Appendix B

TransWest Express Transmission Project Corridor Screening Report

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Western Area Power Administration

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TransWest Express Transmission Project Corridor Screening Report

List of Acronyms

AC	Alternating Current
ACEC	Area of Critical Environmental Concern
APS	Arizona Public Service Company
BLM	Bureau of Land Management
DC	Direct Current
EGS Project	Energy Gateway South Project
EHV	Extra-High Voltage
EIS	Environmental Impact Statement
GIS	Geographic Information System
GWh/yr	Gigawatt hours per year
IA	Interim Agreement
IM	Instruction Memorandum
IPP	Intermountain Power Project
kV	Kilovolt
LRMP	Land and Resource Management Plan
MW	Megawatt
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Corporation
NNL	National Natural Landmarks
POD	Plan of Development
RMP	Resource Management Plan
ROW	Right-of-Way
SIO	Scenic Integrity Objective
TAC	The Anschutz Corporation
TIP	Transmission Infrastructure Program
TWE	TransWest Express LLC
TWE Project	TransWest Express Transmission Project
U.S.	United States
USFS	U.S. Forest Service
VQO	Visual Quality Objective
VRM	Visual Resource Management
WECC	Western Electricity Coordination Council
Western	Western Area Power Administration
WIA	Wyoming Infrastructure Authority
WSA	Wilderness Study Area
WSR	Wild and Scenic River

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1.0 Introduction

1.1 Project Description

TransWest Express LLC (TransWest) and Western Area Power Administration (Western) are proposing to construct, own, and operate the TransWest Express Transmission Project (TWE Project), which would be an extra-high voltage (EHV) direct current (DC) transmission system extending from south-central Wyoming to southern Nevada. The TWE Project is intended to provide the transmission infrastructure and capacity necessary to deliver approximately 3,000 megawatts (MW) of electric power from renewable energy resources in south-central Wyoming to markets in the Desert Southwest region. The TWE Project would consist of an approximately 725-mile-long, 600-kilovolt (kV), DC transmission line and two Alternating Current (AC)/DC converter stations – a Northern AC/DC Converter Station to be located near Sinclair, Wyoming, and a Southern AC/DC Converter Station to be located at the Marketplace Hub in the Eldorado Valley, approximately 25 miles south of Las Vegas, Nevada (**Map 1, Attachment A**). TransWest also is retaining an option for a future interconnection with the Intermountain Power Project (IPP) transmission system in Millard County, Utah.

1.2 Corridor Screening Report Purpose

The Wyoming State Office of the Bureau of Land Management (BLM) and Western are co-lead federal agencies responsible for preparing an Environmental Impact Statement (EIS) under the requirements of the National Environmental Policy Act (NEPA). The results of this screening report will be used by BLM and Western to develop the EIS structure and content.

1.3 Definitions

- A **corridor** is a study area of a specific width and length in which a transmission line and ancillary facilities could be located. A corridor typically extends over many miles within a particular region, and is made up of shorter **corridor segments** that have been added together.
- The **applicant-proposed corridor** has been presented by TransWest as the preferred project location to meet its interests and objectives. **Alternative corridors** are different locations for transmission line facilities that may result in less environmental impacts than the applicant-proposed corridor.
- **Screening** is the process by which identified corridor segments are reviewed to determine the **opportunities** and **constraints** for locating transmission line facilities. Opportunities include ways to limit the magnitude of environmental impacts, and to insure consistency with federal, state, and local land management requirements. Constraints include areas where construction of transmission line facilities should be excluded or avoided, based on terrain and natural hazards, land management restrictions, or the presence of sensitive resources that could be adversely affected.

1.4 Corridor Screening Process

This Corridor Screening Report was prepared to document the process by which transmission line study corridors for the proposed project and alternativeswere identified and refined for public scoping and EIS analysis, or were eliminated from further consideration. The corridor screening process consisted of three primary steps and time frames:

1. Project feasibility. Studies of project feasibility were initiated in 2005, and included the development of preliminary transmission line corridors within a large study region. An initial corridor feasibility report was completed by TransWest and other project proponents in 2008. Additional federal agency input was received on corridor suitability in 2009.

2. Preliminary Corridor Screening. The BLM and Western initiated preliminary corridor screening in 2010 to determine which corridors to carry forward for EIS public scoping. The methods and results of this screening review are contained in this report.
3. EIS Alternatives. The BLM and Western selected corridors to carry forward in the NEPA analysis, and eliminate from further consideration, based on the results of public scoping completed in early 2011, and ongoing agency and public comments received through the beginning of 2013. The methods and results of this selection process are contained in this report.

1.5 Project Background and Feasibility

In 2005, Arizona Public Service Company (APS) announced plans to explore the feasibility of the TWE Project to meet its customers' long-term growth needs. The TWE Project, as originally conceived, was to transport fossil fuel and renewable wind energy from Wyoming to utilities in Arizona, California, Colorado, New Mexico, Nevada, and Utah. In addition to providing access to energy resources for rapid growth areas in the Southwest, the TWE Project was intended to benefit all western states by providing improved reliability of the western electrical grid. In March 2006, APS signed a Memorandum of Understanding with the Wyoming Infrastructure Authority (WIA) and National Grid (an international electricity and gas company) to collaborate on a transmission corridor study. In December 2006, APS completed a feasibility report that concluded that the TWE Project potentially would create significant benefits for its customers.

During the same timeframe, Rocky Mountain Power (a subsidiary of PacifiCorp) was investigating the feasibility of developing the Gateway South Transmission Project (later to become known as the Energy Gateway South Project [EGS Project]), a proposed transmission line from eastern Wyoming into Utah, terminating at the Crystal Substation in Nevada. The EGS Project shared many corridor location aspects with the TWE Project.

In August of 2007, National Grid, APS, Rocky Mountain Power, and the WIA entered into an interim agreement (IA) to plan for development of new EHV transmission lines for the western United States (U.S.). These proponents' system studies concluded that there was a demonstrated need to transmit electrical power from Wyoming to energy demand areas in Utah, Nevada, Arizona, and Southern California. Because both APS and Rocky Mountain Power had sponsored previous feasibility studies, those previous studies were incorporated into the collaborative effort to identify feasible transmission corridors developed under the IA.

The collaborative study area originally encompassed much of Wyoming, northwestern Colorado, southeastern Idaho, much of Utah, extreme eastern Nevada, and central Arizona. The analysis that resulted from the IA collaboration between National Grid, APS, Rocky Mountain Power, and WIA identified a preliminary set of EHV transmission corridors within which construction and operation of these facilities were considered to be environmentally feasible.

The APS interests in the TWE Project were acquired by National Grid, which filed a Standard Form 299 (SF 299) Application for Transportation and Utility Systems and Facilities on Federal Lands (Right-of-Way Grant application [ROW application]) with the BLM on November 30, 2007. In 2008, The Anschutz Corporation (TAC) formed TransWest (a wholly owned subsidiary of TAC) and acquired the TWE Project from National Grid. Subsequently, on September 2, 2008, National Grid and TransWest submitted an amended ROW application requesting the assignment of the unserialized application and related project file to TransWest. TransWest submitted an amended ROW application for the TWE Project in December 2008, and another amended ROW application in January 2010, as explained in more detail below.

1.6 TWE Transmission Project Interests and Objectives

Prior to 2008, most EISs typically referred to the purpose and need for a project as being the project proponent's purpose and need. In 2008, BLM published its revised NEPA Handbook (BLM 2008), in which the guidance states that the Council on Environmental Quality regulations direct that an EIS "*shall briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action*." The manual further states that the purpose and need statement for an externally generated action (such as the TWE Project) "*must describe the BLM purpose and need, not an applicant's or external proponent's purpose and need (40 CFR 1502.13).*" On February 7, 2011, BLM issued an Instruction Memorandum (IM) regarding NEPA compliance for utility-scale renewable energy ROW authorizations. In this IM, BLM further clarifies that "*the purpose and need statement as a whole describes the problem or opportunity to which the BLM is responding and what the BLM hopes to accomplish by the action*" (BLM 2011). The IM goes on to state that "*the purpose and need statement in a NEPA document for a renewable energy right-of-way application must describe the BLM's purpose and need for action, not the applicant's interests and* objectives." Therefore, for this document and throughout the remainder of the EIS documentation for this project, the applicant's "purpose and need," regardless of how it was referred to in the original document being referenced, will be referred to as interests and/or objectives, and only federal agency purpose and need statements will be identified as such.

According to TransWest, the primary "interest or objective" of the currently proposed TWE Project is to provide the transmission infrastructure and capacity necessary to reliably and cost-effectively provide up to 3,000 MW of electric power capacity from Wyoming to the Desert Southwest.

The broad objectives of the TWE Project are to:

- Allow consumers access to renewable energy sources and contribute to meeting national, regional, and state energy and environmental policies, including state mandated renewable portfolio and greenhouse gas reduction targets;
- Meet increasing customer demand with improved electrical system reliability;
- Allow consumers access to domestic energy sources and contribute to complying with national energy policy;
- Provide system flexibility and increased access to the grid for the third party transmission users;
- Expand regional economic development though increased employment and enlargement of the property tax base; and
- Maintain the standard of living associated with highly reliable electricity service.

To meet these broad objectives, TransWest has identified the following project-specific interests and objectives:

- Provide for the efficient, cost-effective, and economically feasible transmission of approximately 20,000 gigawatt hours per year (GWh/yr) of clean and sustainable electric energy from Wyoming to markets in the Desert Southwest region.
- Meet North American Electric Reliability Corporation (NERC) Reliability Standards and Western Electricity Coordination Council (WECC) planning criteria and line separation requirements.
- Maximize the use of existing and designated utility corridors and access roads in order to minimize environmental and social effects of the TWE Project to the extent practical.

- Deliver electricity to the Desert Southwest region and the broader Western U.S. in a timely manner to meet the regions pressing energy needs. TransWest has identified a need for the TWE Project by the expected in-service date of 2015 or as soon as the regulatory reviews can be completed.
- Provide for flexibility and maximize the use of transmission capacity that may become available by configuring the TWE Project to allow for future interconnection with the IPP transmission system near Delta, Utah.

1.6.1 Western Area Power Administration's Transmission Infrastructure Program

The American Recovery and Reinvestment Act was signed into law to jumpstart the economy and create or save millions of jobs. The Act includes measures to modernize the nation's infrastructure and enhance energy independence. The Recovery Act, Section 402, provides Western's Transmission Infrastructure Program (TIP) new authority to construct transmission lines to help deliver renewable resources to market and, provides a source of funds for this activity.

Program goals are to:

- Construct and/or upgrade transmission lines to help deliver renewable resources to market;
- Select, study and/or build projects under this authority that are in the public interest;
- Solicit public input in identifying potential projects;
- Ensure projects do not adversely impact system reliability or operations, or other statutory obligations;
- Ensure projects are economically feasible and are adequate to repay project costs; and
- Leverage borrowing authority by partnering with others.

Western's TIP establishes the policies and practices to implement Western's borrowing authority granted under Section 402 of the American Recovery and Reinvestment Act.

Program principles

The program establishes six project principles and four program principles to provide guidance in implementing the authority to borrow up to $3.25 billion from the U.S. Treasury to fund partnerships to develop transmission infrastructure that delivers renewable energy to market across the West.

Project principles ensure that each project approved for funding:

- Is in the public interest;
- Will not adversely impact system reliability or operations, or other statutory obligations;
- Offers reasonable expectation that proceeds will be adequate to meet repayment obligations;
- Uses a public process to set transmission rates;
- Has the necessary capability to obtain and deliver generation-related ancillary services; and
- Uses proceeds from the project to repay principal and interest of the loan from the Treasury.

Program principles ensure the program:

- Provides appropriate opportunities for participation by other entities;
- Uses revenue from the projects developed under this authority as the only source of revenue for repayment of the associated loan for the project and payment of expenses for ancillary services and operations and maintenance;
- Ensures each project, for accounting and repayment purposes, is treated as a separate and distinct project; and
- Ensures that project beneficiaries repay project costs.

2.0 Preliminary Corridor Screening Process

This section provides a summary of the previous corridor screening work completed for the TWE Project, as well as the incremental design changes in the project that were documented in amended ROW applications submitted to the BLM between 2008 and 2010.

2.1 2008 Corridor Study Report

2.1.1 2008 Corridor Study Area

The 2008 corridor study report (sponsored by National Grid, APS, Rocky Mountain Power, and the WIA) was prepared to co-develop the TWE and EGS projects, which have (or had, at the time) many common transmission line routing elements. The EGS Project is a separate EHV AC transmission project that may share some potential corridors with the TWE Project. The 2008 corridor study report (EPG 2008) defined its preliminary study area as "*most of the state of Utah, plus large sections of northwestern Colorado, southwestern Wyoming, southeastern Idaho, eastern Nevada, and north-central Arizona*." The preliminary study area included corridors previously investigated in the APS TransWest Feasibility Study and other studies completed by Rocky Mountain Power, National Grid, and WIA. In the 2008 report, the study area was established using the following criteria:

- Potential major substation interconnection points;
- Existing designated utility corridors;
- Existing EHV, as well as lower voltage, transmission lines;
- Topography; and
- Land use designations (e.g., national parks, conservation areas, etc.).

The final study area was generally defined by "*potential terminal locations in Wyoming, Utah, Nevada, and Arizona, and existing substations that could be expanded to allow the import and export of power from Wyoming into Utah, Nevada, and Arizona*."The final study area also was defined by the potential use of existing and future major linear corridors, as well as known management areas that would present barriers to development of a transmission line (e.g., national parks and monuments and other special designation areas). The final study area in the 2008 report extended farther north into Wyoming than does the current study area and it included a large part of north-central Arizona. TransWest's current proposed project would terminate at the Marketplace Hub in southern Nevada.

2.1.2 Opportunities and Constraints

An extensive data inventory was compiled for the 2008 corridor study report. Tabular information, maps, digital Geographic Information System (GIS) data layers, and other data from federal, state, and local agencies or organizations were collected to allow determination of environmental sensitivity and opportunity areas. For each environmental resource studied, the data were evaluated to identify areas of constraint or difficulty, as well as areas of opportunity for siting EHV transmission lines.

The 2008 corridor study report considered resource value, protective status, and present and future use in the study area, to which relative levels of sensitivity (very high, high, moderate, and low) were applied in association with the introduction of new transmission lines. These sensitivity levels were mapped by resource.

2.1.3 Identification of Potential Transmission Line Corridors

After the sensitivity analysis for each resource was completed, constraint and opportunity maps were prepared and composited to assist in identifying the preliminary transmission line corridors. The

constraint and opportunity maps were overlain to identify the preliminary 6-mile-wide corridors to allow for more detailed EHV siting analyses. Existing corridors were given preference over new corridors. Other criteria or guidelines used to identify the preliminary corridors to be studied included:

- Avoidance of resources and land uses with very high sensitivity.
- Minimization of proximity to resources and land uses with high and moderate sensitivity.
- Minimization of corridors through steep topography.
- Minimization of the overall corridor length.

The preliminary 6-mile-wide alternative corridors in the 2008 study generally paralleled existing transmission lines and other existing and planned linear facilities. The alternative corridors were further refined by attempting to maximize the locations of transmission alternatives within Resource Management Plan (RMP)- and Land and Resource Management Plan (LRMP)-designated corridors, as well as the energy corridors identified (at that point in time) in the draft West-wide Energy Corridor Programmatic EIS. The 2008 collaborative study concluded that the proposed and alternative corridors considered in the analysis were environmentally feasible and were recommended to be carried forward in the NEPA agency and public scoping process.

2.2 2008 Amended ROW Application and 2009 Plan of Development

In 2008, TransWest acquired the TWE Project from National Grid. Subsequently, on September 2, 2008, National Grid and TransWest submitted an amended ROW application requesting the assignment of National Grid's November 2007 unserialized ROW application and related project file to TransWest. Shortly thereafter, TransWest submitted another amended ROW application for the TWE Project in December 2008, amending the November 2007 application. TransWest also provided the BLM with an updated Plan of Development (POD) in January of 2009. The BLM compiled agency pre-scoping comments after submittals of both the 2007 ROW application and the amended 2008 ROW application.

2.2.1 2008 TWE Project Interests and Objectives

The primary difference between the TransWest ROW application submitted in 2007 and the amended ROW application submitted in December 2008 (aside from the change in project proponent from National Grid to TransWest) were the project end points. The amended 2008 ROW application indicated that the applicant-proposed corridor would originate farther south and west in Wyoming at the Aeolus Substation (**Map 2A, Attachment A**), rather than in northeastern Wyoming near Casper. Additionally, the 2007 ROW application indicated that National Grid was planning to deliver electric power to "*near Las Vegas, Nevada, and/or Phoenix, Arizona*"; whereas, TransWest proposed to terminate the project south of Las Vegas, at the Marketplace Hub (**Maps 2A** and **2B, Attachment A**).

The amended ROW application and POD submitted in December of 2008 and January 2009, respectively, stated that the objective of the TWE Project was to provide the transmission infrastructure necessary to deliver approximately 20,000 GWh/yr of electric power generated in Wyoming to the Desert Southwest (Arizona, Nevada, and southern California). The project would be constructed in accordance with standards developed and enforced by the NERC and WECC. These standards require a minimum separation distance between transmission lines for reliability and weather-related factors. The amended ROW application and POD also discussed Renewable Portfolio Standards adopted by Arizona, California, Nevada, and Utah, thereby giving further support to the need for the TWE Project.

2.2.2 2009 Agency Pre-scoping and Corridor Refinement

BLM reinitiated agency pre-scoping for the project in early 2009. BLM received additional comments based on the submittal of the December 2008 amended ROW application, and conducted a round of agency pre-scoping meetings throughout the spring of 2009. As the agencies continued to comment on

the project and provide their issues, concerns, and routing recommendations, BLM and TransWest continued to refine the proposed and alternative corridors.

In mid-2009, BLM separated the TWE and EGS projects for the NEPA analysis based on differences in the interests and objectives of the two projects. The study area was modified to consider only the proposed scope of the TWE Project. As a result, the Marketplace Hub became the proposed terminus for the project, and Arizona was removed from the study area.

2.3 2010 Amended ROW Application

In January of 2010, TransWest amended its 2008 ROW application, stating that "*this application provides additional detail and descriptive information concerning the proposed project and related structures and facilities based upon further engineering design and system studies conducted subsequent to 2008. In addition, this application provides further information and refinement of the TWE Project 'purpose and need'*." **Map 3** (**Attachment A**) depicts the proposed and alternative 6-mile-wide corridors that TransWest submitted with its January 2010 ROW application.

2.3.1 2010 Interests and Objectives

TransWest's current interests and objectives for the project were provided in Section 1.6, above. The primary difference between the amended 2008 ROW application and the amended 2010 ROW application is TransWest's stated need to allow for future interconnection with the IPP transmission system near Delta, Utah. In its January 2010 ROW application, TransWest "*identified a need to provide flexibility and maximize the use of transmission capacity that may become available by configuring the TWE Project to allow for future interconnections with other existing and planned electrical systems that can deliver … electric energy from Wyoming to markets in the Desert Southwest region. This need is met by providing for a potential interconnection with the IPP transmission system near Delta in Millard County, Utah, as well as to the Marketplace Hub near Boulder City, Nevada*." The 2010 ROW application also moved the project origination point farther south and west to the Sinclair, Wyoming area. However, the Aeolus Substation still would be considered an alternative origination point. Additionally, based on agency pre-scoping input, other corridors or segments were added, deleted, and/or modified to meet the revised project interests and objectives.

2.3.2 2010 Agency Pre-scoping and Corridor Refinement

In early 2010, Western became involved in the project as a potential project funding source, and also assumed the role as the federal co-lead with the BLM for the preparation of the EIS. Agency pre-scoping was re-initiated in response to the amended January 2010 ROW application. Pre-scoping agency conference calls and meetings were held during March and April of 2010. BLM, Western, and TransWest continued to refine the alternative corridors based on the pre-scoping input provided by the cooperating agencies.

2.3.3 EIS Public Scoping Corridors

Based on the 6-mile-wide, proposed and alternative corridors submitted with the amended January 2010 ROW application, additional pre-scoping agency comments, and the results of the screening analysis documented in this report, TransWest submitted a revised POD in July 2010 showing more narrowly defined proposed and alternative corridors (typically 2 miles wide).The corridors presented for public scoping in early 2011 were based on this further review and refinement process described in more detail in Section 3.2.

2.4 2011 and 2012 Amendments to ROW Application

In August 2011, TransWest submitted a letter to BLM and Western that amended the ROW application by reconfiguring TransWest's proposed route based on resolutions received from multiple counties in Wyoming, Colorado, and Utah. Sweetwater and Carbon counties in Wyoming, and Moffatt County,

Colorado submitted a joint resolution expressing their preference for the TransWest to follow a route along the Old Dad Road and Sevenmile Ridge in southern Wyoming and northwestern Colorado (an existing alternative) instead of the TransWest proposed route at that time. Likewise, Millard and Juab counties in Utah also submitted a joint resolution expressing their preference for the TransWest to follow the existing UNEV pipeline route and West Wide Energy Corridor (existing alternatives) instead of the TransWest proposed at that time. Subsequently, TransWest adjusted the proposed route to coincide with both these joint resolutions.

In August 2012, TransWest submitted another letter to BLM and Western to amend the ROW application by removing consideration of the proposed connection from the northern terminal near Sinclair, Wyoming to the planned Aeolus Substation. TransWest stated that interconnections have been requested with PacifiCorp's proposed transmission projects in the area, and that would negate the need for the connection to Aeolus.

In October 2012, TransWest submitted a third letter to BLM and Western amending the ROW application by modifying the proposed southern terminal siting area in the Eldorado Valley of Nevada. The modifications excluded areas that are part of a multi-species conservation easement and added portions of nearby public lands to provide adequate options to consider development congestion in the area. Two additional northern ground electrode system siting area alternatives were also added, while one was eliminated at this time.

TransWest's interests and objectives did not change from those stated in Section 2.3.1. Following public scoping, two preliminary draft EISs were prepared and reviewed by the lead and cooperating agencies. Refinements to the alternatives continued in response to scoping and agency input. These refinements are detailed in Section 5.

3.0 Methods Used for the Preliminary Corridor Screening Analysis (Pre-scoping)

3.1 Corridor Validation and Refinement

Evaluating potential transmission line corridors involves many decisions regarding land use and resource impacts, feasibility, cost, and other factors. The initial set of proposed and alternative corridor segments that were identified for the TWE Project in the 2008 feasibility study, and from subsequent cooperating agency interactions served as the basis for the corridor refinement conducted during 2010. During the corridor refinement process, attempts were made to avoid obvious land use and resource constraints, and minor corridor adjustments were made. In a few instances, new connecting corridor segments were added to the analysis to provide additional options through highly constrained areas. In general, the corridor refinement process focused on identifying potentially feasible corridors and eliminating corridors that were either duplicative or presented extensive resource constraints. Corridors for potential elimination were initially identified through a comparative process that assessed environmental resource data and other constraints within the corridors. This process is described in more detail in Section 3.2, below.

Due to the complexity and iterative nature of the corridor refinement process, this document does not present a chronological summary of each corridor refinement decision that was made. Rather, major decisions regarding eliminating corridors or adding new corridors prior to and subsequent to public scoping are described.

3.1.1 Constraints and Resource Data

No field data collection was conducted for the screening analysis. Previously gathered resource data within the study area from resource management agencies and state and local governments were provided by TransWest. These datasets were updated as necessary and were used to prepare GIS resource maps and to support the corridor refinement analysis. The types of data that were readily available and analyzed in the corridor screening study included: engineering, transportation, land use, structures, jurisdiction, recreation and conservation areas, cultural resources, water resources, biological resources, geologic hazards, soils, and visual resources.

The resource data were mapped in GIS format and combined with aerial photography to enable the identification of potential constraints. The environmental resources and land uses listed above were generally categorized as either avoidance criteria (to be avoided whenever possible) or exclusion criteria (to be avoided entirely by the project). Resource categories assigned avoidance criteria include sensitive areas that would potentially affect human populations, current land uses, or biological or culturally sensitive areas. If a sensitive area cannot be completely avoided, impacts can be minimized through route refinement, careful placement of access roads, seasonal restrictions, and other mitigation measures.

Categories assigned exclusion criteria include locations with the highest level of sensitivity, such as areas with regulatory or legislative designations or extreme physical constraints not compatible with construction and/or operation of a transmission line. In general, locating a transmission line within an area assigned with avoidance or exclusion criteria may not be possible or feasible because of regulatory constraints, public opinion, unacceptable environmental impacts or risks, and/or higher costs. The resources or aspects of a resource assigned with avoidance or exclusion criteria are identified in **Table 3-1**.

Table 3-1 Constraint Criteria

Resource	Avoidance Criteria	Exclusion Criteria
Engineering and Utility Corridors		
Underground-Only Utility Corridors	Within Underground-Only Corridors.	N/A
Existing Transmission Lines	Minimize crossings and minimize length within 1,500 feet.	N/A
Transportation		
Airports and Heliports	10,000 feet of Public Airport, 5,000 feet of private airport, or 4,000 feet of heliport.	Not defined for this corridor study.
Interstate, U.S. Highway, and State Highway crossings	Minimize crossings.	N/A
Scenic Byways	Minimize crossings and minimize length within 0.5 mile.	N/A
Land Use, Structures, and Jurisdiction		
FCC Radio and Communication Towers	Within 250 feet.	Not defined for this corridor study.
Occupied Structures	Within 250 feet.	Not defined for this corridor study.
Schools and Hospitals	Within 500 feet.	Not defined for this corridor study.
Municipal Boundaries	Minimize length within municipal boundary.	N/A
Indian Reservation Boundary	Minimize length within reservation boundary.	N/A
Military Operation Areas	Minimize length within these areas.	N/A
Mining and Energy Lease Areas	Minimize length within these areas.	N/A
Wild Horse and Herd Management Areas	Minimize length within these areas.	N/A
Irrigated Agricultural Land	Minimize length within irrigated agricultural land.	N/A
Recreation and Conservation Areas		
State Wildlife Management Areas, National Wildlife Refuges, State Parks, and Natural Areas	Minimize length within these areas.	N/A
Recreational Trails	Within 0.25 mile.	Not defined for this corridor study.

Table 3-1 Constraint Criteria

Resource	Avoidance Criteria	Exclusion Criteria
Designated Recreational Areas, BLM Special Recreation Management Area, and Campgrounds	Within 0.25 mile.	Not defined for this corridor study.
Areas of Critical Environmental Concern (ACECs)	Minimize length within these areas.	N/A
National Conservation Areas	Minimize length within these areas.	N/A
National Recreation Areas	Minimize length within these areas.	N/A
National Natural Landmarks (NNL)	--	Within areas defined as NNL.
Wilderness Areas and Wilderness Study Areas (WSAs)	--	Within Wilderness Areas and WSA.
Designated Roadless Areas	Minimize length within these areas.	N/A
Cultural and Historic Resources		
Cultural Resources—National Registered Historic Places, Landmarks and Monuments	Within 500 feet of point/region on National Register of Historic Places.	Not defined for this corridor study.
Historic Trails	Minimize crossings and minimize length within 0.25 mile of trails.	N/A
Water Resources and Wetlands		
Perennial Streams and Rivers	Minimize crossings.	N/A
Existing lakes and reservoirs and proposed reservoirs	Minimize crossings.	N/A
Biological Resources		
Raptor nests	Within 0.5 mile.	Not defined for this corridor study.
Bald eagle nests	Within 1.0 mile.	Not defined for this corridor study.
Bald eagle roost sites (point data)	Within 1.0 mile.	Not defined for this corridor study.
Bald eagle roosting areas and winter concentration areas	Minimize length within areas.	N/A
Sage grouse core areas, brooding areas, nesting habitat, and production areas (sage grouse and Columbia sharp-tailed grouse)	Minimize length within these areas.	Not defined for this corridor study.

Table 3-1 Constraint Criteria

Resource	Avoidance Criteria	Exclusion Criteria
Sage grouse leks	Within 0.6 mile.	Not defined for this corridor study.
Big game critical/crucial/severe winter range, and birthing/parturition range	Minimize length within these areas.	N/A
Desert tortoise habitat	To the extent possible, minimize length within these areas.	Not defined for this corridor study.
Geologic Hazards and Soils		
Geologic Hazards/Soils	Minimize length within areas of moderate to high landslide incidence.	Not defined for this corridor study.
Visual Resources		
BLM Visual Resource Classes	Within Class II areas.	Within Class I areas.
U.S. Forest Service (USFS) Visual Resource Classes	Within Visual Quality Objective (VQO) Retention or high Scenic Integrity Objective (SIO) areas.	Within VQO Preservation areas or very high SIO areas.
Wild and Scenic Rivers (WSRs)	Minimize number of crossings of WSR or suitable segments.	Not defined for this corridor study.

3.2 Comparative Evaluation of Corridors

3.2.1 Methodology

For the pre-scoping corridor screening analysis, all potential alternative corridors that had been developed as of December 2010 were displayed on a topographic base, in association with the federal utility corridors. The following analytical steps were then followed:

1. The 2-mile-wide transmission line alternative corridors were subdivided into regions, based on the project end points and intermediate destination points. This resulted in three regions for comparative analysis: 1) Wyoming to IPP Region; 2) IPP to Las Vegas Region (vicinity of Apex); and 3) Las Vegas to Marketplace Hub Region (**Map 4**, **Attachment A**).
2. Alternative corridors are made up of numbered segments that are displayed on **Maps 5**, **6**, and **7** (**Attachment A**). These segments are discussed individually in this report because segments can be recombined into new alternative corridors, depending on the characteristics of the constituent segments.
3. An overlay of the avoidance/exclusion areas was placed over the corridor segments to determine where these factors could affect the use of each corridor. Pre-scoping comments received from agencies were reviewed and summarized for the applicable corridor segments. This descriptive opportunities/constraint information and segment lengths were tabulated. Terrain conditions that affect transmission line construction also were considered based on a preliminary engineering review conducted by TransWest.

4. Comparative reviews of alternative corridor segments were conducted to arrive at a more limited range of alternative segments within each of the three regions described above to carry into public scoping. The screening review considered the identified environmental constraints, agency input, length within existing utility corridors, and overall length. The rationale for not carrying a particular corridor segment forward for further analysis was developed and tabulated. In some instances, corridor segments were added to address identified environmental concerns, or changes in the project design. A summary of both the constraints and opportunities for those segments that were carried forward for public scoping is contained in **Attachment B**.
5. The applicant-proposed corridor was then examined to identify avoidance and exclusion constraints that justified the consideration of other alternative corridors or corridor segments. Alternative corridor segments were compared with the equivalent applicant-proposed segments to determine if the alternatives offered potential advantages to the applicant-proposed segments in terms of the type and number of environmental constraints, and length. The regional-scale issues that led to the development of a range of alternatives, and the alternative corridors presented during public scoping are discussed in Chapter 4.0.

3.2.2 Preliminary Corridor Screening – Wyoming to IPP Region

For the purposes of this corridor screening report, the northern portion of the study area was identified as the Wyoming to IPP Region. The Wyoming to IPP Region consists of portions of Wyoming, Colorado, and Utah. The corridors within the Wyoming to IPP Region are presented on **Map 5** (**Attachment A**).

The corridor segments were evaluated for resource constraints, feasibility, and connectivity. As described below, several corridor segments were added in this region and a number of corridor segments were removed. The following sections describe the changes that were made to the corridors and the reasons for the changes.

<u>Corridor Segments Removed from Further Consideration between Wyoming and IPP</u>

The corridor segments between Wyoming and IPP that were removed from further consideration as a result of agency input and concerns, resource constraints, and/or comparative analysis, are identified in **Table 3-2**. Corridor segments are discussed in numerical order by state in the following tables.

Table 3-2 Corridor Segments Removed – Wyoming to IPP Region

Corridor Screening Segment ID	Justification for Removal
Diagonal through Carbon County Wyoming	This segment was removed prior to September 2009 based on wildlife concerns (sage grouse), historic trail concerns, and because it does not include existing transmission lines and other utilities, as compared to the Interstate 80 utility corridor.
W40	W40 follows a circuitous path to the northwest before turning to the southeast which adds substantial additional distance when compared with the more direct W35 [200]. In addition, more of W40 is located within Sage Grouse Core Breeding Area, when compared with W35.
W50	W50 was removed due to its slightly longer length in Visual Resource Management (VRM) Class II, ACECs, and overall length when compared with W55 [200].

Table 3-2 Corridor Segments Removed – Wyoming to IPP Region

Corridor Screening Segment ID	Justification for Removal
W70, C20, C30	W70 was removed because it is centered on the town of Baggs, Wyoming, which would present major conflicts with numerous structures within the town limits. When W70 crosses the state line into Colorado, the line becomes C20 and continues south as C30, so the removal of W70 resulted in the removal of C20 and C30, as well. W65 [190] provides an alternative north-south corridor to the east of Baggs, and W75 and W85 [170] provide an east-west alternative north of Baggs.
W80, C35	These segments were removed because they cross the Little Snake River valley and were no longer viable due to the removal of C45, C50, and C55 (discussed below).
C15, C50, C45	These segments run east-west on the south side of the Little Snake River and were removed due to the length within sage grouse core areas and sage grouse nesting habitat.
C55	C55 was removed because it runs through sage grouse core area habitat designated by the BLM Little Snake Field Office (comment received from the BLM Little Snake Field Office on 5/11/2010).
C61	C61 was removed because it would cross considerable sage grouse core area habitat designated by the BLM Little Snake Field Office and would run east-west in an area where the applicant-proposed and alternative corridors run north-south.
C75	C75 was removed due to the large number of residences within the corridor. Segment C802 [190] offers an opportunity for fewer conflicts with existing residential structures.
C80	C80 was removed because it traverses key habitat areas including numerous raptor nests and crosses a considerable amount of sage grouse core area habitat designated by the BLM Little Snake Field Office. In addition, the removal of alternatives C55 and C105 made this segment unnecessary.
C86	C86 was removed and replaced by C61B [180] because C86 traverses a portion of the sage grouse core area habitat designated by the BLM Little Snake Field Office. This request was made by the Little Snake Field Office.
C105, C130, C135	Portions of C105 and C130 follow underground-only utility corridors. A portion of C130 is located within VRM Class II. When combined with other segment deletions north and south of C105 (C80 and C160A, respectively), the segment combination of C105, C130, and C135 no longer provides a viable, unique alternative.
C150	C150 was removed due to its length within the municipal boundary of Rifle, the large number of occupied residences within the corridor, overall length, and potential impacts on a recreation area. The alternative C155 avoided many of these issues.

Table 3-2 Corridor Segments Removed – Wyoming to IPP Region

Corridor Screening Segment ID	Justification for Removal
C170	C170 was removed due to its proximity to the Colorado River and the large number of residences that are located within the corridor. In addition, the corridor passes through bald eagle roosting areas and there are two documented bald eagle nests within the corridor. The alternative C160 segment avoids many of these issues.
C185	C185 also was removed due to its proximity to the Colorado River. Three raptor nests are within the corridor and it crosses considerably more big game critical, crucial, and/or severe winter range than does the alternative segment. Segment C180 avoids many of these issues.
C160A, C240A, C192A	These segments generally follow underground only utility corridors. C160A and C240A are located within the range of the greater sage grouse. Comments were received from the White River Field Office (4/20/2010) that there have been previous routing problems with pipelines located within these corridor segments due to the Dudley Bluffs ACEC, Ryan Gulch ACEC, and the Cathedral Bluffs (construction on steep slopes and cliffs). The White River Field Office recommended that these segments be removed from further consideration.
C190A, C250A	These segments pass through the Canyon Pintado National Historic District and parallel the Dinosaur Diamond National Scenic Byway. Comments received from the White River Field Office (4/20/2010) indicated that the historic district is designated as an avoidance area in the current RMP and could become an exclusion area when the RMP is updated. These segments were removed because of these potential special management area conflicts.
General Comment on Uinta Basin Corridor Segments	The Uinta Basin is a broad geographic province located within the Green River drainage in northeastern Utah. In the corridor framework developed after the December 2008 ROW application filing, the Uinta Basin contained a criss-crossing network of a number of potential corridor segments. With the removal of segments U400A and U510A (discussed below), many of the segments in the Uinta Basin that represented connectors to U400A [217.1] and U510 were no longer viable. In addition, each of the alternative segments represented a longer or more circuitous option than the applicant-proposed corridor, and were therefore removed from further consideration.
C205A, U230A (Uinta Basin)	These segments were removed because they follow a zigzag path through the Uinta Basin and result in longer length with no clear environmental advantage over the applicant-proposed corridor.
C200A, C210A, C220A, U240A, U255A, U280A, U285A, U290 (Uinta Basin)	These corridors provide a set of optional connections to corridor U400A [217.1]. Once the preliminary decision was made to remove U400A [217.1] from further study, this set of optional connections was no longer viable.

Table 3-2 Corridor Segments Removed – Wyoming to IPP Region

Corridor Screening Segment ID	Justification for Removal
U15	The northeast corner of Utah presents some potentially difficult routing challenges, including visual resources constraints and the crossing of a Wild and Scenic-designated reach of the Green River. Segments U10 [200] and U15 were compared to each other. Of these two corridors, U15 was removed due to its substantially greater length along a scenic byway, greater length through sage grouse brooding areas, and slightly greater length through VRM Class II areas.
U25	U25 was removed because it does not provide a direct connection from the alternative corridor to IPP, would add an additional crossing of the Green River, and would pass through a raptor concentration area with a number of known nest sites.
U65	U65 [217.05, 222.05] was removed due to its significantly greater length when compared with the combination of segments U75, U80, and U90 to the south and west. Based on the preliminary analysis, the corridor did not provide a direct connection to IPP and would result in over 85 miles of increased distance through difficult mountainous terrain, portions of which are not within designed utility corridors. In addition, the current alignment crosses a section of inventoried roadless area in the Uinta National Forest. During agency pre-scoping in 2009, the following comment was received from the Price Field Office – "The corridor near Price comes down the Book Cliffs (1,000-foot escarpment), then back up, and down again." In 2012, portions of U65 were reinstated as EIS segments 217.05 and 222.05. See **Table 3-3**.
U95	Corridor U95 was removed because it does not provide a direct connection to IPP. A northern alternative consisting of U80 and U90 and a southern alternative consisting of U85 and U100 made corridor U95 unnecessary.
U125, U190, U195, U225, U230, U235, U240, U245	In the revised ROW application dated February 2, 2010, TransWest requested that corridors U125, U190, U195, U225, U230, U235, U240, and U245 be removed because they do not provide for interconnection with the IPP and, thus, do not meet TransWest's revised interests and objectives.BLM and Western concurred with these recommendations.
U400A, U510A	The combination of U400A [217] and U510A forms a single corridor that generally follows an RMP-designed utility corridor. However, both of these corridors were removed because of BLM special management area crossings. U400A crosses both the Lower Green River ACEC (scenery) and the designated Wild and Scenic River section of the Lower Green River (scenery – Class I and Class II VRM). Nine Mile Canyon ACEC has significant cultural and visual resource issues (VRM Class II). Nine Mile Canyon is proposed for designation as a National Archaeological District. U400A crosses Nine Mile Canyon within the ACEC. U400A and U510A cross approximately 6 miles of the Nine Mile Canyon ACEC, which is designated for cultural resources, high quality scenery, and special status species. Major concerns with transmission line construction

Table 3-2 Corridor Segments Removed – Wyoming to IPP Region

Corridor Screening Segment ID	Justification for Removal
U400A, U510A (Cont.)	through this area were expressed during pre-scoping meetings held with the Vernal and Price Field Office staff on March 13, 2009 at the BLM Vernal Field Office. In 2012, portions of U400A were reinstated as EIS Segment 217. See **Table 3-3**.
U430A	U430A [325] crosses an inventoried roadless area in the Ashley National Forest and would parallel an existing 138- to 161-kV transmission line. As part of the 2009 Ashley Forest Plan Revision, potential wilderness areas have been identified on either side of the existing Utah Power & Light Sowers Canyon transmission line. These potential wilderness areas include the Cottonwood Potential Wilderness No. 401407 and the Sowers Canyon East Potential Wilderness No. 401408. The 1986 Ashley National Forest LRMP indicated that the window corridor could be suitable for overhead electrical transmission line facilities; however, helicopter placement would be required on the south end, and tower placement would be prohibited on steep side slopes (Page H-42). Table D of Appendix H of the LRMP stated that the Sowers Canyon transmission line "crosses unstable shale soils, exhibiting considerable natural erosion – would be difficult to revegetate." In addition, "the adjacent NF land is characterized by steep slopes and incised side canyons. The route itself is located in a narrow canyon area. The adjacent slopes are susceptible to landslide activity." In 2012, U430A was reinstated as EIS Segment 325. See **Table 3-3**.
U536A, U537A, U590A	Segments U536A [223], U537A, U590A were removed from further study because they run nearly north-south and do not provide a direct connection to IPP. Use of these alternative segments would result in substantially greater length when compared with either the applicant-proposed corridor (U55-U70) or alternative segment (U90). In 2012, portions of U536A were reinstated as EIS Segment 223. See **Table 3-3**.

Note: Segment IDs in [brackets] reflect the EIS Segment ID. See Section 5.

Corridor Segments Added for Consideration between Wyoming and IPP

Various alternative segments were added for consideration based primarily on agency input. The corridors that were added are provided in **Table 3-3**.

Table 3-3 Corridor Segments Added – Wyoming to IPP Region

Corridor Screening Segment ID	Reason for Addition
W819	The Wyoming Game and Fish Department recommended adding a third north-south corridor in the area between the applicant-proposed corridor W25 and the alternative segment W15. This new segment traverses through an active oil and gas production area. The segment resolves some of the sage grouse habitat and leks issues associated with W25 and W15, but presents additional routing challenges associated with ongoing oil and gas development.
C61B	C61B was added in response to a request from the Little Snake Field Office to avoid sage grouse core areas. C61B replaced the original alternative C86.
C822	Corridor C822 in Rio Blanco County was added to provide an additional east-west connection between corridor C95 near Meeker, Colorado, and the previously identified corridor C130. Corridor C822 parallels State Highway 64 and the White River.
U821	On April 21, 2010, TransWest requested inclusion of an additional corridor in Utah that would provide an alternative north-south connection in the eastern portion of Millard County. This corridor would avoid much of the locally designated aboveground utility exclusion area in the county. TransWest requested the use of segment U821 in place of U125.

Note: Segment IDs in [brackets] reflect the EIS Segment ID. See Section 5.

Corridor Segments Modified between Wyoming and IPP

Table 3-4 provides the corridor segments in the Wyoming to IPP Region that were modified to avoid sensitive features.

Table 3-4 Corridor Segments Modified – Wyoming to IPP Region

Corridor Screening Segment ID	Reason for Suggested Modification
C70, C90 (C802, C804)	C70 was shifted to the east to avoid residential areas and to improve the crossing of the Yampa River east of Craig. C90 was shifted slightly to the north of an existing east-west transmission line to reduce the number of existing transmission line crossings. These segments were renumbered as C802 and C804, respectively, to reflect the adjustments.
C145 (C800)	C145 was shifted slightly to the north and west to avoid the Oil Spring Mountain WSA and ACEC and visually sensitive areas (Class II VRM) in the White River Field Office. This segment was renumbered as C800 to reflect the adjustment.
U130 (U812)	U130 was shifted slightly to the east to avoid extensive areas of sand dunes associated with the Little Sahara National Recreation Area. This segment was renumbered as U812 to reflect the adjustment.

3.2.3 Preliminary Corridor Screening – IPP to Las Vegas Region

The central portion of the study area was identified as the IPP to Las Vegas Region and consists of portions of western Utah and eastern Nevada. Corridor segments within this region originate at the IPP facility and terminate at the northern edge of the Las Vegas metropolitan area, generally to the north of NellisAir Force Base. The corridor segments within the IPP to Las Vegas Region are presented on **Map 6** (**Attachment A**).

Corridor Segments Removed from Further Consideration between IPP and Las Vegas

The corridor segments within the IPP to Las Vegas Region that were removed as a result of agency input and concerns, resource constraints, and/or comparative analysis are identified in **Table 3-5**.

Table 3-5 Corridor Segments Removed – IPP to Las Vegas Region

Corridor Screening Segment ID	Justification for Removal
U205	The elimination of segment U190 (discussed in previous section) made segment U205 unnecessary.
N35	N35 was removed because it does not provide a direct link from IPP to the Las Vegas area.
N35A, N40A, N90A, N75	These segments were considered for elimination because they parallel a highly constrained and congested transmission corridor across the Moapa Indian Reservation and offer no clear environmental advantages when compared to the applicant-proposed corridor. BLM and Western recommended that these corridors be removed due to the highly congested area near the Reid Gardner Power Plant. The requirement for a 1,500-foot separation between transmission lines would require expansion in the width of the existing approved utility corridor on Reservation land. In 2011, they were added back to the Project. See **Table 3-6**.
N60	N60 was removed because it would cross more of the Coyote Springs ACEC when compared with the ACEC crossing lengths of N55 and N85.
N65, N80	N65 and N80 were were considered for elimination because these corridors do not provide a direct connection to Marketplace and they are not located in a designated utility corridor. In addition, segment N80 crosses at least 5 existing transmission lines, including the 230-kV Reid Gardner to Harry Allen line and the 500-kV high voltage, DC IPP to Adelanto line. In 2011, they were added back to the Project. See **Table 3-6**.

Corridor Segments Added between IPP and Las Vegas

Table 3-6 provides the corridor segments in the IPP to Las Vegas Region that were added to avoid sensitive features.

Table 3-6 Corridor Segments Added – IPP to Las Vegas Region

Corridor Screening Segment ID	Reason for Addition
N35A, N40A, N90A, N75, N65, N80	These segments were reinstated at the request of the BLM Southern Nevada Field Office because they represent viable routes to site the Project along existing and designated utility corridors.

Corridor Segments Modified between IPP and Las Vegas

Table 3-7 provides the corridor segments in the IPP to Las Vegas Region that were modified to avoid sensitive features.

Table 3-7 Corridor Segments Modified – IPP to Las Vegas Region

Corridor Screening Segment ID	Reason for Suggested Modification
N15, N20, N25, N30 (N805, N806, N807, N808)	Segments N15, N20, N25, and N30 were adjusted slightly to reduce impacts to visually sensitive VRM Class II areas. These were then renumbered N805, N806, N807, and N808, respectively, to reflect the adjustment.

3.2.4 Preliminary Corridor Screening – Las Vegas to Marketplace Region

The Las Vegas to Marketplace Region consists of the Las Vegas metropolitan area and adjacent federal lands administered by the Department of Defense, BLM, National Park Service, and Bureau of Reclamation. This region is bounded on the north by the proposed Gass Peak Wilderness, on the east by the Lake Mead National Recreation Area, on the west by the Red Rocks Canyon National Conservation Area, and on the south by the South McCullough Wilderness. The southern terminus of the TWE Project is the Marketplace Substation siting area. The corridors within the Las Vegas to Marketplace Region are presented on **Map 7** (**Attachment A**).

Corridor Segment Removed from Further Consideration between Las Vegas and Marketplace

The segment within the Las Vegas to Marketplace Region that was removed as a result of agency input and concerns, resource constraints, and/or comparative analysis is identified in **Table 3-8**. Due to the highly constrained nature of available transmission line utility corridors in the Las Vegas metropolitan area, all but one of the alternative segments were retained for scoping.

Table 3-8 Corridor Segment Removed – Las Vegas to Marketplace Region

Corridor Screening Segment ID	Justification for Removal
N180A	N180A was removed because it crosses a portion of the proposed Gass Peak Wilderness area.

Corridor Segment Modified between Las Vegas and Marketplace

The segment within the Las Vegas to Marketplace Region that was modified as a result of agency input and concerns, resource constraints, and/or comparative analysis is identified in **Table 3-9**.

Table 3-9 Corridor Segment Modified – Las Vegas to Marketplace Region

Corridor Screening Segment ID	Reason for Suggested Modification
N90 (N810A)	Corridor segment N90 was modified to avoid Nellis Air Force Base. It was renumbered as N810A to reflect the adjustment.

4.0 Pre-scoping Applicant-proposed Corridor Key Constraint Areas

Several environmental and land use constraint areas were identified for the pre-scoping applicant-proposed corridor that indicated a need to consider other alternative corridor segments in the same region. The following figures outline these major regional issue areas, and the potential alternative corridors that are available to address identified issues.

4.1 Primary Issue Area 1 – Wyoming and Colorado

Prior to scoping, the applicant-proposed corridor in Sweetwater County, Wyoming, and Moffat County, Colorado, crossed extensive high quality sage grouse habitat (see Constraint 1, **Figure 4-1**). The alternative corridors shown on **Figure 4-1** were developed primarily to reduce sage grouse habitat impacts.

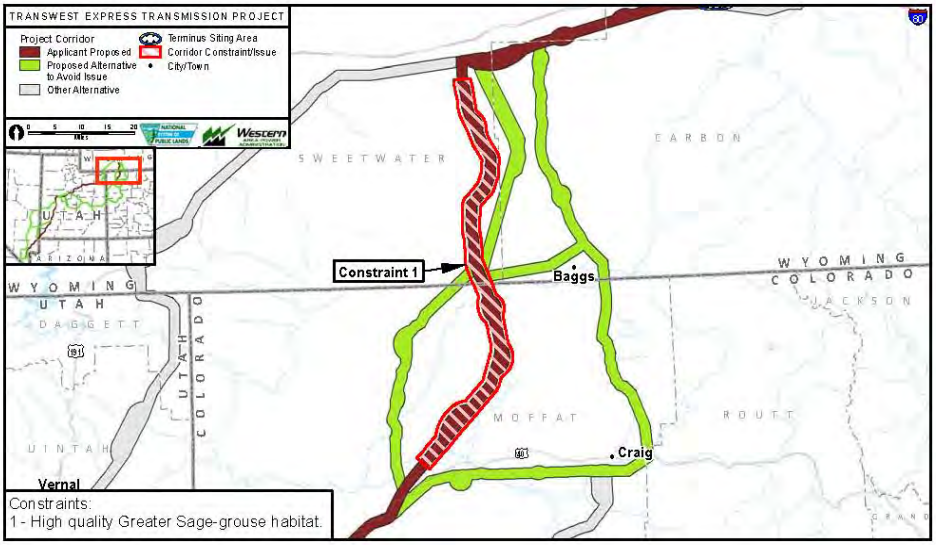


Figure 4-1 Applicant-proposed Corridor Issues and Alternatives – Wyoming and Colorado

4.2 Primary Issue Area 2 – Northern Utah

The applicant-proposed corridor in northern Utah has three primary constraint areas (see **Figure 4-2**). The first constraint area is the large area of private lands crossed north and east of Duchesne and the utility corridor encroachment into the community of Roosevelt, Utah. The second constraint area is the USFS inventoried roadless area crossed on the Uinta National Forest, and the third constraint area is the high degree of utility line congestion in and around Nephi. The alternative corridors farther south in Utah do not cross USFS-designated roadless areas and offer an opportunity to bypass Nephi outside the existing transmission line corridor congestion area.

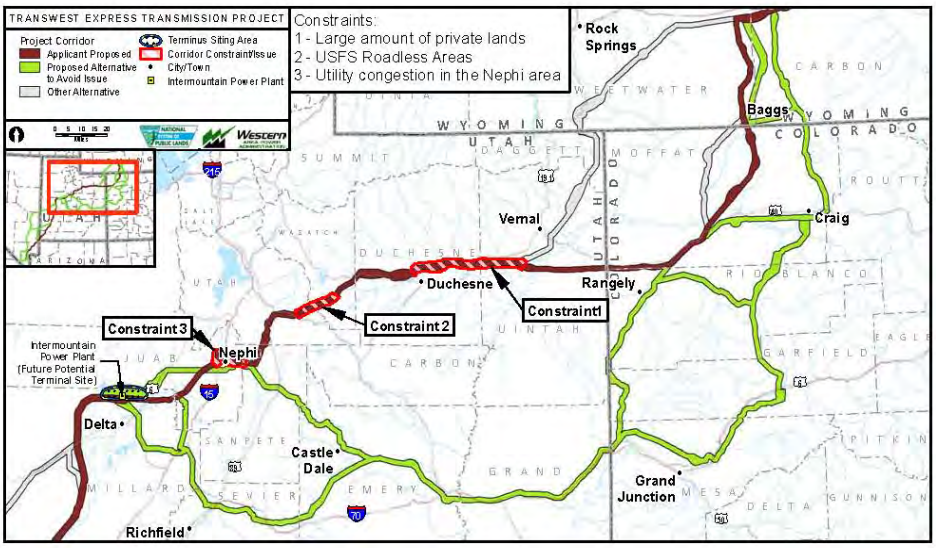


Figure 4-2 Applicant-proposed Corridor Issues and Alternatives – Northern Utah

4.3 Primary Issue Area 3 – Southwestern Utah

The applicant-proposed corridor in southwestern Utah has two primary constraints; both within the same general area (see Constraints 1a and 1b, **Figure 4-3**).The first constraint is the crossing of an inventoried roadless area in the Dixie National Forest and the second is the potential crossing in the vicinity of the Mountain Meadows Massacre Site. Alternative segments are available to the west that bypass the Dixie National Forest and the Mountain Meadows Massacre Site.

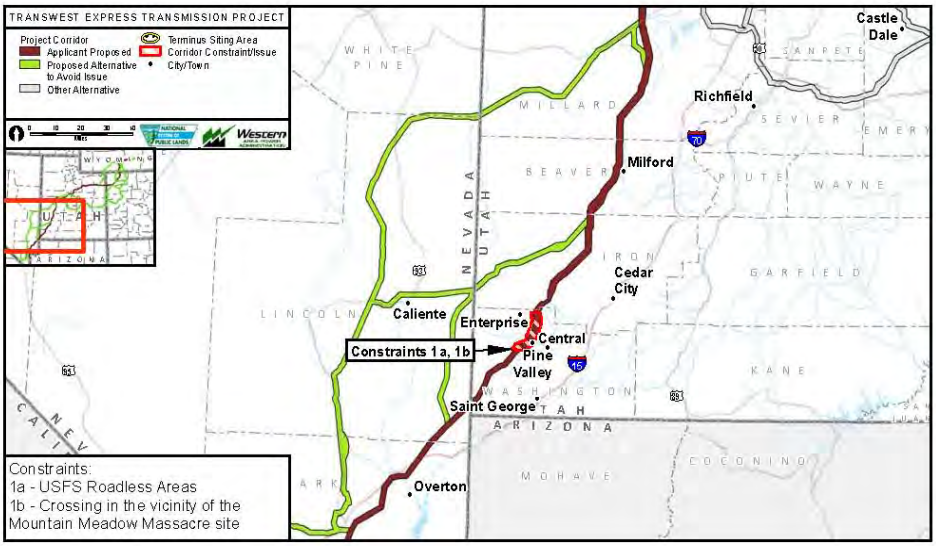


Figure 4-3 Applicant-proposed Corridor Issues and Alternatives – Southwestern Utah

4.4 Primary Issue Area 4 – Las Vegas Area

The applicant-proposed corridor in the Las Vegas area has three primary constraints; all within the same general area(see Constraints 1a, 1b, and 1c, **Figure 4-4**).

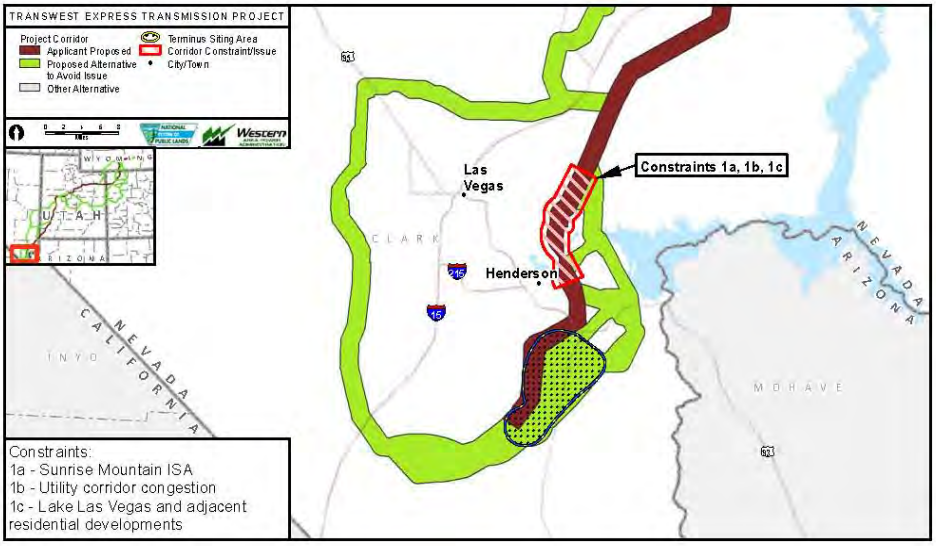


Figure 4-4 Applicant-proposed Corridor Issues and Alternatives – Las Vega Area

Constraint 1a. Sunrise Mountain Instant Study Area. The proposed corridor would be unable to avoid crossing within this area designated by Congress because there is insufficient width in the existing utility corridor to accommodate the TWE Project.

Constraint 1b. Congested utility corridors. The existing transmission corridors east of Las Vegas contain multiple high voltage transmission lines that are already located in the most favorable terrain. The TWE Project would be required to cross less favorable terrain (steep side slopes) to maintain required separation distances.

Constraint 1c. Proximity to residential developments. Recent residential development (Henderson, Lake Las Vegas) has expanded very close to the existing transmission line corridor proposed for use by TransWest. As a consequence, very little width remains in this corridor without crossing over residential areas.

Alternative corridors were developed to the east and the west in an attempt to avoid these issues. Some of these alternative corridors would cross portions of the Lake Mead National Recreation Area and bypass Boulder City; another would traverse around Las Vegas on the west side of the city.

4.5 Corridors Carried Forward into Public Scoping

Based upon the primary constraint areas identified along the applicant-proposed corridor and the alternatives developed to address the identified issues, the alternative corridors that were carried forward into the public scoping process are depicted on **Map 8** (**Attachment A**).

5.0 Corridors Carried Forward for Analysis in the EIS

This chapter describes the alternative corridors eliminated and those carried forward for evaluation in the Draft EIS as a result of public scoping and cooperating agency input during preliminary Draft EIS development. Below is a brief summary on methodology and a description of the corridors eliminated during the preliminary Draft EIS development along with rationale for their elimination, and a description of new alternative corridors that will be addressed under each of the project's four geographic regions. **Map 9** (**Attachment A**) provides an overview of the scoping corridors retained for analysis, the scoping corridors eliminated from further analysis, and the alternative corridors added or modified as a result of issues raised through scoping and preliminary Draft EIS development.

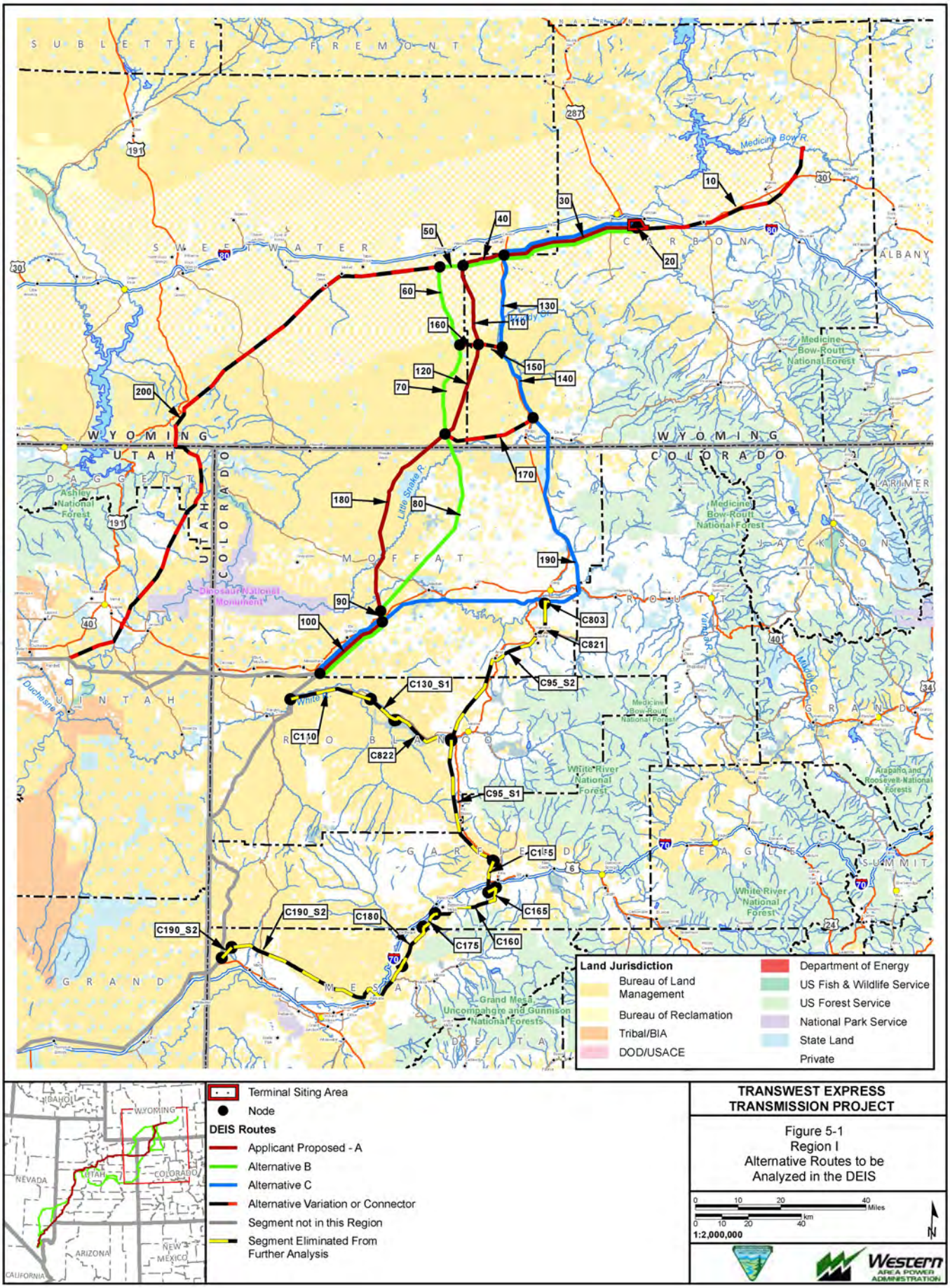
5.1 Methodology

Following the project public scoping period, BLM and Western (Agencies) compiled public comments and initiated the preliminary review of project corridor alternatives to carry forward for analysis in the Draft EIS. Several issues emerged during scoping that helped to inform the Agencies' decisions about the alternative corridors to eliminate and those to retain for further evaluation. New corridor alternative variations and alternative connectors were added to address specific regional or local concerns, or to provide additional routing flexibility in constrained areas.

In parallel with the scoping process, the Agencies engaged the BLM Field Offices and Forests to provide input on the potential need to amend existing land use planning documents for all the project alternative corridors. This input, in addition to the public comments, provided the Agencies with assistance in determining whether to eliminate or retain alternative corridors to be evaluated in the Draft EIS.

During the initial phases of the post-public scoping corridor alternatives analysis, route segments were simplified by combining and renumbering pre-scoping segments which resulted in a smaller list of longer segments for consideration in the EIS. An additional sub-region was also developed to provide a more regionally focused comparison of the alternative corridors. After public scoping, the Wyoming to IPP Region was subdivided into Regions I and II. Region I includes the alternative corridors from the project origination near Sinclair, Wyoming, to a point in northwestern Colorado where several alternative corridors converge. Region II covers the alternative corridors from northwestern Colorado, through central Utah to a destination point at the IPP. Alternative corridors from IPP to the north of Las Vegas are included in Region III. Region IV covers alternative corridors north of Las Vegas to the terminus point at Marketplace. These EIS segment numbers and the four regions are shown on **Figures 5-1** through **5-4**

Alternative corridor routes were identified within each of the four regions. Within each region, Alternative A represents the applicant's proposed route, which was modified in places after scoping, and the additional Agency Alternatives will be addressed in the Draft EIS as alternatives to the applicant's proposed corridor, by region.



Terminal Siting Area

Node

DEIS Routes

- Applicant Proposed - A
- Alternative B
- Alternative C
- Alternative Variation or Connector
- Segment not in this Region
- Segment Eliminated From Further Analysis

TRANSWEST EXPRESS TRANSMISSION PROJECT

Figure 5-1
Region I
Alternative Routes to be Analyzed in the DEIS

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Western AREA POWER ADMINISTRATION

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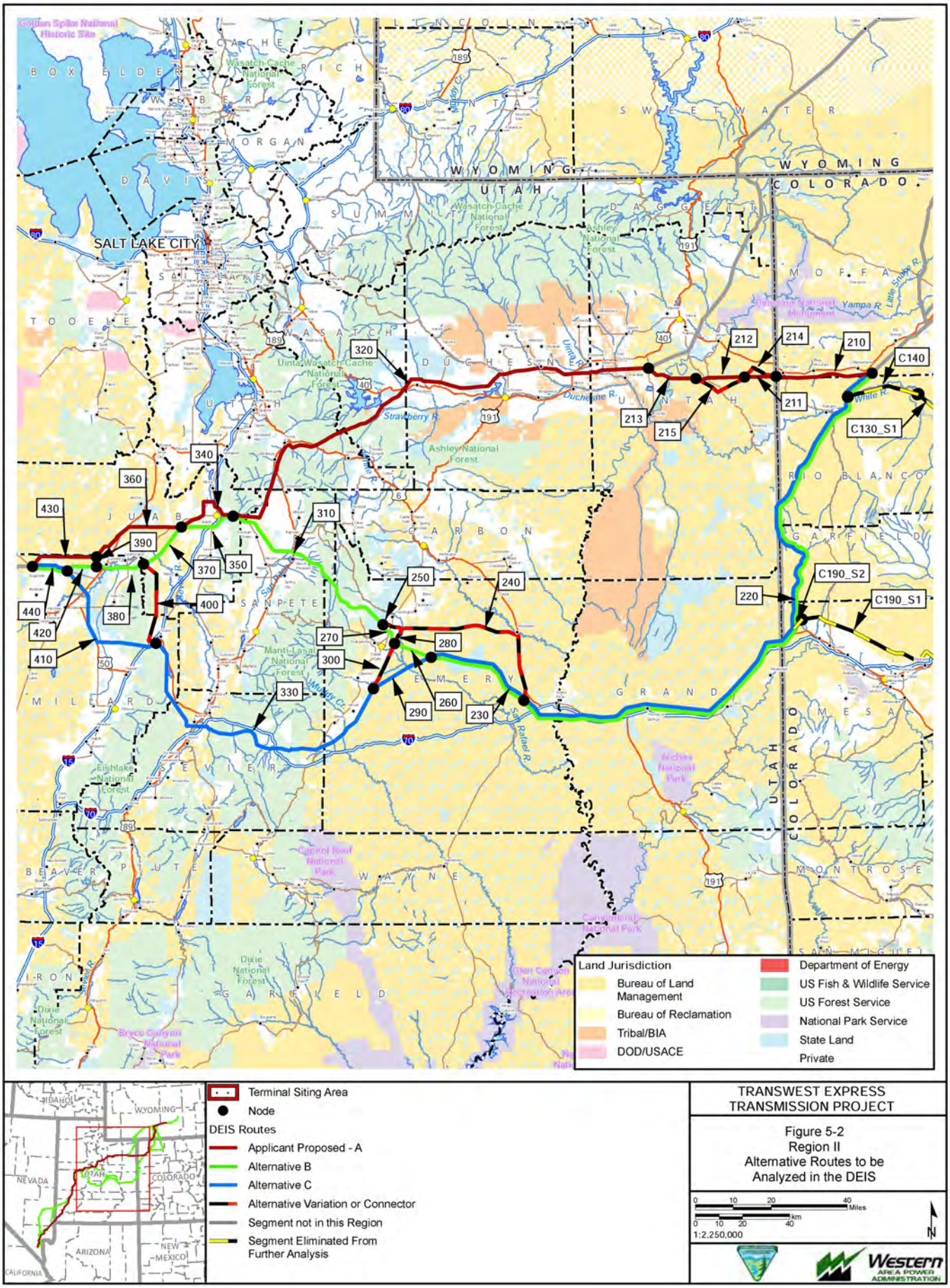

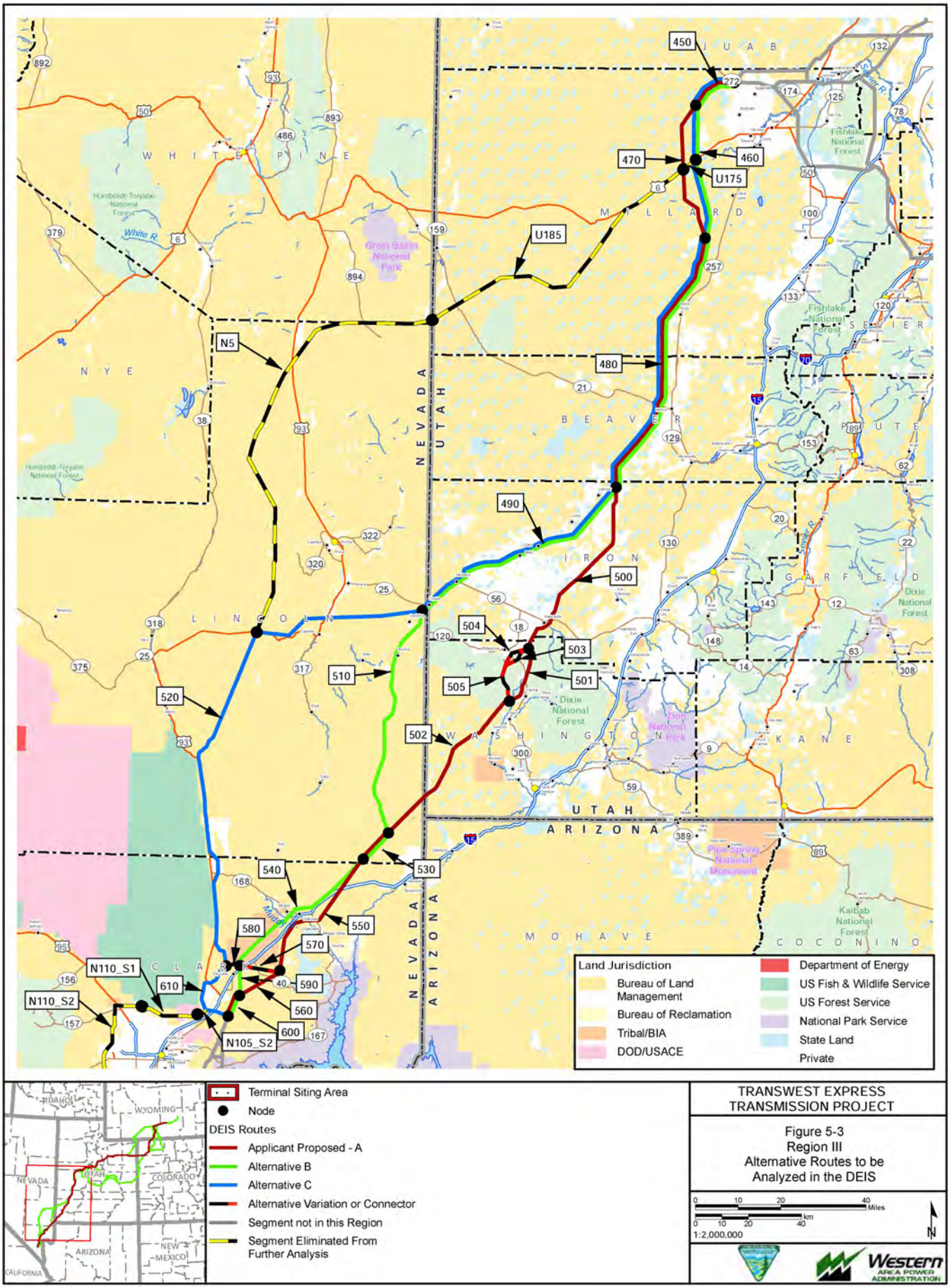

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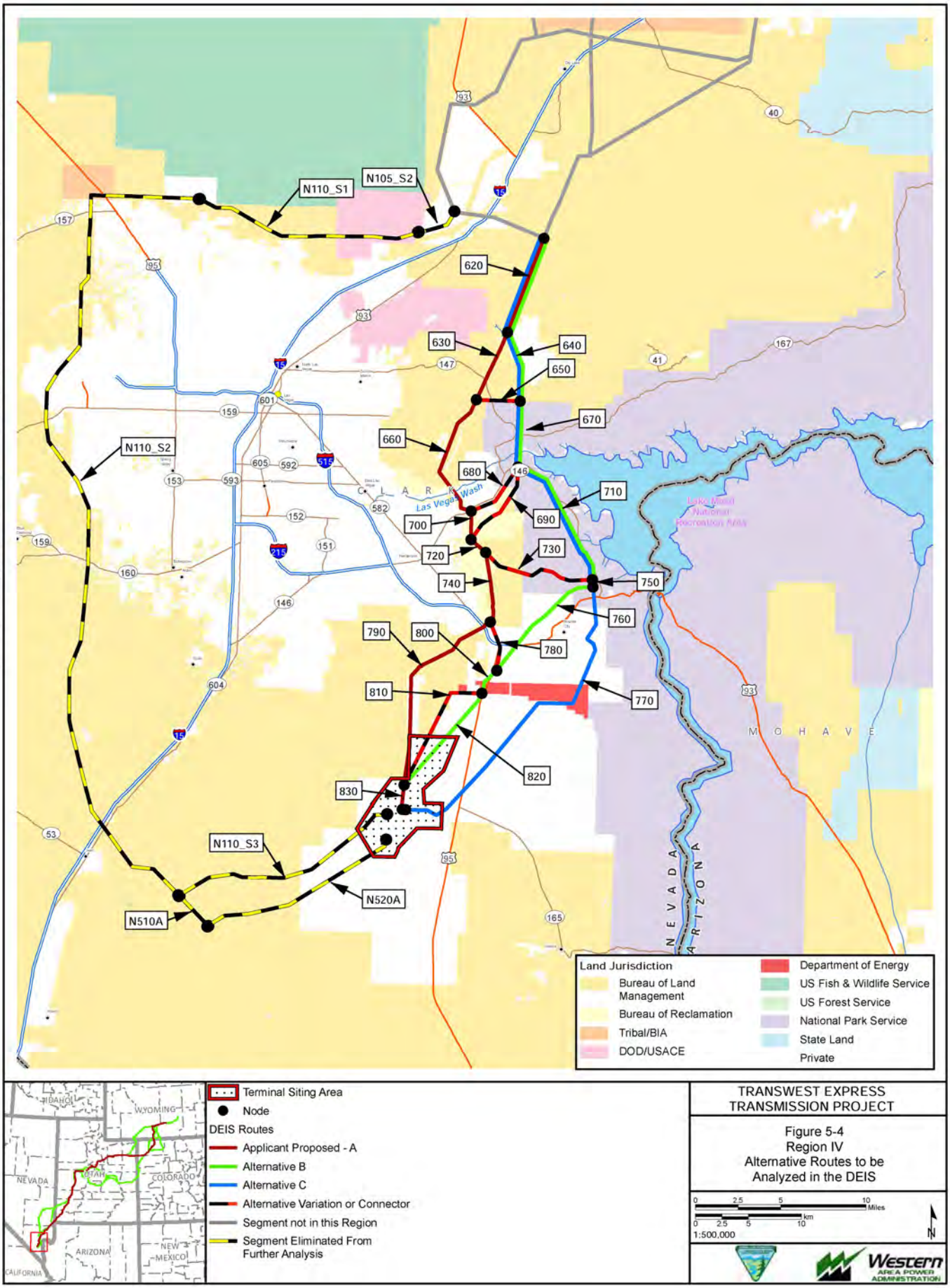

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5.2 Region I – Sinclair, Wyoming, to Northwest Colorado

5.2.1 Corridors Eliminated from Further Analysis

Alternative corridors were eliminated from further analysis in Region I based on comments received during scoping, agency input, and due to adjustments to the proponents design options. **Table 5-1** describes the alternative corridors that have been eliminated from further analysis.

Table 5-1 Region I – Eliminated Corridors

EIS Segment ID	Discussion/Rationale
Corridor Screening Segments C95_S1, C95_S2, C130_S1, C140, C155, C160, C165, C175, C180, C190_S1, C190_S2,C803, C821,C822	These segments were removed prior to the EIS renumbering and as a result of visual concerns in the Grand Valley, construction and engineering limitations, greater length of private lands affected, and the lack of benefit beyond those provided by existing alternatives.
Segment 10	This segment was removed as a result of the elimination of Design Option 1 by TransWest.
Segment 80	Segment 80 was removed at the request of the BLM Little Snake Field Office because of impacts to important greater-sage grouse populations. This segment did not offer resource benefits beyond provided by existing alternatives, including the new Segment 186 (see **Table 5-2**).
Segment 200	Segment 200 (Western Wyoming Alternative Variation) was removed because of visual concerns from Dinosaur National Monument and Flaming Gorge National Scenic Byway, the crossing of a ROW exclusion area (Red Creek ACEC), and the lack of benefit beyond those provided by existing alternatives.

5.2.2 New or Modified Corridors

New segments were added in Region I to address concerns expressed during scoping. These new or modified corridors are described in **Table 5-2**; **Figure 5-1** shows these corridors in more detail.

Table 5-2 Region I – New or Modified Corridors

EIS Segment ID	Discussion/Rationale
Segments 115, 115.05, 115.07, 115.10	Segments were added at the request of the Rawlins Field Office to avoid impacts to sage grouse habitat as well as sensitive visual resources.
Segments 150, 160	These alternative segments were added in response to public comment and provide bi-directional crossover options among all three alternatives. The alternative connector offers routing flexibility to avoid environmental issues expressed by the Western Resource Advocates and the Coalition of Local Governments (Wyoming).
Segment 180	The post-scoping applicant's proposed corridor in northwest Colorado was shifted slightly to the east to address public preference for an alignment in the Sevenmile Ridge area.

Table 5-2 Region I – New or Modified Corridors

EIS Segment ID	Discussion/Rationale
Segment 186	This Sevenmile Ridge area segment was added for consideration to minimize visual impacts along seven-mile ridge, recreation impacts at Yampa River crossing, and land use impacts on private lands at the request of the BLM Little Snake Field Office.

5.3 Region II – Northwest Colorado to IPP

5.3.1 Corridors Eliminated from Further Analysis

Alternative segments in Region II that have been eliminated from further consideration in the EIS after scoping are listed in **Table 5-3**.

Table 5-3 Region II – Eliminated Corridors

EIS Segment ID	Discussion/Rationale
Segment 240	This segment was added (see **Table 5-4**), then subsequently removed to minimize impacts to cultural and recreational resources of the San Rafael Swell such as the Cleveland Lloyd Dinosaur Quarry.
Segments 230, 260	These segments have been eliminated from further consideration as they impact segments of the Old Spanish National Historic Trail and the scenic quality to other historic sites. They provide no apparent benefit in reducing or resolving resource impacts, and only increase the complexity of the analysis.
USFWS Proposed Routes (2012)	These routes were removed from further study because they added no benefit beyond those provided by the existing range of alternatives, the stated intent was to avoid mapped greater-sage grouse habitat; however, existing alternatives to the south greater-sage grouse habitat. Additionally, the eastern reroute bisects IRAs for approximately 15 miles as well as passes through relatively undisturbed areas noted for scenic quality, and the western reroute deviates from the designated utility corridor and crosses private lands, including center-pivot irrigated private lands.

5.3.2 New or Modified Alternative Corridors

Two of the corridor segments presented during scoping in Region IIwere redefined as alternative connectors (segments 390 and 400 - see **Figure 5-2**). Also, as a result of scoping, new alternative variations were added in south-central Utah (segments 240, 250, 280, and 300) and eastern Utah(segments 214 and 215). BLM field office and USFS input has led to multiple new alternative segments. These segments are described in **Table 5-**4 below and shown on **Figure 5-2**.

Table 5-4 Region II – New or Modified Alternative Corridors

EIS Segment ID	Discussion/Rationale
Segments 222.05, 222.3, 225.2	Segments were added to minimize impacts to the Old Spanish Trail.

Table 5-4 Region II – New or Modified Alternative Corridors

EIS Segment ID	Discussion/Rationale
Segments 240, 250, 280, and 300	These alternative segments were added for further evaluation based on comments from the BLM Price Field Office and concerns about potential impacts to the Old Spanish Trail.
Segments 214 and 215	These alternative segments were reinstated for analysis and comparison to segments 211 and 212 in response to concerns expressed by the BLM Vernal Field Office. These segments would be longer than the applicant's proposed corridor, but would be located within designated utility corridors.
Segments 217, 217.05, 217.10, 217.15, 223, 325	Segments were added (including crossing Ashley National Forest) to provide a greater range of alternatives for crossing National Forest System lands at the request of USFS.
Segments 218, 219.1, 219.2, 219.3, 219.4, 219.5	These new segments were developed to address BLM Utah concerns over greater-sage grouse habitat and the associated planning effort currently underway.

5.4 Region III – IPP to North Las Vegas

5.4.1 Corridors Eliminated from Further Analysis

Alternative segments in Region III that have been eliminated from further consideration in the EIS after scoping are listed in **Table 5-5**.

Table 5-5 Region III – Eliminated Corridors

EIS Segment ID	Discussion/Rationale
Corridor Screening Segments U175, U185, N5	These segments were removed prior to the EIS renumbering and because they provide no benefit beyond those provided by the existing range of alternatives, greater length relative to other corridors near I-15, and visual resource concerns related to the proximity to Great Basin National Park as well as the route's lack of collocation with existing utilities.

5.4.2 New or Modified Alternative Corridors

Two alternative variations (composed of segments 503, 504, and 505) and two alternative connectors (segments 570 and 580) were added in Region III for further analysis in the Draft EIS. These alternative variations and connectors were developed to address public comments and to provide additional routing flexibility. **Table 5-6** describes the new alternative variations and connector; **Figure 5-3** shows these alternative variations and connector in more detail.

Table 5-6 Region III – New or Modified Alternative Corridors

EIS Segment ID	Discussion/Rationale
Segments 503, 504, 505, 506	These alternative segments were developed based on public comments during scoping. The alternatives traverse Ox Valley or the Pinto Creek drainage, west of Central, Utah, and then connect with the applicant proposed corridor south of Central. They avoid potential impacts to the Mountain Meadows National Historic Landmark and site, address local concerns expressed by residents in Central, Utah, as well as minimize USFS Inventoried Roadless Areas on the Dixie National Forest.

Table 5-6 Region III – New or Modified Alternative Corridors

EIS Segment ID	Discussion/Rationale
Segments 540, 570, 580, 590	Segments 540 and 590 were reinstated following the scoping period to address public concerns that the proposed project should follow the existing utilities and RMP-designated utility corridors. Segments 570 and 580 were reinstated to provide connectors between alternatives.

5.5 Region IV – North Las Vegas to Marketplace

5.5.1 Corridors Eliminated from Further Analysis

Alternative segments in Region IV that have been eliminated from further consideration in the EIS after scoping are listed in **Table 5-7**.

Table 5-7 Region IV – Eliminated Corridors

EIS Segment ID	Discussion/Rationale
Corridor Screening Segments N105_S2, N110_S1, N110_S2, N110_S3, N510A, N520A	These segments were removed prior to the EIS renumbering and as a result of providing no benefit beyond those provided by the existing range of alternatives, no available buffer to avoid both residential lands and Nellis Air Force Base and Red Rocks National Conservation Area, which would require an act of Congress.

5.5.2 New and Modified Alternative Corridors

Multiple segments were modified or added for further analysis in the Draft EIS. They were modified or developed in response to comments received during scoping or based on the applicant's request to allow for additional routing flexibility in a highly constrained area. These alternative connectors and variation are described in **Table 5-8** and shown on **Figure 5-4**.

Table 5-8 Region IV – New or Modified Alternative Corridors

Corridor Segment ID	Discussion/Rationale
Segment 680	This alternative connector represents a refinement to the corridor previously presented in scoping. It was developed to address comments received from the public. The connector would more closely follow Lake Mead Boulevard (State Highway 146). It was refined to address public concerns and to provide additional routing flexibility. The applicant requested the alternative connector be evaluated in the Draft EIS.
Segment 690	Similar to Segment 680, this alternative connector is a refinement to the corridor previously presented during scoping and was developed based on comments received from the public. The connector provides an additional option between Alternative B and Alternative C with the applicant's proposed corridor. Segment 690 would avoid potential impacts to anticipated future development of the Three Kids Mine site. The applicant requested that the alternative connector be analyzed in the Draft EIS.
Segment 730	Segment 730 alternative connector represents a refinement to the corridor previously presented in scoping. The applicant requested that the alternative connector be analyzed in the Draft EIS.

Table 5-8 Region IV – New or Modified Alternative Corridors

Corridor Segment ID	Discussion/Rationale
Segment 810	This alternative variation was added to provide an option to Segment 820. The alternative variation would avoid multiple transmission line crossings and encroachment on private property. The applicant requested this alternative variation based on engineering and design concerns.

5.6 Alternatives Carried Forward for Analysis

The alternative corridors, alternative variations, and alternative connectors to be carried forward in the EIS are shown on **Map 10** in **Attachment A.**

6.0 References Cited

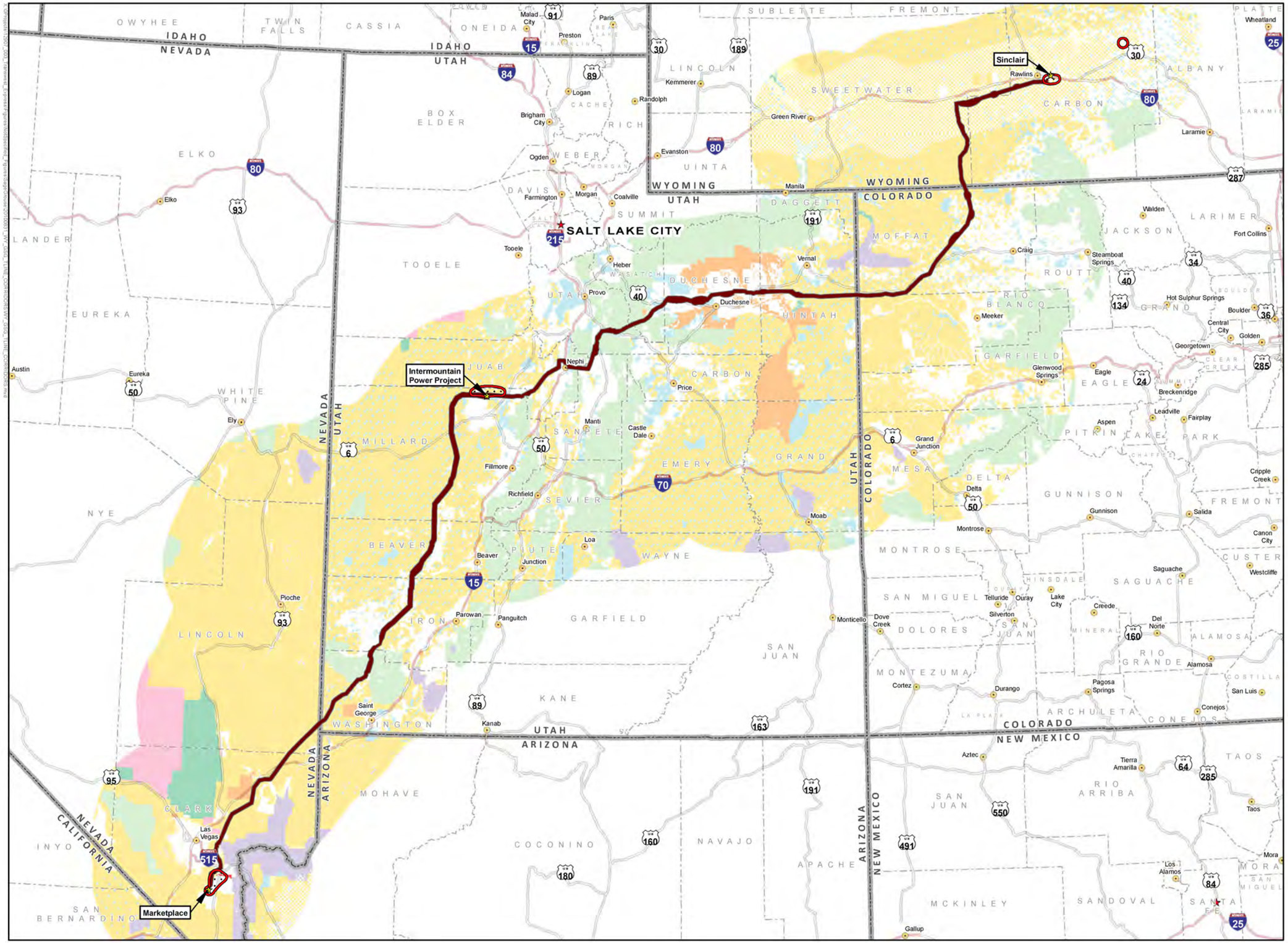
Bureau of Land Management (BLM). 2011. *BLM/WO Instruction Memorandum No. 2011-059.* Addressed to all field office officials from the Director. Subject: National Environmental Policy Act Compliance for Utility-Scale Renewable Energy Right-of-Way Authorizations. February 8, 2011.

Bureau of Land Management (BLM). 2008. *BLM National Environmental Policy Act Handbook H-1790.*January 2008.

EPG. 2008. *Corridor Study Report for the Transwest Express and Gateway South Transmission Projects.* Prepared for National Grid, Arizona Public Service Company, Rocky Mountain Power, and Wyoming Infrastructure Authority, Prepared by EPG, Inc., February 2008.

Attachment A

Maps



Map 1
Applicant Proposed Corridor

Project Features

- Applicant Proposed Corridor
- Terminal Siting Area
- Project Endpoints/Interconnections

Transportation

- Interstate highway
- US Highway

Administrative Features

- State Capital
- County Seat
- State Boundary
- County Boundary

Jurisdiction

- Bureau of Indian Affairs/Tribal
- Bureau of Land Management
- Bureau of Reclamation
- Department of Defence
- Department of Energy
- National Park Service
- US Fish and Wildlife Service
- US Forest Service
- State/Local

Data Sources

Transportation Features: TeleAtlas, 2008
Administrative and Hydrologic Features: National Atlas, 2002
Jurisdiction Features: US Forest Service, 2010

Applicant Proposed Segments: TransWest Express LLC
Alternative Proposed Segments: Joint Lead Agencies

Note:
Some corridors were proposed by BLM during pre-scoping

Map coordinate system is UTM NAD83 meters Zone 12

Pre-Scoping Draft

Date Last Revised : February 8, 2011

The alternative segments shown on this map are preliminary and may be revised and/or refined throughout the development of the project. No warranty is made by the Agencies for use of the data herein for purposes not intended by the Agencies.

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Western AREA POWER ADMINISTRATION

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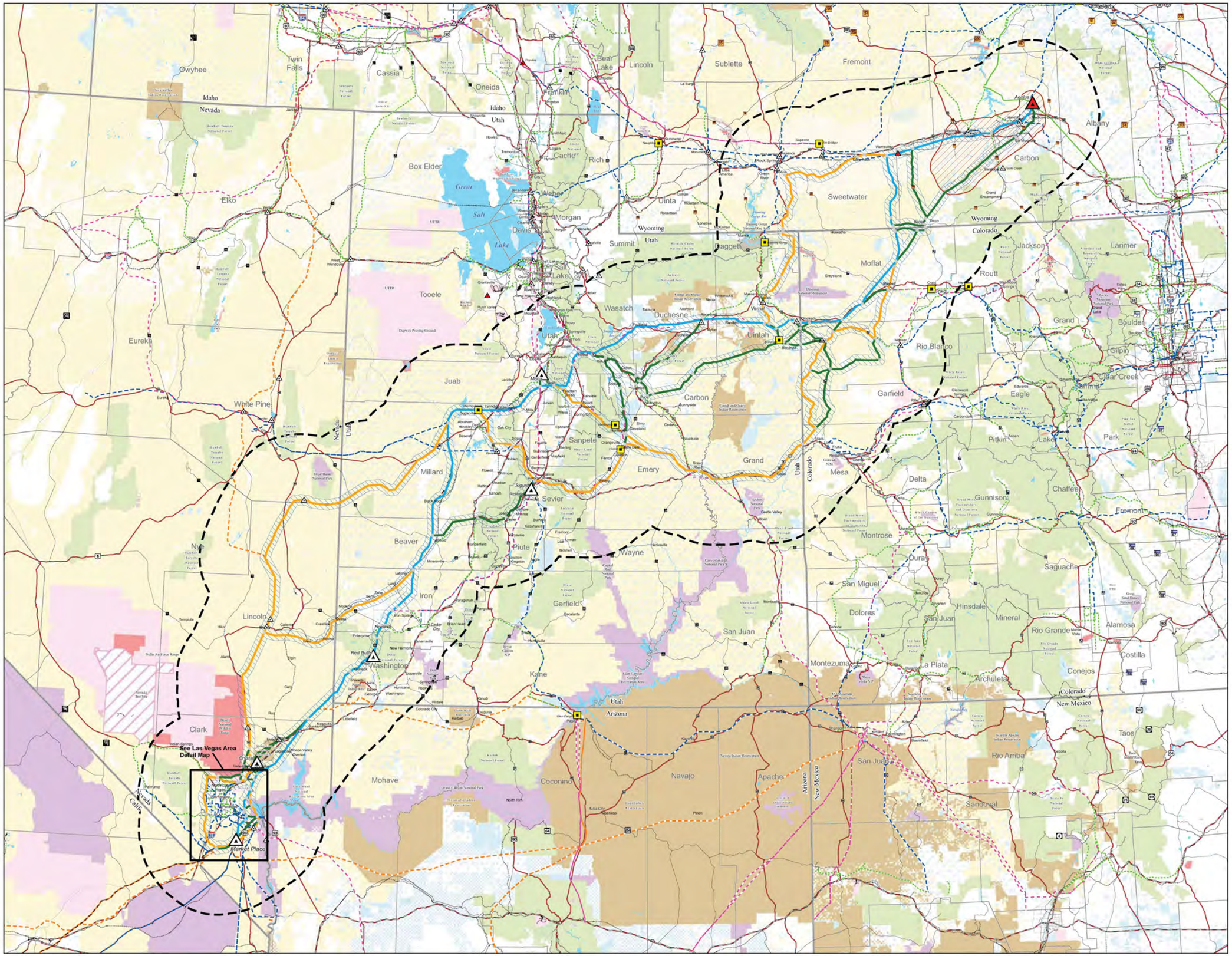

MAP 2A

PROPOSED AND ALTERNATIVE CORRIDORS INCLUDED IN THE 2008 ROW APPLICATION TO BLM

Legend

Land Jurisdiction

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

Project Features

- Proposed Substation (Permitting in Progress)
- Study Area Boundary
- Proposed Route
- Proposed Alternative Route
- Alternatives Under Further Consideration
- 6 Mile Wide Corridor Buffer
- Link Node
- Terminal Siting Area

Utility Facilities

- Existing Power Plant
- Existing Substation
- 500kV+/- DC Transmission Line
- 500kV Transmission Line
- 345kV Transmission Line
- 230kV Transmission Line
- 115/138kV Transmission Line

Transportation Features

- Interstate Highway
- US Highway
- State Highway
- Railroad

Water Features

- River or Stream
- Lake, Pond, or Reservoir

Data Sources

Transportation:
NTAD2008, US Department of Transportation
Land Jurisdiction:
BLM State Office California, Colorado, Idaho, New Mexico, Oregon, Utah, Wyoming 2008
POWERmap, powermap.platts.com
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NOTE: Substation locations are schematic and do not necessarily represent precise locations.

Print Date : December 12, 2008

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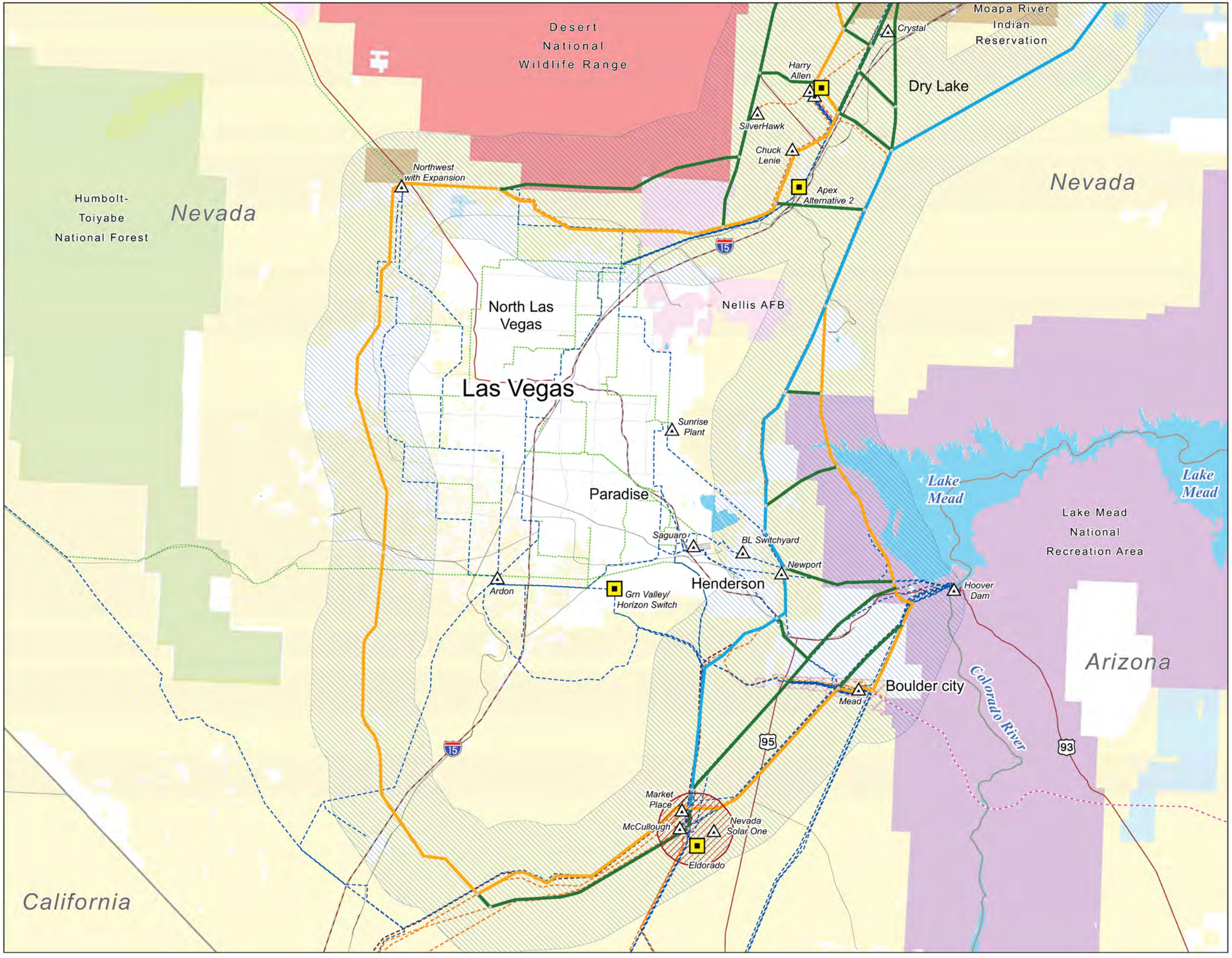
TRANSWEST EXPRESS TRANSMISSION LINE PROJECT

TRANSWEST EXPRESS LLC



MAP 2B

PROPOSED AND ALTERNATIVE CORRIDORS INCLUDED IN THE 2008 ROW APPLICATION TO BLM

Legend

Land Jurisdiction

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

Project Features

- Proposed Route
- Proposed Alternative Route
- Alternatives Under Further Consideration
- 6 Mile Wide Corridor Buffer
- Link Node
- Terminal Siting Area

Utility Facilities

- Existing Power Plant
- Existing Substation
- 500kV+/- DC Transmission Line
- 500kV Transmission Line
- 345kV Transmission Line
- 230kV Transmission Line
- 115/138kV Transmission Line

Transportation Features

- Interstate Highway
- US Highway
- State Highway
- Railroad

Water Features

- River or Stream
- Lake, Pond, or Reservoir

Data Sources

Transportation:
NTAD2008, US Department of Transportation
Land Jurisdiction:
BLM State Office California, Colorado, Idaho, New Mexico, Oregon, Utah, Wyoming 2008
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NOTE: Substation locations are schematic and do not necessarily represent precise locations.

Print Date : December 12, 2008

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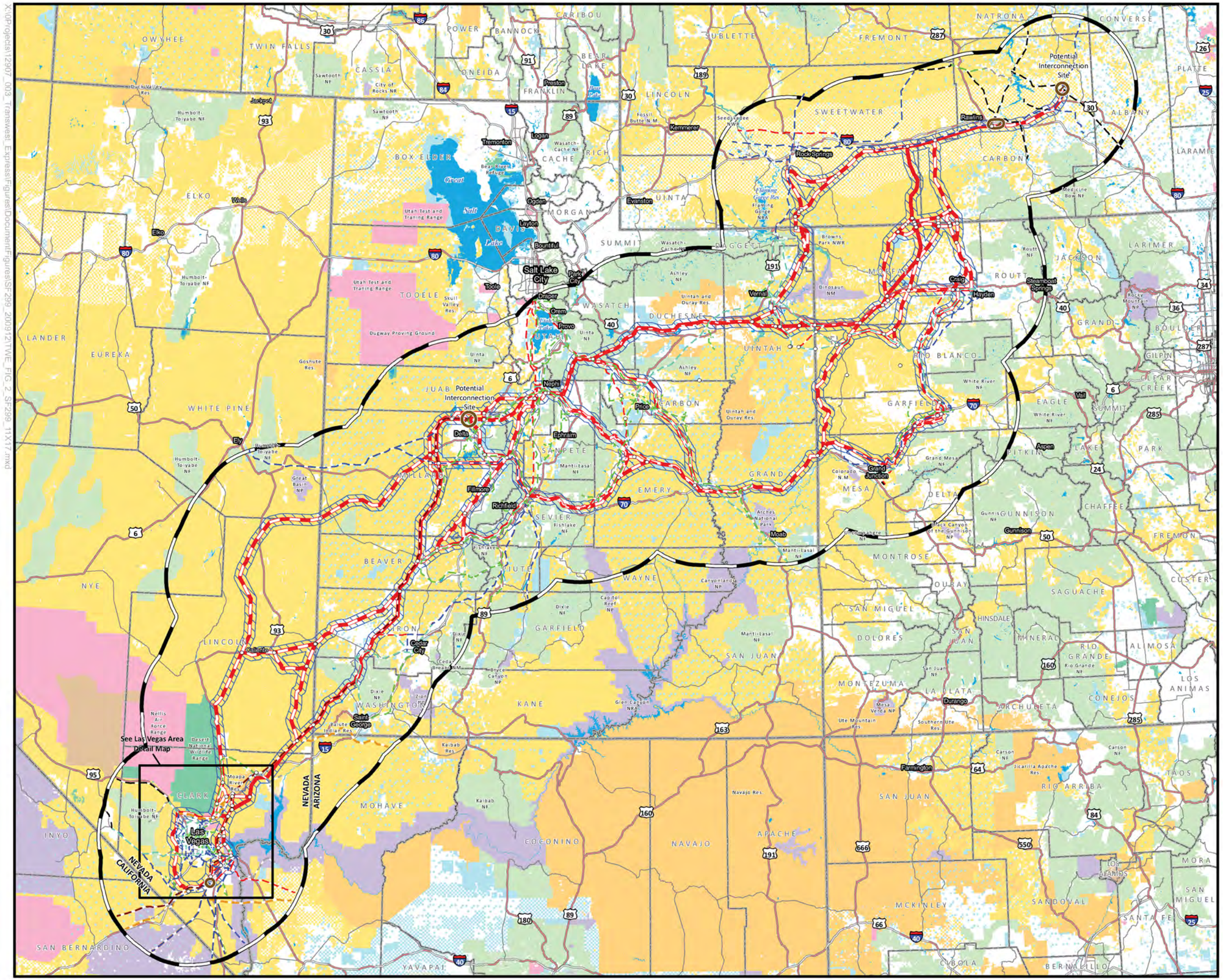
TRANSWEST EXPRESS TRANSMISSION LINE PROJECT

TRANSWEST EXPRESS LLC



MAP 3

PROPOSED AND ALTERNATIVE CORRIDORS INCLUDED IN THE 2010 REVISED ROW APPLICATION TO BLM

Legend

Project Features

- Proposed Route
- Proposed Alternatives
- Link Node
- 6-Mile-Wide Corridor
- Study Area
- Terminal Siting Area

Utility Facilities

- 500kV +/- Direct Current Transmission Line
- 500kV Transmission Line
- 345kV Transmission Line
- 230 to 287kV Transmission Line
- 138 to 161kV Transmission Line
- 115kV Transmission Line
- Below 100kV Transmission Line
- Unknown Voltage Transmission Line

Transportation Features

- Interstate Highway
- U.S. Highway
- State Highway

Water Features

- Perennial Water Bodies

Land Jurisdiction

- Department of Defense
- Department of Energy
- Indian Reservation
- State Land
- USDA Forest Service
- USDI Bureau of Land Management
- USDI Bureau of Reclamation
- USDI Fish and Wildlife Service
- USDI National Park Service

Data Sources

Transportation:
NTAD2008, US Department of Transportation
Land Jurisdiction:
BLM State Office California, Colorado, Idaho, New Mexico, Oregon, Utah, Wyoming 2008
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Print Date : January 22, 2010

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Miles

TRANSWEST EXPRESS TRANSMISSION PROJECT

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TRANSWEST EXPRESS LLC

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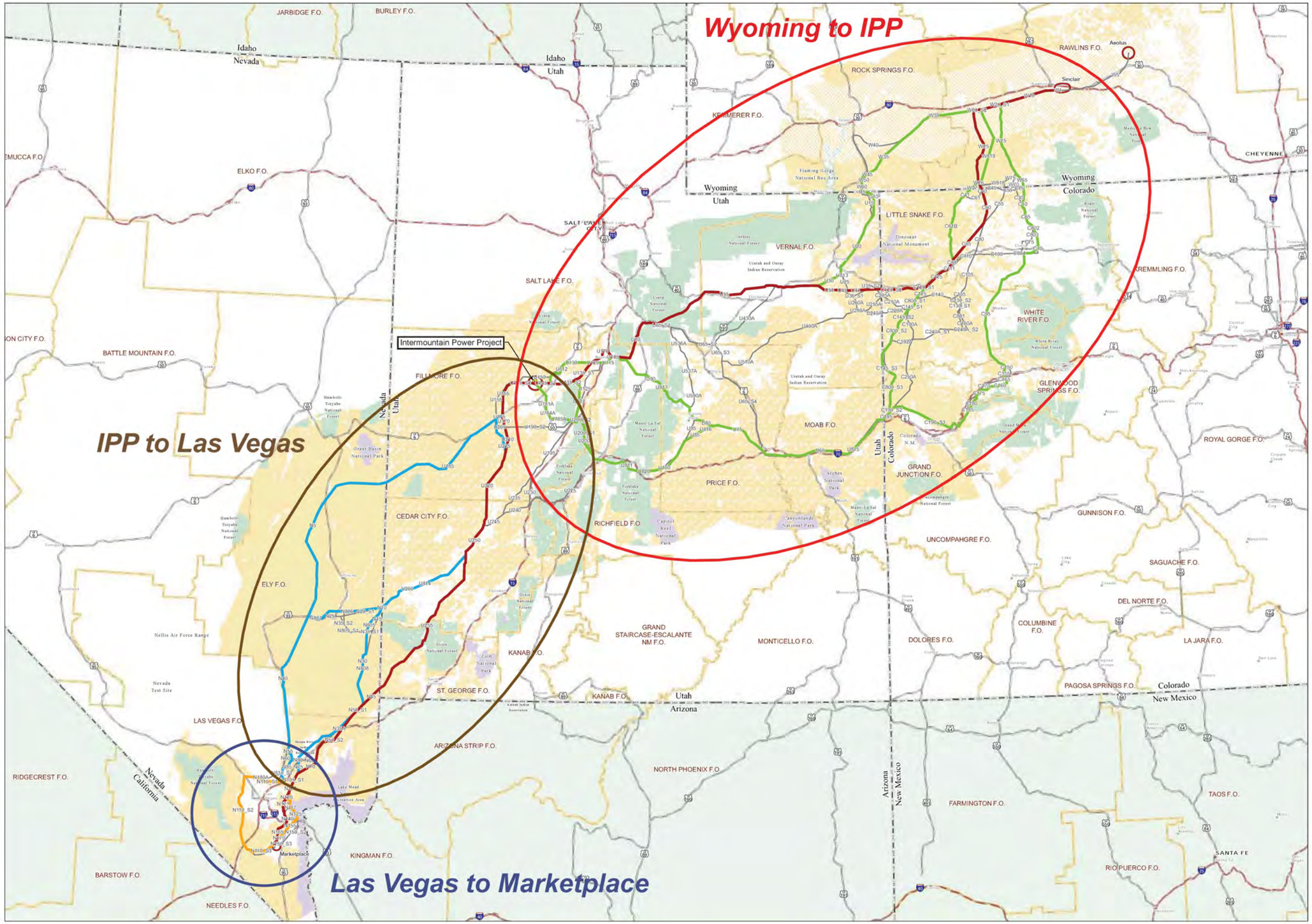

MAP 4
PROJECT CORRIDOR REGIONS FOR ALTERNATIVE SCREENING ANALYSIS

Project Features

- Applicant Proposed Route
- Wyoming to IPP
- IPP to Las Vegas
- Las Vegas to Marketplace
- Corridor Not Recommended for Further Study - May 2010
- Intermountain Power Plant
- Terminus Siting Areas

Jurisdiction

- Bureau of Land Management
- Forest Service
- National Park Service

Administrative Features

- State Capital
- County Seat
- State Boundary
- BLM Field Office Boundary

Transportation Features

- Interstate highway
- US Highway

Data Sources

BLM Field Offices: USDI Bureau of Land Management, 2006.
Transportation Features: TeleAtlas, 2008.
Administrative and Hydrologic Features: National Atlas, 2002
Jurisdiction Features: Arizona Land and resource Information System, 2007; California Department of Forestry FRRAP, 2009; Bureau of Land Management, 2005 and 2007; National Ecology Research Center, 2007; State of Utah School and Institutional Trust Lands Administration (SITLA), 2009;

Applicant proposed and alternative corridors:
Transwest Express LLC.

Note:
Some corridors were proposed by BLM during pre-scoping.

Map coordinate system is UTM NAD83 meters Zone 12

Date Last Revised : May 19, 2010

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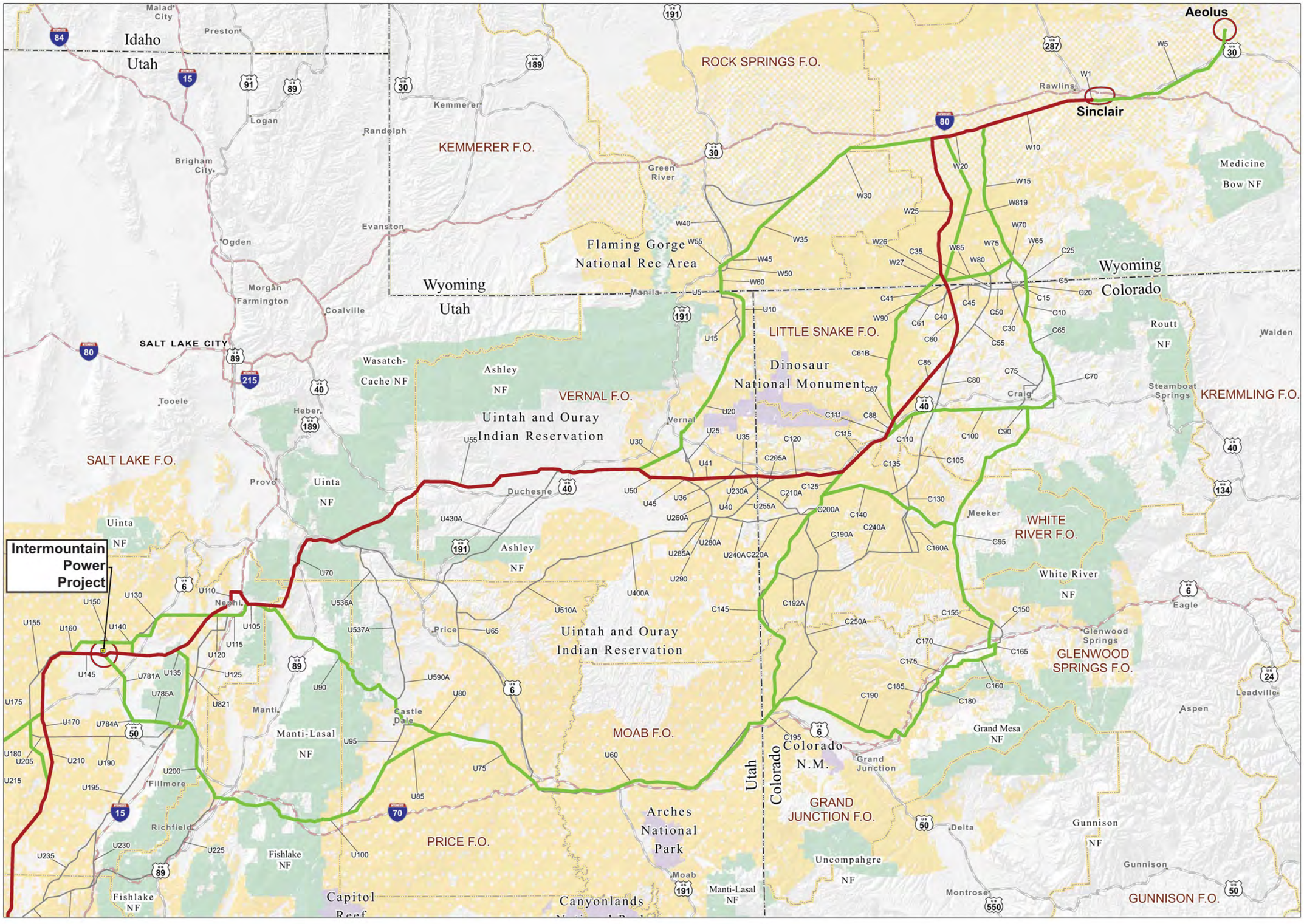
Miles

Pre-Scoping Draft

TRANSWEST EXPRESS TRANSMISSION PROJECT



MAP 5

PROJECT CORRIDOR SCREENING ANALYSIS
WYOMING TO IPP REGION

Project Features

- Applicant Proposed Corridor
- Alternative Corridor
- Corridor Not Recommended for Further Study - May 2010
- Intermountain Power Plant
- Terminus Siting Areas

Jurisdiction

- Bureau of Land Management
- Forest Service
- National Park Service

Administrative Features

- State Capital
- County Seat
- State Boundary
- BLM Field Office Boundary

Transportation Features

- Interstate Highway
- US Highway

Data Sources

BLM Field Offices: USDI Bureau of Land Management, 2006.
Transportation Features: TeleAtlas, 2008.
Administrative and Hydrologic Features: National Atlas, 2002
Jurisdiction Features: Arizona Land and resource Information System, 2007; California Department of Forestry FRRAP, 2009; Bureau of Land Management, 2005 and 2007; National Ecology Research Center, 2007; State of Utah School and Institutional Trust Lands Administration (SITLA), 2009.

Applicant proposed and alternative corridors:
Transwest Express LLC.

Note:
Some corridors were proposed by BLM during pre-scoping.

Map coordinate system is UTM NAD83 meters Zone 12

Date Last Revised : October 28, 2010

The alternative routes shown on this map are preliminary and may be revised and/or refined throughout the development of the project.

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TRANSWEST EXPRESS TRANSMISSION PROJECT

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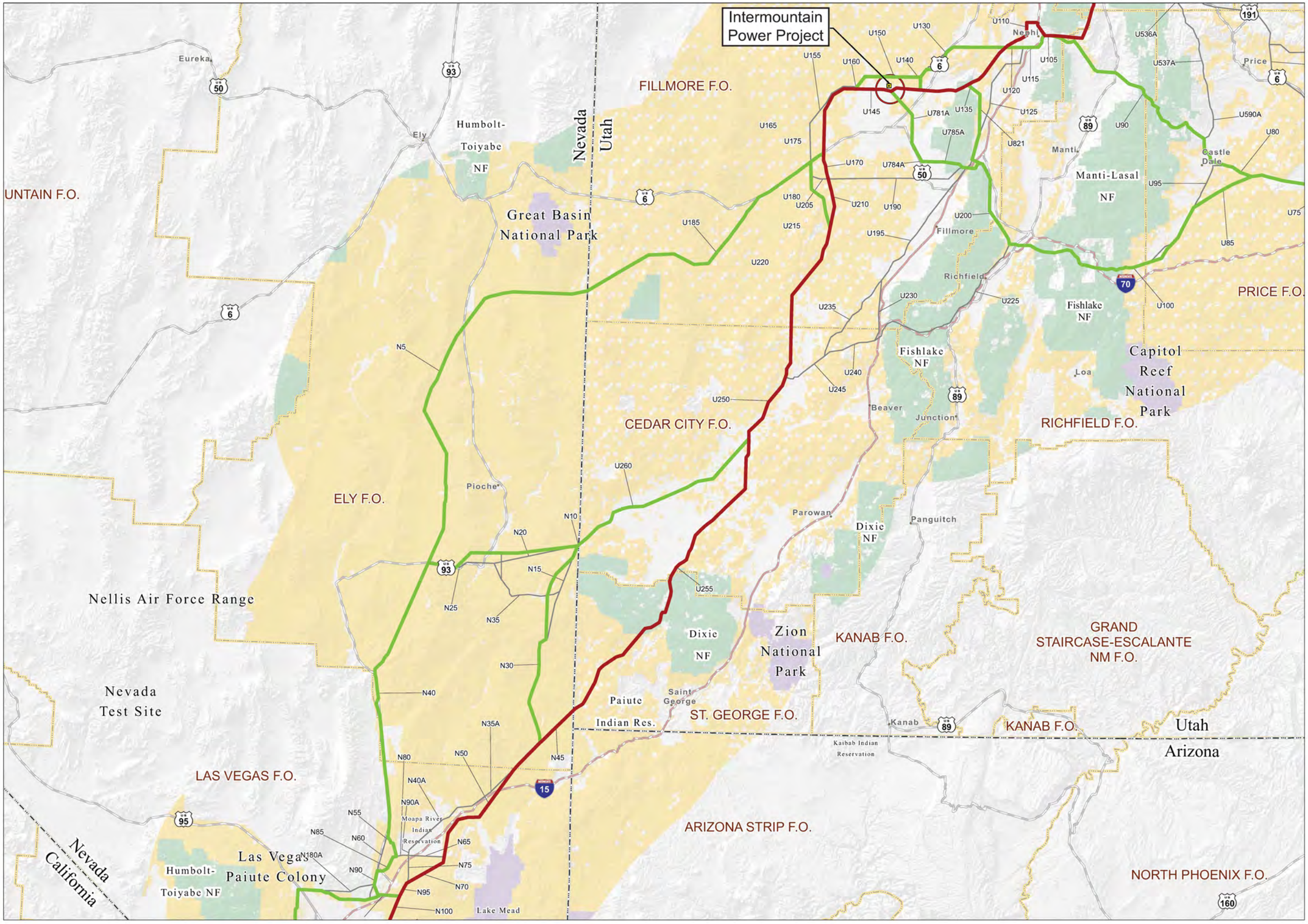

MAP 6

PROJECT CORRIDOR SCREENING ANALYSIS
IPP TO LAS VEGAS REGION

Project Features

- Applicant Proposed Corridor
- Alternative Corridor
- Corridor Not Recommended for Further Study - May 2010
- Intermountain Power Plant
- Terminus Siting Areas

Jurisdiction

- Bureau of Land Management
- Forest Service
- National Park Service

Administrative Features

- State Capital
- County Seat
- State Boundary
- BLM Field Office Boundary

Transportation Features

- Interstate Highway
- US Highway

Data Sources

BLM Field Offices: USDI Bureau of Land Management, 2006.
Transportation Features: TeleAtlas, 2008.
Administrative and Hydrologic Features: National Atlas, 2002
Jurisdiction Features: Arizona Land and resource Information System, 2007; California Department of Forestry FRRAP, 2005; Bureau of Land Management, 2005 and 2007; National Ecology Research Center, 2007; State of Utah School and Institutional Trust Lands Administration (SITLA), 2009.

Applicant proposed and alternative corridors:
Transwest Express LLC.

Note:
Some corridors were proposed by BLM during pre-scoping.

Map coordinate system is UTM NAD83 meters Zone 12

Date Last Revised : October 28, 2010

The alternative routes shown on this map are preliminary and may be revised and/or refined throughout the development of the project.

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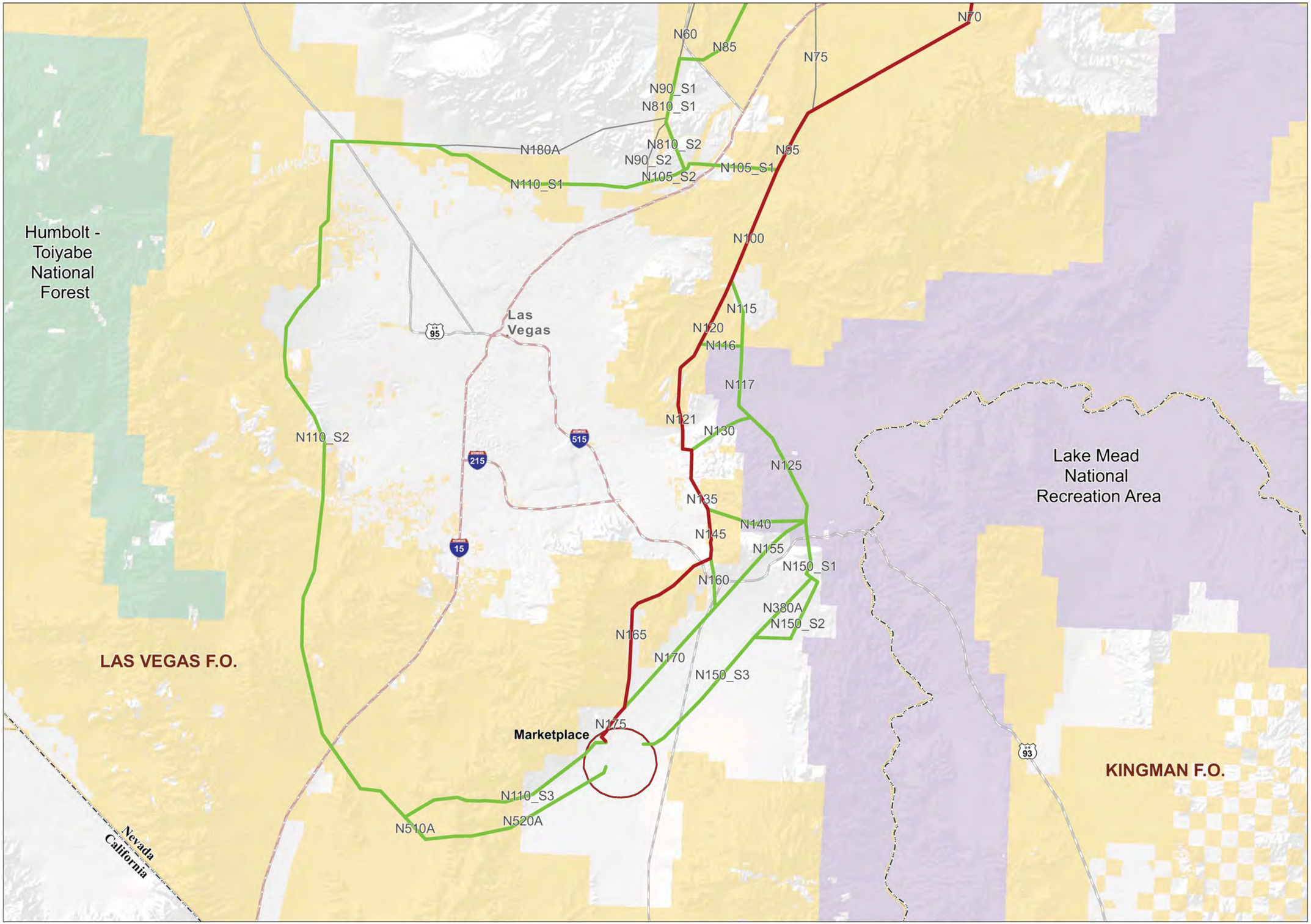
Pre-Scoping Draft

TRANSWEST EXPRESS TRANSMISSION PROJECT



MAP 7

PROJECT CORRIDOR SCREENING ANALYSIS
LAS VEGAS TO MARKETPLACE REGION

Project Features

- Applicant Proposed Corridor
- TWE_Centerlines_Master_100521
- Corridor Not Recommended for Further Study - May 2010
- Terminus Siting Areas

Jurisdiction

- Bureau of Land Management
- Forest Service
- National Park Service

Administrative Features

- State Capital
- County Seat
- State Boundary
- BLM Field Office Boundary

Transportation Features

- Interstate Highway
- US Highway

Data Sources

BLM Field Offices: USDI Bureau of Land Management, 2006.
Transportation Features: TeleAtlas, 2008.
Administrative and Hydrologic Features: National Atlas, 2002
Jurisdiction Features: Arizona Land and resource Information System, 2007; California Department of Forestry FRRAP, 2009; Bureau of Land Management, 2005 and 2007; National Ecology Research Center, 2007; State of Utah School and Institutional Trust Lands Administration (SITLA), 2009.

Applicant proposed and alternative corridors:
Transwest Express LLC

Note:
Some corridors were proposed by BLM during pre-scoping.

Map coordinate system is UTM NAD83 meters Zone 12

Date Last Revised : October 28, 2010

The alternative routes shown on this map are preliminary and may be revised and/or refined throughout the development of the project.

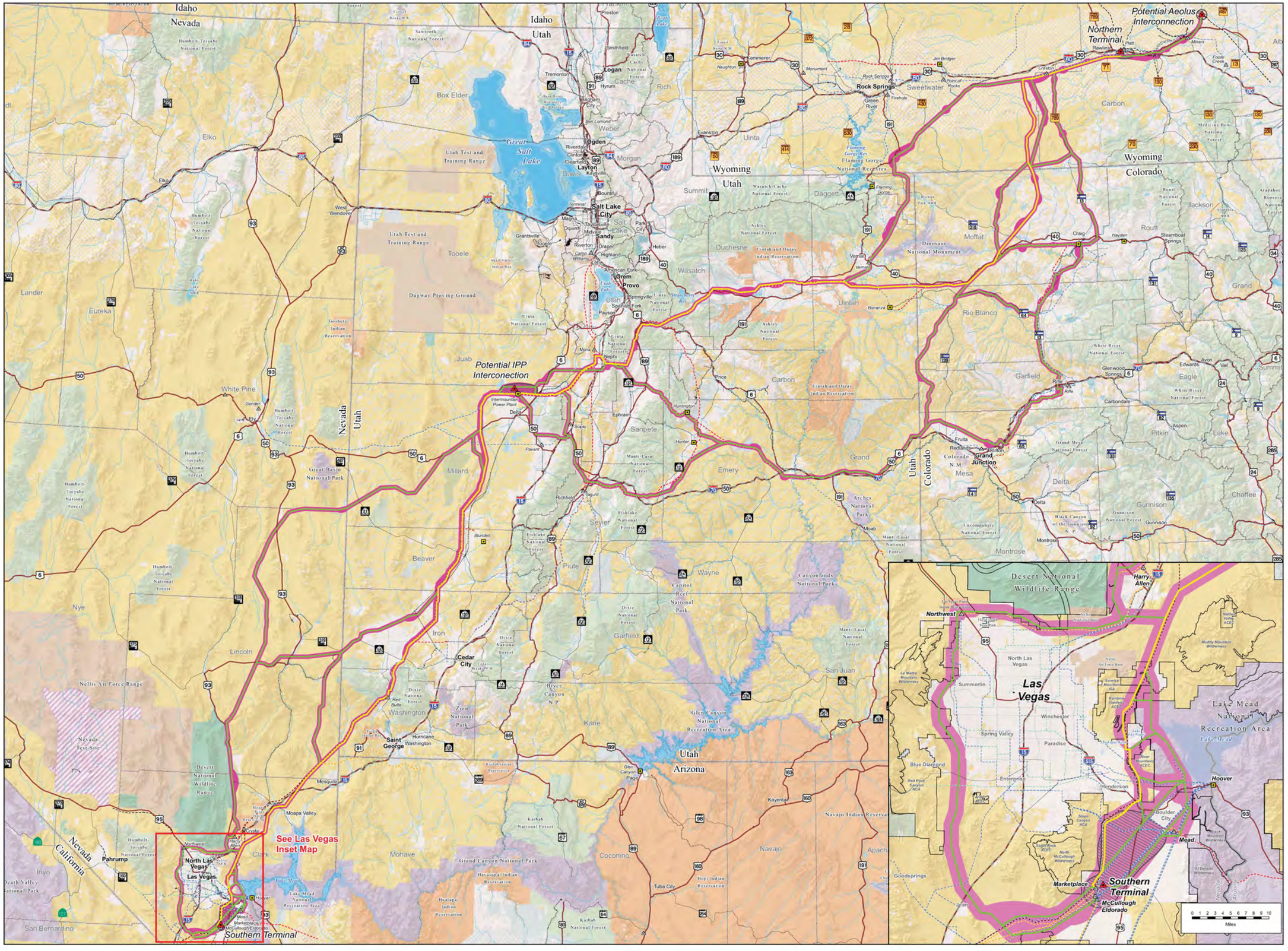
0 2.5 5 10
Miles

NATIONAL SYSTEM OF PUBLIC LANDS

Pre-Scoping Draft

TRANSWEST EXPRESS TRANSMISSION PROJECT

MAP 8
PROPOSED AND ALTERNATIVE CORRIDORS USED FOR PUBLIC SCOPING



Legend

Project Features

- Proposed Segment
- Alternative Segment
- Proposed & Alternative Corridors (Typical two miles wide)
- Proposed Substation/ Terminal
- Terminal Siting Area

Land Jurisdiction

- Department of Defense
- Department of Energy
- Indian Reservation
- USDA Forest Service
- USDI Bureau of Land Management
- USDI Bureau of Reclamation
- USDI Fish and Wildlife Service
- USDI National Park Service
- State Land
- State or Local Park
- Private Land

Existing Utilities

- Existing Power Plant
- Existing Substation
- 500kV+/- DC Transmission Line
- 500kV Transmission Line
- 345kV Transmission Line
- 230 to 287kV Transmission Line
- 138 to 161kV Transmission Line
- 115kV Transmission Line

Transportation Features

- Interstate Highway
- US Highway
- State Highway
- Railroad

Water Features

- River or Stream
- Lake, Pond, or Reservoir

Data Sources

Transportation:
NTAD2008, US Department of Transportation
Land Jurisdiction:
BLM State Office California, Colorado, Idaho, New Mexico, Oregon, Utah, Wyoming 2008
POWERmap, powermap.platts.com
©2007 Platts, A Division of The McGraw-Hill Companies

NOTE: Substation locations are schematic and do not necessarily represent precise locations.

Date updated: June 29, 2010
Routes Current as of June 23, 2010

The routes shown on this map are preliminary and may be revised and/or refined throughout the development of the project.

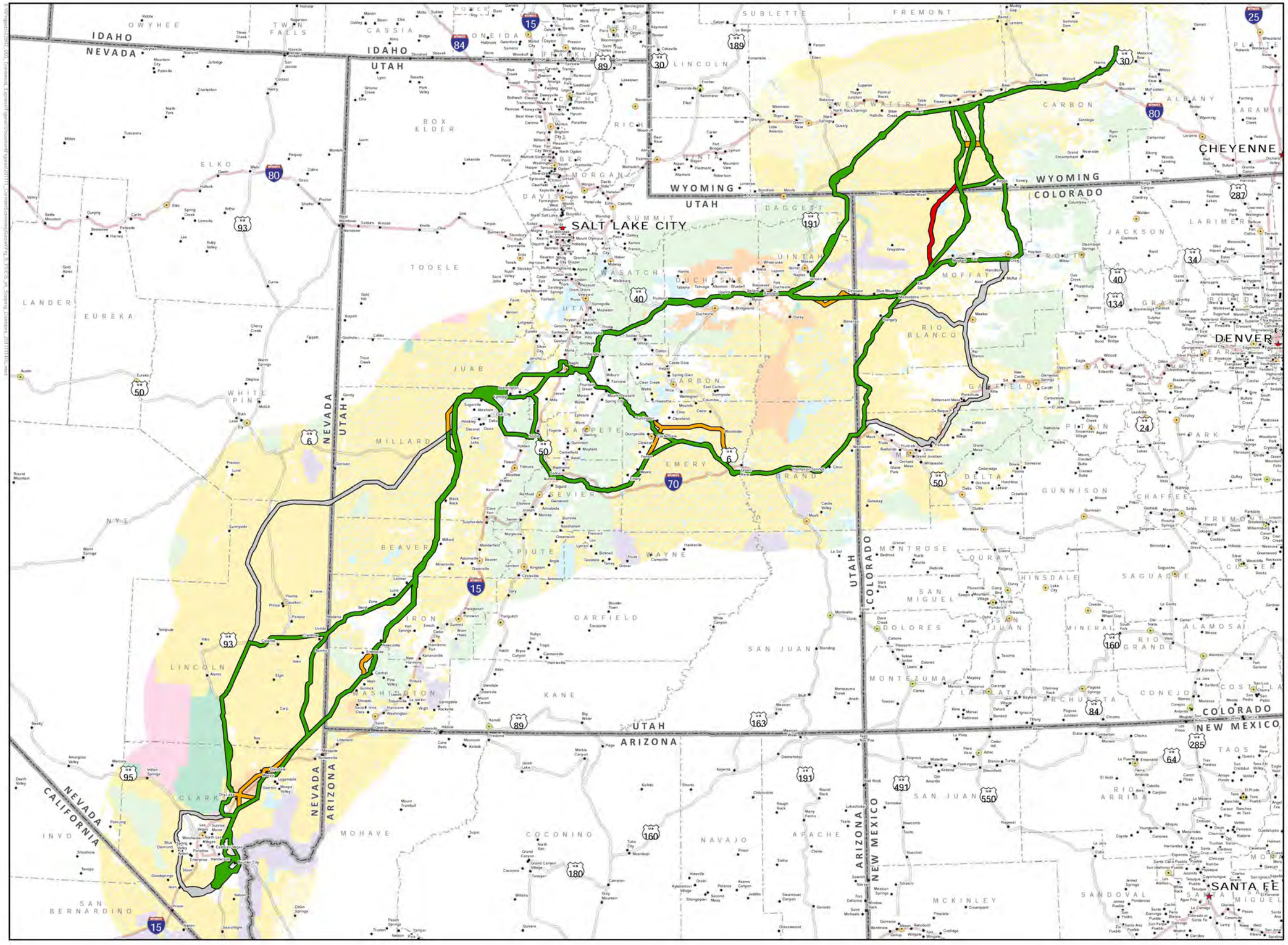
0 10 20 30 40 50 60 70 80
Miles
1:800,000

TRANSWEST EXPRESS TRANSMISSION PROJECT

POWER ENGINEERS
June 29, 2010

TRANSWEST EXPRESS LLC

Map 9
Corridor Changes Since Scoping
November 14, 2011



Project Features

Corridors - Scoping vs. DEIS

- Scoping Corridor - Carried Forward to DEIS
- Modified from Scoping Corridor - Carried Forward to DEIS
- Corridor Not In Scoping - Carried Forward to DEIS
- Scoping Corridor - Not Carried Forward in DEIS

Transportation

- Interstate highway
- US Highway

Administrative Features

- State Capital
- County Seat
- City/Town
- State Boundary
- County Boundary

Jurisdiction

- Bureau of Indian Affairs/Tribal
- Bureau of Land Management
- Bureau of Reclamation
- Department of Defense
- Department of Energy
- National Park Service
- US Fish and Wildlife Service
- US Forest Service
- State/Local

Data Sources
Transportation Features: TeleAtlas, 2006
Administrative and Hydrologic Features: National Atlas, 2002
Jurisdiction Features: US Forest Service, 2010

Applicant Proposed Segments: TransWest Express LLC
Alternative Proposed Segments: Joint Lead Agencies

Note:
Some corridors were proposed by BLM during pre-scoping.

Map coordinate system is UTM NAD83 meters Zone 12

DRAFT

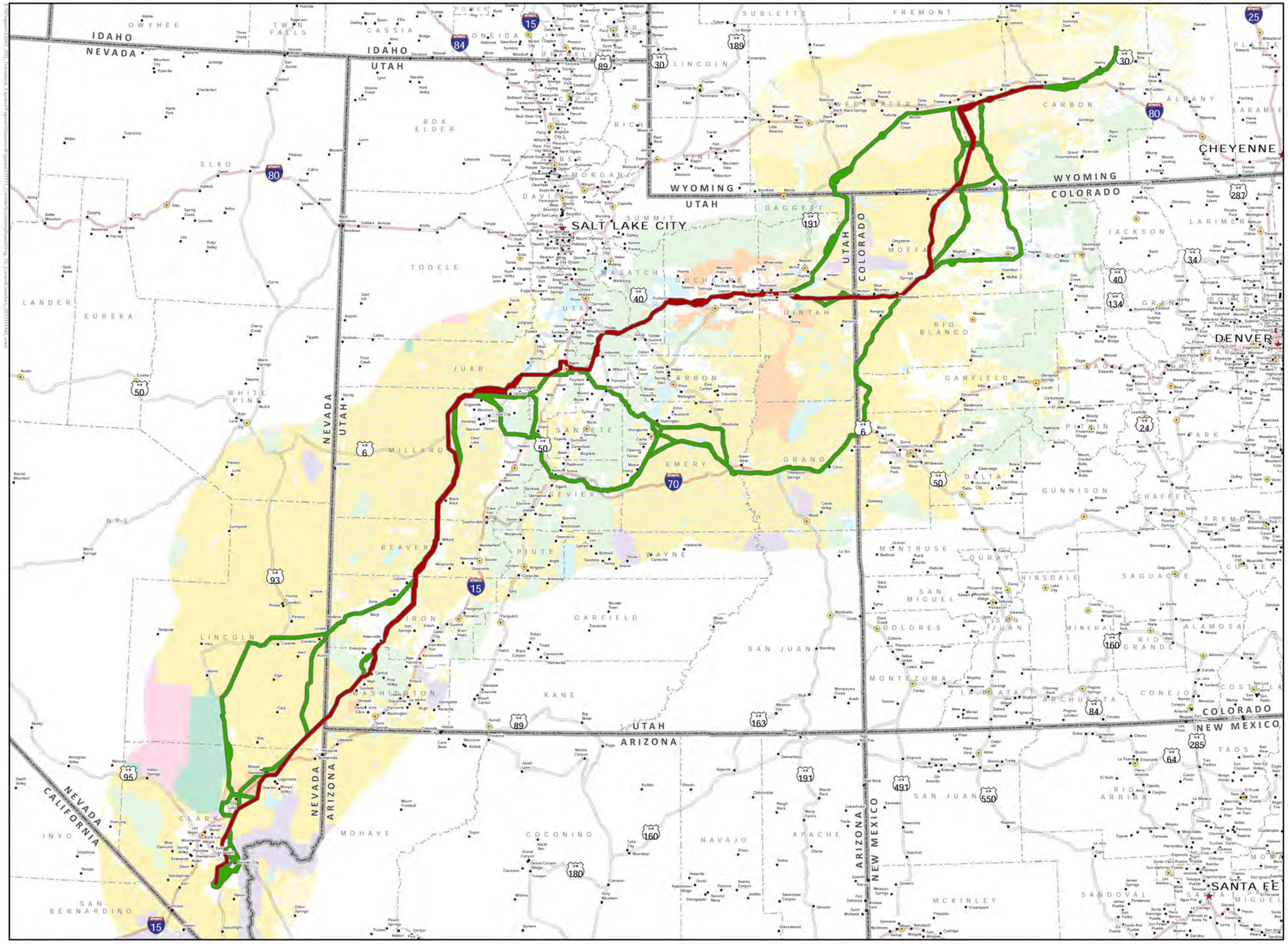
Date Last Revised : December 28 2011

The alternative segments shown on this map are preliminary and may be revised and/or refined throughout the development of the project. No warranty is made by the Agencies for use of the data herein for purposes not intended by the Agencies.

0 10 20 40 60 80
Miles

Western Area Power Administration

TRANSWEST EXPRESS TRANSMISSION PROJECT



Map 10
Alternatives to be Analyzed in the Draft EIS
November 14, 2011

Project Features

Project Corridors
- Applicant Proposed
- Alternative

Transportation
- Interstate highway
- US Highway

Administrative Features
- State Capital
- County Seat
- City/Town
- State Boundary
- County Boundary

Jurisdiction
- Bureau of Indian Affairs/Tribal
- Bureau of Land Management
- Bureau of Reclamation
- Department of Defense
- Department of Energy
- National Park Service
- US Fish and Wildlife Service
- US Forest Service
- State/Local

Data Sources
Transportation Features: TeleAtlas, 2006
Administrative and Hydrologic Features: National Atlas, 2002
Jurisdiction Features: US Forest Service, 2010

Applicant Proposed Segments: TransWest Express LLC
Alternative Proposed Segments: Joint Lead Agencies

Note:
Some corridors were proposed by BLM during pre-scoping.

Map coordinate system is UTM NAD83 meters Zone 12

DRAFT

Date Last Revised : November 21 2011

The alternative segments shown on this map are preliminary and may be revised and/or refined throughout the development of the project. No warranty is made by the Agencies for use of the data herein for purposes not intended by the Agencies.

0 10 20 40 60 80
Miles

Western AREA POWER ADMINISTRATION

TRANSWEST EXPRESS TRANSMISSION PROJECT

Attachment B

Analysis of Corridors Retained for Public Scoping

Analysis of Corridors Retained for Scoping

Wyoming to IPP – Applicant Proposed Corridor (2010 amended ROW application, see Map 5)

Corridor/ Route ID	BLM Field Office	Corridor Constraints	Corridor Opportunities
W1 / W10	Rawlins F.O.	Sage Grouse Core Breeding Area. Crosses through Red Rim-Daley Wildlife Habitat Management Area which is managed for winter pronghorn habitat and raptor protection. Crosses Continental Divide National Scenic Trail Crosses a Scenic Byway.	Follows an existing 230 – 287 kV transmission line and a designated utility corridor.
W20	Rawlins F.O.	Crosses a Scenic Byway.	
W25	Rawlins F.O. Sweetwater County	Follows an underground only corridor. Red Rock NRHP site is within corridor.	Corridor parallels an existing pipeline.
W26	Rawlins F.O.	Follows an underground only corridor.	Corridor parallels an existing pipeline.
W90	Rawlins F.O.	Follows an underground only corridor.	Parallels an existing pipeline with a 1000-foot offset.
C40	Moffat County Little Snake F.O.	Crosses Little Snake River. Sage Grouse Production Habitat. Follows an underground only corridor.	
C60	Moffat County Little Snake F.O.	Sage Grouse Production Habitat Follows an underground only corridor. Corridor goes through core sage grouse areas (LSFO comments). The Little Snake FO does not prefer the use of these pipeline corridors for overhead transmission lines (comment from pre-scoping meeting held on 6/12/2009).	
C85	Moffat County Little Snake F.O.	Sage Grouse Production Habitat. Crosses Yampa River and is located near Yampa River Fishing Access and boat launching area.	Generally follows RMP designated corridor, although corridor is discontinuous.

Wyoming to IPP – Applicant Proposed Corridor (2010 amended ROW application, see Map 5)

Corridor/ Route ID	BLM Field Office	Corridor Constraints	Corridor Opportunities
C88	Moffat County Little Snake F.O.	Does not follow a designated energy corridor. Sage Grouse Production Habitat.	
C115	Moffat County White River F.O.	Sage Grouse Production Habitat.	Follows a designated corridor and an RMP designated corridor, Parallels an existing 345-kV transmission line south of US 40.
C120	Moffat County White River F.O.	Sage Grouse Production Habitat. Crosses a Scenic Byway.	Follows a WWEC Use Type “All” corridor and an RMP designated corridor. Generally parallels an existing 345-kV transmission line south of US 40.
U40	Vernal FO	Does not follow designated corridor. Sage Grouse Production Habitat.	
U41	Vernal FO	Does not follow designated corridor Sage Grouse Production Habitat.	
U45	Vernal FO	Sage Grouse Production Habitat.	Follows a designated utility corridor. Parallels an existing 345-kV transmission line.
U50	Vernal FO	Crosses Green River. Consider collocating transmission line crossings within corridor. (Vernal FO comment – avoid disturbance of 100-year floodplain of Green River). Sage Grouse Production Habitat.	Follows a designated utility corridor. Parallels an existing 345-kV transmission line.
U55	Duchesne County (Vernal FO) Wasatch County	13.55 miles of corridor passes through edge of roadless area in Uinta National Forest; 16.38 miles total length in Uinta NF. Passes through three WMAs for a total distance of 4.98 miles: Rabbit Gulch WMA, Wildcat WMA, and Currant Creek WMA. Roosevelt Municipal Airport, near Roosevelt, UT is near corridor. Parallels a Scenic Byway. USFS Partial Retention VQOs. Sage Grouse Production Habitat.	Parallels an existing 345-kV transmission line.

Wyoming to IPP – Applicant Proposed Corridor (2010 amended ROW application, see Map 5)

Corridor/ Route ID	BLM Field Office	Corridor Constraints	Corridor Opportunities
U70	Salt Lake FO Richfield FO (small portion)	Crosses roadless area in Manti-La Sal National Forest. At least one campground is located within the corridor. Five WMAs are located within the corridor: Dairy Fork WMA, Lake Fork WMA, Jackson WMA, Spencer Fork WMA, and Triangle Ranch WMA just east of Nephi. USFS Partial Retention VQOs.	Parallels an existing 345-kV transmission line.
U105	Fillmore FO	Narrow, constrained area east of Nephi. Passes Canyon Hills Golf Course and hiking trail. Abuts Triangle Ranch WMA.	
U110	Fillmore FO	Nephi Municipal Airport is near corridor. Corridor is within future annexation growth area of Nephi City. (Two plats have been approved and constructed – Deer Acre Plot B). Sage Grouse Production Habitat. Crosses four existing 345-kV transmission lines.	Parallels an existing 138 to 161-kV transmission line. North/south portion of corridor west of Nephi parallels two existing 345-kV transmission lines.
U135	Western portion in Millard County (Fillmore FO)	Corridor crosses Millard County Zoning Exclusion Area Sage Grouse Production Habitat.	Generally follows designated energy corridor across Fishlake National Forest. Parallels two existing 345-kV transmission lines.
U145	Millard County Fillmore FO	Corridor crosses Millard County Zoning Exclusion Area	Parallels two existing 345-kV transmission lines.

Wyoming to IPP – Aeolus Connection (see Map 5)

Corridor/ Route ID	BLM Field Office	Corridor Constraints	Corridor Opportunities
W5	Rawlins F.O.	Crosses Sage Grouse Core Breeding Area. Crosses the North Platte River and is near Fort Steele.	Partially follows WWEC and RMP-designated corridor. Partially follows Highway 30.

Wyoming to IPP – Westernmost Alternative Corridor (see Map 5)

Corridor/ Route ID	BLM Field Office	Corridor Constraints	Corridor Opportunities
W30	Rock Springs F.O.	Crosses extensive oil and gas production area outside of corridor south of Table Rock.	Generally follows RMP "window" corridor. Northern portions of corridor parallels an existing 230-kV transmission line.
W35	Rock Springs F.O.	Sage Grouse Core Breeding Area. W35 does not follow designated federal utility corridors. Crosses Red Creek Portion ACEC. VRM Class II – Avoidance Area.	
W45	Rock Springs F.O.	Sage Grouse Core Breeding Area. Corridor does not follow designated federal utility corridor. Crosses Greater Red Creek ACEC which is also designated as VRM Class II – Avoidance Area. NOTE: The Greater Red Creek ACEC will, in general, be managed as an avoidance area for rights-of-way and surface disturbing activities (RMP page 27). Located on edge of Red Creek Badlands WSA. Visual and soil issues in Red Creek Badlands WSA. NOTE: Discretionary uses within or adjacent to WSAs will be reviewed to ensure they do not create conflicts with management and preservation of wilderness values (RMP page 23).	
W55	Rock Springs F.O.	Sage Grouse Core Breeding Area. Corridor does not follow designated federal utility corridor. Red Creek Portion ACEC. Crosses into Sage Creek Portion Greater Red Creek ACEC. Parallels Flaming Gorge – Green River Basin Scenic Byway and crosses it twice. VRM Zone Class II – Avoidance Area.	
W60	Rock Springs F.O.	Red Creek Portion ACEC. VRM Zone Class II – Avoidance Area. Adjacent to Clay Basin State WMA.	Corridor is parallel to Clay Basin Pipeline Road and pipeline route.

Wyoming to IPP – Westernmost Alternative Corridor (see Map 5)

Corridor/ Route ID	BLM Field Office	Corridor Constraints	Corridor Opportunities
U5	Vernal FO	The following ACECs are within the corridor: Red Creek ACEC and Browns Park ACEC. Red Creek ACEC is designated to protect watershed.	
U10	Vernal FO	Crosses Upper Green River Designated Wild and Scenic River. Corridoris within Red Creek ACEC and Browns Park ACEC. Crosses a Scenic Byway. VRM Class II – Avoidance Area. Clay Basin State WMA. Sage Grouse Production Habitat.	Within an RMP designated utility corridor.
U20	Vernal FO	Crosses Dinosaur Diamond Prehistoric Byway. VRM Class II – Avoidance Area. Sears Canyon State WMA. Sage Grouse Production Habitat. Vernal FO comment – North-south alternative runs through a wild horse management area where multiple gathers are planned.	Generally follows designated utility corridor. Southern portion of corridor parallels an existing 138 to 161 kV transmission line.
U30	Vernal FO	Does not follow utility corridor or other linear facility. Sage Grouse Production Habitat.	

Wyoming to IPP – WGFD to Colorado (Central) Corridor (see Map 5)

Corridor/ Route ID	BLM Field Office	Corridor Constraints	Corridor Opportunities
W819	Rawlins FO	Traverses oil & gas production area.	Generally avoids known sage grouse leks. Parallels Wamsutter Road
W27	Rawlins FO	Not in a utility corridor, does not appear to parallel any existing linear features.	

Wyoming to IPP – WGFD to Colorado (Central) Corridor (see Map 5)

Corridor/ Route ID	BLM Field Office	Corridor Constraints	Corridor Opportunities
C41	Little Snake FO		Majority of corridor follows designated and proposed utility corridors.
C61B	Little Snake FO	Not within a designated utility corridor. Crosses Little Snake River. Crosses Yampa River. Located near East Cross Mountain River Access and Campground.	
C87	Little Snake FO	Not within a utility corridor. Does not appear to follow any linear features. Sage Grouse Production Habitat. Crosses US Highway 40.	

Wyoming to IPP – Wyoming and Colorado East-West Connectors (see Map 5)

Corridor/ Route ID	BLM Field Office	Corridor Constraints	Corridor Opportunities
W75	Rawlins FO	Does not follow a designated utility corridor. Crosses a Scenic Byway.	
W85	Rawlins FO	Crosses a mining/oil and gas production area.	Roughly parallels a pipeline corridor.
C804	Little Snake FO	Not within a utility corridor. Crosses several transmission lines associated with Craig power plant. Crosses Yampa River. Consider collocating transmission line crossings.	Parallels several transmission lines associated with Craig power plant.

Wyoming to IPP – Wyoming and Colorado East-West Connectors (see Map 5)

Corridor/ Route ID	BLM Field Office	Corridor Constraints	Corridor Opportunities
C100	Little Snake FO	East Juniper Mountain Trailhead within corridor. Crosses Yampa River. Consider collocating transmission line crossings. Bitter Brush State Wildlife Area within corridor. Sage Grouse Production Habitat.	Portions within designated utility corridor. Generally follows southern edge of utility corridor. Parallels a 138 to 161-kV and a 345-kV transmission line.
C110	Little Snake FO	Bitter Brush State Wildlife Area within corridor. Sage Grouse Production Habitat.	Generally follows designated utility corridor. Parallels a 138 to 161-kV and a 345-kV transmission line for entire length.
C111	Little Snake FO	Outside of designated utility corridor, but connects two portions of a designated corridor.	Parallels a 138 to 161-kV and a 345-kV transmission line for entire length.
C822	White River FO	Parallels White River west of Meeker. Portions of corridor are located within underground-only utility corridors. Piceance State Wildlife Area is within corridor (west of existing transmission line). Smith Gulch Trailhead is within corridor. Windy Gulch Hunter Camps are within corridor. Boat ramp and designated fishing area are within corridor. Portion of Black Mountain WSA is within corridor.	Parallels State Highway 64 Parallels an existing 138 to 161-kV transmission line.
C130_S1	White River FO	Follows WWEC Designated UNDERGROUND-ONLY utility corridor and RMP designated off/underground corridor. Parallels White River riparian corridor. VRM Zone Class II – Avoidance Area withincorridor. Piceance State Wildlife Area within corridor.	Portion of corridor follows existing pipeline.
C140	White River FO	Parallels White River. Portions of White River Riparian ACEC are within corridor.	Within RMP designated (off) utility corridor. Generally parallels an existing 138 to 161-kV transmission line.

Wyoming to IPP – Baxter Pass Alternative (see Map 5)

Corridor/ Route ID	BLM Field Office	Corridor Constraints	Corridor Opportunities
C125	White River FO	Does not follow utility corridor. Does not appear to follow any linear feature. Crosses White River east of Rangely near isolated portions of White River ACEC. Sage Grouse Production Habitat.	
C800	White River FO Grand Junction FO (southern half)	Much of remainder of corridor follows RMP designated underground only utility corridor. Crosses edge of Oil Spring Mountain WSA and ACEC, and Demaree WSA. Visual issues in Demaree Canyon WSA. Wilderness Study Area (WSA within corridor. VRM Class I – Exclusion Area. VRM Class II – Avoidance Area. Shift in corridor was suggested to avoid these visually sensitive areas. Scenic Byway within corridor. BLM White River FO staff warned of landslide areas in Baxter Pass at the boundary of the BLM White River and Grand Junction FOs (March 18, 2009).	Northern portion of corridor follows RMP "designated" corridor.

Wyoming to IPP – Easternmost Alternative (see Map 5)

Corridor/ Route ID	BLM Field Office	Corridor Constraints	Corridor Opportunities
W15	Rawlins FO	Parallels Muddy Creek. Approximately 14 Greater Sage-Grouse leks identified in within corridor. Parallels Scenic Byway	Follows utility corridor
W65	Rawlins FO	Crosses Little Snake River approximately 1 mile west of Dixon, Wyoming. Crosses cultivated fields in Little Snake River valley. Scenic Byway within corridor.	Parallels Carbon County Road 601.

Wyoming to IPP – Easternmost Alternative (see Map 5)

Corridor/ Route ID	BLM Field Office	Corridor Constraints	Corridor Opportunities
C5	Little Snake FO	Generally follows a designated utility corridor. Crosses cultivated fields. Sage Grouse Production Habitat within corridor.	Parallels CO Rd 101
C10	Little Snake FO	Crosses Four Mile Creek riparian corridor. Several industrial parcels are located within corridor. Sage Grouse production.	Generally parallels existing roads.
C65	Little Snake FO	Landing strip within corridor (possibly associated with Mesa View Ranch House). Reservoir within corridor. Sage Grouse Production Habitat.	Short segments of corridor within discontinuous WWEC and RMP utility corridors. Parallels Hwy 789/Colorado Hwy 13.
C802	Little Snake FO	Not within utility corridor. Crosses Yampa River near Yampa River State Wildlife Area. Crosses oxbow lakes associated with historic meanders of Yampa River. The corridor crosses two parallel 345kV and 230-287kV transmission lines. Sage Grouse Production Habitat. Craig-Moffat Airport near corridor.	Southern portion of corridor parallels an existing 138 to 161kV transmission line.
C95	Little Snake FO, White River FO, Colorado River Valley FO	Corridor crosses a 345-kV transmission line near Rim Rock Campground. Crosses White River west of Meeker. Portion of corridor south of Meeker is generally parallel to existing transmission lines. Deer Gulch ACEC within corridor. Sage Grouse Production Habitat. Private airport near corridor. VRM Class II – Avoidance Area.	Corridor generally follows designated utility corridors. Generally parallels an existing 138 to 161kV transmission line. South of Meeker, the corridor parallels a 230-kV and a 138 to 161kV transmission line.

Wyoming to IPP – Easternmost Alternative (see Map 5)

Corridor/ Route ID	BLM Field Office	Corridor Constraints	Corridor Opportunities
C155	Colorado River Valley FO	Not within utility corridor. Water treatment pond within corridor between I-70 and Hwy 6. Crosses Colorado River west of Rifle. Crosses cultivated fields and near residential area.	
C160	Colorado River Valley FO	Not within designated utility corridor.	Parallels an existing 345-kV transmission line.
C165	Colorado River Valley FO	Near a residential area.	Within a designated utility corridor. Parallels a pipeline. Parallels an existing 230-kV transmission line.
C175	Colorado River Valley FO	Crosses cultivated fields. Colorado River Valley FO RMP designates the lower Colorado River as sensitive for placement of utilities, for terrestrial habitat management.	Portions of corridor are located within a designated utility corridor. Parallels existing 230-kV and 345-kV transmission lines; however, required offset may force new transmission line into forested area.
C180	Grand Junction FO	With the exception of terrain, no obvious issues apparent from aerial photography.	Southern portion of corridor within WWEC utility corridor. Parallels existing 345-kV transmission line.
C190	Grand Junction FO	Western portion of corridor does not follow a designated corridor. Crosses Colorado River near Cameo power plant. Corridor follows edge of Little Bookcliffs WSA. Highline Lake State Recreation Area is located near corridor. Corridor crosses and parallels Dinosaur Diamond Prehistoric Byway. VRM Class II – Avoidance Area. Mt. Garfield, which is close to corridor, is a Class I visual resource in the GJFO RMP.	Eastern portion of corridor follows WWEC designated corridor. Portion of corridor parallels an existing 230-kV transmission line.
C195	Grand Junction FO	Corridor is in proximity to Rabbit Valley Paleo ACEC. Corridor is in proximity to National Historic Trail.	Follows an RMP designated utility corridor. Corridor avoids Colorado Canyons NCA.

Wyoming to IPP – Easternmost Alternative (see Map 5)

Corridor/ Route ID	BLM Field Office	Corridor Constraints	Corridor Opportunities
U60	Moab FO	Not located within a utility corridor. Parallels Interstate 70. Moab FO comments – concern regarding fugitive dust impacts on I-70 during construction. - High concentrations of kit fox, state species of concern near Cisco. - Impacts on visual setting. Occupied residence within corridor. Crosses and parallels Old Spanish Trail Parallels old railroad grade. Near Sego Canyon Rock Art Interpretive Site. Iron Wash Kiosk Site recreational trail is within corridor. Within 1 mile of Green River State Park. Crosses Green River. Consider collocating transmission line crossings. A natural area known as Crystal Geyser terraces is within the corridor. Historic structures including one-room school house in Thompson Springs, Utah are located within the corridor. Parallels Dinosaur Diamond Prehistoric Byway. A private airport (landing strip and portions of Green River Municipal Airport are within the corridor. Parallels Old Spanish Trail National Historic Trail. VRM Class II – Avoidance Area. Crosses military operating area south of I-70.	Parallels a pipeline route. Western portion of corridor parallels a 345-kV transmission line.

Wyoming to IPP – Easternmost Alternative (see Map 5)

Corridor/ Route ID	BLM Field Office	Corridor Constraints	Corridor Opportunities
U75	Price FO	Crosses large swath of state land. In proximity to San Rafael Canyon ACEC and Cottonwood Canyon ACEC. Big Hole ACEC which is designated for prehistoric rock art is located within the corridor. Black Dragon Petroglyph Recreation Site is located within corridor. Cedar Mountain Recreation Site, Cedar Mountain Overlook Recreation Site, and Sam's Hollow Recreation Site and Campground are within corridor. Parallels Old Spanish Trail National Historic Trail and a Scenic Byway.	With the exception of state land, follows an existing utility corridor. Parallels an existing 345-kV transmission line.

Wyoming to IPP – Utah Northern Alternative (see Map 5)

Corridor/ Route ID	BLM Field Office	Corridor Constraints	Corridor Opportunities
U80	Price FO	Parallels Old Spanish Trail National Historic Trail and a Scenic Byway.	Within an RMP-designated utility corridor. Parallels County Road 401
U90	Price FO & Richfield FO	Crosses irrigated agricultural land. Passes near Huntington Canyon coal plant. Crosses Manti – La Sal National Forest. A State WMA is within the corridor. Parallels Old Spanish Trail National Historic Trail and a Scenic Byway. Sage Grouse Production Habitat	Corridor generally follows RMP (Forest)-designated utility corridor and parallels two existing 345-kV transmission lines; however, required offset would push transmission line into areas of unbroken forest.
U115	Fillmore FO	Crosses two existing 345-kV transmission lines. With the exception of terrain and the transmission line crossings, no obvious issues apparent from review of aerial photography.	South end of Nephi, avoids agricultural fields.

Corridor/ Route ID	BLM Field Office	Corridor Constraints	Corridor Opportunities
U120	Fillmore FO	Sage Grouse Production Habitat. Crosses two existing 345-kV transmission lines.	
U812	Fillmore FO	Corridorcrosses Little Sahara National Recreation Area (NRA). Original corridor appeared to cross extensive areas of sand dunes in the NRA. Shift in corridor suggested to avoid Little Sahara NRA and sand dunes. Sage Grouse Production Habitat. Crosses one existing 138 to 161-kV transmission line.	Follows WWEC utility corridor.
U140	Fillmore FO	Does not follow a designed utility corridor. Short segment with no obvious issues apparent from review of aerial photography.	
U150_S1	Fillmore FO	There are recent and pending lease sales on BLM land for oil, gas, and geothermal development in the area north and east of the IPP power plant.	Follows WWEC utility corridor. Passes to the north of the IPP power plant.

Wyoming to IPP – Utah Southern Alternative (see Map 5)

Corridor/ Route ID	BLM Field Office	Corridor Constraints	Corridor Opportunities
U85	Price FO	Not within a utility corridor and does not appear to follow any linear feature. Crosses San Rafael River at unusual angle, may encounter some terrain issues. Corridor crosses a Scenic Byway.	

Wyoming to IPP – Utah Southern Alternative (see Map 5)

Corridor/ Route ID	BLM Field Office	Corridor Constraints	Corridor Opportunities
U100	Price FO and Richfield FO	Dry Wash ACEC which is designated for prehistoric rock art is within the corridor. There are proposed ACECs in the Sevier Canyon, Kingston Canyon, and Painted Hills areas. Corridor parallels Old Spanish Trail National Historic Trail and a Scenic Byway. VRM Class II – Avoidance Area (Along Highway 50). Sage Grouse Production Habitat.	Corridor generally parallels an existing 345-kV transmission line through Fishlake National Forest. Approximately 25 miles of forest land crossed. Parallels designed Forest corridor for entire length; however required offset would likely force transmission line onto an area of steep slopes at eastern end of Forest.
U200	Richfield FO and Fillmore FO	Corridor crosses Millard County Zoning Exclusion Area. Corridor crosses I-15.	Corridor follows along eastern edge of RMP/Forest-designated utility corridor. Parallels an existing 230-kV transmission line.
U821	Fillmore FO	Crosses 3 existing transmission lines. Corridor crosses small portion of Millard County Exclusion Area, but avoids main areas of exclusion	Southern portion of corridor follows an RMP designated utility corridor.
U190_S1	Fillmore FO	Short segment with no obvious issues.	
U781A	Fillmore FO	Corridor crosses Millard County Exclusion Area Crosses small area of sand dunes north of Sevier River. Crosses Sevier River.	Corridor generally parallels an RMP designated utility corridor.
U784A	Fillmore FO	Not within a federal utility corridor. Corridor crosses Millard County Exclusion Area	Parallels US Highway 50. Parallels an existing 138 to 161-kV transmission line. Generally avoids center pivot irrigation.
U785A	Fillmore FO	Not within a federal utility corridor. Corridor crosses Millard County Exclusion Area	Avoids center pivot irrigation.

IPP to Las Vegas – Applicant Proposed Corridor (see Map 6)

Corridor/ Route ID	BLM Field Office	Corridor Constraints	Corridor Opportunities
U165	Millard County Fillmore FO	Corridor passes through the University of Utah Telescope Array scintillation detector field. Corridor is within military operating area (100 foot height restriction. USAF prefers collocating transmission lines within existing corridors).	Follows edge of Millard County utility corridor. Parallels an existing 500-kV transmission line.
U170	Millard County Fillmore FO	Corridor passes through the University of Utah Telescope Array scintillation detector field. Crosses at least one parcel of state land. Corridor is within military operating area (100 foot height restriction. USAF prefers collocating transmission lines within existing corridors).	Follows edge of Millard County utility corridor. Parallels an existing 500-kV transmission line.
U210	Millard County Fillmore FO	Northern portion of corridor passes through the University of Utah Telescope Array scintillation detector field.	Follows edge of Millard County utility corridor. Parallels an existing 500-kV transmission line.
U220	Northern portion in Millard County (Fillmore FO) Southern portion in Beaver County (Cedar City FO)		Parallels an existing 500-kV transmission line. Follows designated utility corridor.
U250	Beaver County (Cedar City FO)	Passes through hog farming area (should not pose a significant concern for routing).	Generally follows designated utility corridor. Parallels an existing 500-kV transmission line.
U255	Iron County (Cedar City FO) Washington County (St. George FO)	Crosses into roadless area in Dixie National Forest in several locations. Corridor crosses Beaver Dam Wash National Conservation Area (NCA) and Beaver Dam Slope ACEC (designated for desert tortoise habitat). Parallels Old Spanish Trail National Historic Trail.	Generally follows WWEC Use Type “All” utility corridor. Avoids center pivot agriculture near New Castle. Northern portion parallels an existing 500-kV transmission line and pipeline. In southern portion of Iron County and into Washington County, parallels a 345-kV and a 500-kV transmission line.

IPP to Las Vegas – Applicant Proposed Corridor (see Map 6)

Corridor/ Route ID	BLM Field Office	Corridor Constraints	Corridor Opportunities
N45	Ely FO	Corridor crosses Beaver Dam Slope ACEC which is designated for critical desert tortoise habitat. Per RMP, the ACEC is an avoidance area for transmission lines. No surface activity allowed between March 1 – Oct 1 to protect Desert Tortoise. (Table 17 RMP).	Follows designated utility corridor. Parallels a 345-kV and a 500-kV transmission line.
N50	Lincoln County (Ely FO) Clark County (Las Vegas FO)	Corridor crosses Mormon Mesa – Ely ACEC (Ely FO) and Mormon Mesa ACEC (LVFO). Both ACECs are designated for critical desert tortoise habitat. Crosses Old Spanish Trail National Historic Trail.	Mostly within designated WWEC corridor; however, departs from utility corridor near Moapa Valley.
N70	Las Vegas FO	Corridor crosses Muddy Mountains SRMA which is managed "to provide semi-primitive recreation opportunities and integrated management of wildlife habitat, cultural resources and other recreational uses." (RMP p.21). Most of this area is managed for **non-motorized**, semi-primitive recreational uses.	Within designated WWEC utility corridor.
N95	Las Vegas FO	Corridor crosses Old Spanish Trail National Historic Trail.	Follows designated utility corridor. Parallels 2 existing 500-kV transmission lines.

IPP to Las Vegas – Short Alternative Corridors – Millard County (see Map 6)

Corridor/ Route ID	BLM Field Office	Corridor Constraints	Corridor Opportunities
U150	Fillmore FO	There are recent and pending lease sales on BLM land for oil, gas, and geothermal development in the area north and east of the IPP power plant. Corridor enters military operating area (100 foot height restriction. USAF prefers collocating transmission lines within existing corridors).	Follows WWEC utility corridor.
U160	Fillmore FO	None identified.	Within WWEC utility corridor and RMP designated utility corridor. Short segment with no obvious issues.

IPP to Las Vegas – Short Alternative Corridors – Millard County (see Map 6)

Corridor/ Route ID	BLM Field Office	Corridor Constraints	Corridor Opportunities
U175	Fillmore FO	None identified.	Within RMP designated utility corridor
U180	Fillmore FO	Corridor passes through the University of Utah Telescope Array scintillation detector field.	Within WWEC utility corridor.
U215	Fillmore FO	Northern portion of corridor passes through the University of Utah Telescope Array scintillation detector field. Portion of corridor within military operating area (100 foot height restriction. USAF prefers collocating transmission lines within existing corridors).	Within WWEC utility corridor.

IPP to Las Vegas – Western Alternative Corridor (see Map 6)

Corridor/ Route ID	BLM Field Office	Corridor Constraints	Corridor Opportunities
U185	Fillmore FO	Most of corridor within military operating area (100 foot height restriction. USAF prefers collocating transmission lines within existing corridors).	Northern portion of corridor follows designated utility corridor.
N5	Ely FO	Crosses Humbolt-Toiyabe NF. Crosses scenic byway near Mt. Grafton Wilderness. Crosses 100-115kV transmission line north of Hwy 93. Crosses Robber Roost Hills which may present topography issues. Crosses the Dry Lake and Highland Wild Horse Management Areas (WHMAs). Parallels Highway 93, a Scenic Byway. VRM Class II – Avoidance Area. Sage Grouse Production Habitat.	Portion of corridor is within RMP designated utility corridor. Southern portion of corridor is within WWEC utility corridor.

IPP to Las Vegas – Western Alternative Corridor (see Map 6)

Corridor/ Route ID	BLM Field Office	Corridor Constraints	Corridor Opportunities
N40	Ely FO (Northern portion) Las Vegas FO (southern portion)	Crosses Coyote Springs ACEC and Kane Springs ACEC which are designated for critical desert tortoise habitat. Adjacent to Delamar Mountains Wilderness, Unit 5 – Hole-in-the-Rock WSA, Unit 3 – Sheep Range WSA, Fish and Wildlife #1 WSA, and Arrow Canyon Wilderness. Corridor runs along edge of Fish and Wildlife #2 WSA. Crosses the Delamar Mountains WHMA. A Scenic Byway is within the corridor. Corridor is within portion of Desert National Wildlife Range (NWR).	Within both a WWEC corridor and an RMP designated utility corridor. Parallel to existing ~100kV transmission line.
N55	Las Vegas FO	Corridor crosses Coyote Springs ACEC which is designated for critical desert tortoise habitat.	Within RMP designated utility corridor and designated WWEC utility corridor.
N85	Las Vegas FO	Corridor passes near Harry Allen Power Plant.	Generally within RMP designated utility corridor.
N810	Las Vegas FO	Crosses at least one transmission line. Apex and Silverhawk Power Plants are within corridor. Centerline is immediately adjacent to DOD managed lands. Corridor crosses Coyote Springs ACEC which is designated for critical desert tortoise habitat. Corridor is within portion of Desert National Wildlife Range (NWR).	Within designated WWEC utility corridor. Parallel to one transmission line. Corridor shift avoids Nellis AFB.

IPP to Las Vegas – Central Alternative Corridors (see Map 6)

Corridor/ Route ID	BLM Field Office	Corridor Constraints	Corridor Opportunities
U260	Cedar City FO	A private airport is within the corridor. The Modena Elementary School NRHP site is within the corridor as are a number of structures in town of Modena. There are steep slopes in the area south of Modena, and this corridor would constitute new disturbance. Corridor enters military operating area (100 foot height restriction. USAF prefers collocating transmission lines within existing corridors).	Corridor is located within RMP-designated utility corridor.
N10	Ely FO	Short segment. No obvious issues	
N805	Ely FO	Corridor passes near Tunnel Spring Wilderness. VRM Class II – Avoidance Area. Suggested shift to avoid VRM Class II.	
N806	Ely FO	Crosses the Miller Flat and Little Mountain Wild Horse Management Areas (WHMA). A Scenic Byway is within the corridor. Original corridor was within VRM Class II – Avoidance Area. Suggested shift to avoid VRM Class II.	
N807	Ely FO	Crosses the Little Mountain, Highland, and Delamar Mountains WHMAs. Parallels scenic byway Hwy 93. Original corridor within VRM Class II – Avoidance Area. Suggested shift to avoid VRM Class II.	Within existing utility corridor.
N808	Ely FO	Crosses the Clover Mountain and Bluenose Peak WHMAs. Crosses Beaver Dam Slope ACEC. Parallels a Scenic Byway. Within VRM Class II – Avoidance Area. Suggested shift to avoid VRM Class II.	Within existing utility corridor near Clover Mountains Wilderness.

Las Vegas Area – Applicant Proposed Corridor (see Map 7)

Corridor/ Route ID	BLM Field Office	Corridor Constraints	Corridor Opportunities
N100	Las Vegas FO	Crosses Rainbow Gardens ACEC which is designated for geological, scientific, scenic, cultural, and sensitive plants. Parallels Old Spanish Trail National Historic Trail.	Within RMP designated utility corridor and designated WWEC utility corridor. Parallel to two 500-kV transmission lines.
N120	Las Vegas FO	Crosses DOD managed lands. Crosses Rainbow Gardens ACEC and Gypsum Spring ACEC. Rainbow Gardens ACEC designated for geological, scientific, scenic, cultural, and sensitive plants. Crosses Sunrise Mountain Instant Study Area (ISA). Crosses Old Spanish Trail Historic Trail twice.	Follows designated WWEC utility corridor. Parallel to two 500-kV transmission lines.
N121	Las Vegas FO	Crosses Rainbow Gardens ACEC. Parallels Old Spanish Trail National Historic Trail.	Follows designated WWEC utility corridor. Parallel to two 500-kV transmission lines.
N135	Las Vegas FO	Crosses River Mountains ACEC which is designated for bighorn sheep habitat, scenic viewshed for Henderson and Boulder City. Restrictions on permitted activities Mar 1-May 31 and July 1-Aug 31 for occupied bighorn sheep habitat.	Follows designated WWEC utility corridor. Parallel to two 500-kV and one 230-kV transmission lines.
N145	Las Vegas FO	Crosses River Mountains ACEC. Parallels Old Spanish Trail National Historic Trail.	Follows designated WWEC utility corridor. Parallel to two 500-kV and one 230-kV transmission line. (Note: required offset would likely push new transmission line into rugged terrain east of existing transmission lines and into portions of ACEC that are located within the designated corridor.)
N165	Las Vegas FO	Crosses portion of active mining operation. Crosses one existing transmission line. A private airport is located within and/or near the corridor.	Follows WWEC utility corridor or RMP designated corridor. Parallels two 500-kV and two 230-kV transmission lines. Federal corridor narrows and does not include all existing transmission lines.
N175	Las Vegas FO	Crosses 5 existing transmission lines.	

Las Vegas Area – Alternative Corridors – East Side (see Map 7)

Corridor/ Route ID	BLM Field Office	Corridor Constraints	Corridor Opportunities
N115	Las Vegas FO	Not within a designated utility corridor. Crosses Rainbow Gardens ACEC and Gypsum Spring ACEC. Rainbow Gardens ACEC designated for geological, scientific, scenic, cultural, and sensitive plants.	Avoids Sunrise Mountain Instant Study Area.
N116 (east-west option)	Las Vegas FO		Western portion of corridor within WWEC utility corridor. Follows southern edge of Rainbow Gardens ACEC. Avoids Lake Mead National Recreation Area (NRA).
N117	Las Vegas FO	Not within a designated utility corridor. Crosses Lake Mead National Recreation Area. Parallels Old Spanish Trail National Historic Trail andcrosses trail twice.	
N125	Las Vegas FO	Crosses Lake Mead National Recreation Area. Crosses 2 transmission lines. Crosses Lake Mead Marina parking lot and boat storage yard.	Parallel to one 230-kV transmission lines.
N130 (east-west option)	Las Vegas FO	Not within a designated utility corridor. Crosses Lake Mead National Recreation Area. Retention ponds and residential subdivision (Lake Las Vegas) are located within the corridor. Crosses a gravel pit/mine near marker 3. Crosses River Mountains ACEC. Parallels and crosses Old Spanish Trail National Historic Trail.	
N140 (east-west option)	Las Vegas FO	Crosses Lake Mead National Recreation Area. Crosses one 230-kV transmission line. Corridor crosses Old Spanish Trail National Historic Trail. Crosses River Mountains ACEC.	Parallel to two 230-kV transmission lines.

Las Vegas Area – Alternative Corridors – East Side (see Map 7)

Corridor/ Route ID	BLM Field Office	Corridor Constraints	Corridor Opportunities
N150	Las Vegas FO	Crosses Lake Mead National Recreation Area. Crosses multiple transmission lines and crosses some transmission lines twice. Crosses Historic Railroad Hiking Trail. Parallels Old Spanish Trail National Historic Trail.	Parallel to four 230-kV transmission lines.
N155	Las Vegas FO	Crosses Lake Mead National Recreation Area. One trailhead is within corridor. Crosses through Bootleg Canyon. Crosses Historic Railroad Hiking Trail. Crosses three transmission lines near marker 1. Boulder City Municipal Airport is located near the corridor. Parallels Old Spanish Trail National Historic Trail.	Parallel to two 230-kV transmission lines.
N160	Las Vegas FO	Crosses Old Spanish Trail National Historic Trail. Crosses two transmission lines. Gravel pit/mine is within corridor. Trailhead is within corridor.	
N170	Las Vegas FO	Corridor crosses existing industrial mining area near marker 2. Crosses roadless area. Crosses Old Spanish Trail National Historic Trail.	Parallelstwo 230-kV transmission lines.
N380A	Las Vegas FO	Crosses multiple transmission lines.	Parallels three 230-kV transmission lines.

Las Vegas Area – Alternative Corridors – West Side (see Map 7)

Corridor/ Route ID	BLM Field Office	Corridor Constraints	Corridor Opportunities
N105	Las Vegas FO	Crosses 4 transmission lines. Crosses Old Spanish Trail National Historic Trail. Nellis AFB is within corridor. Crosses DOD managed lands. Parallels Old Spanish Trail National Historic Trail.	Eastern portion of corridor is within RMP designated utility corridor and WWEC utility corridor. Western portion parallels one 500-kV, three 230-kV, and one 138 to 161-kV transmission line.
N110	Las Vegas FO	Crosses Nellis C WSA, Nellis B WSA, and Nellis A WSA. Crosses Unit 1 – Gass Peak WSA and Quail Spring WSA. Crosses portion of Red Rock Canyon National Conservation Area. Crosses tribal lands. Crosses portion of Nellis AFB. Crosses triangular shaped formations within Nellis AFB. Corridor is adjacent to subdivided lots in Las Vegas. Existing gravel pit is within corridor. Crosses existing transmission line just south of gravel pit. Crosses extensive industrialized mining area at marker 29. Six campgrounds are within or just outside corridor near marker 35 (11-mile Campground is within the corridor). Crosses Old Spanish Trail Historic Trail. Crosses additional 2 transmission lines. Corridor is near Sloan Canyon National Conservation Area (Tule Springs Conservation Transfer Area may also be within corridor). Parallelssegment of Old Spanish Trail National Historic Trail. Crosses VRM Zone Class II – Avoidance Area.	Northern portion parallels one 500-kV and one 230-kV transmission line. Northwestern portion parallels two 230-kV transmission lines. Southern portion of corridor is within designated WWEC utility corridor.
N510A	Clark County (Las Vegas FO)	Crosses four transmission lines.	Provides a southern alternative to N110. Generally within WWEC utility corridor and RMP designated utility corridor.

Las Vegas Area – Alternative Corridors – West Side (see Map 7)

Corridor/ Route ID	BLM Field Office	Corridor Constraints	Corridor Opportunities
N520A	Clark County (Las Vegas FO)	Near South McCullough Wilderness Area.	Provides a southern alternative to N110. Generally within WWEC utility corridor and RMP designated utility corridor. Parallel to two 500-kV and one 230-kV transmission lines.