BLM

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Final Environmental Assessment
DOI-BLM-UT-0300-2015-0039-EA

November 2016

Buckskin to Kanab and Fredonia Power Transmission Line

Location:
Kane County, Utah
Coconino County, Arizona

U.S. Department of the Interior
Bureau of Land Management
Arizona Strip Field Office
Kanab Field Office
Grand Staircase-Escalante National Monument

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Disclaimer: Some portions of this environmental assessment could not be made fully Section 508 compliant. For help with any of its content, please contact the Bureau of Land Management Grand Staircase-Escalante National Monument at 435-644-1200. Please reference the November 2016 Final Environmental Assessment.

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LIST OF ACRONYMS USED IN THIS EA

ACEC	area of critical environmental concern
APE	area of potential effect
ASLD	Arizona State Land Department
ASM	Arizona State Museum
BLM	Bureau of Land Management
CFR	Code of Federal Regulations
EA	environmental assessment
ERMA	extensive recreation management area
FEMA	Federal Emergency Management Agency
FONSI	finding of no significant impact
GSENM	Grand Staircase-Escalante National Monument
KOP	key observation point
kV	kilovolt
LCA	landscape character area
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHT	National Historic Trail
NRCS	National Resources Conservation Service
NRHP	National Register of Historic Places
RFFA	reasonably foreseeable future action
RMP	resource management plan
RMZ	recreation management zone
ROW	right-of-way
SHPO	State Historic Preservation Office
SRMA	special recreation management area
SQRU	scenic quality rating unit
U.S. 89	U.S. Highway 89
UDOT	Utah Department of Transportation
USC	United States Code
VRI	visual resource inventory
VRM	Visual Resource Management

1.0 PURPOSE AND NEED

1.1 Introduction

This Environmental Assessment (EA) has been prepared to disclose and analyze the environmental consequences of Garkane Energy's proposal to upgrade the existing 69 kilovolt (kV) transmission line between the Buckskin Substation and the Kanab and Fredonia Substations to a 138kV line (Figure 1). Garkane has applied for a 125-foot-wide right-of-way (ROW) grant between the substations. The project area is defined as the proposed ROW, which would be 125 feet wide by approximately 32.9 miles long.

A portion of the existing 69kV transmission line extends across lands administered by the Bureau of Land Management (BLM), for which Garkane has a BLM ROW grant authorization (UTU-36238 and AZA-35283). The existing authorization provides for a 40-foot-wide ROW. Approximately 13.5 miles of the existing 69kV line is within Grand Staircase-Escalante National Monument (GSENM), 1.3 miles is within the Kanab Field Office, 0.6 mile is within the Arizona Strip Field Office, and the remaining approximately 17.5 miles crosses private and state-owned lands. A 125-foot-wide ROW is needed to construct and maintain the proposed 138kV line. To construct and maintain the proposed improvements, Garkane has filed a request with the BLM to authorize a new ROW grant that would increase the existing ROW width from 40 feet to 125 feet. The proposed 138kV transmission line would be constructed approximately 75 feet from the centerline of the existing 69kV line. Any unused portion of the existing ROW grant would be reclaimed and relinquished by Garkane.

Requesting a BLM ROW authorization is a federal action subject to the requirements of the National Environmental Policy Act (NEPA) of 1969. NEPA requires all federal agencies to assess potential impacts on the natural and human environment that may result from any federally funded or permitted project or program. The ROW authorization is not considered a categorically excluded action by the U.S. Department of the Interior (43 Code of Federal Regulations [CFR] 46.210) or by the BLM (516 Department Manual 11); therefore, this federal action requires preparation of an EA.

Pursuant to NEPA (40 CFR 1502.13), an EA will be prepared to provide sufficient evidence and analysis for (1) determining whether to prepare a more detailed environmental impact statement or (2) issuing a finding of no significant impact (FONSI). The BLM will decide whether to issue a FONSI or require additional environmental analysis. The BLM will prepare the EA to meet the disclosure requirements under NEPA and to assist the BLM decision makers in determining whether to issue the new ROW grant and, if issued, in determining the terms and conditions of the new grant. The opportunity to appeal the BLM decisions in the Decision Record would be allowed as provided in 43 CFR 2801.10. This EA was prepared in accordance with NEPA (42 United States Code [USC] 4321 et seq.), the Council on Environmental Quality NEPA implementing regulations (40 CFR 1500–1508), the BLM *NEPA Handbook* (H-1790-1) (2008a), and the BLM *Utah NEPA Guidebook* (2010).

1.2 Background

Garkane delivers electric service to more than 13,000 customers in northern Arizona and southern Utah. Garkane owns, operates, and maintains the existing Buckskin to Kanab and Fredonia transmission line. This line serves communities in Garfield, Kane, Wayne, Mohave, and Coconino Counties and is the sole source of electricity to the region. Electrical Consultants Inc. conducted a transmission system study for Garkane in 2010. The study indicated that loading on the existing Buckskin to Kanab and Fredonia line increased 156 percent from 2002 to 2009, and it projected that loading would increase 121 percent from 2010 to 2014 and an additional 133 percent from 2014 to 2020. Based on these projections, the existing transmission line serving the downstream circuit of Fredonia and Kanab will be at the thermal load limit of the conductor between 2015 and

2017. Current load data indicates that the transmission line is near 90 percent of load capacity. The line needs to be upgraded to a higher capacity to continue to meet federal and state regulatory standards. The existing transmission line structures cannot be modified to carry a larger conductor or higher voltages due to physical limitations of the pole structures (Garkane 2015).

Garkane's objective is to maintain system reliability and reduce the potential for system overload. Garkane proposes to upgrade the existing 69kV transmission line to 138kV from the Buckskin Substation to the Kanab and Fredonia Substations and submitted an Application for Transportation and Utility Systems and Facilities on Federal Lands (SF-299) to the BLM in March 2011. The existing line must remain in service until the proposed line is constructed and operational because it is the sole source of electricity to the surrounding communities. Once the proposed line is operational, the existing 69kV transmission line and infrastructure would be removed.

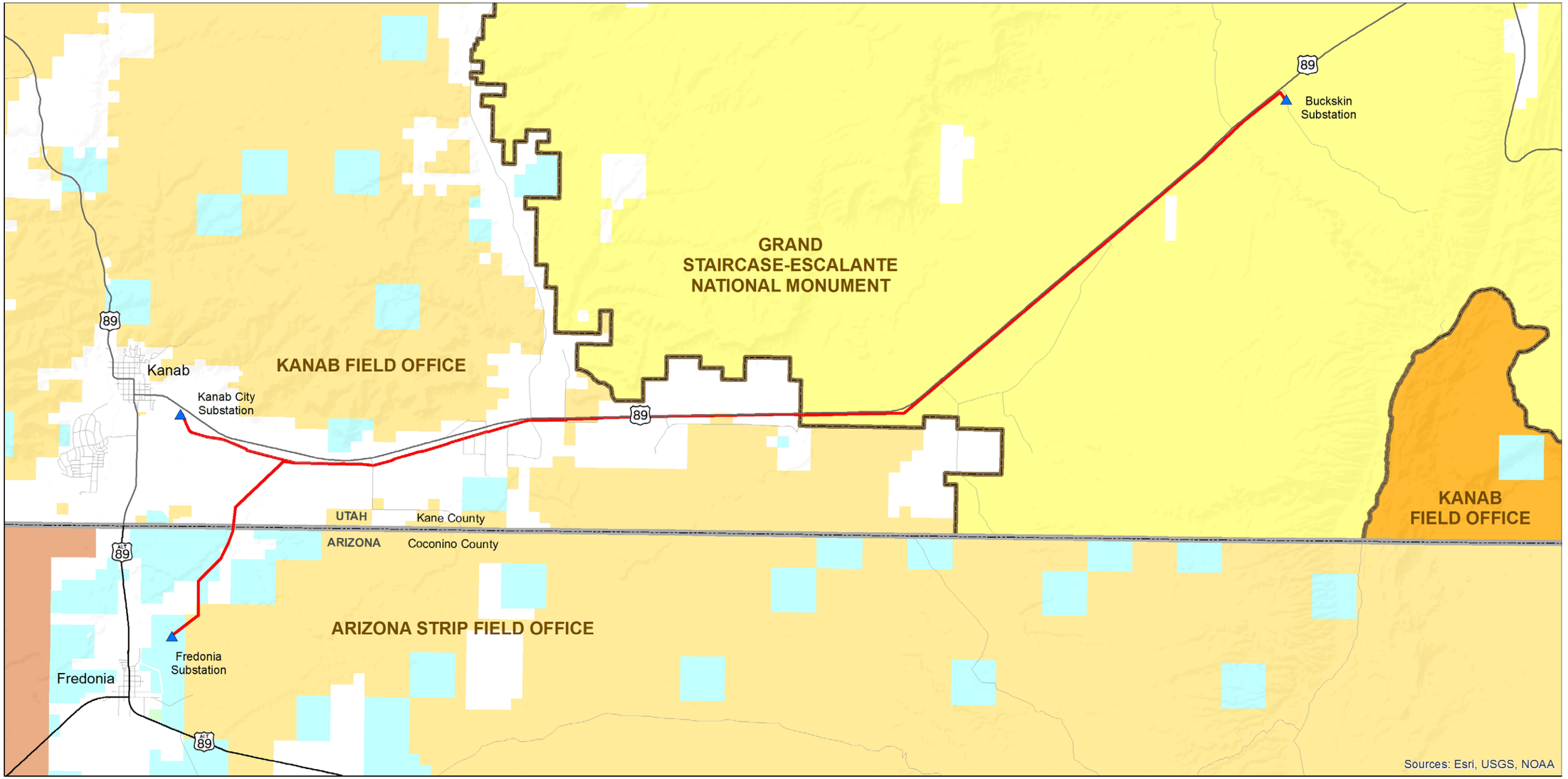
1.3 Purpose and Need

The BLM's underlying need for the action is to respond to and consider Garkane's application for a new ROW authorization. This action would be in accordance with the Federal Land Policy and Management Act (43 USC 1761). The action taken by the BLM will be to respond to Garkane's application for a new ROW authorization to increase the existing ROW width and to consider approval of Garkane's request in a manner that avoids or reduces impacts on sensitive resource values and prevents unnecessary or undue degradation of the public lands.

In addition, in accordance with the 2012 BLM Manual 6220—*National Monuments, National Conservation Areas, and Similar Designations*—there are planning and administrative objectives directly related to GSENM, which is part of BLM's National Landscape Conservation System. As stated in BLM Manual 6220, the following objectives would be applicable to portions of the proposed project that traverse GSENM lands:

> Section 1.2.A. Comply with designating Acts of Congress and presidential proclamations by conserving, protecting, and restoring the objects and values for which Monuments and National Conservation Areas were designated for the benefit of present and future generations.
>
> Section 1.2.B. Effectively manage valid existing rights and compatible uses within Monuments and National Conservation Areas.
>
> Section 1.6. E. 6While processing ROW renewals, in accordance with all applicable law and policy, the BLM should work with holders of existing ROWs to consider new, additional, or modified terms and conditions to minimize impacts to the Monument or National Conservation Areas' values.

The purpose of the BLM action is to consider approving Garkane's request for a new ROW authorization across public lands to construct, operate, and maintain a 138kV transmission line from the Buckskin Substation to the Kanab and Fredonia Substations. The BLM will decide whether to approve, approve with modifications, or deny the proposed new ROW grant.



Source: Land Ownership GIS Coverage provided by Arizona State Land Department (2014) and Utah Automated Geographic Reference Center (2011); Arizona Transportation Information System GIS Coverage (2013) and Utah Automated Geographic Reference Center (2007)

Legend

- Substation
- Proposed Action
- Field Office Boundary
- BLM
- BLM Wilderness Area
- Grand Staircase-Escalante National Monument
- Kaibab Paiute Indian Reservation
- Private
- State Trust

Miles

0 5

NORTH

Figure 1. Proposed Project Route

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1.4 Conformance with BLM Land Use Plans

The Federal Land Policy and Management Act requires that the BLM "develop, maintain, and when appropriate, revise land use plans" (43 USC 1712). All actions approved or authorized by the BLM must conform to the existing land use plan if one exists (43 CFR 1610.5-3; 516 Department Manual 11.5). The Proposed Action is subject to BLM's:

- November 1999 *Grand Staircase-Escalante National Monument Approved Management Plan and Record of Decision* (BLM 1999).
- October 2008 *Kanab Field Office Record of Decision and Approved Resource Management Plan* (BLM 2008b).
- February 2008 *Arizona Strip Record of Decision and Approved Resource Management Plan* (BLM 2008c).

The following resource management plan (RMP) management objectives apply directly to the Proposed Action. The proposed ROW would not be within the exclusion/avoidance areas referred to in these RMP decisions. It has also been determined that the proposed project would not conflict with other management objectives within these RMPs.

1.4.1 Grand Staircase-Escalante National Monument Management Plan

The GSENM portion of the Proposed Action (Figure 1) has been reviewed and found to be in conformance with the GSENM Management Plan. Five GSENM management actions for utility ROWs and communication sites pertain directly to the Proposed Action (BLM 1999):

> LAND-1. The BLM will work with local communities and utility providers to identify short and long-term community needs for infrastructure which could affect Monument lands and resources.
>
> LAND-2. Community projects which require public lands access or use will be subject to necessary project level NEPA analysis.
>
> LAND-5. In the Frontcountry and Passage Zones, communication sites and utility rights-of-way will be allowed, but will have to meet visual resource objectives.
>
> LAND-8. The following criteria and/or stipulations apply to the management of all rights-of-way in the Monument where they are allowed:
>
> 1. Bury new and reconstructed utility lines (including power lines up to 34.5 kilovolts) unless: visual quality objectives can be met without burying; geologic conditions make burying infeasible; or burying will produce greater long-term site disturbance.
>
> 2. All reconstructed and future power lines must meet non-electrocution standards for raptors. If problems with existing powerlines occur, corrective measures will be taken.

3. Construct all power lines using non-reflective wire. Steel towers will be constructed using galvanized steel. Powerlines will not be high-lined unless no other location exists.[1]

LAND-9. Per Public Law 105-355, signed by President Clinton on October 31, 1998, a utility corridor was designated along Highway 89 in Kane County, including that portion of Highway 89 within the Monument. The utility corridor extends 240 feet north from the center line of the highway, and 500 feet south from the center line of the highway.

Of the approximately 13.5 miles of the Proposed Action within GSENM, all but approximately 660 feet of the proposed transmission line alignment (or approximately 1.9 acres of the proposed ROW) would be within the utility corridor designated by President Bill Clinton. The existing structure at this location is also located outside the designated utility corridor, and the replacement structure would be located outside as well. Moving the proposed route north approximately 168 feet to be within the designated utility corridor would require that Garkane impact more area on GSENM than would be disturbed using the current proposed route. Specifically, it would require additional pulling and tensioning areas and three additional pole dead-end structures with all of their associated guys, anchors, and work space requirements, in addition to a new permanent access route that would be required for this portion of ROW.

1.4.2 Kanab Field Office Resource Management Plan

The Kanab Field Office portion of the Proposed Action (Figure 1) has been reviewed and found to be in conformance with the Kanab Field Office RMP. Five Kanab Field Office management actions for lands and realty pertain directly to the Proposed Action (BLM 2008b):

LAR-4. Exclude new ROWs (including communication sites) in the following areas: wilderness study areas (WSA), wilderness areas, or suitable wild and scenic river (WSR) corridors with a tentative classification of "wild" or "scenic."

LAR-5. Avoid new ROWs in the following areas: the non-WSA lands with wilderness characteristics managed to protect, preserve, and maintain those characteristics, or within ½ mile of active, suitable (currently inactive) Utah prairie dog habitats and within potential reintroduction sites.

LAR-6. Preference would be to locate ROW developments in common (within existing ROWs/disturbance areas).

LAR-7. Consider burying new and reconstructed utility lines (including powerlines up to 24 kV) unless: visual quality objectives can be met without burying; geologic conditions make burying infeasible; and burying would produce greater long-term site disturbance.

LAR-8. New and reconstructed powerlines must meet non-electrocution standards for raptors. If electrocution or line strike issues develop with existing powerlines, corrective actions to meet these non-electrocution standards would be taken.

[1] "High-lined" refers to placing transmission lines and towers on ridgetops or other high points where they would be silhouetted against the skyline. This would result in the towers being substantially more visible than if they were backdropped against a landform.

1.4.3 Arizona Strip Field Office Resource Management Plan

The Arizona Strip Field Office RMP portion of the Proposed Action (Figure 1) has been reviewed and found to be in conformance with the Arizona Strip Field Office RMP. Two Arizona Strip management actions for lands and realty pertain directly to the Proposed Action (BLM 2008c):

> MA-LR-06. Individual land use authorizations (ROWs, permits, leases, easements) will be evaluated on a case-by-case basis in accordance with other RMP provisions and NEPA compliance. New land use authorizations will be discouraged within avoidance areas (i.e., Areas of Critical Environmental Concerns [ACECs], lands supporting listed species, National Historic Trails [NHTs], riparian areas, and areas managed to maintain wilderness characteristics) and allowed in such areas only when no reasonable alternative exists and impacts to these sensitive resources can be mitigated. New ROWs will be routed away from high-density listed species' populations and cultural sites, and along the edges of avoidance areas. In addition, mitigation measures may include underground placement of linear ROWs along existing roads in the House Rock Valley area and special protection measures for archaeological resources.
>
> MA-LR-07. The use of designated ROW corridors/sites and existing ROW use areas will be encouraged to the extent possible but, depending on site specific needs, actual locations may vary. Such variances shall be considered consistent with other RMP provisions, provided such locations and uses are consistent with the selection criteria, and goals and objectives for ROW corridors and ROW use areas.

The proposed ROW area would not be located within any ACECs, land supporting listed species, NHTs, riparian areas, areas managed to maintain wilderness characteristics, or cultural sites on the Arizona Strip Field Office. It has also been determined that the proposed project would not conflict with other decisions within this RMP.

1.5 Relationship to Statutes, Regulations, or Other Plans

Where the project would cross private and Arizona State Land Department (ASLD) lands, it would be subject to applicable land-use planning regulations, zoning ordinances, or other requirements enforced by the state, county, or local jurisdictions. Garkane would secure the necessary local permits and legal access for the additional ROW, as well as access permission from private landowners where applicable. Each of the jurisdictional plans reviewed for the EA are listed below. The proposed project would traverse land under the planning jurisdictions of Coconino and Kane Counties, the Town of Fredonia, and the City of Kanab.

1.5.1 Coconino County, Arizona, Comprehensive Plan

The Coconino County Comprehensive Plan was recently adopted in December 2015 (Coconino County 2015). The County's Plan has been reviewed, and the Proposed Action would be in compliance with the Plan's Community Services and Energy goals and policies. The policies directly related to the Proposed Action are as follows:

> ***Community Services Policy #2:*** Utilities infrastructure shall be located in a manner sensitive to community character and environmental and scenic resources.
>
> ***Community Services Policy #4:*** The County encourages utility providers to locate new transmission lines, pipelines, and other trans-county utilities in existing infrastructure corridors whenever possible.

Energy Policy #14: The siting of utility-scale projects and transmission lines shall consider the protection of viewsheds; the potential for noise disturbances to adjacent residential areas; the conservation of species, habitats and water resources; the preservation of pre-historic, historic and cultural sites; the conservation of scenic corridors; and the protection of the character of public lands. Underground collection lines are strongly encouraged.

1.5.2 Kane County, Utah, General Plan

The Proposed Action would be in compliance with the Kane County General Plan (Kane County 2013). The County's Public Services and Facilities goals, objectives, and policies that are directly related to the Proposed Action are as follows:

Goal #2: Ensure that County residents and visitors enjoy improved utilities, such as, power, natural gas, water, telephone and fiber optics.

Objective: Assist utility providers in their efforts to convey improved systems which equitably and efficiently meet the needs of present and future residents and visitors in a cost effective and sustainable manner.

Policy: Kane County will cooperate with major utility providers, including but not limited to: power, natural gas, water, telephone, fiber optics, to establish necessary utility corridors.

1.5.3 Kane County, Utah, Resource Management Plan

Policy statements in the Kane County RMP (Kane County 2015) have been reviewed, and the Proposed Action would be in compliance with the County's policies. The County's Land Acquisition planning guidelines and policies related to the Proposed Action are as follows:

Section 6 Planning Guidelines and Policy Statements N. Land Acquisition #6: All existing utility corridors must be maintained and used to support additional capability for electric transmission and flow of oil and gas throughout the state and region. New corridors may need to be designated in areas where renewable energy projects or communications technology developments come on line. Such corridors are critical in supporting state and national security and economic objectives.

1.5.4 City of Kanab, Utah, General Plan

The City of Kanab's February 2015 General Plan includes goals and actions relevant to the Proposed Action. The Plan has been reviewed, and the Proposed Action would be in compliance with the City's goals. The related goal and action are as follows:

8.4 Public Service and Facility Goal #1: Provide effective and efficient public services to the community.

Goal #1 Action iii: Continue to meet the demands for the quality delivery of public utilities and Public Works services in an orderly and efficient manner.

1.5.5 Other Applicable Federal Laws, Regulations, and Policies

The Federal Land Policy and Management Act and its accompanying implementing regulations provide the legal framework within which the BLM manages public lands and assesses the effects of its management actions. Review and possible authorization of the ROW is also subject to requirements for consistency and conformance with a number of other applicable federal laws, regulations, and policies. Table 1 summarizes most of the other federal laws, regulations, and policies relevant to the Proposed Action.

Table 1. Summary of Other Applicable Federal Laws, Regulations, and Policies

Relevant Authority	Description
American Indian Religious Freedom Act of 1978 (42 United States Code [USC] 1996)	This act protects Native American religious practices, ethnic heritage sites, and land uses.
Antiquities Act of 1906 (16 USC 431–433)	This act protects historic and prehistoric remains and sites of scientific value on federal lands; establishes criminal sanctions for unauthorized destruction or removal of antiquities; authorizes the President to establish national monuments by proclamation; and authorizes scientific investigation of antiquities on federal lands, subject to permit and regulations.
Archaeological Resources Protection Act (16 USC 470aa to 470ee)	This act provides felony-level penalties for the unauthorized excavation, removal, damage, alteration, or defacement, or the attempt to do so, to any archaeological resource more than 100 years old on public lands or Indian lands (not restricted to resources eligible for the National Register of Historic Places). It prohibits the sale, purchase, exchange, transportation, receipt, or offering of any archaeological resource obtained from public lands or Indian lands in violation of any provision, rule, regulation, ordinance, or permit under the act or under any federal, state or local law.
Bald and Golden Eagle Protection Act of 1940 (16 USC 668–668d)	This act prohibits anyone without a permit issued by the Secretary of the Interior from "taking" bald or golden eagles. Taking includes killing, molesting, or disturbing the birds, their nests, or their eggs.
Clean Air Act (42 USC 7401 et seq., as amended)	This act regulates air emissions and pollutants from area, stationary, and mobile sources to improve air quality. It authorizes the Environmental Protection Agency to establish National Ambient Air Quality Standards to protect public health and the environment.
Clean Water Act (33 USC 1251 et seq.)	This act establishes structure for regulating quality standards for surface waters and requires states to set standards to protect water quality, including regulation of stormwater and wastewater discharges during construction and operation of a facility.
Clean Water Act Section 404(b)(1) Guidelines (40 Code of Federal Regulations [CFR] 230)	These guidelines are the substantive environmental standards by which all Section 404 permit applications are evaluated. The guidelines fundamentally stipulate that discharges of dredged and fill material into waters of the United States, including wetlands, should not occur unless it can be demonstrated that such discharges, either individually or cumulatively, will not result in unacceptable adverse effects on the aquatic ecosystem.

Relevant Authority	Description
Endangered Species Act of 1973 (16 USC 1513 et seq.)	This act federally protects threatened and endangered plants, invertebrates, fish, and wildlife through listing; requires consultation with the U.S. Fish and Wildlife Service on federal projects (known as Section 7 consultation); prohibits the "taking" of listed species; and provides for permits to allow the "incidental taking" of listed species.
Executive Order 11593, Protection and Enhancement of the Cultural Environment (May 6, 1971)	This order identifies several actions required of federal agencies to contribute to the protection and enhancement of the cultural environment.
Executive Order 11988, Floodplain Management (May 24, 1977, as amended)	This order requires each federal agency to avoid, to the extent possible, impacts associated with the occupancy and modification of floodplains and to avoid supporting floodplain development when there is a practicable alternative.
Executive Order 11990, Protection of Wetlands (May 24, 1977)	This order directs each federal agency to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands in carrying out its responsibilities.
Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (February 11, 1994)	This order directs each federal agency to identify and address any disproportionately high and adverse human health or environmental effects that its programs, policies, and activities may have on minority and low-income populations.
Executive Order 13007, Indian Sacred Sites (May 24, 1996)	This order directs federal land management agencies to accommodate access to, and ceremonial use of, Indian sacred sites by Indian religious practitioners and avoid adversely affecting the physical integrity of such sacred sites.
Executive Order 13112, Invasive Species (February 3, 1999)	This order requires federal agencies to take actions to prevent the introduction and spread of invasive species; to provide for invasive-species control; and to minimize the economic, ecological, and human health impacts of invasive species.
Executive Order 13175, Consultation and Coordination with Indian Tribal Governments (November 9, 2000)	This order reiterates the requirement for regular and meaningful government-to-government consultation between the federal government and tribal officials.
Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds (January 10, 2001)	This order outlines a collaborative approach to promote the conservation of migratory bird populations and directs agencies to take certain actions to further implement the migratory bird conventions, the Migratory Bird Treaty Act, the Bald and Golden Eagle Protection Act, and other pertinent statutes.
Executive Order 13211, Actions Concerning Regulations that Significantly Affect Energy Supply, Distribution, or Use (May 18, 2010)	This order directs federal agencies to identify impacts that their actions may have on the supply, distribution, or use of energy in the United States.

Relevant Authority	Description
Executive Order 13212, Actions to Expedite Energy-Related Projects (May 18, 2010)	This order directs federal agencies to expedite their reviews of permits or other actions for energy-related projects, to accelerate the completion of those projects.
Executive Order 13423, Strengthening Federal Environmental, Energy, and Transportation Management (January 24, 2007)	This order instructs federal agencies to conduct their environmental, transportation, and energy-related activities in a manner that is environmentally, economically, and fiscally sound; integrated; continuously improving; efficient; and sustainable. The order sets goals in the following areas: energy efficiency, acquisition, renewable energy, toxic chemical reduction, recycling, sustainable buildings, electronics stewardship, fleets, and water conservation.
Executive Order 13514, Federal Leadership in Environmental, Energy, and Economic Performance (October 5, 2009)	This order sets forth policies and goals to establish an integrated strategy toward sustainability in the federal government and to make reduction of greenhouse-gas emissions a priority for federal agencies.
Federal Noxious Weed Act of 1974, as amended	This act established a federal program to control the spread of noxious weeds. The Secretary of Agriculture is authorized to designate plants as noxious weeds. The movement of all such weeds in interstate or foreign commerce is prohibited, except under permit.
Manual 6100–National Landscape Conservation System (July 13, 2012); Manual 6220– National Monuments, National Conservation Areas, and Similar Designations (July 13, 2012); Manual 6280–Management of National Scenic and Historic Trails and Trails Under Study or Recommended as Suitable for Congressional Designation (September 14, 2012)	The purpose of these manuals is to provide general policies and guidance on managing public lands in BLM's National Landscape Conservation System that have been designated as national monuments, national conservation areas; wilderness; wilderness study areas; wild and scenic rivers; and national scenic and historic trails. The objectives for implementing these policies are to ensure consistency with designating acts of Congress and presidential proclamations by conserving, protecting, and restoring the values for which National Landscape Conservation System units were designated for the benefit of present and future generations.
Migratory Bird Treaty Act of 1918 (16 USC 703–711)	This act makes it unlawful to take or possess any migratory bird (or any part of such migratory bird, including active nests) as designated, unless permitted by regulation (for example, duck hunting).
National Historic Preservation Act of 1966 (16 USC 470 et seq.)	This act established the National Register of Historic Places for listing historic properties that are significant in American history, architecture, archaeology, and culture. Section 106 requires federal agencies to take into account the effect of a proposed undertaking on resources listed or eligible for listing on the National Register of Historic Places.
Native American Graves Protection and Repatriation Act of 1990 (25 USC 3001–3002)	This act established additional requirements for ownership and control of Native American cultural items, human remains, and associated funerary objects. It also establishes requirements for the treatment of Native American human remains and cultural objects found on federal land. This act further provides for the protection, inventory, and repatriation of Native American human remains, objects of cultural patrimony, sacred objects, unassociated funerary objects, and associated funerary objects.

Relevant Authority	Description
Omnibus Public Land Management Act of 2009 (Public Law 111-11, March 11, 2009)	This act designated certain lands as components of the National Wilderness Preservation System and established the National Landscape Conservation System. The National Landscape Conservation System's purpose is to conserve, protect, and restore nationally significant landscapes that have outstanding cultural, ecological, and scientific values for the benefit of current and future generations and includes BLM-administered National Monuments, National Conservation Areas, Wilderness Study Areas, components of the National Trails System, and components of the National Wild and Scenic Rivers System, as well as components of the National Wilderness Preservation System .
Draft – Regional Mitigation, Manual Section 1794 (BLM Instruction Memorandum No. 2013-142, Interim Policy)	Manual Section 1794 provides policy, procedures, and instructions for regional mitigation strategies, regional mitigation planning, and mitigation implementation.

1.6 Identification of Issues

Issues were identified for this assessment by considering the resources that could be affected by implementation of one of the alternatives. Public scoping on the Proposed Action was held from October 14, 2015, to November 28, 2015. The BLM posted a scoping letter and related information on its website and also mailed over 250 letters to individuals, public organizations, and agencies. Twenty comment letters and emails were received during the public scoping period.

In addition to external scoping, the BLM conducted internal scoping with two interdisciplinary teams of resource specialists. After reviewing the Proposed Action, the Kanab Field Office and GSENM resource specialists determined the rationale for analyzing or not analyzing the potential impacts on resources in their portions of the project area in Utah. The Arizona Strip Field Office resource specialists determined the same rationale regarding potential impacts on resources in their portion of the project area in Arizona. Two Interdisciplinary Team Checklists were completed for the respective portions of the project area; both are included in Appendix A. The following issues were identified through the process described above and are carried forward in this EA in the order they are listed in the checklists.

- Air Quality
- Biological Soil Crusts
- Cultural Resources
- Fish and Wildlife, Excluding U.S. Fish and Wildlife Service Designated Species
- Floodplains
- Hydrologic Conditions
- Native American Religious Concerns
- Recreation
- Socioeconomics
- Soils
- Threatened, Endangered, and Candidate Animal Species
- Water Resources/Quality
- Woodland/Forestry
- Visual Resources

2.0 DESCRIPTION OF ALTERNATIVES, INCLUDING PROPOSED ACTION

2.1 Proposed Action

The Buckskin to Kanab and Fredonia transmission line project area is located in Kane County, Utah, and Coconino County, Arizona. The existing and proposed transmission lines originate at the existing Buckskin Substation and terminate at the Kanab and Fredonia Substations. The Buckskin Substation is located approximately 30 miles northeast of Kanab, Utah, along U.S. Highway 89 (U.S. 89). The existing transmission line alignment is located on the south side of U.S. 89 outside the Utah Department of Transportation ROW. The transmission line parallels U.S. 89 for 25 miles and then branches west for about 2.9 miles to the Kanab Substation and south for about 5.1 miles to the Fredonia Substation. The proposed ROW would be 125 feet wide and 33 miles long. The 125-foot width is consistent with the Rural Utility Service Bulletin 1724-E-200 recommendations for power line ROW widths (USDA 2015). Figure 1 shows the project location, proposed transmission line alignment, and landownership. Figures 2a–2f are detailed maps of the proposed route and show approximate locations of the tensioning areas, staging areas, and turning areas.

The proposed route corridor would be parallel to and centered approximately 75 feet from the existing 69kV transmission line and would vary its alignment north and south of the existing line. The unused portion of the existing ROW would then be reclaimed and relinquished by Garkane. Within Kane County along U.S. 89, the proposed route would be in a designated utility corridor, including through GSENM (Public Law 105-355). Table 2 presents the legal description of the proposed project route, and Table 3 lists landownership by miles of transmission line.

Under the Proposed Action, Garkane would:

- Construct the 138kV transmission line using an estimated 289 wood H-frame structures.
- Construct 8 temporary staging areas (3.66 acres/staging area), 16 temporary turning areas for construction equipment (0.74 acre/turning area), and 36 temporary tensioning and splicing areas (3.41 acres/tensioning and splicing area).[2]
- Use existing access roads during the construction, operation, and maintenance of the proposed project.
- Remove vegetation to construct new 15-foot-wide access roads; once construction is completed these roads would become two-track roads for operation and maintenance of the transmission line and structures.
- Remove trees and vegetation in the ROW that pose a safety risk or fire danger.
- Remove the existing 69kV line after energizing the new 138kV transmission line.
- Reclaim disturbed areas so that vegetation is similar or consistent with surrounding vegetation
- Conduct routine and emergency operation and maintenance activities

[2] The electrical wire or conductor is kept under tension during the stringing process, which keeps it off the ground and therefore minimizes the possibility of conductor surface damage. The wire is strung using powered pulling equipment at one end and tensioning equipment at the other end. A tensioner is a device designed to hold tension against a conductor during stringing operations. Together, the tensioner and puller maintain tension on the conductors while they are fastened to the structures. The conductors are joined by separately splicing each component conductor together. Sites for the tensioning, splicing, and pulling equipment for this proposed project would be approximately 3 miles apart.

Permanent ground disturbance (disturbance occurring over the life of the project) would occur along the proposed project route due to permanent access road development and installation of new structure bases. Garkane would access the project alignment through existing access roads where available and, to the extent feasible, by overland travel within the existing ROW. Temporary ground disturbance is defined as disturbance occurring only during construction and in association with certain maintenance activities. Table 3 provides the breakdown of acres of estimated permanent and temporary ground disturbance by landownership.

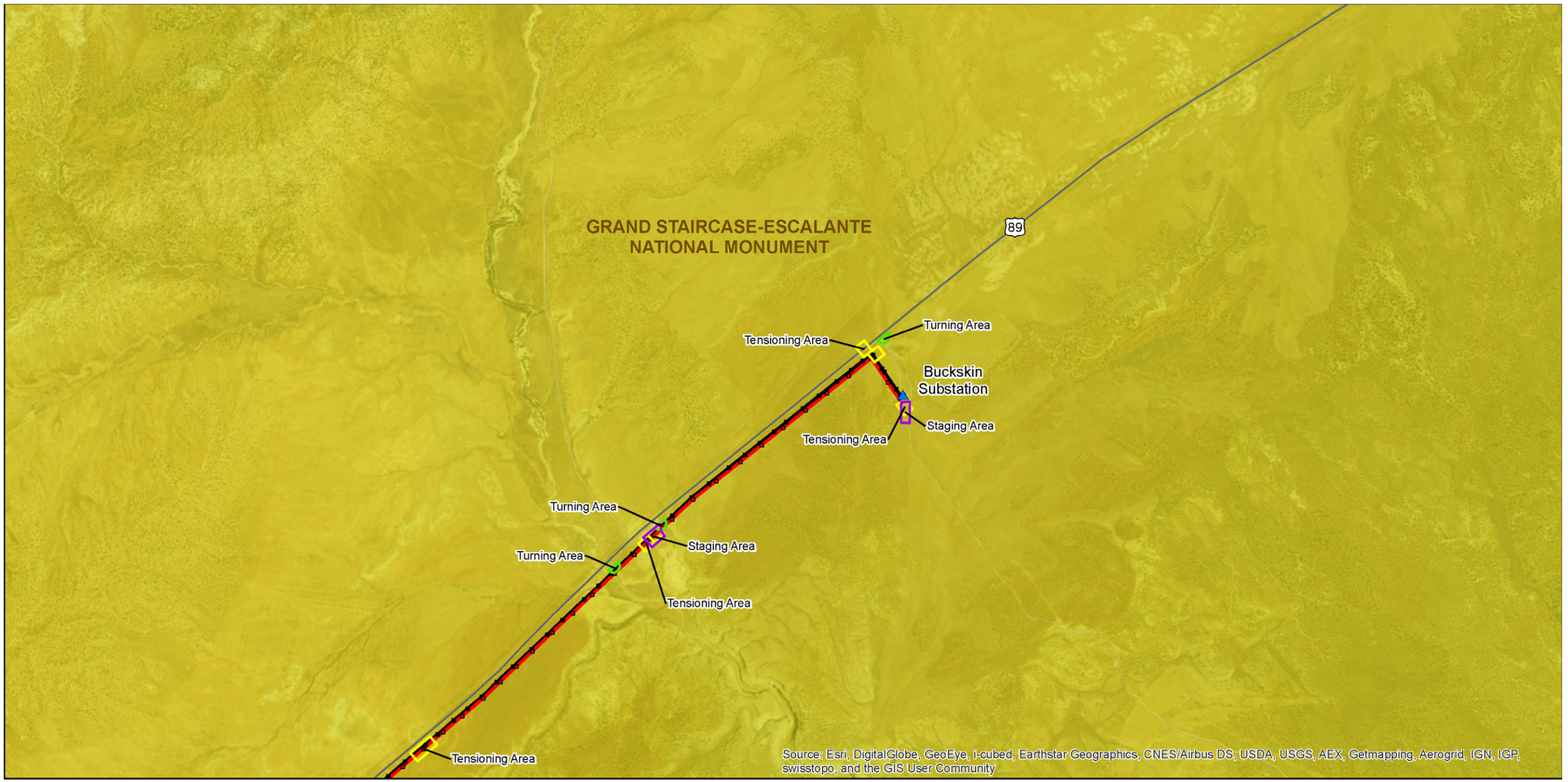
Table 2. Legal Description of Proposed Action Route

Township	Range	Section	Meridian	BLM Administrative Unit
42S	2W	19	Salt Lake	Grand Staircase-Escalante National Monument
42S	3W	24–26, 34, and 35	Salt Lake	Grand Staircase-Escalante National Monument
43S	3W	3, 4, 5, 7, 8, 9, and 18	Salt Lake	Grand Staircase-Escalante National Monument
43S	4W	13, 23, 24, and 26–29	Salt Lake	Grand Staircase-Escalante National Monument
43S	4W	29 and30	Salt Lake	Kanab Field Office
43S	4.5W	27–30	Salt Lake	Kanab Field Office
43S	5W	25, 31, and 33–36	Salt Lake	Kanab Field Office
43S	6W	34–36	Salt Lake	Kanab Field Office
44S	5W	4–6	Salt Lake	Kanab Field Office
44S	6W	1, 2, and 11	Salt Lake	Kanab Field Office
41N	2W	3, 9, and 10	Gila and Salt River	Arizona Strip Field Office
42N	2W	35 and 35	Gila and Salt River	Arizona Strip Field Office

Table 3. Proposed Action Transmission Line, Right-of-Way, and Ground Disturbance by Landownership

Landownership	Miles	Acres of Right-of-Way	Acres of Permanent Disturbance*		Acres of Temporary Disturbance
			Total	New	
Grand Staircase-Escalante National Monument (BLM)	13.5	204.7	51.0	4.7	124.2
Kanab Field Office (BLM)	1.3	19.1	9.4	0.5	14.5
Arizona Strip Field Office (BLM)	0.6	9.4	1.9	0.3	8.3
Arizona State Land Department	1.9	28.5	5.2	0.9	20.7
Private lands	15.6	236.3	64.7	23.1	179.0
Total	32.9	498.1	133.2	29.5	346.7

Table Note: *Estimated total acreage is based on 10-foot cleared area around each H-frame structure and existing and new access roads. Estimated new acreage is based on 10-foot cleared area around each H frame structure and the new access roads to the proposed 138kV line and structures.



Source: Land Ownership GIS Coverage provided by Arizona State Land Department (2014) and Utah Automated Geographic Reference Center (2011); Arizona Transportation Information System GIS Coverage (2013) and Utah Automated Geographic Reference Center (2007)

Legend

- Substation
- Proposed Action
- Proposed Structures
- Existing Poles
- Existing Transmission Line
- Field Office Boundary
- Staging Areas
- Turning Areas
- Tensioning Areas
- BLM
- Grand Staircase-Escalante National Monument
- Private
- State Trust

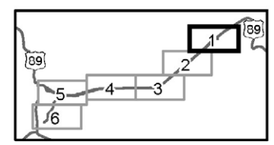


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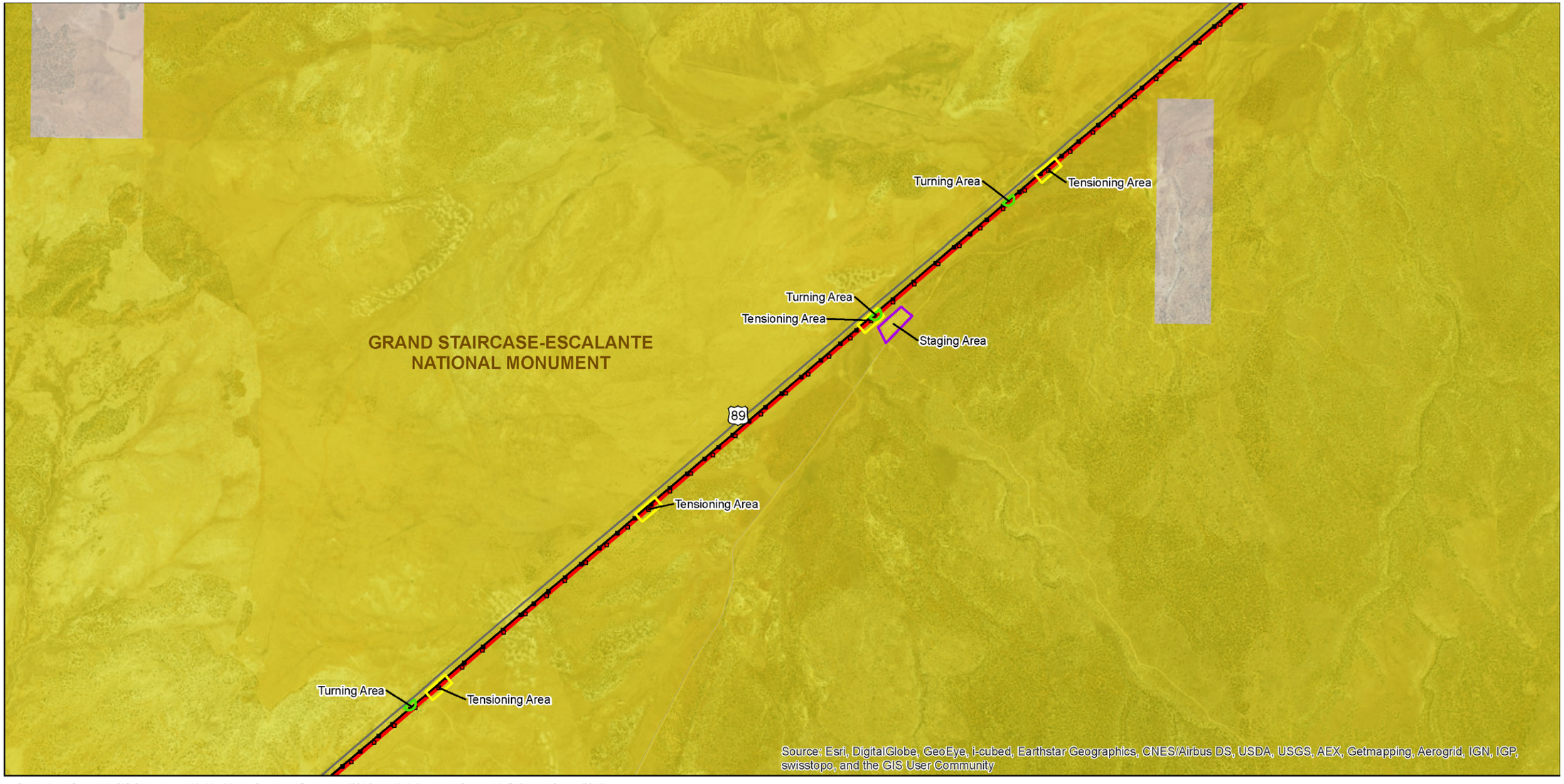
Figure 2a. Proposed Project Route, Detail Map 1



Source: Land Ownership GIS Coverage provided by Arizona State Land Department (2014) and Utah Automated Geographic Reference Center (2011); Arizona Transportation Information System GIS Coverage (2013) and Utah Automated Geographic Reference Center (2007)

Legend

- Substation
- Proposed Action
- Proposed Structures
- Existing Poles
- Existing Transmission Line
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- BLM
- Grand Staircase-Escalante National Monument
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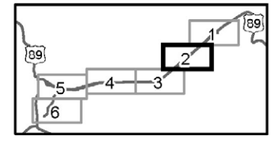

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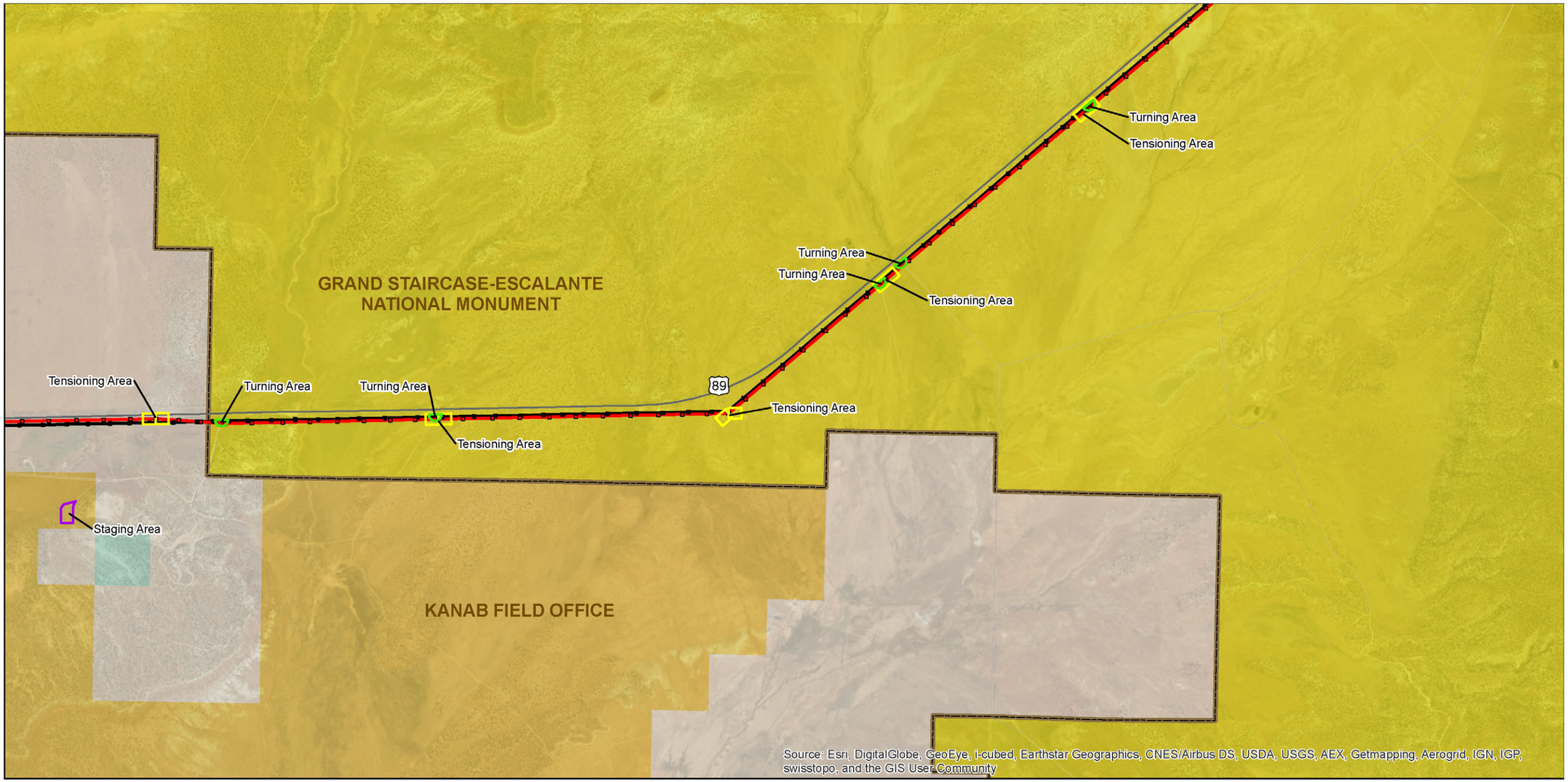
Figure 2b. Proposed Project Route, Detail Map 2



Source: Land Ownership GIS Coverage provided by Arizona State Land Department (2014) and Utah Automated Geographic Reference Center (2011); Arizona Transportation Information System GIS Coverage (2013) and Utah Automated Geographic Reference Center (2007)

Legend

- Substation
- Proposed Action
- Proposed Structures
- Existing Poles
- Existing Transmission Line
- Field Office Boundary
- Staging Areas
- Turning Areas
- Tensioning Areas
- BLM
- Grand Staircase-Escalante National Monument
- Private
- State Trust

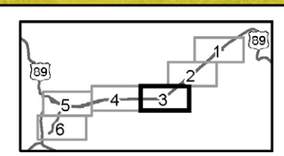


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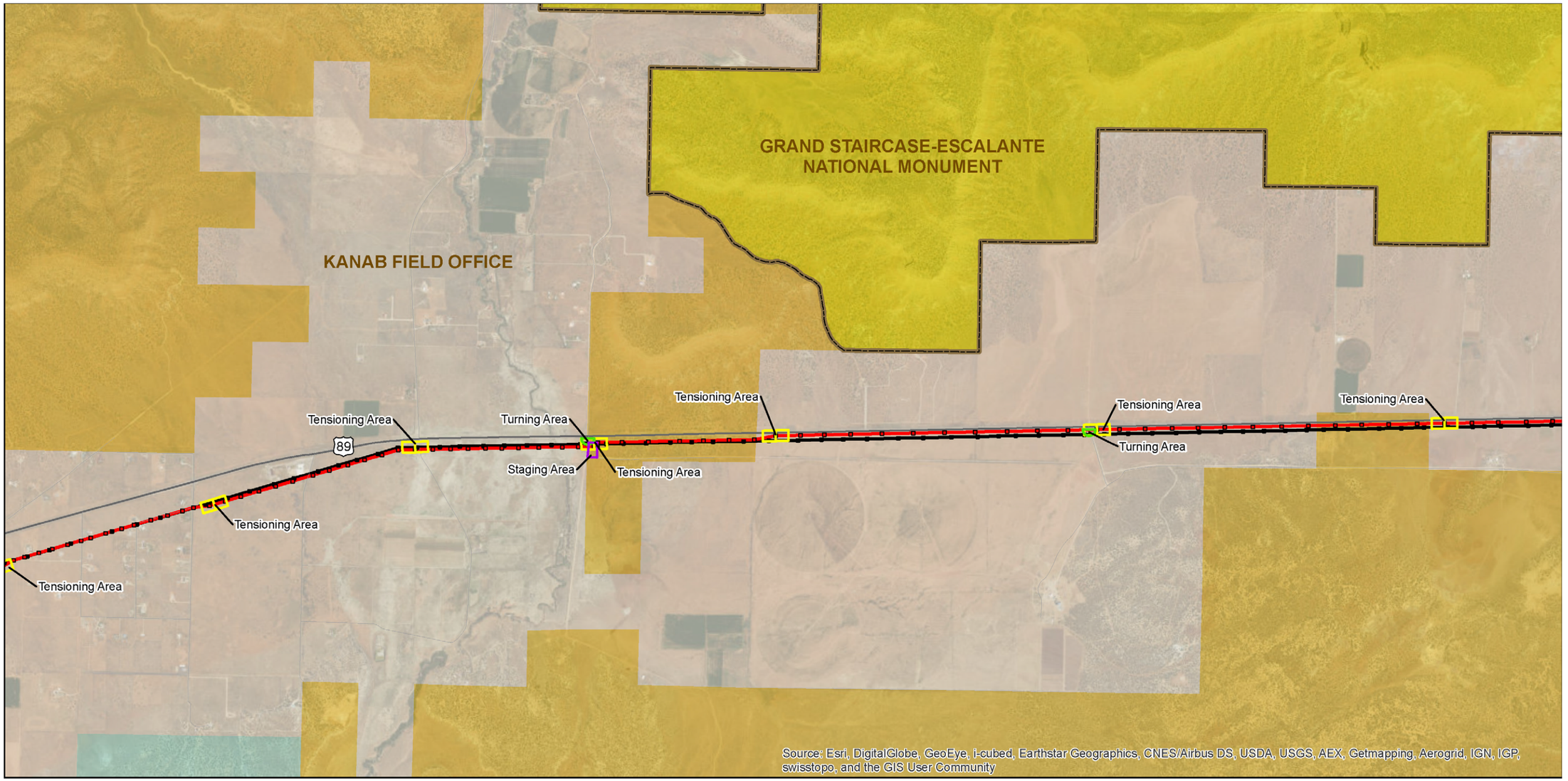
Figure 2c. Proposed Project Route, Detail Map 3



Source: Land Ownership GIS Coverage provided by Arizona State Land Department (2014) and Utah Automated Geographic Reference Center (2011); Arizona Transportation Information System GIS Coverage (2013) and Utah Automated Geographic Reference Center (2007)

Legend

- Substation
- Proposed Action
- Proposed Structures
- Existing Poles
- Existing Transmission Line
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- Turning Areas
- Tensioning Areas
- BLM
- Grand Staircase-Escalante National Monument
- Private
- State Trust

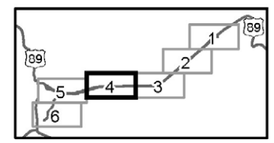

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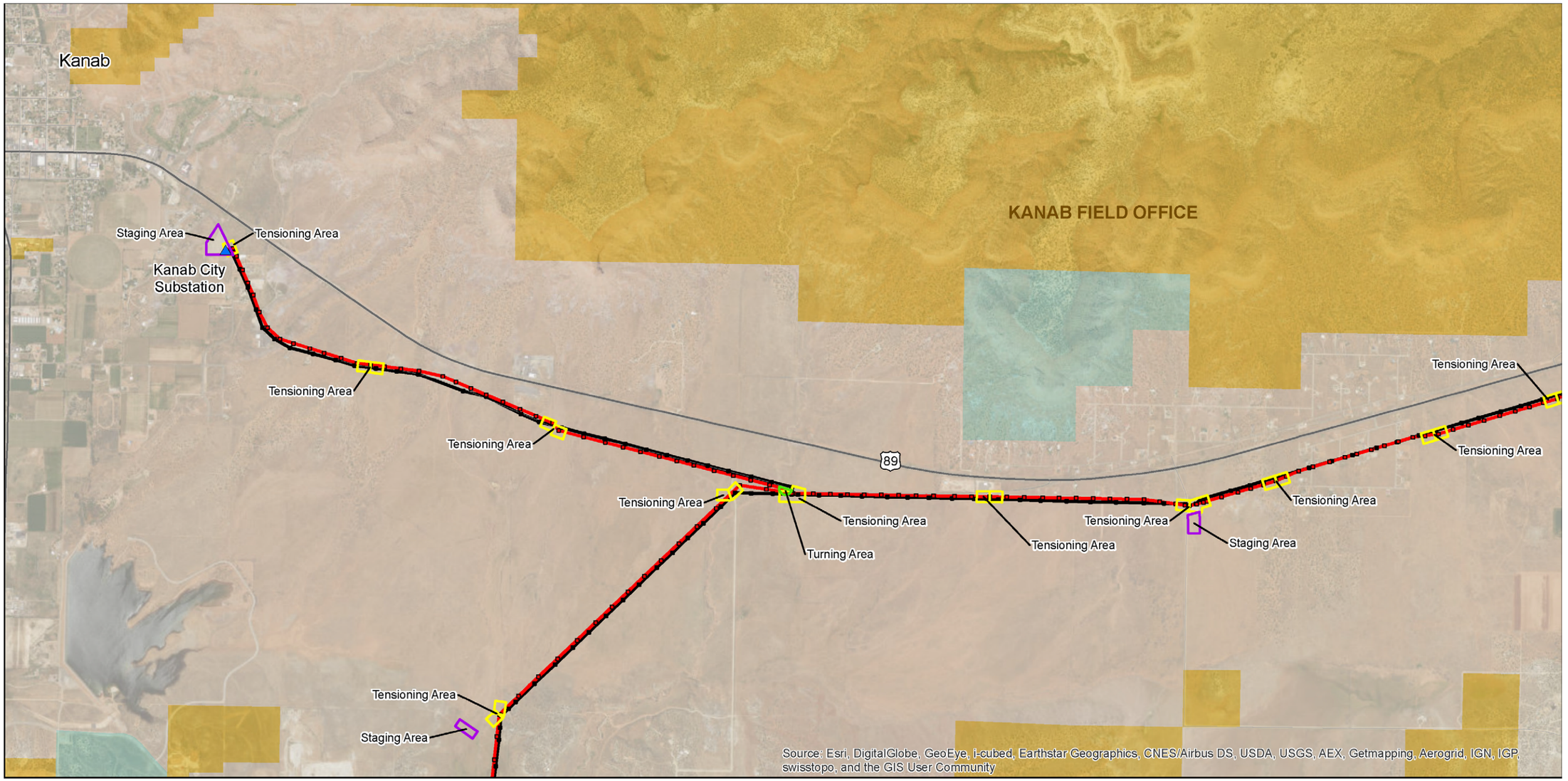
Figure 2d. Proposed Project Route, Detail Map 4



Source: Land Ownership GIS Coverage provided by Arizona State Land Department (2014) and Utah Automated Geographic Reference Center (2011); Arizona Transportation Information System GIS Coverage (2013) and Utah Automated Geographic Reference Center (2007)

Legend

- Substation
- Proposed Action
- Proposed Structures
- Existing Poles
- Existing Transmission Line
- Field Office Boundary
- Staging Areas
- Turning Areas
- Tensioning Areas
- BLM
- Grand Staircase-Escalante National Monument
- Private
- State Trust

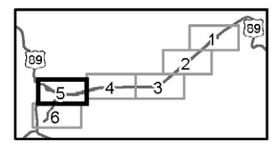


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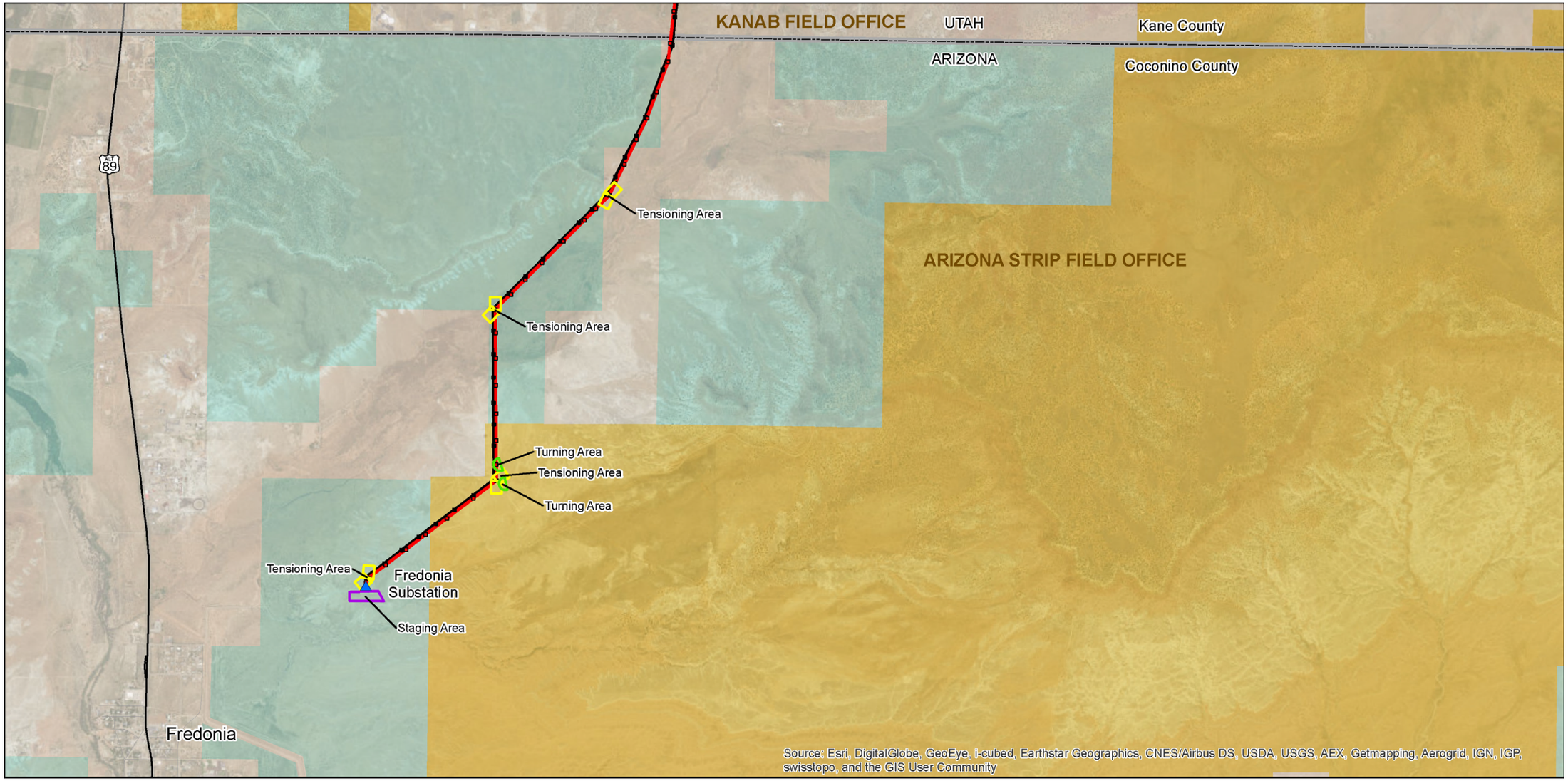
Figure 2e. Proposed Project Route, Detail Map 5



Source: Land Ownership GIS Coverage provided by Arizona State Land Department (2014) and Utah Automated Geographic Reference Center (2011); Arizona Transportation Information System GIS Coverage (2013) and Utah Automated Geographic Reference Center (2007)

Legend

- Substation
- Proposed Action
- Proposed Structures
- Existing Poles
- Existing Transmission Line
- Field Office Boundary
- Staging Areas
- Turning Areas
- Tensioning Areas
- BLM
- Grand Staircase-Escalante National Monument
- Private
- State Trust

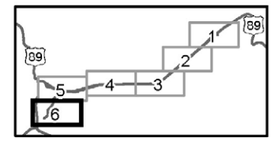


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Figure 2f. Proposed Project Route, Detail Map 6

2.1.1 Construction of the Proposed Transmission Line

The 138kV transmission line would be constructed parallel to the existing 69kV transmission line along the same route currently authorized under UTU-36238 and AZA-35283. The proposed 138kV transmission line would be offset approximately 75 feet from the existing 69kV line. During construction, the existing line must remain in service since it is the sole source of electricity for the city of Kanab; the Long Valley communities; East Zion; and northern Arizona, including Fredonia, the Kaibab Paiute Indian Reservation, and the North Rim of the Grand Canyon. The 75-foot offset is required to create a safe distance between the proposed and existing transmission lines during construction. Construction is anticipated to take up to 36 months to complete.

Clearing of natural vegetation may be required for construction purposes at each H-frame pole structure site and may also be required in the long term for electrical safety, maintenance, and transmission reliability. The clearing of natural vegetation would be kept to a minimum. At each new structure work area, a 200-foot by 125-foot site would be used for the assembly of structure elements and for any necessary crane and equipment maneuvers. Disturbance for the assembly of structures would occur within structure work areas of the ROW. At structure locations with steep slopes, broken terrain, and drainages, level crane and equipment pads would be graded to create safe work areas. These pads would likely not use the entire structure work area but would be limited to the area required for safe crane movements, roughly 100 feet by 125 feet. Reseeding and reclamation of disturbed soil would occur in other areas after the structures are in place.

Vertical excavations for structure foundations would be made with power auguring equipment. A vehicle-mounted power auger or excavator equipment would be used where soils permit. In rocky areas, the foundation holes would be excavated by drilling or by installing special rock anchors. Spoil material (excavated soil) would be used for fill where suitable, and the remainder would be spread at the structure site. Foundation excavation and installation would require access to structure work areas by power augers or drill rigs, cranes, material trucks, and crew trucks.

The proposed line would be built using wood H-frame structures. Approximately 289 H-frame structures would be installed. The structures would consist of two poles approximately 65 feet tall and spaced 15.5 feet apart. The two poles would be connected by a 32-foot crossarm (Figure 3). The structures would be placed approximately 500 feet apart, resulting in approximately 10 structures per mile. Three insulators and three conductors or wires would be attached to the crossarm. The conductor and wire would meet industry nonspecular standards.

Structure placement activities include mobilizing construction vehicles, equipment, and poles along existing access roads and assembling and erecting the structures. Sections of the new structures and associated hardware would be delivered to each structure site by truck. Erection crews would assemble new structures on the ground within the proposed ROW and temporary-use permit areas. Using a large crane, crews would position the structures in the augured foundation holes and would backfill around each pole. Structure placement activities would occur within the 125-foot-wide permanent ROW and at turning structure locations within temporary-use permit areas.

2.1.2 Staging Areas and Tensioning and Splicing Areas

In addition to the permanent 125-foot ROW, the project would require 8 temporary staging areas, 16 temporary turning areas, and 36 temporary tensioning and splicing areas. The staging areas would serve as reporting locations for construction workers, construction material storage, and parking areas for vehicles and equipment. The turning areas would be used to maneuver large construction equipment. The tensioning and splicing areas would be located at level sites to minimize earth moving and grading. These locations are shown on Figures 2a–2f.

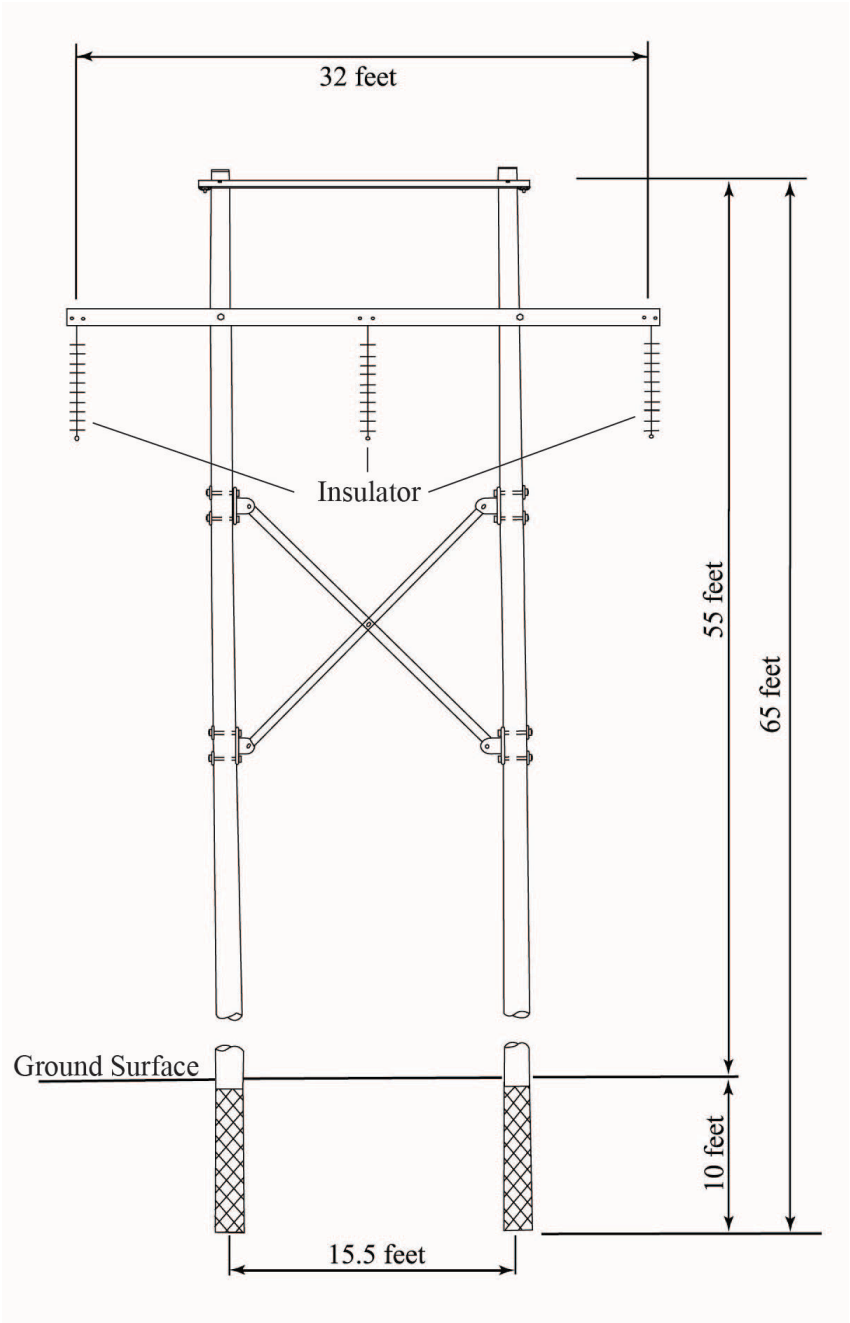


Figure 3. Diagram of a Typical H-Frame Structure

2.1.3 Access Roads

Access routes would be used for installation of wood transmission structures, conductors, overhead ground wires, removal of existing poles and conductors, and maintenance and inspection activities. Existing two-track roads used to construct and maintain the existing transmission line would be used to access the structure locations for the proposed line. These existing roads would be used to the fullest extent possible; however, approximately 12.9 miles of new access roads would be constructed—about 0.1 mile within the Arizona Strip Field Office, 1.6 miles within GSENM, and 0.1 miles within the Kanab Field Office. Some existing roads may require maintenance such as grading and some widening on slopes. While some of the washes and drainages

would require grading to allow for access, grading would not occur across Johnson Wash, Kitchen Corral Wash/Buckskin Wash, or Lost Spring Wash.

2.1.4 Removal of Trees and Vegetation

There would be limited tree clearing within the proposed project area. Tree clearing and trimming is required to maintain reliable service, provide safe operating conditions, reduce ignition sources, and decrease the risk for wildfire. During the construction of the line, all trees and brushy vegetation over 4 feet tall within the 125-foot-wide ROW would be trimmed for the duration of the proposed project. Vegetation and tree trimming would be performed by hand crews that would lop and scatter vegetation or by mechanized mobile shredder equipment. Given the height of the native trees within the project area, Garkane does not expect to remove danger trees outside the ROW, as shown in Figure 4, which illustrates typical vegetation and tree clearances (Garkane 2015). Vegetation in the ROW would then be trimmed on approximately 3-year cycles to maintain the conditions indicated.

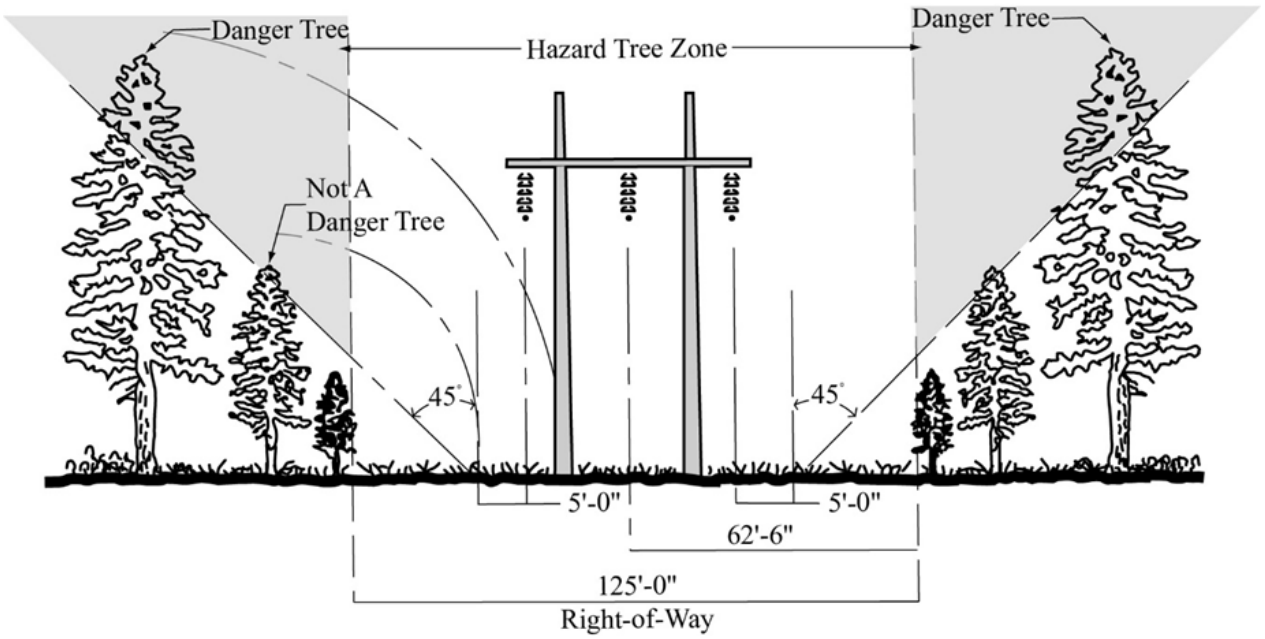


Figure 4. Vegetation and Tree Clearance Diagram

During construction, and as part of routine maintenance, an area of 10 feet around each structure location would be treated with an herbicide selected from the BLM-approved list of herbicides. The application of herbicides would be used to eliminate all vegetation at specific locations where a combustible-free space is required by the 2012 International Fire Code and Section A102.3.1 of the 2012 International Wildland-Urban Interface Code (International Code Council 2011a, 2011b). The prescription for combustible-free space includes creation of a "cylinder" of combustible-free space measuring 20 feet in diameter (10-foot radius) around the subject poles. The 10-foot radius is intended to mitigate the potential of fire spread at or from the base of the pole, including electrical equipment that could spark (e.g., transformers, capacitor banks, and switches), especially in areas of high fire risk. The use of herbicides to maintain the combustible-free space would provide a firebreak, reduce the risk of fire ignition, and protect wooden utility pole structures during a fire.

If the BLM approves the Proposed Action, Garkane would coordinate with the respective BLM field offices or GSENM to evaluate the procedure for developing, reviewing, and submitting pesticide-use proposals for herbicide use within the authorized ROW corridor. Each proposal would include information on project specifications; herbicides proposed for use and the rate of application; surfactants used; dates of application and incompatible species; key personnel responsibilities; and procedures for communication, safety, spill response, and emergencies.

2.1.5 Removal of the Existing Transmission Line

Once the proposed 138kV transmission line is in operation, Garkane would remove the existing 69kV transmission line infrastructure between the Buckskin, Kanab, and Fredonia Substations. The wood pole structures would be cut at ground level; the structures and conductors would be hauled away and disposed of at an approved landfill site.

2.1.6 Reclamation

During construction, Garkane would ensure that construction sites, staging areas, and access roads are maintained in an orderly condition. Crews would collect waste construction materials and refuse from the construction areas, haul them away, and dispose of them at approved sites in a timely manner. Construction areas not needed for normal maintenance activities would be returned to their original contour and natural drainage patterns. Any damaged gates and fences would be repaired. Straw waddles or silt fences installed during construction would be maintained until disturbed areas are successfully revegetated.

Where required by the BLM, disturbed areas would be reseeded using an agency-approved seed mixture and methods and standards recommended by the agency. Access roads on BLM-administered lands no longer used would be reclaimed or left in place as directed by the BLM. Portions of the existing ROW that would be relinquished after construction of the Proposed Action would also be revegetated as necessary.

2.1.7 Applicant-Committed Resource Protection Measures/Design Features

Resource protection measures would be integrated into all phases of the project, including design, construction, restoration, operation, and maintenance. The following resource protection measures would be applied to avoid or minimize potential impacts on resources and resource uses.

Air Quality

- During construction, water would be applied to active disturbance areas, such as the ROW, staging areas, and access routes to comply with applicable agency dust control standards. Water used for dust control would be provided by Garkane.

Biological Soil Crusts

- Ingress and egress to pole locations would be on the same route to minimize disturbance to biological soil crusts.[3]

[3] "Biological soil crust" refers to the community of multiple, unrelated organisms that occur together on the soil surface in arid and semi-arid landscapes. Structurally, biological crusts are a rough, uneven carpet or skin of low stature (1 to 10 centimeters in height). They function as living mulch by retaining soil moisture, reducing wind and soil erosion, and discouraging annual weed growth, and they contribute to soil organic matter (U.S. Department of the Interior 2001).

Cultural Resources and Native American Religious Concerns

- Cultural resources would be protected by educating employees about the importance of cultural resources and implementing a strict management policy prohibiting the casual collection of artifacts from the project area.
- Any cultural resources discovered by Garkane or its contractor should be immediately reported to the authorized officer. All operations would be suspended in the immediate area of the discovery until written authorization to proceed is issued by the BLM. An evaluation of the discovery would be made by the appropriate BLM authorized officer to determine appropriate actions that would prevent the loss of any significant cultural or scientific values. The authorized officer would make any decisions pertaining to mitigation measures after consulting with the appropriate agencies.

Fish and Wildlife, Excluding U.S. Fish and Wildlife Service Designated Species

- Along the 12-mile stretch of the existing deer fence on U.S. 89, Garkane would make a reasonable effort to avoid construction during fall migration (October 15 to December 1). Construction would not occur during spring migration (February 15 to April 15). During each peak migration time, work and staging equipment and materials within 0.25 mile of all deer crossing structures, including bridges, culverts, and tunnels, would be avoided.
- Construction activities would be avoided during the migratory bird nesting season for this area (May 1 to July 15). However, construction could occur during this time if a clearance survey by a qualified biologist is conducted no later than a week before ground-disturbing activities. This would be for the entire length of the project.
- Spacing between conductors would be a minimum of 15.5 feet, which would exceed the avian protection requirements.

Floodplains and Hydrological Conditions

- All washes within the project limits would be spanned by the transmission line with a buffer of at least 10 feet between the stream bank and the nearest pole structure.
- All disturbances associated with the installation of poles would be on the upslope side of the pole. In areas where there is a 15 percent or more gradient (slope), certified weed-free erosion control products would be placed downslope of the disturbance to impede sediment from entering surface waters. The installed erosion control products would be maintained until disturbed areas are successfully revegetated.
- Some of the washes may require limited grading to allow for access for vehicles and construction equipment. Grading would not occur across Johnson Wash, Kitchen Corral Wash, and Buckskin Wash in Kane County and Lost Spring Wash in Coconino County, which are identified as Special Flood Hazard Zones (Zone A).

Invasive Species/Noxious Weeds

- An area of 10 feet around each structure location would be treated with an herbicide from the BLM-approved list to reduce fire danger and safety risks. Structures located in riparian areas, known locations of threatened or endangered plant species, or other environmentally sensitive areas would not be treated with herbicides.

- Areas disturbed by construction activities would be reseeded, if necessary, and would be monitored on a 3-year cycle for weed infestation.
- Construction-related equipment and vehicles would be cleaned of soils, seeds, vegetative matter, or other debris or matter that could contain or hold noxious seeds. The cleaning of equipment would also be done any time thereafter if the equipment leaves the project area, is used on another project, or reenters the project area.
- Areas identified by the BLM would be seeded after construction activities using an agency-approved seed mixture and adhering to standards recommended by the agency.

Paleontology

- A paleontology monitor would be present during construction activities in the Chinle Formation. Garkane would coordinate with the BLM to agree on the extent of the Chinle Formation and monitoring locations.
- If vertebrae paleontological resources are discovered, the appropriate BLM authorized officer would be notified immediately. All operations would be suspended in the immediate area of the discovery until written authorization to proceed is issued by the BLM. An evaluation of the discovery would be made by the appropriate BLM authorized officer to determine appropriate actions that would prevent the loss of any significant paleontological resources.

Recreation

- To minimize impacts on recreation users of the Fredonia Woodhill Loop Road, closing the access road northeast of the Fredonia Substation or restricting/interfering with public access for recreation in this area would be avoided. Garkane would coordinate with the Town of Fredonia and BLM Arizona Strip Field Office to notify the public of construction activities in the Fredonia Woodhill Loop Road.

Soils and Water Resources

- Erosion control features, such as water bars, would be installed, where necessary, immediately after completion of construction activities to avoid erosion and runoff.
- To lessen potential impacts on biological soil crusts, ingress and egress to structure locations would be limited to existing ground-disturbance areas.
- Reseeding and reclamation of disturbed soil would occur after the pole structures are installed.

Threatened, Endangered, or Candidate Plant Species

- In September 2015 and March 2016 the proposed ROW was inventoried for Siler pincushion cactus (*Pediocactus sileri*) and Jones cycladenia (*Cycladenia humilis* var. *jonesii*). No individual plants were found during either survey, and only marginally suitable habitat for Siler pincushion cactus was located in the project area. Garkane would coordinate with the BLM Arizona Strip Field Office to conduct a biological survey of the proposed alignment 2 weeks prior to the start of construction in order to identify threatened and endangered plant species. If present, locations of threatened and endangered plant species would be recorded for avoidance, flagged, and monitored during construction activities by BLM.

Threatened, Endangered or Candidate Animal Species

- A biological survey of the proposed alignment would be conducted to identify threatened animal species and their habitats. Where such species are identified, appropriate action would be taken to avoid adverse impacts on the species and its habitat, and may include implementing seasonal and/or spatial buffers; altering the placement of roads or structures, as practicable; and monitoring activities.

Woodland/Forestry

- Before construction, vegetation more than 4 feet high at maturity would be removed from the ROW. Trees would be cleared to avoid potential contact with conductors and other potential construction and maintenance problems associated with the trees, such as interference with equipment operation or those that pose a threat to the safety of workers. Trees would be felled using a chainsaw and would be lopped and scattered within the ROW and outside the wire zone. The wire zone is the area directly under the wires and extends outward approximately 10 feet on each side (NERC 2009).

Visual Resources

- The standard structures proposed for the Proposed Action would be self-supported H-frame structures. The structures would consist of two wood poles approximately 55 feet tall above ground level, spaced 15.5 feet apart, and connected by a crossarm that is approximately 32 feet wide. Three insulators and three conductors would be attached to the crossarm.
- No paint or permanent discoloring agents would be applied to rocks or vegetation to indicate limits of survey or construction activity.
- Construction operations would be conducted to prevent unnecessary destruction, scarring, or defacing of the natural surroundings in order to preserve the natural landscape to the extent practicable.
- Conductor and wire would meet industry nonspecular (nongloss) standards.
- Where vegetation clearing is required, irregular clearing and feathering techniques to avoid straight lines would be implemented.

2.1.8 Operation and Maintenance

The daily operation of the transmission line would be directed by system dispatchers in a control center in Kanab, Utah. The dispatchers use communication facilities to control the transfer of electrical power throughout the system.

Maintenance activities consist of routine maintenance, major maintenance, and emergency maintenance. Routine maintenance activities are typical tasks that are carried out on a regular basis. They are limited in scope and are accomplished by a small crew using a minimum amount of equipment. Examples of routine maintenance include aerial and ground inspections, structure testing and repair, vegetation management, and road maintenance.

Major maintenance activities are relatively large-scale efforts that occur infrequently. These types of activities require planning and budgeting in advance of agency coordination. They involve larger work crews and a variety of equipment, including heavy construction equipment, as compared to routine maintenance activities. Because these types of activities are larger in scope and longer in duration, Garkane would notify the appropriate BLM authorized officer before initiating major maintenance activities. Examples of major maintenance include structure replacement and/or relocation, conductor replacement, and access route reconstruction and relocation.

While the continued operation and maintenance of the transmission line would minimize emergencies, unforeseen emergency conditions may arise. An example of emergency maintenance activities would be activities to restore power due to a transmission structure or conductor failure. In these cases, Garkane would notify the appropriate BLM authorized office concurrently with responding to the emergency.

2.1.9 Termination

If the project were to be terminated or abandoned, a joint inspection would be held with the BLM authorized officer before termination in order to agree on an acceptable rehabilitation plan for the area.

2.2 No Action Alternative

Under the No Action Alternative, the BLM would not issue a new authorization for expansion of the ROW and the construction of the new transmission line would not occur. Garkane's customers serviced by the Buckskin, Kanab, and Fredonia Substations would continue to be served by the existing 69kV line, and capacity for additional/future users to connect to the local grid would be limited.

2.3 Alternatives Considered but Eliminated from Further Analysis

According to Council on Environmental Quality regulations and NEPA case law, alternatives may be dropped from further consideration for a number of reasons—including not responding to the purpose and need statement, infeasibility, inconsistency with basic policy objectives for management of the area, speculative in nature, more significant effects than the Proposed Action, and effects indistinguishable from the Proposed Action. The following alternatives were initially considered for analysis but were eliminated from further consideration for the reasons stated below.

2.3.1 Install the Upgraded 138kV System on Existing Infrastructure

Installing the upgraded 138kV conductor on the existing infrastructure was considered but eliminated from further analysis because the existing structures do not have the required strength and height to support the heavier conductor required for the 138kV system. The proposed conductor is approximately two times heavier than the existing conductor and would not be supported on the existing structures. In addition, the proposed conductor has different sag characteristics. If the proposed conductor were installed on existing structures, the structures would not meet the regulatory strength, height, and ground-clearance requirements.

2.3.2 Implement Energy Conservation Measures

Implementing energy conservation measures was considered but eliminated from further analysis because these measures alone would not be sufficient to reduce demand and capacity loads on the existing 69kV lines. Based on the results of the 2010 study by Electrical Consultants Inc. on the existing transmission system, implementing conservation measures would not provide sufficient reductions in use to avoid the need for upgrading the existing line. Reduced loads and demand would not be sufficient to avoid construction of the proposed 138kV transmission line. Currently, Garkane encourages customers to conserve energy by providing energy-saving measures, tips, and incentives.

2.3.3 Buried Line Alternative

Using underground transmission cable at the proposed voltage has been shown to be justified only in very densely populated metropolitan areas with multiple sources and paths over very short distances. Buried lines of

this length would require redundancy, should repairs be required. Any maintenance needs for an underground line would require a long shut-down period of electrical service from weeks to months, partly due to availability of materials. If lines were buried, additional lines would be required to provide service during repairs. As the sole electrical transmission to the communities, outages of this length make this alternative infeasible. Burying the transmission line from the Buckskin to Kanab and Fredonia Substations or for substantial portions of the line was considered but eliminated from further analysis.

2.3.4 Construct a New Transmission Line from Glen Canyon to Fredonia

A new transmission line from Glen Canyon to Fredonia would cross approximately twice the miles of federal lands. This transmission line would require extensive modifications to the Glen Canyon and Fredonia Substations, which would increase project costs and complexity. The Glen Canyon Substation is not operated by Garkane and would require the cooperation, coordination, and agreement of several federal agencies and electric utilities.

3.0 AFFECTED ENVIRONMENT

3.1 Introduction

This chapter describes the existing environmental conditions of the Proposed Action and No Action alternatives. The project area consists of a proposed ROW area of 498 acres (125 feet wide by 32.9 miles long), 233 acres of which are on BLM-administered lands, 236 acres are on private lands, and 29 acres are on ASLD-managed lands.

3.2 General Setting

The project area is located in northwestern Coconino County, Arizona and southern Kane County, Utah. The Buckskin to Kanab and Fredonia transmission line begins at the existing Buckskin Substation, located northeast of Buckskin Gulch and immediately east of U.S. 89, and continues west along the base of the Vermillion Cliffs across the Kanab Plateau. The line splits when it crosses Lost Spring Wash, with one line continuing west to the existing Kanab Substation and the other line continuing southwest along the west side of Lost Spring Wash and the eastern base of the Shinarump Cliffs to the existing Fredonia Substation in Arizona. The project area ranges from 4,500 feet above mean sea level at the west end to 5,600 feet above mean sea level at the east end. The area is within the Grand Staircase section of the Colorado Plateau physiographic region; this region is characterized by a series of cliffs and associated flat terraces rising in succession from the south to the north. Prominent topographic landforms surrounding the area include Kanab Creek to the west, the Vermilion Cliffs immediately to the north, the Shinarump Cliffs immediately west of the southern branch of the line, Crescent Butte immediately north of the middle segment of the line, and Telegraph Flat to the east.

The nearest permanent water sources are Kanab Creek, located approximately 1 mile west of the western end of the project area, and the Paria River, located approximately 7 miles east of the project area. Topography in the project area consists of rolling terrain crosscut by several large drainages—including Johnson, Seaman, Petrified Hollow, and Buckskin Washes—and numerous smaller drainages. The drainages are seasonally active and flow south-southeast into Johnson Wash. Sediments are reddish-brown eolian- and alluvial-deposited sand and silt with pebble- to cobble-sized gravels. Exposures of sandstone outcrops and boulders are visible in many locations and are particularly common along ridgelines.

3.3 Resources/Issues Brought Forward for Analysis

Issues were identified for this assessment by considering the resources that could be affected by implementation of one of the alternatives. After reviewing the Proposed Action, the Kanab Field Office and GSENM resource specialists determined the rationale for analyzing or not analyzing the potential impacts on resources in their portions of the project area in Utah. The Arizona Strip Field Office resource specialist addressed the potential impacts to resources in their portion of the project area in Arizona. Two Interdisciplinary Team Checklists were completed for the respective portions of the project area; both are included in Appendix A. The existing conditions of those resources with a potential for impacts as defined by the BLM are described below in the order listed in the checklists.

3.3.1 Air Quality

Air quality is evaluated by measuring ambient concentrations of pollutants known to have deleterious effects. The Environmental Protection Agency has developed National Ambient Air Quality Standards (NAAQS) for six criteria pollutants: carbon monoxide, nitrogen dioxide, particulate matter, ozone, sulfur dioxide, and lead

(42 USC 7409). The Utah and Arizona Departments of Environmental Quality regulate air quality in their respective states, and both have adopted the federal NAAQS as state standards. The project area includes portions of Kane and Coconino Counties. Both counties are in attainment for all criteria pollutants.

Fugitive dust from unpaved roads and other sources is included in the larger category of particulate matter and is the most relevant criteria pollutant associated with this project. Fugitive dust, as defined by the Utah Department of Environmental Quality, refers to particles of soil, ash, or minerals that become airborne due to natural causes, such as wind, or mechanical disturbances, such as vehicles driving on unpaved roads and construction and demolition activities. Fugitive dust contributes to particulate matter emissions to the atmosphere and must be minimized in order to meet NAAQS.

3.3.2 Biological Soil Crusts

Biological soil crusts can be found extensively throughout the sagebrush shrublands and pinyon-juniper woodlands within the project area. These particular soils are composed of varying microorganisms, including algae, fungi, cyanobacteria, and lichens, and act as soil stabilizers that retain soil moisture, prevent runoff, and reduce the erosion of easily destabilized soils. Biological soil crusts are fragile and, if damaged, may take up to 7 years to regenerate. Field surveys determined that biological soil crusts are distributed throughout the project area where pinyon-juniper and sagebrush communities have sparse herbaceous understories. Biological soil crusts were not found in communities where the percent composition of grass species was high or where infestations of invasive species such as Russian thistle were high.

3.3.3 Cultural Resources

The National Historic Preservation Act, as amended, and its implementing regulations (36 CFR 60 and 800) require that federal agencies take into account the effects of their undertakings on cultural resources that are listed or eligible for listing on the National Register of Historic Places (NRHP). Eligible, potentially eligible, or listed resources are labeled "historic properties." In accordance with the act, an intensive archaeological field investigation of the project area was conducted in December 2015 (Adams, Ligman, and Fowler 2016) to identify historic properties within the limits of the project area—referred to as the area of potential effect (APE)—for cultural resources.

Cultural resources are defined as any definite location of past human activity identifiable through field survey, historical documentation, and/or oral evidence. Cultural resources include archaeological or architectural sites, structures, or places, as well as places of traditional cultural or religious importance to specified groups whether or not represented by physical remains. Cultural resources provide data regarding past technologies, settlement patterns, subsistence strategies, and many other aspects of history.

The prehistory of the region can be broken down into a series of developmental stages based on changing technologies, economics, and social systems. The area's prehistory can be divided into six periods that reflect considerably different lifeways. The major periods include Paleoarchaic (also known as Paleoindian; 11,000 to 7,500 B.C.), Archaic (7,500 B.C.to A.D. 400), Basketmaker (2,000 B.C. to A.D. 700), Puebloan (A.D. 700 to 1300), late prehistoric (A.D. 1300 to 1776), and historic (A.D. 1776 to present).

Examination of the APE resulted in the identification and documentation of 9 newly recorded cultural sites and the relocation of 29 previously recorded sites. A total of 15 previously recorded sites are eligible for the NRHP, along with 7 newly recorded sites. See Table 4 for information on these sites.

Table 4. Cultural Resource Sites within the Area of Potential Effect

Site Number	Site Type	NRHP Eligibility
42KA1596/2345/5848	prehistoric habitation site, historic artifact scatter	Eligible
42KA3480	prehistoric artifact scatter	Eligible
42KA4226 (revisited previous segment)	historic road alignment	Not eligible
42KA4226 (newly recorded segment)	historic road alignment	Not eligible
42KA6437/7198	prehistoric artifact scatter	Eligible
42KA6579	Prehistoric artifact scatter	Eligible
42KA6776	Prehistoric artifact scatter	Not eligible
42KA6777	Prehistoric artifact scatter	Not eligible
42KA6778	Prehistoric artifact scatter	Not eligible
42KA6797	Historic road alignment (Fivemile Mountain Road)	Not eligible
42KA6801	Prehistoric artifact scatter	Eligible
42KA6802	Prehistoric lithic scatter	Eligible
42KA6806	Prehistoric lithic scatter	Not eligible
42KA6810	Prehistoric lithic scatter	Not eligible
42KA6812	Prehistoric campsite	Eligible
42KA6813	Prehistoric lithic scatter with historic isolate	Not eligible
42KA6814	Prehistoric campsite	Eligible
42KA6815	Prehistoric lithic procurement area	Eligible
42KA6818*	Prehistoric artifact scatter with features	Recommended eligible
42KA6819	Prehistoric lithic scatter	Not eligible
42KA6820	Prehistoric artifact scatter	Not eligible
42KA6821	Prehistoric artifact scatter	Eligible
42KA6823	Prehistoric artifact scatter	Eligible
42KA6858	Prehistoric campsite	Eligible
42KA6866	Prehistoric campsite	Eligible
42KA7021	Prehistoric lithic scatter	Not eligible
42KA7197	Prehistoric artifact scatter	Eligible
42KA7899	Prehistoric lithic scatter	Not eligible
42KA7900	Prehistoric lithic scatter	Eligible
42KA8066	Prehistoric campsite	Eligible
42KA8067	Prehistoric artifact scatter	Eligible
42KA8068	Prehistoric artifact scatter	Eligible
42KA8069	Prehistoric campsite	Eligible
42KA8070/AZ B:3:90(ASM)	Historic road	Not eligible

Site Number	Site Type	NRHP Eligibility
42KA8078	Historic artifact scatter	Not eligible
42KA8079	Historic artifact scatter	Not eligible
AZ B:2:35(BLM)	Prehistoric artifact scatter	Eligible
AZ B:2:60(ASM)	Prehistoric artifact scatter	Eligible
GA-52-ML	Prehistoric lithic scatter	Not eligible
GA-53-ML	Historic road alignment	Eligible

Table Note: * 42KA6818 is associated with the proposed Lake Powell Pipeline project (UT State Project No. U09SJ0015); all site forms are still in draft form awaiting the State Historic Preservation Office review and comments. BLM archaeologist Matthew Zweifel provided information on sites that are located within or close to the APE.

Portions of two historic trails are paralleled by the project alignment: the Old Spanish and Honeymoon Historic Trails. The Old Spanish Trail was designated by Congress as a national historic trail in 2002. The Old Spanish National Historic Trail crosses 1,200 miles of terrain from Los Angeles, California, to Santa Fe, New Mexico. It was most heavily used between 1829 and 1848 as a pack trade route and was initially popularized by Mexican trader Antonio Armijo; the portion of the Old Spanish National Historic Trail present in the APE is known as the Armijo Route (Old Spanish Trail Association 2016). The trail was used for trade and as an emigrant route and traversed very rugged and dry terrain. In 1848, the need for the trail ceased after the U.S. Mexican War ended and wagon routes were opened from Arizona and Salt Lake City (Old Spanish Trail Association 2016).

The Honeymoon Historic Trail is a name that was given to a remote, primitive wagon road that was the main travel route between early Mormon settlements in southern Utah and northern Arizona in the late nineteenth century (BLM 2011). Arizona Mormon settlers had to travel to St. George, Utah, to get married in the St. George Temple; because so many newlyweds used the route, it became known as the Honeymoon Trail.

The proposed transmission line parallels the Old Spanish National Historic Trail (Armijo Route) for approximately 26 miles. No traces of this trail were identified during the cultural resources survey of the ROW. In addition, the project alignment parallels the Honeymoon Historic Trail for approximately 14 miles along the ROW. No traces of this trail were identified during the cultural resources survey of the ROW.

3.3.4 Fish and Wildlife, Excluding U.S. Fish and Wildlife Service Designated Species

3.3.4.1 General Wildlife

The project area supports various wildlife species in low to moderate density. The proximity of the project area to U.S. 89 limits the potential for movement of high densities of wildlife and fragments suitable habitat to support them. Species known to occur within the project area include mule deer (*Odocoileus hemionus*), black-tailed jackrabbit (*Lepus californicus*), coyotes (*Canis latrans*), bobcat (*Lynx rufus*), mountain lion (*Puma concolar*), gray fox (*Urocyon cniereoargenteus*), pinyon jay (*Gymnorhinus cyanocephalus*), American kestrel (*Falco sparverius*), western kingbird (*Tyrannus verticalis*), blue-gray gnatcatcher (*Polioptila caerulea*), kangaroo rat (*Dipodomys* sp.), rock pocket mouse (*Chaetodipus intermedius*), collared lizard (*Crotaphytus collaris*), and western rattlesnake (*Crotalus oreganus*), as well as various other rodents and reptiles. The climate of the region supports many wildlife species year round and throughout species' life cycles. The project area lies within an important mule deer spring and winter migration route. Table 5 lists the general wildlife species observed within the project area.

Table 5. General Wildlife Observations in the Project Area

Common Name	Scientific Name	Method of Observation
Desert cottontail	*Sylvilagus audubonii*	Visual
Bobcat	*Lynx rufus*	Tracks
Coyote	*Canis latrans*	Tracks
Black-tailed jackrabbit	*Lepus californicus*	Visual, scat
Mule deer	*Odocoileus hemionus*	Visual, tracks, scat
Gray fox	*Urocyon cinereoargenteus*	Tracks
Mountain lion	*Puma concolor*	Tracks
Striped skunk	*Mephitis mephitis*	Tracks
California quail	*Callipepla californica*	Visual
American crow	*Corvus brachyrhynchos*	Visual
Northern flicker	*Colaptes auratus*	Visual

Table Source: Eddie 2016.

3.3.4.2 Migratory Birds

Various migratory birds are known to occur throughout the project area, which they use as habitat for foraging, migratory stop overs, roosting, and nesting. Migratory birds typically nest between April 1 and August 31. The varying topography, including cliff faces, desert washes, and valley bottoms, combined with riparian corridors, grasslands, shrublands, and pinyon-juniper forests, provide ample nesting habitat in the project area vicinity.

Migratory birds are abundant within the project area. Common species associated with warm-season grasslands, sagebrush shrublands, and pinyon-juniper woodlands can be observed throughout. Species visually identified within the project area are included in Table 6. There are 11 species on the U.S. Fish and Wildlife Service's list of Birds of Conservation Concern that have the potential to occur within the project vicinity. Of those species, bald eagle (*Haliateetus leucocephalus*) and golden eagle (*Aquila chrysaetos*) are known to occur in the project area.

Table 6. Migratory Birds Observed within the Project Area

Common Name	Scientific Name
Bald eagle	*Haliateetus leucocephalus*
Red-tailed hawk	*Buteo jamaicensis*
Red-tailed hawk (juvenile dark morph)	*Buteo jamaicensis*
Swainson's hawk	*Buteo swainsoni*
American kestrel	*Falco sparverius*
Sage sparrow	*Artimisiospiza nevadensis*
Dark-eyed junco	*Junco hyemalis*
Roadrunner	*Geococcyx californianus*
Northern flicker	*Colaptes auratus*
American crow	*Corvus orachyrhynchos*
California quail	*Callipepla californica*

Table Source: Eddie 2016.

3.3.4.3 BLM Sensitive Species

In addition to species listed under the Endangered Species Act as threatened, endangered, or species of concern, BLM manages for species designated as sensitive on BLM-administered lands. These species are native to the administered lands and may be protected under other federal and state laws. Species designated as BLM sensitive species include species that have been delisted from the Endangered Species Act within the last 5 years.

No BLM sensitive amphibians, reptiles, or fish are anticipated to occur within the project area. There are five BLM sensitive bird species with the potential to occur within the project area: bald eagle, western burrowing owl (*Athene cunicularia*), ferruginous hawk (*Buteo regalis*), American peregrine falcon (*Falco peregrinus*), and golden eagle (*Aquila chrysaetos*). There is no roosting or breeding habitat for BLM sensitive bat species within the project area. However, the project's proximity to Jackson Flat reservoir increases the likelihood for bat species such as Allen's big-eared bat (*Idionycteris phyllotis*), Townsend's big-eared bat (*Corynorhinus townsendii*), and big free-tailed bat (*Nyctinomopa macrotus*) to travel through or forage in the project vicinity.

Peregrine falcons have been observed in the vicinity of the project area in Johnson Canyon to the north and Buckskin Gulch to the east. There were no peregrine falcons observed, and there is no suitable nesting or roosting habitat within the project area. Peregrine falcons may move through the area to water sources and foraging habitat.

3.3.5 Floodplains

Floodplains provide a variety of natural resource benefits to watersheds. Surface water, groundwater, and floodplains function together within a watershed and have an integrated effect on how water moves through an ecosystem. Floodplains play an important role in water resources in the form of providing flood storage and water conveyance, reducing flood velocities and flood peaks, and reducing sedimentation. They also play a role in area water quality by filtering nutrients and impurities while also regulating water temperature. In many cases, floodplains also serve to recharge groundwater aquifers. The conveyance of water during flood events shapes the floodplain, while the floodplain shapes and attenuates flows.

There are several streams and stream courses within the project area and its vicinity. These include Johnson Wash, Kitchen Corral Wash, Buckskin Wash, Lost Spring Wash, and other small streams and washes. The washes are typically dry washes without active floodplains. Johnson, Kitchen, and Buckskin Washes are identified on the Federal Emergency Management Agency (FEMA) floodzone maps as Zone A in Kane County. "Zone A" refers to areas subject to inundation by the 1 percent annual chance flood event. No base flood elevations are available for Zone A floodzones.

3.3.6 Hydrologic Conditions

The hydrologic conditions within the project area are described above in Section 3.3.5. Several dry washes but no streams exist within the ROW. Some of these washes may fill with water during seasonal storm events but will not remain inundated once the events are over.

3.3.7 Recreation

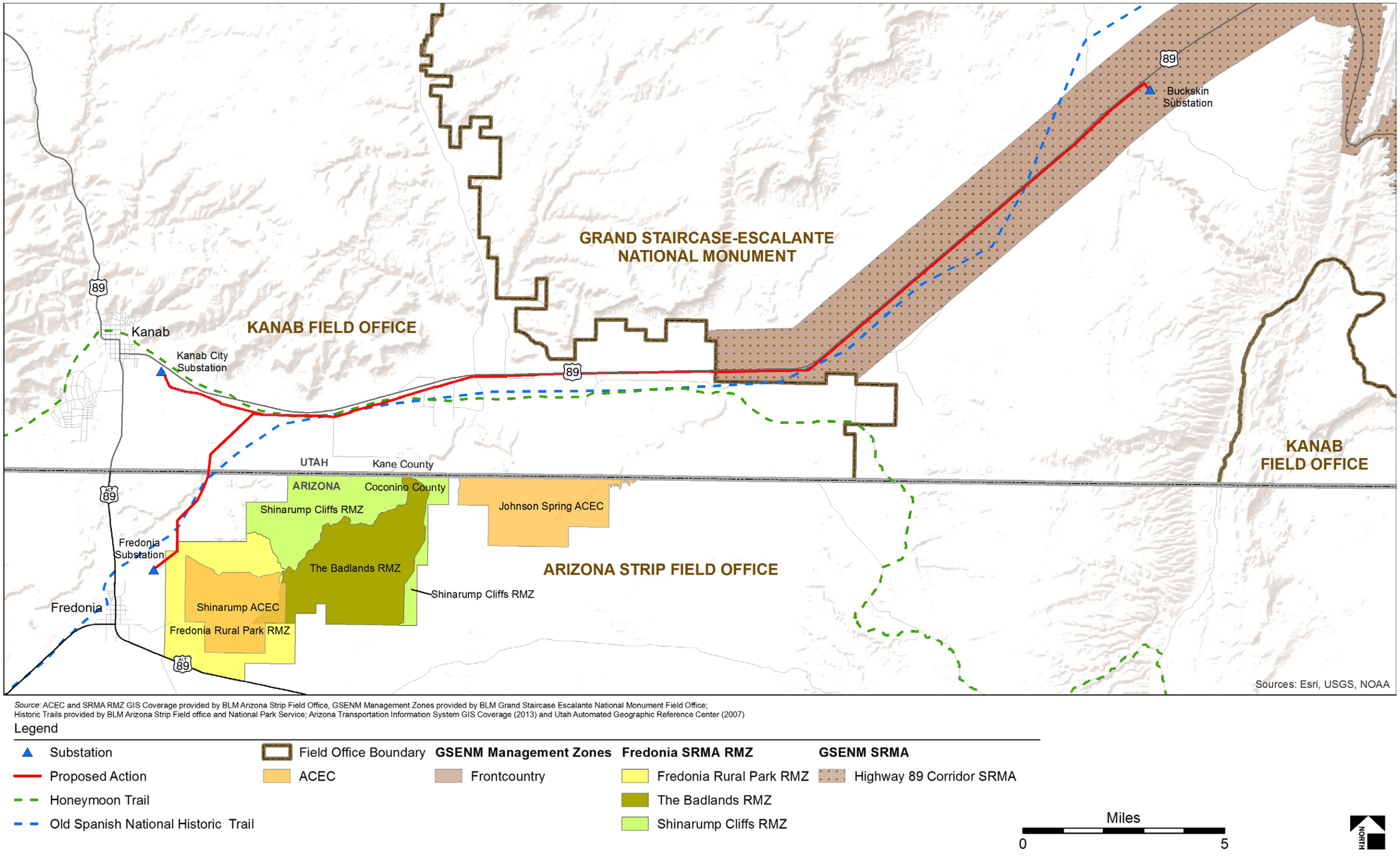
3.3.7.1 Recreation Management Areas

The BLM designates recreation management areas, which are classified as either special recreation management areas (SRMAs) or extensive recreation management areas (ERMAs). The SRMAs are structured outdoor recreation opportunities offering a range of specific benefits, activities, and experiences. Each SRMA targets a distinct, primary recreation-tourism market, as well as a corresponding and distinguishing recreation management strategy. Any areas not delineated as SRMAs are identified as one or more ERMAs. The ERMAs feature dispersed, unstructured recreation opportunities that focus only on visitor health and safety, user conflict, and resource protection issues. The recreation management areas within the project area are the Fredonia and Highway 89 Corridor SRMAs and the Arizona Strip ERMA. Within each SRMA, one or more potential recreation management zones (RMZs) are identified, with each zone providing for a particular recreation focus within the overall SRMA.

The Fredonia SRMA (14,969 acres) consists of the Shinarump Cliffs RMZ (3,965 acres), Badlands RMZ (5,151 acres), and Fredonia Rural Park RMZ (5,853 acres), which are located east of Fredonia (Figure 5).The primary strategy for the Fredonia SRMA is to target a demonstrated community recreation-tourism market demand from primarily local communities, as well as some regional visitors, for motorized/mechanized/ nonmechanized exploring, horseback riding, hiking, and viewing and appreciating natural landscapes. This demand is supported by the area's distinctive landscape and its close proximity to the communities of Fredonia and Kanab; local recreation-tourism visitors value these public lands as their own "backyard" recreation settings. The Shinarump Cliffs RMZ is managed for close-to-home, self-directed motorized/mechanized adventure for scenic, natural, and historic appreciation. The Badlands RMZ is managed for self-directed, primitive, adventure, and challenge exploration in a natural setting close to the two communities. The Fredonia Rural Park RMZ is managed for quick, easy access from town to sustainable day-use adventure, challenge, exercise, social, and outdoor recreation (BLM 2008c).

GSENM includes approximately 1.8 million acres of public lands, with 68 percent of the national monument located in Kane County (BLM 1999). Recreation is one of the major land uses within GSENM. Common activities include camping, hiking, backpacking, educational/therapeutic programs, hunting, wildlife viewing, photography, mountain biking, and off-highway-vehicle use. The Frontcountry Management Zone (78,056 acres, or 4 percent of the monument) is the focal point for visitation and provides day-use opportunities near adjacent communities and Highway 12 and U.S. 89 (Figure 5). Management zones are tools that guide decision-making on permitting visitor uses and other activities within the monument. The Highway 89 Corridor SRMA (43,947 acres) overlaps with the Frontcountry Management Zone. U.S. 89 is one of the primary access routes used by visitors who come to recreate within GSENM. Activities in this SRMA include scenic driving, day-use hiking, camping, road and mountain bicycling, and scenic and interpretive viewing. The recreation experience focuses on learning about geology, history, archaeology, biology, and paleontology, in addition to scenic viewing (BLM 1999).

The Arizona Strip ERMA (1,784,921 acres) is managed by the BLM at the custodial level for recreation related to visitor health and safety, for user conflicts, and for resource protection issues. In the ERMA, regulation of visitor use occurs only when monitoring indicates a trend toward unacceptable change to desired recreational settings brought about by such use. In general, management actions within ERMAs are implemented directly from land use plan decisions (BLM 2008c).



Source: ACEC and SRMA RMZ GIS Coverage provided by BLM Arizona Strip Field Office, GSENM Management Zones provided by BLM Grand Staircase Escalante National Monument Field Office; Historic Trails provided by BLM Arizona Strip Field office and National Park Service; Arizona Transportation Information System GIS Coverage (2013) and Utah Automated Geographic Reference Center (2007)

Legend

- Substation
- Proposed Action
- Honeymoon Trail
- Old Spanish National Historic Trail
- Field Office Boundary
- ACEC
- **GSENM Management Zones**
  - Frontcountry
- **Fredonia SRMA RMZ**
  - Fredonia Rural Park RMZ
  - The Badlands RMZ
  - Shinarump Cliffs RMZ
- **GSENM SRMA**
  - Highway 89 Corridor SRMA

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0 5

NORTH

Figure 5. Special Recreation Management Areas, Special Management Areas, and Historic Trails in Project Vicinity

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3.3.7.2 Designated-Use and Dispersed Recreation Areas

Public lands in Utah and Arizona receive considerable recreational use in the form of both designated-use areas and dispersed, unstructured activities outside designated-use areas. Designated-use areas within the project area include the two Great Western Trailheads along U.S. 89, near milepost 43.2. In addition to the two trailheads, approximately 155 feet of the Great Western Trail also passes through the project area. This trail is a corridor of multiple-use trails that traverse north to south from Canada to Mexico. Other regionally/nationally notable trails that cross the project area include the Old Spanish National Historic Trail and the Honeymoon Historic Trail. The existing transmission line crosses the roughly estimated alignments of the Old Spanish National Historic Trail eight times and the Honeymoon Historic Trail three times. As noted in Section 3.3.3, Cultural Resources, no traces of either of these historic trails were identified in the project area. Locally, the Joy Jordan Woodhill Trail Road is a popular two-track dirt and gravel road used by area residents that runs near the Fredonia Substation and along a portion of the existing transmission line. This road loops a distance of approximately 11.5 miles, goes close by the Clam Shell rock formation, and is used by hikers, bikers, and ATV riders.

Dispersed recreational activities are activities that occur on public lands but that are not located at developed sites or locations. These dispersed activities include off-highway-vehicle use, camping, hunting, fishing, touring historic trails, sightseeing, pleasure driving, rock hounding, photography, picnicking, hiking, mountain biking, snowmobiling, rafting, power boating, and general water play. This wide range of activities is possible because land within and adjacent to the project area is generally accessible and offers a variety of settings suitable for different recreational activities. U.S. 89 and State Route 89A are key access routes to backcountry destinations and state and national parks and recreational areas, such as Coral Pink Sand Dunes State Park, Zion National Park, and Lake Powell National Recreation Area.

3.3.8 Socioeconomics

The project area is composed of a mixture of private, ASLD, and BLM lands within Kane and Coconino Counties. A small portion of the Proposed Action would be located within the incorporated communities of Kanab and Fredonia. Table 7 and Table 8 provide demographic and economic statistics for both communities and their respective counties. Population projections for 2020 from the Governor's Office of Management and Budget (2016) estimate Kanab's population to be 5, 058 and Kane County's to be 8,357, which represent a 14 percent and 15 percent increase, respectively, from their 2014 populations. Although Fredonia's population is not expected to change noticeably from 2014 to 2019, Coconino County's 2014 population is expected to increase by 6 percent in 2019, according to the Arizona Department of Administration (2016).

Information on the various economic business sectors of the communities and counties in the project area, except Fredonia, is from the U.S. Census Bureau; information for Fredonia is from the Arizona Commerce Authority (Table 8). The Arizona Commerce Authority provides information for Fredonia on the local industry types ranked by the number of employees. The largest employment base reflects the predominance of the tourism industry—almost 24 percent of Fredonia's residents are employed in arts, entertainment, food, and recreation services. Education, health care, and social assistance (17 percent), manufacturing (13 percent), construction (12 percent), retail trade (11 percent), and agricultural (10 percent) are the other primary business sectors that make up Fredonia's economy.

The importance of the tourism industry is also reflected in the number of associated businesses such as recreation, accommodations, and food services in both counties and in the city of Kanab.

Table 7. Demographic Statistics for the Project Area

Demographic Factor	Town of Fredonia	Coconino County	City of Kanab	Kane County
2014 population	1,670	135,817	4,407	7,221
Median age	30.5	31.0	38.2	42.8
Total housing units	638	63,890	1,994	5,843
Median household income	$47,500	48,540	$54,708	$51,213
Individuals below poverty level	17.3%	23.8%	5.1%	8.5%
Race and Hispanic Origin				
White alone, not Hispanic or Latino	1,316	74,410	4,160	6,662
Hispanic or Latino (of any race)	42	18,683	143	299
Black or African American alone	0	2,009	18	43
American Indian and Alaska Native alone	213	36,504	0	47
Asian alone	41	2,120	0	23

Table Source: U.S. Census Bureau 2016a, 2016b.

Table 8. Major Business Sectors in the Project Area

Business Sector	Coconino County (Total Businesses)	City of Kanab (Total Businesses)	Kane County (Total Businesses)
Utilities	13	1	1
Construction	344	0	26
Manufacturing	89	3	4
Wholesale trade	106	0	4
Retail trade	597	34	40
Transportation and warehousing	109	9	14
Information	41	4	4
Finance and insurance	158	12	14
Real estate and rental leasing	184	10	18
Professional, scientific, and technical services	325	16	115
Education services	30	1	1
Health care and social assistance	395	12	12
Arts, entertainment, and recreation	91	3	9
Accommodation and food services	548	34	57
Other	340	12	23
Total	3,518	151	249

Table Source: Town of Fredonia data is from the Arizona Commerce Authority (2016). All other data is from the U.S. Census Bureau's Community Facts database (2016b).

3.3.9 Soils

The Natural Resources Conservation Service (NRCS) has not completed soil surveys for the project area. Current mapping data are limited to the Fredonia segment of the line and the portion of the project that crosses GSENM. The NRCS Web Soil Survey was queried to determine the soil types present within the project area. This was accomplished by defining an "area of interest" within the Web Soil Survey mapping tool. The area of interest identified six soil types within the mapped portions of the project area (Table 9) (NRCS 2015). In general, these soils can be described as sandy loam, sandy clay loam, and silty clay loam. All are well drained with no to low salinity.

Table 9. Soils in the Project Area

Map Unit Symbol	Map Unit Name	Landform; Parent Material
5167	Progresso, cool-Atchee family complex, 2 to 15 percent slopes	Alluvium
5171	Kenzo-Retsabal-Progresso, cool complex, 2 to 30 percent slopes	Gypsum bedrock residuum
5172	Ruinpoint-Barx complex, 2 to 8 percent slopes	Alluvium
8	Clayhole silty clay loam, 1 to 5 percent slopes	Gypsiferous alluvium derived from shale
16	Glenyon silty clay loam, 0 to 2 percent slopes	Mixed alluvium derived from igneous, metamorphic, and sedimentary rock
24	Manikan silty clay loam, 1 to 5 percent slopes	Mixed alluvium derived from igneous, metamorphic, and sedimentary rock

3.3.10 Threatened, Endangered, and Candidate Animal Species

There are no threatened, endangered, proposed, or candidate animal species or critical habitat known to be present in the project area. California condors are known to occur in the project vicinity. The California condor (*Gymnogyps californianus*), Mexican spotted owl (*Strix occidentalis lucida*), yellow-billed cuckoo (*Coccyzus americanus*), southwestern willow flycatcher (*Empidonax traillii extimus*), and two fish species are listed as endangered. Suitable habitat for the Mexican spotted owl, yellow-billed cuckoo, southwestern willow flycatcher, and two fish species does not occur within the project area. The project area lies within the range for the California condor. Condors have been observed in the vicinity of Kanab and to the east of the project area in Buckskin Gulch. While there is no condor nesting or roosting habitat within or adjacent to the project area, there is potential for condors to pass through the area. The California condor may occasionally fly over or feed in the project area at any time of year. California condors are federally listed as endangered, and a population of these condors was reintroduced on the Arizona Strip in 1996. This population is designated as experimental nonessential under Section 10(j) of the Endangered Species Act. Condors are strictly scavengers and prefer to eat large, dead animals such as mule deer, elk, pronghorn, bighorn sheep, cattle, and horses. Condors range widely, easily covering over 100 miles in a day, and their current range includes the entire Arizona Strip, as well as portions of southwestern Utah. There were no California condors observed during the surveys of the proposed ROW (Eddie 2016).

3.3.11 Water Resources/Quality

The project area does not contain perennial surface water features but does contain ephemeral washes that flow in response to rainfall. Three washes—Johnson Wash, Kitchen Corral Wash/Buckskin Wash, and Lost Spring Wash—are designated as Zone A (Special Flood Hazard Areas) in the FEMA Flood Insurance Rate Maps (4900830040A, 4900830032A, and 04005C0176G). Zone A areas represent the 100-year floodplain as delineated by FEMA (FEMA 2015).

Groundwater in the project vicinity is variable and ranges from 50 to 89 feet below the land surface based on U.S. Geological Survey (2016) information from four wells. Seasonal fluctuations in groundwater levels can be due to variations in precipitation, groundwater withdrawals, and other factors.

3.3.12 Woodland/Forestry

The project area falls within the Colorado Plateau Level III Ecoregion and specifically traverses the Semiarid Benchlands and Canyonlands, Sand Deserts, and Cold Desert Sagebrush Grasslands Level IV Ecoregions (subclasses of the Level III ecoregion). The Colorado Plateau is characterized by tableland topography. The vegetation is composed of pinyon-juniper and Gambel oak woodlands, sparsely vegetated canyonlands, and semiarid shrublands and grasslands.

The vegetation communities observed within the project area are dominated by sagebrush grasslands composed of Wyoming big sagebrush (*Artemisia tridentata*) and woodlands composed of singleleaf pinyon (*Pinus monophylla*), Utah juniper (*Juniperus osteosperma*), and Gambel oak (*Quercus gambelii*) in the higher-elevation hills and by mesic desert shrublands composed of alkali goldenbush (*Isocoma acradenia*), whiteflower rabbitbrush (*Chrysothamnus albidus*), threadleaf snakeweed (*Gutierrezia microcephala*), cholla (*Cylindropuntia* sp.), black grama (*Bouteloua eriopoda*), fourwing saltbush (*Atriplex canescens*), and extensive infestations of Russian thistle (*Salsola tragus*) in the lower elevations.

These ecoregions are known to contain forested communities as described above. However, with the exception of a stand of pinyon-juniper within the ROW in GSENM, there are limited forests and woodlands within the project area. Pinyon-juniper woodlands extend outside the ROW on the Monument and are found within the project vicinity.

3.3.12.1 Semiarid Benchlands and Canyonlands Ecoregion

The Semiarid Benchlands and Canyonlands ecoregion is characterized by warm-season grasses, winterfat (*Krascheninnikovia lanata*), Mormon tea (*Ephedra* sp.), fourwing saltbush, sagebrush (*Artemisia* sp.), and pinyon-juniper communities on shallow soils. Vegetation communities typical of this ecoregion were the most frequently observed throughout the project area and were dominated by sagebrush, fourwing saltbush, and juniper.

3.3.12.2 Sand Deserts Ecoregion

Sand Deserts are sparsely vegetated communities associated with sandy eolian deposits and shifting dunes. Vegetation associated with sand deserts often includes Indian rice grass (*Achnatherum hymenoides*), sand dropseed (*Sporobolus cryptandrus*), yucca (*Yucca* sp.), and blackbrush (*Coleogyne ramosissima*). This ecoregion is limited to an area immediately south and east of the city of Kanab. Few species representative of this ecoregion were observed in the project area. Mapped vegetation communities in portions of the project area crossing this ecoregion may have been converted for agriculture, developed, or transitioned to a successional community type.

3.3.12.3 Cold Desert Sagebrush Grasslands Ecoregion

Vegetation typical of the Cold Desert Sagebrush Grasslands includes winterfat, fourwing saltbush, sand sagebrush (*Artemisia filifolia*), buckwheat (*Eriogonum* sp.), bottlebrush squirreltail (*Elymus elymoides*), Indian rice grass, black grama, sideoats grama (*Bouteloua curtipendula*), gyp dropseed (*Sporobolus nealleyi*), and galleta (*Pleuraphis* sp.). Sagebrush shrublands with varying densities of grass species were observed in lower-elevation portions of the project area.

3.3.13 Visual Resources

The term "visual resources" refers to the composite of basic terrain, geologic and hydrologic features, vegetative patterns, and built features that influence the visual appeal of a landscape. The BLM uses the Visual Resource Management (VRM) System to classify and manage visual resources on lands under its jurisdiction. The VRM System involves inventorying scenic values, establishing management objectives for those values through the resource management planning process, and then evaluating proposed activities to determine whether they conform to the management objectives (BLM 1984). Table 10 displays the management objectives for each of the four VRM classes.

Table 10. BLM Visual Resource Management Class Objectives

Class	Management Objective
I	The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.
II	The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
III	The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
IV	The objective of this class is to provide for management activities which require major modifications of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

Table Source: BLM 1984.

The area of potential effect for visual resources is defined as the area within 5 miles from each side of the proposed ROW area centerline (10-mile total). The character of the existing visual resources in the project area varies because of the different natural and man-made features or elements in the landscape and the diverse patterns that these elements, when combined, create. The ability to discern change in the landscape primarily depends on distance (BLM 1984). For this analysis, the foreground distance zone is defined as the area up to 0.5 mile from the proposed ROW area centerline, and the middleground distance zone is the area from 0.5 mile to 5.0 miles.

Table 11 describes the existing landscape character and condition of the proposed ROW area in terms of general landforms, vegetation, built features, and land use by landscape character areas (LCAs). The LCA delineations are based on areas with common landform patterns and features, vegetation communities and patterns, built features, land use patterns, scarcity, and/or surface water resources compared to the Colorado Plateau Ecoregion. Nine LCAs were delineated: three in the Arizona Strip Field Office, two in the Kanab Field Office, and four in GSENM (Figure 6).

The entire proposed ROW area lies within the Colorado Plateau physiographic region , which is characterized by mesas, buttes, salt valleys, cliffs, and canyons (U.S. Environmental Protection Agency 2010). The proposed upgraded transmission line would traverse relatively flat to gently rolling terrain with vegetation consisting of a variety of low-growing plants such as sagebrush and rabbitbrush and a few cacti such as cholla and hedgehog. While the majority of land along the project area is undeveloped, communities of highly variable architectural character are found throughout the project area, ranging from sparse rural ranching areas to more dense residential areas with some commercial businesses. The majority of the populated areas are located in the western portion of project area because the remaining portion of the project area is dominated by federal and state land. Distinct built features found within the project area include rural homes and businesses, ranches and farmland, water tanks, substations, radio cell towers, utility poles and lines, and paved and unpaved roads. Distinct natural features visible from the project area include the Vermilion and Shinarump Cliffs; Kitchen Corral, Johnson, and Lost Spring Washes; and Buckskin Mountain.

View Eastbound along U.S. Highway 89

View Westbound along U.S. Highway 89 in Grand Staircase-Escalante National Monument

Figure 6 identifies VRM classes within the project area. Within the Kanab Field Office, the proposed ROW would be located within an area designated as VRM Class IV and areas evaluated as scenic quality Class C.[4] Within the Arizona Strip Field Office, the proposed ROW would be located within an area designated as VRM Class III and evaluated as scenic quality Class B. Of the approximately 13.5 miles of the proposed ROW within GSENM, approximately 2.9 miles would be located within an area designated as VRM Class II, and 10.6 miles within VRM Class III. Approximately 5.5 miles of this portion of GSENM would be within an area evaluated as scenic quality Class B, and 8.0 miles would be within an area evaluated as scenic quality Class C.

[4] "Scenic quality" is the visual appeal of a landscape. Relative scenic quality (A, B, or C) is assigned by rating the scenic quality evaluation key factors of landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications on a numerical scale. Landscapes that have the highest scenic value are rated as A; those that are less distinct and more common are rated as C (BLM 1986a).

Table 11. Existing Landscape Character

	Landforms	Vegetation	Built Features/Land Use
Lost Spring Wash **Arizona Strip Field Office** 	▪ **Form:** Flat to slightly rolling with incised, narrow wash ▪ **Line:** Horizontal, flat, simple ▪ **Color:** Bright rust/orange red visible in exposed wash; otherwise indistinct ▪ **Texture:** Flat, smooth, soft; hard line of wash banks from erosion ▪ **Distinct Natural Features Visible:** Lost Spring Wash ▪ **Adjacent Scenery:** Vermillion Cliffs, Shinarump Cliffs	▪ **Representative Species:** Predominantly low- to moderate-height shrubs and low grasses (sagebrush, rabbitbrush, broom snakeweed, grasses) ▪ **Height:** Shrubs: 3–4 feet; grasses: <1 foot ▪ **Texture/Pattern:** Dense overall; intermixed patchwork of grasses and shrubs ▪ **Colors:** Straw yellow, gray green, yellow brown, gray, gray/brown woody material, gold; light gold stippled throughout	▪ **Distinct Built Features:** Meteorological tower, transmission line, some residential development (isolated) ▪ **Land Use:** Utility alignment, meteorological tower and supplementary building
Shinarump Point **Arizona Strip Field Office** 	▪ **Form:** Layered, striated butte with exposed, horizontal rock banding and cliff faces ▪ **Line:** Horizontal banding with vertical lines in rock faces; definitive, strong ▪ **Color:** Reddish brown, rust, tans; some whites, light beige ▪ **Texture:** Coarse, rigid, rough ▪ **Distinct Natural Features Visible:** Shinarump Point ▪ **Adjacent Scenery:** Vermillion Cliffs, Shinarump Cliffs	▪ **Representative Species:** Pinyon-juniper, sagebrush, rabbitbrush, low grasses ▪ **Height:** Pinyon-juniper: 10–12 feet; shrubs: 3–4 feet; grasses : <1 foot ▪ **Texture/Pattern:** Scattered mix of vegetation along slopes; dense pinyon-juniper with other species intermixed on top of butte. ▪ **Colors:** Pinyon-juniper dark green, gray green, yellow brown, straw yellow, bright green, gray/brown woody material; seasonal variety of grasses	▪ **Distinct Built Features:** Transmission line ▪ **Land Use:** Utility alignment
Lost Spring **Arizona Strip Field Office** 	▪ **Form:** Low, linear, rounded mounds; undulating, rhythmic, directional ▪ **Line:** Horizontal, converging; inconsistent ▪ **Color:** Light tan, light gray to khaki, ash gray, beige ▪ **Texture:** Consistent, repetitive ▪ **Distinct Natural Features Visible:** No dominant natural features ▪ **Adjacent Scenery:** Shinarump Cliffs, Cowboy Butte, Vermillion Cliffs, Buckskin Mountains	▪ **Representative Species:** Sagebrush, rabbitbrush, Mormon tea, fourwing saltbush, broom snakeweed ▪ **Height:** Shrubs: <3 feet; grasses and groundcover: <1 foot ▪ **Texture/Pattern:** Stippled to dense; all species intermixed ▪ **Colors:** Gray green, straw yellow, yellow green, bright greens, rust/gold tones, gray tones, yellow green	▪ **Distinct Built Features:** Transmission/distribution lines ▪ **Land Use:** Utility corridor, recreation access

	Landforms	Vegetation	Built Features/Land Use
Telegraph Flat **Grand Staircase-Escalante National Monument** 	▪ **Form:** Flat to slightly rolling, gently sloping ▪ **Line:** Flat to slightly undulating, simple ▪ **Color:** Light tan, khaki, beige; some whites, pinkish hues ▪ **Texture:** Smooth, simple, continuous ▪ **Distinct Natural Features Visible:** Telegraph Flat, Telegraph Wash ▪ **Adjacent Scenery:** Vermillion Cliffs, White Cliffs	▪ **Representative Species:** Pinyon-juniper, sagebrush, rabbitbrush, globemallow, low grasses; predominantly shrub mix with scattered, interspersed pinyon-juniper ▪ **Height:** Pinyon-juniper: 10–12 feet; shrubs: 3–4 foot; grasses: <1 foot ▪ **Texture/Pattern:** Dense sagebrush and grasses with interspersed pinyon-juniper ▪ **Colors:** Pinyon-juniper dark green, straw yellow, gray green, yellow brown, bright greens; seasonal variety of wildflowers (globemallow)	▪ **Distinct Built Features:** 69kV transmission line, game fence, below-grade wildlife corridor, U.S. 89 ▪ **Land Use:** Recreation (Great Western Trail), grazing, utility corridor
Petrified Hollow Wash **Grand Staircase-Escalante National Monument** 	▪ **Form:** Lumpy, distinctive; small-stature mounds; varied, domed, dune-like ▪ **Line:** Ruggedly undulating, varied, broken; horizontal striations of color ▪ **Color:** Tans, burnt orange, vermillion, salmon tones, beige, white; varied red to brown tones ▪ **Texture:** Coarse, rough ▪ **Distinct Natural Features Visible:** No dominant natural features ▪ **Adjacent Scenery:** Vermillion Cliffs, White Cliffs, Shinarump Cliffs	▪ **Representative Species:** Pinyon-juniper, rabbitbrush, sagebrush, low grasses, globemallow ▪ **Height:** Pinyon-juniper: 10–12 feet; shrubs: 3–4 feet; grasses: <1 foot ▪ **Texture/Pattern:** All species intermixed; no distinctive vegetation transition ▪ **Colors:** Pinyon-juniper dark green, straw yellow, gray green, yellow brown, bright greens; seasonal variety of wildflowers (globemallow); gray/brown woody material	▪ **Distinct Built Features:** 69kV transmission line, game fence ▪ **Land Use:** Grazing, recreation, utility corridor
Buckskin **Grand Staircase-Escalante National Monument** 	▪ **Form:** Gently rolling, sloping ▪ **Line:** Undulating, soft, repeating ▪ **Color:** Khaki, light brown, reddish brown ▪ **Texture:** Soft, repetitive, continuous ▪ **Distinct Natural Features Visible:** Buckskin Gulch ▪ **Adjacent Scenery:** Telegraph Flat, Vermillion Cliffs, White Cliffs	▪ **Representative Species:** Pinyon-juniper, rabbitbrush, sagebrush, low grasses, globemallow ▪ **Height:** Pinyon-juniper: 10–12 feet; shrubs: 3–4 feet; grasses: <1 foot ▪ **Texture/Pattern:** Continuous, dense; gradual transition between vegetation types; blended species mix ▪ **Colors:** Pinyon-juniper dark green, straw yellow, gray green, yellow brown, bright greens; seasonal variety of wildflowers (globemallow); gray/brown woody material	▪ **Distinct Built Features:** 69kV transmission line, roadway stockpile, borrow pit, game fence, below-grade wildlife corridor, substation, U.S. 89 ▪ **Land Use:** Recreation, grazing, utility corridor

	Landforms	Vegetation	Built Features/Land Use
The Seeps **Kanab Field Office** 	▪ **Form:** Flat to slightly rolling; simple ▪ **Line:** Horizontal, simple; generally indistinct ▪ **Color:** Tans, light reddish brown, some beige ▪ **Texture:** Smooth, fine, simple ▪ **Distinct Natural Features Visible:** No dominant natural features ▪ **Adjacent Scenery:** Vermillion Cliffs, Crescent Butte	▪ **Representative Species:** Predominantly sagebrush, rabbitbrush, globemallow, grasses, and agricultural crops; scattered pinyon-juniper, clustered occasional riparian and domestic vegetation ▪ **Height:** Shrubs: <3 feet; grasses and agricultural crops: <2 feet; pinyon-juniper: 10–12 feet; riparian and domestic <30 feet ▪ **Texture/Pattern:** Dense native shrubs interrupted by hard lines of agriculture fields; scattered, clustered riparian and domestic vegetation ▪ **Colors:** Gray green, straw yellow, pinyon-juniper dark green, cottonwood bright green, yellow-green, gold, gray/brown woody material; seasonal variety	▪ **Distinct Built Features:** Farming and ranching implements, residential development, game fences, 69kV transmission line ▪ **Land Use:** Farming, residential, grazing, utility corridor
Seaman Wash **Grand Staircase-Escalante National Monument, Kanab Field Office** 	▪ **Form:** Flat to slightly rolling hills; broad, linear hills; expansive ▪ **Line:** Horizontal, undulating, gradual, simple ▪ **Color:** Light tan, beige, whites; red hues intermixed ▪ **Texture:** Simple, flowing, gentle ▪ **Distinct Natural Features Visible:** No dominant natural features ▪ **Adjacent Scenery:** Vermillion Cliffs	▪ **Representative Species:** Pinyon-juniper, sagebrush, rabbitbrush, globemallow, low grasses; predominantly shrub mix with scattered, interspersed pinyon-juniper ▪ **Height:** Pinyon-juniper: 10–12 feet; shrubs: 3–4 feet; grasses: <1 foot ▪ **Texture/Pattern:** Dense sagebrush and grasses with interspersed pinyon-juniper; broken lines at pinyon-juniper/shrub transition ▪ **Colors:** Pinyon-juniper dark green, straw yellow, gray green, yellow brown, bright greens; seasonal variety of wildflowers (globemallow)	▪ **Distinct Built Features:** 69kV transmission line, game fences, below-grade wildlife corridors ▪ **Land Use:** Grazing, recreation, utility corridor

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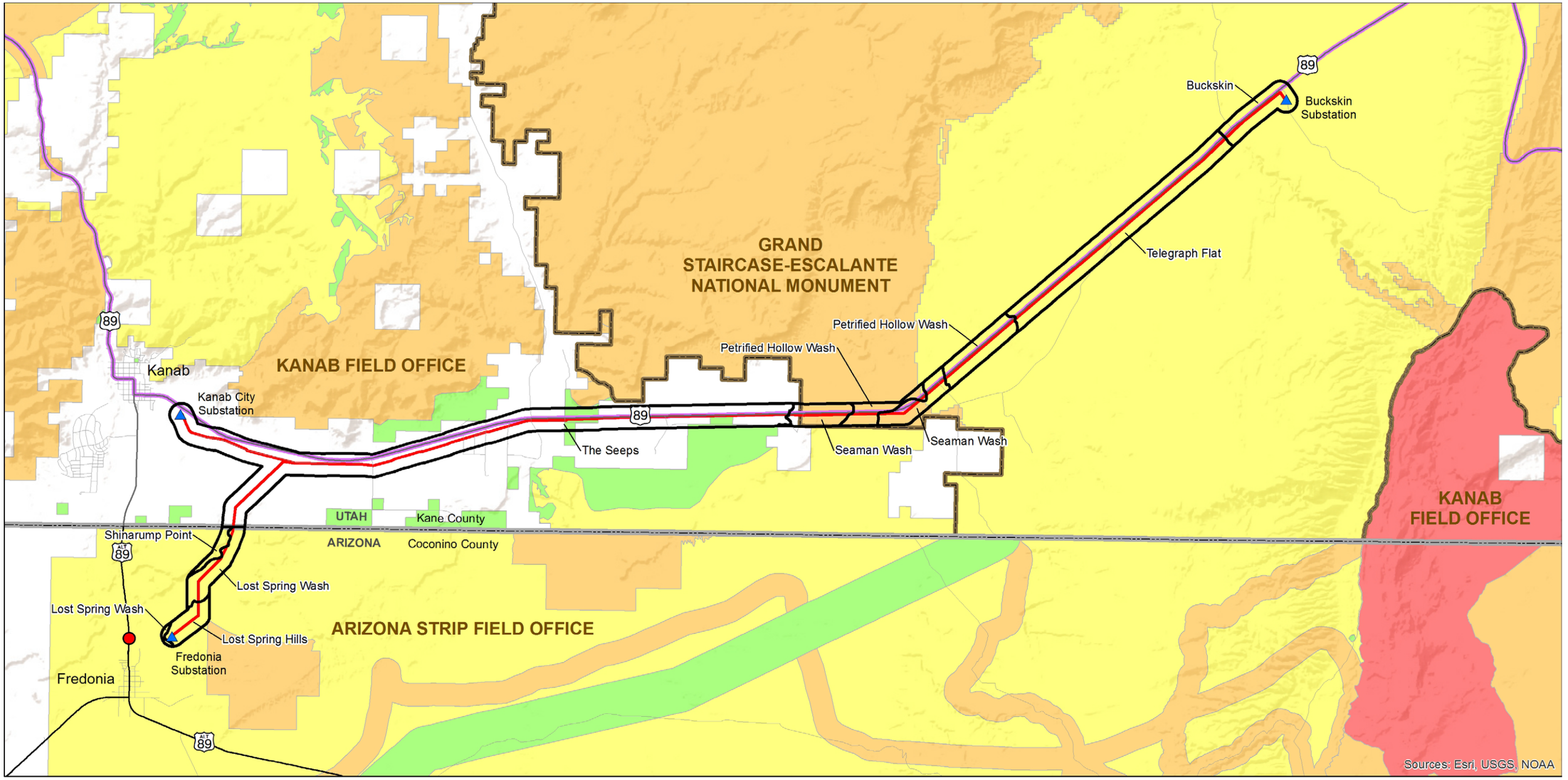

Source: VRM Class GIS Coverage provided by BLM Kanab Field Office, BLM Grand Staircase Escalante National Monument, BLM Arizona Strip Field Office; Arizona Transportation Information System GIS Coverage (2013) and Utah Automated Geographic Reference Center (2007)

Legend

- Substation
- Stationary Key Observation Point
- Linear Key Observation Platform
- Proposed Action
- Field Office Boundary
- Landscape Character Areas
- Lost Spring Hills

VRM Class

- I
- II
- III
- IV

Miles

0 5

NORTH

Figure 6. Visual Resource Management Classes and Landscape Character Areas

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4.0 ENVIRONMENTAL IMPACTS

4.1 Introduction

As described in Section 1.6, the BLM's scoping process identified a number of issues or concerns associated with the proposed project. The BLM is required to consider many authorities when evaluating a federal action. Those elements of the human environment that are subject to the requirements specified in statutes, regulations, or executive orders and that must be considered in all EAs have been considered by BLM resource specialists to determine whether they would be potentially affected by the Proposed Action or No Action Alternative (BLM 2010). The elements that were considered but determined not present or not affected by the alternatives are identified in Appendix A, along with the rationale for determination on potential effects, and are not addressed further in this EA. All elements determined to be potentially impacted are carried forward for detailed analysis in this EA and are also included in the Interdisciplinary Team Checklists in Appendix A.

"Significance" is defined by the Council on Environmental Quality regulations as a measure of the intensity and context of the effects of an action on, or the importance of that action to, the human environment (40 CFR 1508.27). It is a function of the beneficial and adverse effects of an action on the environment. The intensity and context of the environmental effects can also vary. Qualitative and quantitative variables of resource sensitivity, resource quality, and estimated ground disturbance are considered in estimating the intensity of effects. Context means that the effect of an action must be analyzed within a framework or within physical or conceptual limits.

The terms "effect" and "impact" are used interchangeably in NEPA. Impacts can be beneficial or adverse, result directly or indirectly from the action, and be long- or short-term or cumulative in nature. Table 12 provides general definitions for the terms and associated threshold descriptions for determining impacts on the natural, cultural, and physical environment and for the relationships of people with that environment.

Table 12. Environmental Impact Terms

Term	Description
Direct	An impact (or effect) that would occur at the same time and place as the action.
Indirect	A reasonably foreseeable impact that would occur later in time or in a different location from the action.
Cumulative	An impact resulting from the incremental effect of an action when added to other past, present, or reasonably foreseeable actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time that an agency or a person undertakes such actions.
Adverse	An action that has an unfavorable or negative effect.
Beneficial	An action that has an advantageous or positive effect.
None	An action that would not affect land, resources, or people.
Negligible	An impact on land, resources, or people that would be slight or imperceptible; consequences would be neither adverse nor beneficial.
Minor	An impact on land, resources, or people that would result in low effects on or a marginal change from existing conditions.
Moderate	An impact on land, resources, or people that would result in a measurable change from existing conditions.

Term	Description
Major	An impact on land, resources, or people that would result in a substantial change from existing conditions.
Short-term	An impact that would be less than 5 years in duration; typically associated with potential temporary effects occurring during construction.
Long-term	An impact that would be 5 years or more in duration.

In addition, Appendix B provides a description of the methodology used to assess the potential impacts on visual resources and provides more detailed information on the direct and cumulative impacts on visual resources within the area of potential effect.

4.2 Direct and Indirect Impacts

4.2.1 Air Quality

4.2.1.1 Proposed Action

Under the Proposed Action, fugitive dust could potentially be generated from soil disturbance along unpaved access roads, staging locations, and active construction areas. There would be an increased level of particulate matter at the local level, especially where soils are susceptible to erosion. Resource protection measures as described in Section 2.1.7 would reduce or avoid direct impacts on air quality from fugitive dust to a negligible level. Negligible indirect impacts on air quality could intermittently result from windblown dust on unpaved project access routes.

Construction activities would also result in short-term air pollutant emissions from equipment and vehicle exhaust from travel to and from the project staging areas. Negligible direct impacts on air quality would also occur intermittently when routes are occasionally used for project maintenance, resulting in localized increases in vehicle emissions.

4.2.1.2 No Action

Under the No Action Alternative, the BLM would not authorize the new grant application to increase the existing authorized corridor from 40 feet to 125 feet in width. No new ground disturbance would occur and no particulate matter would be created due to construction activities. The existing line would continue to be in service. Temporary dust and vehicular emissions would intermittently be created from operation and maintenance activities. This would result in negligible, short-term indirect impacts on air quality due to vehicles driving on unpaved access roads. Under the No Action Alternative, there would be no direct project-related impacts on air resources.

4.2.2 Biological Soil Crusts

4.2.2.1 Proposed Action

The presence of biological soil crusts throughout the project area indicates an abundance of soil crusts outside the temporary impact areas. Biological soil crusts would be avoided where possible. However, in areas where biological soil crusts cannot be avoided, vegetation reclamation would be accomplished with species that support biological soil crust regeneration. Impacts on biological soil crusts under the Proposed Action would be long-term and minor.

4.2.2.2 No Action

Under the No Action Alternative, the BLM would not authorize the new grant application to increase the existing authorized corridor from 40 feet to 125 feet in width. No new ground disturbance would occur from construction activities. The existing line would continue to be in service, and temporary soil disturbance from operation and maintenance activities would occur. There would be long-term, negligible impacts on biological soil crusts under this alternative.

4.2.3 Cultural Resources

4.2.3.1 Proposed Action

The results of the cultural resources inventory indicate both prehistoric and historic use of the area. A total of 39 cultural resources sites are within the APE (Table 4); 22 of these are recommended eligible for the NRHP and 16 are recommended as not eligible for the NRHP.

Proposed structures either abut or would be located within the boundaries of 18 of these NRHP-eligible sites. Proposed tensioning areas would be located within the boundaries of 9 sites; one of the proposed turning areas would be located on Site 42KA6814.

The Proposed Action would avoid all NRHP-eligible sites, either by placing poles in previously disturbed areas along the existing roads adjacent to the sites or by spanning the sites. All NRHP-eligible sites would be flagged for avoidance by an archaeologist no more than 1 week before construction activities that would occur within 100 feet of the specific site locations. The flagged area would include a 50-foot buffer around the site boundary. No construction activities would occur within the area flagged for avoidance. The flagging would be removed within 1 week after all construction activities within 100 feet of the NRHP-eligible sites have been completed.

Site 42KA6818, a prehistoric artifact scatter and possible campsite, is located approximately 90 feet southeast and outside the proposed ROW. Additional subsurface cultural deposits may continue into the ROW and therefore could be impacted by proposed project activities. This site would be avoided by all project activities. Before construction, Site 42KA6818 would be flagged for avoidance; the flagged area would include a 50-foot buffer around the site boundary. No construction activities would occur within the area flagged for avoidance. An archaeological monitor would be present during any ground-disturbing activities within 100 feet of the area flagged for avoidance for Site 42KA6818.

The Arizona State Historic Preservation Office (SHPO) and the ASLD also concurred with the findings of the eligibility recommendations and the avoidance of impacts with the implementation of the mitigation measures listed in Section 4.3.1 (refer to Appendix C). Therefore, there would be no adverse impact and no mitigation required in accordance with Section 106 of the National Historic Preservation Act.

If the NRHP-eligible sites cannot be avoided by project design, then disturbance within these sites would require consultation and an agency-approved (i.e., BLM, tribal, ALSD, and SHPO) treatment and monitoring plan. Sites determined to be not eligible for the NRHP would not be included in the treatment and monitoring plan.

4.2.3.2 No Action

Under the No Action Alternative, the proposed upgraded power line would not be constructed. Because there would be no disturbance or change in conditions under the No Action Alternative, there would be no impacts on cultural resources.

4.2.4 Fish and Wildlife, Excluding U.S. Fish and Wildlife Service Designated Species

4.2.4.1 Proposed Action

4.2.4.1.1 General Wildlife

The proposed ROW area would displace wildlife utilizing the ROW and its vicinity in addition to the temporary disturbance to wildlife during construction. The Proposed Action lies along U.S. 89, a heavily traveled state highway, for the majority of the route. The proposed project's proximity to the highway could reduce the presence of wildlife in the ROW. Construction of the Proposed Action would have a direct impact on wildlife by increasing mortality due to dispersal from the area and possible collisions with construction equipment or traffic on the highway. Vegetation removal would cause short-term habitat loss of approximately 23.7 acres, reducing cover and forage.

A 12.0-mile-long fence was recently constructed by the Utah Department of Natural Resources along U.S. 89 to improve roadway safety by directing migrating mule deer populations toward wildlife crossing points within the ROW. Construction noise in the vicinity of the crossings would deter migrating mule deer from accessing the crossing points, potentially resulting in the disruption of migration patterns and possible individual mortality. Design features implemented to reduce or eliminate construction activity in proximity to the crossings during peak migration periods would reduce impacts from the Proposed Action on migrating mule deer.

The loss of habitat from vegetation removal would be short-term and localized. Undisturbed habitat exists south of the Proposed Action area, providing alternative dispersal opportunities for wildlife species. Disturbance from construction activities would end upon completion of the new line and removal of the existing line. The Proposed Action would have short-term, minor, adverse direct impacts on wildlife species.

4.2.4.1.2 Migratory Birds

Migratory birds would be displaced by activities associated with construction of the proposed power line, including vegetation removal, noise disturbance created by construction equipment, and nesting disruption. The addition of construction equipment and activities to the environment would cause migratory birds to disperse from the area. If construction were to occur during the nesting season, this could result in nest abandonment and loss of the clutch or offspring. Implementation of design features would reduce the impact on nesting migratory birds. Dispersal of migratory birds outside of the nesting season would be a temporary disturbance and would likely reduce the risk of mortality to ground-foraging species. The H-frame structures would be constructed at a height consistent with the existing single-pole structures. No increased risk of electrocution would be associated with the installation of the new structures. The direct impacts on migratory birds from construction of the proposed power line would be short-term and negligible.

4.2.4.1.3 BLM Sensitive Species

Construction activities associated with installing the proposed new power line would occur during the day and outside the period of activity for bat species. With no foraging or roosting habitat in the project area, there would be no impact on BLM sensitive bat species due to the Proposed Action. Direct impacts on BLM sensitive bird species would be consistent with the impacts described above for migratory birds. There would be no impacts on nesting habitat for golden eagles or peregrine falcons, because no nesting habitat occurs within the project area.

4.2.4.2 No Action

4.2.4.2.1 General Wildlife

Under the No Action Alternative, the proposed project would not be constructed and operation and maintenance activities on the existing transmission line would continue. These activities include occasional travel over the existing two-track road within the ROW and tree removal within 50 feet of the existing line. The occasional overland travel from maintenance vehicles, as well as noise disturbance from maintenance activities in the area, may disrupt roosting or foraging wildlife, causing them to disperse from the area for the duration of the maintenance activity. Therefore, the No Action Alternative would have short-term, negligible direct impacts.

4.2.4.2.2 Migratory Birds

Under the No Action Alternative, the proposed project would not be constructed and operation and maintenance activities on the existing transmission line would continue. These activities include tree removal within 50 feet of the existing transmission line. The removal of trees would disrupt roosting birds, causing them to disperse from the area. Nesting birds and immobile young could be impacted by tree removal during nesting season, including potential nest abandonment and mortality of young. Continued trimming and removal of trees in the ROW alters potential nesting and roosting habitat. The line would continue to operate with some potential for bird collisions with the lines or conductors. Therefore, the No Action Alternative would have long-term, negligible direct impacts.

4.2.4.2.3 BLM Sensitive Species

Under the No Action Alternative, the proposed project would not be constructed and operation and maintenance activities on the existing transmission line would continue. These activities include tree removal within 50 feet of the existing transmission line. The impacts on BLM sensitive species from the No Action Alternative would be the same as those for general wildlife and migratory birds. This would include disruption of roosting and foraging behavior in response to maintenance activities and continued alteration of habitat within the ROW. Therefore, the No Action Alternative would have long-term, negligible direct impacts.

4.2.5 Floodplains

4.2.5.1 Proposed Action

Under the Proposed Action, the transmission line would span all streams and dry washes with poles located on either side of the waterbodies. Some structures would possibly be located within the boundaries of the floodplains associated with these streams and washes. Vegetation removal during construction would result in soil disturbance during the active construction phase of the project. Upon completion of the project, disturbed construction areas would be reclaimed. Grading and reestablishment of vegetation within the disturbed areas would restore the floodplain characteristics. The impacts on floodplains from the Proposed Action would be short-term and negligible.

4.2.5.2 No Action

Under the No Action Alternative, the project would not be constructed and operation and maintenance activities on the existing transmission line would continue. Any existing transmission line structures located within floodplains would remain in place. The impacts on floodplains from the No Action Alternative would be short-term and negligible.

4.2.6 Hydrologic Conditions

4.2.6.1 Proposed Action

Under the Proposed Action, transmission lines would span all existing streams, stream courses, and washes. No structures would be placed on the banks of or within these streams and washes. No construction equipment or personnel would cross streams or washes during the active construction phase. All construction access would be to either side of the existing streams and washes. Therefore, no activities with the potential to destabilize stream banks or washes would occur in the ROW. Potential indirect impacts on the streams and washes could occur from sedimentation caused by runoff during active construction. Vegetation removal and soil disturbance during construction would leave soils in the project area unstable and susceptible to displacement during seasonal storm events. Standard operating procedures, including the installation of silt fence barriers and preparation of a stormwater pollution prevention plan, would reduce this impact. Following the completion of active construction, disturbed areas would be reclaimed, which would stabilize soils and reduce the potential for soil displacement. The direct and indirect impacts on hydrologic conditions would be short-term and negligible.

4.2.6.2 No Action

Under the No Action Alternative, the project would not be constructed and operation and maintenance activities on the existing transmission line would continue. Occasional soil disturbance caused by overland travel of trucks and maintenance equipment would occur in the vicinity of streams and washes. This disturbance would occur on a 3-year frequency. The impacts on hydrologic conditions from the No Action Alternative would be short-term and negligible.

4.2.7 Recreation

4.2.7.1 Proposed Action

4.2.7.1.1 Recreation Management Areas

The Proposed Action could have direct and indirect construction-related impacts on recreationists using the Fredonia and Highway 89 Corridor SRMAs and the Arizona Strip ERMA when the removal and replacement of the lines and structures takes place. Approximately 16.5 miles of the Proposed Action would cross the three recreation management areas (0.6 mile in the Fredonia SRMA, 13.5 in the Highway 89 Corridor SRMA, and 2.4 miles in the Arizona Strip ERMA). In addition, a 3.6-acre staging area and 1.6-acre turning area would be located in the Fredonia SRMA, and 2 staging areas (a total of approximately 9.6 acres) and 11 pulling and tensioning areas (a total of about 78.7 acres) would be located in the Highway 89 Corridor SRMA. Temporary direct impacts could occur during the removal of existing structures and construction of new ones; it is anticipated that these temporary impacts could have a maximum duration of 4 hours per site. Temporary construction-related impacts could also occur at the staging, turning, and pulling and tensioning areas from increased noise levels due to equipment and vehicles and from air pollutants. Following construction, the Proposed Action would not interfere with access to recreation opportunities within the three recreation management areas. Therefore, the Proposed Action could have no long-term direct or indirect impacts on recreation management areas. However, in the short term, it could have moderate direct and minor indirect impacts on recreation within the project area.

4.2.7.1.2 Designated-Use and Dispersed Recreation Areas

The existing Garkane transmission line lies within the dedicated utility corridor within GSENM to the south of U.S. 89; all but approximately 1.9 acres of the Proposed Action would be located within the dedicated utility corridor as well. During construction, the Proposed Action may briefly interrupt recreational use of the Great Western Trail and the Great Western Trailhead on the south side of U.S. 89. To minimize any disturbance to the Great Western Trail and Trailheads, BLM would approve the final location of the new pole structures and the turning, staging, and pulling and tensioning areas. There may also be slight slowing of traffic due to construction vehicles entering and leaving U.S. 89. Therefore, the Proposed Action would have no long-term direct or indirect impacts on recreation; however, there would be short-term, minor indirect impacts during construction.

4.2.7.2 No Action

Under the No Action Alternative, the BLM would not authorize the new grant application to increase the existing authorized corridor from 40 feet to 125 feet in width. No new disturbance to the recreational setting or opportunities would occur, and no new impacts on the recreating public would be expected. The existing line would continue to be in service, and temporary dust would intermittently be created from operation and maintenance activities. Therefore, there would be short-term negligible impacts but no long-term impacts on recreation opportunities in special recreation management areas or to recreation resources within the project area.

4.2.8 Socioeconomics

4.2.8.1 Proposed Action

Garkane provides the only power source provided by a utility to the various communities of southern Utah and northern Arizona. In its 2010 report, Electrical Consultants Inc. noted that the demand for capacity on the existing 69kV line would surpass the Western Electricity Coordination Council safe operation criteria during the 2015 to 2017 time frame (Garkane 2015). Loading on the existing transmission line has increased and is expected to continue increasing. Current load data indicates that the transmission line is near 90 percent of load capacity for current residential and public facilities and commercial businesses.

The Proposed Action would upgrade the existing power service from 69kV to 138kV, enabling the line to provide electricity service in keeping with projected growth in the region. By upgrading the existing line, the potential for system overload would be eliminated, and the transmission system would accommodate greater loads to provide reliable service to the communities in the region. Kanab and Fredonia, along with Kane and Coconino Counties, have a relatively large construction workforce, compared with the construction employment need. As such, no direct or indirect impacts on population or housing are anticipated. The Proposed Action would have a long-term, moderate, beneficial direct impact on the region's social and economic conditions by providing reliable electricity service for residences, public facilities, and commercial businesses.

The construction workforce would include 10 to 15 people over a 36-month construction period. Construction could result in short-term, minor indirect increases in local economic output as workers purchase food and supplies from area businesses. However, due to the relatively small anticipated workforce, these impacts would likely be limited to a few local businesses.

4.2.8.2 No Action

Under the No Action Alternative, the new ROW application would not be approved, and no construction would take place. There would be no change to the existing conditions. The No Action Alternative would not improve voltage limitations and would continue the current risk for incidences or failures. The No Action Alternative would have a long-term, moderate, adverse direct impact on the region's quality of life and economy, because it would not provide for the anticipated growth of the region.

4.2.9 Soils

4.2.9.1 Proposed Action

Potential construction-related soil disturbance would occur along the access roads and at the new pole locations. The proposed upgrade of the transmission line would result in the removal of vegetation cover and in soil compaction from heavy construction equipment. Approximately 346.4 acres of soil would be disturbed during the construction of the proposed project. This disturbance would consist of temporary soil disturbance for structure installation, pulling and tensioning areas, and staging areas. Permanent soil disturbance would occur within the ROW during construction and maintenance of the proposed project. Permanently disturbed areas within the ROW would include access road construction clearance areas for defensible space around each structure. The acreages of disturbance are detailed in Table 3. The areas of construction-related soil disturbance would be susceptible to erosion by wind or stormwater. Some erosion might occur from rain and wind until these disturbed areas develop an erosion-resistant crust. Once construction is complete, the potential for erosion would decrease over time as soils harden and vegetation begins to grow. The impact would be noticeable immediately after construction but would diminish over time. Design features described in Section 2.1.7 would reduce impacts on soils resulting from construction, operation, and maintenance of the Proposed Action. The temporary disturbance areas would be reclaimed and stabilized using a BLM-approved seed mix appropriate for the area. Therefore, the Proposed Action would have a long-term negligible impact and a short-term, minor, adverse direct impact on soils because of the relatively small area of ground disturbance and the implementation of design features to minimize erosion.

Indirect impacts on soil resources from the Proposed Action may include the growth of invasive species because of their ability to thrive under conditions with low soil moisture, poor nutrient availability, and coarse soil textures. The Proposed Action would result in a short-term, negligible indirect impact on soils because of the relatively small amount of soil disturbance, the short construction period, and the implementation of design features to minimize erosion and the spread of invasive species. These design features are discussed in detail in Section 2.1.7.

4.2.9.2 No Action

Under the No Action Alternative, the BLM would not authorize the new grant application to increase the existing authorized corridor from 40 feet to 125 feet in width. No new ground disturbance would occur from construction activities. The existing line would continue to be in service, and temporary soil disturbance from operation and maintenance activities would occur. There would be long-term negligible impacts on soils under this alternative.

4.2.10 Threatened, Endangered, and Candidate Animal Species

4.2.10.1 Proposed Action

There is no designated critical habitat for any Endangered Species Act listed species within or adjacent to the Proposed Action. California condors have been observed in the vicinity of the city of Kanab. There is potential for condors to pass through the project area. Condors visiting the area may be disturbed by construction noise, and any condors that land in the vicinity of active construction would potentially be at risk of collision with vehicles or other construction equipment. Measures discussed in Section 4.3.4 would reduce the potential for impacts on California condors by stopping work and avoiding any interaction with the birds. Taller transmission line structures would increase the potential for transmission line collisions and electrocutions. Direct impacts on California condors would be negligible.

4.2.10.2 No Action

Under the No Action Alternative, the transmission line would not be constructed and operation and maintenance activities on the existing line would continue. There would be no impacts on threatened, endangered, or candidate animal species under this alternative. Overland travel for maintenance and noise disturbance associated with maintenance activities would temporarily displace wildlife. Trimming and removal of vegetation would alter wildlife habitat within the ROW. Direct impacts on California condors would be negligible.

4.2.11 Water Resources/Quality

4.2.11.1 Proposed Action

The Proposed Action would not result in any temporary or permanent modifications to Johnson Wash, Kitchen Corral Wash/Buckskin Wash, or Lost Spring Wash. Garkane has committed to design features that would minimize impacts on natural drainages and to the FEMA-delineated 100-year floodplains located within the project area. Some short-term temporary disturbances to smaller ephemeral drainages would occur during construction. Water used during construction (e.g., water used to reduce fugitive dust) would be obtained from existing off-site approved sources.

Removing the old poles and installing new ones would potentially have a temporary effect on water quality during construction because of the potential for increased sediment loads and chemical or petroleum drips or leaks from construction equipment.

No groundwater use or extraction on BLM-administered lands would be required. The installation of the proposed new poles would not impact groundwater because the depth to groundwater is substantially deeper than the depth of excavation needed to erect the new poles.

More than 1 acre of land would be disturbed under the Proposed Action; therefore, coverage under the Utah and Arizona Pollutant Discharge Elimination System Construction General Permits would be required. The permits require the development of a stormwater pollution prevention plan. This plan would be completed before filing a Notice of Intent with the Utah Department of Environmental Quality and with the Arizona Department of Environmental Quality, which is required before beginning construction activities. Upon completion of construction activities, a Notice of Termination would be submitted to the Utah and Arizona Departments of Environmental Quality.

The Proposed Action would have short-term, minor direct and indirect impacts on surface water, groundwater, and the 100-year floodplain because of the design features that would eliminate or minimize any potential effects on water resources. There would be long-term, negligible direct impacts on water resources because access to the lines for maintenance would require the periodic crossing of dry washes. Crossings would have the potential to destabilize soils, creating erosion and sedimentation during seasonal storm events.

4.2.11.2 No Action

Under the No Action alternative, the BLM would not authorize the new grant application to increase the existing authorized corridor from 40 feet to 125 feet in width. The project maintenance activities on the existing line would continue. These activities require periodic vehicular access across dry washes. Crossings would have the potential to destabilize soils, creating erosion and sedimentation during seasonal storm events. There would be negligible impacts on water resources from continued operation and maintenance under this alternative.

4.2.12 Woodland/Forestry

4.2.12.1 Proposed Action

Transmission line maintenance would consist of removing trees and hazard tree branches from the ROW that are under or within 50 feet of the lines and clearing all vegetation within 10 feet of the poles every 3 years. The primary species affected by maintenance within the ROW would be pinyon-juniper. This would result in approximately 7.9 acres of continued disturbance throughout the life of the project. Removal of woodland vegetation adjacent to lines and structures would be a permanent loss of tree species in these areas. However, the distribution of woodland communities in the ROW is localized. The impacts from tree removal and maintenance would be long-term and minor.

4.2.12.2 No Action

Under the No Action Alternative, the BLM would not authorize the new grant application to increase the existing authorized corridor from 40 feet to 125 feet in width. There would be no new ground disturbance from construction activities; therefore, no new vegetation removal would occur. Operation and maintenance activities on the existing line would continue, which would require periodic removal of trees within the vicinity of the line. Thus, there would be long-term negligible impacts on vegetation under this alternative.

4.2.13 Visual Resources

4.2.13.1 Proposed Action

Visual impacts are defined as the change to the visual environment resulting from the introduction of modifications to the landscape. The amount of visual contrast created is directly related to the amount of attention that is drawn to a feature in the landscape. The existing visual character and scenic quality were evaluated for changes within the foreground and middleground of the proposed ROW area. Within and adjacent to the proposed ROW area, there are key observation points (KOPs) that represent viewing locations where the public would view the proposed ROW area both from a stationary location (e.g., scenic overlook or residential area) or a linear (e.g., scenic byway or trail) location. Visual sensitivity levels for the visual resource analysis area within the Arizona Strip Field Office and GSENM are considered to be high, as determined during the current visual resource inventories completed by BLM.

View from Fredonia Key Observation Point toward the Proposed Action

Two KOPs, one stationary and one linear, were selected by the BLM and Logan Simpson to evaluate impacts of the Proposed Action. The stationary viewing platform is located directly north of the town of Fredonia along State Route 89A, with a view of the Proposed Action to the east. This location was selected to account for impacts on the residential development and recreation use near the town. The linear KOP identified for analysis is U.S. 89. This linear KOP was selected due to its proximity to the proposed ROW area and the high number of motorists who travel the highway. As a linear KOP, the entire length of the route within the project area was evaluated, not just from a single viewing location along the KOP. In addition, impacts on the views in general from the Johnson Spring and Shinarump ACECs, Fredonia and Highway 89 Corridor SRMAs, Old Spanish National Historic Trail, and Honeymoon Historic Trail were evaluated (Figure 5).

4.2.13.1.1 Short-Term Direct Impacts

Construction of the Proposed Action would result in short-term direct impacts on visual resources because of the construction activities and the fugitive dust that would be generated, the equipment and vehicles moving in and out of the project area, and the stockpiling of material. The construction activities would introduce forms, colors, and textures that would temporarily attract attention; however, these are elements and activities that are common in the area given the existing transmission lines and structures. Removal of vegetation would expose lighter-color soils, and the staging areas and pulling and tensioning areas would introduce rectangular shapes in the landscape that would contrast in form and color with the existing setting. The clearing of the vegetation for the structures would be a relatively small, circular clearing (approximately 36 inches in diameter for each pole) that would occur along the alignment approximately every 750 feet. These construction-related impacts would create a subtle or minor degree of change in the characteristic landscape in the foreground area of the nine LCAs, U.S. 89 KOP, Fredonia SRMA, Highway 89 Corridor SRMA, Old Spanish National Historic Trail, and Honeymoon Historic Trail, but there would be no apparent degree of change in the middleground because of the relatively sparse vegetation density and the presence of similar cultural modifications and areas of disturbance. Therefore, the effects from the Proposed Action would range from no short-term direct impacts to short-term, minor direct impacts on visual resources.

4.2.13.1.2 Long-Term Direct Impacts

The proposed H-frame wood pole structures and the three single wood pole turning structures would be approximately the same height as the existing 69kV single wood pole structures. The proposed H-frame and turning structures would create a subtle or low magnitude of change in the landscape character in the foreground when viewed by the casual observer (e.g., motorists driving along U.S. 89) because the project components would repeat the elements and patterns that are common in the LCAs. In the foreground, the change in scenic quality in each of the LCAs would also be low because the magnitude of contrast would be weak in terms of the line and scale of the proposed H-frame structures compared with the existing 69kV structures—that is, the change in the lines created and the relative size of two poles compared to single poles in the context of the existing landscape. In the middleground, there would be no apparent change in the landscape character and scenic quality because of the existing transmission lines and structures and other built forms within and adjacent to the proposed ROW area. When viewed at a distance of over 0.5 mile, the H-frame wood structures and the three turning structures would repeat the line and scale of features already present in the landscape. In the long term, the changes to the existing elements and patterns in the characteristic landscape would not attract attention when viewed by the casual observer. Therefore, the potential effects from the Proposed Action in the nine LCAs would range from no direct impacts to long-term, minor direct impacts on visual resources.

The proposed ROW area would be in the middleground of the view from the Fredonia KOP; project components would not occur within the foreground of this KOP. The views from the Fredonia KOP are of low rolling hills and prominent escarpments, as well as residential and ranch buildings. The project components would be predominantly backdropped against the Shinarump Cliffs when viewed from this stationary KOP. The proposed ROW area would not be visually evident in the middleground to the casual observer, and there would be no apparent change to the existing setting.

People traveling along U.S. 89 within the project area would experience a subtle change in the landscape compared with existing conditions. The proposed H-frame structures would not attract attention in the foreground distance zone from this linear KOP and would generally be visually compatible with other features in the landscape. The proposed ROW area would not be visually evident in the middleground views for motorists along U.S. 89. The change to the landscape character and scenic quality would be negligible, and the landscape character would remain intact when viewed from this distance from U.S. 89. Both the Old Spanish National Historic Trail and Honeymoon Historic Trail would have views of the project components. The magnitude of change in the setting in the foreground from these trails would be subtle or low. The proposed ROW area would not attract attention and would be visually subordinate to other elements and patterns in the landscape within the foreground views of Old Spanish National Historic Trail and Honeymoon Historic Trail. Changes to the landscape from the middleground views from trails would be negligible and not visually evident to the casual observer, for example, the motorists along U.S. 89 and the recreationists using the historic trails.

The proposed ROW area would not be present in the foreground from the Johnson Spring ACEC. The casual observer would experience a subtle change in the landscape compared with existing conditions in the foreground views from the Shinarump ACEC. The scale of the H-frame structure would create a weak contrast but would be generally compatible with the setting when viewed from this ACEC. The proposed ROW area would be predominantly backdropped against the Vermillion Cliffs when viewed from the Shinarump ACEC. The proposed ROW area would not be visually evident in the middleground views from either ACEC.

Examples of a 69kV single wood pole (left) and 138kV H-frame (right) in Grand Staircase-Escalante National Monument

Casual observers, such as recreationists, in the Fredonia SRMA would have unobstructed views of the proposed ROW area in the foreground. The magnitude of change in the setting in the foreground from this SRMA would be low because the proposed ROW area would be visually subordinate to other elements and patterns in the landscape. Changes to the landscape from the middleground views from the Fredonia SMRA would be negligible and not visually evident to the casual observer.

Within the Highway 89 Corridor SRMA in GSENM, the magnitude of change in the landscape from the foreground views would be low. The proposed H-frame structures would generally be visually compatible with other features in the landscape, especially in comparison to the scale of the landforms within this portion of GSENM. The proposed ROW area would not be visually evident in middleground views for the casual observer. The change to the landscape character and scenic quality would be negligible, and the landscape character would remain intact when viewed from this distance from the Highway 89 Corridor SRMA.

4.2.13.1.3 Summary of Long-Term Direct Impacts

In the foreground distance zone, the magnitude of impact on scenic quality from the Proposed Action would be low (i.e., where the landscape would appear to have subtle change in the foreground). The change to the landscape character and scenic quality would be negligible, and the landscape character would remain intact when viewed from the middleground distance zone. Therefore, the Proposed Action would have long-term, minor direct impacts on visual resources within the foreground of the nine LCAs, U.S. 89 KOP, Fredonia SRMA, Highway 89 Corridor SRMA, Old Spanish National Historic Trail, and Honeymoon Historic Trail. In addition, the Proposed Action would have no impacts on visual resources within the middleground of the nine LCAs, U.S. 89 and Fredonia KOPs, Fredonia and Highway 89 Corridor SRMAs, Old Spanish National Historic Trail, and Honeymoon Historic Trail.

4.2.13.1.4 Indirect Impacts

Development of the Proposed Action may result in short- and long-term negligible indirect impacts on visual resources. The cleared area for the towers and the new permanent access roads would create opportunities for

people to park or access previously inaccessible areas of the landscape. This could result in trampling vegetation and additional resource damage such as increased erosion, which may potentially lower the scenic quality in these areas. The new permanent access roads would also provide potential scenic viewing opportunities not currently available to people.

4.2.13.1.5 Conformance with Management Objectives

The BLM has developed measurable standards for managing the visual resources of its administered lands. As previously noted, management classes with established objectives have been identified for the project area's visual resources as part of the RMP process. Based on the contrast rating evaluation (BLM 1986b), the magnitude of impact determined whether or not the Proposed Action would be in conformance with the established objectives. The contrast rating worksheets for each KOP assessing BLM-administered lands were completed in the field. The location of each KOP is provided in Figure 6. The determination of whether or not the Proposed Action would be in conformance with the various BLM management objectives is provided in Table 13. Table 10 describes the management objectives for each class. The Proposed Action would create weak visual contrast that would conform with current VRM classes at each KOP.

Table 13. BLM Conformance by Key Observation Point—Proposed Action

Key Observation Points	Visual Resource Management Class	Miles of the Proposed Action crossing BLM-Administered Lands That Would Be Visible from Key Observation Points	Contrast Rating	Conformance
Town of Fredonia	III	0.62	Weak	Meets
U.S. Highway 89	II	2.83	Weak	Meets
	III	10.6	Weak	Meets
	IV	1.25	Weak	Meets

4.2.13.2 No Action

Under the No Action alternative, the BLM would not authorize the new grant application to increase the existing authorized corridor from 40 feet to 125 feet in width. The existing line would continue to be in service, and operation and maintenance activities would continue. No new disturbance to the characteristic landscape would occur, and no new elements or patterns would be introduced to the project area. Therefore, there would be no impact on the casual viewer from stationary or linear KOPs, special management areas, or historic trails.

4.3 Mitigation Measures

4.3.1 Cultural Resources

- All NRHP-eligible sites would be flagged for avoidance by an archaeologist no more than 1 week prior to construction activities that would occur within 100 feet of a specific site location. The flagged area would include a 50-foot buffer around the site boundary. During construction, no construction activities would occur within the area flagged for avoidance. The flagging would be removed within 1 week after all construction activities within 100 feet of the NRHP-eligible sites have been completed.

- Site 42KA6818, a prehistoric artifact scatter and possible campsite, is located approximately 90 feet southeast and outside the proposed ROW. Additional subsurface cultural deposits may continue into the ROW and therefore could be impacted by proposed project activities. This site should be avoided by all project activities. Prior to construction, Site 42KA6818 would be flagged for avoidance; the flagged area would include a 50-foot buffer around the site boundary. No construction activities would occur within the area flagged for avoidance. In addition, an archaeological monitor would be present during any ground-disturbing activities within 100 feet of the area flagged for avoidance for Site 42KA6818.
- If the NRHP–eligible sites cannot be avoided by project design, then disturbance within these sites would require consultation and an agency-approved (i.e., BLM, Tribal, ASLD, and SHPO) treatment and monitoring plan. Sites determined to be not eligible for the NRHP would not be included in the treatment and monitoring plan.
- Within the state of Arizona, in the event that any archaeological, paleontological, historical site or object, or human remains or funerary object that is at least 50 years old is discovered during ground disturbing activities, the work will cease and Garkane will notify the Director of the Arizona State Museum (ASM) pursuant to Arizona Revised Statutes §41-844, and the ASLD Cultural Resource Manager.
- Except for archaeological investigations that are properly authorized under a project-specific Arizona Antiquities Act permit issued by ASM pursuant to Arizona Revised Statutes §41-842, Garkane will not cause nor allow any ground disturbing activity within the boundaries of the archaeological sites recorded at ASM as AZ B:2:35(ASM) and AZ B:2:60(ASM), without first obtaining the written permission of ASLD. Garkane will provide ASLD with any archaeological plans, studies, or reports that may be needed for ASLD's use in consultation with the Arizona SHPO.

4.3.2 Paleontological Resources

- Prior to any ground disturbing construction activities, Garkane would coordinate with the BLM to determine whether and where paleontological resources monitoring would be required.

4.3.3 Noxious/Invasive Weeds

- To reduce the potential for the spread of noxious and invasive weeds from vehicles and equipment contaminated with weed seed and/or biomass, the ROW grant holder would thoroughly power wash and remove all vegetative material and soil before transporting vehicles/equipment to the work site. This includes cleaning all trucks, trailers, and other machinery before entering the project area. In addition, the ROW grant holder would be responsible for the eradication of noxious weeds within the ROW area throughout the term of the ROW. The ROW grant holder would be responsible for consultation with the BLM authorized officer and local authorities for implementing acceptable weed treatment methods.
- Any reclamation efforts requiring seeding would be done with certified, weed-free seed, using a seed mix approved by the BLM authorized officer.
- Chemical treatments, if used, would only use chemicals approved in the Final *Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement* (BLM 2007); such treatments would be carried out by a state-certified applicator who would abide by all safety and application guidelines as listed on the product label and material safety data sheet.

- Use of herbicides shall comply with the applicable federal and state laws. Herbicides shall be used only in accordance with their registered uses and within limitations imposed by the Secretary of the Interior. Prior to the use of herbicides, the ROW grant holder shall obtain from the authorized officer written approval of a plan showing the type and quantity of material to be used, weeds to be controlled, method of application, location of storage and mixing areas, method of cleaning and disposing of containers, and any other information deemed necessary by the authorized officer. Emergency use of herbicides shall be approved in writing by the authorized officer prior to such use.

4.3.4 Threatened, Endangered, and Candidate Species

- Where California condors visit a worksite while activities are under way, the on-site supervisor must avoid interaction with condors. Authorized activities would be modified, relocated, or delayed if those activities have adverse effects on condors. Authorized activities would cease until the bird leaves on its own or until techniques are employed by permitted personnel that result in the individual condor's leaving the area. The holder/permittee is required to notify the BLM wildlife lead of this interaction within 24 hours of its occurring.
- The project sites would be cleaned up at the end of each day the work is being conducted (e.g., trash removed, scrap materials picked up); waste materials would be disposed of promptly at an appropriate waste disposal site. "Waste" means all discarded matter, including but not limited to human waste, trash, garbage, refuse, oil drums, petroleum products, ashes, and equipment. "Waste" also includes the creation of microtrash such as bottle caps, pull tabs, broken glass, cigarette butts, small plastic, food materials, bullets, and bullet casings. To minimize the likelihood of condors visiting the site, no microtrash would be left at project sites. BLM staff may conduct site visits to the area to ensure adequate cleanup measures are taken.

4.3.5 Soils

- No construction or routine maintenance activities would be performed during periods when the soil is too wet to adequately support construction/maintenance equipment in order to avoid soil compaction. If such equipment creates ruts in excess of 3 inches deep, the soil would be deemed too wet to adequately support construction/maintenance equipment. Emergency maintenance activities may need to occur during wet conditions in order to restore electrical service; should this occur, consultation with the BLM would occur within 7 days of the emergency maintenance being completed in order to determine how to repair any damage to soils caused by these activities.

4.3.6 Visual Resources

- Use existing routes or follow natural terrain features for transmission line corridor access to minimize views of ground disturbance caused by construction vehicles.
- Recontour disturbed lands to conform to preconstruction conditions as much as is feasible.
- BLM would review and approve the final locations of new pole structures, permanent access roads, and any associated construction staging, pulling and tensioning areas, and turning areas prior to construction in order to minimize any new disturbance to the Great Western Trail, Great Western Trailheads, Old Spanish National Historic Trail, and Honeymoon Historic Trail.

4.3.7 Reclamation

- To facilitate revegetation, the topmost 3 inches of soil would be removed in conjunction with surface disturbance and shall be conserved in stockpiles within the ROW. After backfilling and recontouring have taken place, the ROW grant holder would uniformly spread the conserved topsoil over all unoccupied disturbed areas. Spreading would not be done when the ground or topsoil is wet.

4.3.8 Water Resources

- At no time would vehicle or equipment fluids (including motor oil and lubricants) be dumped on public lands. All accidental spills (including drips) would be reported to the appropriate BLM authorized officer and be cleaned up immediately, using best available practices and requirements of the law, and disposed of in an authorized disposal site. All spills of federally or state-listed hazardous materials that exceed reportable quantities would be promptly reported to the appropriate agency and authorized officer.

4.4 Cumulative Impacts

Cumulative effects, as defined in 40 CFR 1508.7, are "the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of which agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." Only past, present, and reasonably foreseeable future actions that incrementally add to the potential adverse cumulative impacts of the Proposed Action and No Action Alternatives are considered. Beneficial impacts are not considered. Short-term effects, such as construction-related impacts, are assumed not to contribute to cumulative effects. As such, socioeconomic and visual resources may be incrementally impacted by the Proposed Action, and therefore, potential cumulative impacts on these resources are addressed in this section.

The cumulative effects methodology considered scoping and project issues; cumulative effect time frames; resources that could be effected by the Proposed Action; the geographical area in which the effects would occur; and other past, present, and reasonably foreseeable future actions that have, or could be expected to cause, impacts on these resources. "Reasonably foreseeable future actions" are proposed projects or actions that have applied for a permit from local, state, or federal authorities or that are publicly known.

For the purposes of this analysis, the temporal extent of the projects to be considered would be the expected physical operational service life of this project. Past and present events and projects would be generally identified and the ongoing effects that are similar to those for the Proposed Action are discussed. Land uses described as past or present are considered in the baseline conditions of the affected environment. Past and present activities considered in the cumulative effects analysis include agriculture; land development; energy projects, linear transportation and utility corridors, and recreation.

4.4.1 Geographic and Temporal Scope of Analysis

The BLM NEPA Handbook H-1790-1 (2008a) recommends that geographic (spatial) and time (temporal) boundaries be established for cumulative effects analysis. The Proposed Action "footprint," or direct construction ground disturbance extent, is identified as the 125-foot-wide ROW. The geographic area of influence for the analysis of cumulative impacts on socioeconomic resources is defined as Kane and Coconino Counties because this area corresponds with the direct and indirect socioeconomic analysis area and includes

the constituent municipalities and potentially affected populations. The geographic area of influence for the analysis of cumulative impacts on visual resources is defined as the viewshed within a 10-mile distance of the Proposed Action in any direction. Any present actions and reasonably foreseeable future actions within this geographic area of influence were evaluated. Although views can and do extend beyond 10 miles, the 10-mile distance was chosen because it is near the limit of visibility of skylined transmission towers that may be noticeable to casual observers and beyond that the Proposed Action would have negligible if any contribution to cumulative visual resources impacts (Sullivan et al. 2014).

The temporal scope of the cumulative effects analysis is the duration of the life of the Proposed Action, including construction and operation. The temporal scope includes consideration of short-term and long-term effects. Short-term effects cease following an activity of specific duration (such as facility construction) or result in conditions that are capable of being restored to preproject functionality within a relatively short amount of time. For purposes of this EA, the time frame for short-term effects is 3 years, based on an estimated 3-year construction schedule and 6 months for postconstruction reclamation. Long-term effects are a result of ongoing activities or impacts that persist for long periods of time. For the purposes of this EA, it is assumed that long-term direct and indirect effects would persist for 30 years, which is the initial term of the ROW grant. Permanent effects result in a permanent change in condition or function for the resource being addressed. Permanent effects for the Proposed Action would be those persisting longer than 50 years.

The individual effects of all past actions to determine the present effects of past actions would not be useful to predict the cumulative effects of the Proposed Action. The consideration of past actions is reflected in current environmental conditions as established in the affected environment baseline conditions. For this analysis, cumulative visual resources impacts for the geographic area of influence are the combined direct effects of the present and reasonably foreseeable future actions, plus the direct impacts of the Proposed Action. The Proposed Action is evaluated using the same criteria as the direct impacts. The levels of direct and cumulative impacts are categorized as high, moderate, or minor based on the same thresholds defined in Table 12. In addition, if the direct impacts were considered to be none or negligible as a result of the construction, operation, and maintenance of the Proposed Action, there would be no contribution to the resources' cumulative impacts.

4.4.2 Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions are actions that have existing decisions, funding, or formal proposals or that are highly probable. These actions are not connected to the proposed project. They are projections being made so that future effects, cumulative and otherwise, can be estimated, as required by NEPA. Table 14 identifies the reasonably foreseeable future actions located in or near the project area that may affect resources in the cumulative effects analysis areas. Following the table are descriptions of the nature and possible effects of each action. These actions are considered in the cumulative effects analysis.

Table 14. Reasonably Foreseeable Future Actions

Name of Action	Type of Action	Description	Footprint
Lake Powell Water Pipeline	Water	Washington, Kane, and Iron Counties, along with the State of Utah Board of Water Resources, plan to construct a water pipeline from Lake Powell to Sand Hollow Reservoir. This 30- to 66-inch-wide pipe would extend approximately 139 miles within a 300-foot-wide corridor. Associated with the pipeline would be transmission lines, pump stations, and reservoirs. Alternative alignments are currently under study.	Washington, Coconino, and Kane Counties
US-89 Kanab to Kanab Creek Bridge Reconstruct Widening	Road and linear projects	As outlined in the 2016–2021 Statewide Transportation Improvement Program, the Utah Department of Transportation (UDOT) plans to widen U.S. Highway 89 between Mileposts 64.95 and 68.4.	Approximately 4 miles
US-89 Road Widening	Road and linear projects	In Phases 2 and 3 of UDOT's 2015 Long Range Plan, UDOT plans to widen various locations from one lane to two lanes between Milepost 0.0 and Interstate 70.	191.0 miles
US-89 Road Widening	Road and linear projects	In Phase 2 of UDOT's 2015 Long Range Plan, UDOT plans to widen northbound and southbound lanes of U.S. 89A from one lane to two lanes between Mileposts 0.0 and 2.9.	2.9 miles
South Central Communications Fiber Optic Line from the Buckskin Mtn. to Page, AZ	Communications	South Central Communications has requested a right-of-way for installation of a fiber-optic cable line and associated facilities between existing facilities on Buckskin Mountain and about 30 miles east of Kanab, Utah, within GSENM to Page, Arizona. Construction is estimated to take 12–16 weeks and is planned for the winter and spring of 2016.	Data not available
State of Utah TV Hill Communications Use Lease	Communications	Utah Communications Authority seeks a Communications Use Lease right-of-way for a new facility within the TV Hill Communication Site located on a cliff immediately north of Kanab, Utah. This proposal consists of the construction of a 60-foot by 60-foot compound, including a 12-foot by 20-foot prefabricated building, a 100-foot self-supporting tower, and backup power, to include a battery bank and a generator with a 500-gallon propane tank. Expected construction period would be approximately 4 months from late 2015 through early 2016.	New ground disturbance limited to less than 0.1 acre because the compound is to be constructed within the designated boundary of the TV Hill Communication Site.

Name of Action	Type of Action	Description	Footprint
Johnson Canyon Water Tank Right-of-Way	Water	A 250,000-gallon water tank and supporting facilities has been proposed in the Johnson Canyon area east of Kanab, Utah. This project would include a single-lane gravel-surface access road, a 2,220-foot-long by 25-foot-wide segment of 12-inch-diameter pipeline, fencing, solar panels, a radio transmitter, and other associated facilities. The tank would measure 49 feet in diameter and 20 feet tall on a 1-acre pad site. The lower 10 to 20 feet of the tank would be buried, with the remaining portions painted or textured to blend in with the surroundings in accordance with BLM's Visual Resource Management System specifications.	Approximately 5.1 acres

4.4.3 Cumulative Impacts on Resources

4.4.3.1 Socioeconomics

The construction of the Proposed Action, combined with the reasonably foreseeable future actions in Table 14, could affect the population, temporary housing, and the economy. Reasonably foreseeable future actions could cumulatively result in a short-term increase in population due to temporary workers. Overlapping construction schedules of the Proposed Action and reasonably foreseeable future actions could magnify the cumulative effect, particularly if other large projects are under construction at the same time. However, based on the population increases that would be associated with the Proposed Action, the overall increases in population within the geographic area of influence would be short-term and relatively low.

Project-related expenditures, employment, and construction-related earnings from the Proposed Action would have a beneficial impact on the local economy and employment for the duration of construction. These impacts would be increased if other reasonably foreseeable future construction activities coincide with the proposed project. The resulting cumulative effects would be positive and short-term. Long-term economic impacts from the Proposed Action would be associated with operation and maintenance-related expenditures on materials and supplies. These economic impacts would be minor compared to the construction-related impacts. Therefore, the Proposed Action, when added to the past, present, and reasonably foreseeable future actions, would have a minor cumulative impact on the socioeconomic resources within the Proposed Action's geographic area of influence.

4.4.3.2 Visual Resources

The contribution to visual resources cumulative impacts by the Proposed Action are assessed in terms of the magnitude of change in scenic quality and landscape character, in addition to the effect on views from the KOPs and special management areas. Unless otherwise noted, the foreground level of direct impacts created by the Proposed Action was used to determine the level of cumulative impacts when considered with the present actions and reasonably foreseeable future actions.

U.S. 89, Old Spanish National Historic Trail, the Honeymoon Historic Trail KOPs, and the Highway 89 Corridor SRMA KOPs would have views of the Proposed Action and would also have views of reasonably foreseeable future actions, specifically the Lake Powell Water Pipeline. The reasonably foreseeable future actions would introduce features in the landscape that would create minor, adverse direct impacts in the foreground distance zone. The Proposed Action, when added to the past, present, and reasonably foreseeable future actions, would have a minor cumulative impact on views from these three linear KOPs and the special management area within the Proposed Action's geographic area of influence. The contribution of the Proposed Action to the cumulative visual resource impact would be minor in terms of scale because of the minor direct impacts on the views from these viewpoints. In terms of scenic quality and landscape character, the incremental effect of the construction and operation of the Proposed Action, when added to the past, present, and reasonably foreseeable future actions, would have a negligible cumulative impact on scenic quality and landscape character in all LCAs.

5.0 CONSULTATION AND COORDINATION

5.1 Summary of Public Participation

The public scoping on the Proposed Action was held from October 14, 2015, to November 28, 2015. The BLM posted a scoping letter and related information on its website and also mailed over 250 letters to individuals, public organizations, and agencies. Twenty comment letters and emails were received during the public scoping period. Table 15 summarizes issues and comments received during the public scoping period.

The Draft EA was released to the public for a 30-day public review from September 26, 2016, to October 26, 2016. A letter was sent to those who initially responded to the scoping letter; a press release was published in the local newspapers; and the document was also posted on BLM's ePlanning website on September 26, 2016. No public comments were received on the Draft EA.

Table 15. Public Scoping Issues/Comments

Issue/Comment	How Are Issues Addressed?
Support for access to reliable electric power at economical rates for visitors to GSENM and other natural attractions in the Kanab area.	This is part of the Proposed Action to obtain a ROW on BLM-administered lands for the purpose of constructing an improved utility line capable of providing power to the communities in the vicinity of GSENM.
Support for increased capacity to provide electrical infrastructure to meet the needs of future anticipated growth in the area.	This is part of the Proposed Action to obtain a ROW on BLM-administered lands for the purpose of constructing a utility line that would increase electrical capacity to serve existing and future customers. This electrical line is the sole source of electricity for the existing communities. Continued growth in these communities may surpass the current capabilities of the electrical line.
Project described as an effort to provide power for pumping stations associated with the proposed Lake Powell Pipeline project.	Out of scope of the EA.
H-frame structures described as impactful to the scenic values of the monument.	Potential visual impacts are addressed in Sections 4.2.13 and 4.4.3.2 of this EA.
Suggestion to consider alternative buried transmission line.	Alternative is addressed in Section 2.3.3 of this EA.
Request for additional information to determine overlap of telecom plant with project.	Out of scope of the EA.
Tribal request from the Hopi Cultural Preservation Office for consultation on the project's potential to adversely affect prehistoric cultural resources in Utah.	The Hopi Indian Tribe has been consulted as part of the Historic Preservation Act Section 106 process.
The Hopi Tribe claims cultural affiliation to earlier identifiable cultural groups in the Southwest and supports identification and avoidance of ancestral sites.	BLM has initiated consultation with the tribe. Section 4.2.3.1 of the EA addresses potential impacts of the Proposed Action on cultural resources.

5.2 Preparers

The following agencies/organizations and people contributed to the preparation of this EA:

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APPENDIX A
INTERDISCIPLINARY TEAM CHECKLISTS

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Disclaimer: Some portions of this appendix could not be made fully Section 508 compliant. For help with any of its content, please contact the Bureau of Land Management Grand Staircase-Escalante National Monument at 435-644-1200. Please reference Appendix A of the November 2016 Final Environmental Assessment.

INTERDISCIPLINARY TEAM CHECKLIST

Project Title: Buckskin to Kanab and Fredonia Power Transmission Line
NEPA Log Number: DOI-BLM-UT-0300-2015-0039-EA
Project Leader: Mark Foley (x1278)

DETERMINATION OF STAFF: ***(Choose one of the following abbreviated options for the left column)***

NP = not present in the area impacted by the proposed or alternative actions.
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The rationale column may include NI and NP discussions.

RESOURCES AND ISSUES CONSIDERED INCLUDES SUPPLEMENTAL AUTHORITIES (APPENDIX 1 H-1790-1)

Determi-nation	Resource	Rationale for Determination*	Signature	Date
PI	Air Quality (Miller)	Construction will result in surface disturbance in areas that are mostly previously disturbed, except for new right-of-way clearing. Particulate matter (dust; PM_{10}) will be generated from right-of-way clearing and construction activities, likely resulting in primarily localized effects (such as visibility along the highway), especially where soils are susceptible to erosion. During normal operations (after construction) no emission of air pollutants will occur.	/s/ khmiller	20150814
NP	Areas of Critical Environmental Concern (Hawks, AZ)	The expanded ROW is less than one mile from the Shinarump ACEC near Fredonia. The ACEC was designated to protect scenic values and the Siler Pincushion Cactus. However, it appears that the ROW is outside the ACEC.	/s/ D. Hawks	20150701
NI	Biological Soil Crusts (Brinkerhoff)	The proposed project will not impact the overall health of the existing biological soil crusts	/s/R. Brinkerhoff	7/27/2015
NP	BLM Natural Areas (Ford, AZ)	No Natural Areas are present in the Arizona project area.	/s/ L. Ford	20150630
NI	Cultural Resources (Zweifel) (Herron/Hawks, AZ)	A cultural resource inventory was completed within the project area and no cultural resource sites were identified within the BLM Arizona Strip Field Office. However, there are two sites listed as eligible for the National Register of Historic Places located within the jurisdiction of the Arizona State Lands Department (ASLD), and therefore, consultation with the ASLD office would need to occur. The entire proposed expanded ROW corridor follows the legislative corridor for the Old Spanish National Historic Trail (Armijo Route).	/s/ J. Herron /s/ D. Hawks	9/12/2016 20150701
NI	Greenhouse Gas Emissions (Miller)	Emissions generated during construction should be quickly dispersed and have no measurable effect. During normal operations (after construction) no greenhouse gas emissions will occur.	/s/ khmiller	20150814
NP	Environmental Justice (Betenson)	The proposal would not have disproportionate effects on low income or minority communities. According to the EPA EJView Mapper, Garfield and Kane Counties have been categorized as having a minority population of 0-10% and a below poverty population of 0-10%. (Accessed at: http://epamap14.epa.gov/ejmap/ejmap.aspx?wherestr=Garfield%20County%2C%20UT on 07/24/15.)	/s/MJBetenson	07/24/15

Determi-nation	Resource	Rationale for Determination*	Signature	Date
NP	Farmlands (Prime or Unique) (Betenson)	Prime farmland is described as farmland with resources available to sustain high levels of production. In general, prime farmland has a dependable water supply, a favorable temperature and growing season, acceptable levels of acidity or alkalinity, an acceptable content of salt and sodium, and few or no rocks. Unique farmland in Utah is primarily in the form of orchards. Based on these definitions, no prime or unique farmlands exist within the Monument. (See NRCS 1997 Results - Cropland Utah accessed at: http://www.nrcs.usda.gov/wps/portal/nrcs/detail/ut/technical/dma/nri/?cid=nrcs141p2_034092 on 07/24/15.)	/s/MJBetenson	07/24/15
PI	Fish and Wildlife Excluding USFWS Designated Species (Langston, AZ)	Activities associated with the construction of the proposed power line would likely displace wildlife and result in loss of habitat from vegetation removal.	/s/ S. Langston	9/12/2016
NP	Floodplains (Miller)	There are no floodplains present in the ASFO portion of the project area.	/s/ khmiller	20150814
NI	Fuels/Fire Management (Bate)	Overall the proposal would not increase or decrease fuels within the proposed project area. Fire Management would remain the same as current conditions with low fire danger most of the year.	/s/A.Bate	7/27/2015
NP	Geology / Mineral Resources/Energy Production (Cox, AZ)	A records search of LR2000 shows there are no active mining claims and no leasable, locatable or saleable mineral authorizations with the BLM on the lands involved.	/s/ R. Cox	20150709
NI	Hydrologic Conditions (Miller)	There would be negligible impact to hydrologic conditions resulting from the proposed project. Construction may result in minor soil compaction which could alter infiltration, but the effect will be insignificant given the small fraction of the watershed occupied by the project area. All streams in the project area are dry washes, so any impact from construction will be negligible.	/s/ khmiller	20150814
NI	Invasive Species/Noxious Weeds (EO 13112) (Bunting, AZ)	Standard stipulations for ROWs for vehicle cleaning prior to entering the work area and invasive species control within the ROW should be added to the authorization if granted.	/s/ W. Bunting	20150715
NI	Lands/Access (Ford, AZ)	Access to public lands would not be blocked or closed as a result of implementing the proposal. Public safety warning signs should be used where appropriate.	/s/ L. Ford	20150715
NI	Livestock Grazing (Bunting, AZ)	Livestock permittee should be notified of proposal and integrity of gates/fences should be maintained.	/s/ W. Bunting	20150715
NI	Native American Religious Concerns (Benson, AZ)	A cultural resource inventory was completed within the project area and no cultural resource sites were identified within the BLM Arizona Strip Field Office. However, there are two sites listed as eligible for the National Register of Historic Places located within the jurisdiction of the Arizona State Lands Department (ASLD), and therefore, consultation and coordination with the ASLD office would need to occur.	/s/ G. Benson	9/12/2016
NP	Paleontology (Cox, AZ)	There are no known paleontological resources on the lands involved.	/s/ R. Cox	20150709
NI	Rangeland Health Standards (Bunting, AZ)	No impacts to Rangeland Health Standards are anticipated.	/s/ W. Bunting	20150715
PI	Recreation (Hawks, AZ)	The Fredonia Woodhill Loop Road (R&PP Lease), a road used by local residents for recreation, culminates near the Fredonia substation. Construction of this expanded power line could affect recreational users of this area in the short term.	/s/ D. Hawks	9/12/2016

Determi-nation	Resource	Rationale for Determination*	Signature	Date
PI	Socio-Economics (Suhr Pierce)	Future economic growth and access to utilities by new residents of the area is expected to be affected by this project.	/s/J. A. Suhr Pierce	2015/08/21
PI	Soils (Miller)	There are areas of highly to moderately erodible soils along the proposed project route. Soil exposed during right-of-way clearing and construction will be susceptible to erosion, potentially affecting air and water quality.	/s/ khmiller	20150814
NI	Threatened, Endangered or Candidate Plant Species (Lambeth, AZ)	Siler pincushion cactus is known to occur near the proposed route and marginally suitable habitat occurs in the project area. An inventory of the proposed project area was conducted in 2016 for the cactus as well as the Jones cycladenia, and none were found; however, if plants are identified during construction activities they would be recorded and flagged for avoidance.	/s/ J. Lambeth	9/12/2016
PI	Threatened, Endangered or Candidate Animal Species (Langston, AZ)	California Condors could be disturbed by activities associated with construction of the power line.	/s/ S. Langston	9/12/2016
NP	Wastes (hazardous or solid) (Pierson)	There will be no industrial wastes or toxic substances used or generated	/s/B. Pierson	06/25/15
NI	Water Resources/Quality (drinking/surface/ground) (Miller)	The proposed project could result in localized impacts to water quality due to soil erosion during right-of-way clearing and construction. However, any such effects would be negligible both because all streams in the project area are dry washes and given the small fraction of the watershed occupied by the project area.	/s/ khmiller	20150814
NP	Wetlands/Riparian Zones (Ford, AZ)	There are no Wetlands/Riparian Zones within the Arizona portion of the ROW.	/s/ L. Ford	20150630
NP	Wild and Scenic Rivers (Hawks, AZ)	There are no Wild and Scenic Rivers in or near the ROW area in Arizona.	/s/ D. Hawks	20150701
NP	Wilderness/WSA (Hawks, AZ)	The Arizona portion of the ROW is not within or near a designated Wilderness Area. No WSAs occur in Arizona.	/s/ D. Hawks	20150701
NP	Woodland/Forestry (Bunting, AZ)	There are no Woodland/Forestry resources within the Arizona portion of the ROW.	/s/ W. Bunting	20150715
NI	Vegetation Excluding USFWS Designated Species (Bunting, AZ)	Impacts to vegetation are expected to be negligible.	/s/ W. Bunting	20150715
PI	Visual Resources (Hawks, AZ)	The project area in Arizona is within a VRM Class III designated area. However, the Shinarump ACEC is a VRM Class II area designated to protect scenic values, particularly the views of the Shinarump Cap from Fredonia. This project may affect those scenic views.	/s/ D. Hawks	20150701
NP	Wild Horses and Burros (Bunting, AZ)	There are no Wild Horse and Burro Herd Management Areas in the ROW area in Arizona.	/s/ W. Bunting	20150715
NP	Lands with Wilderness Characteristics (Hawks, AZ)	The project area is not located near or within any area managed to maintain wilderness characteristics.	/s/ D. Hawks	20150701

FINAL REVIEW

Reviewer Title	Signature	Date	Comments
Authorized Officer	Lorraine M. Christian	9/19/16	

INTERDISCIPLINARY TEAM CHECKLIST

Project Title: Buckskin to Kanab and Fredonia Power Transmission Line
NEPA Log Number: DOI-BLM-UT-0300-2015-0039-EA
Project Leader: Mark Foley (x1278)

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The rationale column may include NI and NP discussions.

RESOURCES AND ISSUES CONSIDERED INCLUDES SUPPLEMENTAL AUTHORITIES (APPENDIX 1 H-1790-1)

Determi-nation	Resource	Rationale for Determination*	Signature	Date
PI	Air Quality (Miller)	Construction will result in surface disturbance in areas that are mostly previously disturbed, except for new right-of-way clearing. Particulate matter (dust; PM_{10}) will be generated from right-of-way clearing and construction activities, likely resulting in primarily localized effects (such as visibility along the highway), especially where soils are susceptible to erosion. During normal operations (after construction) no emission of air pollutants will occur.	/s/ khmiller	07/06/2015
NP	Areas of Critical Environmental Concern (Beal/Gale)	No Areas of Critical Environmental Concern are designated within Grand Staircase-Escalante National Monument.	/s/ J. Beal	20150623
PI	Biological Soil Crusts (Brinkerhoff)	The proposed project could have an impact on the existing biological soil crusts within the ROW proposal.	/s/R. Brinkerhoff /s/ A. Hughes	7/27/2015 09/17/2015
NP	BLM Natural Areas (Beal)	No Natural Areas are present in the project area.	/s/ J. Beal	20150623
NI	Cultural Resources (Zweifel)	A cultural resource inventory has been completed (see report U-15-LI-0861). Several historic properties were identified, but all will be avoided; BLM has arrived at a finding of No Adverse Effect for this project.	/s/ M. Zweifel	8/9/2016
NI	Greenhouse Gas Emissions (Miller)	Emissions generated during construction should be quickly dispersed and have no measurable effect. During normal operations (after construction) no greenhouse gas emissions will occur.	/s/ khmiller	07/06/2015
NP	Environmental Justice (Betenson)	The proposal would not have disproportionate effects on low income or minority communities. According to the EPA EJView Mapper, Garfield and Kane Counties have been categorized as having a minority population of 0-10% and a below poverty population of 0-10%. (Accessed at: http://epamap14.epa.gov/ejmap/ejmap.aspx?wherestr=Garfield%20County%2C%20UT on 07/24/15.)	/s/MJBetenson	07/24/15

Determi-nation	Resource	Rationale for Determination*	Signature	Date
NP	Farmlands (Prime or Unique) (Betenson)	Prime farmland is described as farmland with resources available to sustain high levels of production. In general, prime farmland has a dependable water supply, a favorable temperature and growing season, acceptable levels of acidity or alkalinity, an acceptable content of salt and sodium, and few or no rocks. Unique farmland in Utah is primarily in the form of orchards. Based on these definitions, no prime or unique farmlands exist within the Monument. (See NRCS 1997 Results - Cropland Utah accessed at: http://www.nrcs.usda.gov/wps/portal/nrcs/detail/ut/technical/dma/nri/?cid=nrcs141p2_034092 on 07/24/15.)	/s/MJBetenson	07/24/15
PI	Fish and Wildlife Excluding USFWS Designated Species (Tolbert/McQuivey)	Deer: Nearly the entire length of the proposal is within a major mule deer migration route. Construction activities have the potential to impact migrating deer depending on the timing and duration of the project and should be analyzed. Additionally, a deer-proof fence with underpasses was constructed in 2012. Timing of construction within the deer-fence area should be coordinated in a manner that minimizes impacts to migrating deer. My recommended actions that would alleviate impacts to migrating deer are as follows: 1) If feasible, avoid working along the entire 12 mile stretch of deer fence during peak migration times (October 15 to December 1 and again from February 15 to April 15); 2) If work cannot be avoided during this time, Fall migration construction would be allowed from October 15 to December 1, but I would recommend not working during the Spring migration time when deer would be approaching the fence from the south and have direct contact with construction crews/equipment (From February 15 to April 15). Additionally, all crossing structures, i.e. bridges, culverts, tunnels would be avoided by .25 mile and equipment would not be staged near these areas. Migratory Birds: Construction activities should be avoided during the nesting season for this area (May 1 to July 15). If construction cannot be avoided during this time, a clearance survey by a qualified biologist would need to be conducted no sooner than a week prior to ground disturbing activities. This would be for the entire length of the project.	/s/ C. McQuivey	8\3\15
PI	Floodplains (Miller)	Proposed project will cross several streams or stream courses (Johnson Wash, Kitchen Corral Wash/Buckskin Wash and other small streams/washes). Most are normally dry washes without active floodplains with the exception of Johnson Wash. Johnson Wash and Kitchen Corral Wash/Buckskin Wash are identified as Special Flood Hazard Zones (Zone A) by Kane County. Crossings will potentially alter floodplains and will be susceptible to flooding.	/s/ khmiller	07/06/2015
NI	Fuels/Fire Management (Bate)	Overall the proposal would not increase or decrease fuels within the proposed project area. Fire Management would remain the same as current conditions with low fire danger most of the year.	/s/A.Bate	7/27/2015
NI	Geology / Mineral Resources/Energy Production (Titus)	The Proposed Action would be mostly located within the existing energy/UDOT right of way, which would not create conflicts with known leases, geological features, or production unless construction operations overlap in time and space with limestone production out of the Buckskin Gulch limestone quarry. This is considered unlikely as Garkane will coordinate with the pit supervisors to insure there is no conflict.	/s/ Alan Titus	7/23/2015

Determi-nation	Resource	Rationale for Determination*	Signature	Date
PI	Hydrologic Conditions (Miller)	Proposed project will cross several streams and washes. Stream crossings have the potential to alter localized hydrologic condition, primarily by altering bank stability but also by modifying channel morphology.	/s/ khmiller	07/06/2015
NI	Invasive Species/Noxious Weeds (EO 13112) (Brinkerhoff)	The proposed project may increase the threat of invasive/noxious weeds. SOP indicated in the Monument Programmatic weed EA will be followed to keep the potential at a minimal.	/s/R. Brinkerhoff	07/27/2015
NI	Lands/Access (Foley)	This proposal would be within the GSENM Frontcountry zone. It would have no impact on access to public or private lands and no impact on land tenure. Review of available databases found no valid existing rights which would be impacted by this project. The two project parcels within Kanab Field Office are not on the FLPMA 203 disposal list. This project is consistent with GSENM Management Plan LAND-5, which states: *In the Frontcountry and Passage Zones, communication sites and utility rights-of-way will be allowed, but will have to meet visual resource objectives*. This project would be located within the Section 368 Corridor #68-116. This utility corridor is also referenced in LAND-9, which notes that a utility corridor was designated along Highway 89 in Kane County, Utah, including the portion within GSENM. The utility corridor extends 240 feet north from the center line of the highway, and 500 feet south. The existing power line is an average of 175 feet to the south of the center line. The new facility would be built at an offset of 75 feet to the south of the existing facility, making the midline of the new power line 250 to the south of the center line. The requested width of 125 feet would leave the entire right-of-way well within the 500 foot corridor width. Facility must meet non-electrocution standards for raptors and use non-reflective wire in construction per LAND-8. Proponent should also take care to preserve survey markers, bearing trees, and witness corners within the project area.	/s/ Mark Foley	7/1/2015
NI	Livestock Grazing (Bate)	The proposal would not affect the movement of cattle. During construction cattle may be scared off but once construction is completed for a certain area cattle would return.	/s/ A.Bate	7/27/2015
NI	Native American Religious Concerns (Zweifel)	Several Historic Properties were identified along the project corridor. All will be avoided, and no impacts to these sites are anticipated This project will be included in the annual GSENM/Native American consultations, but no comments are anticipated.	/s/ M. Zweifel	8/9/2016

Determi-nation	Resource	Rationale for Determination*	Signature	Date
~~PI~~ NI	Paleontology (Titus)	For most of the area of the Proposed Action surface disturbing activities would be confined to existing rights of ways and previously disturbed areas. There is a small chance that significant Chinle Formation vertebrate fossils would be encountered along the stretch just east of Kanab along the old Highway 89 and along the Southwest trending stretch to Fredonia if extensive ground disturbance is conducted in bedrock. UPDATE TO CHECKLIST: Additional analysis in collaboration with James Holland (KFO) and Rody Cox (Arizona Strip) determined that the poles and supporting structures would all be sited in deep alluvium in the KFO portion of the route and not disturbing Chinle bedrock. Furthermore, the Arizona portion of the route is in upper Moenkopi Formation that has almost no potential for fossils.	/s/ Alan Titus	7/23/2015 (2/1/2015)
NI	Rangeland Health Standards (Bate)	The proposal would not be the determining factor to whether or not the area within the proposal would meet or not meet standard and guidelines.	/s/A.Bate	7/27/2015
NI	Recreation (Beal/Gale)	This project is adjacent to Highway 89. Although the highway is a scenic drive providing access to southern Utah/ Kanab the project will not likely affect recreation or motorist.	/s/ J. Beal	20150623
PI	Socio-Economics (Suhr Pierce)	Future economic growth and access to utilities by new residents of the area is expected to be affected by this project	/s/J. A. Suhr Pierce	2015/08/21
PI	Soils (Miller)	Areas of highly to moderately erodible soils exist along the proposed project route. Soil exposed during right-of-way clearing and construction will be susceptible to erosion, potentially affecting air and water quality.	/s/ khmiller	07/06/2015
NP	Threatened, Endangered or Candidate Plant Species (Brinkerhoff)	The proposed project will not impact any known populations.	/s/R. Brinkerhoff	7/27/2015
NP	Threatened, Endangered or Candidate Animal Species (Tolbert/McQuivey)	There are no Threatened, Endangered, or Candidate animal species or their habitats within the proposed project area.	/s/ C. McQuivey	7/1/15
NP	Wastes (hazardous or solid) (Pierson)	There will be no industrial wastes or toxic substances used or generated.	/s/B. Pierson	06/25/15
PI	Water Resources/Quality (drinking/surface/ground) (Miller)	The proposed project has the potential for adverse localized effects on water quality due to soil erosion during right-of-way clearing and construction.	/s/ khmiller	07/06/2015
NP	Wetlands/Riparian Zones (Brinkerhoff)	The proposed project will not impact any riparian zones.	/s/R. Brinkerhoff	7/27/2015
NP	Wild and Scenic Rivers (Beal/Gale)	This project does not occur on any rivers or tributaries recommended as WSR suitable within GSENM.	/s/LGale	07.08.15
NP	Wilderness/WSA (Beal/Gale)	This project does not occur within any WSAs within GSENM.	/s/L.Gale	07.08.15
PI	Woodland/Forestry (Bate)	This project may remove a few pinyon/juniper trees along the proposed right-of-way route but this removal would not impact the overall population of P/J trees within the Buckskin Mountain area.	/s/A.Bate	727/2016
NI	Vegetation Excluding USFWS Designated Species (Brinkerhoff)	The proposed project will not impact the overall health of the existing vegetation.	/s/R. Brinkerhoff	7/27/2015
PI	Visual Resources (Angus)	Contrast ratings needed to determine impacts.	/s/AAngus	7/1/2015

Determi-nation	Resource	Rationale for Determination*	Signature	Date
NP	Wild Horses and Burros (Stewart)	There are no Wild Horse and Burro Herd Management Areas within GSENM.	/s/A.Bate	7/27/2015
NI	Lands with wilderness characteristics (Beal/Gale)	This project will be located on the south side of Hwy 89 within the existing ROW and will not impact any existing inventoried lwc units. It will authorize an additional 75 feet in width for construction on un-inventoried GSENM lands on the south side of Hwy 89.	/s/L.Gale	Revised 07.14.16

FINAL REVIEW

Reviewer Title	Signature	Date	Comments
Environmental Coordinator	/s/ Amber Hughes	07/26/2016	Paleo section revised from PI to NI LWC section revised from NP to NI
Authorized Officer	 Cynthia Staszak	07/27/2016	

APPENDIX B
VISUAL RESOURCES METHODOLOGY AND DETAILED IMPACT ANALYSIS

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Disclaimer: The tables in this appendix could not be made fully Section 508 compliant. For help with their content, please contact the Bureau of Land Management Grand Staircase-Escalante National Monument at 435-644-1200. Please reference Appendix B of the November 2016 Final Environmental Assessment.

Visual Resources Analysis Methodology

The area of potential effect for visual resources is defined as the area within 5 miles from either side of the proposed right-of-way (ROW) area centerline (10-mile total). The character of the existing visual resources in the project area varies because of the different natural and man-made features or elements in the landscape and the diverse patterns that these elements, when combined, create. The ability to discern change in the landscape primarily depends on distance (BLM 1986a). For this analysis, the foreground distance zone is defined as the area up to 0.5 mile from the proposed ROW area centerline, and the middleground distance zone is the area from 0.5 mile to 5.0 miles.

The visual character and scenic quality were evaluated for changes within the immediate foreground of the proposed ROW area by landscape character areas (LCAs).[5] The LCA delineations are based on areas with common landform patterns and features, vegetation communities and patterns, built features, land use patterns, scarcity, and/or surface water resources compared to the Colorado Plateau Ecoregion. Nine LCAs were delineated: three in the Arizona Strip Field Office, two in the Kanab Field Office, and four in Grand Staircase-Escalante National Monument (GSENM).

Key observation points (KOPs) where the public would view the proposed ROW area from a stationary location (e.g., scenic overlook or residential area) or a linear (e.g., scenic byway or trail) location. Visual sensitivity levels for the visual resource analysis area within the Arizona Strip Field Office and GSENM are considered to be high, as determined during the current visual resource inventory completed by BLM.[6]

Two KOPs, one stationary and one linear, were selected by the BLM to evaluate impacts of the Proposed Action. The stationary KOP is located directly north of the town of Fredonia along State Route 89A and has a view of the Proposed Action to the east. This location was selected to account for impacts on the residential development and recreation use near the town. The linear KOP identified for analysis is U.S. Highway 89. This linear KOP was selected due to its proximity to the proposed ROW area and the high number of motorists who travel the highway. As a linear KOP, the entire length of the route within the project area was evaluated, not just from a single viewing location along the KOP. In addition, impacts on the views in general from the Johnson Spring and Shinarump Areas of Critical Environmental Concern, the Fredonia and Highway 89 Corridor Special Recreation Management Areas, the Old Spanish National Historic Trail, and the Honeymoon Historic Trail were assessed.

Visual impacts are defined as the change to the visual environment resulting from the introduction of modifications to the landscape. The amount of visual contrast created is directly related to the amount of attention that is drawn to a feature in the landscape. Table B-1 presents a summary of the potential direct visual resource impacts, and Table B-2 presents the cumulative visual resource impacts from the Proposed Action.

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[5] Where available, these project-level units were based on the individual field office's scenic quality rating units (SQRUs) that were delineated as part of the field office/management area's visual resource inventory (VRI). With the exception of the area within the Kanab Field Office, landscape character areas (LCAs) were delineated using the existing SQRU delineations from the BLM VRIs completed in 2013 for Grand Staircase-Escalante National Monument and in 2007 for the Arizona Strip Field Office. At the time of the analysis, the Kanab Field Office had no existing VRI SQRUs available; to complete the analysis, project-level LCAs were delineated within the project analysis area.

[6] Visual sensitivity reflects attitudes and perceptions held by people regarding the landscape and, in general, reflects the public's level of sensitivity for noticeable change to the landscape. It recognizes specific places, areas, and features that have visual importance relative to one's home, social, business, and recreation environment (1986a). Visual sensitivity levels for the Kanab Field Office were not available.

Table B-1. Summary of Impacts by Landscape Character Areas, Key Observation Points, and Special Management Areas

	Scale and Spatial Relationship		Scenic Quality			
	FG	MG	Existing Rating	Foreground Postproject Rating	Foreground Impact	Landscape Character Foreground Impact
Lost Spring Wash (AS-045)			C	C	M	M
Shinarump Point (AS-046)			B	B	M	M
Lost Spring Hills (AS-47)			B	B	M	M
The Seeps (KN-136A)			C	C	M	M
Seaman Wash (KN-136C)			B	C	M	M
Telegraph Flat (GS-123)			C	C	M	M
Petrified Hollow Wash (GS-123A)			B	B	M	M
Buckskin (GS-127)			C	C	M	M
Seaman Wash (GS-136C)			B	C	M	M
Town of Fredonia	None	N				
Linear Viewing Platforms						
U.S. Highway 89	M	M				
Old Spanish National Historic Trail	M	N				
Honeymoon Historic Trail	M	N				
Johnson Spring Area of Critical Environmental Concern	None	N				
Shinarump Area of Critical Environmental Concern	M	N				
Fredonia Special Recreation Management Area	N	N				
GSENM—Highway 89 Corridor Special Recreation Management Area	N	N				

Table Source: Logan Simpson.

Table Abbreviations: GSENM = Grand Staircase-Escalante National Monument; FG = foreground distance; MG = middleground distance; N = negligible (green); M = minor (yellow); None = no impact (green).

Table B-2. Summary of Cumulative Impacts by Landscape Character Areas, Key Observation Points, and Special Management Areas from the Proposed Action

	Sensitive Viewers (Key Observation Points) Scale/Spatial Relationship				Scenic Quality				Landscape Character			
	Direct Impact	Combined Present/RFFA Projects Direct Impact	Cumulative Impact	Contribution to Cumulative Impact	Direct Impact	Combined Present/RFFA Projects Direct Impact	Cumulative Impact	Contribution to Cumulative Impact	Direct Impact	Combined Present/RFFA Projects Direct Impact	Cumulative Impact	Contribution to Cumulative Impact
Landscape Character Areas												
Lost Spring Wash (AS-045)					M	M	M	N	M	M	M	N
Shinarump Point (AS-046)					M	M	M	N	M	M	M	N
Lost Spring Hills (AS-47)					M	M	M	N	M	M	M	N
The Seeps (KN-136A)					M	N	N	N	M	N	N	N
Seaman Wash (KN-136C)					M	N	N	N	M	N	N	N
Telegraph Flat (GS-123)					M	M	M	N	M	M	M	N
Petrified Hollow Wash (GS-123A)					M	M	M	N	M	M	M	N
Buckskin (GS-127)					M	N	N	N	M	N	N	N
Seaman Wash (GS-136C)					M	M	M	N	M	M	M	N
Stationary Key Observation Points												
Town of Fredonia	N	M	M	N								
Linear Key Observation Points												
U.S. Highway 89	M	M	M	M								
Old Spanish National Historic Trail	N	M	M	M								
Honeymoon Historic Trail	N	M	M	M								
Special Management Areas												
Johnson Spring Area of Critical Environmental Concern	N	N	N	NR								
Shinarump Area of Critical Environmental Concern	M	M	M	N								
Fredonia Special Recreation Management Area	M	M	M	N								
Grand Staircase-Escalante National Monument—Highway 89 Corridor Special Recreation Management Area	M	M	M	M								

Table Source: Logan Simpson.

Table Abbreviations: M=minor (yellow); N=negligible (green); NR = not relevant (gray); RFFA = reasonably foreseeable future actions.

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APPENDIX C
CULTURAL RESOURCES REPORT CONCURRENCE LETTER FROM THE ARIZONA STATE HISTORIC PRESERVATION OFFICE

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Disclaimer: Some portions of this appendix could not be made fully Section 508 compliant. For help with any of its content, please contact the Bureau of Land Management Grand Staircase-Escalante National Monument at 435-644-1200. Please reference Appendix C of the November 2016 Final Environmental Assessment.

Douglas A. Ducey
Governor

Lisa A. Atkins
Commissioner

Arizona State Land Department

1616 West Adams, Phoenix, Arizona 85007
(602) 542-4631

September 28, 2016

Kathryn Leonard
State Historic Preservation Officer
Attn: James Cogswell
Archaeological Compliance Specialist
State Historic Preservation Office
1100 West Washington
Phoenix, Arizona 85007

RE: Survey Review for Application 18-101524-00-001 (Garkane Energy Cooperative, Inc.)

Dear Ms. Leonard:

Garkane Energy Cooperative, Inc. filed an application (18-101524-00-001) with the Arizona State Land Department (ASLD) for an Application for Right of Way (ROW) on State Trust Land in Coconino County (T41N, R2W, Section 4 and T42N, R2W, Section 33), encompassing 4.08 acres. Garkane Energy Cooperative, Inc. arranged for Logan Simpson to inspect the subject area for cultural resources. That inspection was conducted under Arizona Antiquities Act Permit No. 2015-0042bl and is documented in the report entitled *A Cultural Resources Inventory of 680 Acres for the Proposed Garkane Energy Buckskin to Kanab and Fredonia 69kV Transmission Line Upgrades, Kane County, Utah and Coconino County, Arizona* (June 2016). Therefore, per the 2016 Interagency Service Agreement (ISA) between the ASLD, the State Historic Preservation Office (SHPO), and the Arizona State Museum (ASM), under VI. I., pursuant to A.R.S. §41-861 *et seq.*, ASLD is initiating consultation with SHPO, allowing SHPO 30 working days to comment on the adequacy of the report and the eligibility of the documented cultural resources.

ASLD understands this ROW may become a federal undertaking subject to Section 106 of the NHPA, 36 CFR Part 800. In anticipation of the Bureau of Land Management consultation with SHPO and affected entities pursuant to Section 106, ASLD remains obligated to consult with SHPO on the granting of maintenance activity State Trust land. Whether ASLD elects to consult with SHPO directly, or indirectly by accepting the federal agency's invitation to comment during the federal agency's Section 106 consultation., either way, A.R.S. § 41- 864 obligates ASLD to consult with SHPO regarding ASLD's plans to approve the maintenance of ROW 18-101524-00-001. Therefore, per the 2016 Interagency Service Agreement (ISA) between the ASLD, the State Historic Preservation Office (SHPO), and the Arizona State Museum (ASM), ASLD has reviewed the report and has the following comments and recommendations.

The report indicates that Logan Simpson inspected 39 acres of State Trust land and identified 4 archaeological sites. Two sites, AZ B:2:35(ASM) and AZ B:2:60(ASM) are previously recorded sites and have been recommended by Logan Simpson as eligible for listing the Arizona and National Register of Historic Places (A/NRHP) under Criterion D. Logan Simpson recommends the two sites be avoided by all project activities and recommends a qualified cultural resources monitor be present during construction. The ASLD Archaeology Unit agrees with those recommendations and avoidance measures. The remaining two sites, AZ B:3:89(ASM) and AZ B:3:90(ASM) have been recommended as Not Eligible for listing to the A/NHRP by Logan Simpson and will not be avoided by any project activities. The ASLD Archaeology Unit agrees with those recommendations and avoidance measures. In addition to the archaeological sites, two isolated occurrences (IOs) were identified within the area of potential effect (APE). Logan Simpson recommends all IOs not eligible for listing to the Arizona or National Register of Historic Places under any Criterion. The ASLD Archaeology Unit agrees with that recommendation.

Therefore, the ASLD Archaeology Unit is recommending to ASLD Rights of Way Project Leader, Michael Nesselrode that ASLD Rights of Way not grant ROW 18-101524-00-001 until SHPO has had the opportunity to comment. Pending SHPO consultation, the ASLD Archaeology Unit is further recommending to Mr. Nesselrode that ASLD Rights of Way Section include the following conditions with ROW 18-101524-00-001:

In the event that any archaeological, paleontological, or historical site or object, or Human remains or funerary object that is at least fifty years old is discovered during ground disturbing activities, the work shall cease and the grantee shall notify the Director of the Arizona State Museum pursuant to A.R.S. §41-844, and Arizona State Land Department Cultural Resources Manager.

Except for archaeological investigations that are properly authorized under a project-specific Arizona Antiquities Act permit issued by the Arizona State Museum pursuant to A.R.S. §41-842, Grantee shall not cause nor allow any ground disturbing activity within the boundaries of the archaeological sites recorded at the Arizona State Museum as AZ B2:35(ASM) and AZ B:2:60(ASM), without first obtaining the written permission of Grantor. Grantee shall provide Grantor with any archaeological plans, studies, or reports that may be needed for Grantor's use in consultation with the State Historic Preservation Office.

By copy of this letter to Logan Simpson, the ASLD Archaeology Unit has the following technical comments:

1. For future reporting purposes, none of the maps in the report show land jurisdiction. Please revise the maps to show land jurisdiction, as required by SHPO Guidance Point No. 10 (January 2015 version).
2. For future reporting purposes, please include the current ASLD lease or application number within the abstract of the report.

Your continued cooperation with this office in considering the potential for impacts to Arizona's cultural resources is appreciated. If you have any comments or concerns, please contact me at **602-542-2126** or by email at asewequaptewa-tutt@azland.gov.

Sincerely,

April Sewequaptewa-Tutt
Archaeologist/Archaeological Projects Specialist

CC: James Cogswell, SHPO
Mark Palmer, Garkane
Jesse Adams, Logan Simpson
John Herron, BLM
Todd Pitezel, ASM Assistant Curator of Archaeology

Concur - Sites AZ B:2:35 (ASM) and AZ B:2:60 (ASM) are NRHP-eligible under criterion D. Sites AZ B:3:89 (ASM) and AZ B:3:90 (ASM) + the IOs are not eligible. I agree with the conditions on page 2 of this letter.

James Cogswell 10/7/16
AZ SHPO