and sedimentation.

Based on the technical, economic, and environmental impact issues described above, undergrounding all or portions of the Project was not considered for further analysis (**Appendix D**).

Commenters also have suggested that “double-hanging” this Project on existing transmission lines structures should be considered. The Project’s Technical Subcommittee, consisting of representatives from both Western and TransWest, considered the feasibility of using common structures. It determined that the 3,000-MW capacity is the limit of a single transmission system element that can meet reliability standards of NERC and WECC. Additionally AC and DC systems are incompatible on shared structures because of interference from the electro-magnetic fields created by AC circuits (TransWest and Western 2012).

In the case of Design Option 2, the southern portion of the Project would be constructed as a single circuit 1,500-MW AC transmission line. If this Design Option were implemented, common structures could be considered at that time. However, use of common structures with another transmission project would require TransWest and the other transmission owner/operator to enter into an agreement to provide for joint construction, operation and maintenance of the facility. There is no such agreement in place or contemplated at this time. Therefore, the use of common transmission structures is speculative at this time and has been eliminated from further analysis.

2.8 Summary of Impacts by Region and Alternative

A summary of impacts to the Project’s action alternatives as described in Chapter 3.0 is provided by Project region in **Tables 2-23** through **2-26**. The alternative segments comprising the agency preferred alternative are highlighted in gray to facilitate comparison with the other action alternative segments. Please note that these tables are only a summary of the complete analyses on direct and indirect affects; readers should refer to the resource sections of Chapter 3.0 for detailed information and additional parameters.

2.9 Agency Preferred Alternative

In their selection of the agency preferred alternatives for the Project, the lead agency decision-makers reviewed the Draft EIS and considered the alternatives and their relative impacts on resources, as well as corresponding public and agency input. The agency preferred alternative presented in this Final EIS was chosen to meet the agencies’ respective purposes and needs, and statutory and regulatory

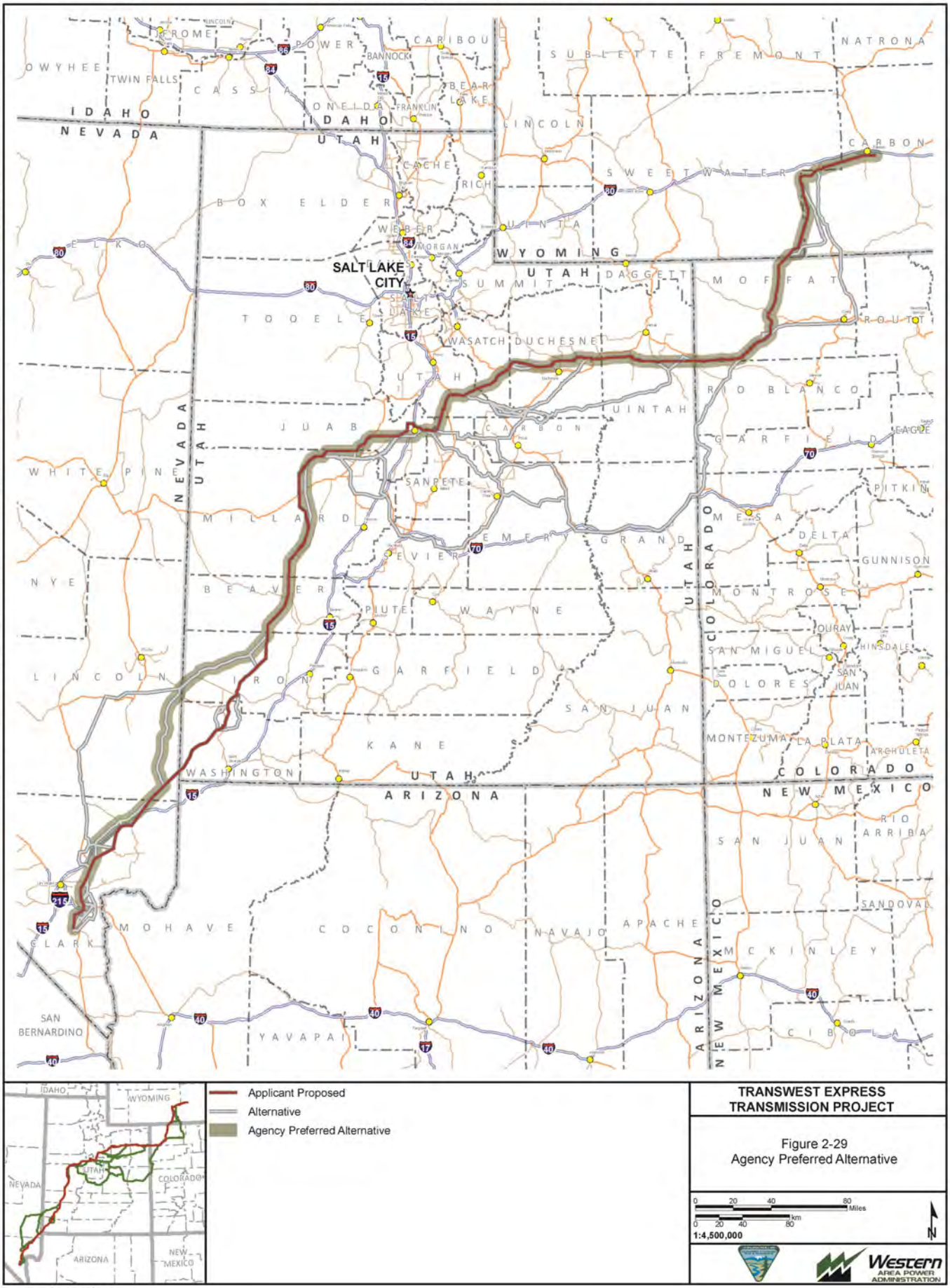
requirements, as well as applicant objectives while balancing federal land managers' multiple use mandate.

The agency preferred alternative has been identified in the Final EIS as the following combination of Project regional alternatives and facilities (**Figure 2-29**):

- Alternative I-B has been identified through Region I in Wyoming and Colorado.
  - The Bolten Ranch Ground Electrode System location has been selected as the preferred northern alternative for that system.
- Alternative II-G has been identified through Region II in Colorado and Utah.
- Alternative III-D has been identified through Region III in Utah and Nevada.
  - The Halfway Wash East Ground Electrode System location has been selected as the preferred southern alternative for that system.
- Alternative IV-A has been identified through Region IV in Nevada.

The agency preferred alternative was identified within each Project region with input from cooperating agencies considering criteria linked to CEQ criteria for determining significant impacts. While these criteria informed the preferred alternative identification process, there is no hierarchy or requirement that the agency preferred alternative fulfill these specific criteria. The agency preferred alternative is defined as the alternative that "the agency believes would fulfill its statutory mission and responsibilities, giving consideration to economic, environmental, technical and other factors" (40 Most Asked Questions, 4[a]). Accordingly, the application of the criteria was based on the lead agencies' respective interpretations of their statutory responsibilities, and refined through input from the Project's cooperating agencies regarding key resource concerns. These criteria are as follows:

1. Maximizes the use of appropriate (e.g., non-underground-only) existing designated utility corridors by locating within or paralleling areas of existing utility ROWs.
2. Minimizes the need for plan amendments through conformance to land use plans.
3. Avoids or minimizes resource impacts that are regulated by law (ESA, CWA, Clean Air Act [CAA], NHPA, Wilderness, WSAs, ISAs, IRAs, etc.), after consideration of project design features and agency BMPs. This includes impacts to sage-grouse.
4. Avoids or minimizes proximity to private residences and residential areas, thereby addressing concerns with public health and safety, aesthetics, visual effects, and others.
5. Avoids or minimizes resource impacts that demonstrate potentially unavoidable adverse impacts (residual impacts) after consideration of project design features and agency BMPs, even though they may not be specifically regulated by law.
6. Minimizes use of private lands if natural resource impacts are similar.
7. If multiple alternatives meet the preceding criteria, the agency preferred alternative would be the alternative that minimizes construction, operation, and maintenance expense and/or time.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SALT LAKE CITY
IDAHO
NEVADA
UTAH
WYOMING
COLORADO
ARIZONA
NEW MEXICO
Applicant Proposed
Alternative
Agency Preferred Alternative
TRANSWEST EXPRESS TRANSMISSION PROJECT
Figure 2-29
Agency Preferred Alternative
1:4,500,000
Western AREA POWER ADMINISTRATION
Exported On: 1/30/2015

Although these criteria have guided the agency preferred alternative selection process, trade-offs between items on the list occur. Parameters were established to determine which alternatives best fulfill the criteria. These parameters are listed below and reflected in the summary tables that follow with the corresponding number/letter.

1. Existing designated utility corridors
    a. Distance within designated utility corridor (by BLM, USFS, and total)
2. Land use plan conformance
    a. Location and reason for plan amendment (by BLM, USFS, and total)
3. Resource impacts regulated by federal law
    a. Sage-grouse: amount of core habitat crossed and active leks within 4 miles
    b. Special status raptors: number of nests within 1 mile
    c. Canada Lynx: amount of habitat crossed
    d. USFWS critical desert tortoise: amount of habitat crossed
    e. Utah prairie dog: amount of habitat crossed
4. Public health and safety concerns
    a. Number of residences within 500 feet
    b. Adjacent communities within project corridor
5. Resource impacts not regulated by federal law
    a. Wildlife: amount of habitat crossed (by BLM, USFS, and total)
    b. Listing of areas of visual and recreation importance: adjacent areas of higher viewer sensitivity and large undeveloped landscapes crossed
    c. Historic Trails: count crossed and amount within 2 miles of trails
    d. LWCs and IRAs: amount crossed and context of crossing
    e. Non co-located construction: amount crossed
6. Minimal use of private lands
    a. Jurisdiction: amount crossed (by BLM, USFS, private)
7. Expense
    a. Total miles: more miles equate to more expense
    b. Miles of helicopter only construction areas crossed (based on ground constraints)

Because the selection of the agency preferred alternative has been considered through the four individual BLM State Offices, the rationale for the determinations that follow are discussed by state. **Table 2-27** compares the agency preferred alternative parameters between the Applicant Proposed and Agency Preferred alternatives for the entire Project.

2.9.1 Agency Preferred Alternative in Wyoming

The agency preferred alternative route through Wyoming was chosen to minimize impacts to natural resources (including sage-grouse), visual resources, cultural resources, and private lands. This required consideration not only of the potential impacts on these resources in Wyoming, but also consideration of the impacts on resources in Colorado because the preferred alternative must match across state lines.

The specific considerations in choosing the agency preferred alternative in Wyoming include the following:

- The agency preferred alternative route exits the State of Wyoming and enters Colorado at a location that corresponds to the Colorado FO's agency preferred alternative.
- The agency preferred alternative route provides less visual impacts from key observation points along SH-789 and from the Town of Baggs due to the distance from these areas. A trade-off that has been considered is the affect to areas along the Old Cherokee Trail where the agency preferred alternative route parallels, and/or is within sight of, the Cherokee Trail for 14 to 15 miles through areas with very little modern development.
- The agency preferred alternative crosses non-contributing segments of both the Overland and Old Cherokee Trails Under Study for possible addition to the California National Historic Trail.
- There are fewer sage-grouse leks along the agency preferred alternative route. However, when comparing the number of birds that attend the leks, there is not a significant difference between alternative routes.
- The agency preferred alternative route would minimize habitat impacts to the federally listed Ute ladies-tresses' orchid.
- The agency preferred alternative route would minimize impacts to big game crucial winter range.
- The agency preferred alternative route reflects the route agreed upon by the Tri-county Resolution between Carbon and Sweetwater counties, Wyoming, and Moffat County, Colorado, adopted July 5, 2011.

2.9.2 Agency Preferred Alternative in Colorado

The agency preferred alternative route through Colorado was chosen to minimize impacts to natural resources (including sage-grouse), as well as human resources (including visual resources, and private lands). This required consideration not only of the potential impacts on these resources in Colorado, but also consideration of the impacts on resources in Wyoming and Utah because the preferred alternative must match across state lines.

The specific considerations in choosing the agency preferred alternative in Colorado include the following:

- The agency preferred alternative route exits the State of Wyoming and enters Colorado at a location that corresponds to the Wyoming FO's agency preferred alternative. The agency preferred alternative route exits the State of Colorado and enters Utah at a location that corresponds to BLM Utah's agency preferred alternative.
- The agency preferred alternative route would minimize impacts to sage-grouse habitat.
- The agency preferred alternative route would minimize impacts to big game crucial winter range.
- The agency preferred alternative route maximizes project placement on public lands, and minimizes crossing of private lands.
- A trade-off to be recognized is that more undeveloped areas are impacted by the agency preferred alternative as it uses less existing designated utility corridors.
- The agency preferred alternative route minimizes the length of the ROW and the need for construction and operation disturbance, thus minimizing overall project impacts.
- The agency preferred alternative route reflects the route agreed upon by the Tri-county Resolution between Carbon and Sweetwater counties, Wyoming, and Moffat County, Colorado, adopted July 5, 2011.

2.9.3 Agency Preferred Alternative in Utah

The agency preferred alternative route through Utah was chosen to minimize impacts to natural resources (including sage-grouse), visual resources, cultural resources, and private lands. This required consideration not only of the potential impacts on these resources in Utah, but also consideration of the impacts on resources in Colorado and Nevada because the preferred alternative must match across state lines.

The specific considerations in choosing the agency preferred alternative in Utah include the following:

- The agency preferred alternative complies with ESA, NHPA, Archaeological Resources Protection Act, and CWA. These four laws have been enacted to protect finite resources—endangered animals, historic artifacts and sites, and water.
- The agency preferred alternative avoids desert tortoise habitat in Utah.
- The agency preferred alternative maximizes avoidance of potential habitat for threatened and endangered plant species. The preferred route avoids 43 miles identified as potential habitat for the Uintah Basin hookless cactus and goes through a smaller amount of modeled potentially suitable clay phacelia habitat.
- There are a multitude of historic sites along all alternatives but three are of more cultural importance than others that we have documented. Those three are: Yellow-Springs cultural complex, Mountain Meadows National Historic Landmark, and the Old Spanish Trail. All of these cultural assets come together along the alternatives that would go through the Dixie National Forest. That area also has the highest known and expected density of archaeological sites along the alternatives. The agency preferred alternative minimizes impacts to important and sensitive cultural and historic resources in southwestern Utah by avoiding the crossings in and near the Dixie National Forest.
- The agency preferred alternative avoids the San Rafael Swell, and avoids conflicts with significant cultural resources including the Old Spanish Trail and Quitchupah Creek area. The San Rafael Swell is an area of high geologic and anthropologic importance. It is critical to maintain the cultural and scenic integrity of this area. The Old Spanish Trail also is present in the vicinity of several of the alternatives that transect the San Rafael Swell. One of those routes also would have crossed the Quitchupah Creek area, which is considered sacred and traditional by the Paiute Tribe. Alternatives that impacted the San Rafael Swell were not selected due to significant resource conflicts.
- The agency preferred alternative avoids the Uintah and Ouray Indian Reservation, where uncertainty exists regarding legal right of access.
- The agency preferred alternative maximizes miles of transmission line co-located with existing above-ground utilities.
- The agency preferred alternative minimizes new access road construction in steep or mountainous terrain when compared to other alternatives.

- The agencies recognize that there are trade-offs in resource impacts when comparing alternative alignments. For example, the preferred route involves a small portion of IRA in the Uinta National Forest Planning Area. Because IRA impacts can be minimized through micro-siting, and because Project-wide impacts to IRA's are minimized by avoiding IRAs in other areas, the BLM and Western determined this to be a reasonable trade-off with the issues identified above. The BLM and Western also recognize that this preferred alternative affects more total acres of occupied greater sage-grouse habitat as compared to some other alternatives but minimizes impacts to threatened and endangered plants.

2.9.4 Agency Preferred Alternative in Nevada

The agency preferred alternative route through Nevada was chosen to minimize impacts to natural resources, including desert tortoise, and private lands through maximized use of designated corridors and co-location with existing transmission. This required consideration not only of the potential impacts on these resources in Nevada, but also consideration of the impacts on resources in Utah because the preferred alternative must match across state lines.

The specific considerations in choosing the agency preferred alternative in Nevada include the following:

- The agency preferred alternative minimizes impacts to desert tortoise while connecting with the agency preferred alternative in Utah.
- The agency preferred alternative maximizes co-location with existing transmission and use of designated utility corridors while connecting with the agency preferred alternative in Utah.
- The agency preferred alternative avoids the Lake Mead NRA.

Table 2-23 Summary of Impacts for Region I

Resource	Resource Topic	Alternative I-A	Alternative I-B	Alternative I-C	Alternative I-D
Climate and Air					
	Fugitive Dust Emissions from construction (particulate matter[PM] with an aerodynamic diameter of 10 microns or less [PM_{10}])	120 tons	122 tons	144 tons	129 tons
Geology					
	Geologic Hazards Risk	No active faults, low landslide, low subsidence.	Same as Alternative I-A	Same as Alternative I-A except for historic coal mining areas posing increased risk of subsidence.	Same as Alternative I-A
	Mineral Resource Access	7 oil and gas fields crossed.	7 oil and gas fields crossed.	8 oil and gas fields crossed. No potential coal lease tracts are crossed.	7 oil and gas fields crossed.
	Paleontological Resources Loss from construction	. Potential Fossil Yield Classification (PFYC) Class 3: 30 miles Classes 3, 4, 5: 25 miles Classes 4, 5: 84 miles	PFYC Class 3: 30 miles Classes 3, 4, 5: 25 miles Classes 4, 5: 86 miles	PFYC Class 3: 76 miles Classes 3, 4, 5: 33 miles Classes 4, 5: 57 miles	PFYC Class 3: 30 miles Classes 3, 4, 5: 25 miles Classes 4, 5: 100 miles
Soils					
	Soils – Wind Erodible (acres of construction disturbance)	304 acres	304 acres	291 acres	281 acres
	Soils – Water Erodible (construction)	229 acres	237 acres	299 acres	231 acres
	Soils – Compaction Prone (construction)	557 acres	572 acres	992 acres	683 acres
	Soils – limited revegetation potential (LRP) (construction)	699 acres	716 acres	441 acres	837 acres
	Soils – Prime Farmland (construction)	167 acres	167 acres	362 acres	167 acres
Water					
	Erosion and Sedimentation Direct Effects from Crossings (construction/decommissioning)	9 perennial stream crossings	9 perennial stream crossings	11 perennial stream crossings	10 perennial stream crossings

Table 2-23 Summary of Impacts for Region I

Resource	Resource Topic	Alternative I-A	Alternative I-B	Alternative I-C	Alternative I-D
	Impaired Stream Effects from Construction Crossings	2 impaired streams crossed	2 impaired stream crossed	5 impaired stream crossed	2 impaired stream crossed
	Effects to Water Users from Construction Water Use	116 acre-feet required	117 acre-feet required	139 acre-feet required	126 acre-feet required
	Maximum Road Density Change in Watershed (Hydrographic Unit Code [HUC]10, 300-foot or 100-foot perennial buffer area)	0.50 mile/mile^2 (100-foot: Frewen Lake Watershed)	0.50 mile/mile^2 (100-foot: Frewen Lake Watershed)	0.36 mile/mile^2 (300-foot: Fourmile Creek Watershed)	0.35 mile/mile^2 (300-foot: Lower Sand Creek Watershed)
Vegetation					
	Woody vegetation over 6 feet in height impacted by ROW clearing (acres)	2 acres of conifer forest, 36 acres of pinyon-juniper, and 28 acres of woody riparian and wetlands	2 acres of conifer forest, 36 acres of pinyon-juniper, and 29 acres of woody riparian and wetlands	2 acres of conifer forest, 36 acres of pinyon-juniper, and 29 acres of woody riparian and wetlands	1 acre of conifer forest, 36 acres of pinyon-juniper, and 25 acres of woody riparian and wetlands
	Wetlands and riparian areas impacted by ROW clearing (acres)	42 acres of greasewood flat, 36 acres of herbaceous wetlands, and 28 acres of woody riparian and wetlands	43 acres of greasewood flat, 36 acres of herbaceous wetlands, and 29 acres of woody riparian and wetlands	47 acres of greasewood flat, 12 acres of herbaceous wetlands, and 29 acres of woody riparian and wetlands	56 acres of greasewood flat, 52 acres of herbaceous wetlands, and 25 acres of woody riparian and wetlands
	Wetlands and riparian areas impacted by facilities construction (acres)	28 acres of greasewood flat, 20 acres of herbaceous wetlands, and 16 acres of woody riparian and wetlands	29 acres of greasewood flat, 20 acres of herbaceous wetlands, and 17 acres of woody riparian and wetlands	35 acres of greasewood flat, 9 acres of herbaceous wetlands, and 21 acres of woody riparian and wetlands	35 acres of greasewood flat, 29 acres of herbaceous wetlands, and 15 acres of woody riparian and wetlands
	Wetlands and riparian areas impacted by facilities operations (acres)	6 acres of greasewood flat, 4 acres of herbaceous wetlands, and 3 acres of woody riparian and wetlands	7 acres of greasewood flat,4 acres of herbaceous wetlands, and 3 acres of woody riparian and wetlands	9 acres of greasewood flat, 2 acres of herbaceous wetlands, and 5 acres of woody riparian and wetlands	8 acres of greasewood flat, 5 acres of herbaceous wetlands, and 3 acres of woody riparian and wetlands
Special Status Plants					
	Number of USFWS species with known occurrences impacted during construction	0	0	0	0
	Number of USFWS species with potential habitat impacted during construction	1	1	1	1
	Number of BLM sensitive species with known occurrences impacted during construction	2	2	2	2

Table 2-23 Summary of Impacts for Region I

Resource	Resource Topic	Alternative I-A	Alternative I-B	Alternative I-C	Alternative I-D
	Number of BLM sensitive species with potential habitat impacted during construction	11	12	9	12
Wildlife					
(5.a)	Pronghorn crucial winter range (acres) construction/operation	358/82	405/90	910/207	523/113
	Mule deer crucial winter range (acres) construction/operation	317/81	317/81	898/196	317/81
	Elk crucial winter range (acres) construction/operation	376/89	374/89	1,498/326	374/89
	Small game, nongame habitat (acres) construction/operation	2,029/451	2,056/461	2,407/535	2,157/468
	Waterfowl habitat (acres) construction/operation	39/8	40/8	34/8	47/9
Special Status Wildlife					
	Impacted potential black-footed ferret habitat (acres) construction/operation	176/39	182/40	114/23	197/42
(3.a)	Impacted greater sage-grouse habitat (acres) construction/operation[1]	1,182/261	1,218/269	1,628/354	1,376/296
(3.a)	Total number of occupied leks within 4 miles of alignment	33	34	59	41
	Impacted western yellow-billed cuckoo potential habitat (acres) construction/operation	36/7	37/7	30/7	44/8
(3.b)	Number of special status raptor nests within 1 mile of analysis corridor	248	261	394	269

Table 2-23 Summary of Impacts for Region I

Resource	Resource Topic	Alternative I-A	Alternative I-B	Alternative I-C	Alternative I-D
Aquatic Biological Resources					
	Effects on aquatic habitat and species from potential direct and indirect construction disturbance or water quality changes	2 named perennial streams crossed by the 250-foot-wide transmission line ROW; 2 game fish streams crossed by the 250-foot-wide transmission line ROW	2 named perennial streams crossed by 250-foot-wide transmission line ROW; 2 game fish streams crossed by the 250-foot-wide transmission line ROW	11 named perennial streams crossed by 250-foot-wide transmission line ROW; 8 game fish streams crossed by the 250-foot-wide transmission line ROW	2 named perennial streams crossed by 250-foot-wide transmission line ROW; 2 game fish streams crossed by the 250-foot-wide transmission line ROW
	Potential aquatic habitat alteration or loss (feet^2) construction/operation	0	0	2,000	0
	Potential amphibian mortalities from construction vehicle traffic	156 ROW miles	158 ROW miles	186 ROW miles	168 ROW miles
Special Status Aquatic Resources					
	Effects on habitat and special status species from potential direct disturbance or water quality changes during construction	2 perennial streams with special status aquatic species crossed by 250-foot-wide transmission line ROW	2 perennial streams with special status aquatic species crossed by 250-foot-wide transmission line ROW	7 perennial streams with special status aquatic species crossed by 250-foot-wide transmission line ROW	2 perennial streams with special status aquatic species crossed by 250-foot-wide transmission line ROW
	Number of additional streams with special status aquatic species that are located in the potential construction disturbance area beyond the refined transmission corridor.	2 streams with federally listed or petitioned aquatic species	2 streams with federally listed or petitioned aquatic species	1 stream with federally listed or petitioned aquatic species	2 streams with federally listed or petitioned aquatic species
	Number of special status aquatic species with potential habitat alteration or loss	0	0	5	0
	Number of watersheds supporting special status aquatic species with increased road densities	2	2	7	3
	Potential direct disturbance on critical habitat for federally listed species from construction	1 acre	1 acre	3 acres	1 acre
	Potential water depletion in the Upper Colorado River Basin from construction water use (acre-feet)	107	109	131	117

Table 2-23 Summary of Impacts for Region I

Resource	Resource Topic	Alternative I-A	Alternative I-B	Alternative I-C	Alternative I-D
	Potential water depletion in the Platte River Basin from construction water use (acre-feet)	8	8	8	8
Cultural Resources					
	NRHP-listed Sites	0	0	0	0
	NRHP-eligible Sites	19	20	34	27
	Unevaluated Sites	13	13	23	16
	Potential traditional cultural properties (TCPs)	2	2	1	2
	Trail Crossings	Cherokee Trail (1) (non-contributing)	Cherokee Trail (1) (non-contributing)	Cherokee Trail (1) (contributing)	Cherokee Trail (3) (non-contributing)
		Overland Trail (1) (non-contributing)	Overland Trail (1) (non-contributing)	Overland Trail (1) (contributing)	Overland Trail (1) (contributing)
		Rawlins to Baggs Road (1) (unknown if contributing)	Rawlins to Baggs Road (1) (unknown if contributing)	Rawlins to Baggs Road (3) (1 contributing, 2 unknown)	Rawlins to Baggs Road (1) (unknown if contributing)
	Average Inventory Coverage	14%	14%	9%	14%
	Site Density (sites per 100 acres inventoried)	4	5	9	6
	Overall Trail/Road Visibility (within 5-mile viewshed)	103 miles (including the Lincoln Highway)	106 miles (including the Lincoln Highway)	111 miles (including the Lincoln Highway)	111 miles (including the Lincoln Highway)
Visual Resources					
	High Sensitivity Viewers (miles)				
	0 - 0.5 mile	17	17	73	21
	0.5 - 2.5 miles	73	76	85	102
	2.5 - 5 miles	55	55	28	42
	>5 miles	9	9	–	3
	Moderate Sensitivity Viewers (miles)				
	0 - 0.5 mile	19	18	75	17
	0.5 - 2.5 miles	65	62	99	67
	2.5 - 5 miles	33	39	12	56

Table 2-23 Summary of Impacts for Region I

Resource	Resource Topic	Alternative I-A	Alternative I-B	Alternative I-C	Alternative I-D
	>5 miles	38	38	–	28
	Scenic Quality (miles)				
	A	1	1	<1	1
	B	60	63	90	77
	C	94	93	95	90
	BLM Visual Resource Inventory (VRI) Classifications (miles)				
	Class II	30	33	28	33
	Class III	30	29	58	30
	Class IV	95	95	100	105
	BLM VRM Classifications (miles)				
	Class II	–	–	–	–
	Class III	66	68	36	78
	Class IV	37	37	42	39
	USFS SIO/VQO Classifications (miles)				
	High/Retention	–	–	–	–
	Moderate/Partial Retention	–	–	–	–
	Low/Modification	–	–	–	–
	Residual Impacts Landscape Scenery (miles)				
	High	45	48	44	50
	Moderate	42	42	49	46
	Low	67	67	94	72
	Residual Impacts High Sensitivity Viewers (miles)				
	High	6	5	34	9
	Moderate	91	94	89	104
	Low	58	58	63	55

Table 2-23 Summary of Impacts for Region I

Resource	Resource Topic	Alternative I-A	Alternative I-B	Alternative I-C	Alternative I-D
	Residual Impacts Moderate Sensitivity Viewers (miles)				
	High	13	12	42	11
	Moderate	32	29	66	30
	Low	110	116	79	127
	BLM Visual Resource Management (VRM) USFS Scenic Integrity Objective(SIO)/Visual Quality Objective (VQO) Conformance/Consistency (miles) Before Mitigation				
	Conformance	95	98	75	102
	Non-conformance	8	6	2	15
	NA	52	52	108	51
	BLM VRM USFS SIO/VQO Conformance/Consistency (miles) After Mitigation				
	Conformance	95	98	75	102
	Non-conformance	8	6	2	15
	NA	52	52	108	51
Recreation					
	Recreation Area/Site in Region I	Refined Transmission Corridor Acres (% of Total Area) / Analysis Area Acres (% of Total Area)	Refined Transmission Corridor Acres (% of Total Area) / Analysis Area Acres (% of Total Area)	Refined Transmission Corridor Acres (% of Total Area) / Analysis Area Acres (% of Total Area)	Refined Transmission Corridor Acres (% of Total Area) / Analysis Area Acres (% of Total Area)
	Rawlins FO				
	BLM dispersed undesignated recreation areas	7,528 (0.2) / 77,921 (2.2)	7,886 (0.2) / 81,255 (2.3)	3,244 (0.09) / 59,520 (1.7)	7,344 (0.2) / 94,715 (2.7)
	Continental Divide National Scenic Trail (CDNST) Special Recreation Management Area (SRMA)	10 (1.6) / 1.4 miles/179 (29.8)	10 (1.6) / 1.4 miles/179 (29.8)	10 (1.6) / 1.4 miles/179 (29.8)	10 (1.6) / 1.4 miles/179 (29.8)

Table 2-23 Summary of Impacts for Region I

Resource	Resource Topic	Alternative I-A	Alternative I-B	Alternative I-C	Alternative I-D
	Adobe Town Dispersed Recreation Use Area (DRUA)	0 / 62 (0.03)	N/A	N/A	N/A
	Little Snake FO				
	BLM dispersed undesignated recreation areas	8,295 (0.7) / 99,767 (7.9)	8,295 (0.7) / 99,767 (7.9)	4,133 (0.3) / 26,141 (2.1)	8,295 (0.7) / 99,767 (7.9)
	South Sand Wash SRMA	N/A	N/A	N/A	N/A
	Juniper Mountain SRMA	N/A	N/A	134 (7.5) / 1,437 (80.7)	N/A
	Serviceberry SRMA	N/A	N/A	0 / 1,462 (11.8)	N/A
	Little Yampa Canyon SRMA	N/A	N/A	0 / <1 acre (0)	N/A
	BLM White River FO				
	Dispersed, undesignated recreation areas	1,709 (0.1) / 13,929 (1.0)	1,709 (0.1) / 13,929 (1.0)	1,709 (0.1) / 13,929 (1.0)	1,709 (0.1) / 13,929 (1.0)
	Other Federal Recreation Areas				
	Dinosaur National Monument	3.7 (Option 3), 11.4 (Option 4) / 3.7 (Option 3), 15.6 (Option 4)	3.7 (Option 3),11.4 (Option 4) / 3.7 (Option 3), 15.6 (Option 4)	3.7 (Option 3), 11.4 (Option 4) / 3.7 (Option 3),15.6 (Option 4)	3.7 (Option 3), 11.4 (Option 4) / 3.7 (Option 3), 15.6 (Option 4)
	State Recreation Areas				
	Wyoming				
	Red Rim-Daley Wildlife Habitat Management Area (WHMA)	112 (0.4) / 2,847 (11.3)	112 (0.4) / 2,847 (11.3)	112 (0.4) / 2,847 (11.3)	112 (0.4) / 2,847 (11.3)
	Upper Muddy Creek Watershed/Grizzly WHMA	N/A	N/A	39 (<0.1) / 1,015 (1.7)	N/A
	Colorado				
	Yampa River State Wildlife Area (SWA)	N/A	N/A	0 / 199 (23.1)	N/A
	Bitter Brush SWA	N/A	N/A	803 (10) / 4,921 (61.1)	N/A
	Raftopolous Hunting Lease	0 / 617 (5.4)	0 / 617 (5.4)	0 / 617 (5.4)	0 / 617 (5.4)
	Yampa River State Park	1 river crossing; 1 access point	1 river crossing; 1 access point	3 river crossings; 3 access points	1 river crossing; 1 access point

Table 2-23 Summary of Impacts for Region I

Resource	Resource Topic	Alternative I-A	Alternative I-B	Alternative I-C	Alternative I-D
	Local Recreation Areas				
	Juniper Hot Springs	N/A	N/A	0 / Entire Site	N/A
	Scenic Backways and Byways				
	Battle Pass Scenic Byway	N/A	N/A	1 crossing / 2.1 miles	N/A
Land Use and Planning					
(6.a)	Federal and State lands and Use of Designated Utility Corridors	156 miles total: 66% located on BLM lands; 9% on state lands.	158 miles total: 67% locate d on BLM lands; 9% on state lands.	186 miles total: 44% located on BLM -managed lands; 9% on state lands	168 miles total: 70% located on BLM -managed lands; 8% on state lands.
(1.a)		24 miles in BLM RMP utility corridors and 25 miles in WWEC.	24 miles in BLM RMP utility corridors and 25 miles in WWEC.	53 miles in BLM RMP utility corridors and 60 miles in WWEC.	24 miles in BLM RMP utility corridors and 25 miles in WWEC.
	Avoidance/Exclusion areas crossed by alignment	Designated avoidance areas are crossed by the alignment for 1 mile in the Rawlins FO around the Cherokee Trail area. No exclusion areas.	Same as Alternative I-A.	Designated avoidance areas are crossed by the alignment for 1 mile in the Rawlins FO around the Overland Trail and Cherokee Trail areas and 1 mile of Juniper Mountain.	Designated avoidance areas are crossed by the alignment for 2 miles in the Rawlins FO around the Overland Trail and Cherokee Trail areas.
(6.a)	Private Lands and Zoning	38 miles (25%) located on private land.	38 miles (24%) located on private land. 47 commercial/industrial structures and three outbuildings within 500 feet of the proposed alignment.	88 miles (47%) located on private land. 9 residences and 24 commercial structures within 500 feet of the proposed alignment.	38 miles (22%) would be located on private land. 34 commercial/ industrial structures within 500 feet of the proposed alignment.
		10 commercial/industrial structures within 500 feet of the proposed alignment.	10 commercial/industrial structures within 500 feet of the proposed alignment.	5 residential and 16 commercial/industrial structures within 500 feet of the proposed alignment.	3 commercial/industrial structures within 500 feet of the proposed alignment.
		2 communities within the analysis corridor or road/construction support areas.	2 communities within the analysis corridor or road/construction support areas.	4 communities within the analysis corridor or road/construction support areas.	2 communities within the analysis corridor or road/construction support areas.
(5.f)	Non co-located	106 miles (68%)	108 miles (69%)	94 miles (50%)	119 miles (71%)
	Agriculture	21 acres of initial clearing, 16 acres of construction disturbance, and 4 acres of permanent removal of croplands.	21 acres of initial clearing, 16 acres of construction disturbance, and 4 acres of permanent removal of croplands.	522 acres of initial clearing, 324 acres of construction disturbance, and 72 acres of permanent removal of croplands.	21 acres of initial clearing, 16 acres of construction disturbance, and 4 acres of permanent removal of croplands.

Table 2-23 Summary of Impacts for Region I

Resource	Resource Topic	Alternative I-A	Alternative I-B	Alternative I-C	Alternative I-D
	Livestock Grazing	Construction impacts 983 acres (49 animal unit months [AUMs]); Operation impacts 249 acres (12 AUMs)	Construction impacts 965 acres (48 AUMs); Operation impacts 251 acres (13 AUMs)	Construction impacts 776 acres (39 AUMs); Operation impacts 197 acres (10 AUMs)	Construction impacts 1,1,279 acres (64 AUMs); Operation impacts 301 acres (15 AUMs)
Special Designations					
Summary of all special designation areas (SDAs)		Refined transmission corridor would cross 1 BLM SDAs and 2 segments of 2 historic trails.	Refined transmission corridor would cross 1 BLM SDAs and 2 segments of 2 historic trails.	Refined transmission corridor would cross 1 BLM SDAs and 2 segments of 2 historic trails.	Refined transmission corridor would cross 1 BLM SDAs and 4 segments of 2 historic trails.
	Rawlins FO	Continental Divide National Scenic Trail (NST): One segment of the CDNST crossed. 4 acres within the 250-foot ROW. Less than 2 acres of modeled ROW clearing and construction surface disturbance, a fraction of which would be permanent. . Impacts to the trail itself would be minimized by ROW placement within a designated overhead utility corridor.	Continental Divide NST: Same as Alternative I-A.	Continental Divide NST: Same as Alternative I-A.	Continental Divide NST: Same as Alternative I-A.
BLM SDAs	NHTs	Overland Trail: 1 non-contributing segment crossed. Visible along 9 miles of trail, 4 of which are contributing. Potential impacts would be mitigated through compliance with the Project PA.	Overland Trail: Same as Alternative I-A.	Overland Trail: 1 contributing segment crossed. Visible along 8 miles of trail, 6 of which are contributing.	Overland Trail: 1 non-contributing segment crossed. Visible along 4 miles of trail, 4 of which are contributing.
		Cherokee Trail: 1 non-contributing segment crossed. Visible along 23 miles of trail, 10 of which are contributing. Potential impacts would be mitigated through compliance with the Project PA.	Cherokee Trail: 1 non-contributing segment crossed. Visible along 27 miles of trail, 11 of which are contributing.	Cherokee Trail: 1 contributing segment crossed. Visible along 10 miles of trail, 4 of which are contributing.	Cherokee Trail: 3 non-contributing segments crossed. Visible along 29 miles of trail, 11 of which are contributing.

Table 2-23 Summary of Impacts for Region I

Resource	Resource Topic	Alternative I-A	Alternative I-B	Alternative I-C	Alternative I-D
Transportation					
	Total Miles of New Permanent Access Roads	201 miles	204 miles	237 miles	213 miles
	(Beneficial effect is highest for the highest number of miles)				
	Total Miles of Steep and Mountainous Terrain	47	50	71	47
	Road Crossings	4	4	7	4
	Railroad Crossings	0	0	3	0
	Alignment Passing Through Public Land (miles)	116	118	98	130
	Alignment Passing Through Private Land (miles)	39	39	88	38
	Number of Airports within 5 Miles	2	2	6	2
	Military Operations Areas (MOAs) within 20 Miles	0	0	0	0
	MOAs with 250-foot-wide Transmission Line ROW Overlap	0	0	0	0
Socioeconomics					
	Short-term Socioeconomic effects associated with construction	Temporary increases in local employment, demand on temporary housing, and public facilities and services.	Comparable to Alternative I-A.	15% to 20% higher than Alternative I-A.	5% to 10% higher than Alternative I-A.
		Temporary increases in sales, use and lodging taxes.	Slightly higher economic effects due to increased length and cost of power line.	Approx. 5% higher than Alternative I-A due to additional length of transmission line. Larger share in Colorado than under Alternative I-A.	Slightly higher (<5%) than Alternative I-A.
		Effects concentrated in the Rawlins area, due to development of the northern terminal, ground electrode and the transmission line. Effects associated with terminal would be of longer duration than those for the transmission line.	Essentially the same as Alternative I-A.	Effects more focused in Colorado (Craig area) and some impact shifting in Wyoming (from Wamsutter to Baggs and Dixon) than under Alternative I-A.	Comparable to Alternative I-A, with some shifts in Wyoming, from Wamsutter to Baggs and Dixon.

Table 2-23 Summary of Impacts for Region I

Resource	Resource Topic	Alternative I-A	Alternative I-B	Alternative I-C	Alternative I-D
		Effects to agriculture primarily associated with limited temporary reductions of grazing on public lands.	Comparable to Alternative I-A.	Less effect on livestock grazing on public lands, higher potential effects on irrigated farming and ranching, particularly around Baggs and Craig.	Comparable to Alternative I-A.
		Temporary socioeconomic effects during decommissioning would include construction jobs, demands on lodging and public services, and short-term economic stimulus. Sales and use taxes would be low compared to construction. Ad valorem taxes would cease.	Essentially the same as Alternative I-A.	Essentially the same as Alternative I-A but nexus of some impacts shifts to Craig area.	Essentially the same as Alternative I-A.
	Long-term socioeconomic effects associated with operations	Little long-term effects on employment, population, housing need or public services.	Essentially the same as Alternative I-A.	Essentially the same as Alternative I-A.	Essentially the same as Alternative I-A
		Substantial ad valorem taxes paid; primarily to Carbon County and Carbon County School District #1 (WY), with lesser revenues to Sweetwater (WY), Moffat County (CO), and other taxing jurisdictions.	Essentially the same as Alternative I-A.	Slightly higher than Alternative I-A, with additional revenues accruing in Moffat County (CO).	Essentially the same as Alternative I-A.
		Limited effects on property values, social values, and limited conflicts with outdoor recreation. Limited private land and existing energy resource development in proximity to much of the ROW.	Comparable to Alternative I-A.	Higher potential social effects due to proximity to private lands and visibility from highways.	Comparable to Alternative I-A.
		Federal government and other lessors gain ROW rental/lease income.	Essentially the same as Alternative I-A.	Slightly higher than Alt. I-A due to increased length of the ROW.	Slightly higher than Alt. I-A due to increased length of the ROW.
		No Environmental Justice concerns, although facilities are located near the Wyoming State Penitentiary.	Same as Alternative I-A.	Same as Alternative I-A.	Same as Alternative I-A.

Table 2-23 Summary of Impacts for Region I

Resource	Resource Topic	Alternative I-A	Alternative I-B	Alternative I-C	Alternative I-D
Public Health and Safety					
	Serious injuries to workers and the public at-large.	Workers during construction and operation may be injured by heavy equipment, working at heights, working in the vicinity of high voltage equipment, as well as from typical hazards found on a construction site. The workers and the public may be injured by fire as well as downed power lines.	Same as Alternative I-A.	Same as Alternative I-A.	Same as Alternative I-A.
	Adverse health impacts from electric and magnetic fields (EMF), stray voltage, and induced voltage associated with transmission lines.	One commercial/industrial structure would be within 200 feet of the alignment, resulting in potential impacts from EMF, stray voltage, and induced voltage.	Same as Alternative I-A.	Same as Alternative I-A.	Two commercial/industrial structures would be within 200 feet of the alignment, resulting in the potential for greater impacts from EMF, stray voltage, and induced current than Alternative I-A.
(4.a) (4.b)	Noise impacts to nearby communities and residences during construction.	There would be two communities within the analysis corridor and no residential structures within 500 or 200 feet of the alignment, resulting in potential impacts from noise with this alternative.	Same as Alternative I-A.	There would be four communities within the analysis corridor and no residential structures within 500 feet of the alignment, resulting in impacts from noise that are greater than Alternative I-A.	Same as Alternative I-A.
Wild Horses					
	Temporary and permanent loss of forage areas during construction/operation.	Adobe Town Herd Management Area (HMA): 488 acres of ROW clearing (<0.1% of the HMA), and 268 acres of construction disturbance, 56 acres of which would be permanent. Sand Wash Basin HMA: 0 acres of ROW clearing, and 15 acres of construction disturbance, 6 acres of which would be permanent.	Same as Alternative I-A.	N/A	Adobe Town HMA: 98 acres of ROW clearing (<0.1% of the HMA), and 55 acres of construction disturbance, 11 acres of which would be permanent. Sand Wash Basin HMA: Same as Alternative I-A.

Table 2-23 Summary of Impacts for Region I

Resource	Resource Topic	Alternative I-A	Alternative I-B	Alternative I-C	Alternative I-D
	Temporary construction noise and human activity	Adobe Town HMA: 2,908 acres of refined transmission corridor within the HMA (0.1% of the HMA). Sand Wash Basin HMA: No acres of refined transmission corridor within the HMA; noise would travel up to about a mile from construction areas.	Same as Alternative I-A, except the Adobe Town HMA would have 2,897 acres of refined transmission corridor within the HMA (0.1% of the HMA).	N/A	Adobe Town HMA: 402 acres of refined transmission corridor within the HMA (<0.1% of the HMA). Sand Wash Basin HMA: Same as Alternative I-A.
	Presence of transmission line within HMAs/herd areas (HAs) restrict helicopter use during wild horse gathers.	13 miles of transmission line alignment within the Adobe Town HMA. No miles of transmission line alignment within the Sand Wash Basin HMA.	Same as Alternative I-A.	N/A	6 miles of transmission line alignment within the Adobe Town HMA. Sand Wash Basin HMA: Same as Alternative I-A.
Lands with Wilderness Characteristics (LWC)					
(5.e)	Number of LWC Units Affected.	8	8	2	8
(5.e)	Number (acres) of LWC Units Eliminated.	1 (6,347)	1 (6,347)	0	1 (6,347)
(5.e)	Number (acres) of LWC Units Remaining.	7 (52,412)	7 (52,412)	2 (24,122)	7 (52,412)
(5.e)	Number (acres) of Unit Portions Eliminated.	12 (12,563)	12 (12,563)	4 (270)	12 (12,563)
Wildfire					
	Fire Regime Groups I-V Identified for the Project construction/operation (acres).				
	I	16/4	16/4	22/5	16/4
	II	-/-	-/-	-/-	-/-
	III	64/17	64/17	184/45	63/17
	IV	1,672/364	1,668/367	2,235/493	1,774/377
	V	200/50	204/51	33/8	231/55

Table 2-23 Summary of Impacts for Region I

Resource	Resource Topic	Alternative I-A	Alternative I-B	Alternative I-C	Alternative I-D
	Fire Regime Condition Classes (FRCCs) I-III Identified for the Project construction/operation (acres).				
	I	138/34	138/34	411/95	141/35
	II	1,094/255	1,124/264	1,068/249	1,232/276
	III	789/160	786/160	896/186	807/161
	Fuel Loading Model Classes Identified for the Project construction/operation (acres).				
	NB	140/33	139/34	172/38	111/27
	GR	377/80	388/83	343/76	356/72
	GS	1,313/292	1,328/298	1,872/416	1,510/327
	SH	40/10	40/10	50/12	42/10
	TL	199/45	202/46	39/9	191/43
	TU	3/1	3/1	8/2	3/1
Migratory Birds					
	Number of known raptor nests within 1 mile of the potential disturbance area	278	303	470	323
	Audubon Important Bird Areas (IBAs) (acres) construction/operation	Powder Rim IBA 159/31	Powder Rim IBA 188/40	Muddy Creek Wetlands IBA 9/4	Powder Rim IBA 165/32 Muddy Creek Wetlands IBA 26/5
	BHCAs (acres) construction/operation	Yampa River in Moffat County BHCA 19/6 Routt and Moffat County Uplands BHCA 424/115 Powder Rim BHCA 159/31	Yampa River in Moffat County BHCA 19/6 Routt and Moffat County Uplands BHCA 424/115 Powder Rim BHCA 188/40	Yampa River in Routt County BHCA 35/7 Yampa River in Moffat County BHCA 254/55 Routt and Moffat County Uplands BHCA 866/186 Little Snake River BHCA 48/11	Yampa River in Moffat County BHCA 19/6 Routt and Moffat County Uplands BHCA 424/115 Powder Rim BHCA 165/32
	Total Indirect Impacts to Priority Habitats (acres)	207,825	209,730	220,223	225,776
	Total Indirect Impacts to Non-sagebrush Priority Habitats (acres)	85,108	85,177	54,781	82,377

Table 2-23 Summary of Impacts for Region I

Resource	Resource Topic	Alternative I-A	Alternative I-B	Alternative I-C	Alternative I-D
	Total Indirect Impacts to Wetland/Riparian/Open Water Priority Habitats (acres)	4,020	4,084	5,380	4,980
	Total Indirect Impacts to Priority Habitats along Non-co-located Segments (acres)	188,209	190,114	188,183	206,160
	Total Construction Impacts to Priority Habitats (acres)	1,948	1,970	2,049	2,100
	Total Operation Impacts to Priority Habitats (acres)	432	440	455	454
	Total Indirect Impacts to IBA Priority Habitats (acres)	14,822	16,725	2,859	17,701
	Total Indirect Impacts to BHCA Priority Habitats (acres)	61,738	63,641	75,475	60,671
	Total Length of Alternative (miles)	156	158	186	168
Plan Amendments					
	Number of Necessary Plan Amendments	Two Plan Amendments: Rawlins FO (Utility Corridor Restrictions/ROW Exclusion Area, Accommodate RFFA Projects); Little Snake FO (Utility Corridor Restrictions/ROW Exclusion Area, Accommodate RFFA Projects)	Two Plan Amendments: Rawlins FO (Utility Corridor Restrictions/ROW Exclusion Area, Accommodate RFFA Projects); Little Snake FO (Utility Corridor Restrictions/ROW Exclusion Area, Accommodate RFFA Projects)	Two Plan Amendments: Rawlins FO (Accommodate RFFA Projects); Little Snake FO (Accommodate RFFA Projects)	Two Plan Amendments: Rawlins FO (Utility Corridor Restrictions/ROW Exclusion Area, Accommodate RFFA Projects); Little Snake FO (Utility Corridor Restrictions/ROW Exclusion Area, Accommodate RFFA Projects)

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
Climate and Air Quality								
	Fugitive Dust Emissions (PM_{10}) from construction	206 tons	271 tons	284 tons	206 tons	214 tons	214 tons	201 tons
Geology								
	Geologic Hazards Risk	Three active faults crossed. Moderate to high risk risk for ground motion. and landslide impacts. Low to moderate risk for ground subsidence.	Four active faults crossed otherwise same as Alternative II-A.	Five active faults crossed otherwise same as Alternative II-A except slightly higher risk of subsidence due to evidence of sinkholes along the route.	Two active faults crossed otherwise same as Alternative II-A.	Two active faults crossed otherwise same as Alternative II-A.	Two active faults crossed otherwise same as Alternative II-A.	Two active faults crossed otherwise same as Alternative II-A.
	Mineral Resource Access	6 oil and gas fields crossed. Encroaches on proposed coal mine permit area, Deserado Mine.	15 oil and gas fields crossed. Approximately 15 miles of active coal mine permit areas.	15 oil and gas fields crossed. Approximately. In Colorado, Deserado mine permit area crossed. In Utah encroaches on the eastern side of the active Emery coal mine.	9 oil and gas fields crossed. Approximately 5 miles of active coal mine permit areas.	5 oil and gas fields crossed. Encroaches on proposed coal mine permit area, Deserado Mine.	7 oil and gas fields crossed. Encroaches on proposed coal mine permit area, Deserado Mine.	Same as Alternative II-A
	Paleontological Resources Loss	PFYC Class 3: 8 miles Classes 3, 4, 5: 18 miles Classes 4, 5: 89 miles	PFYC Class 3: 105 miles Classes 3, 4, 5: 29 miles Classes 4, 5: 43 miles	PFYC Class 3: 116 miles Classes 3, 4, 5: 30 miles Classes 4, 5: 36 miles	PFYC Class 3: 20 miles Classes 3, 4, 5: 17 miles Classes 4, 5: 103 miles	PFYC Class 3: 9 miles Classes 3, 4, 5: 17 miles Classes 4, 5: 86 miles	PFYC: Class 3: 8 miles Classes 3, 4, 5: 17 miles Classes 4, 5: 130 miles	PFYC: Class 3: 9 miles Classes 3,4,5: 18 miles Classes 4,5: 93 miles
Soils								
	Soils – Wind Erodible (construction)	198 acres	122 acres	108 acres	222 acres	198 acres	222 acres	198 acres
	Soils – Water Erodible (construction)	204 acres	418 acres	456 acres	241 acres	265 acres	250 acres	207 acres
	Soils – Compaction Prone (construction)	1,228 acres	1,671 acres	1,685 acres	1,249 acres	1,145 acres	1,282 acres	1,212 acres
	Soils – LRP (construction)	1,080 acres	1,717 acres	2,114 acres	1,027 acres	1,056 acres	1,215 acres	1,019 acres
	Soils – Prime Farmland (construction)	336 acres	397 acres	465 acres	277 acres	290 acres	248 acres	295 acres

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
Water								
	Erosion and Sedimentation Direct Effects from Crossings (construction/decommissioning)	32 perennial stream crossings	34 perennial stream crossings	40 perennial stream crossings	24 perennial stream crossings	55 perennial stream crossings	31 perennial stream crossings	29 perennial stream crossings
	Impaired Stream Effects from Crossings during construction	4 impaired streams crossed	3 impaired stream crossed (40 crossings)	5 impaired streams crossed (42 crossings)	1 impaired stream crossed	5 impaired streams crossed (26 crossings)	3 impaired streams crossed (9 crossings)	4 impaired streams crossed
	Effects to Water Users from Construction Water Use	193 acre-feet required	259 acre-feet required	273 acre-feet required	193 acre-feet required	201 acre-feet required	202 acre-feet required	188 acre-feet required
	Maximum Road Density Change in Watershed (HUC10, 300-foot or 100-foot perennial buffer area).	0.20-mile/mile^2 (100 feet: Soldier Creek Watershed).	1.19-mile/mile^2 (100 feet: West Salt Creek Watershed).	1.19-mile/mile^2 (100 feet: West Salt Creek Watershed).	0.43-mile/mile^2 (300 feet: Willow Creek Watershed).	4.87-mile/mile^2 (100 feet: Antelope Creek Watershed).	0.19-mile/mile^2 (300 feet: Thistle Creek and West Creek Watershed).	0.20-mile/mile^2 (300 feet: Soldier Creek Watershed).
Vegetation								
	Woody vegetation over 6 feet in height impacted by ROW clearing (acres)	162 acres of aspen forest and woodland, 70 acres of conifer forest, 23 acres of deciduous forest, 711 acres of pinyon-juniper, and 53 acres of woody riparian and wetlands.	226 acres of aspen forest and woodland, 194 acres of conifer forest, 1,516 acres of pinyon-juniper, and 46 acres of woody riparian and wetlands.	82 acres of aspen forest and woodland, 70 acres of conifer forest, 1,695 acres of pinyon-juniper, and 50 acres of woody riparian and wetlands.	306 acres of aspen forest and woodland, 208 acres of conifer forest, 852 acres of pinyon-juniper, and 18 acres of woody riparian and wetlands.	114 acres of aspen forest and woodland, 115 acres of conifer forest, 5 acres of deciduous forest, 966 acres of pinyon-juniper, and 43 acres of woody riparian and wetlands.	214 acres of aspen forest and woodland, 188 acres of conifer forest, 5 acres of deciduous forest, 971 acres of pinyon-juniper, and 25 acres of woody riparian and wetlands.	156 acres of aspen forest and woodland, 66 acres of conifer forest, 22 acres of deciduous forest, 807 acres of pinyon-juniper, and 53 acres of woody riparian and wetlands.
	Wetlands and riparian areas impacted by ROW clearing (acres)	245 acres of greasewood flat, 20 acres of herbaceous wetlands, and 53 acres of woody riparian and wetlands.	697 acres of greasewood flat, 14 acres of herbaceous wetlands, and 46 acres of woody riparian and wetlands.	610 acres of greasewood flat, 10 acres of herbaceous wetlands, and 50 acres of woody riparian and wetlands.	283 acres of greasewood flat, 22 acres of herbaceous wetlands, and 18 acres of woody riparian and wetlands.	277 acres of greasewood flat, 43 acres of herbaceous wetlands, and 43 acres of woody riparian and wetlands.	276 acres of greasewood flat, 16 acres of herbaceous wetlands, and 25 acres of woody riparian and wetlands.	243 acres of greasewood flat, 19 acres of herbaceous wetlands, and 53 acres of woody riparian and wetlands.
	Wetlands and riparian areas impacted by facilities construction (acres)	148 acres of greasewood flat, 15 acres of herbaceous wetlands, and 41 acres of woody riparian and wetlands	412 acres of greasewood flat, 9 acres of herbaceous wetlands, and 30 acres of woody riparian and wetlands	408 acres of greasewood flat, 7 acres of herbaceous wetlands, and 33 acres of woody riparian and wetlands	189 acres of greasewood flat, 17 acres of herbaceous wetlands, and 14 acres of woody riparian and wetlands	175 acres of greasewood flat, 29 acres of herbaceous wetlands, and 34 acres of woody riparian and wetlands	182 acres of greasewood flat, 11 acres of herbaceous wetlands, and 21 acres of woody riparian and wetlands	147 acres of greasewood flat, 14 acres of herbaceous wetlands, and 41 acres of woody riparian and wetlands

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
	Wetlands and riparian areas impacted by operations (acres).	31 acres of greasewood flat, 4 acres of herbaceous wetlands, and 12 acres of woody riparian and wetlands.	79 acres of greasewood flat, 2 acres of herbaceous wetlands, and 7 acres of woody riparian and wetlands.	90 acres of greasewood flat, 2 acres of herbaceous wetlands, and 8 acres of woody riparian and wetlands.	45 acres of greasewood flat, 4 acres of herbaceous wetlands, and 4 acres of woody riparian and wetlands.	37 acres of greasewood flat, 6 acres of herbaceous wetlands, and 10 acres of woody riparian and wetlands.	44 acres of greasewood flat, 2 acre of herbaceous wetlands, and 7 acres of woody riparian and wetlands.	31 acres of greasewood flat, 3 acre of herbaceous wetlands, and 13 acres of woody riparian and wetlands.
	USFS Management Indicator Species (MIS).	Alternative does not cross USFS-Fishlake National Forest.	Based on elevation, there is no potential habitat for this species within the USFS-Fishlake National Forest.	Potential habitat would be possible based on substrate, elevation, and vegetation parameters. The population has historically been found to be stable and viable across the USFS-Fishlake National Forest.	Alternative does not cross USFS-Fishlake National Forest.	Alternative does not cross USFS-Fishlake National Forest.	Based on elevation, there is no potential habitat for this species within the USFS-Fishlake National Forest.	Alternative does not cross USFS-Fishlake National Forest.
Special Status Plants								
	Number of USFWS species with known occurrences impacted during construction.	0	0	1	3	4	5	0
	Number of USFWS species with potential habitat impacted during construction.	6	8	9	7	5	9	6
	Number of BLM sensitive species with known occurrences impacted during construction.	6	8	9	3	7	5	6
	Number of BLM sensitive species with potential habitat impacted during construction.	24	38	45	27	27	24	24
	Number of Forest sensitive species with known occurrences impacted during construction.	0	2	0	2	1	2	0

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
	Number of Forest sensitive species with potential habitat impacted during construction.	3	7	7	3	4	5	3
Wildlife								
(5.a)	Pronghorn crucial winter range (acres) construction/operation	187/43	32/9	29/8	187/43	187/43	187/43	187/43
	Mule deer crucial winter. range (acres) construction/operation	1,015/275	1,234/329	1,304/304	813/228	977/281	826/235	1,036/270
	Elk crucial winter range (acres) construction/operation.	1,018/320	692/202	255/55	754/255	1,124/371	1,031/354	1,041,333
	Moose occupied habitat (acres) construction/operation.	668/241	273/97	254/54	440/156	736/282	711/262	693/261
	Rocky Mountain (RMBS) or desert bighorn sheep (DBS) (acres) construction/operation.	RMBS 19/10	DBS 87/19	DBS 87/19	RMBS 150/39	RMBS 0/0	RMBS 150/39	RMBS 20/12
	Small game, nongame habitat (acres) construction/operation.	3,538/957	4,621/1,144	4,795/1,115	3,809/1,043	3,741/997	4,057/1,148	3,486/960
	Waterfowl habitat (acres) construction/operation.	61/18	55/12	59/14	34/9	68/17	35/10	60/17
(5.b)	Number of raptor nests within 1 mile of the alignment.	109	133	125	156	112	133	181
Special Status Wildlife								
	Impacted black-footed ferret habitat (acres) construction/operation.	248/41	111/22	135/29	250/43	294/53	250/43	248/41
(3.a)	Impacted greater sage-grouse habitat (acres) construction/operation[1].	1,334/348	1,044/251	1,034/228	1,170/303	1,316/338	1,298/354	1,334/348

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
	Number of occupied leks within 4 miles of alignment.	10	0	0	11	12	9	10
	Impacted western yellow-billed cuckoo potential habitat (acres) construction/operation.	56/16	39/9	41/10	31/8	63/16	31/9	56/16
(3.c)	Impacted Canada lynx potential habitat (acres) construction/operation.	217/76	383/106	129/31	447/133	206/54	431/146	217/76
(3.e)	Impacted Utah prairie dog potential habitat (acres) construction/operation.	244/51	191/41	279/61	290/66	240/54	319/71	244/51
(3.b)	Number of special status raptor nests within 1 mile of analysis corridor.	157	199	149	220	192	231	158
Aquatic Biological Resources								
	Effects on aquatic habitat and species from potential direct and indirect construction disturbance or water quality changes.	18 named perennial streams crossed by 250-foot-wide transmission line ROW; 11 game fish streams crossed by the 250-foot-wide ROW.	22 named perennial streams crossed by 250-foot-wide transmission line ROW; 7 game fish streams crossed by the 250-foot-wide transmission line ROW.	27 named perennial streams crossed by 250-foot-wide transmission line ROW; 12 game fish streams crossed by the 250-foot-wide transmission line ROW.	18 named perennial streams crossed by 250-foot-wide transmission line ROW; 13 game fish streams crossed by the 250-foot-wide transmission line ROW.	46 named perennial streams crossed by 250-foot-wide transmission line ROW; 13 game fish streams crossed by the 250-foot-wide transmission line ROW.	25 named perennial streams crossed by 250-foot-wide transmission line ROW; 14 game fish streams crossed by the 250-foot-wide transmission line ROW.	16 named perennial streams crossed by 250-foot-wide transmission line ROW; 11 game fish streams crossed by the 250-foot-wide transmission line ROW.
	Potential aquatic habitat alteration or loss (feet^2).	6,400	6,000	8,800	5,600	16,800	9,600	6,400
	Potential amphibian mortalities from construction vehicle traffic.	258 ROW miles	346 ROW miles	365 ROW miles	259 ROW miles	268 ROW miles	265 ROW miles	252 ROW miles
Special Status Aquatic Resources								
	Effects on habitat and special status species from potential direct disturbance or water quality changes during construction.	14 perennial streams with special status aquatic species crossed by 250-foot-wide transmission line ROW.	7 perennial streams with special status aquatic species crossed by 250-foot-wide transmission line ROW.	11 perennial streams with special status aquatic species crossed by 250-foot-wide transmission line ROW.	8 perennial streams with special status aquatic species crossed by 250-foot-wide transmission line ROW.	13 perennial streams with special status aquatic species crossed by 250-foot-wide transmission line ROW.	14 perennial streams with special status aquatic species crossed by 250-foot-wide transmission line ROW.	14 perennial streams with special status aquatic species crossed by 250-foot-wide transmission line ROW.

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
	Number of additional streams with special status aquatic species that are located in the potential disturbance area beyond the refined transmission corridor.	1 stream with federally listed or petitioned aquatic species.	2 streams with federally listed or petitioned aquatic species.	2 streams with federally listed or petitioned aquatic species.	2 streams with federally listed or petitioned aquatic species.	1 stream with federally listed or petitioned aquatic species.	2 streams with federally listed or petitioned aquatic species.	1 stream with federally listed or petitioned aquatic species.
	Number of special status aquatic species with potential habitat alteration or loss.	8	6	7	4	9	7	8
	Number of watersheds supporting special status aquatic species with increased road densities.	13	9	10	8	12	11	13
	Potential direct disturbance on critical habitat for federally listed species[1] from construction.	2 acres	7 acres	7 acres	8 acres	2 acres	8 acres	2 acres
	Potential water depletion in the Upper Colorado River Basin from construction water use (acre-feet).	111	192	197	129	118	115	110
Cultural Resources								
	NRHP-listed Sites	0	1	1	0	0	0	0
	NRHP-eligible Sites	13	60	57	22	18	14	12
	Unevaluated Sites	1	23	65	5	3	3	0
	Potential TCPs	0	8	14	1	0	0	0
	Trail Crossings	Old Spanish Trail (0)	Old Spanish Trail (4) (1 NHT II, 1 NHT III, 2 NHT V)	Old Spanish Trail (11) (1 NHT II, 1 NHT III, 5 NHT IV, 4 not categorized)	Old Spanish Trail (0)	Old Spanish Trail (0)	Old Spanish Trail (0)	Old Spanish Trail (0)
	Average Inventory Coverage	14%	19%	21%	24%	17%	22%	14%
	Site Density (sites per 100 acres inventoried).	2	4.2	4.4	2	2	2	2

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
	Overall Trail Visibility (within 5-mile viewshed).	0 miles	58 miles	108 miles	0 miles	0 miles	0 miles	0 miles
Visual Resources								
	High Sensitivity Viewers (miles)							
	0 - 0.5 mile	79	103	101	51	86	64	77
	0.5 - 2.5 miles	130	193	207	119	128	124	125
	2.5 - 5 miles	32	36	47	45	32	34	32
	>5 miles	17	14	10	44	23	43	17
	Moderate Sensitivity Viewers (miles)							
	0 - 0.5 mile	73	186	217	74	79	76	75
	0.5 - 2.5 miles	132	130	135	102	115	109	126
	2.5 - 5 miles	43	30	13	44	47	39	42
	>5 miles	9	–	–	38	27	41	9
	Scenic Quality (miles)							
	A	<1	1	2	26	10	47	<1
	B	141	129	121	101	138	102	141
	C	117	215	241	132	120	117	111
	BLM VRI Classifications (miles)							
	Class II	10	19	22	44	33	77	10
	Class III	34	49	59	63	46	41	31
	Class IV	110	249	242	133	113	124	108
	BLM VRM Classifications (miles)							
	Class II	–	6	6	2	–	2	–
	Class III	46	136	152	48	41	48	45
	Class IV	51	64	53	89	57	89	51
	USFS SIO/VQO Classifications (miles)							
	High/Retention	–	–	–	–	–	<1	<1
	Moderate/Partial Retention	–	–	–	–	–	7	15
	Low/Modification	4	4	–	–	14	2	4

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
	Residual Impacts Landscape Scenery (miles)							
	High	90	101	84	103	115	130	90
	Moderate	62	113	140	87	86	71	65
	Low	106	131	140	69	67	63	96
	Residual Impacts High Sensitivity Viewers (miles)							
	High	54	51	40	48	69	63	54
	Moderate	109	211	239	131	127	125	112
	Low	95	84	87	81	72	77	86
	Residual Impacts Moderate Sensitivity Viewers (miles)							
	High	47	94	122	49	57	57	51
	Moderate	93	167	170	97	93	101	89
	Low	119	85	74	113	118	107	112
	BLM VRM USFS SIO/VQO Conformance/Consistency (miles) Before Mitigation							
	Conformance	112	190	197	134	115	139	113
	Non-conformance	4	32	47	14	4	10	4
	NA	142	124	121	112	149	117	142
	BLM VRM USFS SIO/VQO Conformance/Consistency (miles) After Mitigation							
	Conformance	113	219	227	137	116	140	114
	Non-Conformance	3	3	18	11	3	9	3
	NA	142	124	121	112	149	117	142

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
Recreation								
	Recreation Area/Site in Region II	Refined Transmission Corridor Acres (% of Total Area) / Analysis Area Acres (% of Total Area)	Refined Transmission Corridor Acres (% of Total Area) / Analysis Area Acres (% of Total Area)	Refined Transmission Corridor Acres (% of Total Area) / Analysis Area Acres (% of Total Area)	Refined Transmission Corridor Acres (% of Total Area) / Analysis Area Acres (% of Total Area)	Refined Transmission Corridor Acres (% of Total Area) / Analysis Area Acres (% of Total Area)	Refined Transmission Corridor Acres (% of Total Area) / Analysis Area Acres (% of Total Area)	Refined Transmission Corridor Acres (% of Total Area) / Analysis Area Acres (% of Total Area)
	BLM White River FO							
	Dispersed, undesignated recreation areas	2,739 (0.2) / 22,082 (1.5)	14,232 (1.0) / 57,110 (3.9)	14,232 (1.0) / 57,110 (3.9)	2,761 (0.2) / 22,123 (1.5)	2,761 (0.2) / 22,123 (1.5)	2,761 (0.2) / 22,123 (1.5)	2,761 (0.2) / 22,123 (1.5)
	BLM Grand Junction FO							
	Dispersed, undesignated recreation areas	N/A	4,431 (0.3) /31,060 (2.4)	4,431 (0.3) / 31,060 (2.4)	N/A	N/A	N/A	N/A
	BLM Moab FO							
	Dispersed, undesignated recreation areas	N/A	4,049 (0.3) / 65,444 (5.5)	4,049 (0.3) / 65,444 (5.5)	N/A	N/A	N/A	N/A
	Labyrinth Canyon/Gemini Bridges SRMA	N/A	913 (0.3) / 4,087 (1.4)	913 (0.3) / 4,087 (1.4)	N/A	N/A	N/A	N/A
	Utah Rims SRMA	N/A	0 / 925 (6.0)	0 / 925 (6.0)	N/A	N/A	N/A	N/A
	BLM Vernal FO							
	Dispersed, undesignated recreation areas	10,234 (0.7) / 37,946 (2.4)	1,305 (0.08) / 5,179 (0.3)	1,305 (0.08) / 5,179 (0.3)	29,678 (1.9) / 85,532 (5.5)	8,968 (0.6) / 44,567 (2.9)	30,818 (2.0) /89,148 (5.7)	8,742 (0.6) / 43,180 (2.8)
	Fantasy Canyon SRMA	N/A	N/A	N/A	0 / 54 (78.3)	N/A	0 / 54 (78.3)	N/A
	Nine Mile Canyon SRMA	N/A	N/A	N/A	0 /1,456 (3.3)	N/A	0 /1,453 (3.3)	N/A
	BLM Price FO							
	Dispersed, undesignated recreation areas	N/A	4,144 (0.3) / 68,100 (5.0)	5,455 (0.4) / 57,628 (4.2)	2,474 (0.2) / 10,385 (0.8)	31 (0) / 368 (0.03)	N/A	N/A
	Labyrinth Canyon SRMA	N/A	21 (0.06) / 154 (0.4)	21 (0.06) / 154 (0.4)	N/A	N/A	N/A	N/A

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
	San Rafael Swell SRMA	N/A	N/A	355 (0.04) / 10,590 (1.1)	N/A	N/A	N/A	N/A
	BLM Richfield FO							
	Dispersed, undesignated recreation areas	411 (0.03) / 1,060 (0.08)	946 (0.07) / 6,105 (0.5)	2,120 (0.2) / 16,284 (1.3)	445 (0.04) / 1,291 (0.1)	411 (0.03) / 1,060 (0.08)	411 (0.03) / 1,060 (0.08)	411 (0.03) / 1,060 (0.08)
	BLM Salt Lake FO							
	Dispersed, undesignated recreation areas	69 (0) / 363 (0.01)	N/A	N/A	N/A	196 (0) / 1,662 (0.05)	1,310 (0.04) / 3,250 (0.1)	69 (0) / 363 (0.01)
	BLM Fillmore FO							
	Dispersed, undesignated recreation areas	6,144 (0.1) / 46,110 (1.0)	6,168 (0.1) / 12,901 (0.3)	2,681 (0.06) / 18,006 (0.4)	6,659 (0.2) / 43,999 (1.0)	6,659 (0.2) / 43,999 (1.0)	6,659 (0.2) / 43,999 (1.0)	6,659 (0.2) / 43,999 (1.0)
	Little Sahara Recreation Area (RA)	592 (1.0) /	N/A	N/A	592 (1.0) / 5,975 (10)	592 (1.0) / 5,975 (10)	592 (1.0) / 5,975 (10)	592 (1.0) / 5,975 (10)
	Sheeprock/Tintic off-road vehicle (ORV) Area	588 (0.1) / 21,342 (5.4)	3,389 (0.9) / 11,178 (2.8)	1,465 (0.4) / 11,598 (2.9)	588 (0.1) / 21,342 (5.4)	588 (0.1) / 21,342 (5.4)	588 (0.1) / 21,342 (5.4)	588 (0.1) / 21,342 (5.4)
	USFS Recreation Areas							
	Recreation Area	Refined Transmission Corridor Acres (% of Total Area) / Analysis Area Acres (% of Total Area)	Refined Transmission Corridor Acres (% of Total Area) / Analysis Area Acres (% of Total Area)	Refined Transmission Corridor Acres (% of Total Area) / Analysis Area Acres (% of Total Area)	Refined Transmission Corridor Acres (% of Total Area) / Analysis Area Acres (% of Total Area)	Refined Transmission Corridor Acres (% of Total Area) / Analysis Area Acres (% of Total Area)	Refined Transmission Corridor Acres (% of Total Area) / Analysis Area Acres (% of Total Area)	Refined Transmission Corridor Acres (% of Total Area) / Analysis Area Acres (% of Total Area)
	ROS							
	Ashley National Forest							
	Rural	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Roaded Modified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Roaded Natural	N/A	N/A	N/A	1 (0) / 1 (0)	1,449 (0.3) / 1,449 (0.3)	1 (0) / 1 (0)	N/A
	Semi-Primitive Motorized (SPM)	N/A	N/A	N/A	N/A	0 / <1 (0)	N/A	N/A
	SPM Within IRA	N/A	N/A	N/A	*N/A*	*N/A*	*N/A*	*N/A*
	Remainder in SPM Recreation Opportunity Spectrum (ROS)	N/A	N/A	N/A	*N/A*	*0 / <1 (0)*	*N/A*	*N/A*
	Semi-Primitive Non-motorized (SPNM)	*N/A*	*N/A*	*N/A*	N/A	0 / 1 (0)	N/A	N/A

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
	SPNM Within IRA	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*
	Remainder in SPNM ROS	*N/A*	*N/A*	*N/A*	*N/A*	*0 /1 (0)*	*N/A*	*N/A*
	Primitive	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Unknown/Private	N/A	N/A	N/A	N/A	<1 (0) / <1 (0)	N/A	N/A
	Total	NA	NA	NA	**1 acre/ 1 acre**	**1,449 acres/ 1,450 acres**	**1 acre/ 1 acre**	**N/A**
	Uinta National Forest Planning Area							
	Rural	0 / 23 (1.4)	N/A	N/A	N/A	N/A	N/A	N/A
	Roaded Modified	1,796 (2.1) / 4,395 (5.2)	N/A	N/A	0 / 31 (0.04)	2,621 (3.1) / 5,018 (5.9	2,621 (3.1) / 5,015 (5.9)	1,796 (2.1) / 4,395 (5.2)
	Roaded Natural	4,013 (1.5) / 5,633 (2.1)	0/ <1 (0)	N/A	0 / 13 (<0.01)	9 (<0.01) / 644 (0.2)	9 (<0.01) / 644 (0.2)	4,013 (1.5) / 5,540 (2.0)
	SPM	1,609 (0.5) / 1,665 (0.5)	N/A	N/A	N/A	79 (0.02) / 1,173 (0.3)	79 (0.02) / 1,174 (0.3)	N/A
	SPM Within IRA	*2 (0) / 2 (0)*	*N/A*	*N/A*	*N/A*	*N/A*	*0 / 1 (0)*	*2 (0) / 2 (0)*
	Remainder in SPM ROS	*1,607 (0.5) / 1,663 (0.5)*	*N/A*	*N/A*	*N/A*	*79 (0.02) / 1,173 (0.3)*	*79 (0.02) / 1,173 (0.3)*	*1,607 (0.5) / 1,663 (0.5)*
	SPNM	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Primitive	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Unknown/Private	0 / 11 (<0.01)	N/A	N/A	N/A	4 (<0.01) / 9 (<0.01)	4 (<0.01) / 9 (<0.01)	0 / 11 (<0.01)
	Total	**7,418 acres / 11,727 acres**	**0/ <1 acre**	**N/A**	**0 acres / 44 acres**	**2,713 acres / 6,844 acres**	**2,712 acres / 6,842 acres**	**7,418 acres / 11,611 acres**
	Manti-La Sal National Forest							
	Rural	N/A	N/A	N/A	0 / 16 (2.0)	N/A	N/A	N/A
	Roaded Modified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Roaded Natural	103 (0.02) / 443 (0.09)	4,940 (1.0) / 12,633 (2.5)	N/A	2,133 (0.4) / 6,507 (1.3)	149 (0.03) / 575 (0.1)	149 (0.03) / 575 (0.1)	149 (0.03) / 575 (0.1)
	SPM	0 / 1,385 (0.2)	1,799 (0.3) / 4,365 (0.6)	N/A	1,452 (0.2) / 3,102 (0.4)	0 / 1,385 (0.2)	0 / 1,385 (0.2)	0 / 1,385 (0.2)
	SPM Within IRA	*0 / 1 (0)*	*0 / 43 (<0.01)*	*N/A*	*N/A*	*0 / 1 (0)*	*0 / 1 (0)*	*0 / 1 (0)*

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
	Remainder in SPM ROS	*0 / 1,384 (0.2)*	*1,799 (0.3) / 4,322 (0.6)*	*N/A*	*1,452 (0.2) / 3,102 (0.4)*	*0 / 1,384 (0.2)*	*0 / 1,384 (0.2)*	*0 / 1,384 (0.2)*
	SPNM	N/A	N/A	N/A	0 / 10 (0.01)	N/A	N/A	N/A
	SPNM Within IRA	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*
	Remainder in SPNM ROS	*N/A*	*N/A*	*N/A*	*0 / 10 (0.01)*	*N/A*	*N/A*	*N/A*
	Primitive	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Unknown/Private	N/A	375 (0.5) / 645 (0.8)	N/A	15 (0.02) / 81 (0.1)	N/A	0 / 5 (<0.01)	0 / 5 (<0.01)
	Total	**103 acres / 1,828 acres**	**7,144 acres / 17,643 acres**	**N/A**	**3,600 acres / 9,700 acres**	**149 acres / 1,960 acres**	**149 acres / 1,965 acres**	**149 acres / 1,965 acres**
	Fishlake National Forest							
	Rural	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Roaded Modified	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Roaded Natural	N/A	163 (0.3) / 1,435 (0.1)	3,080 (0.6) / 21,805 (4.2)	N/A	N/A	N/A	N/A
	SPM	N/A	0 / 51 (<0.01)	5,332 (0.5) / 17,734 (1.7)	N/A	N/A	N/A	N/A
	SPM Within IRA	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*
	Remainder in SPM ROS	*N/A*	*0 / 51 (<0.01)*	*5,332 (0.5) / 17,734 (1.7)*	*N/A*	*N/A*	*N/A*	*N/A*
	SPNM	N/A	N/A	0 / 22 (0.01)	*N/A*	*N/A*	*N/A*	N/A
	SPNM Within IRA	N/A	N/A	N/A	*N/A*	*N/A*	*N/A*	N/A
	Remainder in SPNM ROS	N/A	N/A	0 / 22 (0.01)	*N/A*	*N/A*	*N/A*	N/A
	Primitive	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Unknown/Private	N/A	N/A	0 / <1 (<0.01)	N/A	N/A	N/A	N/A
	Total	**N/A**	**163 acres / 1,486 acres**	**8,412 acres / 39,561 acres**	**N/A**	**N/A**	**N/A**	**N/A**
	Other Federally Managed Recreation Areas							
	Dinosaur National Monument	0 / 3 (<0.01)	N/A	N/A	0 / 3 (<0.01)	0 / 3 (<0.01)	0 / 3 (<0.01)	0 / 3 (<0.01)

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
	State Recreation Areas							
	Recreation Area	Refined Transmission Corridor Acres (% of Total Area) / Analysis Area Acres (% of Total Area)	Refined Transmission Corridor Acres (% of Total Area) / Analysis Area Acres (% of Total Area)	Refined Transmission Corridor Acres (% of Total Area) / Analysis Area Acres (% of Total Area)	Refined Transmission Corridor Acres (% of Total Area) / Analysis Area Acres (% of Total Area)	Refined Transmission Corridor Acres (% of Total Area) / Analysis Area Acres (% of Total Area)	Refined Transmission Corridor Acres (% of Total Area) / Analysis Area Acres (% of Total Area)	Refined Transmission Corridor Acres (% of Total Area) / Analysis Area Acres (% of Total Area)
	Emery Farm Castle Dale Wildlife Management Area (WMA)	N/A	N/A	0 / <1 (1)	N/A	N/A	N/A	N/A
	Currant Creek/Wildcat WMA	1,799 (7.9) / 2,284 (10.7)	N/A	N/A	N/A	N/A	N/A	1,388 (6.1) / 1,522 (6.7)
	Nephi WMA-Nephi Unit	120 (78.9) / 152 (100)	N/A	N/A	N/A	N/A	N/A	N/A
	Fillmore WMA	N/A	N/A	72 (0.5) / 221 (1.7)	N/A	N/A	N/A	N/A
	Gordon Creek WMA	N/A	N/A	N/A	1,097 (4.8) / 5,251 (23.1)	N/A	N/A	N/A
	Indian Canyon WMA-Cottonwood Canyon Unit	N/A	N/A	N/A	N/A	597 (7.7) / 1,668 (22)	N/A	N/A
	North Nebo WMA/Fountain Green	N/A	206 (8.9) / 1,347 (58)	N/A	N/A	N/A	N/A	N/A
	North Nebo WMA— Spencer Fork Unit	1,568 (24.1) / 6,265 (96.4)	N/A	N/A	N/A	1,568 (24.1) / 6,265 (96.4)	1,568 (24.1) / 6,265 (96.4)	1,568 (24.1) / 6,265 (96.4)
	Northwest Manti WMA— Birdseye Lake Fork Unit	1,151 (30.7) / 2,689 (71.7)	N/A	N/A	N/A	1,151 (30.7) / 2,689 (71.7)	1,151 (30.7) 2,689 (71.7)	1,151 (30.7) / 2,689 (71.7)
	Northwest Manti WMA— Dairy Fork Unit	503 (10.1) / 1,164 (23.4)	N/A	N/A	N/A	684 (13.7) / 1,684 (33.8)	684 (13.7) / 1,684 (33.8)	503 (10.1) / 1,164 (23.4)
	Northwest Manti WMA— Hilltop Conservation Easement	N/A	N/A	N/A	131 (12.2) / 696 (64.8)	N/A	N/A	N/A
	Northwest Manti WMA— Lasson Draw	0 / 16 (0.7)	N/A	N/A	N/A	0 / 16 (0.7)	0 / 16 (0.7)	0 / 16 (0.7)

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
	Northwest Manti WMA— Starvation Unit	N/A	N/A	N/A	N/A	419 (7.3) / 976 (16.9)	419 (7.3) / 976 (16.9)	N/A
	Strawberry River WMA	35 (1.1) / 454 (14.8)	N/A	N/A	N/A	N/A	N/A	35 (1.1) / 454 (14.8)
	South Nebo WMA— Triangle Ranch Unit	649 (13.2) / 1,725 (35)	656 (13.3) / 1,060 (21.6)	N/A	960 (19.5) / 1,775 (36.1)	960 (19.5) / 1,775 (36.1)	960 (19.5) / 1,775 (36.1)	960 (19.5) / 1,775 (36.1)
	Tabby Mountain WMA—Rabbit Gulch Unit	776 (8.2) / 8,088 (89.4)	N/A	N/A	N/A	N/A	N/A	776 (8.2) / 8,088 (89.4)
	Tabby Mountain WMA—Tabby Mountain Unit	508 (1.2) / 839 (2)	N/A	N/A	N/A	N/A	N/A	N/A
	Starvation State Park	0 / 459 (6)	N/A	N/A	N/A	N/A	N/A	0 / 459 (6)
	Cooperative Wildlife Management Units (CWMUs):							
	Double R Ranch	512 / 2,460 (39)	N/A	N/A	N/A	N/A	N/A	576 / 2,460 (39)
	Crab Creek	0 / 211 (2)	N/A	N/A	N/A	0 / 211 (2)	0 / 211 (2)	0 / 211 (2)
	Bear Mountain	N/A	1,314/4,515 (56)	N/A	N/A	N/A	N/A	N/A
	Castle Valley Outdoors	N/A	N/A	2,288 / 6,067 (57)	N/A	N/A	N/A	N/A
	Johnson Mountain Ranch	N/A	N/A	466 / 2,317 (17)	N/A	N/A	N/A	N/A
	Oak Ranch	N/A	N/A	0 / 192 (4)	N/A	N/A	N/A	N/A
	Old Woman Plateau	N/A	N/A	0 / 123 (2)	N/A	N/A	N/A	N/A
	Round Valley	N/A	N/A	1,093 / 4,680 (59)	N/A	N/A	N/A	N/A
	Minnie Maud Ridge	N/A	N/A	N/A	4,473 / 10,025 (63)	746 / 1,100 (7)	0 / 130 (<1)	N/A
	Emma Park	N/A	N/A	N/A	0 / 227 (1)	3,136 / 7,251 (32)	3,938 / 8,481 (38)	N/A
	Antelope Creek	N/A	N/A	N/A	N/A	1,055 / 5,817 (18)	N/A	N/A
	Scofield Canyons	N/A	N/A	N/A	N/A	39 / 556 (4)	N/A	N/A
	Soldier Summit	N/A	N/A	N/A	N/A	3,700 / 9,963 (38)	3,275 / 7,579 (29)	N/A
	Local Recreation Areas							
	Big Mountain Campground	15 (100) / 15 (100)	N/A	N/A	15 (100) / 15 (100)	15 (100) / 15 (100)	15 (100) / 15 (100)	15 (100) / 15 (100)
	Bottle Hollow Reservoir	0 / 101 (24)	N/A	N/A	N/A	0 / 101 (24)	N/A	0 / 101 (24)
	Brough Reservoir	0 / <1	N/A	N/A	N/A	N/A	0 / <1	0 / <1

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
	Cedar Ridges Golf Course	N/A	0 / Entire site	0 / Entire site	N/A	N/A	N/A	N/A
	Bear Creek Campground	N/A	0 / 18 (100)	N/A	N/A	N/A	N/A	N/A
	Camp Timberlane	N/A	N/A	N/A	N/A	329 (45.7) / 349 (48.5)	266 (36.9) / 321 (44.6)	N/A
	Crescent Regional Recreational Camp	N/A	N/A	N/A	N/A	N/A	48 (8) / 219 (36.5)	N/A
	Scenic Backways and Byways							
	Dinosaur Diamond Prehistoric Byway	2 crossings / 5 miles	3 crossings / 88 miles	3 crossings / 77 miles	2 crossings / 13 miles**	4 crossings / 10 miles**	2 crossings / 5 miles	2 crossings / 5 miles
	White River/Strawberry Road Scenic Backway	1 crossing / 3 miles	N/A	N/A	N/A	N/A	N/A	1 crossing / 3 miles
	Nebo Loop Scenic Byway	0 crossings / <1 mile	N/A	N/A	0 crossings / <1 mile	0 crossings / <1 mile	0 crossings / <1 mile	0 crossings / <1 mile
	Energy Loop: Huntington/ Eccles Canyons National Scenic Byway	N/A	1 crossing / 4 miles	N/A	7 crossings / 17 miles	1 crossing / <2 miles	N/A	N/A
	Skyline Drive Scenic Backway	N/A	1 crossing / 3 miles	N/A	1 crossing / 4 miles	0 crossings / <1 mile	0 crossings / <1 mile	N/A
	Wedge Overlook/ Buckhorn Drive Scenic Backway	N/A	N/A	5 crossings / 9 miles	N/A	N/A	N/A	N/A
	Gooseberry/Fremont Road Scenic Backway	N/A	N/A	1 crossing / 2 miles	N/A	N/A	N/A	N/A
	Indian Canyon Scenic Byway	N/A	N/A	N/A	0 crossings / 7 miles**	1 crossing / <2 miles**	1 crossing / 3 miles**	N/A
	Nine Mile Canyon Scenic Backway	N/A	N/A	N/A	1 crossing / 2 miles	N/A	1 crossing / 2 miles	N/A
	Reservation Ridge Scenic Backway	N/A	N/A	N/A	N/A	N/A	0 crossings / <1 mile	N/A
	** Indian Canyon Scenic Byway shares the same route with Dinosaur Diamond Prehistoric Byway in this portion of the Byway; therefore, the acreage identified under the Indian Canyon route also is included in the Dinosaur Diamond route.							

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
Land Use and Planning								
(1.a) (6.a)	Federal and State lands and Use of Designated Utility Corridors	258 miles total: 45% located on BLM or USFS-managed lands; 11% located on state lands.	346 miles total; 65% located on BLM or USFS-managed lands; 12% located on state lands.	365 miles total: 67% located on BLM or USFS-managed lands; 12% located on state lands.	259 miles total: 57% located on BLM or USFS-managed lands, 1% on tribal lands and 12% on state lands.	268 mile total: 44% located on BLM or USFS-managed lands; 10% on state lands and 3% on tribal lands.	265 miles total; 55% on BLM/USFS lands; 14% state lands and 1% on Tribal lands.	252 miles total; 45% on BLM/USFS lands; 9% state lands.
		34 miles RMP corridor; 63 miles WWEC.	136 miles RMP corridor; 33 miles WWEC.	146 miles RMP corridor; 17 miles WWEC	71 miles in BLM RMP corridors, and 46 miles in WWEC.	40 miles in BLM RMP corridors, and 66 miles in WWEC.	72 miles RMP corridor; 31 miles WWEC.	32 miles RMP corridor; 63 miles WWEC.
	Avoidance/Exclusion areas crossed by alignment	None.	Designated exclusion area crossed for <1 mile (Demaree WSA)	Same as Alternative II-B	None.	None	None.	None
	Private Lands and Zoning	112 miles (43%) located on private lands. 16 residences and 4 commercial buildings within 500 feet of the alignment.	78 miles (23%) located on private lands. 5 residences and 12 commercial buildings within 500 feet of the alignment.	78 miles (21%) located on private lands. 2 residences and 11 commercial buildings within 500 feet of the alignment.	78 miles (30%) located on private lands. 3 residences within 500 feet of the alignment.	115 miles (43%) located on private lands. 27 residences and 4 commercial buildings within 500 feet of the alignment.	78 miles (29%) located on private lands. 4 residences within 500 feet of the alignment.	112 miles (45%) located on private lands. 18 residences and 4 commercial buildings within 500 feet of the alignment.
		7 communities within the analysis corridor or road/construction support areas; no identified incompatible land uses within these communities. 4 wildlife management areas and 1 state park, 2 cemeteries, and 1 church within the analysis corridor or road/ construction support areas.	8 communities within the analysis corridor or road/construction support areas; no identified incompatible land uses within these communities. 2 wildlife management areas and 2 cemeteries within the analysis corridor or road/ construction support areas.	11 communities within the analysis corridor or road/ construction support areas; no identified incompatible land uses within these communities. 2 wildlife management areas, 1 cemetery, 1 church, and 1 school within the analysis corridor or road/ construction support areas.	4 communities within the analysis corridor or road/construction support areas; no identified incompatible land uses within these communities. 3 wildlife management areas, 2 cemeteries, 1 church, and 2 schools within the analysis corridor or road/ construction support areas; one WMA is a ROW exclusion area for overhead power lines.	5 communities within the analysis corridor or road/construction support areas; no identified incompatible land uses within these communities. 4 WMAs, 3 cemeteries, and 1 church within the analysis corridor or road/ construction support areas.	2 communities within the analysis corridor or road/construction support areas; no identified incompatible land uses within these communities. 4 WMAs, 2 cemeteries, and 1 church within the analysis corridor or road/ construction support areas.	5 communities within the analysis corridor or road/construction support areas; no identified incompatible land uses within these communities. 4 wildlife management areas and 1 state park, 2 cemeteries, and 1 church within the analysis corridor or road/ construction support areas.

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
	Agriculture	540 acres of initial clearing, 361 acres of construction disturbance, and 75 acres of permanent removal of croplands. Four center pivots crossed by the 250-foot-wide transmission line ROW.	136 acres of initial clearing, 119 acres of construction disturbance, and 40 acres of permanent removal of croplands.	282 acres of initial clearing, 181 acres of construction disturbance, and 45 acres of permanent removal of croplands.	97 acres of initial clearing, 84 acres of construction disturbance, and 29 acres of permanent removal of croplands.	352 acres of initial clearing, 258 acres of construction disturbance, and 61 acres of permanent removal of croplands. One center pivot crossed by the 250-foot-wide transmission line ROW.	153 acres of initial clearing; 120 acres of construction disturbance; and 30 acres of permanent removal of croplands.	474 acres of initial clearing, 314 acres of construction disturbance, and 70 acres of permanent removal of croplands. Six center pivots crossed by the 250-foot-wide transmission line ROW
	Livestock Grazing	Construction impacts 1,428 acres (72 AUMs); Operation impacts 397 acres (20 AUMs)	Construction impacts 3,564 acres (178 AUMs); Operation impacts 861 acres (43 AUMs)	Construction impacts 3,869 acres (194 AUMs); Operation impacts 928 acres (47 AUMs)	Construction impacts 2,011 acres (100 AUMs); Operation impacts 509 acres (26 AUMs)	Construction impacts 1,343 acres (67 AUMs); Operation impacts 325 acres (16 AUMs)	Construction impacts 1,972 acres (98 AUMs); Operation impacts 513 acres (25 AUMs)	Construction impacts 1,487 acres (75 AUMs); Operation impacts 371 acres (19 AUMs)
	USFS land Management	Within the Uinta National Forest Planning Area, the alignment, the 250-foot-wide transmission line ROW, and the 2-mile transmission corridor would pass through areas managed for aquatic and terrestrial resources (9 miles), dispersed recreation (5 miles) areas; forested area vegetation (2 miles); non forested ecosystems (3miles) and utility corridor/ communication sites(less than 1 mile). With the exception of portions of the Strawberry Management Area within 300 yards of greater sage-grouse foraging areas, development of a	Within the Manti-La Sal National Forest, the alignment, the 250-foot-wide transmission line ROW, and the 2-mile transmission corridor would pass through areas managed for general big game winter range (1 mile), mineral development (1 mile), forage production areas (16 miles), and designated utilities corridors and developed recreation site management areas (less than one mile). Development of a transmission line would be fully compatible within areas managed as utility corridors, and generally compatible with management goals for minerals management, range	Within the Fishlake National Forest, the alignment, the 250-foot-wide transmission line ROW, and the 2-mile transmission corridor would pass through areas managed for management indicator species (MIS; 13 miles); livestock grazing (10 miles); improved watershed condition (4 miles), big game winter range (2 miles), and rural and roaded-natural recreation opportunities (2 miles). Development of a transmission line would be generally compatible with management goals for these areas, provided that access to resources not restricted, and vegetation densities are	Within the Manti-La Sal National Forest, the 250-foot-wide transmission line ROW, and the 2-mile transmission corridor would pass through Developed Recreation Sites (specifically, the Flat Canyon and Gooseberry Campgrounds); Special Land Designation (the Mammoth Guard Station); Research, Protection, and Interpretation of Lands and Resource; and Undeveloped Motorized Recreation Sites management areas. Construction of a transmission line would not be compatible with the management goals of developed recreation management areas,	Within the Manti-La Sal, impacts to management units and consistency with applicable standards and guidelines would be the similar to Alternative II-A, but would slightly more Manti-La Sal National Forest acreage within the general big game winter range and range forage production areas within the analysis corridor. Within the Uinta National Forest Planning Area, impacts to management units and consistency with applicable standards and guidelines would be the similar to Alternative II-A, but would include slightly less mileage within areas managed	Approximately 15 miles of the 250-foot-wide transmission line ROW would be within national forest system lands with special management prescriptions within the Fishlake, Uinta, and Manti-La Sal National Forests. Consistency with applicable standards and guidelines within the Uinta and Manti-La Sal National Forests would be the same as under Alternative ll-D. Consistency with applicable standards and guidelines within the Fishlake National Forest would be the same as under Alternative ll-B.	Within the Uinta National Forest Planning Area, the alignment, the 250-foot-wide transmission line ROW, and the 2-mile transmission corridor would pass through areas managed for aquatic and terrestrial resources (9 miles), dispersed recreation (5 miles) areas; forested area vegetation (2 miles); non forested ecosystems (3miles) and utility corridor/ communication sites(less than 1 mile). With the exception of portions of the Strawberry Management Area within 300 yards of greater sage-grouse

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
		transmission line would in generally be compatible with area management. Application of mitigation LU-1 would eliminate impacts to this management area. Within the Manti-La Sal National Forest, the alignment, the 250-foot-wide transmission line ROW, and the 2-mile transmission corridor would fall within areas managed for General Big Game Winter Range (2 miles), and Key Big Game Winter Range (less than 1 mile). Development of a transmission line would generally be compatible with area management, provided vegetation densities are maintained and short term or temporary roads are reclaimed, construction occurs outside of the critical season, and there is no long-term degradation of habitat.	forage production areas, and motorized recreation areas, provided that access to resources is not restricted. Compatibility with Big Game Winter Range would be the same as under Alternative II-A. Construction of a transmission line would not be compatible with the management goals of developed recreation management areas (specifically the Indian Creek Campground), which restrict non-recreation noise to 30 decibels or less. Within the Fishlake National Forest, 4 miles of the alignment, the 250-foot-wide transmission line ROW, and the 2-mile transmission corridor would be within areas managed for livestock grazing. Development of a transmission line would generally be compatible with Standard and Guidelines for this area.	maintained and short-term or temporary roads are obliterated within one season of use in MIS and big game winter range MAs. Construction activities would have temporary impacts to the recreation opportunities in some areas of the 2b Roaded Natural Recreation management areas through visual and noise disturbances, traffic delays, or trail access restrictions. The analysis corridor would also encompass acreage within Semi-Primitive Non-Motorized Recreation Fish Habitat Improvement management areas. Development of access roads or other construction support areas would generally be compatible with Standard and Guidelines for these areas provided that riparian areas are avoided and roads are closed to motorized public access.	which restrict non-recreation noise to 30 decibels or less. Construction of a transmission line would generally be compatible with the other management areas, provided it does not inhibit attainment of objectives for the area. Within the Ashley National Forest, portions of the analysis corridor (and a very small portion of the 250-foot-wide transmission line ROW) would fall within areas managed for livestock grazing and wildlife habitat. Development of a transmission line would be compatible with the management goals, provided that key stress seasons are avoided, short term or temporary roads are reclaimed and riparian areas are protected within wildlife habitat areas.	for aquatic/terrestrial resources and dispersed recreation. Within the Ashley National Forest, the alignment, the 250-foot-wide transmission line ROW, and the 2-mile transmission corridor would pass through approximately 9 miles of areas with a low management emphasis (N) and 1 mile of area managed for dispersed roaded recreation (F). Development of a transmission line within these areas would generally be compatible with management goals.	Consistency with applicable standards and guidelines within the Ashley National Forest would be similar that described under Alternative II-D and II-E.	foraging areas, development of a transmission line would in generally be compatible with area management. Application of mitigation LU-1 would eliminate impacts to this management area. Within the Manti-La Sal National Forest, the alignment, the 250-foot-wide transmission line ROW, and the 2-mile transmission corridor would fall within areas managed for General Big Game Winter Range (2 miles), and Key Big Game Winter Range (less than 1 mile). Development of a transmission line would generally be compatible with area management, provided vegetation densities are maintained and short term or temporary roads are reclaimed, construction occurs outside of the critical season, and there is no long-term degradation of habitat.

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
(5.f)	Non co-located	86 miles (33%)	221 miles (64%)	247 miles (67%)	189 miles (73%)	97 miles (36%)	170 miles (64%)	91 miles (36%)
Special Designation Areas								
Summary of all SDAs		Refined transmission corridor would cross 0 BLM SDAs and 2 USFS SDAs; area in which road and support area construction could occur includes 2 additional USFS SDAs and a portion of one national monument.	Refined transmission corridor would cross 3 BLM SDAs, 0 USFS SDAs and 4 Old Spanish NHT segments. Area in which road and support area construction could occur includes 2 additional BLM SDAs.	Refined transmission corridor would cross 3 BLM SDAs, 1 USFS SDA and 11 Old Spanish NHT segments. Area in which road and support area construction could occur includes 4 additional BLM SDAs.	Refined transmission corridor would cross 3 BLM SDAs and 1 USFS SDA. Area in which road and support area construction could occur includes 1 additional BLM SDA, and a portion of 1 national monument.	Refined transmission corridor would cross 0 BLM SDAs and 3 USFS SDAs. Area in which road and support area construction could occur includes 1 additional USFS SDA, and a portion of 1 national monument.	Refined transmission corridor would cross 3 BLM SDAs, and 2 USFS SDAs. Area in which road and support area construction could occur includes 1 additional BLM SDA, 1 USFS SDA, and a portion of 1 national monument.	Refined transmission corridor would cross 0 BLM SDAs and 2 USFS SDAs; area in which road and support area construction could occur includes 2 additional USFS SDAs and a portion of one national monument.
BLM SDAs	White River FO	Oil Spring Mountain WSA/ACEC: No Impacts.	Oil Spring Mountain WSA/ACEC: 0 mile alignment/ >1 acre of ROW within WSA/ACEC, located within a designated underground utility corridor extending partially within the WSA. Less than 1 acre of modeled ROW clearing and no construction or operation disturbances. Development within WSA would not be compatible with WSA designation and management as a ROW avoidance area. Visual impacts to the WSA from operation of the line; temporary impacts to wilderness quality in the areas closest to the ROW from noise and activity.	Oil Spring Mountain WSA/ACEC: Same as Alternative II-B.	Oil Spring Mountain WSA/ACEC: No Impacts.	Oil Spring Mountain WSA/ACEC: No Impacts.	Oil Spring Mountain WSA/ACEC: No Impacts.	Oil Spring Mountain WSA/ACEC: No Impacts.

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
		White River ACEC: No Impacts.	White River ACEC: Not crossed by alignment or refined transmission corridor. Potential for 4 acres of modeled ROW clearing, 2 acres of construction disturbance, of which less than 1 acre would be permanent. The ACEC is a ROW avoidance area; road construction would have potential to impact riparian areas and bald eagle roost ACEC values. Construction would be contingent upon avoidance of cottonwood communities, maintenance of bald eagle habitat and properly functioning riparian community.	White River ACEC: Same as Alternative II-B.	White River ACEC: No Impacts.	White River ACEC: No Impacts.	White River ACEC: No Impacts.	White River ACEC: No Impacts.
	Grand Junction FO	Demaree WSA: No Impacts.	Demaree WSA: 1 mile alignment/ 0 acres of ROW within WSA. 0 acres of modeled ROW clearing, 0 acres of construction disturbance, of which 0 acres would be permanent. Development of transmission line, roads or use of motorized vehicles would not be compatible with area management as WSA and ROW exclusion area unless the area is released form wilderness	Demaree WSA: Same as Alternative II-B, except 0 acres of ROW within WSA.	Demaree WSA: No Impacts.	Demaree WSA: No Impacts.	Demaree WSA: No Impacts.	Demaree WSA: No Impacts.

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
			consideration (as proposed by the FO) and re-designated as a ROW sensitive area. Wilderness quality in the areas closest to the ROW would be temporarily reduced during construction from noise and activity; viewshed of completed transmission line would permanently affect wilderness qualities.					
		Badger Wash ACEC: No Impacts.	Badger Wash ACEC: Not crossed by alignment or refined transmission corridor. Potential for 1 acre of construction disturbance, of which fraction would be permanent. TransWest would use BMPs to reduce impacts to sensitive plant communities and hydrologic research R&I values of the ACEC.	Badger Wash ACEC: Same as Alternative II-B.	Badger Wash ACEC: No Impacts.	Badger Wash ACEC: No Impacts.	Badger Wash ACEC: No Impacts.	Badger Wash ACEC: No Impacts.
	Vernal FO	Green River Wild and Scenic River (WSR): No Impacts.	Green River WSR: No Impacts.	Green River WSR: No Impacts.	Green River WSR: 1 mile alignment/19 acres ROW within WSR-suitable area. 14 acres of modeled ROW clearing, 12 acres of construction disturbance, of which 4 acres would be permanent. Crossing would be within designated utility corridor but would not be consistent with	Green River WSR: No Impacts.	Green River WSR: Impacts same as Alternative II-D.	Green River WSR: No Impacts.

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
					criteria for WSR "scenic" designation. Impacts to outstandingly remarkable features of fish and recreation would be reduced through use of BMPs to reduce erosion and sedimentation but the presence of a transmission line crossing would continue to affect recreation experiences.			
		Lower Green River Corridor ACEC : No Impacts.	Lower Green River Corridor ACEC : No Impacts.	Lower Green River Corridor ACEC : No Impacts.	Lower Green River Corridor ACEC : 1 mile alignment/ 20 acres ROW within ACEC. 15 acres of modeled ROW clearing, 13 acres of construction disturbance, of which 3 acres would be permanent. While the transmission line would be located within a designated utility corridor, there is potential for road and support areas to be placed in ROW avoidance areas. The viewshed of the transmission line would affect the scenic values for which the ACEC was designated. TransWest's commitment to span riparian areas and special status species habitat would reduce impacts to riparian and	Lower Green River Corridor ACEC : No Impacts.	Lower Green River Corridor ACEC : Impacts same as Alternative II-D.	Lower Green River Corridor ACEC : No Impacts.

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
					special status plant species values; soil and water BMPs would reduce erosion and sedimentation that could affect special status species fish.			
		Lears Canyon ACEC: No Impacts.	Lears Canyon ACEC: No Impacts.	Lears Canyon ACEC: No Impacts.	Lears Canyon ACEC: 0 mile alignment/8 acres ROW within ACEC. Less than 1 acre of modeled ROW clearing, construction disturbance, and operations disturbance. The ACEC is a ROW avoidance area. Surface disturbance from road construction would affect R&I values of relict vegetation and conflict with management that closes the ACEC to motorized travel. TransWest commitments for key species habitat avoidance would reduce these impacts; however the project would not be consistent with VRM II.	Lears Canyon ACEC: No Impacts.	Lears Canyon ACEC: Impacts same as Alternative II-D.	Lears Canyon ACEC: No Impacts.

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
		Nine Mile Canyon ACEC: No Impacts.	Nine Mile Canyon ACEC: No Impacts.	Nine Mile Canyon ACEC: No Impacts.	Nine Mile Canyon ACEC: Not crossed by alignment or refined transmission corridor. Potential for 6 acres of construction disturbance for roads or support areas, of which 3 acres would be permanent. Disturbance areas would be within VRM III areas above the rim of the canyon but with potential for impacts to the relevant and important cultural resources and special status species values.	Nine Mile Canyon ACEC: No Impacts.	Nine Mile Canyon ACEC: Impacts same as Alternative II-D.	Nine Mile Canyon ACEC: No Impacts.
	Price FO	San Rafael Canyon ACEC: No Impacts.	San Rafael Canyon ACEC: No Impacts.	San Rafael Canyon ACEC: Not crossed by alignment or refined transmission corridor. Potential for 4 acres of construction disturbance for roads or support areas, of which 1 acre would be permanent. The ACEC is a ROW avoidance area; development of roads would reduce the scenic qualities for which the ACEC was designated.	San Rafael Canyon ACEC: No Impacts.	San Rafael Canyon ACEC: No Impacts.	San Rafael Canyon ACEC: No Impacts.	San Rafael Canyon ACEC: No Impacts.

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
		Rock Art ACEC: No Impacts.	Rock Art ACEC: No Impacts.	Rock Art ACEC: Not crossed by alignment or refined transmission corridor. Potential for less than 1 acre of construction disturbance for roads or support areas, of which a fraction would be permanent. Development of roads in outside the designated utility corridor would not be in conformance with area management objectives and could result in destruction of cultural resources as well as increased vandalism due to increased access.	Rock Art ACEC: No Impacts.	Rock Art ACEC: No Impacts.	Rock Art ACEC: No Impacts.	Rock Art ACEC: No Impacts.
USFS SDAs	Uinta National Forest Planning Area	Chipman Creek IRA: 2 miles alignment/ 72 acres ROW within IRA. 21 acres of modeled ROW clearing, 14 acres of construction disturbance, of which 4 acres would be permanent. TransWest would eliminate new road construction and hand cut vegetation in IRAs, use Design Features and BMPs to reduce sedimentation, and would span sensitive resources. Route would be located 0.15 mile from IRA edge (paralleling	Chipman Creek IRA: No Impacts	Chipman Creek IRA: No Impacts	Chipman Creek IRA: No Impacts	Chipman Creek IRA: No Impacts	Chipman Creek IRA: No Impacts	Chipman Creek IRA: Impacts same as Alternative II-A

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
		existing transmission line), segmenting a 288-acre parcel from the rest of the IRA, but leaving over 96% of the IRA unfragmented. The area within the refined transmission corridor is designated as roaded natural (RN) ROS class; construction activities would not be fully consistent with this designation, but impacts would be temporary. The project viewshed would affect 57% of the IRA (SPM and RN ROS classes), in areas with views of existing transmission line. Strawberry Micro-siting Option 2 would reduce disturbance impacts by 2 acres and the viewshed by about 10 percent, but there would be more crossings of FR 335 and related opportunities for unauthorized ROW use within the IRA. Strawberry Micro-siting Option 3 would eliminate all disturbance within the IRA						

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
		Tie Fork IRA: Not crossed by alignment or refined transmission corridor, but within road corridor. No road development or road improvments would be allowed.	Tie Fork IRA: No Impacts.	Tie Fork IRA: No Impacts.	Tie Fork IRA: No Impacts.	Tie Fork IRA: Same as Alternative II-A.	Tie Fork IRA : Same as Alternative II-A.	Tie Fork IRA : Same as Alternative II-A.
		Willow Creek IRA: Not crossed by alignment or refined transmission corridor, but within road corridor. No road development or road improvments would be allowed.	Willow Creek IRA: No Impacts.	Willow Creek IRA: No Impacts.	Willow Creek IRA: No Impacts.	Willow Creek IRA: No Impacts.	Willow Creek IRA: No Impacts.	Willow Creek IRA: No Impacts.
	Manti-La Sal National Forest	Cedar Knoll IRA/ unroaded/undeveloped (URUD) Area: 0.3 mile alignment/9 acres ROW within IRA, (slightly more within URUD area). 2 acres of modeled ROW clearing, 1 acre of construction disturbance within IRA, none of which would be permanent. 2 acres of modeled ROW clearing, 10 acre of construction disturbance within URUD area, of which 7 acres would be permanent. TransWest would eliminate new road construction and hand cut vegetation in IRAs, use Design Features and BMPs to reduce sedimentation, and would span	Cedar Knoll IRA/URUD Area: No impacts.	Cedar Knoll IRA/URUD Area: No impacts.	Cedar Knoll IRA/URUD Area: No impacts.	Cedar Knoll IRA/URUD Area: Same as Alternative II-A.	Cedar Knoll IRA/URUD Area: Same as Alternative II-A.	Cedar Knoll IRA/URUD Area: Same as Alternative II-A.

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
		sensitive resources; however, there is no commitment for roadless construction or hand clearing in portions of the URUD area that are outside of the IRA. Route would be located on IRA/URUD area's edge (paralleling existing transmission line), leaving most of the IRA/URUD area unfragmented. The area within the refined transmission corridor is designated as RN ROS; construction activities would not be fully consistent with this designation, but impacts would be temporary. The project viewshed would affect 6% of the IRA and 8% of the URUD area (SPM and RN ROS), in areas with views of existing transmission line. Transmission line and ROW clearing would be visible from the lower portions of Blind Canyon Trail.						

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
	Fishlake National Forest	Browns Hole URUD Area: No impacts.	Browns Hole URUD Area: No impacts.	Browns Hole URUD Area: 6 miles alignment/ 198 acres ROW within URUD area; 230 acres of modeled ROW clearing, and 116 acre of construction disturbance, of which 20 acres would be permanent. No commitment for roadless construction or hand clearing in URUD areas. Surface disturbances would result in impacts to wildlife habitat, opportunities for solitude and primitive recreation, and wilderness character, and the transmission line ROW would bisect the URUD area into two URUD areas that are both less than the requisite 5,000 acres needed for future IRA designation. The alignment would cross or be directly overhead of 2 non-motorized trails. The area within the refined transmission corridor is designated as RN and SPM ROS; construction activities would not be fully consistent with these designations but impacts would be temporary. The project viewshed would affect	Browns Hole URUD Area: No impacts.	Browns Hole URUD Area: No impacts.	Browns Hole URUD Area: No impacts.	Browns Hole URUD Area: No impacts.

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
				80% of the URUD area (SPM ROS) and would include all non-motorized trails within the URUD area.				
	Ashley National Forest	IRA 401009: No Impacts.	IRA 401009: No Impacts.	IRA 401009: No Impacts.	IRA 401009: Not crossed by alignment or refined transmission corridor. Potential for less than 1 acre of construction disturbance for road improvement (no new roads) or support areas, none of which would be permanent.	IRA 401009: No Impacts.	IRA 401009: Same as Alternative II-D.	IRA 401009: No Impacts.
		IRA 401010/Sowers Canyon East URUD Area: No Impacts.	IRA 401010/Sowers Canyon East URUD Area: No Impacts.	IRA 401010/Sowers Canyon East URUD Area: No Impacts.	IRA 401010/Sowers Canyon East URUD Area: No Impacts.	IRA 401010/Sowers Canyon East URUD Area: 9 miles alignment / 267 acres of ROW within IRA (slightly less within URUD area), paralleling an existing transmission line and road. 51 acres of modeled ROW clearing, and 29 acre of construction disturbance, of which 3 acres would be permanent. TransWest would eliminate new road construction and hand cut vegetation in IRAs; however, there is no commitment for roadless construction or hand clearing in portions of the URUD area that are outside of the IRA. Placement of ROW on steep side	IRA 401010/Sowers Canyon East URUD Area: No Impacts.	IRA 401010/Sowers Canyon East URUD Area: No Impacts.

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
						slopes could result in erosion and sedimentation to Sowers Creek, an impaired stream. TransWest would use Design Features and BMPs to reduce sedimentation, and would span sensitive resources. The IRA would still be well over 5,000 acres and over 99% would remain unfragmented. The area within the refined transmission corridor is designated as RN ROS; construction activities would not be fully consistent with this designation, but impacts would be temporary. Construction areas would include portions of Clem Hollow Trail. Viewshed would affect 52% of the IRA/URUD area (SPNM, SPM, and RN ROS areas), in areas with views of existing transmission line. The majority of Clem Hollow Trail would be within the viewshed.		
		IRA 401011/Cottonwood URUD Area: No Impacts.	IRA 401011/Cottonwood URUD Area: No Impacts.	IRA 401011/Cottonwood URUD Area: No Impacts.	IRA 401011/Cottonwood URUD Area: No Impacts.	IRA 401011/Cottonwood URUD Area: As currently mapped, the alignment and ROW would not cross the IRA, but the refined transmission corridor	IRA 401011/Cottonwood URUD Area: No Impacts.	IRA 401011/Cottonwood URUD Area: No Impacts.

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
						does include portions of the IRA to accommodate potential alignment shifts during siting, resulting in 42 acres of modeled ROW clearing, and 29 acre of construction disturbance, of which 4 acres would be permanent. TransWest would eliminate new road construction in IRAs. Impacts from construction would be similar to that describe under IRA 401010. Viewshed would affect 24% of the IRA/URUD area (SPNM SPM and RN ROS area), in areas with views of existing transmission line. The lower half of the Quitchampau Trail and the Mill Hollow Trail would be within the viewshed.		
Other Federally managed areas	Dinosaur National Monument	Not crossed by alignment or refined transmission corridor. Potential for less than 1 acre of construction disturbance for road or support areas, none of which would be permanent.	No Impacts.	No Impacts.	Same as Alternative II-A.	Same as Alternative II-A.	Same as Alternative II-A.	Same as Alternative II-A.

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
Historic Trails	Old Spanish NHT	No Impacts.	4 segments of the Old Spanish NHT crossed (1 segment NHT II, 1 segment NHT III, and 2 segments NHT V). Visible along 58 miles of trail, of which 7 miles are NHT II, 6 miles are NHT III, 27 miles are NHT IV, and 18 miles are NHT V. Potential impacts would be mitigated through compliance with the Project PA.	11 segments of the Old Spanish NHT crossed (1 segment NHT II, 1 segment NHT III, 5 segments NHT V, 4 segments not categorized). Visible along 108 miles of trail, of which 17 miles are NHT II, 8 miles are NHT III, 31 miles are NHT IV, and 27 miles are NHT V; and 24 miles are not categorized. Potential impacts would be mitigated through compliance with the Project PA.	No Impacts.	No Impacts.	No Impacts.	No Impacts.
Transportation								
	Total Miles of New Permanent Access Roads	395	492	488	422	412	455	395
	Total Miles of Steep and Mountainous Terrain	212	235	168	273	236	325	217
	Road Crossings	19	15	15	17	20	14	17
	Number of Railroad Crossings	5	17	6	6	10	9	5
	Alignment Passing Through Public Land (miles)	146	268	287	181	154	187	148
	Alignment Passing Through Private Land (miles)	112	78	78	78	115	78	110
	Number of Airports within 5 miles	5	9	7	2	4	3	6
	MOAs within 20 miles	3 – Hill AFB Sevier (ABCD), Dugway, Wendover	2 – Hill AFB Sevier (ABCD) Utah Launch Complex, Wendover	2 – Hill AFB Sevier (ABCD), Utah Launch Complex, Wendover	3 – Hill AFB Sevier (ABCD), Dugway, Wendover	3 – Hill AFB Sevier (ABCD), Dugway, Wendover	3 – Hill AFB Sevier (ABCD), Dugway, Wendover	3 – Hill AFB Sevier (ABCD), Dugway, Wendover

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
	MOAs with 250-foot-wide Transmission ROW Overlap.	1 – Hill AFB Sevier (BD)	2 – Utah Launch Complex Hill AFB Sevier (BD)	2 – Utah Launch Complex Hill AFB Sevier (BD)	1 – Hill AFB Sevier (BD)	1 – Hill AFB Sevier(BD)	1 – Hill AFB Sevier (BD)	1 – Hill AFB Sevier (BD)
Socioeconomics								
	Short-term socioeconomic effects associated with construction.	Temporary effects similar in nature to those associated with transmission line construction for Alternative I-A; mostly transient as construction progresses along the corridor. No effects related to terminal construction, unlike for Alternative I-A.	Total economic effects up to 35% higher than those in Alternative II-A due to the increased length and cost of the power line.	Total economic effects up to 40% higher than those in Alternative II-A due to the increased length and cost of the power line.	Similar to Alt. II-A, but would affect different communities in central Utah.	Slightly higher (<5%) than Alt. II-A, but would affect different communities in central Utah.	Slightly higher (<5%) than to Alt. II-A, but would affect different communities in central Utah.	Slightly lower (<5%) than to Alt. II-A, but would affect different communities in central Utah
		Temporary increases in sales, use and lodging taxes, but lower tax revenues than for Alternative I-A because no terminal located in Region II. Benefits accrue primarily in Utah.	Substantially higher than in Alternative II-A, benefitting both Colorado and Utah.	Substantially higher than in Alternative II-A, benefitting both Colorado and Utah.	Comparable to Alternative II-A.	Comparable to Alternative II-A.	Comparable to Alternative II-A.	Essentially the same as Alternative II-A.
		Temporary housing availability may be limited in northeastern Utah due to competing demands. Some areas in central with limited supply.	Temporary housing availability limited in northeastern and central Utah.	Temporary housing availability limited in northeastern and central Utah. Commuting may be easier due to highway access.	Comparable to Alternative II-A.	Comparable to Alternative II-A.	Comparable to Alternative II-A.	Essentially the same as Alternative II-A.
		Potential effects to agriculture could include temporary reductions of grazing on public lands and very minor effects on private farm lands.	More effects on livestock grazing and lesser effects on private farm lands.	More effects on livestock grazing and lesser effects on private farm lands.	More effects on livestock grazing (but less than II-B and II-C) and lesser effects on private farm lands (but more than II-B and II-C).	More effects on livestock grazing (but less than II-B and II-C) and lesser effects on private farm lands (but more than II-B and II-C).	Comparable to Alternative II-A, but higher share of BLM land affected and lesser effects on National Forest lands.	Essentially the same as Alternative II-A.

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
		Temporary socioeconomic effects during decommissioning would include construction jobs, demands on lodging and public services, and short-term economic stimulus. Sales and use taxes would be low compared to construction. Ad valorem taxes would cease.	Essentially the same as Alternative II-A.	Essentially the same as Alternative II-A.	Essentially the same as Alternative II-A.	Essentially the same as Alternative II-A.	Essentially the same as Alternative II-A.	Essentially the same as Alternative II-A.
	Long-term socioeconomic effects associated with operations.	Long-term effects similar to those for Alternative I-A.	Generally the same as, but higher tax revenues than Alternative II-A.	Generally the same as, but higher tax revenues than Alternative II-A.	Comparable to Alternative II-A.	Comparable to Alternative II-A.	Comparable to Alternative II-A.	Comparable to Alternative II-A.
		Substantial ad valorem taxes paid, but no taxes on terminals or ground electrodes.	Relatively more revenue would accrue to Colorado jurisdictions than under Alternative II-A.	Relatively more revenue would accrue to Colorado jurisdictions than under Alternative II-A.	Comparable to Alternative II-A.	Comparable to Alternative II-A.	Comparable to Alternative II-A.	Comparable to Alternative II-A.
		Tax and business revenues accrue primarily in Utah.	Relatively more revenue would accrue to Colorado jurisdictions than under Alternative II-A.	Relatively more revenue would accrue to Colorado jurisdictions than under Alternative II-A.	Comparable to Alternative II-A.	Comparable to Alternative II-A.	Comparable to Alternative II-A.	Comparable to Alternative II-A.
		Federal government, Utah SITLA and other lessors receive rental/ lease income on ROW.	Higher than Alternative II-A due to increased length of the ROW.	Higher than Alternative II-A due to increased length of the ROW.	Essentially the same as Alternative II-A.	Essentially the same as Alternative II-A.	Essentially the same as Alternative II-A.	Essentially the same as Alternative II-A.
		Alternative crosses area near the Uintah & Ouray Reservation, but would not result in effects warranting detailed consideration under Environmental Justice.	Avoids the Uintah and Ouray Reservation. No effects warranting further consideration under Environmental Justice.	Avoids the Uintah and Ouray Reservation. No effects warranting further consideration under Environmental Justice.	Avoids much of the Uintah and Ouray Reservation. No effects warranting further consideration under Environmental Justice.	Essentially the same as Alternative II-A.	Avoids much of the Uintah and Ouray Reservation. No effects warranting further consideration under Environmental Justice.	Comparable to Alternative II-A.

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
Public Health and Safety								
	Serious injuries to workers and the public at-large	Workers during construction and operation may be injured by heavy equipment, working at heights, working in the vicinity of high voltage equipment, as well as from typical hazards found on a construction site. Sand dunes within this alternative also may affect the safety of workers and the public during construction and operation. The workers and the public may be injured by fire as well as downed power lines.	Same as Alternative II-A except that safety issues related to sand dunes would not result from this alternative.	Same as Alternative II-A except that safety issues related to sand dunes would not result from this alternative.	Same as Alternative II-A.	Same as Alternative II-A.	Same as Alternative II-A	Same as Alternative II-A.
	Adverse health impacts from EMF, stray voltage, and induced voltage associated with transmission lines during operations.	One outbuilding and one residential structure would be within 200 feet of the alignment, resulting in potential impacts from EMF, stray voltage, and induced voltage.	Four commercial/industrial structures and two residential structures would be within 200 feet of the alignment, resulting in the potential for impacts from EMF, stray voltage, and induced current that would be similar to slightly more than Alternative II-A.	One outbuilding and four commercial/industrial structures would be within 200 feet of the alignment, resulting in the potential for impacts from EMF, stray voltage, and induced current that would be similar to slightly less than Alternative II-A.	There would be no structures within 200 feet of the alignment, resulting in the potential for impacts from EMF, stray voltage, and induced current that would be less than Alternative II-A.	One outbuilding, two and five residential structures, and one commercial/industrial structure would be within 200 feet of the alignment, resulting in the potential for impacts from EMF, stray voltage, and induced current that would be similar to slightly more than Alternative II-A.	There would be no structures located within 200 feet of the alignment, resulting in potential for impacts from EMF, stray voltage, and induced current that would be less than Alternative II-A.	One outbuilding and two residential structure would be within 200 feet of the alignment, resulting in potential impacts from EMF, stray voltage, and induced voltage

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
(4.a) (4.b)	Noise impacts to nearby communities and residences.	There would be 7 communities within the analysis corridor; 16 residential structures within 500 feet of the alignment, and 1 residential structures within 200 feet of the alignment, resulting in potential impacts from noise with this alternative.	There would be 8 communities within the analysis corridor; 5 residential structures within 500 feet of the alignment, and 2 residential structures 200 feet of the alignment, resulting in impacts from noise that would be similar to slightly less than Alternative II-A.	There would be 11 communities within the analysis corridor; 2 residential structures within 500 feet of the alignment, and no residential structures within 200 feet of the alignment, resulting in impacts from noise that would be similar to less than Alternative II-A.	There would be 4 communities within the analysis corridor; 3 residential structures within 500 feet of the alignment resulting in impacts from noise that would be less than Alternative II-A.	There would be 5 communities within the analysis corridor; 27 residential structures within 500 feet of the alignment, and 2 residential structures 200 feet of the alignment, resulting in impacts from noise that would be similar to less than Alternative II-A.	There would be 2 communities within the analysis corridor and four residential structures within 500 feet of the alignment, resulting in impacts from noise that would be less than Alternative II-A.	There would be 5 communities within the analysis corridor; 22 residential structures within 500 feet of the alignment, and 2 residential structures 200 feet of the alignment, resulting in impacts from noise that would be similar to more than Alternative II-A.
Wild Horses								
	Temporary and permanent loss of forage areas during construction/operation.	N/A	Piceance-East Douglas Creek HMA: 43 acres of ROW clearing (<0.1% of the HMA), and 24 acres of construction disturbance, 5 acres of which would be permanent. North Piceance HA. 342 acres of ROW clearing (0.5% HA), and 179 acres of construction disturbance, 35 acres of which would be permanent. West Douglas HA: 367 acres of ROW clearing (0.3% HA), and 220 acres of construction disturbance, 49 acres of which would be permanent.	Same as Alternative II-B.	Hill Creek HMA: Less than 1 acre of temporary disturbance, of which a fraction would be permanent.	N/A	Same as Alternative II-D.	N/A

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
	Temporary construction noise and human activity.	N/A	Piceance-East Douglas Creek HMA: 381 acres of refined transmission corridor (0.2% of HMA) within the HMA. North Piceance HA. 2,631 acres of refined transmission corridor (3% of HA) within the HA. West Douglas HA: 2,778 acres of refined transmission corridor (2% of HA). within the HA.	Same as Alternative II-B.	Hill Creek HMA: No acres of refined transmission corridor within the HMA; noise would travel up to about a mile from construction areas.	N/A	Same as Alternative II-D.	N/A
	Presence of transmission line within HMAs / HAs restrict helicopter use during wild horse gathers.	N/A	One mile of transmission line within the Piceance-East Douglas Creek HMA. 6 miles of transmission line within the within the North Piceance HA 13 miles of transmission line within the within the West Douglas HA.	Same as Alternative II-B.	No miles of transmission line within the Hill Creek HMA.	N/A	Same as Alternative II-D.	N/A
Lands with Wilderness Characteristics								
(5.e)	Number of LWC Units Affected	0	6	6	2	0	2	0
(5.e)	Number (acres) of LWC Units Eliminated	0	1 (5,304)	1 (5,304)	0	0	0	0
(5.e)	Number (acres) of LWC Units Remaining	N/A	5 (145,722)	5 (145,722)	2 (181,525)	N/A	2 (181,525)	N/A
(5.e)	Number (acres) of Unit Portions Eliminated	N/A	11 (6,703)	11 (6,703)	8 (3,516)	N/A	8 (3,516)	N/A

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
Wildfire								
	Fire Regime Groups I-V Identified for the Project construction/operation (acres)							
	I	84/20	129/34	154/34	376/104	184/42	253/75	86/20
	II	-/-	-/-	-/-	-/-	-/-	-/-	-/-
	III	828/281	1,204/317	1,258/286	927/283	1,015/331	1,195/400	870/295
	IV	1,935/488	1,574/414	1,355/298	1,656/450	1,790/466	1,776/471	1,851/481
	V	798/188	1,273/265	1,381/322	660/156	858/188	646/153	786/185
	FRCC Condition Classes (CC) I-III Identified for the Project construction/operation (acres)							
	I	720/205	776/182	821/177	798/221	664/178	715/208	750/214
	II	1,663/482	2,019/507	1,840/410	1,836/507	1,928/556	2,258/667	1,641/481
	III	1,129/265	1,841/455	1,979/491	1,154/308	1,124/258	1,046/264	1,088/264
	Fuel Loading Model Classes Identified for the Project construction/operation (acres)							
	NB	192/50	303/82	395/97	188/55	244/62	201/55	173/47
	GR	1,030/253	1,492/371	1,788/432	897/237	980/242	959/246	975/244
	GS	1,630/435	1,753/434	1,678/379	1,546/423	1,721/462	1,645/471	1,658/444
	SH	644/178	1,002/232	972/221	901/243	794/222	973/269	638/185
	TL	57/20	118/31	115/26	113/32	84/25	107/36	58/20
	TU	207/74	205/60	32/8	325/99	153/44	342/119	201/74
Migratory Birds								
	Number of known raptor nests within 1 mile of the potential disturbance area	257	345	365	259	268	265	252
	Audubon IBAs (acres) construction/operation	Upper Strawberry Watershed IBA 19/7						Upper Strawberry Watershed IBA 19/7

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
	BHCAs (acres) construction/operation	Utah Lake/Mona Lake/Tintic Valley BHCA 47/10 Upper Strawberry/Avintaquin BHCA 208/72 Duchesne River BHCA 22/4 Upper Green River BHCA 25/5 Nebo Creek BHCA 118/51	Colorado National Monument; Rabbit Valley; uplands BHCA 28/8 White River BHCA 231/48 Roan Plateau; Piceance Creek; Cathedral Bluffs BHCA 1,185/260 Sevier Bridge/Chicken Creek BHCA 142/32 Delta BHCA 64/9 Green River BHCA 34/8 Cisco Desert BHCA 398/117	Colorado National Monument; Rabbit Valley; uplands BHCA 28/8 White River BHCA 231/48 Roan Plateau; Piceance Creek; Cathedral Bluffs BHCA 1,185/260 Sevier Bridge/Chicken Creek BHCA 4/1 Delta BHCA 26/7 Green River BHCA 34/8 Cisco Desert BHCA 398/117	Utah Lake/Mona Lake/Tintic Valley BHCA 8/3 Emma Park BHCA 4/1 Green River BHCA 38/11	Utah Lake/Mona Lake/Tintic Valley BHCA 8/3 Duchesne River BHCA 53/13 Upper Green River BHCA 25/5 Emma Park BHCA 82/23 Nebo Creek BHCA 118/51	Utah Lake/Mona Lake/Tintic Valley BHCA 8/3 Nebo Creek BHCA 118/51 Green River BHCA 38/11	Upper Strawberry/Avintaquin BHCA 201/71 Duchesne River BHCA 22/4 Upper Green River BHCA 25/5 Nebo Creek BHCA 118/51
	Total Indirect Impacts to Priority Habitats (acres)	279,684	248,232	253,609	278,466	291,568	294,156	287,268
	Total Indirect Impacts to Non-sagebrush Priority Habitats (acres)	140,314	166,195	173,672	155,741	151,381	164,345	148,299
	Total Indirect Impacts to Wetland/Riparian/Open Water Priority Habitats (acres)	9,476	6,263	6,765	5,046	8,225	5,154	9,644
	Total Indirect Impacts to Priority Habitats along Non-co-located Segments (acres)	212,284	206,664	214,122	243,584	225,309	248,332	166,553
	Total Construction Impacts to Priority Habitats (acres)	2,590	2,747	2,750	2,779	2,787	2,953	2,585
	Total Operation Impacts to Priority Habitats (acres)	725	695	615	767	774	848	743
	Total Indirect Impacts to IBA Priority Habitats (acres)	6,484	-	-	-	-	-	6,483
	Total Indirect Impacts to BHCA Priority Habitats (acres)	35,557	130,751	112,972	6,022	21,099	15,106	32,348

Table 2-24 Summary of Impacts for Region II

Resource	Resource Topic	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
	Total Length of Alternative (miles)	258	346	365	259	268	267	252
Plan Amendments								
	Number of Necessary Plan Amendments	Three Plan Amendments: Vernal FO (Utility Corridor Restrictions/ROW Exclusion Area; Conflict with SSS Wildlife and Water Objectives, Stipulations, Standards, Guidelines); Salt Lake FO (Accommodate RFFA Projects); Uinta NF Planning Area (Utility Corridor Restrictions/ROW Exclusion Area)	Four Plan Amendments: White River FO (Utility Corridor Restrictions/ROW Exclusion Area, Accommodate RFFA Projects); Vernal FO (Utility Corridor Restrictions/ROW Exclusion Area, Conflict with SSS Wildlife and Water Objectives, Stipulations, Standards, Guidelines); Price FO (Utility Corridor Restrictions/ROW Exclusion Area, Conflict with Cultural, SSS Wildlife, and Water Objectives, Stipulations, Standards, Guidelines; Accommodate RFFA Projects); Manti-La Sal NF (Conflict with Visual Objectives, Stipulations, Standards, Guidelines	Four Plan Amendments: White River FO (Utility Corridor Restrictions/ROW Exclusion Area, Accommodate RFFA Projects); Vernal FO (Utility Corridor Restrictions/ROW Exclusion Area, Conflict with SSS Wildlife and Water Objectives, Stipulations, Standards, Guidelines); Price FO (Utility Corridor Restrictions/ROW Exclusion Area, Conflict with SMAs, Cultural, SSS Wildlife, and Water Objectives, Stipulations, Standards, Guidelines; Accommodate RFFA Projects); Fishlake NF (Conflict with Visual Objectives, Stipulations, Standards, Guidelines	Three Plan Amendments: Vernal FO (Utility Corridor Restrictions/ROW Exclusion Area; Conflict with SSS Wildlife, Raptors, Water, and SMAs Objectives, Stipulations, Standards, Guidelines); Price FO (Utility Corridor Restrictions/ROW Exclusion Area, Conflict with Water Objectives, Stipulations, Standards, Guidelines; Accommodate RFFA Projects); Manti-La Sal NF (Conflict with Visual Objectives, Stipulations, Standards, Guidelines	Three Plan Amendments: Vernal FO (Utility Corridor Restrictions/ROW Exclusion Area, Conflict with SSS Wildlife and Water Objectives, Stipulations, Standards, Guidelines); Salt Lake FO (Utility Corridor Restrictions/ROW Exclusion Area, Accommodate RFFA Projects); Uinta NF Planning Area (Utility Corridor Restrictions/ROW Exclusion Area)	Three Plan Amendments: Vernal FO (Utility Corridor Restrictions/ROW Exclusion Area; Conflict with SSS Wildlife, Raptors, Water, and SMAs Objectives, Stipulations, Standards, Guidelines); Salt Lake FO (Utility Corridor Restrictions/ROW Exclusion Area, Accommodate RFFA Projects); Uinta NF Planning Area (Utility Corridor Restrictions/ROW Exclusion Area)	Three Plan Amendments: Vernal FO (Utility Corridor Restrictions/ROW Exclusion Area, Conflict with SSS Wildlife and Water Objectives, Stipulations, Standards, Guidelines); Salt Lake FO (Utility Corridor Restrictions/ROW Exclusion Area, Accommodate RFFA Projects); Uinta NF Planning Area (Utility Corridor Restrictions/ROW Exclusion Area)

[1] Number does not include MIS that are otherwise classified as special status.

[2] Number includes nests for which the species is not known.

Table 2-25 Summary of Impacts for Region III

Resource	Resource Topic	Alternative III-A	Alternative III-B	Alternative III-C	Alternative III-D
Climate and Air					
	Fugitive Dust Emissions (PM_{10}) from construction	118 tons	117 tons	124 tons	115 tons
Geology					
	Geologic Hazards Risk	Two active faults, slight landslide, moderate subsidence. Low risk for ground motion.	One active fault, slight landslide, moderate subsidence. Low risk for ground motion.	One active fault, slight landslide, moderate subsidence. Moderate risk of ground motion. Potential risk from ground fissures in Dry Lake and Delamar valleys.	One active fault, slight landslide, moderate subsidence. Low risk for ground motion.
	Mineral Resource Access	No oil and gas or coal mining. Potential conflict with active mining areas near Milford, Utah.	Same as Alternative III-A.	Same as Alternative III-A.	Same as Alternative III-A.
	Paleontological Resources Loss from construction	PFYC Class 3: 8 miles Classes 3, 4, 5: 1 mile Classes 4, 5: 3 miles	PFYC Class 3: 6 miles Classes 3, 4, 5: 0 mile Classes 4, 5: 1 mile	PFYC Class 3: 2 miles Classes 3, 4, 5: 0 mile Classes 4, 5: 1 mile	PFYC Class 3: 6 miles Classes 3,4,5: 0 mile Classes 4,5: 1 mile
Soils					
	Soils – Wind Erodible (construction)	101 acres	117 acres	92 acres	117 acres
	Soils – Water Erodible (construction)	86 acres	27 acres	91 acres	27 acres
	Soils – Compaction Prone (construction)	896 acres	1,236 acres	991 acres	1,205 acres
	Soils – LRP (construction)	1,560 acres	1,373 acres	1,542 acres	1,247 acres
	Soils – Prime Farmland(construction)	125 acres	132 acres	193 acres	132 acres
Water					
	Erosion and Sedimentation Direct Effects from Crossings (construction)/decommissioning.	5 perennial stream crossings.	6 perennial stream crossings.	4 perennial stream crossings.	5 perennial stream crossings.
	Impaired Stream Effects from Construction Crossings.	2 impaired stream crossed.	1 impaired stream crossed.	No impaired streams crossed.	1 impaired stream crossed.

Table 2-25 Summary of Impacts for Region III

Resource	Resource Topic	Alternative III-A	Alternative III-B	Alternative III-C	Alternative III-D
	Effects to Water Users from Construction Water Use.	206 acre-feet required.	212 acre-feet required	230 acre-feet required.	210 acre-feet required.
	Maximum Road Density Change in Watershed (HUC10, 300-foot, or 100-foot perennial buffer area).	0.23 mile/mile^2 (300 feet: Lower Muddy River Watershed).	0.31 mile/mile^2 (100 & 300 feet: Lower Beaver Dam Watershed).	0.13 mile/mile^2 (Red Rock Wash Watershed).	0.31 mile/mile^2 (100 & 300 feet: Lower Beaver Dam Watershed).
Vegetation					
	Woody vegetation over 6 feet in height impacted by ROW clearing (acres)	281 acres of pinyon-juniper, and 23 acres of woody riparian and wetlands.	383 acres of pinyon-juniper, and 55 acres of woody riparian and wetlands	382 acres of pinyon-juniper, and 6 acres of woody riparian and wetlands.	383 acres of pinyon-juniper, and 53 acres of woody riparian and wetlands.
	Wetlands and riparian areas impacted by ROW clearing (acres)	456 acres of greasewood flats, 130 acres of herbaceous wetlands, 70 acres of ephemeral wash, and 23 acres of woody riparian and wetlands.	473 acres of greasewood flat, 125 acres of herbaceous wetlands, 85 acres of ephemeral wash, and 55 acres of woody riparian and wetlands.	601 acres of greasewood flat, 127 acres of herbaceous wetlands, 21 acres of ephemeral wash, and 6 acres of woody riparian and wetlands.	593 acres of greasewood flat, 95 acres of herbaceous wetlands, 85 acres of ephemeral wash, and 53 acres of woody riparian and wetlands.
	Wetlands and riparian areas impacted by facilities construction (acres)	241 acres of greasewood flat, 68 acres of herbaceous wetlands, 46 acres of ephemeral wash, and 14 acre of woody riparian and wetlands.	258 acres of greasewood flat, 69 acres of herbaceous wetlands, 52 acres of ephemeral wash, and 31 acre of woody riparian and wetlands.	313 acres of greasewood flat, 79 acres of herbaceous wetlands, 11 acres of ephemeral wash, and 5 acre of woody riparian and wetlands.	307 acres of greasewood flat, 56 acres of herbaceous wetlands, 52 acres of ephemeral wash, and 31 acre of woody riparian and wetlands.
	Wetlands and riparian areas impacted by facilities operation (acres)	40 acres of greasewood flats, 10 acres of herbaceous wetlands, 13 acres of ephemeral wash, and 4 acres of woody riparian and wetlands.	46 acres of greasewood flat, 11 acres of herbaceous wetlands, 9 acres of ephemeral wash, and 6 acres of woody riparian and wetlands.	49 acres of greasewood flat, 15 acres of herbaceous wetlands, 2 acres of ephemeral wash, and 1 acre of woody riparian and wetlands.	48 acres of greasewood flat, 9 acres of herbaceous wetlands, 9 acres of ephemeral wash, and 7 acre of woody riparian and wetlands.
	USFS MIS	NA	NA	NA	NA
Special Status Plants					
	Number of USFWS species with known occurrences impacted during construction.	1	1	0	1
	Number of USFWS species with potential habitat impacted during construction .	3	2	2	1
	Number of BLM sensitive species with known occurrences impacted during construction .	8	7	4	7

Table 2-25 Summary of Impacts for Region III

Resource	Resource Topic	Alternative III-A	Alternative III-B	Alternative III-C	Alternative III-D
	Number of BLM sensitive species with potential habitat impacted during construction .	30	33	34	33
	Number of Forest sensitive species with known occurrences impacted during construction.	1	0	0	0
	Number of Forest sensitive species with potential habitat impacted during construction .	1	0	0	0
	Number of Nevada state-listed species with known occurrences impacted during construction.	3	4	1	4
	Number of Nevada state-listed species with potential habitat impacted during construction.	4	6	5	6
Wildlife					
(5.a)	Pronghorn crucial yearlong range (acres) construction/operation.	1,529/265	1,825/343	1,781/311	1,781/311
	Mule deer crucial winter range (acres) construction/operation.	179/45	0/0	0/0	<1/<1
	Desert bighorn sheep occupied range.	4/2	0/0	181/39	<1/<1
	Small game, nongame habitat (acres) construction/operation.	3,515/777	3,499/686	3,733/738	3,435/635
	Waterfowl habitat (acres) construction/operation.	129/27	154/27	96/19	140/25
	Number of MIS species whose habitat is crossed by alternative[2].	2	0	0	0
Special Status Wildlife					
(3.d)	Impacted desert tortoise potential habitat (acres) construction/operation.	919/254	926/175	1,108/224	926/175

Table 2-25 Summary of Impacts for Region III

Resource	Resource Topic	Alternative III-A	Alternative III-B	Alternative III-C	Alternative III-D
(3.a)	Impacted greater sage-grouse habitat (acres) construction/operation[1].	606/132	655/130	803/169	655/130
	Number of active leks within 4 miles of alignment in Utah.	1	0	0	0
(3.e)	Impacted Utah prairie dog potential habitat (acres) construction/operation.	531/100	574/110	558/105	574/110
	Impacted California condor potential habitat (acres) construction/operation.	247/63	268/67	240/64	268/67
	Impacted Yuma clapper rail potential habitat (acres) construction/operation.	68/10	69/11	79/15	69/11
	Impacted western yellow-billed cuckoo potential habitat (acres) construction/operation.	127/27	152/27	95/19	152/27
	Impacted southwestern willow flycatcher potential habitat (acres) construction/operation	60/16	83/16	16/3	83/16
	Number of special status raptor nests within 1 mile of analysis corridor.	207	114	122	121
Aquatic Biological Resources					
	Effects on aquatic habitat and species from potential direct and indirect construction disturbance or water quality changes.	3 named perennial streams crossed by 250-foot-wide transmission line ROW; no game fish streams crossed by the 250-foot-wide transmission line ROW.	4 named perennial streams crossed by 250-foot-wide transmission line ROW; 1 game fish stream crossed by the 250-foot-wide transmission line ROW.	no named perennial stream crossed by 250-foot-wide transmission line ROW; no game fish stream crossed by the 250-foot-wide transmission line ROW.	4 named perennial streams crossed by 250-foot-wide transmission line ROW; 1 game fish stream crossed by the 250-foot-wide transmission line ROW
	Potential aquatic habitat alteration or loss (feet[2]).	1,200	1,600	0	1,600

Table 2-25 Summary of Impacts for Region III

Resource	Resource Topic	Alternative III-A	Alternative III-B	Alternative III-C	Alternative III-D
	Potential amphibian mortalities from construction vehicle traffic.	276 ROW miles	284 ROW miles	308 ROW miles	281 ROW miles
Special Status Aquatic Resources					
	Effects on habitat and special status species from potential direct disturbance or water quality changes during construction.	3 perennial streams with special status aquatic species crossed by 250-foot-wide transmission line ROW.	2 perennial streams with special status aquatic species crossed by 250-foot-wide transmission line ROW.	No perennial streams with special status aquatic species crossed by 250-foot-wide transmission line ROW.	2 perennial streams with special status aquatic species crossed by 250-foot-wide transmission line ROW.
	Number of additional streams with special status aquatic species that are located in the potential construction disturbance area beyond the refined transmission corridor.	One stream with one species under review for federal listing.	One stream with one species under review for federal listing.	No streams with federally listed or petitioned aquatic species.	One stream with one species under review for federal listing.
	Number of special status aquatic species with potential habitat alteration or loss.	9	6	3	6
	Number of watersheds supporting special status aquatic species with increased road densities.	1	2	0	1
	Potential direct disturbance on critical habitat for federally listed species.	None	None	None	None
Cultural Resources					
	NRHP-listed Sites	0	0	0	0
	NRHP-eligible Sites	61	44	64	51
	Unevaluated Sites	11	32	15	33
	Potential TCPs	5	21	6	20
	Trail Crossings	Old Spanish Trail (2-4) (1 NHT-I, 3 unrated)	Old Spanish Trail (1) (1 NHT-I, 1 not categorized)	Old Spanish Trail (1) (1 NHT-I, 1 not categorized)	Old Spanish Trail (1) (1 NHT-I, 1 not categorized)
	Mountain Meadows NHL and Site (distance from alternative)	0.1 mile	31 miles	28 miles	31 miles
	Average Inventory Coverage	24%	26%	21%	27%
	Site Density (sites per 100 acres inventoried)	2.5	3	4	2.8

Table 2-25 Summary of Impacts for Region III

Resource	Resource Topic	Alternative III-A	Alternative III-B	Alternative III-C	Alternative III-D
	Overall Trail Visibility (within 5-mile viewshed)	53 miles	38 miles	6 miles	38 miles
Visual Resources					
	High Sensitivity Viewers (miles)				
	0 - 0.5 mile	34	21	60	19
	0.5 - 2.5 miles	81	100	100	97
	2.5 - 5 miles	70	106	81	109
	>5 miles	92	57	66	56
	Moderate Sensitivity Viewers (miles)				
	0 - 0.5 mile	53	79	95	79
	0.5 - 2.5 miles	92	95	100	94
	2.5 - 5 miles	72	48	69	53
	>5 miles	60	62	44	55
	Scenic Quality (miles)				
	A	1	13	8	13
	B	95	79	100	73
	C	180	192	200	196
	BLM VRI Classifications (miles)				
	Class II	15	24	24	25
	Class III	92	76	79	77
	Class IV	148	169	204	167
	BLM VRM Classifications (miles)				
	Class II	1	1	5	2
	Class III	73	63	70	62
	Class IV	138	148	179	148
	USFS SIO/VQO Classifications (miles)				
	High/Retention	–	–	–	–

Table 2-25 Summary of Impacts for Region III

Resource	Resource Topic	Alternative III-A	Alternative III-B	Alternative III-C	Alternative III-D
	Moderate/Partial Retention	–	–	–	–
	Low/Modification	–	–	–	–
	Residual Impacts Landscape Scenery (miles)				
	High	68	58	87	46
	Moderate	64	103	104	77
	Low	144	123	117	158
	Residual Impacts High Sensitivity Viewers (miles)				
	High	26	14	50	13
	Moderate	77	118	123	106
	Low	173	152	134	160
	Residual Impacts Moderate Sensitivity Viewers (miles)				
	High	27	55	76	53
	Moderate	77	64	78	57
	Low	172	165	154	172
	BLM VRM USFS SIO/VQO Conformance/Consistency (miles) Before Mitigation				
	Conformance	230	211	246	211
	Non-conformance	2	1	8	2
	NA	44	72	54	70
	BLM VRM USFS SIO/VQO Conformance/Consistency (miles) After Mitigation				
	Conformance	230	211	246	211
	Non-conformance	2	1	8	2
	NA	44	72	54	70

Table 2-25 Summary of Impacts for Region III

Resource	Resource Topic	Alternative III-A	Alternative III-B	Alternative III-C	Alternative III-D
Recreation					
	Recreation Area/Site in Region III	Refined Transmission Corridor Acres (% of Total Area) / Analysis Area Acres (% of Total Area)	Refined Transmission Corridor Acres (% of Total Area) / Analysis Area Acres (% of Total Area)	Refined Transmission Corridor Acres (% of Total Area) / Analysis Area Acres (% of Total Area)	Refined Transmission Corridor Acres (% of Total Area) / Analysis Area Acres (% of Total Area)
	BLM Fillmore FO				
	Dispersed, undesignated recreation areas	8,509 (0.2) / 60,400 (1.4)	8,509 (0.2) / 60,400 (1.4)	7,707 (0.2) / 68,057 (1.5)	7,707 (0.2) / 68,057 (1.5)
	BLM Cedar City FO				
	Dispersed, undesignated recreation areas	4,955 (0.2) / 34,627 (1.6)	4,418 (0.2) / 22,300 (1.1)	4,418 (0.2) / 22,269 (1.1)	4,418 (0.2) / 22,300 (1.1)
	BLM St. George FO				
	Dispersed, undesignated recreation areas	5,585 (1.1) / 32,440 (6.4)	N/A	N/A	N/A
	BLM Caliente FO				
	Dispersed, undesignated recreation areas	2,836 (0.08) / 19,366 (0.5)	15,553 (0.4) / 74,505 (2.1)	11,111 (0.3) / 88,456 (2.5)	15,553 (0.4) / 74,505 (2.1)
	Chief Mountain SRMA	N/A	N/A	2,699 (2.4) / 18,618 (16.7)	N/A
	North Delamar SRMA	N/A	N/A	0 / <1	N/A
	Caliente Motorcycle Special Recreation Permit (SRP) Area	N/A	2,363 (0.6) / 11,516 (2.7)	5,699 (1.3) / 47,027 (11)	2,363 (0.6) / 11,516 (2.7)
	BLM Las Vegas FO				
	Dispersed, undesignated recreation areas	9,218 (0.5) / 53,009 (2.9)	3,437 (0.2) / 37,057 (2.0)	7,718 (0.4) / 43,462 (2.4)	3,437 (0.2) / 37,057 (2.0)
	Muddy Mountains SRMA	144 (0.1) / 4,202 (3.4)	N/A	N/A	N/A
	Nellis Dunes SRMA	N/A	N/A	0 /	N/A

Table 2-25 Summary of Impacts for Region III

Resource	Resource Topic	Alternative III-A	Alternative III-B	Alternative III-C	Alternative III-D
				142 (1)	
	Dixie National Forest Rural				
	Rural	N/A	N/A	N/A	N/A
	Roaded Modified	N/A	N/A	N/A	N/A
	Roaded Natural	2,509 (4.6) / 4,098 (7.3)	N/A	N/A	N/A
	Semi-Primitive Motorized	4,293 (3.7) / 5,195 (4.5)	N/A	N/A	N/A
	SPM Within IRA	*462 (0.4) / 462 (0.4)*	*N/A*	*N/A*	N/A
	Remainder in SPM ROS	*3,831 (3.3) / 4,733 (4.1)*	N/A	*N/A*	N/A
	Semi-primitive Non-Motorized	127 (0.06) / 552 (0.2)	N/A	N/A	N/A
	SPNM Within IRA	*28 (0.01) / 28 (0.01)*	*N/A*	*N/A*	N/A
	Remainder in SPNM ROS	*99 (0.04) / 524 (0.2)*	*N/A*	*N/A*	N/A
	Total	**6,929 acres / 9,845 acres**	**N/A**	N/A	N/A
	State Recreation Areas				
	Zane CWMU	N/A	1,433 / 3,487 (36)	1,433 / 3,487 (36)	1,433 / 3,487 (36)
	Scenic Backways and Byways				
	Rainbow Canyon Backcountry Byway	N/A	2 crossings / 5 miles	3 crossings / 5 miles	2 crossings / 5 miles
	SH-93 Scenic Byway	N/A	N/A	2 crossings / 15 miles	N/A
	Bitter Springs Backcountry Byway	1 crossing / 2 miles	N/A	N/A	N/A

Table 2-25 Summary of Impacts for Region III

Resource	Resource Topic	Alternative III-A	Alternative III-B	Alternative III-C	Alternative III-D
	Local Recreation Areas				
	Newcastle Reservoir	0 / 52 (34)	N/A	N/A	N/A
Land Use and Planning					
(1.a) (6.a)	Federal, State and Tribal lands and Use of Designated Utility Corridors.	276 miles total: 84% located on BLM or USFS-managed lands; 5% would be located on state lands. 67% of the route would be within a designated RMP or WWEC corridor (107 miles and 158 miles, respectively).	284 miles total: 74% located on BLM- managed lands; 4% on state lands and 5% be on tribal lands. 54% of the route would be within a designated RMP or WWEC corridor (103 miles and 80 miles, respectively).	308 miles total; 83% located on BLM-managed lands; 2% located on state lands. 63% of the route would be within a designated RMP or WWEC corridor 160 miles and 121 miles, respectively).	281 miles total: 75% located on BLM-managed lands; 3% would be located on state lands. 55% of the route would be within a designated RMP or WWEC corridor (137 miles and 50 miles, respectively).
	Avoidance/Exclusion areas crossed by alignment.	1 mile within avoidance area (Dixie National Forest) and less than 1 mile with an exclusion area (Mormon Mesa-Ely ACEC).	2 miles within avoidance area (Mormon Mesa ACEC) and less than 1 mile within exclusion area (Mormon Mesa-ELY ACEC).	Less than 1 mile within avoidance area (Coyote Springs Valley ACEC).	2 miles within avoidance area (Mormon Mesa ACEC) and less than 1 mile within exclusion area (Mormon Mesa-ELY ACEC).
(6.a)	Private Lands and Zoning.	31 miles (11%) located on private lands; no residences, commercial/industrial, or agricultural structures within 500 feet of the proposed alignment.	48 miles (17%) located on private land: no residences, commercial/industrial, or agricultural structures within 500 feet of alignment.	47 miles (15%) located on private land. 1 residential and 1 commercial/industrial structure within 500 feet of the alignment.	48 miles (17%) located on private land: no residences, commercial/industrial, or agricultural structures within 500 feet of alignment.
		There would be 4 communities within the analysis corridor or road/construction support ares; no identified incompatible designated land uses within the community. 1 national historic landmark within the analysis corridor or road/construction support areas. There are no identified incompatible designated land uses within the communities.	There would be 2 communities within the analysis corridor or road/construction support areas. There are no identified incompatible designated land uses within the communities.	There would be 2 communities within the analysis corridor or road/construction support areas. There are no identified incompatible designated land uses within the communities.	There would be 2 communities within the analysis corridor or road/construction support areas. There are no identified incompatible designated land uses within the communities.

Table 2-25 Summary of Impacts for Region III

Resource	Resource Topic	Alternative III-A	Alternative III-B	Alternative III-C	Alternative III-D
	Agriculture	5 acres of initial clearing, 4 acres of construction disturbance, and 1 acres of permanent removal of croplands.	7 acres of initial clearing, 6 acres of construction disturbance, and 1 acre of permanent removal of croplands.	4 acres of initial clearing, 3 acres of construction disturbance, and 1 acre of permanent removal of croplands.	7 acres of initial clearing, 6 acres of construction disturbance, and 1 acre of permanent removal of croplands.
	Livestock Grazing	Construction impacts 2,881 acres (143 AUMs); Operation impacts 654 acres (33 AUMs)	Construction impacts 2,590 acres (130 AUMs); Operation impacts 523 acres (26 AUMs)	Construction impacts 2,665 acres (133 AUMs); Operation impacts 512 acres (26 AUMs)	Construction impacts 2,544 acres (127 AUMs); Operation impacts 491 acres (25 AUMs)
	USFS Land Management	16 miles of ROW within Dixie National Forest areas specifically managed for roaded natural recreation, big-game winter range, and livestock grazing. A portion would also cross areas without special management prescriptions. Development of a transmission line would generally be compatible with the management prescriptions for these areas; however, timing restrictions would applied within big-game winter range management areas for protection of wildlife resources and temporary roads would be need to reclaimed within one season after intended use.	No impacts	No impacts	No impacts
(5.f)	Non co-located	91 miles (33%)	157 miles (55%)	111 miles (36%)	121 miles (43%)
Special Designation Areas					
Summary of all SDAs		Refined transmission corridor would cross 6 BLM SDAs, 3 USFS SDAs and 2 to 4 segments of the Old Spanish NHT.	Refined transmission corridor would cross 4 BLM SDAs, and would be visible from portions of the Old Spanish NHT, crossing it once in a in BLM designated utility corridor.; area in which road and support area construction could occur includes 2 additional BLM SDAs.	Refined transmission corridor would cross 2 BLM SDA, and 5 USFWS SDAs. Area in which road and support area construction could occur includes 2 USFWS SDAs.	Refined transmission corridor would cross 4 BLM SDAs, and would be visible from portions of the Old Spanish NHT, crossing it once in a in BLM designated utility corridor.; area in which road and support area construction could occur includes 2 additional BLM SDAs.

Table 2-25 Summary of Impacts for Region III

Resource	Resource Topic	Alternative III-A	Alternative III-B	Alternative III-C	Alternative III-D
	St. George FO	Beaver Dam Slope ACEC: 5 miles alignment /118 acres of ROW within ACEC; 96 acres of modeled ROW clearing, and 58 acres of construction disturbance, of which 3 acres would be permanent, with potential for some road and support area construction to be located outside of the designated utility corridor and in ROW avoidance areas. All of these activities could affect desert tortoise individual or desert tortoise habitat. Development of a transmission line and roads within the designated utility corridor would still conflict with desert tortoise management protections, including a specification of 40 acres of surface disturbance life of project. TransWest' s commitment to avoidance of special status habitat, adherence to agency stipulations, and development of a desert tortoise mitigation plan would reduce impacts to desert tortoise during construction, but there would still be some temporary and permanent loss of desert tortoise habitat.	Beaver Dam Slope ACEC: No Impacts.	Beaver Dam Slope ACEC: No Impacts.	Beaver Dam Slope ACEC: No Impacts.
		Beaver Dam Wash NCA: 4 miles alignment/133 acres of ROW within NCA; 105 acres of modeled ROW clearing, and 71 acre of construction disturbance, of which 22 acres would be permanent, with potential for some road and support area construction to be located outside of the designated utility corridor and in ROW	Beaver Dam Wash NCA: No Impacts.	Beaver Dam Wash NCA :No impacts.	Beaver Dam Wash NCA: No Impacts.

Table 2-25 Summary of Impacts for Region III

Resource	Resource Topic	Alternative III-A	Alternative III-B	Alternative III-C	Alternative III-D
		avoidance areas. Impacts to desert tortoise similar to those identified under Beaver Dam Slope ACEC.			
	Caliente FO	Mormon Mesa ACEC: 9 miles alignment/ 278 acres of ROW within ACEC; 169 acres of modeled ROW clearing, and 92 acre of construction disturbance, of which 21 acres would be permanent. A small portion of the alignment and ROW would be located within ROW exclusion areas. An estimated 13 acres of ROW clearing and 6 and 1 acres of construction and operation disturbance, respectively, would extend beyond the designated utility corridor into ROW exclusion areas. Per the Ely RMP, ROWs within desert tortoise habitat are to be managed the same as ACECs; therefore development of a transmission line or associated roads would not be in conformance with area management. Adherence to Ely RMP BMPs (including development of a mitigation plan that includes surveys and monitoring, employee education, and other measures) would reduce impacts to desert tortoise, but there would still be some temporary and permanent loss of desert tortoise habitat.	Mormon Mesa ACEC: Impacts similar to Alternative III-A except there would be would be 60 more acres of modeled ROW clearing and about 15 acres more construction disturbance; however, permanent disturbance would be 5 acres less.	Mormon Mesa ACEC: No Impacts.	Mormon Mesa ACEC: Impacts similar to Alternative III-A except there would be would be 60 more acres of modeled ROW clearing and about 15 acres more construction disturbance; however, permanent disturbance would be 5 acres less.

Table 2-25 Summary of Impacts for Region III

Resource	Resource Topic	Alternative III-A	Alternative III-B	Alternative III-C	Alternative III-D
		Beaver Dam Slope ACEC: 4 miles alignment/164 acres ROW within ACEC; 39 acres of modeled ROW clearing, and 49 acres of construction disturbance, of which 19 acres would be permanent, with potential for some road and support area construction to be located outside of the designated utility corridor and in ROW avoidance areas. Impacts to desert tortoise as described above.	Beaver Dam Slope ACEC: Not crossed by alignment or refined transmission corridor. Potential for less than 1 acre of construction and operations disturbance for road or support areas.	Beaver Dam Slope ACEC No impacts	Beaver Dam Slope ACEC: Not crossed by alignment or refined transmission corridor. Potential for less than 1 acre of construction and operations disturbance for road or support areas.
		Clover Wilderness Area: No Impacts	Clover Wilderness Area: Not crossed by alignment or refined transmission corridor. Potential for less than 1 acre of construction and operations disturbance for road or support areas. This is a ROW exclusion area; development of roads or use of motorized vehicles would not be compatible with area management; wilderness quality in these areas could be temporarily reduced during construction from noise and activity, and the viewshed of the completed transmission line would permanently affect wilderness qualities.	Clover Wilderness Area: No Impacts	Clover Wilderness Area: Not crossed by alignment or refined transmission corridor. Potential for less than 1 acre of construction and operations disturbance for road or support areas. This is a ROW exclusion area; development of roads or use of motorized vehicles would not be compatible with area management; wilderness quality in these areas could be temporarily reduced during construction from noise and activity, and the viewshed of the completed transmission line would permanently affect wilderness qualities.

Table 2-25 Summary of Impacts for Region III

Resource	Resource Topic	Alternative III-A	Alternative III-B	Alternative III-C	Alternative III-D
		Delamar Mountain Wilderness: No Impacts.	Delamar Mountain Wilderness: No Impacts.	Delamar Mountain Wilderness: As currently mapped, the alignment and ROW would not cross the IRA, but the refined transmission corridor does include portions of the wilderness area to accommodate potential alignment shifts during siting, resulting in potential for 13 of ROW vegetation clearing, and 5 acres of construction disturbance, of which 1 acre would be permanent. ROW exclusion area; development of roads or use of motorized vehicles would not be compatible with area management. Wilderness quality in the areas closest to the 250-foot-wide transmission line ROW could be temporarily reduced during construction from noise and activity and the viewshed of the completed transmission line would permanently affect wilderness qualities.	Delamar Mountain Wilderness: No Impacts.
	Las Vegas FO	Mormon Mesa ACEC: 8 miles alignment/ 233 acres ROW within ACEC; 50 acres of modeled ROW clearing, 55 acres of construction disturbance, of which 22 acres would be permanent. As currently mapped, the alignment and 250-foot-wide transmission line ROW would be located within an existing designated utility corridor and would be in conformance with area management; however, there is potential for an estimated 34 and 18 acres of construction and operation disturbance, respectively, to extend into ROW avoidance areas. Development of	Mormon Mesa ACEC: Impacts similar to in type to those described under Alternative III-A, but greater, as there would be 15 miles alignment/441 acres ROW within ACEC; 235 acres of modeled ROW clearing, 127 acres of construction disturbance, of which 21 acres would be permanent.	Mormon Mesa ACEC: No Impacts	Mormon Mesa ACEC: Impacts similar to in type to those described under Alternative III-A, but greater, as there would be 15 miles alignment/441 acres ROW within ACEC; 235 acres of modeled ROW clearing, 127 acres of construction disturbance, of which 21 acres would be permanent.

Table 2-25 Summary of Impacts for Region III

Resource	Resource Topic	Alternative III-A	Alternative III-B	Alternative III-C	Alternative III-D
		roads or construction support sites in these areas would not be in conformance with area management goals. TransWest's commitment to avoidance of special status habitat, adherence to agency stipulations, and development of a desert tortoise mitigation plan would reduce impacts to desert tortoise during construction, but there would still be some temporary and permanent loss of desert tortoise habitat.			
		Coyote Springs ACEC: No Impacts.	Coyote Springs ACEC: No Impacts.	Coyote Springs ACEC: 24 miles alignment/ 726 acres ROW within ACEC; 574 acres of modeled ROW clearing, and 297 acres of construction disturbance, 58 acres of which would be permanent. The ACEC is a ROW avoidance area for protection of desert tortoise. As currently mapped, the alignment and 250-foot-wide transmission line ROW remain within the designated utility corridor, but there is potential for an estimated 5 acres of ROW clearing, and 36 and 14 acres of construction and operation acreages, respectively, to occur in ROW avoidance areas. Construction in these areas would be inconsistent with SDA management stipulations. TransWest' s commitment to avoidance of special status habitat, adherence to agency stipulations, and development of a desert tortoise mitigation plan would reduce impacts to desert tortoise during construction, but	Coyote Springs ACEC: No Impacts.

Table 2-25 Summary of Impacts for Region III

Resource	Resource Topic	Alternative III-A	Alternative III-B	Alternative III-C	Alternative III-D
				there would still be temporary and permanent loss of desert tortoise habitat.	
		Muddy River WSR: 1 crossing/4 acres ROW within eligible segment; 9 acres of modeled ROW clearing, 5 acres of construction disturbance, of which 2 acres would be permanent. The crossing would not be located within a designated utility corridor, not in conformance with BLM Manual 8351 which discourages new transmission lines within WSR areas unless no reasonable alternate location exists, in which case the line should be located in existing ROWs. The crossing would be consistent with criteria for a "recreational" WSR designation. Impacts to the segment's outstanding remarkable features (wildlife, cultural, and fish) would be reduced by design features and agency BMPs, including riparian habitat and sensitive species habitat buffers, and BMPs to reduce potential for erosion and sedimentation that could affect fish habitat. Potential impacts would be mitigated through compliance with the Project PA.	Muddy River WSR. Impacts to outstandingly remarkable features and "recreational" status of the WSR area similar to Alternative III-A, but the refined transmission corridor would be within a designated utility corridor and there would be less than 1 acre of ROW vegetation clearing construction disturbances, of which only a fraction would be permanent. The crossing would be consistent with BLM Manual 8351, which states that when no reasonable alternate location exists, additional or new facilities should be restricted to existing ROWs.	Muddy River WSR: No Impacts.	Muddy River WSR. Impacts to outstandingly remarkable features and "recreational" status of the WSR area similar to Alternative III-A, but the refined transmission corridor would be within a designated utility corridor and there would be less than 1 acre of ROW vegetation clearing construction disturbances, of which only a fraction would be permanent. The crossing would be consistent with BLM Manual 8351, which states that when no reasonable alternate location exists, additional or new facilities should be restricted to existing ROWs.
		Meadow Valley Wash WSR: No Impacts.	Meadow Valley Wash WSR: 1 crossing/18 acres ROW within eligible segment; 9 acres of modeled ROW clearing, 5 acres of construction disturbance, of which 1 acre would be permanent. The crossing would not be within a	Meadow Valley Wash WSR: No Impacts.	Meadow Valley Wash WSR: 1 crossing/18 acres ROW within eligible segment; 9 acres of modeled ROW clearing, 5 acres of construction disturbance, of which 1 acre would be permanent. The crossing would

Table 2-25 Summary of Impacts for Region III

Resource	Resource Topic	Alternative III-A	Alternative III-B	Alternative III-C	Alternative III-D
			designated utility corridor but would parallel the designated utility corridor, which contains two existing transmission lines. The crossing would not be consistent with the criteria for a “scenic” designation; however, the presence of existing transmission lines in this area is already incompatible with this designation. The crossing e would be in compliance with the area’s VRM III objectives. Impacts to the outstanding remarkable features (wildlife, cultural and fish) of the eligible wash segment would be reduced by design features and agency BMPs, including riparian habitat and sensitive species habitat buffers and BMPs to reduce potential for erosion and sedimentation that could affect fish habitat.		not be within a designated utility corridor but would parallel the designated utility corridor, which contains two existing transmission lines. The crossing would not be consistent with the criteria for a “scenic” designation; however, the presence of existing transmission lines in this area is already incompatible with this designation. The crossing e would be in compliance with the area’s VRM III objectives. Impacts to the outstanding remarkable features (wildlife, cultural and fish) of the eligible wash segment would be reduced by design features and agency BMPs, including riparian habitat and sensitive species habitat buffers and BMPs to reduce potential for erosion and sedimentation that could affect fish habitat.
USFS SDAs	Dixie National Forest	Atchinson IRA/URUD Area. 1 mile alignment/ 45 acres ROW within IRA; 9 acres of modeled ROW clearing, and 7 acres of construction disturbance, 2 acres of which would be permanent (4 miles alignment/139 acres ROW within URUD area; 37 acres of modeled ROW clearing, and 34 acres of construction disturbance, 9 acres of which would be permanent). TransWest would eliminate new road construction and hand cut vegetation in IRAs; however, there is no commitment for roadless construction or hand	Atchinson IRA/URUD Area. No Impacts.	Atchinson IRA/URUD Area. No Impacts.	Atchinson IRA/URUD Area. No Impacts.

Table 2-25 Summary of Impacts for Region III

Resource	Resource Topic	Alternative III-A	Alternative III-B	Alternative III-C	Alternative III-D
		clearing in portions of the URUD area that are outside of the IRA. The new structures would be concentrated along the IRA/URUD area's western boundary and in proximity to two existing transmission lines and Highway 18. TransWest would use design features and BMPs to reduce sedimentation to protect water resources and drinking water sources within the IRA/URUD areas. The area within the refined transmission corridor is primarily designated as RN and SPM ROS, but includes a small amount of SPNM ROS. Construction activities would not be fully consistent with these ROS designations, but impacts would be temporary. The project viewshed would affect 42% of the IRA/URUD area (SPNM, SPM, and RN ROS classes), in areas with views of existing transmission line. One pack trail would be within the viewshed. The IRA/URUD area would remain over 99.9 percent unfragmented and well over the requisite 5,000 acres, with minimal effect to manageability of the area as a whole.			
		Cove Mountain IRA/URUD Area: 3 miles alignment/ 83 acres ROW within IRA; 11 acres of modeled ROW clearing, and 9 acres of construction disturbance, of which 2 acres would be permanent (2 miles alignment/ 70 acres ROW	Cove Mountain IRA/URUD Area: No Impacts.	Cove Mountain IRA/URUD Area: No Impacts.	Cove Mountain IRA/URUD Area: No Impacts.

Table 2-25 Summary of Impacts for Region III

Resource	Resource Topic	Alternative III-A	Alternative III-B	Alternative III-C	Alternative III-D
		within URUD area; same modeled disturbance as the IRA). The new structures would be concentrated along the IRA/URUD area's western boundary and in proximity to two existing transmission lines. TransWest would use design features and BMPs to reduce sedimentation to protect water resources and drinking water sources within the IRA/URUD areas. The area within the refined transmission corridor is primarily designated as RN and SPM ROS, but includes a small amount of SPNM ROS. Construction activities would not be fully consistent with these ROS designations, but impacts would be temporary. The project viewshed would affect 42% of the IRA/URUD area (SPNM, SPM, and RN ROS classes), in areas with views of existing transmission line. One pack trail would be within the viewshed. Viewshed impacts would affect a similar percentage of the IRA/URUD area. The IRA/URUD area would remain over 99.9 percent unfragmented and well over the requisite 5,000 acres, with minimal effect to manageability of the area as a whole.			
		Mogotsu IRA/Moody Wash-Mogotsu URUD Area: 1 mile alignment/27 acres ROW within Mogotsu IRA; 12 acres of modeled ROW clearing, and 10 acres of construction disturbance, of which 2 acres would be	Mogotsu IRA/Moody Wash-Mogotsu URUD Area: No Impacts.	Mogotsu IRA/Moody Wash-Mogotsu URUD Area: No Impacts.	Mogotsu IRA/Moody Wash-Mogotsu URUD Area: No Impacts.

Table 2-25 Summary of Impacts for Region III

Resource	Resource Topic	Alternative III-A	Alternative III-B	Alternative III-C	Alternative III-D
		permanent. The alignment would not cross the Moody Wash-Mogotsu URUD Area, but there would be a similar amount ROW and modeled construction disturbances within the URUD area. The new structures would be concentrated along the IRA/URUD area's eastern and southern boundaries and in proximity to two existing transmission lines. TransWest would use design features and BMPs to reduce sedimentation to protect water resources and drinking water sources within the IRA/URUD areas. The area within the refined transmission corridor is designated as RN and SPM ROS; construction activities would not be fully consistent with these ROS designations, but impacts would be temporary. The project viewshed would affect 48% of the IRA/URUD area (SPNM, SPM, and RN ROS classes), in areas with views of existing transmission lines The IRA/URUD area would remain over 99.9 percent unfragmented and well over the requisite 5,000 acres, with minimal effect to manageability of the area as a whole.			
USFWS SDAs	Desert National Wildlife Refuge (NWR).	No Impacts.	No Impacts.	20 miles alignment/600 acres ROW within NWR; 603 acres of modeled ROW clearing, and 283 acres of construction disturbance, of which 51 acres would be permanent. Most disturbance would be within a designated utility corridor, but 59 and 26 acres of construction and operation disturbance,	No Impacts.

Table 2-25 Summary of Impacts for Region III

Resource	Resource Topic	Alternative III-A	Alternative III-B	Alternative III-C	Alternative III-D
				respectively, have the potential to extend beyond the designated utility corridor and into portions of the NWR that were not designated for these uses. Adherence to design features, agency BMPs, and wildlife mitigation identified in Section 3.7 would reduce impacts to wildlife species within the NWR. Development of roads is not prohibited within the NWR outside of the proposed wilderness areas, but would result in surface disturbance, noise, and activity that would impact NWR values (protection, enhancement, and maintenance of desert bighorn sheep) in this area.	
	Pahranagat NWR.	No Impacts.	No Impacts.	As currently mapped, the alignment and ROW would not cross the NWR, but the refined transmission corridor does include portions of the NWR to accommodate potential alignment shifts during siting, resulting in potential for 13 of ROW vegetation clearing, and 6 acres of construction disturbance, of which 1 acre would be permanent. Development of roads is not prohibited within the NWR, but would remove habitat and result in activity that could adversely affect migratory birds. Adherence to design features and agency BMPs to protect migratory birds would reduce impacts to wildlife resources within the NWR.	No Impacts.

Table 2-25 Summary of Impacts for Region III

Resource	Resource Topic	Alternative III-A	Alternative III-B	Alternative III-C	Alternative III-D
	Proposed Wilderness #1.	No Impacts.	No Impacts.	4 miles alignment/121 acres ROW within proposed wilderness; 204 acres of modeled ROW clearing, and 87 acres of construction disturbance, of which 13 acres would be permanent. Of the modeled acreages, between 10 and 20 acres of construction disturbance and less than 10 acres of operation disturbance have potential to extend beyond the designated utility corridor. Development of roads or use of motorized vehicles within this portion of the refined transmission corridor would not be compatible with area management and visual impacts of the transmission line and roads would affect wilderness qualities of the area.	No Impacts.
	Proposed Wilderness #2.	No Impacts.	No Impacts	Not crossed by alignment or refined transmission corridor. Potential for 18 acres of construction disturbance for roads or support areas, of which 8 acres would be permanent. These disturbances have potential to extend beyond the designated utility corridor. Development of roads or use of motorized vehicles within this portion of the refined transmission corridor would not be compatible with area management.	No Impacts.
	Proposed Wilderness #3.	No Impacts.	No Impacts.	4 miles alignment/129 acres ROW within proposed wilderness; 26 acres of modeled ROW clearing, and 30 acres of construction disturbance, of which 7 acres would be permanent. Of the	No Impacts.

Table 2-25 Summary of Impacts for Region III

Resource	Resource Topic	Alternative III-A	Alternative III-B	Alternative III-C	Alternative III-D
				modeled acreages, between 10 and 20 acres of construction disturbance and less than 10 acres of operation disturbance have potential to extend beyond the designated utility corridor. Development of roads or use of motorized vehicles within this portion of the refined transmission corridor would not be compatible with area management and visual impacts of the transmission line and roads would affect wilderness qualities of the area.	
	Unit 2 Las Vegas Range Proposed Wilderness.	No Impacts.	No Impacts.	Not crossed by alignment or refined transmission corridor. Potential for 1 acre of construction disturbance for roads or support areas, none of which would be permanent. These disturbances have potential to extend beyond the designated utility corridor. Development of roads or use of motorized vehicles within this portion of the refined transmission corridor would not be compatible with area management.	No Impacts.
	Unit 3 Sheep Range Proposed Wilderness.	No Impacts.	No Impacts.	8 miles alignment/ 233 acres ROW within proposed wilderness; 142 acres of modeled ROW clearing, and 71 acres of construction disturbance, of which 14 acres would be permanent. Of the modeled acreages, between 10 and 20 acres of construction disturbance and less than 10 acres of operation disturbance have potential to extend beyond the designated utility corridor. Development of roads or use of	No Impacts.

Table 2-25 Summary of Impacts for Region III

Resource	Resource Topic	Alternative III-A	Alternative III-B	Alternative III-C	Alternative III-D
				motorized vehicles within this portion of the refined transmission corridor would not be compatible with area management and visual impacts of the transmission line and roads would affect wilderness qualities of the area.	
Historic Trails	Old Spanish NHT	2-4 segments of the Old Spanish NHT crossed; 1 NHT-1, 3 unrated. Visible along 53 miles of the trail, of which 8 miles are NHT-I, 2 miles are NHT-II, and 0.1 mile of NHT-IV; 43 miles unevaluated. Potential impacts to cultural resources from surface disturbance would be mitigated through the compliance with the Project PA. All crossings in BLM/ USFS designated utility corridors	1 segment of the Old Spanish NHT crossed. Visible along 38 miles of the trail, of which 5 miles are NHT-I, 1 mile are NHT-II, and <0.1 mile is NHT-IV; 32 miles unevaluated. Potential impacts to cultural resources from surface disturbance would be mitigated through the compliance with the Project PA. All crossings in BLM/ USFS designated utility corridors	1 segment of the Old Spanish NHT crossed. Visible along 6 miles of the trail (none evaluated). All crossings in BLM/ USFS designated utility corridors.	1 segment of the Old Spanish NHT crossed; Impacts same as Alternative II-B.
Transportation					
	Total Miles of New Permanent Access Roads.	334	320	338	303
	Total Miles of Steep and Mountainous Terrain.	136	36	68	36
	Road Crossings.	7	6	11	6
	Railroad Crossings.	4	10	7	10
	Alignment Passing Through Public Land (miles).	246	236	261	233
	Alignment Passing Through Private Land (miles).	31	48	47	48
	Number of Airports within 5 miles.	1	2	2	2
	MOAs within 20 miles.	5 Hill AFB Sevier (ABCD) Wendover Desert Nellis	5 Hill AFB Sevier (ABCD) Wendover Desert Nellis	6 Hill AFB Sevier (ABCD) Wendover Desert Nellis	5 Hill AFB Sevier (ABCD) Wendover Nellis AFB Desert Nellis ABF

Table 2-25 Summary of Impacts for Region III

Resource	Resource Topic	Alternative III-A	Alternative III-B	Alternative III-C	Alternative III-D
		Dugway	Dugway	Dugway Las Vegas	
	MOAs with 250-foot-wide transmission line ROW Overlap	Hill AFB Sevier (BD) (Most Overlap)	Hill AFB Sevier (BD) Nellis Desert (Conflict)	Hill AFB Sevier (BD) Nellis Desert (Most Conflict)	Hill AFB Sevier (BD) Nellis Desert (Conflict)
Socioeconomics					
	Short-term Socioeconomic effects associated with construction.	Temporary employment, population and tax effects similar to those for Alternative II-A.	Comparable to, but slightly higher (<5%) than those for Alternative III-A.	Similar to, but up to 10% higher than those in Alt. III-A.	Comparable to, but slightly higher (<5%) than those for Alternative III-A
		Effects distributed between Utah and Nevada.	Distribution of effects more focused in Nevada than under Alt. III-A.	Distribution of effects more focused in Nevada than under Alt. III-A.	Distribution of effects more focused in Nevada than under Alt. III-A.
		Substantial sales, use and lodging tax revenues based on construction of the transmission line and ground electrode, but no terminal in Region III unless under Design Option 2.	Essentially the same as those in Alternative III-A.	Similar to, but up to 10% higher than those in Alt. III-A.	Essentially the same as those in Alternative III-A.
		Temporary housing availability limited across much of western Utah.	Temporary housing availability limited in western Utah and outlying areas of Nevada.	Temporary housing availability limited in western Utah and outlying areas of Nevada.	Temporary housing availability limited in western Utah and outlying areas of Nevada.
		Temporary socioeconomic effects during decommissioning would include construction jobs, demands on lodging and public services, and short-term economic stimulus. Sales and use taxes would be low compared to construction. Ad valorem taxes would cease.	Essentially the same as Alternative III-A.	Essentially the same as Alternative III-A.	Essentially the same as Alternative III-A.
	Long-term socioeconomic effects associated with operations.	Long-term economic effects similar to those for Alternative I-A.	Generally the same as, but slightly higher tax revenues than Alternative III-A.	Generally the same as, but slightly higher tax revenues than Alternative III-A.	Comparable to Alternative III-A.

Table 2-25 Summary of Impacts for Region III

Resource	Resource Topic	Alternative III-A	Alternative III-B	Alternative III-C	Alternative III-D
		Project generates ad valorem/property taxes on improvements in the region. A terminal is not planned under III-A, unless under Design Option 2.	Distribution of fiscal benefits more focused in Nevada than under Alt. III-A.	Distribution of fiscal benefits more focused in Nevada than under Alt. III-A.	Comparable to Alternative III-A.
		Most of this corridor passes through undeveloped rural area, therefor limited potential for adverse effects to property value, on social values or outdoor recreation. Higher, but still limited potential for effects to outdoor recreation on Dixie National Forest.	Similar to effects from Alternative III-A, but avoids the Dixie National Forest.	Similar to effects from Alternative III-A, but avoids the Dixie National Forest.	Same as Alternative III-A.
		Federal government, Utah SITLA and other lessors receive rental/ lease income on ROW.	Same as Alternative III-A.	Same as Alternative III-A.	Same as Alternative III-A.
		Project development and operations would not result in effects warranting further consideration under Environmental Justice.	A segment of this alternative passes through the Moapa Reservation, in an area with substantial industrial development in place. Location would require agreement with the Moapa Tribe. No further consideration warranted under Environmental Justice.	Same as Alternative III-A.	Same as Alternative III-A.
Public Health and Safety					
	Serious injuries to workers and the public at-large.	Workers during construction and operation may be injured by heavy equipment, working at heights, working in the vicinity of high voltage equipment, as well as from typical hazards found on a construction site. The workers and the public may be injured by fire as well as downed power lines.	Same as Alternative III-A.	Same as Alternative III-A.	Same as Alternative III-A.

Table 2-25 Summary of Impacts for Region III

Resource	Resource Topic	Alternative III-A	Alternative III-B	Alternative III-C	Alternative III-D
	Adverse health impacts from EMF, stray voltage, and induced voltage associated with transmission lines during operations.	No structures would be within 200 feet of the alignment, resulting in negligible impacts from EMF, stray voltage, and induced voltage.	Same as Alternative III-A.	One commercial/industrial structure would be within 200 feet of the alignment, resulting in the potential for impacts from EMF, stray voltage, and induced current that would be slightly greater than Alternative III-A.	Same as Alternative III-A.
(4.a) (4.b)	Noise impacts to nearby communities and residences during construction.	There would be four communities within the analysis corridor and no residential structures within 500 feet of the alignment resulting in potential impacts from noise with this alternative.	There would be two communities within the analysis corridor and no structures within 500 feet of the alignment, resulting in impacts from noise that would be slightly less than Alternative III-A.	There would be three communities within the analysis corridor; one residential structure within 500 feet of the alignment, resulting in impacts from noise that would be similar to or slightly greater than Alternative III-A.	There would be two communities within the analysis corridor and no structures within 500 feet of the alignment, resulting in impacts from noise that would be slightly less than Alternative III-A.
Wild Horses					
	Temporary and permanent loss of forage areas during construction and operations.	Chloride Canyon HMA: 155 acres of ROW clearing (0.2 % of HMA), and 76 acres of construction disturbance, 10 acres of which would be permanent.	North Hills HMA: No acres of ROW clearing, and 12 acres of construction disturbance, 3 acres of which would be permanent. Eagle HMA: No acres of ROW clearing, and less than 1 acre of construction disturbance, of which a fraction would be permanent.	Same as Alternative III-B.	Same as Alternative III-B.
	Temporary construction noise and human activity.	Chloride Canyon HMA 537 acres of refined transmission corridor (0.8% of HMA) within the HMA.	North Hills HMA: No acres of refined transmission corridor within the HMA; noise would travel up to about a mile from construction areas. Eagle HMA: No acres of refined transmission corridor within the HMA; noise would travel up to about a mile from construction areas.	Same as Alternative III-B.	Same as Alternative III-B.
	Presence of transmission line within HMAs / HAs restrict helicopter use during wild horse gathers	2 miles of transmission line within the Chloride Canyon HMA.	No miles of transmission line within the Eagle or North Hills HMA.	Same as Alternative III-B.	Same as Alternative III-B.

Table 2-25 Summary of Impacts for Region III

Resource	Resource Topic	Alternative III-A	Alternative III-B	Alternative III-C	Alternative III-D
Lands with Wilderness Characteristics					
(5.e)	Number of LWC Units Affected.	0	4	5	4
(5.e)	Number (acres) of LWC Units Eliminated.	0	1 (9,108)	0	1 (9,108)
(5.e)	Number (acres) of LWC Units Remaining.	N/A	4 (133,503)	6 (118,048)	4 (133,503)
(5.e)	Number (acres) of Unit Portions Eliminated.	N/A	13 (13,397)	5 (3,597)	13 (13,397)
Wildfire					
	Fire Regime Groups I-V Identified for the Project construction/operation (acres).				
	I	30/6	21/6	24/5	21/6
	II	-/-	-/-	-/-	-/-
	III	231/49	380/80	428/91	367/78
	IV	741/161	834/172	697/145	793/163
	V	2,276/497	1,972/381	2,032/378	1,977/361
	FRCC Condition Classes (CC) I-III Identified for the Project construction/operation (acres).				
	I	201/27	310/50	436/75	328/55
	II	385/88	213/50	535/111	199/47
	III	2,658/592	2,654/534	2,167/426	2,601/500
	Fuel Loading Model Classes Identified for the Project construction/operation (acres).				
	NB	293/69	287/49	471/96	282/48
	GR	2,008/442	2,064/389	1,755/324	2,067/369
	GS	662/151	744/160	748/159	690/148
	SH	579/117	402/83	778/161	398/83
	TL	12/3	17/4	1/0	17/4

Table 2-25 Summary of Impacts for Region III

Resource	Resource Topic	Alternative III-A	Alternative III-B	Alternative III-C	Alternative III-D
	TU	34/9	45/12	44/8	45/12
Migratory Birds					
	Number of known raptor nests within 1 mile of the potential disturbance area	319	171	186	185
	Audubon IBAs (acres) construction/operation			Pahranagat Valley Complex IBA 6/1	
	BHCAs (acres) construction/operation	Lower Muddy River BHCA 46/13 Beaver Dam Wash BHCA 23/6 Virgin River BHCA 206/41	Lower Muddy River BHCA 43/8	Lincoln BHCA 42/11 Pahranagat/Dry Lake Valley BHCA 65/9 Delta BHCA 50/11	Lower Muddy River BHCA 43/8 Delta BHCA 50/11
	Total Indirect Impacts to Priority Habitats (acres)	338,648	336,283	369,558	324,086
	Total Indirect Impacts to Non-sagebrush Priority Habitats (acres)	277,457	267,391	272,086	256,200
	Total Indirect Impacts to Wetland/Riparian/Open Water Priority Habitats (acres)	7,419	9,693	11,269	10,108
	Total Indirect Impacts to Priority Habitats along Non-co-located Segments (acres)	255,467	279,787	274,435	230,119
	Total Construction Impacts to Priority Habitats (acres)	2,969	2,891	3,164	2,778
	Total Operation Impacts to Priority Habitats (acres)	659	560	633	525
	Total Indirect Impacts to IBA Priority Habitats (acres)	-	2,444	2,444	-
	Total Indirect Impacts to BHCA Priority Habitats (acres)	17,927	4,503	8,472	6,651
	Total Length of Alternative (miles)	276	284	308	281

Table 2-25 Summary of Impacts for Region III

Resource	Resource Topic	Alternative III-A	Alternative III-B	Alternative III-C	Alternative III-D
Plan Amendment					
	Number of Necessary Plan Amendments	One Plan Amendment: Caliente FO (Utility Corridor Restrictions/ROW Exclusion Area; Conflict with Visual Objectives, Stipulations, Standards, Guidelines)	One Plan Amendment: Caliente FO (Utility Corridor Restrictions/ROW Exclusion Area; Conflict with Visual Objectives, Stipulations, Standards, Guidelines)	One Plan Amendment: Caliente FO (Conflict with Visual Objectives, Stipulations, Standards, Guidelines)	One Plan Amendment: Caliente FO (Utility Corridor Restrictions/ROW Exclusion Area; Conflict with Visual Objectives, Stipulations, Standards, Guidelines)

Table 2-26 Summary of Impacts for Region IV

Resource	Resource Topic	Alternative IV-A	Alternative IV-B	Alternative IV-C
Climate and Air				
	Fugitive Dust Emissions (PM_{10}) during construction.	43 tons	45 tons	50 tons
Geology				
	Geologic Hazards Risk	May cross or is near potentially active faults; low ground motion potential, low landslide, low subsidence.	Same as Alternative IV-A.	Same as Alternative IV-A.
	Mineral Resource Access	No oil and gas or coal mining. Potential conflicts with sand/gravel and gypsum mining.	Same as Alternative IV-A.	Same as Alternative IV-A.
	Paleontological Resources Loss from Construction.	PFYC Class 3: 0.4 mile; no PFYC 4 or 5 crossed.	PFYC Class 3: 1 mile; no PFYC 4 or 5 crossed.	PFYC No PFYC 3, 4, or 5 crossed.
Soils				
	Soils – Wind Erodible (construction)	1 acre	78 acres	138 acres
	Soils – Water Erodible (construction)	13 acres	1 acre	1 acre
	Soils – Compaction Prone (construction)	0 acres	3 acres	3 acres
	Soils – LRP (construction)	184 acres	195 acres	192 acres
	Soils – Prime Farmland (construction)	0 acres	0 acres	0 acres
Water				
	Erosion and Sedimentation Direct Effects from Crossings (construction/decommissioning).	2 perennial stream crossings.	3 perennial stream crossings.	2 perennial stream crossings.
	Impaired Stream Effects from Construction Crossings.	1 impaired stream crossed.	1 impaired stream crossed.	1 impaired stream crossed.
	Effects to Water Users from Construction Water Use.	28 acre-feet required.	30 acre-feet required.	33 acre-feet required.
	Maximum Road Density Change in Watershed (HUC10, 300-foot, or 100-foot perennial buffer area).	0.06 mile/mile^2 (Duck Creek-Las Vegas Wash Watershed).	0.07 mile/mile^2 (Government Wash-Colorado River Watershed).	0.07 mile/mile^2 (Government Wash-Colorado River Watershed).

Table 2-26 Summary of Impacts for Region IV

Resource	Resource Topic	Alternative IV-A	Alternative IV-B	Alternative IV-C
Vegetation				
	Woody vegetation over 6 feet in height impacted by ROW clearing (acres)	NA	6 acres of the woody riparian and wetlands.	6 acres of the woody riparian and wetlands.
	Wetlands and riparian areas impacted by ROW clearing (acres)	10 acres of ephemeral wash,	1 acre of herbaceous wetlands, 2 acres of ephemeral wash, and 6 acres of woody riparian and wetlands.	1 acre of herbaceous wetlands, 2 acre of ephemeral wash, and 6 acres of woody riparian and wetlands.
	Wetlands and riparian areas impacted by facilities construction (acres)	<1 acre of herbaceous wetlands, 5 acres of ephemeral wash, and <1 acre of woody riparian and wetlands.	1 acre of herbaceous wetlands, 1 acre of ephemeral wash, and 4 acres of woody riparian and wetlands.	1 acre of herbaceous wetlands, 1 acre of ephemeral wash, and 4 acres of woody riparian and wetlands.
	Wetlands and riparian areas impacted by facilities operation (acres)	<1 acre of herbaceous wetlands, 1 acre of ephemeral wash, and <1 acre of woody riparian and wetlands.	<1 acre of herbaceous wetlands, <1 acre of ephemeral wash, and 1 acre of woody riparian and wetlands.	< 1 acre each of herbaceous wetlands, <1 acre of ephemeral wash, and 1 acre of woody riparian and wetlands.
Special Status Plants				
	Number of USFWS species with known occurrences impacted during construction.	0	0	0
	Number of USFWS species with potential habitat impacted during construction.	1	1	1
	Number of BLM sensitive species with known occurrences impacted during construction .	3	3	3
	Number of BLM sensitive species with potential habitat impacted during construction.	17	18	18
	Number of Forest sensitive species with known occurrences impacted during construction.	0	0	0
	Number of Forest sensitive species with potential habitat impacted during construction .	0	0	0
	Number of Lake Mead NRA sensitive species with known occurrences impacted during construction.	0	3	3
	Number of Lake Mead NRA sensitive species with potential habitat impacted during construction .	0	8	8

Table 2-26 Summary of Impacts for Region IV

Resource	Resource Topic	Alternative IV-A	Alternative IV-B	Alternative IV-C
	Number of Nevada state-listed species with known occurrences impacted during construction.	1	1	1
	Number of Nevada state-listed species with potential habitat impacted during construction .	5	5	5
Wildlife				
(5.a)	Desert bighorn sheep occupied range – Nevada (acres).	173/40	85/25	104/21
	Small game, nongame habitat (acres) construction/operation.	392/89	361/86	386/88
	Waterfowl habitat (acres) construction/operation.	5/1	9/3	10/3
SSS Wildlife				
(3.d)	Impacted desert tortoise potential habitat (acres) construction/operation.	547/123	548/117	606/122
	Impacted Yuma clapper rail habitat (acres) construction/operation.	<1/<1	<1/<1	<1/<1
	Impacted western yellow-billed cuckoo habitat (acres) construction/operation.	5/1	6/2	7/2
	Impacted southwestern willow flycatcher habitat (acres) construction/operation	5/1	5/1	6/2
(3.b)	Number of special status raptor nests within 1 mile of analysis corridor.	1	1	1
Aquatic Biological Resources				
	Effects on aquatic habitat and species from potential direct and indirect construction disturbance or water quality changes.	1 named perennial stream crossed by 250-foot-wide transmission line ROW; 1 game fish stream crossed by 250-foot-wide transmission line ROW.	2 named perennial streams crossed by 250-foot-wide transmission line ROW; no game fish streams crossed by 250-foot-wide ROW.	1 named perennial stream crossed by 250-foot-wide transmission line ROW; no game fish streams crossed by 250-foot-wide transmission line ROW.
	Potential aquatic habitat alteration or loss (feet^2) construction/operation.	400	800	400

Table 2-26 Summary of Impacts for Region IV

Resource	Resource Topic	Alternative IV-A	Alternative IV-B	Alternative IV-C
	Potential amphibian mortalities from construction vehicle traffic.	37 ROW miles	40 ROW miles	44 ROW miles
Special Status Aquatic Resources				
	Effects on habitat and special status species from direct disturbance or water quality changes during construction.	1 perennial stream with special status aquatic species crossed by 250-foot-wide transmission line ROW.	No perennial streams with special status aquatic species crossed by 250-foot-wide transmission line ROW.	No perennial streams with special status aquatic species crossed by 250-foot-wide transmission line ROW.
	Number of additional streams with special status aquatic species that are located in the potential construction disturbance area beyond the refined transmission corridor.	1 stream with federally listed or petitioned aquatic species.	1 stream with federally listed or petitioned aquatic species.	1 stream with federally listed or petitioned aquatic species.
	Number of special status aquatic species with potential habitat alteration or loss.	0	0	0
	Number of watersheds supporting special status aquatic species with increased road densities.	1	0	0
	Potential direct disturbance on critical habitat for federally listed species from construction.	None	5 acres	5 acres
Cultural Resources				
	NRHP-listed Sites	3	0	0
	NRHP-Eligible Sites	16	13	16
	Unevaluated Sites	10	7	8
	Potential TCPs	21	7	7
	Trail Crossings	Old Spanish Trail (2) (eligibility unknown)	Old Spanish Trail (3) (eligibility unknown)	Old Spanish Trail (3) (eligibility unknown)
	Average Inventory Coverage	48%	23%	23%
	Site Density (sites per 100 acres inventoried)	4.8	5.2	6
	Overall Trail Visibility (within 5-mile viewshed)	36 miles	38 miles	38 miles
Visual Resources				
	High Sensitivity Viewers (miles)			
	0 - 0.5 mile	22	18	15

Table 2-26 Summary of Impacts for Region IV

Resource	Resource Topic	Alternative IV-A	Alternative IV-B	Alternative IV-C
	0.5 - 2.5 miles	8	14	17
	2.5 - 5 miles	8	7	8
	>5 miles	–	–	4
	Moderate Sensitivity Viewers (miles)			
	0 - 0.5 mile	8	18	16
	0.5 - 2.5 miles	20	19	27
	2.5 - 5 miles	9	3	2
	>5 miles	–	–	–
	Scenic Quality (miles)			
	A	5	7	8
	B	15	2	2
	C	17	31	34
	BLM VRI Classifications (miles)			
	Class II	12	2	2
	Class III	8	5	5
	Class IV	7	–	–
	BLM VRM Classifications (miles)			
	Class II	–	–	–
	Class III	24	7	7
	Class IV	3	–	–
	USFS SIO/VQO Classifications (miles)			
	High/Retention	–	–	–
	Moderate/Partial Retention	–	–	–
	Low/Modification	–	–	–
	Residual Impacts Landscape Scenery (miles)			
	High	–	5	5
	Moderate	5	10	11
	Low	32	24	28

Table 2-26 Summary of Impacts for Region IV

Resource	Resource Topic	Alternative IV-A	Alternative IV-B	Alternative IV-C
	Residual Impacts High Sensitivity Viewers (miles)			
	High	–	8	8
	Moderate	–	8	8
	Low	16	18	26
	Residual Impacts Moderate Sensitivity Viewers (miles)			
	High	–	7	7
	Moderate	8	16	14
	Low	29	16	23
	BLM VRM USFS SIO/VQO Conformance/Consistency (miles) Before Mitigation			
	Conformance	27	7	7
	Non-conformance	–	–	–
	NA	10	33	37
	BLM VRM USFS SIO/VQO Conformance/Consistency (miles) After Mitigation			
	Conformance	27	7	7
	Non-conformance	–	–	–
	NA	10	33	37
Recreation				
	Recreation Area/Site in Region IV	Refined Transmission Corridor Acres (% of Total Area) / Analysis Area Acres (% of Total Area)	Refined Transmission Corridor Acres (% of Total Area) / Analysis Area Acres (% of Total Area)	Refined Transmission Corridor Acres (% of Total Area) / Analysis Area Acres (% of Total Area)
	BLM Las Vegas FO			
	Dispersed, undesignated recreation areas	1,235 (0.07) / 6,977 (0.4)	922 (0.05) / 6,765 (0.4)	922 (0.05) / 6,765 (0.4)
	Nellis Dunes SRMA	0 / 183 (1.2)	0 / 183 (1.2)	0 / 183 (1.2)

Table 2-26 Summary of Impacts for Region IV

Resource	Resource Topic	Alternative IV-A	Alternative IV-B	Alternative IV-C
	Sunrise Mountain SRMA	1,407 (3.7) / 11,809 (31.4)	132 (0.4) / 1,603 (4.3)	132 (0.4) / 1,603(4.3)
	Las Vegas Valley SRMA	1,385 (0.7) / 7,196 (3.6)	24 (0.01) / 498 (0.3)	N/A
	Nelson/Eldorado SRMA	1,123 (1.4) / 7,584 (9.3)	1,385 (1.7) / 1,643 (2.0)	0 / 623 (0.8)
	Other Federally Managed Recreation Areas			
	Sloan Canyon NCA	0 / 0 (0)	N/A	N/A
	Lake Mead NRA (NPS)	0 / 27 (<0.01)	1,280 (0.09) / 12,794 (0.9)	1,193 (0.08) / 13,483 (0.9)
	Local Recreation Areas			
	Clark County Wetlands Park	90 (3.1) / 376 (13)	N/A	N/A
	Cascata Golf Course	N/A	0 / 220 (51)	N/A
	Bootleg Canyon	N/A	777 (34) / 1,627 (70)	N/A
	River Mountains Loop Trail	4 crossings / 8.1 miles	10 crossings / 12.2 miles	6 crossings / 11 miles
	Boulder City Conservation Easement	N/A	24 (0.03) / 844 (1.0)	937 (1.1) / 18,214 (21.1)
	Mountain Lake Park	3.4 (68) / 5 (100)	N/A	N/A
	Terrazza Park	0 / 1.1 (22)	N/A	N/A
	City of Henderson trails (Lake Mead Parkway, Burkholder, Equestrian and UPRR trails)	1.8 miles (6.4) / 4.1 miles (14.5)	N/A	N/A

Table 2-26 Summary of Impacts for Region IV

Resource	Resource Topic	Alternative IV-A	Alternative IV-B	Alternative IV-C
Land Use and Planning				
(1.a) (6.a)	Federal, State and Tribal lands and Use of Designated Utility Corridors.	37 miles total: 92% located on federally managed lands.	40 miles total: 55% located on federally managed lands.	44 miles total: 55% located on federally managed lands.
		11 miles of BLM RMP corridors and 14 miles of designated WWEC.	5 miles in BLM RMP corridors and 5 miles in WWEC.	5 miles in BLM RMP corridors and 5 miles in WWEC.
	Avoidance/Exclusion areas crossed by alignment.	None. .	2 miles avoidance areas in the Rainbow Gardens and River Mountains ACECs; no exclusion areas.	2 miles avoidance areas in the Rainbow Gardens ACEC; no exclusion areas.
(6.a)	Private Lands and Zoning.	3 miles (8%) located on private land. 5 residential structures and 1 commercial/ industrial structure within 500 feet of the proposed alignment. 2 communities within the analysis corridor or road/construction support areas.	18 miles (45%) would be located on private land. 8 residential structures and 1 commercial/industrial structure within 500 feet of alignment. 1 community within the analysis corridor or road/construction support areas.	20 miles (45%) would be located on private land. 8 residential structures within 500 feet of the proposed alignment. There would be 1 community within the analysis corridor or road/construction support areas.
	Agriculture	None	None	None
	Livestock Grazing	None	None	None
(5.f)	Non co-located	0 miles (0%)	10 miles (25%)	9 miles (20%)
Special Designation Areas				
	Summary of all SDAs	Refined transmission corridor would cross 2 BLM SDAs. Area in which road and support area construction could occur would include 1 additional BLM SDA and one NPS SDA.	Refined transmission corridor would cross 1 BLM SDA and one NPS SDA. Area in which road and support area construction could occur would include 1 additional BLM SDA.	Refined transmission corridor would cross 1 BLM SDA and one NPS SDA.
BLM SDAs	Las Vegas FO	Rainbow Gardens ACEC: 11 miles alignment/ 277 acres ROW within ACEC; 200 acres of modeled ROW clearing, and 146 acres of construction disturbance (of which 36 acres would be permanent), with corresponding impacts to geological, scenic, cultural, or sensitive plant relevant and important values from construction and operation. 2 miles of the route would be in ROW avoidance area outside of the designated utility corridor. As a ROW avoidance area, development of a transmission line would still be permitted under SDA management; ; however, the Sunrise Mountain SRMA, which overlays the	Rainbow Gardens ACEC: 3 miles alignment/ 63 acres ROW within ACEC; 42 acres of modeled ROW clearing, and 30 acres of construction disturbance (of which 7 acres would be permanent) Impacts would be similar in type to Alternative IV-A, but would involve 75 percent fewer modeled acres of ROW vegetation clearing (an estimated 42 acres). Construction and operation surface disturbance would be similarly reduced (to an estimated 30 acres of construction surface disturbance, of which 7 acres would be permanent). However, there would be twice as much surface disturbance located within ROW avoidance	Rainbow Gardens ACEC: Same as Alternative IV-B.

Table 2-26 Summary of Impacts for Region IV

Resource	Resource Topic	Alternative IV-A	Alternative IV-B	Alternative IV-C
		ACEC entirely, has a management goal to concentrate major transmission line ROWs to designated utility corridors to reduce conflicts with recreation and to reduce impacts to scenic resources. ACEC management actions would require the reclamation of all temporary roads constructed within the ACEC, which would reduce the acreage of permanent disturbance. There are already several existing transmission lines through Rainbow Gardens ACEC. In areas not within the viewshed of existing transmission structures, this alternative would not comply with BLM VRM Class III management objectives for the ACEC.	areas (an estimated 28 acres of ROW clearing, 24 acres of construction disturbance and 5 acres of operations acreage would be within ROW avoidance areas).	
		River Mountains ACEC: 5 miles alignment/ 116 acres ROW within ACEC; 78 acres of modeled ROW clearing, and 56 acres of construction disturbance (of which 15 acres would be permanent), with corresponding impacts to bighorn sheep habitat and scenic viewshed relevant and important values. The refined transmission corridor would be fully within the designated utility corridor and therefore compatible with SDA management. TransWest's commitment to implement seasonal restrictions to mitigate impacts on wildlife would assist in reducing impacts to bighorn sheep; however, there still would be some permanent loss of habitat and habitat fragmentation from permanent roads.	River Mountains ACEC: Not crossed by alignment or refined transmission corridor. Potential for 1 acre of construction disturbance for roads or support areas, none of which would be permanent. These disturbances would occur in ROW avoidance areas.	River Mountains ACEC: No Impacts.
		Sloan Canyon NCA: Not crossed by alignment or refined transmission corridor or analysis area. Portions of the portions of the NCA adjacent to the Project that may be indirectly affected are managed as semi-primitive, non-motorized areas and are classified as VRM II.	Sloan Canyon NCA: No Impacts.	Sloan Canyon NCA: No Impacts.

Table 2-26 Summary of Impacts for Region IV

Resource	Resource Topic	Alternative IV-A	Alternative IV-B	Alternative IV-C
NPS SDAs	Lake Mead NRA	Not crossed by alignment or refined transmission corridor. Potential for less than 1 acre of construction disturbance for roads or support areas, of which a fraction would be permanent.	14 miles alignment/ 427 acres ROW within NRA; 282 acres of modeled ROW clearing, and 204 acres of construction disturbance, of which 57 acres would be permanent. These disturbances would occur in developed access areas and scenic driving corridors within the Boulder Basin Zone offering year-round recreational opportunities for boating, fishing, hiking, photography, picnicking and sightseeing. Impacts would not meet the "no impairment' standard to which NPS lands are held. Development of a new utility ROW would also be inconsistent with the designations of the NRA GMP, which opposes utilities outside of designated utility corridors.	Impacts similar to Alternative IV-B, but with slightly higher disturbance acreages.
Historic Trails	Old Spanish NHT	2 segments of the Old Spanish NHT crossed (eligibility unknown). Visible along 36 miles of the trail: 5 miles Northern route; 23 miles Mojave route and 8 miles Armjio route. Potential impacts to cultural resources from surface disturbance would be mitigated through the compliance with the Project PA. Crossing within a WWEC- designated utility corridor.	3 segments of the Old Spanish NHT crossed (eligibility unknown). Visible along 38 miles of the trail: 5 miles Northern route; 20 miles Mojave route and 13 miles Armjio route. Potential impacts to cultural resources from surface disturbance would be mitigated through the compliance with the Project PA. Crossing not within a designated utility corridor.	3 segments of the Old Spanish NHT crossed (eligibility unknown). Visible along 38 miles of the trail: 5 miles Northern route; 20 miles Mojave route and 13 miles Armjio route. Potential impacts to cultural resources from surface disturbance would be mitigated through the compliance with the Project PA. Crossing not within a designated utility corridor.
Transportation				
	Total Miles of New Permanent Access Roads	49	51	54
	Total Miles of Steep and Mountainous Terrain	22	22	22
	Road Crossings	4	2	2
	Railroad Crossings	2	2	1
	Alignment Passing Through Public Land (miles)	34	22	24
	Alignment Passing Through Private Land (miles)	3	18	20
	Number of Airports within 5 Miles	4	3	2
	MOAs within 20 Miles	Nellis AFB	Nellis AFB	Nellis AFB

Table 2-26 Summary of Impacts for Region IV

Resource	Resource Topic	Alternative IV-A	Alternative IV-B	Alternative IV-C
	MOAs with 250-foot-Wide Transmission ROW Overlap	0	0	0
Socioeconomics				
	Short-term socioeconomic effects associated with construction	Temporary economic effects (i.e., construction jobs and sales and use tax revenues) would be similar to those for Alternative I-A, but concentrated in the Las Vegas Valley.	Approximately 10% higher than Alternative IV-A, but still limited magnitude.	Approximately 20% higher than Alternative IV-A, but still limited magnitude.
		Little temporary worker or population influx due to skilled labor force availability in the Las Vegas Valley.	Essentially the same as those in Alternative IV-A.	Essentially the same as those in Alternative IV-A.
		Sales and use tax revenues would reflect the large capital investment associated with a terminal in Region IV.	Essentially the same as those in Alternative IV-A.	Essentially the same as those in Alternative IV-A.
		Little or no temporary housing demand, combined with large supply of available lodging.	Essentially the same as those in Alternative IV-A.	Essentially the same as those in Alternative IV-A.
		Temporary socioeconomic effects during decommissioning would include construction jobs, demands on lodging and public services, and short-term economic stimulus. Sales and use taxes would be low compared to construction. Ad valorem taxes would cease.	Essentially the same as those in Alternative IV-A.	Essentially the same as those in Alternative IV-A.
	Long-term socioeconomic effects with operations.	Limited long-term economic effects; similar to those for Alternative I-A.	Essentially the same as those in Alternative IV-A.	Essentially the same as those in Alternative IV-A.
		Negligible effects on livestock grazing and agricultural production.	Same as Alternative IV-A.	Same as Alternative IV-A.
		Project generates ad valorem/property taxes on improvements in the region. Tax revenues boosted by location of the southern terminal in this region. Location of terminal could be altered under design options.	Same as Alternative IV-A.	Same as Alternative IV-A.

Table 2-26 Summary of Impacts for Region IV

Resource	Resource Topic	Alternative IV-A	Alternative IV-B	Alternative IV-C
		Limited effects on outdoor recreation due to location in developed metropolitan area. Potential limited scale property value effects due to location in urbanized area, including near existing and future residential development.	Higher potential for dissatisfaction and conflict with outdoor recreation due to location within Lake Mead NRA, but lower potential effects on property values because more removed from residential and commercial development.	Higher potential for dissatisfaction and conflict with outdoor recreation due to location within Lake Mead NRA, but lower potential effects on property values because more removed from residential and commercial development.
		Federal government receives rental/ lease income on ROW.	Essentially the same as Alternative IV-A.	Essentially the same as Alternative IV-A.
		Project development and operations would not result in effects warranting detailed consideration under Environmental Justice.	Same as Alternative IV-A.	Same as Alternative IV-A.
Public Health and Safety				
	Serious injuries to workers and the public at-large.	Workers during construction and operation may be injured by heavy equipment, working at heights, working in the vicinity of high voltage equipment, as well as from typical hazards found on a construction site. The workers and the public may be injured by fire as well as downed power lines.	Same as Alternative IV-A.	Same as Alternative IV-A.
	Adverse health impacts from EMF, stray voltage, and induced voltage associated with transmission lines.	Two commercial/industrial structures would be within 200 feet of the alignment, resulting in potential impacts from EMF, stray voltage, and induced voltage.	There would be no structures within 200 feet of the alignment, resulting in the potential for impacts from EMF, stray voltage, and induced current that would be less than Alternative IV-A.	There would be no structures within 200 feet of the alignment, resulting in the potential for impacts from EMF, stray voltage, and induced current that would be less than Alternative IV-A.
(4.a) (4.b)	Noise impacts to nearby communities and residences.	There would be 2 communities within the analysis corridor; 5 residential structures within 500 feet of the alignment, and no residential structures within 200 feet of the alignment, resulting in potential impacts from noise with this alternative.	There would be 1 community within the analysis corridor; 8 residential structures within 500 feet of the alignment, and no residential structure 200 feet of the alignment, resulting in impacts from noise that would be similar to slightly greater than Alternative IV-A.	There would be 1 community within the analysis corridor; 8 residential structures within 500 feet of the alignment, and no residential structure 200 feet of the alignment, resulting in impacts from noise that would be similar to slightly greater than Alternative IV-A.
	Impacts from associated accidental release of hazardous materials.	Impacts resulting from the accidental release of hazardous materials is expected to be negligible as a result of spill prevention measures, notification procedures and employee awareness training.	Same as Alternative IV-A.	Same as Alternative IV-A.

Table 2-26 Summary of Impacts for Region IV

Resource	Resource Topic	Alternative IV-A	Alternative IV-B	Alternative IV-C
Wild Horses				
	Impacts to HMAs or HAs.	No wild horse HMAs and HAs in Region IV.	No wild horse HMAs and HAs in Region IV.	No wild horse HMAs and HAs in Region IV.
Lands with Wilderness Characteristics				
(5.e)	LWC	No LWC units affected in Region IV.	No LWC units affected in Region IV.	No LWC units affected in Region IV.
Wildfire				
	Fire Regime Groups I-V Identified for the Project construction/operation (acres).			
	I	4/1	4/1	7/2
	II	-/-	-/-	-/-
	III	-/-	-/-	-/-
	IV	-/-	-/-	-/-
	V	451/100	300/68	342/76
	FRCC Condition Classes (CC) I-III Identified for the Project construction/operation (acres).			
	I	-/-	-/-	-/-
	II	15/-	19/-	14/-
	III	436/-	274/-	325/-
	Fuel Loading Model Classes Identified for the Project construction/operation (acres).			
	NB	63/17	113/25	148/25
	GR	184/42	241/53	242/51
	GS	270/58	192/41	214/47
	SH	19/4	15/4	11/2
	TL	-/-	-/-	1/-
	TU	11/3	4/1	6/2
Migratory Birds				
	Number of known raptor nests within 1 mile of the potential disturbance area	1	1	1
	Audubon IBAs (acres) construction/operation		Lake Mead NRA IBA 4/2	Lake Mead NRA IBA 4/2

Table 2-26 Summary of Impacts for Region IV

Resource	Resource Topic	Alternative IV-A	Alternative IV-B	Alternative IV-C
	BHCAs (acres) construction/operation	Lower Muddy River BHCA 63/13	Lower Muddy River BHCA 163/47	Lower Muddy River BHCA 163/47 Piute/Eldorado/ Fenner DWMA BHCA 45/9
	Total Indirect Impacts to Priority Habitats (acres)	36,556	34,265	34,497
	Total Indirect Impacts to Non-sagebrush Priority Habitats (acres)	36,556	34,265	34,497
	Total Indirect Impacts to Wetland/Riparian/Open Water Priority Habitats (acres)	33	2,194	2,194
	Total Indirect Impacts to Priority Habitats along Non-co-located Segments (acres)	21,886	22,087	21,833
	Total Construction Impacts to Priority Habitats (acres)	360	321	345
	Total Operation Impacts to Priority Habitats (acres)	83	77	79
	Total Indirect Impacts to IBA Priority Habitats (acres)	-	3,017	3,017
	Total Indirect Impacts to BHCA Priority Habitats (acres)	2,373	22,296	23,074
	Total Length of Alternative (miles)	37	40	44
Plan Amendments				
	Number of Necessary Plan Amendments	No Plan Amendments	No Plan Amendments	No Plan Amendments

Table 2-27 Comparison of Agency Preferred Parameters between the Applicant Proposed and the Agency Preferred for the Entire Project

Parameter	Topic	Details (units)	Applicant Proposed	Agency Preferred
(1.a)	Use of Designated Utility Corridors	(miles of BLM/USFS)	176	204
(1.a)	Use of Designated Utility Corridors	(miles of WWEC)	260	152
(2.a)	Plan Amendments Required	(count)	5	5
(3.a)	Occupied greater sage-grouse leks within 4 miles of alignment	(count)	44	44
(3.a)	Impacted greater sage-grouse habitat	construction (acres)	1,849	1,933
(3.a)	Impacted greater sage-grouse habitat	operation (acres)	411	416
(3.b)	Number of special status raptor nests within 1 mile of analysis corridor	(count)	565	564
(3.c)	Impacted Canada lynx potential habitat	construction (acres)	217	217
(3.c)	Impacted Canada lynx potential habitat	operation (acres)	51	51
(3.d)	Impacted desert tortoise potential habitat	construction (acres)	1,466	1,473
(3.d)	Impacted desert tortoise potential habitat	operation (acres)	377	298
(3.e)	Impacted Utah prairie dog potential habitat	construction (acres)	775	818
(3.e)	Impacted Utah prairie dog potential habitat	operation (acres)	151	161
(4.a)	Residences within 500 feet of alignment	(count)	21	24
(4.b)	Communities within 2-mile corridor	(count)	15	7
(5.a)	Pronghorn crucial winter range	construction (acres)	2,074	2,373
(5.a)	Pronghorn crucial winter range	operation (acres)	390	444
(5.a)	Mule deer crucial winter range/crucial yearlong range	construction (acres)	1,511	1,353
(5.a)	Mule deer crucial winter range/crucial yearlong range	operation (acres)	401	351
(5.a)	Elk crucial winter range	construction (acres)	1,394	1,415
(5.a)	Elk crucial winter range	operation (acres)	409	422
(5.a)	Moose occupied habitat	construction (acres)	668	693
(5.a)	Moose occupied habitat	operation (acres)	241	261
(5.a)	Rocky Mountain or desert bighorn sheep	construction (acres)	23	20
(5.a)	Rocky Mountain or desert bighorn sheep	operation (acres)	12	12
(5.a)	Small game, nongame habitat	construction (acres)	9,082	8,977

Table 2-27 Comparison of Agency Preferred Parameters between the Applicant Proposed and the Agency Preferred for the Entire Project

Parameter	Topic	Details (units)	Applicant Proposed	Agency Preferred
(5.a)	Small game, nongame habitat	operation (acres)	2,185	2,056
(5.a)	Waterfowl habitat	construction (acres)	229	240
(5.a)	Waterfowl habitat	operation (acres)	53	50
(5.b)	Residual Impacts: High Sensitivity viewers, High Impact	(miles)	86	72
(5.b)	Residual Impacts - Landscape Scenery, High Impact	(miles)	203	184
(5.b)	State/Federal Parks crossed by Analysis Area	(count)	24	23
(5.b)	SRMAs crossed by Analysis Area	(count)	4	4
(5.b)	Dispersed, undesignated within Analysis Area	(acres)	505,997	526,088
(5.c)	Continental Divide National Scenic Trail within analysis corridor.		One segment of the CDNST crossed. 4 acres within the 250-foot-wide transmission line ROW. Less than 2 acres of modeled ROW clearing and construction surface disturbance, a fraction of which would be permanent. Impacts minimized by ROW placement within designated overhead utility corridor.	One segment of the CDNST crossed. 4 acres within the 250-foot-wide transmission line ROW. Less than 2 acres of modeled ROW clearing and construction surface disturbance, a fraction of which would be permanent. Impacts minimized by ROW placement within designated overhead utility corridor.
(5.c)	Overland Trail National Historic Trail within analysis corridor.		Overland Trail: 1 non-contributing segment crossed. Visible along 9 miles of trail, 4 of which are contributing.	Overland Trail: 1 non-contributing segment crossed. Visible along 9 miles of trail, 4 of which are contributing.
(5.c)	Cherokee Trail National Historic Trail within analysis corridor.		Cherokee Trail: 1 non-contributing segment crossed. Visible along 23 miles of trail, 10 of which are contributing.	Cherokee Trail: 1 non-contributing segment crossed. Visible along 27 miles of trail, 11 of which are contributing.
(5.c)	Old Spanish Trail National Historic Trail within analysis corridor.		6 segments of the Old Spanish NHT crossed; 1 NHT-1, 5 unrated/unknown. Visible along 89 miles of the trail, of which 8 miles are NHT-I, 2 miles are NHT-II, 0.1 mile of NHT-IV, and 78 are unevaluated.	3 segments of the Old Spanish NHT crossed; 3 are unrated/unknown. Visible along 74 miles of the trail, of which 5 miles are NHT-I, 1 mile are NHT-II, 0.1 mile is NHT-IV, and 68 miles are unevaluated.
(5.d)	LWC Units Affected	(count)	8	12
(5.d)	LWC Units Eliminated	(count)	1	2
(5.d)	LWC Units Eliminated	(acres)	6,347	15,455
(5.d)	LWC Units Remaining	(count)	7	11
(5.d)	LWC Units Remaining	(acres)	52,412	185,915
(5.d)	Unit Portions Eliminated	(count)	12	25
(5.d)	Unit Portions Eliminated	(acres)	12,563	25,960
(5.e)	Non Co-located	(miles)	283	320

Table 2-27 Comparison of Agency Preferred Parameters between the Applicant Proposed and the Agency Preferred for the Entire Project

Parameter	Topic	Details (units)	Applicant Proposed	Agency Preferred
(5.e)	Non Co-located	(percent)	39	44
(6.a)	Land Jurisdiction	Federal (percent)	67	66
(6.a)	Land Jurisdiction	State (percent)	8	6
(6.a)	Land Jurisdiction	Tribal (percent)	0	0
(6.a)	Land Jurisdiction	Private (percent)	25	28
(7.a)	Total Length	(miles)	727	728
(7.b)	Helicopter-only construction in IRAs	(miles)	7	2