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Intermountain Region

Uinta-Wasatch-Cache National Forest

July 2016

Populus to Terminal Transmission Line Relocation

Final Environmental Assessment

POPULUS TO TERMINAL TRANSMISSION LINE RELOCATION

FINAL ENVIRONMENTAL ASSESSMENT

Prepared for

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CHAPTER 1. PURPOSE AND NEED

1.1 Introduction

This environmental assessment (EA) documents the analysis of PacifiCorp's proposal to relocate a 0.5-mile segment (Proposed Action) of the existing Populus to Terminal Transmission Line to land managed by the Uinta-Wasatch-Cache National Forest.

The analysis is conducted under the National Environmental Policy Act (NEPA) of 1969, as amended (42 United States Code [USC] 4321 et seq.). It has been prepared under agency policies and direction for implementing NEPA contained in Forest Service Handbook 1909.15 (U.S. Forest Service 2012) and the Council on Environmental Quality's (CEQ's) regulations for implementing NEPA (40 Code of Federal Regulations [CFR] 1500–1508).

1.2 Background and History

PacifiCorp, the proponent, is an electrical public utility that operates approximately 63,000 miles of distribution line and 16,200 miles of transmission line throughout a six-state region (PacifiCorp 2013). Rocky Mountain Power, a business unit of PacifiCorp, delivers electricity to customers in Idaho, Utah, and Wyoming.

PacifiCorp completed construction of the north segment of the Populus to Terminal 345-kilovolt (kV) Transmission Line in December 2010. The double-circuit north segment runs from Populus Substation near Downey, Idaho, to Ben Lomond Substation in Box Elder County, Utah, a distance of approximately 90 miles.

The Populus to Terminal Transmission Line was constructed because the existing transmission capacity from southeastern Idaho into Utah was fully utilized and no more capacity could have been made available without the addition of new transmission lines. New transmission lines from southeast Idaho and Wyoming were constructed to deliver needed capacity and energy to reliably and economically serve growing demand in Utah. The Populus to Terminal double-circuit 345-kV Transmission Line was the first transmission line in PacifiCorp's overall plan to accommodate this need.

The 0.5-mile segment of the Populus to Terminal Transmission Line that is proposed for relocation is currently situated on privately owned land that is being mined for gravel by Staker Parson near the mouth of Box Elder Canyon, also known as Sardine Canyon, in Box Elder County, east of Brigham City; it was originally located on private property to avoid a federal nexus created by encroaching on land managed by the U.S. Forest Service (Forest Service).

1.2.1 Applicant Need for the Proposed Action

Prior to constructing the Populus to Terminal Transmission Line, a geotechnical analysis was completed by Professional Service Industries, Inc. in 2007. This geotechnical analysis determined that there was no risk to the long-term stability of the structures if the Populus to Terminal Transmission Line was routed through the Staker Parson mine. This was largely because Staker Parson's activities at the time were far away from the Populus to Terminal Transmission Line. After the Populus to Terminal Transmission Line was constructed, PacifiCorp was notified that Staker Parson's excavations at the mine are planned to extend east of the current mining activities. These excavations will eventually undermine the lateral and subjacent support for foundations supporting the Populus to Terminal Transmission Line in the area.

National Forest system lands are protected from encroachment, and Staker Parson's excavations may not cross its property boundary. The Populus to Terminal Transmission Line is not protected from encroachment because it is located on an easement over land owned in fee by Staker Parson. PacifiCorp's need is to prevent eventual destabilization of Populus to Terminal Transmission Line structures by relocating a 0.5-mile segment of the transmission line to ensure that it continues to provide a reliable source of electricity to its customers.

1.2.2 Forest Plan

The record of decision for the *Revised Forest Plan: Wasatch-Cache National Forest* (the Forest Plan) was signed on March 19, 2003 (Forest Service 2003a). The Forest Plan did not designate additional utility corridors but instead specified that the utility corridors defined in the previous Forest Plan would be maintained. As described in Section 1.3 - Proposed Action below, the Proposed Action does not fall within a designated utility corridor; therefore, authorization of the Proposed Action would require amending the Forest Plan (Forest Service 2003a).

The Forest Plan includes Management Prescriptions Categories that provide a general sense of the management or treatment of the land intended to result in a particular condition being achieved or set of values being restored or maintained. The project area falls in a Management Prescription Category that allows for multiple resource uses where aquatic/watershed and terrestrial habitat integrity are emphasized. The management emphasis for the project area is the Watershed (3.1W) Emphasis, which is focused on maintaining or improving quality of watershed conditions and aquatic habitats. The 3.1W emphasis covers areas with uplands identified as important watersheds where road construction and other specified activities are not allowed (Forest Service 2003a). However, since the access roads under the Proposed Action would be temporary an amendment to the Forest Plan would not be required for this Management Prescription Category.

1.3 Proposed Action

The Proposed Action would relocate an approximately 0.5-mile portion of the Populus to Terminal Transmission Line from its present location on private property to National Forest system lands within the Uinta-Wasatch-Cache National Forest. Two new double-circuit 345-kV transmission structures would need to be constructed for this 0.5-mile portion, and two structures would be modified to accommodate the change in location of the newly constructed transmission structures. The two modified structures would not require a change in location, only a change in orientation to accommodate the changing direction of the project. Two current Populus to Terminal Transmission Line structures and foundations would be removed and replaced by the newly constructed structures.

The Proposed Action would require Forest Plan amendments and an amended special use authorization because it would entail the designation of a new utility corridor. The Proposed Action would also require a new management decision, which would need to be represented as a new "Forestwide Subgoal for Transportation and Utility Corridors, number 12e," that would state, "Authorize approximately one 0.5-mile, 150-foot right-of-way and double-circuit 345-kV transmission line specifically for the Populus to Terminal Transmission Line."

The Proposed Action would alleviate significant future constraints with the Staker Parson mine by moving the Populus to Terminal Transmission Line away from all current and potential excavation activities. Figure 1-1 (Proposed Action) shows the project area and proposed amended special use authorization.

1.4 Purpose and Need Statement

The purpose of the Proposed Action is to respond to PacifiCorp's request to relocate a portion of the Populus to Terminal Transmission Line from private land onto National Forest system lands. The need for the federal action stems from the overarching policy and direction in the Multiple-Use, Sustained Yield Act of 1960, as amended, which authorizes and directs the Secretary of Agriculture to develop and administer the renewable resources on the National Forest System lands for multiple use and sustained yield of the products and services the lands offer (16 USC 528 et seq.). The Federal Land Policy and Management Act of 1974 also provides the Forest Service with discretionary authority to grant use (e.g., rights-of-way and special use authorizations) of land they administer, taking into consideration impacts on natural and cultural resources (including historical resources) (43 USC 1701 et seq.). In doing so, the Forest Service must endeavor "to minimize damage to scenic and esthetic values and fish and wildlife habitat and otherwise protect the environment" through avoidance or mitigation (43 USC 1765(a)(ii)).

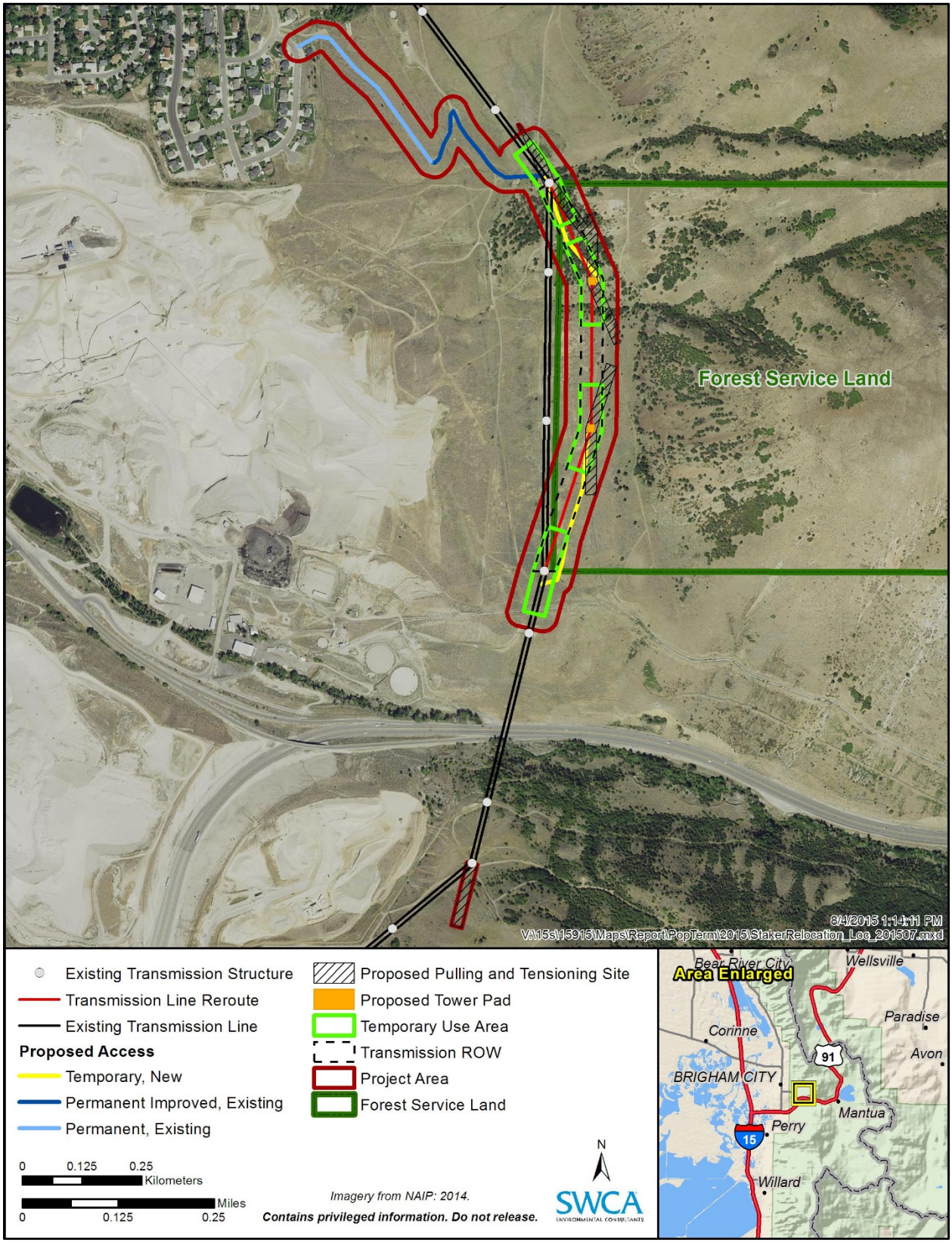

Figure 1-1. Proposed Action.

1.5 Scoping, Notice, and Comment

Chapter 1 - Purpose and Need and Chapter 2 - Alternatives of this EA were posted on the Uinta-Wasatch-Cache National Forest website on August 7, 2014. Notification of the availability of the preliminary EA for review and comment was sent by mail to 75 individuals and organizations that same day. A legal notice was posted in the *Salt Lake Tribune* (newspaper of record) on August 7, 2014, beginning a 30-day comment period that concluded on September 5, 2014. A copy of the postcard and legal notice can be found in Appendix A - Postcard and Appendix B - Legal Notice, respectively.

One comment letter was received from the U.S. Fish and Wildlife Service (USFWS) on Chapter 1 - Purpose and Need and Chapter 2 - Alternatives, and those concerns have been incorporated into Chapter 3 - Affected Environment and Environmental Consequences of the EA.

Internal Forest Service coordination meetings were held on January 23, 2013; July 29, 2014; and September 10, 2014. These consisted of a kick-off meeting, a meeting to discuss the public scoping process, and a meeting to discuss USFWS comments on Chapter 1 - Purpose and Need and Chapter 2 - Alternatives.

1.5.1 Issues

The Forest Service identified the following issues, which are analyzed in this EA:

- **Air quality:** How would the relocation of the transmission line affect air quality?
- **Cultural resources:** How would the relocation of the transmission line affect cultural resources?
- **Socioeconomics:** How would the relocation of the transmission line, including new road construction, affect traffic in nearby residential areas and access to National Forest system lands?
- **Soils and hydrology:** How would the relocation of the transmission line affect soils and hydrology, such as soil disturbance and potential erosion?
- **Vegetation:** How would the relocation of the transmission line affect vegetation, such as vegetation removal and the potential for the spread of noxious weeds?
- **Scenic resources:** How would the relocation of the transmission line affect scenic resources, such as views from nearby residential areas?
- **Wildlife:** How would the relocation of the transmission line affect wildlife, such as disturbance of wildlife habitat and potential mortality from construction vehicle collisions or avian wildlife collisions with transmission line structures?

Other resources were considered but dismissed from detailed analysis because they are not present in the project area or would not be affected by the Proposed Action. These include resources such as inventoried roadless areas, wilderness areas, water resources, recreation, livestock grazing, paleontology, geology and minerals, hazardous materials, and fire and fuels management.

CHAPTER 2. ALTERNATIVES

2.1 Introduction

NEPA requires that federal agencies consider a reasonable range of alternatives in achieving the purpose and need for a proposed action. The Uinta-Wasatch-Cache National Forest supervisor has approved the following alternatives developed through the internal scoping process.

2.1.1 Proposed Action

The Proposed Action would relocate an approximately 0.5-mile portion of the Populus to Terminal Transmission Line from its present location on private property to National Forest system lands within the Uinta-Wasatch-Cache National Forest. Two new double-circuit 345-kV transmission structures would need to be constructed for this 0.5-mile portion, and two structures would be modified to accommodate the change in location of the newly constructed transmission structures. The two modified structures would not require a change in location, only a change in orientation to accommodate the changing direction of the project. Two current Populus to Terminal Transmission Line structures and foundations would be replaced by the newly constructed structures and removed.

The Proposed Action would require Forest Plan amendment and an amended special use authorization because it would entail the designation of a new utility corridor. The Proposed Action would also require a new management decision, which would need to be represented as a new "Forestwide Subgoal for Transportation and Utility Corridors, number 12e," that would state, "Authorize approximately one 0.5-mile, 150-foot right-of-way and double-circuit 345-kV transmission line specifically for Populus to Terminal Transmission Line."

The Proposed Action would alleviate significant future constraints with the Staker Parson mine by moving the Transmission Line section away from all current and potential excavation activities. Figure 1-1 (Proposed Action) shows the project area and proposed amended special use authorization.

2.1.1.1 STRUCTURES

The Proposed Action would require a 150-foot right-of-way and consist of double-circuit 345-kV transmission line structures (Figure 2-1 - Proposed Typical Double-Circuit 345-kV Structure). The typical double-circuit 345-kv structure would likely be a single-pole steel structures with a self-weathering steel (rust-colored) finish, similar to the existing Populus to Terminal Transmission Line structures.

Depending on topography and engineering constraints, the structure height may range from 125 to 150 feet with concrete foundations and have spans of approximately 600 to 900 feet apart. Each concrete foundation would be approximately 8 to 10 feet in diameter and would extend approximately 50 to 70 feet into the ground.

2.1.1.1.1 Operation and Maintenance Area

PacifiCorp plans to conduct maintenance on the transmission line using live-line maintenance techniques. Maintenance on the transmission line can be completed safely using live-line techniques, thereby avoiding an outage to the critical transmission line infrastructure. PacifiCorp plans to conduct maintenance activities on the transmission line primarily using high-reach boom trucks, but other equipment may be required.

These types of maintenance would require that adequate space be available at each structure site so the high-reach boom truck can be positioned to one side or the other of the structure and reach up and over the lower phases to access the upper and center phase for live-line maintenance procedures. The primary criterion to determine if an operation and maintenance work area is needed for a specific structure is to establish whether a boom truck will have a sufficiently flat area to work on. The necessity of a sufficiently flat area is that the boom component of a boom truck is not operable if on too steep a grade.

A flat 50 × 50–foot permanent operation and maintenance structure work area would be located at the base of the two relocated structures for maintenance and operations activities after construction is complete. The permanent operation and maintenance structure work area would total 0.12 acre on National Forest system lands. The two modified structures have existing permanent operation and maintenance structure work areas, and no new permanent disturbance is necessary.

The operation and maintenance work areas would be revegetated per the Reclamation, Revegetation, and Monitoring Plan that will be developed as part of the Forest Service–approved Proposed Action Plan of Development (see Section 2.1.1.7 - Reclamation, Revegetation, and Monitoring and Section 2.1.1.8 - Plan of Development for more detail), as needed, after any maintenance activities are completed. The operation and maintenance work areas would be cleared of any vegetation regrowth, to the extent needed, to safely complete the work.

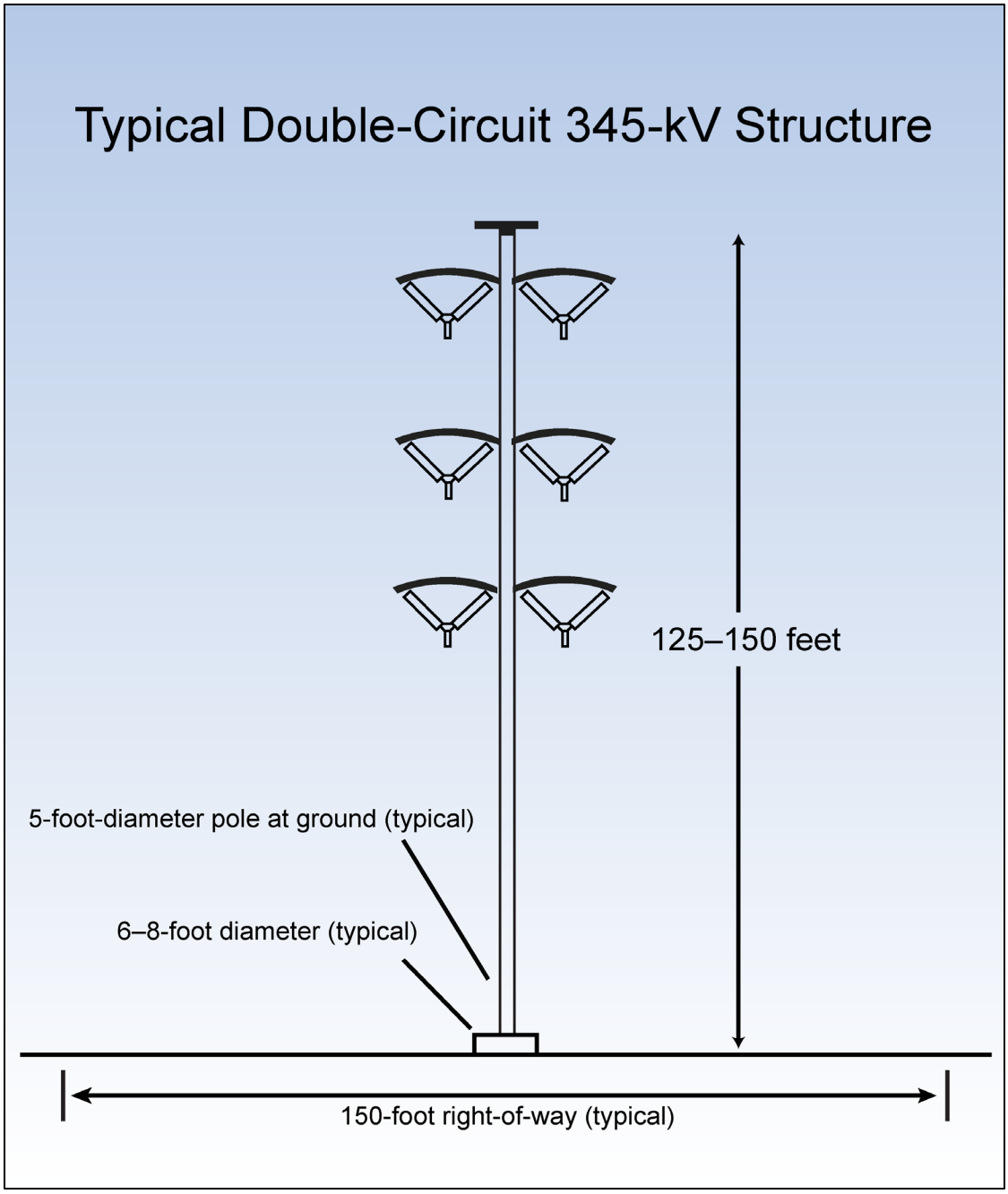

Figure 2-1. Proposed typical double-circuit 345-kV structure.

2.1.1.2 ACCESS ROADS

The project area would likely be accessed from its west side, using existing residential roads to the northwest of the project area. Approximately 0.29 mile (1.05 acres) of new temporary unpaved access roads on National Forest system lands would be needed to support construction of the Proposed Action (see Figure 1-1 - Proposed Action). PacifiCorp does not propose any permanent access roads to support the construction or operation and maintenance phases of the Proposed Action.

The approximately 0.29 mile (1.05 acres) of temporary access roads on National Forest system lands would require grading to ensure a safe travel surface. The travel surface width of the temporary access roads would typically be constructed or widened to 14 feet. However, the travel surface width of the new temporary roads would be based on terrain constraints as well as the required turn radius for construction vehicles, which could be a maximum of 22 feet, per PacifiCorp road construction standards. Final engineering is not yet complete, but steep cross slopes would likely require cut and fill that could extend approximately 10 to 20 feet beyond the 14-foot-wide roadway bench to slope down or up to existing grades. A portion of the temporary access roads may require fill to correct for existing erosion issues that prohibit safe vehicle access. As shown in Figure 1-1 - Proposed Action, the relocated transmission structures would be accessed using spur roads from the northwest and southwest corners of the National Forest system lands boundary. Therefore, no fill would be needed in the draw between the two relocated transmission structures.

Engineering drawings and specifications of the temporary access roads would be required for review and approval by the Forest Service before construction begins, with at least 30 days provided for adequate review.

PacifiCorp would place lockable gates across temporary access roads during construction to restrict unauthorized motorized access to National Forest system lands. These gates would be placed in strategic locations to limit the public's ability to drive around them.

All proposed access roads are temporary and would be reclaimed according to the Reclamation, Revegetation, and Monitoring Plan that would be developed as part of the Forest Service–approved Proposed Action Plan of Development when construction is complete (see Section 2.1.1.7 - Reclamation, Revegetation, and Monitoring and Section 2.1.1.8 - Plan of Development for more detail). Cut and/or fill slopes would be restored to a ratio of 2:1 to allow for slope stability and an increased likelihood of successful revegetation.

In the event future routine operation and maintenance activities are required and if access to the Proposed Action transmission structures is necessary, PacifiCorp would coordinate with the Forest Service prior to initiating operation or maintenance activities or constructing new temporary access. This coordination would identify which environmental resources, if any, would require surveys and/or studies to be completed prior to initiating maintenance activities.

2.1.1.3 TEMPORARY USE AREAS

Temporary use areas would be needed to stage equipment and construct the Proposed Action. These temporary use areas would include structure work areas at the four structure sites of the Proposed Action and four pulling and tensioning sites.

Grading at the structure work areas for the two relocated structures would be required for the Proposed Action. During the construction phase, the structure work areas would each require an area of 600 × 150 feet for a total of 4.93 acres of temporary surface disturbance on National Forest system lands.

The four pulling and tensioning sites are required to install the new conductors and would be located on National Forest system lands, as well as on private property at each end of the project area. Pulling and tensioning sites are roughly three times the height of the structure in length, or 450 to 600 feet by approximately 75 to 150 feet in width. Temporary grading may be needed in the pulling and tensioning sites to provide a proper working platform for the pulling and tensioning equipment. The four pulling and tensioning sites would account for approximately 3.52 acres of temporary surface disturbance on National Forest system lands.

The total disturbance associated with the temporary use areas is 8.45 acres and is further discussed in Section 2.1.1.5 - Disturbance. All temporary use areas would be reclaimed according to the Reclamation, Revegetation, and Monitoring Plan that would be developed as part of the Forest Service–approved Proposed Action Plan of Development when construction is complete (see Section 2.1.1.7 - Reclamation, Revegetation, and Rehabilitation and Section 2.1.1.8 - Plan of Development for more detail).

2.1.1.4 EQUIPMENT

Table 2-1 - Construction Activities and Equipment Required describes the types of equipment that would be used during the various phases of construction. Table 2-2 - Types and Numbers of Vehicles and Equipment Used for Construction provides the type and number of vehicles expected to be used during construction. Required equipment would vary based on the type of work being performed.

Table 2-1. Construction Activities and Equipment Required

Activity	Equipment
Access roads/structure pads	Pickup trucks, manhauls, trackhoes, backhoes, dozers, dump trucks, water trucks, fuel trucks
Foundation installation	Trackhoe with jack hammer, low drill, concrete pump truck, concrete trucks
Structure haul	Tractor-trailer rigs, wire trailers
Structure assembly and installation	Fire trucks, forklifts, welders, mechanic trucks, manlifts, sagging cats, cranes
Optical ground wire (OPGW) installation	Shield wire and OPGW puller, shield wire and OPGW tensioner, OPGW splicing trailer, "V" groove puller
Conductor removal	Conductor puller, conductor tensioner
Structure and foundation removal	Cranes, helicopter
Site and road restoration	Reseeding drill, air compressors

Table 2-2. Types and Numbers of Vehicles and Equipment Used for Construction

Type of Vehicle or Equipment	Number of Vehicles or Equipment
Transport vehicle/truck for topographical crew	1
Off- or on-site construction trailer	1
Transport vehicles or trucks for construction superintendent, crew chief, and mechanics	3
Water vehicle	1
Front end loader	1
Bulldozer or continuous tracked tractor	1
Dump truck	1 (approximately 4 loads)
Drill rig	1
Concrete vehicle	1 (approximately 3 loads)
Crane	1
Bucket truck	1
Pulling vehicles	2

Vehicles commuting to the project area would vary depending on activities being completed. The transport truck for the topographical crew would commute to the project area for 3 days total. Transport vehicles for the construction crew would commute every day for the duration of construction. The water vehicle would be used daily during construction but would be dependent on dry weather. The dump truck would commute to the project area only during grading activities. The concrete delivery vehicle would commute only during foundation construction. The

delivery vehicles would park and unload on the public street. The other construction vehicles and equipment would remain on-site during corresponding construction activities.

2.1.1.5 DISTURBANCE

Table 2-3 - Sources of Permanent and Temporary Disturbance presents the acreages of permanent and temporary disturbance associated with the Proposed Action. The proposed amended special use authorization would cover approximately 9.62 acres of National Forest system lands. As described in Section 2.1.1.2 - Access Roads, steep cross slopes would likely require temporary cut and fill that could extend approximately 10 to 20 feet beyond the 14-foot-wide roadway bench to slope down or up to existing grades. These cut and fill areas are not included in Table 2-3 - Sources of Permanent and Temporary Disturbance.

Table 2-3. Sources of Permanent and Temporary Disturbance

Source	Acres/Miles on National Forest System Lands
Temporary access roads	1.05/0.29
Four temporary pulling and tensioning sites	3.52/NA
Four temporary use areas	4.93/NA
Two permanent operation and maintenance structure work areas	0.12/NA

Note: NA = not applicable

2.1.1.6 CONSTRUCTION TIMEFRAME

The duration of proposed construction activities is dependent partially on the timing of amended special use authorization, but in general, the entire construction period could last approximately 3.5 months (14 weeks). Construction would likely occur within 3 years if the Proposed Action is selected for implementation.

2.1.1.7 RECLAMATION, REVEGETATION, AND MONITORING

A Reclamation, Revegetation, and Monitoring Plan would be developed prior to any construction-related surface disturbance as part of the Forest Service–approved Proposed Action Plan of Development (see Section 2.1.1.8 - Plan of Development for more detail). An outline of the Reclamation, Revegetation, and Monitoring Plan is as follows:

- Introduction
    - Organization of the Plan
- Regulatory Requirements and Authorities
- Purpose
    - Responsible Parties
- Overview of Existing Environments
    - Existing Environments and Biotic Communities
- Reclamation Plan Methodology
    - Identification of Reclamation Zones
    - Identification of Reclamation Levels

- Reclamation Plan
    - Right-of-way Preparation and Pre-Construction Actions
    - Post-construction Reclamation Actions
    - Modifications and Field Changes
- Reclamation Success Standards, Monitoring, and Maintenance
    - Reclamation Goals and Success Standards
    - Monitoring Practices (methodology)
    - Data Collection
    - Adaptive Management and Site Release

Reclamation, revegetation, and monitoring activities would occur for all disturbed temporary areas of the Proposed Action, as described in Section 2.1.1 - Proposed Action. The Reclamation, Revegetation, and Monitoring Plan would identify post-construction earthworks reclamation activities, which may include 1) recontouring, 2) soil decompaction, and 3) applying appropriate erosion measures. Earthmoving equipment would replace the removed material as close to the pre-construction contour as possible to reclaim the visual quality and provide stability to the slope. Soil decompaction, if required, may include ripping or scarifying to allow permeation of water into the ground. Erosion control measures such as water bars may be installed as recommended by the construction contractor(s) and approved by the Forest Service. Topsoil would be replaced following recontouring and soil decompaction.

The Reclamation, Revegetation, and Monitoring Plan would also identify a reseeding methodology, which would comprise a Forest Service–approved seed mix to establish desired vegetation within the reseeded areas, as well as seeding methods and timeframe for seeding. Revegetation success standards, monitoring methodology, and site release would additionally be provided in the Reclamation, Revegetation, and Monitoring Plan.

At the end of the Populus to Terminal Transmission Line and Proposed Action's lifespan, the transmission structures would be removed, and all surface disturbance designated as permanent in Section 2.1.1 - Proposed Action would be reclaimed.

2.1.1.8 PLAN OF DEVELOPMENT

A Plan of Development would be prepared in support of the Proposed Action. It would explain in detail how the Proposed Action would be developed (through construction, operation, and maintenance). This Plan of Development would be developed by PacifiCorp prior to construction, in collaboration with the Forest Service, whom would also be responsible for approving the Plan of Development. A minimum of 30 days would be required for the Forest Service review and approval of the Plan of Development. The Plan of Development would be a condition of the Forest Service Record of Decision and an enforceable stipulation of the Forest Service–amended special use authorization.

The purpose of the Plan of Development is to communicate PacifiCorp's plan, which comprehensively identifies the environmental requirements for construction, operation, and maintenance of the Proposed Action. The Plan of Development would incorporate the EA-identified measures and other applicable stipulations for avoidance, minimization, and mitigation of the environmental impacts resulting from the implementation of the Proposed Action. The Plan of Development would incorporate any other various regulatory approvals, permits, and other authorizations that contain environmental requirements. The Plan of Development is intended to be used as 1) a summary of project environmental requirements and protection measures and 2) a description of the processes and procedures that would be used to ensure compliance.

Upon completion of the Plan of Development and Forest Service approval, construction would commence. If additions and/or amendments to the Plan of Development are identified during construction, the variance process as outlined in the Environmental Compliance Management Plan of the Plan of Development would be implemented.

2.1.1.8.1 Organization of the Plan of Development

The Plan of Development would be organized into two volumes: Volume I - Plan of Development and Volume II - Map Set. Volume I would contain Sections 1 through 5 and the appendices. Volume II would include engineering, mitigation, and environmental mapping, which support information presented in Volume I. The following is an overview of the information contained in these two volumes.

Volume I - Plan of Development would provide the reader with a general overview (executive summary) of the Proposed Action; key elements of the Plan of Development (Sections 1 through 5); and detailed information regarding the required mitigation measures, protocols, and procedures for the construction, operation, and maintenance of the Proposed Action (appendices).

Sections 1 through 5 would include the following information:

- Section 1 - Introduction. Section 1 would introduce the Proposed Action; discuss the purpose and organization of the Plan of Development; explain the Plan of Development's relationship to other documents; and list required authorizations, permits, and approvals required for construction.
- Section 2 - Roles and Responsibilities. Section 2 would introduce the roles and responsibilities of the Proposed Action team.
- Section 3 - Project Description. Section 3 would describe the Proposed Action facilities, land requirements, construction disturbance, and rights-of-way.
- Section 4 - Environmental Setting, Issues, and Mitigation Measures. Section 4 would include a brief overview and introduction of the key environmental concerns associated with the construction of the Proposed Action and relevant mitigation measures to be applied to avoid or minimize potential effects.
- Section 5 - Literature Cited. Section 5 would provide the references and literature cited in preparing the Plan of Development.

Volume I's appendices would likely be organized into the following separate appendices, but additional appendices could be added, or proposed appendices could be removed through coordination with the Forest Service during the development of the Plan of Development.

- Appendix A - Construction Considerations. Appendix A provides detailed information about the specifics of construction, including the following:
    - A1 - Flagging, Fencing, and Signage Plan
    - A2 - Traffic and Transportation Management Plan
    - A3 - Project Construction
    - A4 - Environmental and Safety Training Plan
    - A5 - Environmental Compliance Management Plan
    - A6 - Operation and Maintenance
- Appendix B - Environmental Protection Plans. Appendix B provides environmental protection plans that are to be implemented during construction, operation, and maintenance of the project. The environmental protection plan frameworks provide Proposed Action–specific guidance by identifying treatments and measures required to avoid, minimize, and mitigate project-related impacts; prevent unnecessary degradation of the environment; ensure construction activities comply with federal, state, or other agency requirements; and meet any stipulations of the Forest Service Record of Decision or amended special use authorization.
    - B1 - Biological Resources Conservation Plan
    - B2 - Noxious Weed Management Plan
    - B3 - Reclamation, Revegetation, and Monitoring Plan Framework

- B4 - Water Resources Protection Plan
- B5 - Stormwater Pollution Prevention Plan Framework
- B6 - Vegetation Management Plan
- B7 - Erosion, Dust Control, and Air Quality Plan
- B8 - Fire Protection Plan
- B9 - Spill Prevention, Containment, and Countermeasures Plan
- B10 - Hazardous Materials Management Plan

Volume II - Map Set would include maps that illustrating the Proposed Action centerline, access, and wildlife features and seasonal restrictions as identified through the development of the EA.

2.1.2 No Action

Under the No Action Alternative, the Populus to Terminal Transmission Line would not be relocated onto National Forest system lands, and no Forest Plan amendment would be required. If the Populus to Terminal Transmission Line remains in its current location, Staker Parson would not be able to safely mine beneath it.

2.2 Alternatives Considered but Dismissed from Detailed Study

Two alternatives were considered but eliminated from detailed analysis: 1) underground construction and 2) routing through the exhausted area of the Staker Parson mine. These two alternatives and the reasons they were dismissed from detailed study are discussed here.

2.2.1 Underground Construction

Under this alternative, the portion of transmission line requiring relocation would be constructed underground on National Forest system lands rather than above ground. This alternative was eliminated from detailed analysis for the following reasons:

- There would be substantially greater surface disturbance during construction.
- Transmission line failures are more difficult to pinpoint and locate, increasing the amount of time that may be required for diagnosing and addressing problems.
- Repairs are more difficult to make on underground transmission lines, often requiring replacement of a portion of conductor. This may take days or even weeks to complete, with the potential for extensive surface disturbance.
- Due to materials and heat involved in extra high voltage underground transmission, the life expectancy is generally considered to be one-third to one-half that of a conventional overhead line.
- The underground transmission line would most likely require a liquid-cooled system to maintain appropriate operating temperatures of the conductor. This requires the installation of pumps and cooling systems that would be noisier than an air-cooled overhead line, as well as a distribution line to power the pumps and cooling system, also increasing disturbance.
- Due to the requirement of continuous support (rather than supported intermittently at points along the line by structures), underground lines are more susceptible to damage from unstable slopes and mining operations.
- Soil does not shield electromagnetic fields (EMFs). Therefore, EMF levels adjacent to the line could actually be higher than those from an overhead line because the EMFs would be coming from ground level rather than from overhead lines that are farther away.

2.2.2 Routing through Exhausted Mining Area

This alternative would entail rerouting the Populus to Terminal Transmission Line through the exhausted Staker Parsons pit mine west along its northern property line, south through the exhausted mine area, and east along its southern property line, rather than to the east on National Forest system lands.

This alternative was eliminated from detailed analysis for the following reasons:

- **It would not be feasible for the Applicant to safely relocate the Populus to Terminal Transmission Line along Staker Parsons' north and south property lines.** As discussed in Section 1.2.1 - Applicant Need for the Proposed Action, Staker Parson is required, under the doctrine of subjacent and lateral support in the law of property as well as other State of Utah mine safety requirements, to perform their excavations in such a way as to ensure they remain within their property boundaries. The slopes that remain along Staker Parson's north and south property lines, in the exhausted mined area, are very steep. Their tops and toes are set back approximately 70 feet from their property lines. Brigham City Zoning Code Chapter 29.28.110.A.1(a)(b)(c) - Conditional Use Standards for Natural Resource Excavation, Buffer Distances states the following:
    - (a) All extractive operations, roads, machinery, equipment, and stockpiles (excluding topsoil used for reclamation, and screening and rock crushing) shall be kept at least one hundred feet horizontal distance from the boundary with any other property owner except as may be reduced by the Planning Commission, but in no event should the operation be closer than forty feet to the property line, except as provided in Section 29.28.120 (3)(e) below.
    - (b) All screening and rock crushing operations shall be conducted at least four hundred feet horizontal distance from the boundary of any other property owner (except as may be reduced by the Planning Commission, but in no event shall the operation be closer than fifty feet to the property).
    - (c) All excavations shall be kept at least one hundred feet (100') from a public road except where the Planning Commission determines the excavations may be moved closer if it will not endanger the users of the road.

  Under the Brigham City Zoning Code Chapter 29.28, there would not be sufficient space to accommodate the relocation of the Populus to Terminal Transmission Line into the exhausted mined area with the minimum buffer distance required for Staker Parson to ensure compliance with its permitting obligations.

  In addition, 70 feet is not sufficient to support Populus to Terminal Transmission Line–sized foundations between those developments and the excavation. As a result, relocation of the Populus to Terminal Transmission Line into the exhausted mined area does not meet the Applicant's Need for the Proposed Action, which is to ensure future Staker Parson excavation activities do not threaten the stability of the Populus to Terminal Transmission Line.
- **Structure heights would exceed PacifiCorp's standard engineering limitations.** National Electric Safety Code (NESC) requirements for safety clearances sufficient to allow mine processing equipment to travel and/or operate under the transmission and near buildings would dictate that PacifiCorp exceed their current engineering standard transmission structure height maximum threshold of 150 feet. PacifiCorp's engineering standard limit on structure height is based on transmission structure span and loading requirements. Exceedance of the maximum transmission structure height threshold therefore represents a significant risk to PacifiCorp's mandate to provide reliable electricity to its customers.
- **Large deadend structures would be required.** To accommodate the sharp turning angles required for this alternative, a minimum of four large deadend structures would be required. This would result in increased permanent and temporary ground disturbance due to conductor pulling and tensioning as well as increased detrimental scenic resource impacts.
- **Redevelopment of the exhausted mine area would be limited.** Historically, exhausted mine areas adjacent to population centers and residential areas are redeveloped with commercial and residential uses. Relocation of the Populus to Terminal Transmission Line according to this alternative would likely be unacceptable to the Staker Parsons property owner due to limitations it would place on the property's future redevelopment potential. The Staker Parson mine area is zoned as Multiple Use – 160, but the parcels surrounding the Staker Parson mine area in both Brigham City and Box Elder County are either residentially zoned or have the ability to be residentially or commercially zoned.

- **Public opposition to permitting would be expected to result in placement on nearby public lands.** It has been PacifiCorp's experience that public opposition to permitting of transmission line routing forces these lines to be located on public lands when they are adjacent or nearby private lands. This is due in large part to the public perception of undue impacts to private lands. PacifiCorp experienced a great deal of public opposition to the proposed routing through Brigham City when permitting the Populus to Terminal Transmission Line. PacifiCorp believes there is sufficient zoning-related justifications for Brigham City to oppose permitting the Proposed Action, provided the zoning issues identified above.

2.3 Forest Plan Direction and Consistency

2.3.1 Forest Plan Direction

Forest plans establish guidance for project-level decisions. The Uinta-Wasatch-Cache National Forest published its Forest Plan in March 2003 (Forest Service 2003a), and all uses of this national forest must be consistent with the Forest Plan. Alternatives not consistent with the Forest Plan can be modified, or the Forest Plan must be amended to permit the proposal. If the decision is to amend the Forest Plan, the "significance" of the amendment must be determined. It is important to note that there is a difference between "significance" of the change to a forest plan and "significance" of the environmental impacts of the Proposed Action as defined by the CEQ regulations for implementing NEPA (40 CFR 1500).

Determination of "significance" for a forest plan amendment is based on the following criteria from sections 1926.51 and 1926.52 of the Forest Service Manual (Forest Service 2003b):

a. Timing: Identify when the change is to take place. Determine whether the change is necessary during or after the plan period (the first decade) or whether the change is to take place after the next scheduled revision of the forest plan. In most cases, the later the change, the less likely it is to be significant for the current forest plan. If the change is to take place outside the plan period, the forest plan amendment is not required.

b. Location and Size: Determine the location and size of the area involved in the change. Define the relationship of the affected area to the overall planning area. In most cases, the smaller the area affected, the less likely the change is to be a significant change in the forest plan.

c. Goals, Objectives, and Outputs: Determine whether the change alters long-term relationships between the levels of goods and services projected by the forest plan. Consider whether an increase in one type of output would trigger an increase or decrease in another. Determine whether there is a demand for goods and services not discussed in the forest plan. In most cases, changes in outputs are not likely to be a significant change in the forest plan unless the change would forego the opportunity to achieve an output in later years.

d. Management Prescription: Determine whether the change in a management prescription is only for a specific situation or whether it would apply to future decisions throughout the planning area. Determine whether or not the change alters the desired future condition of the land and resources or the anticipated goods and services to be produced.

As described in Section 1.2.2 - Forest Plan, management prescriptions categories provide a general sense of the management or treatment of the land intended to result in a particular condition being achieved or set of values being restored or maintained. The project area falls in a Management Prescription Category that allows for multiple resource uses where aquatic/watershed and terrestrial habitat integrity are emphasized. The management emphasis for the project area is the Watershed (3.1W) Emphasis, which is focused on maintaining or improving quality of watershed conditions and aquatic habitats.

2.3.2 Forest Plan Consistency of Alternatives in this Analysis

The Proposed Action is not consistent with the existing Forest Plan. Specifically, it would not be consistent with the Forestwide Subgoal for Transportation and Utility Corridors, number 12d, which states, "Utilize currently designated utility corridors fully for power transmission lines of 66 kV or greater…" (Forest Service 2003a: 4-25). Therefore, a plan amendment would be required under the Proposed Action. If the Proposed Action is selected as the decision, the Forest Plan would need to be amended by the addition of a second subgoal under the Forestwide Subgoal category for Transportation and Utility Corridors, as described in Section 2.1.1 - Proposed Action, and a map depicting the location of the Proposed Action right-of-way. The decision notice provided by the Forest Service would serve as the amendment to the Forest Plan.

The Proposed Action involves road construction in uplands identified as important watershed. However, because the proposed roads would be temporary it would be consistent with the Forest Plan's Management Prescription 3.1W and would not require an additional amendment to the Forest Plan.

The No Action Alternative would be consistent with the Forest Plan and would not require a plan amendment.

2.3.3 Forest Plan Amendment Significance Evaluation

The Forest Service determines that the plan amendment required for the Proposed Action would not be significant. This determination is based on the location and size of the Proposed Action; the limited impact it would have on the national forest's goals, objectives, and outputs; and the limited impact it would have on management prescriptions. The Proposed Action would be located on an area at the edge of National Forest system lands, parallel to and approximately 305 feet away from the current location of the Populus to Terminal Transmission Line, and adjacent to an already-disturbed area, the Staker Parson mine.

The permanent surface disturbance caused by the Proposed Action would occur within 9.62 acres of proposed right-of-way on National Forest system lands and would impact approximately 0.12 acre of the Uinta-Wasatch-Cache National Forest. Goals, objectives, and outputs would not be significantly affected because the proposed line relocation would not affect timber management, recreation management, or the management of other forest resources. Management prescriptions would not be affected because the amendment would apply to a specific site and would not apply to future decisions.

2.4 Summary of Effects

A summary of effects is provided in Table 2-4.

Table 2-4. Summary of Effects of the Proposed Action

Resource	Effects of the Proposed Action
Air quality	Construction activities would result in emissions from the construction equipment and vehicles, as well as fugitive dust and other total suspended solids from the use of construction equipment and vehicles on dirt or gravel roads and temporary use areas. However, best management practices (BMPs) would be implemented to reduce fugitive dust emissions during construction. The fugitive dust and vehicle/equipment exhaust emissions from construction would be a minimal addition to the existing fugitive dust emissions from the adjacent Staker Parson mine and existing vehicle traffic in Brigham City.
Cultural resources	No cultural resources eligible for the National Register of Historic Places were found within the project area during the original survey. Any previously undiscovered cultural resources that might be uncovered during construction would be addressed according to the Forest Service's unanticipated discovery requirements (Forest Service Manual 2364.13 [Forest Service 2008]). Therefore, construction activities associated with the relocation of the transmission line are not expected to affect cultural resources.
Socioeconomics	The residential areas to the northwest of the project area would experience an increase in traffic, including heavy truck traffic, during the period of construction. Therefore, residents would notice an increase in traffic during the construction period, which would be completed in approximately 3.5 months. Construction of new roads could lead to increased access to National Forest system lands. Members of

Table 2-4. Summary of Effects of the Proposed Action

Resource	Effects of the Proposed Action
	the public may attempt to access the National Forest system lands in the project area using the proposed temporary roads. To avoid this, the project proponent would be required to place lockable gates across the new roads to restrict access to National Forest system lands.
Soils and hydrology	Soil erosion would be accelerated in areas where construction-related activities have altered the contours of the land surface or disturbed or altered the land surface by exposing soils. Soils would be compacted by construction vehicles, equipment, and activities. Soils would be temporarily disturbed where previously undisturbed areas would be converted to temporary access roads, which may also have temporary hydrological effects such as an increase in rainfall runoff and erosion.
Vegetation	Effects would occur in any area where native or desirable vegetation communities would be removed or damaged due to construction activities. Removal of vegetation could increase soil erosion (Quinton et al. 1997) and increase the susceptibility of an area to colonization by invasive species (Hobbs and Huenneke 1992). To prevent noxious weed infestations in disturbed areas, revegetation of native or desirable vegetation communities would be conducted in temporary use areas. However, rehabilitation of native or desirable vegetation communities to a pre-disturbance state is unlikely in the short term and is not assured in the long term.
Scenic resources	Effects to scenic resources would be caused by the relocated transmission line and the grading of a new access road. The main viewpoints from which the project area could be seen are the residential areas of Brigham City to the west of the project area and U.S. Highway 89 leading east into Box Elder Canyon. Effects to scenic resources would also result from the proposed temporary access roads. These roads would add to the current effects from existing roads on the hillside that are in and near the project area. The scenery and views from primary viewpoints are already affected by the Staker Parson mine, the existing transmission line, and existing roads. Due to the presence of these existing landscape modifications, which yield a strong industrial character and dominate views from viewing locations in the area and because the new location of the transmission line would be 300 feet to the east, the potential effects on scenery and viewers would represent a slight change from existing conditions and are considered minimal. Effects to scenic resources from the increase in access roads in the project area would also represent a slight change from existing conditions because of the already-existing access roads in the area. However, the project area and the land to the east currently appear natural and non-industrialized, and the addition of the transmission line and roads would affect this natural-appearing landscape.
Wildlife	<u>Avian Wildlife, including Migratory Birds</u> Effects on bird habitat would include the removal, alteration, and damage of vegetation during construction of access roads and relocation of transmission line towers. Activities related to construction could result in a loss and degradation of foraging and nesting habitat and cover for sagebrush-obligate species, upland game birds, and migratory birds. Displacement of individuals as a result of habitat loss or degradation may occur, particularly in ground-nesting and sagebrush-obligate species. Additionally, disturbance and interruption of breeding, nesting, and brood-rearing may occur as a result of increased noise, human presence, and construction activities. Risk of mortality and injury to birds from in-flight collisions with structures is likely to be species specific (Faanes 1987). Bird electrocutions on power lines have been documented, and may be a function of size, habitat, prey, behavior, age, season, and weather (Avian Power Line Interaction Committee [APLIC] 2006). However, mortality by electrocution from the relocated transmission line would not occur, because the separation distance between energized and grounded equipment would be much greater than a wrist-to-wrist or head-to-foot measurement of any bird present in the project area, and larger than the recommended distance of greater than 60 inches to prevent avian electrocutions (APLIC 2006). Potential effects on special-status raptors include ground disturbance to raptor habitat and disruption of raptor behavior during the breeding season from project construction and ongoing maintenance activities. Risk for raptor mortality due to collisions or electrocutions would be lower than that for migratory birds because raptors are generally more agile than large-bodied migratory birds that fly in flocks (APLIC 2006, 2012). Generally, the post-construction effects of the relocated transmission line on avian wildlife, including migratory birds and raptors, would be the same as are currently occurring at the existing transmission line location. This is because the transmission line would be relocated approximately 300 feet to the east of its current location. <u>Mammals</u> Habitat loss, degradation, and fragmentation due to surface disturbance would likely affect mammal species. This would be a continuation of the kind of habitat effect that the existing transmission line is already causing, but it would be relocated approximately 300 feet to the east. Habitat loss, degradation,

Table 2-4. Summary of Effects of the Proposed Action

Resource	Effects of the Proposed Action
	and fragmentation increase habitat patch isolation; reduce potential connectivity between patches and sub-populations; and affect dispersal rates, diversity, and abundance in mammal species (Hanser et al. 2011; Noss et al. 2006). Effects on small and medium-sized mammal species, particularly those with limited mobility, include loss of cover, foraging, and reproductive habitat, which can adversely influence population size (Andrén 1994). The Proposed Action would affect winter range for mule deer and Rocky Mountain elk by creating surface disturbance in the habitat and potentially affecting big game behavior and use of the project area during construction activities because of increased human activity and noise during this period. Mortality or injury to mammals could occur during relocation and maintenance of the transmission line. Small mammals could be crushed by construction equipment through either the crushing of burrows or of vegetation used as cover. Mortality and injury also could occur as a result of collision with moving construction equipment using access roads associated with the project. <u>Reptiles</u> Degradation and fragmentation of suitable habitats through removal of native vegetative cover could occur during construction activities. Mortality rates could increase during project construction and maintenance, either through being crushed directly or through compaction of burrows and vegetative cover. Special-status species that may have habitat in or near the project area include bald eagle, burrowing owl, ferruginous hawk, grasshopper sparrow, sharp-tailed grouse, and short-eared owl. Potential effects to these species would be the same as those described in Section 3.8.2.1.1 - Avian Wildlife.

CHAPTER 3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Introduction

The following information provides a summary of the affected environment and the potential environmental consequences on the physical, biological, and social components of the project area from the Proposed Action and No Action Alternative.

The project area covers approximately 40.75 acres north of U.S. Highway 89 near the mouth of Box Elder Canyon, also known as Sardine Canyon, in Box Elder County, east of Brigham City, Utah (see Figure 1-1). Staker Parson is currently mining gravel from an open face quarry near the mouth of Box Elder Canyon. The segment of the Populus to Terminal Transmission Line to be relocated is bordered by National Forest system lands to the east, Staker Parson mine activities to the west, and privately owned open space to the north and immediately to the south. The expansion of Staker Parson mining activities and the development of private lands near the project area are examples of potential reasonably foreseeable future actions that are discussed in the cumulative effects analysis.

3.2 Air Quality

The impacts analysis area for air quality is Box Elder County, because air pollutant emissions inventories are done at the county level.

3.2.1 Affected Environment

The main air quality concern in the project area is fugitive dust emissions from the Staker Parson mine that operates to the west of the project area. The mining of sand and gravel can create fugitive dust emissions that have the potential to affect human health as described below. Another major source of air pollutant emissions within the air quality analysis area is on-road and non-road mobile sources, which are responsible for emissions of carbon monoxide (CO), nitrogen oxide ($NO_{x)}$, sulfur oxide (SO_x), and volatile organic compounds (VOCs), as well as fugitive dust, or total suspended particles (TSPs).

The term *TSPs* refers to the particulate concentration of particles of all sizes, and TSPs may come from construction or demolition activities, land clearing, and exposed surfaces, roadways, and mining activities. Lead is an example of a pollutant that can be found in TSPs; it can cause health effects such as cardiovascular problems, increased blood pressure, reproductive problems, and anemia. Fine particles within TSPs are called particulate matter or PM. Because it irritates eyes and nasal tissue, and seriously affects the respiratory system, PM is a health concern. It also inhibits normal plant growth and development. Along the Wasatch Front and in other areas, air quality rules specify that PM be minimized. If the operation is along the Wasatch Front, owners/operators are also required to develop and submit a fugitive dust control plan.

Table 3-1 contains the air pollutant emissions totals by source in Box Elder County for 2011. According to Utah Division of Air Quality data, the Staker Parson mine adjacent to the transmission line emitted approximately 5.80 tons of PM_{10} and 2.25 tons of $PM_{2.5}$ in 2011 (Utah Division of Air Quality 2013). On-road mobile sources were the largest source of CO and NO_x emissions within Box Elder County in 2011. Non-road mobile sources, such as construction equipment, were a large source of SO_x and VOC emissions within the county.

Table 3-1. 2011 Box Elder County Air Pollutant Emissions by Source (tons/year)

Source	CO	NO_x	PM_{10}	$PM_{2.5}$	SOx	VOC
Area source	6,656.55	410.66	2,981.80	1,039.20	14.47	2,107.31
Non-road mobile	6,736.40	1,403.02	84.31	78.77	65.22	1,832.59
On-road mobile	11,506.00	3,157.00	542.51	217.99	11.99	911.89
Point source	860.23	338.36	303.66	177.67	55.17	170.89
Biogenics*	6,990.18	0.00	0.00	0.00	0.00	33,584.82
Wildfires	3,463.38	98.60	419.06	377.15	0.00	591.61
County total	**36,212.74**	**5,407.64**	**4,331.34**	**1,890.79**	**146.84**	**39,198.98**
Statewide total	**625,740.81**	**165,844.44**	**67,229.19**	**23,572.95**	**27,151.44**	**859,652.57**

*Biogenics are emissions from natural sources such as volatile organic compound emissions from forests and methane emissions from marshes.

Data from Utah Division of Air Quality 2014

In 2006, sampling performed for PM_{10} was compared to Environmental Protection Agency (EPA) standards, and the total respirable dust (PM_{10}) sample concentrations were well below the health-based EPA guidelines. None of the sampling conducted for PM_{10} in Brigham City was in violation of EPA standards. Sampling by the Utah Division of Air Quality indicated that the dust emitted from the sand, gravel, and asphalt operations in Brigham City is principally TSP of larger particle size. The EPA no longer regulates TSP; so former TSP standards were used as a comparison. Although a small number of samples exceeded the former standards, these particulates are more of a nuisance and do not pose a health concern. Therefore, based on data available, the concentrations of TSP and respirable dust (PM_{10}) detected in ambient air samples from Brigham City pose no apparent public health hazard to the general population (U.S. Department of Health and Human Services 2006).

3.2.2 Environmental Consequences

3.2.2.1 PROPOSED ACTION

Construction activities to remove and relocate the transmission line would cause CO, NO_x, SO_x, and VOC emissions from the construction equipment and vehicles, as well as PM_{10} and $PM_{2.5}$ from the use of construction equipment and vehicles on dirt or gravel roads and temporary use areas. However, best management practices (BMPs) would be implemented to reduce fugitive dust and other TSP emissions during construction activities. A complete list of PacifiCorp's BMPs for all resources is included as Appendix C - PacifiCorp Best Management Practices. The fugitive dust and vehicle/equipment exhaust emissions from construction activities would be a minimal addition to the existing fugitive dust emissions from the adjacent Staker Parson mine and existing vehicle traffic in Brigham City.

3.2.2.1.1 Mitigation Measures

- All requirements of those entities having jurisdiction over air quality would be adhered to.
- Any necessary dust control plans would be developed by the proponent, and permits for construction testing activities would be obtained.
- Open burning of trash would not be allowed unless permitted by appropriate authorities.

3.2.2.2 NO ACTION

Under the No Action Alternative, the transmission line would not be relocated onto National Forest system lands, and, therefore, there would be no fugitive dust or vehicle/equipment exhaust emissions from construction activities related to transmission line relocation.

3.2.3 Cumulative Effects

The Proposed Action would contribute to cumulative effects on the air quality in the project area. These effects would result from fugitive dust created during construction activities, as well as emissions from construction equipment and vehicles. These effects would occur during the approximately 3.5 months of construction and would be minimal when compared to the cumulative emissions from the surrounding area. Existing emissions from the surrounding area include fugitive dust from the nearby Staker Parson mine and vehicle traffic along U.S. Highway 89 and residential roads.

3.3 Cultural Resources

The impacts analysis area for cultural resources is the footprint of anticipated surface disturbance because the primary effect would be the potential to disturb surface and subsurface cultural resources during construction activities.

3.3.1 Affected Environment

A Class I cultural resources inventory of the project area was completed on June 20, 2013. Only one previously recorded archaeological site was identified within 1 mile of the project area, but it is not within the project area. In addition, 269 historic architectural properties were identified within 1 mile of the project area, but none of the structures are within the project area. A search of General Land Office (GLO) records was also conducted. Several roads, a canal, a mill, a mill race, a field, and a fort were all identified on GLO maps, but they are not in the project area. In addition, several geographic information system (GIS) layers were examined for potential cultural resources. No additional cultural resources were identified in the project area using these GIS resources.

A pedestrian inventory for cultural resources was conducted on June 26, 2013, with an additional access road inventory conducted on August 1, 2013. One isolated artifact was found, consisting of an amber glass bottle base and several amber glass fragments dated to post-1959. This isolated artifact is considered not eligible for the National Register of Historic Places.

3.3.2 Environmental Consequences

3.3.2.1 PROPOSED ACTION

No cultural resources eligible for the National Register of Historic Places were found within the project area during the original survey and concurrence with SHPO has been obtained. Any previously undiscovered cultural resources that might be uncovered during the proposed transmission line relocation would be addressed according to the Forest Service's unanticipated discovery requirements (Forest Service Manual 2364.13 [Forest Service 2008]). A cultural environmental monitor would monitor all ground-disturbing activities.

3.3.2.1.1 Mitigation Measures

- In consultation with the State Historic Preservation Office, specific mitigation measures for cultural resources would be developed and implemented to avoid effects, monitor construction activities, and conduct data recovery studies where historic properties are affected.

3.3.2.2 NO ACTION

Under the No Action Alternative, the transmission line would not be relocated onto National Forest system lands, and, therefore, there would be no surface disturbance from construction activities and no related effects to cultural resources.

3.3.3 Cumulative Effects

The Proposed Action would add cumulatively to the risk of affecting undiscovered cultural resources in the area through surface disturbance. Other past, present, and reasonably foreseeable future surface-disturbing activities in the project area and surrounding lands include existing transmission lines; existing roads; residential developments to the northwest of the project area; and past, present, and future mining at the nearby Staker Parson mine.

3.4 Socioeconomics

The impacts analysis area for socioeconomics is the project area and the transportation route, because the primary impact would be from construction vehicle traffic through residential areas of Brigham City.

3.4.1 Affected Environment

The project area is located in Brigham City, Utah. The 2013 population estimate for Brigham City was 18,454 (U.S. Census Bureau 2014). The Staker Parson mine operates immediately to the west of the project area. Nonresidential buildings located near the project area include an elementary school, a junior high school, and two church houses. A community golf course and a community park are also nearby. There are also several homes along the north side of the Staker Parson mine.

U.S. Highway 89 bisects the project area, with the main portion of the relocated line on the north side of the highway and a pulling site located on the south side of the highway. It is a main thoroughfare through Brigham City, and connects Interstate 15 (I-15) and Cache Valley through Box Elder Canyon. The average annual daily traffic (AADT) on U.S. Highway 89 between Brigham City and Logan, Utah, is 26,175 vehicles (Utah Department of Transportation 2013). The AADT for I-15 via State Route 91, which is the main access point to U.S. Highway 89 from I-15, is 17,685 vehicles (Utah Department of Transportation 2013).

3.4.2 Environmental Consequences

3.4.2.1 PROPOSED ACTION

Construction vehicles would likely use I-15, U.S. Highway 89, and residential roads to access the project area. The residential roads that would likely be used are located in residential areas to the northwest of the project area (see Figure 1-1). This would increase traffic on these roads during the period of construction by no more than 10 additional vehicles (e.g., pickup trucks, the water truck, a concrete delivery truck) per day, depending on the activity being completed. Both I-15 and U.S. Highway 89 are already heavily used, including by heavy trucks. Therefore, the slight increase in construction vehicles using these two roads to access the project area during the approximately 3.5-month construction period would be negligible, at approximately 10 additional vehicles per day on roads with an AADT of 17,685 and 26,175. The residential areas to the northwest of the project area would experience an increase in traffic, including heavy truck traffic, during the period of construction. Therefore, residents would notice an increase in traffic during the construction period, which would be completed in approximately 3.5 months.

Construction of new roads could lead to increased access to National Forest system lands. Members of the public may attempt to access National Forest system lands in the project area with motorized vehicles using the proposed access roads. To avoid this, the project proponent would be required to place lockable gates across access roads to

restrict unauthorized motorized access to National Forest system lands. These gates would be placed in locations where it would not be possible for the public to drive around them.

3.4.2.2 NO ACTION

Under the No Action Alternative, the transmission line would not be relocated onto National Forest system lands. Therefore, there would be no increase in traffic from construction activities. However, Staker Parson would not be able to expand its mining operations beneath the portion of transmission line that is proposed to be relocated. Therefore, Staker Parson would experience a loss in potential mining revenues, and PacifiCorp would need to compensate Staker Parson for this loss.

3.4.3 Cumulative Effects

The Proposed Action would have a cumulative effect on traffic along the foreseeable access routes. There would be a minimal increase in the number of vehicles using these roads during the approximately 3.5 months of construction. Future traffic on the residential roads northwest of the project area would likely remain the same as current traffic patterns if no new residential development occurs. Future traffic levels on U.S. Highway 89 would likely increase as populations in Brigham City and Cache Valley continue to grow (Utah Governor's Office of Management and Budget 2012). There would be no cumulative effects on access to the Staker Parson mine because the proposed access routes would not overlap the routes used to access the Staker Parson mine. There would be a slight cumulative increase in the amount of roads on National Forest system lands in the project area. However, because of the use of gates to restrict access, there would be no cumulative effects to road use in the project area.

3.5 Soils and Hydrology

The impacts analysis area for soils is the footprint of surface disturbance because the primary effect would be soil disturbance and the potential for erosion from construction activities. The impacts analysis area for hydrology is the Box Elder Creek-Black Slough and Mantua Reservoir-Box Elder Creek subwatersheds. This analysis area was chosen because the subwatersheds provide a natural topographical boundary for analyzing impacts to hydrology and because the project area crosses both subwatersheds.

3.5.1 Affected Environment

Most of the soils in the soils impact analysis area are Kilburn gravelly sandy loam (30%–60% slopes). Other soil types in the soils impact analysis area include Foxol-Rock outcrop complex (50%–70% slopes), Kilburn gravelly sandy loam (20%–30% slopes), Kilburn gravelly sandy loam (6%–10% slopes), and Wasatch gravelly sandy loam, gravelly subsoil variant (30%–70% slopes) (see Table 3-2 and Figure 3-1). The analysis area is a dry, upland site that contains no water resources.

Table 3-2. Soil Types in the Soils Impact Analysis Area

Soil Types	Acres
Foxol-Rock outcrop complex, 50%–70% slopes	8.98
Kilburn gravelly sandy loam, 20%–30% slopes	6.96
Kilburn gravelly sandy loam, 30%–60% slopes	20.35
Kilburn gravelly sandy loam, 6%–10% slopes	0.61
Wasatch gravelly sandy loam, gravelly subsoil variant, 30%–70% slopes	3.85
Total	**40.75**

The project area is located in a dry, upland site and the primary hydrological concern is the potential for increased runoff caused by erosion. The closest perennial stream to the project area is Box Elder Creek, which is approximately 660 feet away. The only waterway that within the project area is an intermittent stream within a ravine that intersects the project area just north of the Mantua Reservoir-Box Elder Creek subwatershed boundary. Figure 3-2 shows the Hydrology Impacts Analysis Area and the locations of water resources in relation to the project area.

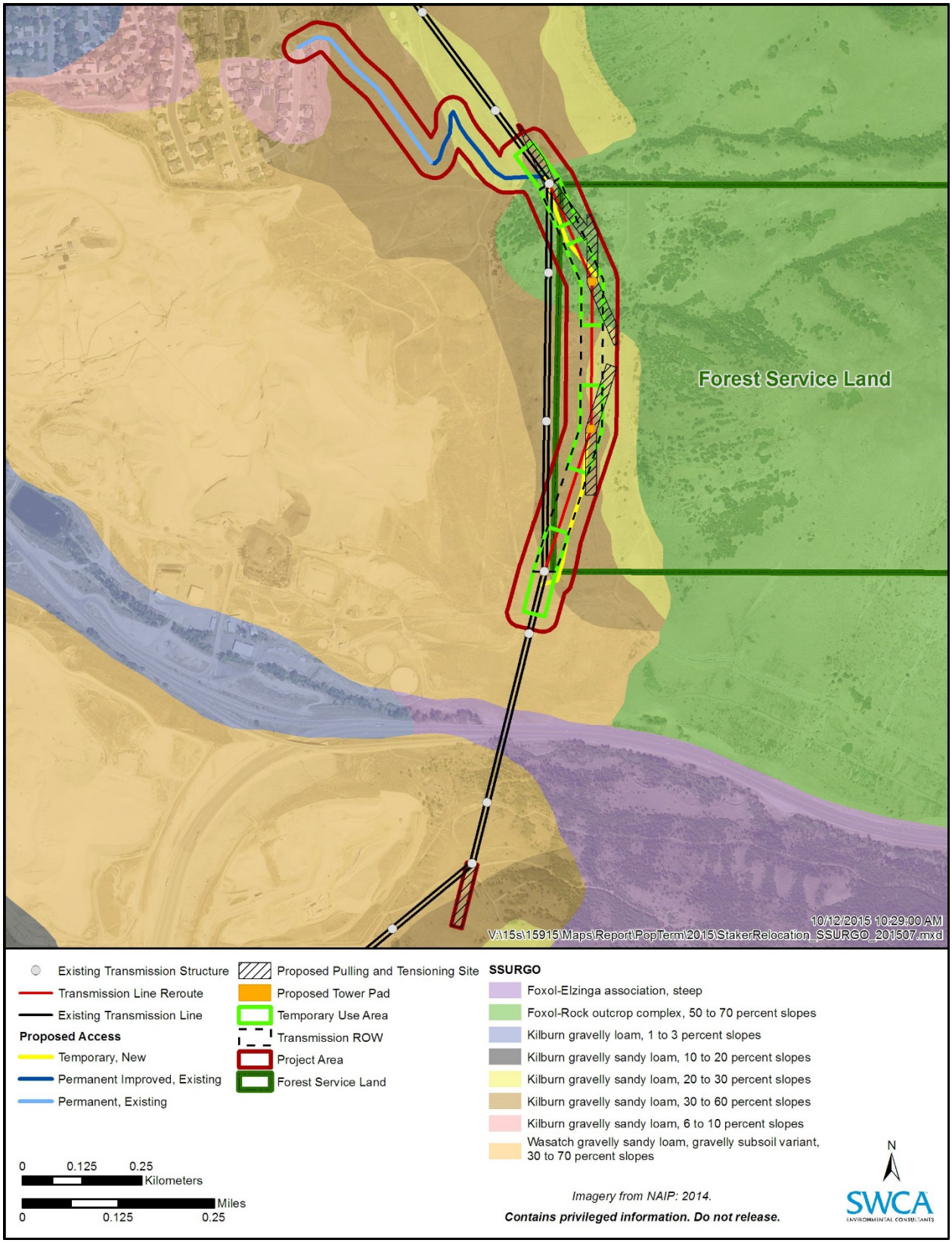

Figure 3-1. Soil types in the soils impact analysis area.

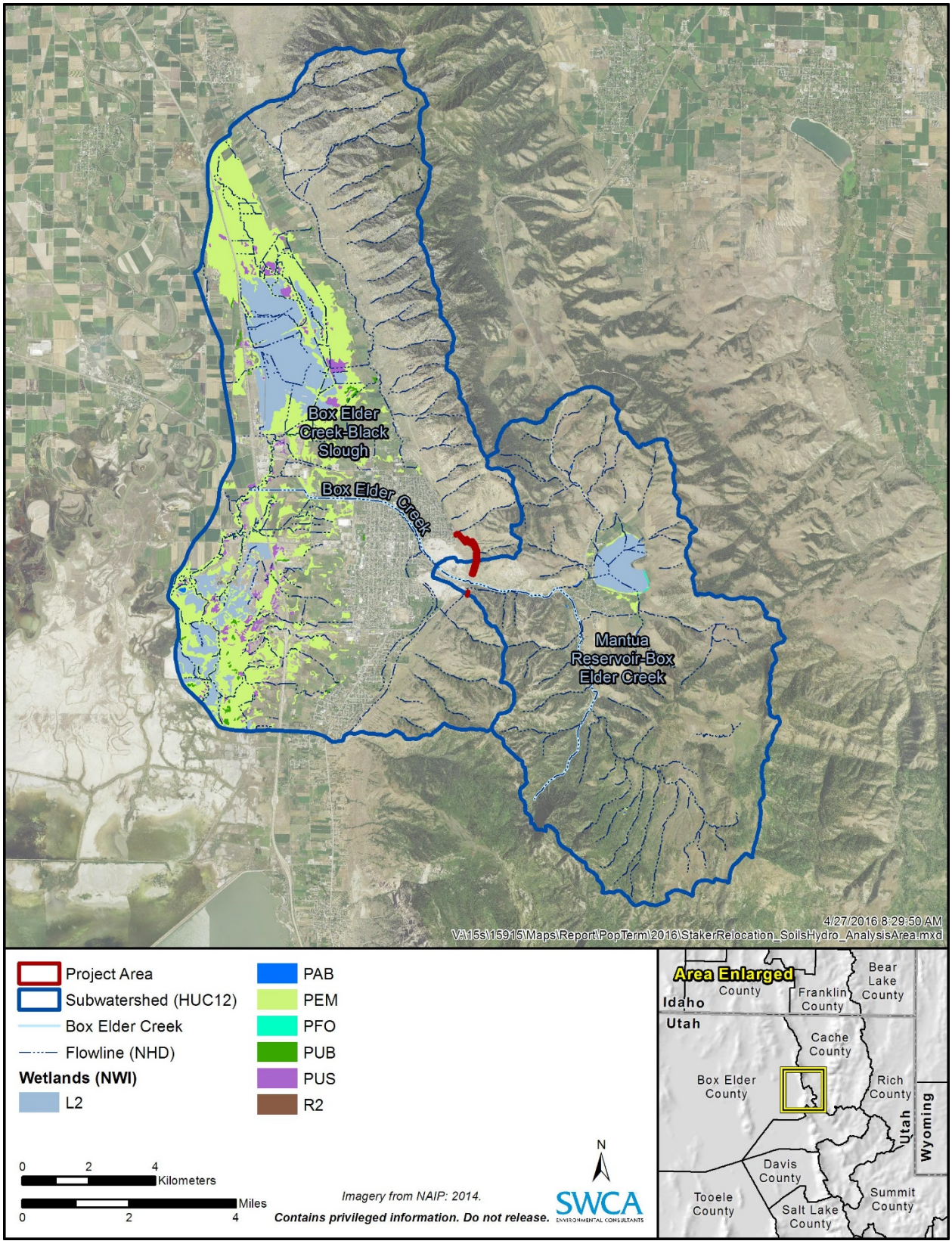

Figure 3-2. Hydrology impacts analysis area.

3.5.2 Environmental Consequences

3.5.2.1 PROPOSED ACTION

Soil erosion would be accelerated in areas where construction-related activities altered the contours of the land surface or disturbed or altered the land surface by exposing soils. Soils would be compacted by construction vehicles, equipment, and activities. Soils would be temporarily disturbed where previously undisturbed areas would be converted to temporary access roads, which may also have temporary hydrological effects such as an increase in rainfall runoff and erosion. The mitigation measures listed in Section 3.5.2.1.5 - Mitigation Measures would be applied to avoid and/or mitigate any potential erosion and runoff impacts to any intermittent and perennial streams in the hydrology impacts analysis area.

3.5.2.1.1 Structure Foundations

One of the relocated structure foundations would be in the Foxol-Rock outcrop complex (50%–70% slopes) soil type. This would cause approximately 0.06 acre of disturbance to the soils on National Forest system lands, which would represent approximately 0.7% of this soil type in the project area and 0.1% of the project area as a whole. The runoff potential in this soil type is medium, and the erosion potential is moderate (U.S. Department of Agriculture Soil Conservation Service 1975). The other structure foundation would be in the Kilburn gravelly sandy loam (30%–60% slopes) soil type. This would cause approximately 0.06 acre of disturbance to the soils on National Forest system lands, which would represent approximately 0.3% of this soil type in the project area and 0.1% of the project area as a whole. There is potential for rapid runoff in this soil type, and the erosion potential is high (U.S. Department of Agriculture Soil Conservation Service 1975).

3.5.2.1.2 Temporary Use Areas

The temporary use areas would cause approximately 2.32 acres of disturbance in the Foxol-Rock outcrop complex (50%–70% slopes) soil type on National Forest system lands, representing 25.8% of the soil type within the project area and 5.7% of the project area as a whole. The runoff potential in this soil type is medium, and the erosion potential is moderate. The temporary use areas would cause approximately 0.41 acre of disturbance in the Kilburn gravelly sandy loam (20%–30% slopes) soil type on National Forest system lands, representing 5.9% of the soil type within the project area and 1.0% of the project area as a whole. The runoff potential in this soil type is medium, and the erosion potential is moderate (U.S. Department of Agriculture Soil Conservation Service 1975). The temporary use areas would cause approximately 2.20 acres of disturbance in the Kilburn gravelly sandy loam (30%–60% slopes) soil type on National Forest system lands, representing 10.8% of the soil type within the project area and 5.4% of the project area as a whole. There is potential for rapid runoff in this soil type, and the erosion potential is high. Disturbance from the temporary use areas would be reclaimed following construction, as described in Section 2.1.1.3 - Temporary Use Areas.

3.5.2.1.3 Access Roads

Approximately 0.29 mile (1.05 acres) of temporary new access roads would be constructed on National Forest system lands. The types of potential effects to soils and hydrology from access roads are described in Section 3.5.2.1.3 - Access Roads. Table 3-3 lists the miles and acreages of road within each soil type under the Proposed Action. The 1.05 acres of surface disturbance from the temporary access roads on National Forest system lands would be reclaimed following construction, as described in Section 2.1.1.2 - Access Roads.

Table 3-3. Roads in Soil Types

Soil Type	Temporary, New Road on National Forest System Lands (miles/acres)
Foxol-Rock outcrop complex (50%–70% slopes)	0.09/0.33
Kilburn gravelly sandy loam (30%–60% slopes)	0.2/0.71

3.5.2.1.4 Pulling and Tensioning Sites

The pulling and tensioning sites would cause approximately 1.82 acres of temporary disturbance in the Foxol-Rock outcrop complex (50%–70% slopes) soil type on National Forest system lands, representing 20.3% of the soil type within the project area and 4.5% of the project area as a whole. The runoff potential in this soil type is medium, and the erosion potential is moderate. The pulling and tensioning sites would cause approximately 0.72 acre of temporary disturbance in the Kilburn gravelly sandy loam (20%–30% slopes) soil type on National Forest system lands, representing 10.3% of the soil type within the project area and 1.8% of the project area as a whole. The runoff potential in this soil type is medium, and the erosion potential is moderate. The pulling and tensioning sites would cause approximately 0.98 acre of temporary disturbance in the Kilburn gravelly sandy loam (30%–60% slopes) soil type on National Forest system lands, representing 4.8% of the soil type within the project area and 2.4% of the project area as a whole. There is potential for rapid runoff in this soil type, and the erosion potential is high. The 3.52 acres of temporary surface disturbance from the pulling and tensioning sites on National Forest system lands would be reclaimed following construction, as described in Section 2.1.1.3 - Temporary Use Areas.

3.5.2.1.5 Mitigation Measures

- All vehicle movement would be restricted to pre-designated access routes.
- Construction access routes and locations would be selected to avoid travel over open range where possible. If overland travel is necessary, then it would need to be authorized in the special use permit.
- In areas where ground disturbance would occur or where recontouring would be required, surface restoration would normally consist of, but not be limited to, returning disturbed areas back to rounded contours, with the exception of an approximately 50 × 50–foot area at each structure site, which would be used for long-term maintenance and operations. These sites would be graded for drainage and rake-seeded with a seed mixture appropriate for those areas.
- Topsoil would be replaced without mixing with subsoil. The purpose of this practice is to prevent mixing fertile, shallow soils with deeper soils that may be less productive because of rock, gravel, sand, calcareous layers, salinity, or other chemical characteristics that would adversely affect desired vegetation. Salvaged topsoil would be dispersed evenly across the disturbed site. Additional erosion control and soil stabilization may be required to minimize soil movement, especially for heavily sloped areas or for fine-textured soils. Handling of surface soil would be minimized during windy conditions. Soil would be wet to a depth of 2 inches to prevent further erosion. The site would be left adequately rough after surface soil placement to provide micro sites for seed germination and to prevent significant movement of soil by seasonal weather events (wind or rain).
- Runoff controls would be applied during project implementation to prevent pollutants, including fuels, sediment, and oils, from reaching surface and groundwater.
- At the end of an activity, no more than 15% of an activity area would be permitted to have detrimental soil displacement, puddling, compaction, and/or to be severely burned.
- Soil disturbing activities (those that remove surface organic matter exposing mineral soil*)* would be avoided on steep, erosive, and unstable slopes, and in riparian, wetlands, floodplains, wet meadows, and alpine areas.
- BMPs and Soil and Water Conservation Practices would be used during project level assessment and implementation to ensure maintenance of soil productivity.

National BMPs

The U.S. Department of Agriculture's (USDA's) *National Best Management Practices for Water Quality Management on National Forest System Lands* includes several BMPs that are applicable to this project (U.S. Department of Agriculture 2012). These BMPs are described in that document under the following headings:

- FAC-1: Facilities and Nonrecreation Special Uses Planning
- FAC-2: Facility Construction and Stormwater Control
- FAC-7: Vehicle and Equipment Wash Water
- FAC-9: Pipelines, Transmission Facilities, and Rights-of-Way

- Road-2: Road Location and Design
- Road-3: Road Construction and Reconstruction
- Road-5: Temporary Roads
- Road-9: Parking and Staging Areas
- Road-10: Equipment Refueling and Servicing

R1/R4 BMPs

The USDA's *Soil and Water Conservation Practices Handbook* includes several BMPs that are referred to as "R1/R4" BMPs (USDA 1988). R1/R4 BMPs that are applicable to this project are described in that document under the following headings:

- 11.07 Oil and Hazardous Substance Spill Contingency Planning
- 15.02 General Guidelines for the Location and Design of Roads and Trails
- 15.03 Road and Trail Erosion Control Plan
- 15.04 Timing of Construction Activities
- 15.05 Slope Stabilization and Prevention of Mass Failures
- 15.06 Mitigation of Surface Erosion and Stabilization of Slopes
- 15.08 Pioneer Road Construction
- 15.10 Control of Road Construction Excavation and Sidecast Material
- 15.11 Servicing and Refueling of Equipment
- 15.18 Disposal of Right of Way and Roadside Debris
- 15.21 Maintenance of Roads
- 15.25 Obliteration of Temporary Roads
- 15.26 Surface Erosion Control and Facility Sites

3.5.2.2 NO ACTION

Under the No Action Alternative, the transmission line would not be relocated onto National Forest system lands, and, therefore, there would be no surface disturbance from construction activities and no related effects to soils and hydrology.

3.5.3 Cumulative Effects

The Proposed Action would add cumulatively to surface disturbance–related effects to soils and hydrology in the project area and surrounding lands. However, the approximately 3.1 acres of effects to soils and hydrology from the Proposed Action would be a minimal cumulative addition to the effects of other past, present, and reasonably foreseeable future surface-disturbing activities in the area. These activities include existing transmission lines; existing roads; residential developments to the northwest of the project area; and past, present, and future mining at the nearby Staker Parson mine.

3.6 Vegetation

The impacts analysis area for vegetation is the project area, because the primary impact would be vegetation disturbance and the potential to spread noxious weeds through surface disturbance and the use of access roads.

3.6.1 Affected Environment

More than half the project area is covered by the Inter-Mountain Basins Montane Sagebrush Steppe vegetation community, with the rest of the project area covered by Invasive Perennial Grassland, Inter-Mountain Basins Big Sagebrush Shrubland, Rocky Mountain Bigtooth Maple Ravine Woodland, Rocky Mountain Lower Montane

Riparian Woodland and Shrubland, and Colorado Plateau Pinyon-Juniper Woodland (see Table 3-4 and Figure 3-3). A survey report on the vegetation, including special-status plant species and noxious weeds is included as Appendix D - Populus to Terminal 345-kV Staker Relocation Vegetation, Special-Status Plant Species, and Noxious Weed Survey Report.

The Inter-Mountain Basins Montane Sagebrush Steppe vegetation community in the project area is dominated by basin big sagebrush (*Artemisia tridentate* ssp. *tridentate*), with white sagebrush (*Artemisia ludoviciana*), rubber rabbitbrush (*Ericameria nauseosa*), broom snakeweed (*Gutierrezia sarothrae*), antelope bitterbrush (*Purshia tridentata*), chokecherry (*Prunus virginiana*), and bigtooth maple (*Acer grandidentatum*) as codominants. The herbaceous layer is sparse except for dense concentrations of forage kochia (*Bassia prostrata*), and Dyer's woad (*Isatis tinctoria*). Dominant grasses are bluebunch wheatgrass (*Pseudoroegneria spicata*), and cheatgrass (*Bromus tectorum*).

The Invasive Perennial Grassland vegetation community in the project area is dominated by introduced perennial grass species, including crested wheatgrass (*Agropyron cristatum*), field brome (*B. arvensis*), and intermediate wheatgrass (*Thinopyrum intermedium*). Cheatgrass may codominate.

The Inter-Mountain Basins Big Sagebrush Shrubland vegetation community in the project area is dominated by big sagebrush with white sagebrush and rubber rabbitbrush as codominants. Bluebunch wheatgrass is the dominant grass species. The noxious weeds Dyer's woad and medusahead (*Taeniatherum caput-medusae*) occur in dense concentrations in some areas.

The Rocky Mountain Bigtooth Maple Ravine Woodland vegetation community in the project area is dominated by bigtooth maple, codominated by chokecherry, with scattered escaped cultivars such as apple (*Malus* sp.) and cherry (*P. avium* and others). This community dominates the central portions of the project area.

The Rocky Mountain Lower Montane Riparian Woodland and Shrubland vegetation community in the project area is dominated by the invasive tree Russian olive (*Elaeagnus angustifolia*). Other tree and shrub species include bigtooth maple, chokecherry, willow (*Salix* spp.), and Siberian elm (*Ulmus pumila*).

Noxious weed infestations cover approximately 29.6 acres (82.2%) of the project area and are concentrated in areas of soil disturbance. Invasive weeds that occur in the project area include musk thistle (*Carduus nutans*), field bindweed (*Convolvulus arvensis*), houndstongue (*Cynoglossum officinale*), myrtle spurge (*Euphorbia myrsinites*), Dyer's woad, and medusahead (see Figure 3-4). Most of these weeds are medusahead and Dyer's woad.

No federally listed, state-listed, or Forest Service sensitive plant species are known to occupy the project area.

Table 3-4. Vegetation Communities in the Project Area

Vegetation Community Type	Acres
Agriculture	0.61
Colorado Plateau Pinyon-Juniper Woodland	1.08
Developed, Open Space – Low Intensity	0.05
Inter-Mountain Basins Big Sagebrush Shrubland	9.01
Inter-Mountain Basins Montane Sagebrush Steppe	19.40
Invasive Perennial Grassland	5.21
Rocky Mountain Bigtooth Maple Ravine Woodland	3.95
Rocky Mountain Lower Montane Riparian Woodland and Shrubland	1.44
Total	**40.75**

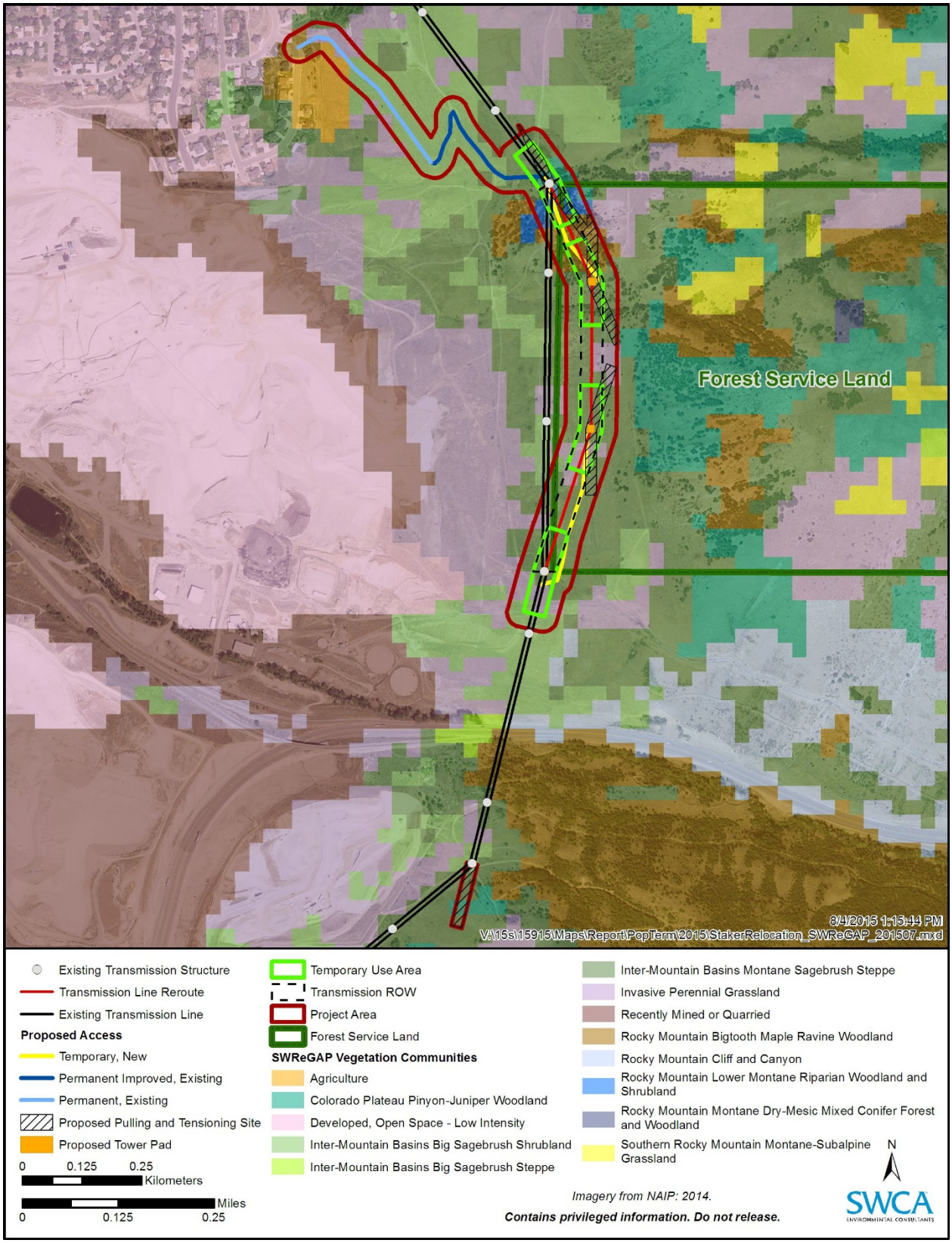

Figure 3-3. Vegetation communities in the project area.

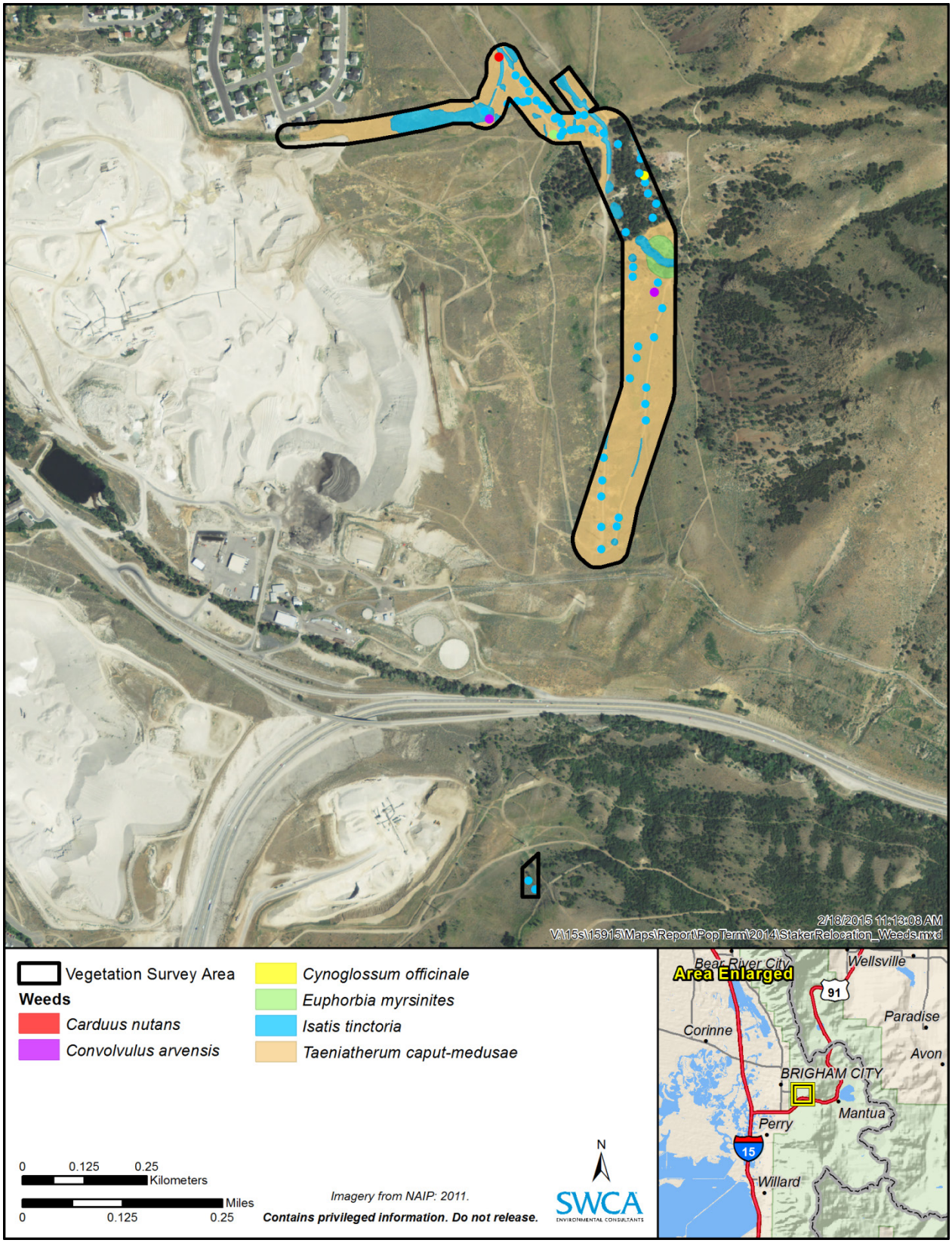

Figure 3-4. Invasive weeds in the vegetation survey area.

3.6.2 Environmental Consequences

3.6.2.1 PROPOSED ACTION

Effects would occur in any area where native or desirable vegetation communities would be removed or damaged due to construction activities. Removal of vegetation could increase soil erosion (Quinton et al. 1997) and increase the susceptibility of an area to colonization by invasive species (Hobbs and Huenneke 1992). Revegetation of native or desirable vegetation communities would occur in areas where disturbance is temporary. However, rehabilitation of native or desirable vegetation communities to a pre-disturbance state is unlikely in the short term and is not assured in the long term. Recovery of native or desirable vegetation communities following disturbance, especially those in arid ecosystems, may take decades, centuries, or longer (Coffin et al. 1996; Foster et al. 2003; Morris et al. 2011). Additionally, alterations to soil structure and chemistry, nutrient dynamics, hydrology, and plant species composition following disturbance often cause ecosystems to cross thresholds into alternate stable states not likely to resemble historic or preferred conditions (Hobbs et al. 2009).

3.6.2.1.1 Structure Foundations

Both of the relocated tower foundations would be in the Inter-Mountain Basins Montane Sagebrush Steppe vegetation community, causing 0.12 acre (0.06 acre each) of surface disturbance. This would represent approximately 0.6% of that vegetation community in the project area, and approximately 0.3% of the project area as a whole.

3.6.2.1.2 Temporary Use Areas

The potential impacts caused by temporary use areas on National Forest system lands are shown in Table 3-5. The 4.93 acres of total disturbance from the temporary use areas on National Forest system lands would be reclaimed following construction, as described in Section 2.1.1.3 - Temporary Use Areas, leaving only 0.06 acre of permanent disturbance at each relocated transmission structure location.

Table 3-5. Potential Impacts from Temporary Use Areas

Vegetation Community	Acres of Disturbance on National Forest System Lands	Percentage of Vegetation Community in Project Area	Percentage of Project Area
Inter-Mountain Basins Montane Sagebrush Steppe	3.09	16.9%	7.6%
Invasive Perennial Grassland	0.67	12.9%	1.6%
Rocky Mountain Bigtooth Maple Ravine Woodland	0.92	23.3%	2.3%
Rocky Mountain Lower Montane Riparian Woodland and Shrubland	0.24	16.7%	0.6%

3.6.2.1.3 Roads

Table 3-6 provides the miles and acres of disturbance to vegetation communities that would result from the proposed temporary access roads on National Forest system lands. The 1.05 acres of surface disturbance from the temporary access roads on National Forest system lands would be reclaimed following construction, as described in Section 2.1.1.2 - Access Roads.

Table 3-6. Roads in Vegetation Communities

Vegetation Community	Temporary, New Road on National Forest System Lands (miles/acres)
Inter-Mountain Basins Montane Sagebrush Steppe	0.18/0.63
Invasive Perennial Grassland	0.04/0.14
Rocky Mountain Bigtooth Maple Ravine Woodland	0.08/0.28

3.6.2.1.4 Pulling and Tensioning Sites

The potential impacts to vegetation caused by the pulling and tensioning sites are show in Table 3-7. The 3.52 acres of total temporary surface disturbance on National Forest system lands from the pulling and tensioning sites would be reclaimed following construction, as described in Section 2.1.1.3 - Temporary Use Area.

Table 3-7. Potential Impacts from Pulling and Tensioning Sites

Vegetation Community	Acres of Disturbance on National Forest System Lands	Percentage of Vegetation Community in Project Area	Percentage of Project Area
Inter-Mountain Basins Montane Sagebrush Steppe	1.95	10.1%	4.8%
Invasive Perennial Grassland	0.48	9.2%	1.2%
Rocky Mountain Bigtooth Maple Ravine Woodland	0.87	22.0%	2.1%
Rocky Mountain Lower Montane Riparian Woodland and Shrubland	0.23	16.0%	0.6%

3.6.2.1.5 Invasive Weeds

The transport of weed seeds into the project area has the potential to increase or introduce noxious weed populations. Transport on vehicles, clothing, and animals, as well as wind dispersal of seeds are all mechanisms for noxious weed dispersal into new habitats. For this reason, noxious weed invasions due to construction activities are of primary concern. However, the movement of construction equipment and vehicles in and around the project area would have minimal effect on the introduction of noxious weeds to new sites due to their current presence within the project area and because BMPs designed to prevent the spread of noxious weeds would be implemented.

Noxious weed infestations occur in all vegetation communities in the project area, with the highest densities occurring in disturbed areas. To prevent noxious weed infestations in areas that would be newly disturbed by the Proposed Action, a Noxious Weed Management Plan would be developed as part of the Forest Service–approved Proposed Action Plan of Development (see Section 2.1.1.8 - Plan of Development for more detail). The Noxious Weed Management Plan would identify how noxious weed infestations would be managed and monitored as well as what mitigation measures and best management practices would be implemented to prevent an increase in weed infestations due to project-related ground disturbance. In addition, a Reclamation, Revegetation, and Monitoring Plan would be developed as part of the Forest Service–approved Proposed Action Plan of Development (see Section 2.1.1.7 - Reclamation, Revegetation, and Monitoring and Section 2.1.1.8 - Plan of Development for more detail). The Reclamation, Revegetation, and Monitoring Plan would include revegetation success standards as well as Forest Service–approved seed mixes, which would allow for the revegetation of native or desirable vegetation communities.

Recovery of native or desirable vegetation communities following disturbance, especially those in arid ecosystems, may take decades, centuries, or longer (Coffin et al. 1996; Foster et al. 2003; Morris et al. 2011). Additionally, alterations to soil structure and chemistry, nutrient dynamics, hydrology, and plant species composition following

disturbance often cause ecosystems to cross thresholds into alternate stable states not likely to resemble historic or preferred conditions (Hobbs et al. 2009). A noxious weed survey was conducted in June 2013 and is included in Appendix D - Populus to Terminal 345-kV Staker Relocation Vegetation, Special-Status Plant Species, and Noxious Weed Survey Report.

3.6.2.1.6 Mitigation Measures

- In work areas where recontouring is not required, vegetation would be left in place wherever possible and the original contour would be maintained to avoid excessive root damage and allow for re-sprouting.
- In areas where ground disturbance would occur or where recontouring would be required, surface restoration would normally consist of, but not be limited to, returning disturbed areas back to rounded contours, with the exception of an approximately 50 × 50–foot area at each structure site, which would be used for long-term maintenance and operations. These sites would be graded for drainage and rake-seeded with a seed mixture appropriate for those areas as determined in consultation with the Forest Service.
- To eliminate the spread of noxious and invasive weeds, equipment and vehicles, including the undercarriage, would be cleaned at a local carwash or with a portable pressure washer (compressed air or water) prior to entering and exiting the project area. A Forest Service monitor would inspect the vehicles.
- All vehicle movement would be restricted to pre-designated access routes.
- Cut and/or fill slopes would be restored to a ratio of 2:1 to allow for slope stability and an increased likelihood of successful revegetation.
- A Noxious Weed Management Plan would be developed before any surface disturbance occurring as part of the Forest Service–approved Proposed Action Plan of Development (see Section 2.1.1.8 - Plan of Development for more detail). The Noxious Weed Management Plan would identify how noxious weed infestations would be managed and monitored as well as what mitigation measures and best management practices would be implemented to prevent an increase in weed infestations due to project-related ground disturbance.

3.6.2.2 NO ACTION

Under the No Action Alternative, the transmission line would not be relocated onto National Forest system lands, and, therefore, there would be no surface disturbance from construction activities and no related effects to vegetation.

3.6.3 Cumulative Effects

The Proposed Action would add cumulatively to surface disturbance–related effects to vegetation in the project area and surrounding lands. However, the approximately 3.1 acres of effects to vegetation from the Proposed Action would be a minimal cumulative addition to the effects of other past, present, and reasonably foreseeable future surface-disturbing activities in the area; these include existing transmission lines; existing roads; residential developments to the northwest of the project area; potential for wildfires; and past, present, and future mining at the nearby Staker Parson mine.

3.7 Scenic Resources

The impacts analysis area for scenic resources includes the project area and access roads, as well as a 2-mile radius around the project area that includes residential developments northwest of the project area, commercial development, a golf course, and an open pit mine. The 2-mile radius was selected because the scenic impacts would occur largely within this analysis area.

3.7.1 Affected Environment

In general, the Forest Service manages scenic resources (or visual resources) according to the Scenery Management System as described in Agriculture Handbook Number 701 *Landscape Aesthetics: A Handbook for Scenery Management* (Forest Service 1995). The Uinta-Wasatch-Cache National Forest manages scenic resources in accordance with Forest Plan direction. During the Forest Plan revision, the Forest Service established the landscape

character themes (LCTs) and scenic integrity objectives (SIOs). Using the desired landscape character theme, the SIO describes to what degree the forests are being managed for integrity or intactness within the LCT.

According to the Forest Plan for the Uinta-Wasatch-Cache National Forest (Forest Service 2003a), the Forest Service system lands to which the transmission line would be relocated are in an area managed for a landscape character theme of "natural appearing" and a "high" SIO. The applicable landscape integrity description in the Forest Plan states, "the valued landscape character 'appears' intact. Deviations may be present but must repeat the form, line, color, texture, and pattern common to the landscape character so completely, and at such scale, that they are not evident" (Forest Service 2003a: 4-95). The Forest Plan identifies landscape integrity attributes for this landscape character and SIO, such as "roads where the geometry of road in cuts and fills would not be evident, but would appear to be part of the landscape" (Forest Service 2003a: 4-95).

The Forest Service system lands are managed as "natural appearing" and have a high SIO. The Forest Service system lands are on a mountain slope, most (70%) of which is covered with sagebrush, with the remaining covered with invasive grasslands, maple, pinyon-juniper, and other vegetation (see Section 3.6 - Vegetation). The existing transmission line follows the western boundary of the Forest System lands in the project area. Existing unpaved roads exist on Forest Service system lands in the project area and generally follow the natural contours of the mountain slope. As shown in Figures 3-4 through 3-8, colors within the Forest Service system lands in the project area are dominated by shades of brown, green, and yellow. The land east of the Forest Service system lands is also non-industrialized and natural appearing. However, the lands immediately west of the Forest Service system lands are privately owned and include a large, open pit gravel mine (Staker Parson mine). Views immediately west of the Forest Service system lands are dominated by the Staker Parson mine, as well as residential areas of Brigham City. Figure 3-5 shows the view from the project area facing southwest toward the Staker Parson mine and Brigham City. Figures 3-6, 3-7, and 3-8 show the views facing north, south, and west from the project area, respectively. Figure 3-9 shows the view from west of the Staker Parson mine and looking east; also visible is the landscape to the east of the Forest Service system lands.

Figure 3-5. View facing southwest from the project area toward the Staker Parson mine and Brigham City.

Figure 3-6. View facing north from the project area.

Figure 3-7. View facing south from the project area.

Figure 3-8. View facing west from the project area.

Figure 3-9. View from west of the Staker Parson mine facing east.

3.7.2 Environmental Consequences

3.7.2.1 PROPOSED ACTION

Effects to scenic resources from the Proposed Action would be caused primarily by the relocated transmission line, which would consist of double-circuit 345-kV transmission line structures, and the grading of a new access road. The structures would likely be single-pole steel structures with a self-weathering, steel (rust-colored) finish similar to the existing transmission line structures. Depending on topography and engineering constraints, the height of the structures may range from 125 to 150 feet with concrete foundations, and they may have spans approximately 600 to 900 feet apart. Each concrete foundation would be approximately 8 to 10 feet in diameter and would extend approximately 50 to 70 feet into the ground. The transmission line structures and access roads are described in more detail in Section 2.1.1.1 - Structures and Section 2.1.1.2 - Access Roads.

The temporary access roads and transmission line would affect the scenic resources on Forest Service system lands by creating surface disturbance that alters the line, form, and color of the viewed landscape in the project area. The effect from the temporary roads would be pronounced during the construction phase, but the surface disturbance from the roads would be recontoured and revegetated following construction to reduce the scenic effect.

Examples of viewpoints from which the project area can be seen include the following locations:

- Highway 89 heading east after exiting from Interstate 15, which is approximately 3.6 miles west of the project area
- Intersection of 200 South and Main Street in Brigham City, which is approximately 1.6 miles west of the project area
- Intersection of Highway 90 (200 South) and Jones Drive in Brigham City, which is approximately 1 mile west of the project area
- Intersection of 300 East and 100 South in Brigham City, which is approximately 1.3 miles west of the project area
- Intersection of Highway 89 and 1250 East in Brigham City, which is approximately 1.9 miles southwest of the project area
- The Eagle Mountain Golf Course parking area at 700 South in Brigham City, which is approximately 1 mile southwest of the project area

Because the new location of the two transmission line structures would be 300 feet to the east and approximately 130 feet higher in elevation than the existing transmission line structures, the change to the landscape character in the long term would have similar effects on scenic resources as the existing transmission line, but would introduce new road prism and transmission line structures higher on the slope. The change in landscape character in the long term caused by the approximately 0.29 miles (1.05 acres) of temporary new, unpaved access road would also have similar effects as the existing unpaved roads that can be seen on the mountain slope near Forest Service system lands, as show in Figure 1-1. However, the new access roads would be approximately 14 feet wide, with cut and fill areas that would extend approximately 10 to 20 feet beyond the roadway, depending on the slope where it is constructed. This would create areas of exposed soil of up to approximately 50 feet wide. The scenic impact of the temporary access roads would be reduced following construction of the transmission line, when the roads would be removed and the areas disturbed by the roads would be recontoured and revegetated. Vegetation may take more than 5 years to reestablish in the areas disturbed by the temporary roads. Although views from the viewpoints listed above would not change substantially, the landscape on the National Forest system lands would be reduced in intactness because of the introduction of the transmission line structures. Because the transmission line structures would change the integrity of the viewed landscape in the project area by introducing elements that are not valued in a natural appearing landscape and are evident on the Forest Service system lands, it would not be possible to meet a high SIO. The introduction of the transmission line and two structures would change the integrity of the Forest Service system lands currently managed for natural appearing landscape in this area. Forest Service system lands would need to be managed as an SIO of moderate where "[n]oticeable deviations remain visually subordinate to the valued landscape character being viewed" (Forest Service 2003a: 4-96).

3.7.2.1.1 Mitigation Measures

- The spatial limits of construction activities would be predetermined, with activity restricted to and confined within those limits. All vehicle movement would be restricted to pre-designated access routes.
- No paint or permanent discoloring agents would be applied to rocks, vegetation, structures, or fences to indicate survey or drilling activity limits.
- Many of the soils mitigation measures listed in Section 3.5.2.1.5 - Mitigation Measures would also help reduce the scenic impact of construction activities by reducing soil disturbance and requiring vegetation of disturbed soils.

3.7.2.2 NO ACTION

Under the No Action Alternative, the transmission line would not be relocated onto National Forest system lands, and, therefore, there would be no effects on landscape character from this action. However, the existing transmission line, Staker Parson mine, and existing roads would continue to have an effect on the viewed landscape from the community and public travelways looking onto Forest Service system lands.

3.7.3 Cumulative Effects

The past, present, and reasonably foreseeable future surface-disturbing activities in the area include the following:

- On Forest Service system lands: primitive roads and a transmission line
- On non-Forest Service system lands: electric transmission lines and structures; primitive roads; residential developments northwest of the project area; commercial development; a golf course; and open pit mining at Staker Parson mine.

The relocation of two transmission line structures onto Forest Service system lands would not add to the cumulative effect because they replace existing structures that would be removed. However, the Proposed Action as a whole would add cumulatively to surface disturbance–related effects to scenic resources in and surrounding the project area. The transmission line structures on the mountain slope would create a cumulative effect to the natural appearing landscape character of the Forest Service system lands by altering the line, form, and color of the landscape. The transmission line structures and temporary access roads are described in Section 3.7.2.1 - Proposed Action and in more detail in Section 2.1.1.1 - Structures and Section 2.1.1.2 - Access Roads.

3.8 Wildlife

The purpose of this section is to describe existing and potential habitat for and occurrences of game species; neotropical migratory birds; state listed species; federally listed endangered, threatened, proposed, and candidate species; and Forest Service sensitive species within the impacts analysis area (Table 3-8). The impacts analysis area for wildlife is the project area, because the primary potential impact would be avian wildlife collisions with the relocated power line.

3.8.1 Affected Environment

The project area is located at approximately 5,000 feet elevation. At mid-level elevations, sagebrush steppe, pinyon-juniper, and mountain shrub provide valuable habitat, vegetation structure, and cover for many native birds, reptiles, and mammals, including big game species, especially during winter (Bennetts et al. 2012). The big game habitat in the project area includes winter range for mule deer and Rocky Mountain elk, as well as crucial summer range for mule deer and moose. Table 3-8 lists the acres of big game habitat in the project area and Figure 3-10 shows the locations of those habitat types.

Table 3-8. Acres of Big Game Habitat in the Project Area

Big Game Habitat Type	Acres of Habitat Type in Project Area
Mule Deer Crucial Summer	0.61
Mule Deer Crucial Winter	39.93
Rocky Mountain Elk Crucial Winter	17.79
Moose Crucial Summer	40.54

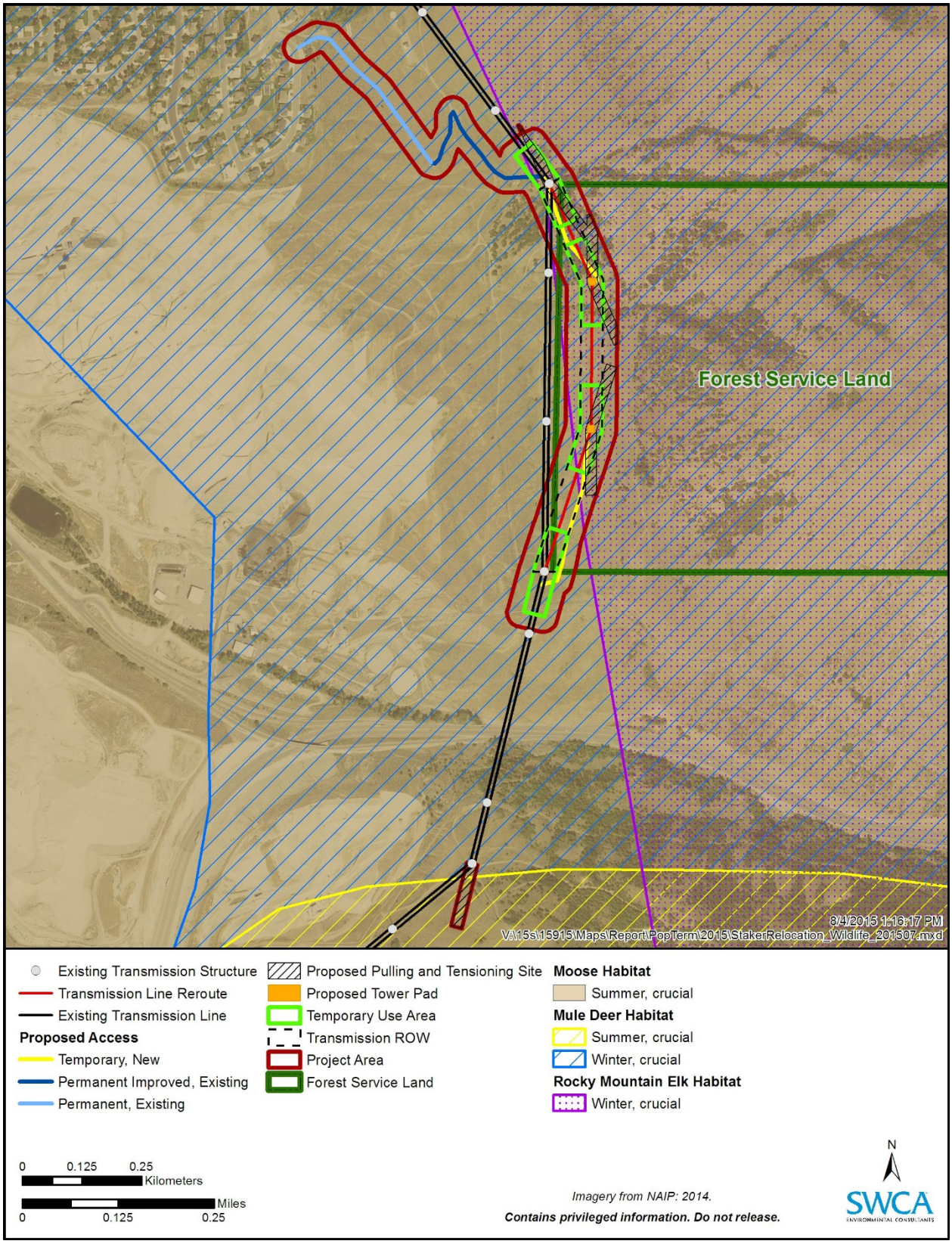

Figure 3-10. Big Game Habitat Types in the project area.

The Migratory Bird Treaty Act (MBTA) prohibits the take of migratory birds and their parts, nests, eggs, and nestlings (16 USC 703–712). Executive Order 13186, issued on January 11, 2001, affirmed the responsibilities of federal agencies to comply with the MBTA. Pursuant to Executive Order 13186, in 2008, the Forest Service and the USFWS entered into a memorandum of understanding (MOU) to promote the conservation of migratory birds by identifying and implementing strategies that avoid and minimize effects to migratory birds through enhanced collaboration. The MOU states that the Forest Service shall address the conservation of migratory bird habitat and populations when developing, amending, or revising management plans for national forests.

Special-status species are species for which state or federal agencies afford an additional level of protection by law, regulation, or policy. Included in this category are federally listed and federally proposed species that are protected under the Endangered Species Act, species considered candidates for such listing by the USFWS, Forest Service Sensitive Species, and species that are state protected. In accordance with the Endangered Species Act, federal agencies are prohibited from authorizing, funding, or carrying out actions that result in the "destruction or adverse modification" of critical habitat for species listed as threatened or endangered (16 USC 1536(a)(2)). If harm to individuals (take) or destruction or adverse modification of critical habitat cannot be avoided, the agency may seek an exemption (in addition to consultation with USFWS).

Table 3-9 provides a list of all wildlife special-status species with the potential to occur in Box Elder County that are identified as federally listed, Forest Service Sensitive Species, or state listed. The species' potential to occur in or near the project area was estimated using the Utah Conservation Data Center's (UCDC) predicted habitat maps and habitat descriptions (UCDC 2014).

Table 3-9. Federally Listed, Forest Service Sensitive, and State Listed Species in Box Elder County

Common Name	Scientific Name	Classification	Occurrence in Project Area
Least chub	*Iotichthys phlegethontis*	Candidate	Based on the UCDC predicted habitat map, this species has no habitat in or near the project area.*
Lahontan cutthroat trout	*Oncorhynchus clarkia henshawii*	Threatened	Based on the UCDC predicted habitat map, this species has no habitat in or near the project area.
June sucker	*Chasmistes liorus*	Endangered	Based on the UCDC predicted habitat map, this species has no habitat in or near the project area.
Greater sage-grouse	*Centrocercus urophasianus*	Regional Forester sensitive species	Based on the UCDC predicted habitat map, this species has no habitat in or near the project area.
Yellow-billed cuckoo	*Coccyzus americanus*	Threatened	Based on the UCDC predicted habitat map, this species has no habitat in or near the project area.
Gray wolf	*Canis lupus*	Endangered, Regional Forester sensitive species	Based on the UCDC predicted habitat map, this species has no habitat in or near the project area.
Wolverine	*Gulo gulo*	Proposed threatened	Based on the UCDC predicted habitat map, this species has no habitat in or near the project area
American white pelican	*Pelecanus erythrorhynchos*	State-listed	Based on the UCDC predicted habitat map, this species has no habitat in or near the project area.
Bald eagle	*Haliaeetus leucocephalus*	State-listed	Based on the UCDC predicted habitat map, this species may have habitat in or near the project area.
Bluehead sucker	*Catostomus discobolus*	State-listed	Based on the UCDC predicted habitat map, this species has no habitat in or near the project area.

Table 3-9. Federally Listed, Forest Service Sensitive, and State Listed Species in Box Elder County

Common Name	Scientific Name	Classification	Occurrence in Project Area
Bobolink	*Dolichonyx oryzivorus*	State-listed	Based on the UCDC predicted habitat map, this species has no habitat in or near the project area.
Bonneville cutthroat trout	*Oncorhynchus clarkii utah*	State-listed	Based on the UCDC predicted habitat map, this species has no habitat in or near the project area.
Boreal owl	*Aegolius funereus*	Regional Forester sensitive species	Based on the UCDC predicted habitat map, this species has no habitat in or near the project area.
Burrowing owl	*Athene cunicularia*	State-listed	Based on the UCDC predicted habitat map, this species may have habitat in or near the project area.
California floater	*Anodonta californiensis*	State-listed	Based on the UCDC predicted habitat map, this species has no habitat in or near the project area.
Deseret mountainsnail	*Oreohelix peripherica*	State-listed	Based on the UCDC predicted habitat map, this species has no habitat in or near the project area.
Ferruginous hawk	*Buteo regalis*	State-listed	Based on the UCDC predicted habitat map, this species may have habitat in or near the project area.
Flammulated owl	*Psiloscops flammeolus*	Regional Forester sensitive species	Based on the UCDC predicted habitat map and habitat description, this species has no habitat in or near the project area.
Grasshopper sparrow	*Ammodramus savannarum*	State-listed	Based on the UCDC predicted habitat map, this species may have habitat in or near the project area.
Great Plains toad	*Bufo cognatus*	State-listed	Based on the UCDC predicted habitat map, this species has no habitat in or near the project area.
Kit fox	*Vulpes macrotis*	State-listed	Based on the UCDC predicted habitat map, this species has no habitat in or near the project area.
Lewis's woodpecker	*Melanerpes lewis*	State-listed	Based on the UCDC predicted habitat map, this species has no habitat in or near the project area.
Long-billed curlew	*Numenius americanus*	State-listed	Based on the UCDC predicted habitat map, this species has no habitat in or near the project area.
Lyrate mountainsnail	*Oreohelix haydeni*	State-listed	Based on the UCDC predicted habitat map, this species has no habitat in or near the project area.
Mountain plover	*Charadrius montanus*	State-Listed	Based on the UCDC predicted habitat map, this species has no habitat in or near the project area.
Northern goshawk	*Accipiter gentilis*	Forest Service sensitive species, state-listed	Based on the UCDC predicted habitat map, this species has no habitat in or near the project area.
Northwest Bonneville pyrg	*Pyrgulopsis variegate*	State-listed	Based on the UCDC predicted habitat map, this species has no habitat in or near the project area.

Table 3-9. Federally Listed, Forest Service Sensitive, and State Listed Species in Box Elder County

Common Name	Scientific Name	Classification	Occurrence in Project Area
Peregrine falcon	*Falco peregrinus*	Regional Forester sensitive species	Based on the UCDC predicted habitat map and habitat description, this species may have habitat in or near the project area.
Preble's shrew	*Sorex preblei*	State-listed	Based on the UCDC predicted habitat map, this species has no habitat in or near the project area.
Pygmy rabbit	*Brachylagus idahoensis*	Forest Service sensitive species, state-listed	Based on the UCDC predicted habitat map, this species has no habitat in or near the project area.
Sharp-tailed grouse	*Tympanuchus phasianellus*	State-listed	Based on the UCDC predicted habitat map, this species may have habitat in or near the project area.
Short-eared owl	*Asio flammeus*	State-listed	Based on the UCDC predicted habitat map, this species may have habitat in or near the project area.
Spotted bat	*Euderma maculatum*	Regional Forester sensitive species, state-listed	Based on the UCDC predicted habitat map and habitat description, this species has no roosting habitat in or near the project area but may have foraging habitat in or near the project area.
Townsend's big-eared bat	*Corynorhinus townsendii*	Forest Service sensitive species, state-listed	Based on the UCDC predicted habitat map, this species has no habitat in or near the project area.
Utah physa	*Physella utahensis*	State-listed	Based on the UCDC predicted habitat map, this species has no habitat in or near the project area.
Western pearlshell	*Margaritifera falcata*	State-listed	Based on the UCDC predicted habitat map, this species has no habitat in or near the project area.
Western toad	*Bufo boreas*	Regional Forester sensitive species, state-listed	Based on the UCDC predicted habitat map, this species has no habitat in or near the project area.
Yellowstone cutthroat trout	*Oncorhynchus clarkia bouvieri*	State-listed	Based on the UCDC predicted habitat map, this species has no habitat in or near the project area.

Source: UCDC 2014

3.8.2 Environmental Consequences

3.8.2.1 PROPOSED ACTION

3.8.2.1.1 Avian Wildlife

Effects on bird habitat include the removal, alteration, and damage of vegetation during construction of access roads and relocation of transmission line towers. Activities related to construction could result in a loss and degradation of foraging and nesting habitat and cover for sagebrush-obligate species, upland game birds, and migratory birds. Displacement of individuals as a result of habitat loss or degradation may occur, particularly in ground-nesting and sagebrush-obligate species. Additionally, disturbance and interruption of breeding, nesting, and brood-rearing may occur as a result of increased noise, human presence, and construction activities.

Mortality of migratory birds through crushing of nests, eggs, or nestlings by equipment could be avoided by conducting migratory bird and nest surveys prior to any vegetation-disturbing activities. The effects would also be reduced by avoiding vegetation clearing and construction and maintenance activities during migratory bird nesting season.

Risk of mortality and injury to birds from in-flight collisions with structures is likely to be species specific (Faanes 1987). Probability of collision with transmission lines has been linked to bird morphology (body size, weight, and wing shape), age, and behavior (flocking, nesting, courtship, foraging, and flight ability and altitude) (APLIC 2006; APLIC 2012; Janss 2000). Risk of collision also increases according to the number of times birds cross transmission lines, in species with low flight maneuverability, and in locations where power lines cross bird landing or take-off paths (Janss 2000). Research shows avian–transmission line collisions can be significantly reduced by applying flight diverters at locations where collision risk is elevated (Savereno et al. 1996).

Bird electrocutions on power lines have been documented, and may be a function of size, habitat, prey, behavior, age, season, and weather (APLIC 2006). Large body size is considered a primary factor in determining species electrocution risk, as is the use of transmission line structures for perching or nesting. Raptors and large waterbirds are therefore at greater potential risk (APLIC 2006). However, mortality by electrocution from the relocated transmission line would not occur, because the separation distance between energized and grounded equipment would be much greater than a wrist-to-wrist or head-to-foot measurement of any bird present in the project area, and larger than the recommended distance of greater than 60 inches to prevent avian electrocutions (APLIC 2006).

Effects on special-status raptors include ground disturbance to raptor habitat and disruption of raptor behavior during the breeding season from project construction and ongoing maintenance activities. Raptor-specific responses to human disturbance vary among species as well as individual mated pairs of birds. Raptor response to noise disturbance may vary from flushing or remaining on the nest to approaching the disturbance (Larkin et al. 1996). Risk for raptor mortality due to collisions or electrocutions would be lower than that for migratory birds because raptors are generally more agile than large-bodied migratory birds that fly in flocks (APLIC 2006, 2012).

Rocky Mountain Power's Avian Protection Plan (APP) includes commitments to retrofit facilities where protected bird mortalities have occurred, retrofit five distribution poles (if not already avian-safe) in each direction of eagle mortality poles, construct all new and rebuilt facilities outside residential/commercial developments to avian-safe standards, construct all new and rebuilt equipment poles (poles with transformers, cutouts, arresters, etc.) in all areas to avian-safe standards, and conduct proactive risk assessment surveys and retrofitting of identified risk poles by circuit, as identified in APP schedules. Rocky Mountain Power's avian protection standards meet or exceed those recommended by the APLIC in the guidance documents *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (APLIC 2006) and *Reducing Avian Collisions with Power Lines: The State of the Art in 2012* (APLIC 2012). Rocky Mountain Power's APPs and retrofitting prioritizations are developed and updated in coordination with the USFWS.

Generally, the post-construction effects that the relocated transmission line would have on avian wildlife, including migratory birds and raptors, would be the same as are currently occurring at the existing transmission line location. This is because the transmission line would be relocated approximately 300 feet to the east of its current location.

3.8.2.1.2 Mammals

Habitat loss, degradation, and fragmentation due to surface disturbance would likely affect mammal species. This would be a continuation of the kind of habitat impact that the existing transmission line is already causing but would be relocated approximately 300 feet to the east. Habitat loss, degradation, and fragmentation increase habitat patch isolation; reduce potential connectivity between patches and sub-populations; and affect dispersal rates, diversity, and abundance in mammal species (Hanser et al. 2011; Noss et al. 2006). Effects on small and medium-sized mammal species, particularly with limited mobility, include loss of cover, foraging, and reproductive habitat, which can adversely influence population size (Andrén 1994).

Table 3-10 lists the acres of surface disturbance in big game habitat under the Proposed Action.

Table 3-10. Potential Impacts to Big Game Habitat

Big Game Habitat Type	Acres of Disturbance in Habitat Type (temporary/permanent)	Percentage of Habitat Type in Project Area (temporary/permanent)
Mule Deer Crucial Summer	0.61/0.00	100.0%/0.0%
Mule Deer Crucial Winter	14.14/0.99	35.4%/2.5%
Rocky Mountain Elk Crucial Winter	11.09/0.17	62.3%/1.0%
Moose Crucial Summer	14.75/0.99	36.4%/2.4%

The Proposed Action would result in both temporary and permanent surface disturbance that would affect big game habitat. In addition to the direct, temporary loss of habitat acres from temporary access roads, roads also produce an "area of effect" within which wildlife densities are diminished (Trombulak and Frissel 2000). Mule deer tend to avoid roads and the area around roads by 100 to 400 meters (Ward 1980). Elk and moose tend to be affected by roads in a similar fashion. In addition to the temporary and permanent loss of habitat acres from the construction of structure pads, temporary work areas, and pulling and tensioning sites, the human activity in these areas during construction, as well as operation and maintenance activities, would produce an "area of effect" within which wildlife densities are diminished (Trombulak and Frissel 2000). Mule deer tend to avoid human activity by 100 to 400 meters (Ward 1980). Elk and moose tend to be affected by human activity in a similar fashion.

Winter habitat is typically the most limited habitat type for big game. Mortality rates tend to be higher in the winter, and a harsh winter without sufficient winter habitat can have detrimental effects on the local mule deer and elk herds' population. Therefore, surface-disturbing activities in crucial winter habitat during the winter months would likely have a greater impact on big game than surface-disturbing activities occurring in crucial summer habitat.

Mortality or injury to mammals could occur during relocation and maintenance of the transmission line. The probability of mortality or injury of wildlife is likely to be a function of species life history and physiological traits. Small species could be crushed by construction equipment through either the crushing of burrows or of vegetation used as cover. Mortality and injury also could occur as a result of collision with moving construction equipment using access roads associated with the project. The speed of vehicles can affect the number of wildlife collisions on roads with lower speeds, effectively reducing the collision rate by increasing the reaction time of both driver and animal (Jaarsma et al. 2006). Reducing vehicle speed on access roads would be implemented to reduce mortality risk from vehicle collisions. Increased human activity and noise during construction activities could also affect wildlife behavior, causing big game and other wildlife to avoid the project area during the construction period.

3.8.2.1.3 Reptiles

Degradation and fragmentation of suitable habitats through removal of native vegetative cover could occur during construction activities. Microclimates in larger habitat types (burrows, vegetative cover, and rock crevices) used by reptile species could be removed or disturbed during construction. Mortality rates are likely to be a function of a species' life history and physiological traits and could increase during project construction and maintenance, either through being crushed directly or through compaction of burrows and vegetative cover.

3.8.2.1.4 Special-Status Species

Special-status species that may have habitat in or near the project area include bald eagle, burrowing owl, ferruginous hawk, grasshopper sparrow, sharp-tailed grouse, and short-eared owl. Potential effects to these species would be the same as those described in Section 3.8.2.1.1 - Avian Wildlife.

3.8.2.1.5 Mitigation Measures

- If construction activities occur within active raptor nest buffer zones, construction activities would be coordinated with the Forest Service to establish appropriate monitoring and mitigation protocols, which may allow for construction to proceed.
- Construction activities would be prohibited between March 1 and August 30 to avoid impacts during the migratory bird nesting season.
- A raptor nest survey would be conducted before any ground-disturbing activities in the project area.
- Towers would be constructed to meet raptor-safe standards.
- Other mitigation measures outlined by the USFWS in the MOU with the Forest Service would be implemented.
- A Reclamation, Revegetation, and Monitoring Plan would be developed as part of the Forest Service–approved project Plan of Development (see Section 2.1.1.7 - Reclamation, Revegetation, and Monitoring and Section 2.1.1.8 - Plan of Development for more detail). The Reclamation, Revegetation, and Monitoring Plan would identify a Forest Service–approved seed mix that would include forage for big game.
- Surface-disturbing activities would be avoided between November 15 and April 30 to avoid impacts to crucial winter habitat for mule deer and Rocky Mountain elk.

3.8.2.2 NO ACTION

Under the No Action Alternative, the transmission line would not be relocated onto National Forest system lands, and, therefore, there would be no surface disturbance from construction activities and no related effects to wildlife or wildlife habitat.

3.8.3 Cumulative Effects

The Proposed Action would add cumulatively to surface disturbance–related effects to wildlife and wildlife habitat in the project area and surrounding lands. However, because the existing transmission line is already creating an impact to wildlife habitat, relocating the line approximately 300 feet to the east would not cause a major additive effect to wildlife habitat. Other past, present, and reasonably foreseeable future surface-disturbing activities in the area include existing transmission lines; existing roads; residential developments to the northwest of the project area; and past, present, and future mining at the nearby Staker Parson mine.

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Appendix A.

Postcard

Staker Relocation Environmental Assessment

Uinta-Wasatch-Cache National Forest is preparing an environmental assessment (EA) to analyze the impacts of a proposal by PacifiCorp to relocate a 0.5-mile segment of the existing Populus to Terminal Transmission Line onto National Forest System lands east of Brigham City, Utah. This notice invites you to review and provide comments on Chapters 1 and 2 of the EA during a 30-day comment period from August 7 to September 5, 2014. Upon completion of the comment period, comments will be reviewed and the remainder of the EA will be prepared.

Chapters 1 and 2 of the EA are available on the project-specific link at
http://www.fs.usda.gov/projects/uwcnf/landmanagement/projects

For more information, contact Environmental Coordinator Pete Gomben at pgomben@fs.fed.us or 801.999.2182.

Uinta-Wasatch-Cache National Forest
857 West South Jordan Parkway
South Jordan, Utah 84095

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Appendix B.

Legal Notice

UTAH LEGAL NOTICES

Request for Scoping Comments Staker Relocation Environmental Assessment Uinta-...

Request for Scoping Comments Staker Relocation Environmental Assessment Uinta-Wasatch-Cache National Forest Box Elder County, Utah The Uinta-Wasatch-Cache NF seeks public comment on a proposal to relocate a 0.5-mile segment of an existing transmission line from private land onto National Forest System lands. The Staker Relocation project would move the existing transmission line away from excavation activities on private land. The project area is east of Brigham City, Utah, in Section 20 of Township 9 North, Range 1 West. Because the proposed action would involve locating a transmission line outside of an existing utility corridor, it is not consistent with the Revised Forest Plan for the Wasatch-Cache National Forest. Therefore, a non-significant, site-specific amendment to the Forest Plan would be required. This proposal, which implements the forest plan and is not undertaken under the authority of the Healthy Forests Restoration Act, is subject to the pre-decisional review process found at 36 CFR 218. There will be an objection period before a final decision is made on the proposal during which the public can review the final environmental analysis document and a draft decision document. Information on the Staker Relocation project can be found on the project-specific link at: http://www.fs.usda.gov/projects/uwcnf /landmanagement/projects Only persons who submit specific written comments on the proposed action during this 30-day scoping period will be eligible to file an objection. This scoping period represents the only opportunity for the public to comment on the proposal prior to the release of the final environmental analysis and draft decision document. The 30-day scoping period begins with the publication of this legal notice in The Salt Lake Tribune, which is the newspaper of record. Comments must be received or postmarked by the end of the 30-day scoping period. Names and addresses of people who comment on the proposal will become part of the public record. Please mail written comments to Pete Gomben, Environmental Coordinator, 857 West South Jordan Parkway, South Jordan, UT 84095. Comments may be hand delivered at the same address between 8 a.m. and 4:30 p.m., Monday through Friday, excluding federal holidays. In addition, comments can be submitted electronically to: pgomben@fs.fed.us, or submitted via FAX at (801) 253-8118. Acceptable formats for electronic comments are .rtf, .pdf, .doc, or .docx. Please include the following information with your comments: (1) your name, mailing address, and contact telephone number or email address; (2) the name of the project on which you are commenting; and (3) specific written comments related to the proposed action, along with supporting reasons that the responsible official should consider when reaching a decision. For further information about the proposal or the pre-decisional review process, contact Pete Gomben at (801) 999-2182 or pgomben@fs.fed.us. 975030 UPAXLP

Newspaper Administration

Appendix C.

PacifiCorp Best Management Practices

Table C1. PacifiCorp Best Management Practices

Resource	Best Management Practices
Air quality	• All requirements of those entities having jurisdiction over air quality matters would be adhered to. • Any necessary dust-control plans would be developed by the Proponent, and permits for construction testing activities would be obtained. • Open burning of trash would not be allowed unless permitted by appropriate authorities.
Cultural resources	• In consultation with the state historic preservation officer, specific mitigation measures for cultural resources would be developed and implemented to avoid effects, monitor construction activities, and conduct data recovery studies where historic properties are affected.
Soils and hydrology	• All vehicle movement would be restricted to pre-designated access. • Construction access routes and locations would be selected to minimize travel over open range. • In areas where ground disturbance would occur or where re-contouring would be required, surface restoration would normally consist of but not be limited to returning disturbed areas back to rounded contours, with the exception of an approximately 50 × 50–foot area at each structure site, which would be used for long-term maintenance and operations. These sites would be graded for drainage and rake seeded. All other National Forest system lands that would be disturbed would also be rake seeded with a seed mixture appropriate for those areas.
Vegetation	• In work areas where re-contouring is not required, vegetation would be left in place wherever possible and the original contour would be maintained to avoid excessive root damage and allow for re-sprouting. • In areas where ground disturbance occurs or where re-contouring is required, surface restoration would normally consist of but not be limited to returning disturbed areas back to rounded contours, with the exception of an approximately 50 × 50–foot area at each structure site, which would be used for long-term maintenance and operations. These sites would be graded for drainage and rake seeded. All other National Forest system lands that are disturbed would also be rake seeded with a seed mixture appropriate for those areas. • To eliminate the spread of noxious/invasive weeds, equipment and vehicles, including the undercarriage, would be cleaned at a local carwash or with a portable pressure washer (compressed air or water) prior to entering the area. • All vehicle movement would be restricted to pre-designated access.
Visual resources	• The spatial limits of construction activities would be predetermined, with activity restricted to and confined within those limits. All vehicle movement would be restricted to pre-designated access. • No paint or permanent discoloring agents would be applied to rocks, vegetation, structures, fences, etc. to indicate survey or drilling activity limits.
Wildlife	• If construction activities occur within active raptor nest buffer zones, construction activities would be coordinated with the Forest Service to establish appropriate monitoring and mitigation protocol, which may allow for construction to proceed. • If construction activities occur between March 1 and July 31, pre-construction clearance surveys would be conducted for ground-nesting birds no more than seven days prior to mechanical access.

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Appendix D.

Populus to Terminal 345-kV Staker Relocation Vegetation, Special-Status Plant Species, and Noxious Weed Survey Report

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Populus to Terminal 345-kV Staker Relocation Vegetation, Special-Status Plant Species, and Noxious Weed Survey Report

Prepared for

PacifiCorp

Prepared by

SWCA Environmental Consultants

August 2013

POPULUS TO TERMINAL 345-KV STAKER RELOCATION VEGETATION, SPECIAL-STATUS PLANT SPECIES, AND NOXIOUS WEED SURVEY REPORT

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August 5, 2013

CONTENTS

APPENDICES

TABLES

1. INTRODUCTION

PacifiCorp plans to relocate a 0.5-mile segment of the existing Populus to Terminal transmission line in Brigham City, Box Elder County, Utah. The 0.5-mile segment would be relocated onto land managed by the Uinta-Wasatch-Cache National Forest. This report presents the results of surveys to assess vegetation communities and noxious weed distributions in a 36-acre vegetation survey area. The survey area comprises the centerline of the proposed transmission line relocation buffered by 100–200 feet. This area was chosen because it encompasses the full extent of surface-disturbing activities that have the potential to affect vegetation resources.

This report provides a general description of the survey area, the specific methods used to evaluate vegetation communities and to map noxious weeds, and the results of field surveys.

1.1. Survey Area Description

As previously mentioned, the survey area consists of a 100- to 200-foot buffer surrounding the project centerline. This 36-acre survey area was used for vegetation characterization and weed mapping.

The vegetation in the survey area is primarily Inter-Mountain Basins Montane Sagebrush Steppe, Inter-Mountain Basins Big Sagebrush Shrubland, Invasive Perennial Grassland, and Rocky Mountain Bigtooth Maple Ravine Woodland. There are areas of disturbance throughout the survey area and in all vegetation communities, with the highest levels of disturbance being concentrated near the existing right-of-way.

2. METHODS

Assessment of existing vegetation and weed distributions consisted of 1) pre-field geographic information systems (GIS)–based analyses of the distribution of vegetation community types in the 36-acre survey area, 2) field validation of the distribution of vegetation community types, and 3) field mapping of the distribution of Utah and county noxious weed species.

2.1. Pre-Field Analysis

SWCA compiled vegetation community types based on Southwest Regional Land Cover (SWReGAP) data (Lowry et al. 2007). The predicted distributions vegetation community types were validated during field surveys. The potential distributions of Utah- and county-listed noxious weed species were compiled.

The distributions of special-status plant species in Box Elder County, Utah, and in the Uinta-Wasatch-Cache National Forest were assessed using the Utah Native Plant Society (UNPS) database (UNPS 2003-2013) and in coordination with U.S. Forest Service (USFS) resource specialists. Characterization of potential habitat distributions was based on UNPS habitat associations (UNPS 2003-2013) and on an analysis of SWReGAP vegetation community types in and near the survey area.

2.2. Field Surveys

SWCA botanical specialists confirmed the distribution of vegetation communities and noxious weeds by conducting on-site visual assessments and pedestrian surveys of the survey area. Field validation consisted of data collection at representative locations of each vegetation community type, and confirmation of the approximate boundaries between vegetation community types. At representative

locations in each vegetation community type, botanists characterized vegetation composition and conditions by recording the presence and approximate densities of plant species present.

Noxious weed mapping consisted of field surveys to delineate the distribution and density of any infestations of Utah Class A, B, or C noxious weeds in the survey area. Weed surveys were conducted in conjunction with general vegetation characterization and special-status plant species surveys. Noxious weed species were assumed to most likely occur in disturbed soils at and near areas of surface disturbance, such as roads, rights-of way, and other developments, with some potential for transport of propagules by animals or along washes. Where noxious weed species were present, botanists collected the following data using a Trimble XT handheld global positioning system (GPS) with a weed mapping data dictionary:

- The noxious weed species present
- The estimated size of the infestation
- The estimated density of the infestation
- The geographic location of the infestation

Georeferenced photographs were also taken of the weed species and infestations encountered in the vegetation analysis area.

The distribution of noxious weed species occurrences in the survey area is presented in a GIS-based map of weed locations and a summary table of infestation areas and densities. The maps show GPS-delineated noxious weed infestations by species. Summary tables list the noxious weed species identified in the survey area, the total infested area for each species, and the approximate density of infestations. Observations of conditions favorable to the introduction of noxious or invasive weed species were also noted.

3. RESULTS

3.1. Pre-Field Analysis

3.1.1. Vegetation Communities

Table 1 summarizes the seven SWReGAP mapped vegetation communities and the acres of each cover type in the 36.0-acre survey area. These community types are shown on Figure A1 in Appendix A. The dominant vegetation and other features of each vegetation community type are described in Appendix B.

Table 1. SWReGAP Vegetation Community Distributions in the Vegetation Survey Area

Vegetation Community Type	Acres (%)
Inter-Mountain Basins Montane Sagebrush Steppe	18.6 (51.7%)
Inter-Mountain Basins Big Sagebrush Shrubland	5.7 (15.8%)
Invasive Perennial Grassland	5.5 (15.5 %)
Rocky Mountain Bigtooth Maple Ravine Woodland	3.2 (8.9%)
Rocky Mountain Lower Montane Riparian Woodland and Shrubland	1.4 (3.9%)
Colorado Plateau Pinyon-Juniper Woodland	1.2 (3.4%)
Developed, Open Space – Low Intensity	0.3 (0.8%)
Total Acres in the Survey Area	**36.0 (100%)**

The SWReGAP data indicate that the survey area would be dominated by Inter-Mountain Basins Montane Sagebrush Steppe, with relatively large areas of Inter-Mountain Basins Big Sagebrush Shrubland, Invasive Perennial Grassland, and Rocky Mountain Bigtooth Maple Ravine Woodland.

3.1.2. Special-Status Plant Species

No federally listed or USFS sensitive plant species are known to occur in the vegetation survey area. One federally listed plant species, three USFS (Region 4) sensitive plant species, and one USFS watch list species are known to occur in Box Elder County in the Wasatch Range (Table 2).

The one federally listed plant species—Goose Creek milkvetch (*Astragalus anserinus;* Fed-Candidate)—is restricted to an 80-square-mile area where the Idaho, Nevada, and Utah borders meet (Tilley et al 2011), and it is not known to occur near the survey area. None of the three USFS sensitive plant species have potential habitats in the survey area due their associations with geologic formations or elevational ranges. The one USFS watch list species has low potential to occur in the survey area, but does not have any formal protections. This species was not encountered during surveys.

Table 2. Special-Status Plant Species Potential to occur in the Survey Area

Species Name/ Common Name	Status*	Habitat Association	Potential for Occurrence in the Analysis Area†
Astragalus anserinus Goose Creek milkvetch	Fed-C	Sagebrush steppe with Utah juniper (*Juniperus osteosperma*) and yellow rabbitbrush (Chrysothamnus *viscidiflorus*).	None. Although potential habitats exist in the survey area, the species range is limited to 80 square miles at the Utah/Idaho/Nevada borders.
Draba burkei Burke's draba	S	Talus slopes and rocky outcrops of quartzite, limestone, or calcareous shale, in conifer and maple/oak communities; 5,500–9,200 feet elevation. May to July.	None. Potential habitats do not occur in the survey area.
Eriogonum brevicaule var. *loganum* Logan buckwheat	S	Sagebrush-bunchgrass communities to supalpine conifer woodlands on rocky outcrops from (4,400) 4,700 to 8,600 (10,175) feet elevation. May to June (August)	None. Potential rocky outcrop habitats do not occur in the survey area.
Potentilla cottamii Cottam cinquefoil	S	Cracks and crevices in quartzite outcrops, often shaded conditions; 7,500–10,400 feet elevation. Late June to early August.	None. Potential habitats do not occur in the survey area.
Viola beckwithii Great Basin violet	Watch	Sagebrush (*Artemisia* spp.), mountain brush, and bluebunch wheatgrass (*Pseudoroegneria spicata*) communities; 4,494 to 5,511 feet elevation. April to May.	Low–Moderate. Potential habitats occur in the survey area, but were historically disturbed and are of low quality.

* Status: C = federal candidate; S = USFS Wasatch-Cache National Forest sensitive species list; Watch = USFS Watch list.

† Occurrence: None = suitable and/or potential habitat for this species are unknown in survey area; Low = some suitable and/or potential habitat for this species, but populations unknown near survey area; Moderate = substantial suitable and/or potential habitat for this species, or know populations near, but unknown in survey area; High = populations known in survey area or immediate proximity.

Sources: USFS. 2013. USFS Region 4 Sensitive Species List. U.S. Department of Agriculture, Forest Service, Intermountain Region (R4) threatened, endangered, proposed, and sensitive species. February 2013 update to known/suspected distribution by forest; Utah Native Plant Society. 2003–2013. Utah rare plant guide. [Internet]. A.J. Frates editor/coordinator. Salt Lake City, Utah: Utah Native Plant Society. Available at: http://www.utahrareplants.org. Accessed on July 1, 2013; Tilley et al. 2013.

3.1.3. Noxious Weeds

The State of Utah There lists 28 noxious weed species with potential to occur in the survey area (Utah Administrative Code R68-9 Section 4-17-3; Table 3).

Table 3. Noxious Weed Species Listed by the State of Utah

Common Name	Scientific Name
Utah Class A Noxious Weeds (EDRR)*	
Diffuse knapweed	*Centaurea diffusa*
Spotted knapweed	*Centaurea maculosa*
Yellow starthistle	*Centaurea solstitialis*
Squarrose knapweed	*Centaurea squarrosa*
Oxeye daisy	*Chrysanthemum leucanthemum*
Leafy spurge	*Euphorbia esula*
Blackhenbane	*Hyoscyamus niger*
St. Johnswort	*Hypericum perforatum*
Yellow toadflax	*Linaria vulgaris*
Purple loosestrife	*Lythrum salicaria*
Sulfur cinquefoil	*Potentilla recta*
Perennial sorghum	*Sorghum halepense*; *Sorghum* spp.
Medusahead	*Taeniatherum caput-medusae*
Utah Class B Noxious Weeds (Control)†	
Hoary cress	*Cardaria* spp.
Musk thistle	*Carduus nutans*
Russian knapweed	*Centaurea repens*
Squarrose knapweed	*Centaurea virgata* spp.
Poison hemlock	*Conium maculatum*
Bermudagrass	*Cynodon dactylon*
Dyer's woad	*Isatis tinctoria*
Broad-leaved peppergrass	*Lepidium latifolium*
Dalmatian toadflax	*Linaria dalmatica*
Scotch thistle	*Onopordium acanthium*

Table 3. Noxious Weed Species Listed by the State of Utah

Utah Class C Noxious Weeds (Containment)[‡]	
Quackgrass	*Agropyron repens*
Canada thistle	*Cirsium arvense*
Field bindweed	*Convolvulus* spp.
Houndstongue	*Cynoglossum officianale*
Saltcedar	*Tamarix ramosissima*

[*] Class A: Early Detection Rapid Response (EDRR) Declared noxious weeds not native to the state of Utah that pose a serious threat to the state and should be considered as a very high priority.

[†] Class B: (Control) Declared noxious weeds not native to the state of Utah that pose a threat to the state and should be considered a high priority for control.

[‡] Class C: (Containment) Declared noxious weeds not native to the state of Utah that are widely spread but pose a threat to the agricultural industry and agricultural products with a focus on stopping expansion.

In addition to the 28 species listed by the State of Utah, two additional species are listed by Box Elder County: rush skeletonweed (*Chondrilla juncea*) and catchweed (*Asperugo procumbens*).

3.2. Field Surveys

Pedestrian surveys to validate the distribution of vegetation communities and noxious weeds in the survey area were conducted on July 2 and 8, 2013. The survey area was assessed by pedestrian survey, with the exception of areas of inaccessible slopes along the east-central portion of the buffered right-of-way.

3.2.1. Vegetation Communities

SWReGAP (Lowry et al. 2007) vegetation community distributions were found to be accurately predicted in the survey area. The vegetation community types that occur in the survey area and the approximate acreages of each are given in Table 1 (section 3.1.1). The dominant species associated with each vegetation community are given in the sections below.

3.2.1.1. COLORADO PLATEAU PINYON-JUNIPER WOODLAND

This vegetation community type comprises 1.2 acres (3.4%) of the survey area. It comprises sparsely distributed pinyon pine (*Pinus edulis*) and Utah juniper (*Juniperus osteosperma*), with a sparse to dense shrub component dominated by big sagebrush (*Artemisia tridentata* ssp.).

3.2.1.2. DEVELOPED, OPEN SPACE – LOW INTENSITY

This vegetation community type comprises 0.3 acre (0.8%) of the survey area. It comprises unpaved roads and other clearings, with a small area of residential development at the extreme western edge of the survey area.

3.2.1.3. INTER-MOUNTAIN BASINS BIG SAGEBRUSH SHRUBLAND

This vegetation community type comprises 5.7 acres (15.8%) of the survey area. It is dominated by big sagebrush with white sagebrush (*Artemisia ludoviciana*) and rubber rabbitbrush (*Ericameria nauseosa*) as

codominants. Bluebunch wheatgrass (*Pseudoroegneria spicata*) is the dominant grass species. The noxious weeds dyer's woad and medusahead occur in dense concentrations in some areas.

3.2.1.4. INTER-MOUNTAIN BASINS MONTANE SAGEBRUSH STEPPE

This vegetation community type comprises 18.6 acres (51.7%) of the survey area. It is dominated by basin big sagebrush (*Artemisia tridentata* ssp. *tridentata*), with white sagebrush, rubber rabbitbrush, broom snakeweed (*Gutierrezia sarothrae*), antelope bitterbrush (*Purshia tridentata*), chokecherry (*Prunus virginiana*), and bigtooth maple (*Acer grandidentatum*) as codominants. The herbaceous layer is sparse except for dense concentrations of forage kochia (*Bassia prostrata*) and dyer's woad. Dominant grasses are bluebunch wheatgrass and cheatgrass (*Bromus tectorum*).

3.2.1.5. INVASIVE PERENNIAL GRASSLAND

This vegetation community type comprises 5.5 acres (15.5 %) of the survey area. It is dominated by introduced perennial grass species including crested wheatgrass (*Agropyron cristatum*), field brome (*Bromus arvensis*), and intermediate wheatgrass (*Thinopyrum intermedium*). Cheatgrass may codominate.

3.2.1.6. ROCKY MOUNTAIN BIGTOOTH MAPLE RAVINE WOODLAND

This vegetation community type comprises 3.2 acres (8.9%) of the survey area. It is dominated by bigtooth maple, codominated by chokecherry, with scattered escaped cultivars such as apple (*Malus* sp.) and cherry (*Prunus avium*, *Prunus* spp.). This community dominates the central portions of the survey area.

3.2.1.7. ROCKY MOUNTAIN LOWER MONTANE RIPARIAN WOODLAND AND SHRUBLAND

This vegetation community type comprises 1.4 acres (3.9%) of the survey area. It is dominated by the invasive tree Russian olive (*Elaeagnus angustifolia*). Other tree and shrub species include bigtooth maple, chokecherry, willow (*Salix* spp.), and Siberian elm (*Ulmus pumila*).

3.2.2. Special-Status Plant Species

No potential habitats of special-status species were identified during field surveys.

3.2.3. Noxious Weeds

SWCA encountered five Utah noxious weed species and an invasive plant species that is listed as noxious in Salt Lake County (Table 4). In general, noxious weeds and other vegetation were emerged and identifiable during surveys. Noxious weed infestations cover 29.6 acres (82.2%) of the 36.0-acre survey area. Noxious weeds occur throughout the survey area but were concentrated in areas of soil disturbance. The distributions of each of noxious weed species encountered are detailed below and in Figure A2 in Appendix A.

Table 4. Noxious Weed Survey Results

Utah Noxious Weed Species	Approximate Infestation Size (acres)	Approximate Infestation Density
Medusahead (*Taeniatherum caput-medusae*; Utah Class A)	25.1	5%–75% cover
Dyer's Woad (*Isatis tinctoria;* Utah Class B)	3.7	1%–30% cover
Musk Thistle (*Carduus nutans;* Utah Class B)	< 0.01	1% cover
Field Bindweed (*Convolvulus arvensis;* Utah Class C)	< 0.01	5%–15% cover
Houndstongue (*Cynoglossum officinale,* Utah Class C)	< 0.01	1% cover
Salt Lake County Noxious Weed Species	**Approximate Infestation Size (acres)**	**Approximate Infestation Density**
Myrtle Spurge (*Euphorbia myrsinites*)	0.7	5%–25% cover

3.2.3.1. MEDUSAHEAD (*TAENIATHERUM CAPUT-MEDUSAE*)

Medusahead occurs on approximately 25.1 acres (69.7%) of the 36.0-acre survey area. This Class A noxious weed is distributed at densities from 5% to 75% cover in Inter-Mountain Basins Montane Sagebrush Steppe, Inter-Mountain Basins Big Sagebrush Shrubland, Invasive Perennial Grassland, and Developed Open Space-Low Intensity (see Appendix A, Figure A2).

3.2.3.2. DYER'S WOAD (*ISATIS TINCTORIA*)

Dyer's woad is distributed on approximately 3.7 acres (10.3%) of the 36.0-acre survey area and occurs in all vegetation community types. This Class B noxious weed is distributed at densities from 1% to 30%, with the highest density infestations in disturbed areas (see Appendix A, Figure A2).

3.2.3.3. MUSK THISTLE (*CARDUUS NUTANS*)

There was one occurrence of musk thistle along a road side (see Appendix A, Figure A2).

3.2.3.4. FIELD BINDWEED (*CONVOLVULUS ARVENSIS*)

There were two occurrences of field bindweed from 5% to 15% cover. Both occurrences were in sagebrush communities in areas of high disturbance (see Appendix A, Figure A2).

3.2.3.5. HOUNDSTONGUE (*CYNOGLOSSUM OFFICINALE*)

There was one occurrence of hound's tongue in the Rocky Mountain Bigtooth Maple Ravine Woodland in an area of relatively low disturbance (see Appendix A, Figure A2).

3.2.3.6. MYRTLE SPURGE (*EUPHORBIA MYRSINITES*)

Myrtle Spurge is a Salt Lake County noxious weed that occupies 0.7 acres (0.02%) of the 36.0-acre survey area. This noxious weed occurs as two high density infestations in sagebrush communities in the survey area. Myrtle spurge is not listed as noxious in Utah or Box Elder county, but has been included here because of its noxious status in nearby Salt Lake County (see Appendix A, Figure A2).

No occurrences of the Box Elder County noxious weed species skeletonweed or catchweed were recorded in the survey area.

4. DISCUSSION

4.1. Vegetation Communities

Seven vegetation community types were identified during pre-field analysis of SWReGAP data. Pedestrian surveys were conducted throughout the ROW and were focused on disturbed areas with potential to host noxious weeds, but all vegetation and cover types were mapped in the field and had a strong correlation to the predictions of the SWReGAP data.

4.2. Special-Status Plant Species

No federally listed or USFS sensitive plant species are known to occur in the project area.

4.3. Noxious Weeds

Five of the 30 noxious weed species listed by the State of Utah and Box Elder County (see Tables 2 and 3) were found in the survey area. An additional non-native species, myrtle spurge (*Euphorbia myrsinites*), was included because of its noxious status in Salt Lake County. These species occur throughout the survey area in all vegetation communities and have the highest densities in disturbed areas. Noxious weed infestations totaled 29.6 acres (82.2%) of the survey area.

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Appendix A

Maps

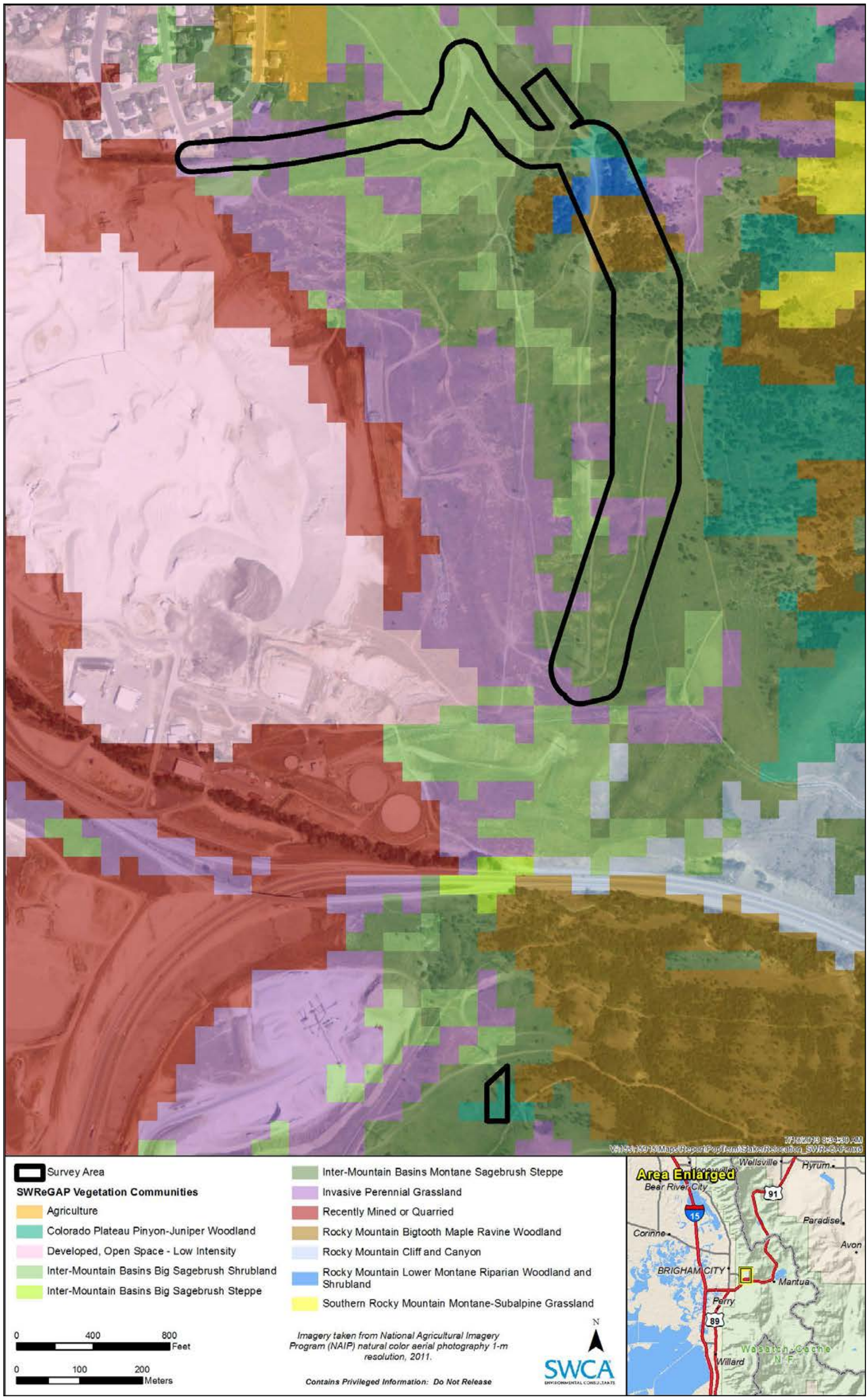

Figure A1. SWReGAP map.

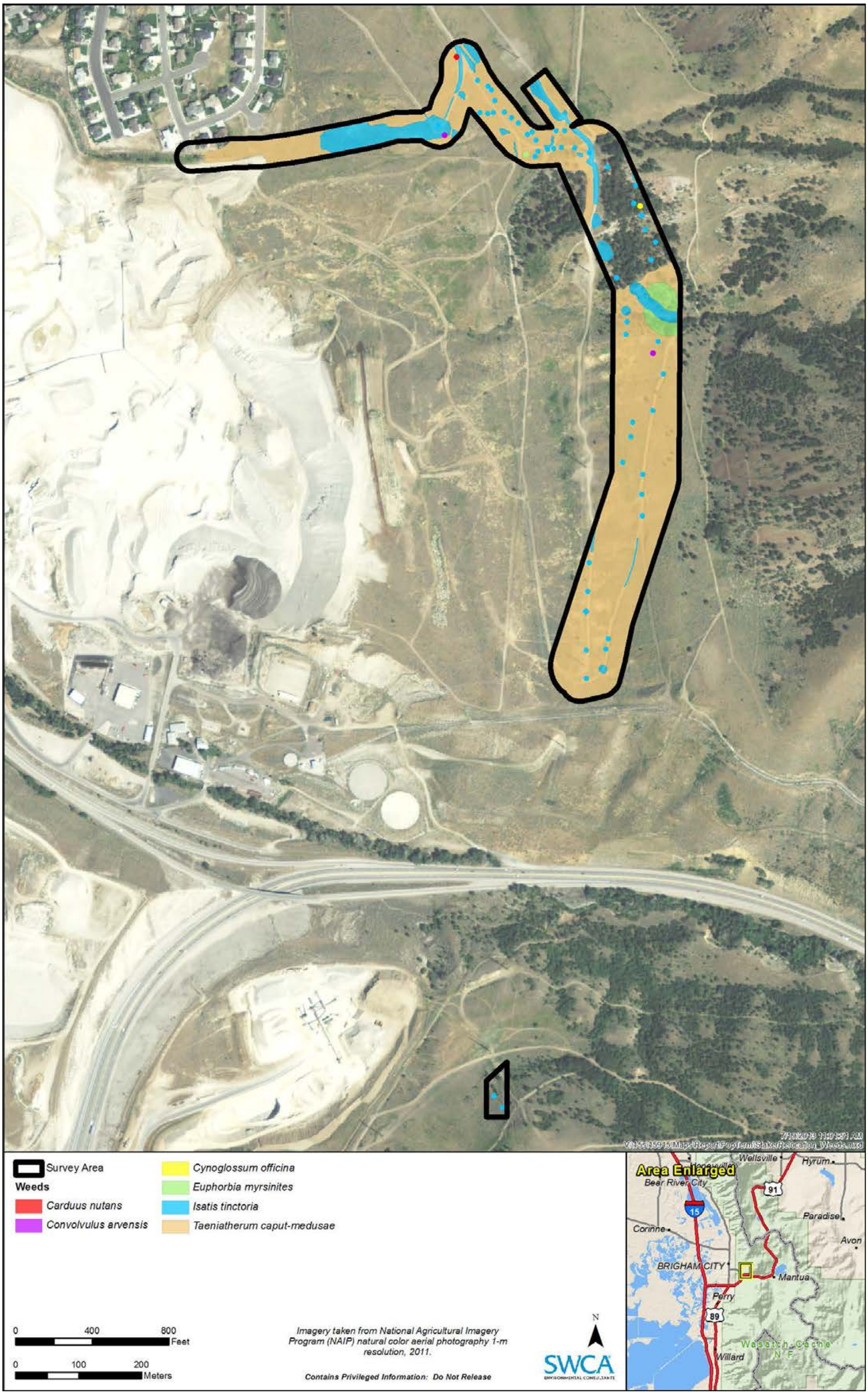

Figure A2. Weed map.

Appendix B

SWReGAP Vegetation Community Type Definitions

Colorado Plateau Pinyon-Juniper Woodland

Dominated or co-dominated by pinyon pine (*Pinus edulis*) and Utah juniper (*Juniperus osteosperma*). Rocky Mountain juniper (*Juniperus scopulorum*) may co-dominate or replace Utah juniper at higher elevations. Occurs on warm, dry sites in the mountains and foothills of the Wasatch Range south to the Mogollon Rim. The understory community is variable, and may consist of shrubs or grasses or bare ground. Understory species include greenleaf manzanita (*Arctostaphylos patula*), big sagebrush (*Artemisia tridentata* ssp.), little-leaf mountain mahogany (*Cercocarpus intricatus*), alderleaf mountain mahogany (*Cercocarpus montanus*), blackbrush (*Coleogyne ramosissima*), Stansbury cliffrose (*Purshia stansburiana*), antelope bitterbrush, Gambel oak (*Quercus gambelii*), blue grama (*Bouteloua gracilis*), galleta (*Pleuraphis jamesii*), and muttongrass (*Poa fendleriana*).

Developed, Open Space – Low Intensity

Developed-Low Intensity land cover is defined as constructed surfaces and vegetation with 20%–49% impervious surfaces (e.g., pavement), commonly comprising single-family housing units. Open space land cover generally consists of bare ground, lawn grasses, or other landscape vegetation with low cover (<20%) of impervious surfaces. Open space may consist of large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetics.

Inter-Mountain Basins Big Sagebrush Shrubland

Dominated by big sagebrush and generally occurs in basins between mountain ranges, plains, and foothills at middle elevations. Codominant species include Utah juniper, greasewood (*Sarcobatus vermiculatus*), saltbush (*Atriplex* spp.), rubber rabbitbrush, yellow rabbitbrush (*Chrysothamnus viscidiflorus*), antelope bitterbrush, and mountain snowberry (*Symphoricarpos oreophilus*). Common grasses include Indian rice grass (*Achnatherum hymenoides*), blue grama, Idaho fescue (*Festuca idahoensis*), needle-and-thread (*Hesperostipa comata*), basin wildrye (*Leymus cinereus*), galleta, western wheatgrass (*Pascopyrum smithii*), Sandberg bluegrass (*Poa secunda*), and bluebunch wheatgrass.

Inter-Mountain Basins Montane Sagebrush Steppe

Dominated by mountain sagebrush (*Artemisia tridentata* ssp. *vaseyana*) and big sagebrush subspecies, with antelope bitterbrush as a dominant or codominant, and mountain snowberry, serviceberry (*Amelanchier* spp.), rubber rabbitbrush, wild crab apple (*Peraphyllum ramosissimum*), wax currant (*Ribes cereum*), and yellow rabbitbrush. The perennial herbaceous layer is often over 25% cover. Common graminoids include Arizona fescue (*Festuca arizonica*), Idaho fescue (*Festuca idahoensis*), needle-and-thread, muttongrass, slender wheatgrass (*Elymus trachycaulus*), California brome (*Bromus carinatus*), Sandberg bluegrass, spike fescue (*Leucopoa kingii*), tufted hairgrass (*Deschampsia caespitosa*), pinegrass (*Calamagrostis rubescens*), and bluebunch wheatgrass.

Invasive Perennial Grassland

Dominated by introduced perennial grass species such as crested wheatgrass, smooth brome (*Bromus inermis*), Lehman lovegrass (*Eragrostis lehmanniana*), fountain grass (*Pennisetum* spp.), bulbous bluegrass (*Poa bulbosa*), Kentucky bluegrass (*Poa pratensis*), or intermediate wheatgrass.

Rocky Mountain Bigtooth Maple Ravine Woodland

Woodlands dominated by bigtooth maple with some stands codominated by Gambel oak (*Quercus gambelii*) with coniferous trees, boxelder (*Acer negundo*), and/or quaking aspen (*Populus tremuloides*). This community occurs in cool ravines and on toeslopes and benches associated with riparian areas in the northern and central Wasatch Range and Tavaputs Plateau extending into southern Idaho and southwestern Utah, central Arizona and New Mexico, and the Trans-Pecos of Texas.

Rocky Mountain Lower Montane Riparian Woodland and Shrubland

This woodland is dominated by box elder (*Acer negundo*), cottonwood (*Populus* spp.), Douglas-fir, (*Picea pungens*), peachleaf willow (*Salix amygdaloides*), and Rocky Mountain juniper. Dominant shrub species include Rocky Mountain maple (*Acer glabrum*), alder (*Alnus incana*), birch (*Betula occidentalis*), red osier dogwood (*Cornus sericea*), hawthorn (*Crataegus rivularis*), chokecherry, skunkbush (*Rhus trilobata*), willow (*Salix* spp.), silver buffaloberry (*Shepherdia argentea*), or snowberry (*Symphoricarpos* spp.). The invasive trees Russian olive and tamarisk (*Tamarix* spp.) can also be dominant or co-dominant.

Appendix C

Photographs of the Staker Survey Area

Photo 1. View from the survey area to the southwest.

Photo 2. Inter-Mountain Basins Sagebrush Steppe vegetation community.

Photo 3. View of the survey area to the north.

Photo 4. Inter-Mountain Basins Big Sagebrush vegetation community in the survey area.

Photo 5. Inter-Mountain Basins Sagebrush Steppe vegetation community in the survey area.

Photo 6. Disturbed land cover and vegetation community in the survey area.

Photo 7. Sagebrush Steppe transition to Rocky Mountain Bigtooth Maple Ravine Woodland.

Photo 8. Myrtle spurge (*Euphorbia myrsinites*; SL County Noxious Weed) infestation.

Photo 9. Mix of invasive and native plant species with dyer's woad (*Isatis tinctoria*) center right.

Photo 10. Dyer's woad infestation.