## 5.3.14 Land Use Plans and Conflicts

### *5.3.14.1 Affected Environment*

#### 5.3.14.1.1 Area of Potential Effect.

Although federal and state-owned or managed land, and recreation areas comprise much of the landscape associated with the LPP Project, other land ownership types and uses occur as well. Lands near and within the LPP Project alignment are utilized for recreation, grazing, mineral exploration and mining, resource harvesting, wildlife habitat, and scientific research, as well as other uses. Agricultural, urbanized, utility ROWs, and open space land are noted uses within the LPP Project alignment. In addition to land, the LPP Project lies within the water body of Lake Powell and is directly adjacent to Sand Hollow Reservoir. These water resources are utilized for recreation, habitat, urban water supply, as well as other beneficial uses. The primary land uses within the Arizona Strip, which constitutes a large portion of land associated with the LPP Project, is livestock grazing (which occurs on both private and public land) and recreation. South of the Utah/Arizona border, the LPP Project alternatives would traverse either south of the Kaibab-Paiute Indian Reservation or through it (depending on the alternative), where the landscape includes desert, open range, pinyon pine, juniper, springs, and ephemeral washes. In Utah, land uses consist of urban use, agricultural use (mainly irrigated farmland), recreation, livestock grazing, and protected land such as state or national parks and monuments. As development in southern Utah continues and urbanization increases, some existing land used for grazing and agriculture is likely to be converted to urban land use (NRCS 2007, UDWRe 2007a).

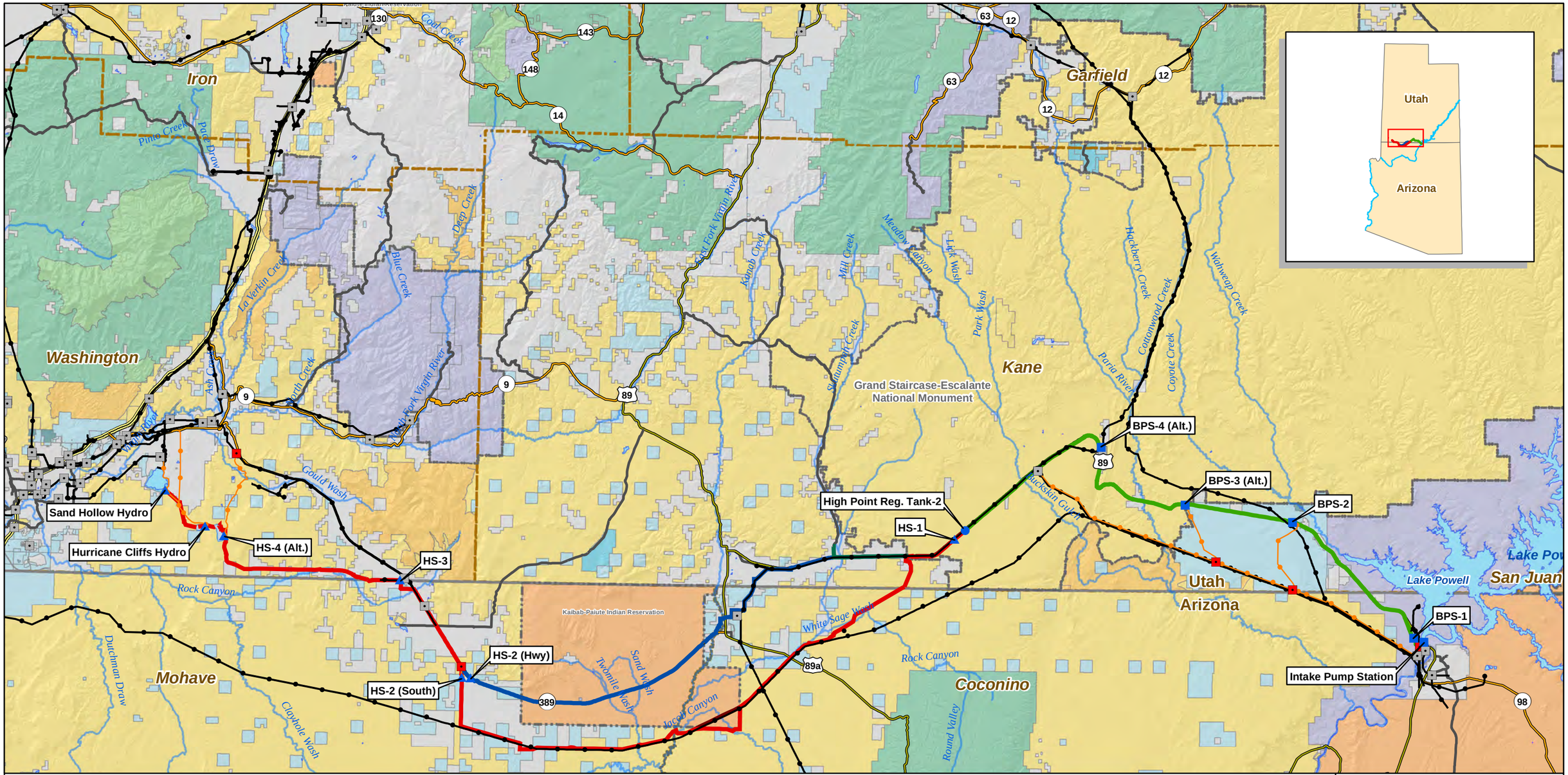
In areas not irrigated for agricultural use or used as urban space or ROWs, the general land cover consists of desert scrub, desert grassland, desert shrub, sagebrush pinyon-juniper shrub land, and pinyon-juniper woodlands.

The Federal and state land crossed by the LPP Project includes: Reclamation – Bureau of Reclamation; BLM – Grand Staircase - Escalante National Monument; BLM – Kanab Field Office; BLM – Arizona Strip Field Office; BLM – St. George Field Office; Kaibab–Paiute Indian Reservation; Arizona State Land Department; School and Institutional Trust Lands Administration – SITLA, Utah; GCNRA; Utah State Parks and Recreation; WCWCD – Washington County Water Conservancy District; and Kane County Water Conservancy District - KCWCD. Figure 5-172 shows land ownership along all LPP Project alternatives.

#### 5.3.14.1.2 Description of Baseline Conditions.

Land use includes the following topics that are generally associated with land management plans and policies.

- Land ownership and management
- Farmland
- Floodplain
- Waste disposal and hazardous waste
- Designated Wilderness and WSAs
- Wild and scenic rivers
- Grazing land
- Rights-of-way
- Trails and national historic trails
- Areas of critical environmental concern
- Growth




Project Pump Station
Project Regulating Tank
Project Hydro Station
Substation
Proposed Substation

Water Conveyance System
Hydro System - South Alternative
Hydro System - Southeast Corner Alternative
KCWCD System
Hydro System - Existing Highway Alternative
Project Transmission Line
Existing Transmission Lines

Interstate
US Highway
ST Highway
Hwy
Major Road
Major Rivers & Streams

National Park/Monument
Tribal Lands
State Boundaries
County Boundaries
Hurricane Cliffs Forebay/Afterbay
Lakes & Reservoirs

**LPP Land Ownership**

BLM
Bureau of Reclamation
State
Private
Tribal
National Park Service

USFS
State Park
BLM Wilderness
State Wildlife Reserve
USFS Wilderness Area
USFWS

**FERC Project Number: 12966-001**
**BLM Serial Numbers: AZA-34941 UTU-85472**

N

0 2.5 5 10 15 20 Miles

**Lake Powell Pipeline Project**

Spatial Reference: UTM Zone 12N, NAD-83

UDWRe Figure 5-172 MWH

**Lake Powell Pipeline General Land Ownership**

The following sections describe the baseline conditions for these land use topics.

#### *5.3.14.1.2.1 Land Ownership and Management.*

**NPS-Administered Land**

Glen Canyon National Recreation Area was established by Act of Congress in 1972. It is located in northern Arizona and southern Utah. Containing 1.25 million acres, the park was established "... in order to provide for public outdoor recreation use and enjoyment of Lake Powell and land adjacent thereto in the States of Arizona and Utah and to preserve scenic, scientific, and historic features contributing to public enjoyment of the area..." (NPS 2008). The most recent Glen Canyon National Recreation Area and Rainbow Bridge National Monument five-year Strategic Plan was completed in December 2006 to fulfill the requirements of Section 104 of the National Parks Omnibus Management Act of 1998.

**Reclamation-Administered Land**

Established in 1902, Reclamation is responsible for developing and conserving the Nation's water resources in the western United States. Reclamation's original purpose was "to provide for the reclamation of arid and semiarid land in the West." Today Reclamation covers a wide range of interrelated functions. These include providing municipal and industrial water supplies, hydroelectric power generation, irrigation water for agriculture, water quality improvement, flood control, river navigation, river regulation and control, fish and wildlife enhancement, outdoor recreation, and water-related research (Reclamation 2001). Reclamation administers the public land surrounding Glen Canyon Dam Hydropower station and the subsequent substation downstream of the dam. The LPP Project would occupy a portion of the federal land administered by Reclamation upstream of Glen Canyon Dam.

**BLM-Administered Land**

***Grand Staircase – Escalante National Monument***

Grand Staircase – Escalante National Monument (GSENM) was established on September 18, 1996 when President Clinton issued a Proclamation under the provisions of the Antiquities Act of 1906. GSENM includes about 1.87 million acres of Federal land in south-central Utah. There are approximately 15,000 acres of land within GSENM boundary that are privately owned. GSENM Monument Management Plan (MMP) and Record of Decision (ROD) were signed in November 1999 and became effective in February 2000 (BLM 2000). GSENM was created to promote scientific study and to protect an array of historic, biological, geological, paleontological, and archaeological objects. Livestock grazing occurs by permit throughout the portion of GSENM where the LPP Project would be aligned. The U.S. Congress established a utility corridor along Highway 89 through GSENM extending 500 feet south and 240 feet north of the highway centerline (U.S. Congress 1998). Protection and support of each of these characteristics are discussed throughout GSENM MMP.

***Kanab Field Office***

The Kanab Field Office signed a ROD approving a Resource Management Plan (RMP) in October 2008. The Kanab Field Office approved RMP replaces public land decisions within the Escalante Management Framework Plan (MFP) (1981), Paria MFP (1981), Vermilion MFP (1981), Zion MFP (1981), Cedar-Beaver-Garfield-Antimony (CBGA) RMP (1986) and amendments (BLM 2008c). The planning area contains 554,000 acres of BLM-administered land consisting of historical communities, diverse terrains, scenic landscapes, and recreational attractions which figure prominently in the settlement, history, culture,

and enjoyment of southern Utah. The approved plan describes the land use and management objectives for the Kanab Field Office.

### *St. George Field Office*

The St. George Field Office administers 635,000 acres of public lands in the southwest corner of Utah. A merging point of three unique ecosystems, the Mojave Desert, the Great Basin, and the Colorado Plateau, these publics lands are a rich mix of geologic formations, biological habitats, scenic landscapes, and cultural history. Most public land in Washington County is managed by the St. George Field Office.

### *Arizona Strip Field Office*

In 2008, the BLM signed a ROD approving the Resource Management Plans (BLM 2008b) for the Arizona Strip Field Office.

The BLM Arizona Strip Field Office manages nearly 2 million acres in northwestern Arizona. The field office manages all or part of four WAs, the Old Spanish National Historic Trail, nine Areas of Critical Environmental Concern, and two river segments suitable for Wild & Scenic River designation.

## Arizona State Land Department

Since the State Land Department's (ASLD) inception, its mission has been to manage the Land Trust and to maximize its revenues for the beneficiaries (ASLD Current). ASLD administers land owned by, belonging to, and under the control of the state through the rules outlined in the Arizona Revised Statues within the Arizona State Legislature.

## Utah School and Institutional Trust Lands Administration (SITLA)

The Utah Trust Lands Administration is legally obligated to manage trust land to optimize the financial return for Utah's schools and the other 11 beneficiaries. SITLA manages a 3.5 million-acre real estate portfolio of both surface land and mineral land (USTL Undated). SITLA leases and sells land to provide revenue for the beneficiaries. SITLA administers the land entrusted to it by the federal government through a set of guidelines called 'Utah State Trust Land Rules.'

## Utah State Parks and Recreation

The Sand Hollow Recreation Area, including Sand Hollow State Park, is owned by WCWCD and BLM and managed cooperatively between WCWCD, Utah Division of State Parks (State Parks) and BLM's St. George Field Office (BLM). These agencies work in conjunction with local stakeholders, a citizen-based planning team, and the public through a Recreation Management Plan to manage the WCWCD's 4,047-acre Sand Hollow reservoir site together with 16,564 acres of the BLM's 20,709-acre Sand Mountain Special Recreation Management Area (BLM et al. 2001).

## Kaibab-Paiute Indian Reservation

Tribal land is held in trust by the U.S. Department of the Interior, Bureau of Indian Affairs (BIA). The Energy Transport Corridor Siting for Tribal Planners Guidance Manual (BIA 2010) provides guidance for energy development both for tribes and private organizations. Construction of conveyance projects within Tribal land is limited to designated energy transport corridors, which ensures that future development occurs in a planned manner with minimal environmental effects. For this reason, a tribe may require that future ROW applicants locate their proposed project in a designated energy transport corridor.

Conversely, a tribe may decide not to require that a ROW be located within a designated energy corridor (BIA 2010).

The Kaibab Band of Paiute Indians was contacted to acquire a resource management plan, land use plan or other management plan(s). The Economic Development/Resource Manager stated that the Kaibab Band of Paiute Indians was working to complete a resource management plan; the anticipated completion date was 2013 (Robb 2012).

**Local and Private Land**

The LPP Project alternatives would cross through four counties and eight incorporated municipalities. Following is a list of the municipalities and counties and the land use and general plans that were used to identify potential conflicts with LPP Project construction, operation, and maintenance.

Cities

- Greenehaven, AZ
- Big Water, UT
- Church Wells, UT
- City of Kanab, UT
- Fredonia, AZ
- Colorado City, AZ
- Hildale City, UT
- City of Hurricane, UT

Counties

- Coconino County, AZ
- Mohave County, AZ
- Kane County, UT
- Washington County, UT

***5.3.14.1.2.2 Farmland.***

**Natural Resource Conservation Service (NRCS)**

The Farmland Protection Policy Act (FPPA) of 1981 is intended to minimize the effect federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. It assures that, to the extent possible, federal programs are administered to be compatible with state, municipal government, and private programs and policies to protect farmland. Federal agencies are required to develop and review their policies and procedures to implement the FPPA every two years (NRCS 2011b).

The FPPA does not authorize the Federal Government to regulate the use of private or nonfederal land or affect the property rights of owners in any way. For the purpose of FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance. Farmland subject to FPPA requirements does not have to be currently used for cropland. It can be forest land, pastureland, cropland, or other land, but not water storage or urbanized land (NRCS 2011a). Each of the above farmland terms are defined as follows:

- Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion, as determined by the Secretary of the Interior. Prime farmland includes land that possesses the above characteristics

but is being used currently to produce livestock and timber. It does not include land already in or committed to urban development or water storage.

- Unique farmland is land other than prime farmland that is used for production of specific high-value food and fiber crops, as determined by the Secretary of the Interior. It has the special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality or high yields of specific crops when treated and managed according to acceptable farming methods. Examples of such crops include citrus, tree nuts, olives, cranberries, fruits, and vegetables.
- Farmland, other than prime or unique farmland, that is of statewide or local importance for the production of food, feed, fiber, forage, or oilseed crops, as determined by the appropriate state or unit of local government agency or agencies, and that the Secretary of the Interior determines should be considered as farmland.

**Incorporated Areas**

The municipal and county general plans have general consensus on conserving and preserving agricultural land. Development is permitted, but urban sprawl is discouraged. Inefficient urban development patterns on agricultural land are discouraged.

***5.3.14.1.2.3 Floodplain.***

In the 1980s, the FEMA performed hydrologic and hydraulic studies to identify and map special flood hazard areas. The areas are defined as a 100-year storm event, or a 1 percent chance of a flood occurring in any given year. The 100-year flood is designated as the flow rate or water surface elevation during a 100-year stream or river flood. These studies resulted in the development of Flood Insurance Rate Maps (FIRMs) that depict the floodplains identified for each river and stream analyzed.

**FEMA**

Executive Order 11988 requires federal agencies to avoid to the extent possible the long and short-term adverse effects associated with the occupancy and modification of flood plains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. In accomplishing this objective, "each agency shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the effect of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by flood plains in carrying out its responsibilities" for the following actions (FEMA 2011):

- Acquiring, managing, and disposing of federal land and facilities
- Providing federally-undertaken, financed, or assisted construction and improvements
- Conducting federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulation, and licensing activities

Where the LPP Project would cross or have facilities sited within a designated floodplain, the effects must be considered. Following avoidance techniques, measures would need to be developed to minimize the effects and restore and preserve the floodplain, as appropriate (FEMA 2011).

**BLM**

Public land within floodplains would generally be managed so as to preserve or restore the natural and beneficial values served by the floodplains. Structural developments within the floodplain that would be subject to recurring flood damage or which, in turn, would create adverse effects on land, resources, or developments in or adjacent to the floodplain would be discouraged or not authorized. Multiple uses of the floodplain, including recreation, would be encouraged where such uses would not disrupt the broad purposes for which the floodplain is being managed (BLM 1999a).

Prior to taking actions within designated floodplains, BLM would work with LPP Project sponsors to seek alternatives that involve no floodplain disturbance. Where suitable alternatives do not exist, BLM would work with local and state agencies to evaluate the potential effects of such actions and apply measures needed to minimize the effect of floods on human safety, health, and welfare and to maintain the functionality of the floodplain and related natural values. Where suitable mitigation cannot be applied to eliminate unacceptable effects, BLM would not approve the action (BLM 1999a).

**Incorporated Areas**

Each LPP Project-affected municipality desires to discourage or address the potential effects of development within the 100-year floodplain, except development that would be compatible with periodic flooding, i.e. golf courses, crops, and orchards.

***5.3.14.1.2.4 Waste Disposal and Hazardous Waste.***

**Waste**

Review of BLM and state land resource management plans revealed no specific policies regarding waste, except that which involves illegal dumping. Research was completed through telephone calls to the municipalities of Page, Arizona; Kanab, Utah; Colorado City, Utah; LaVerkin, Utah; Washington City, Utah; and St. George, Utah; regarding the availability of landfills that would accept materials generated from both construction and operation of the LPP Project. These investigations revealed the availability of several transfer stations near the alignment alternatives, and landfills in Washington, Utah and Kanab, Utah. The Washington site is a Class I landfill located in Washington County Utah. The facility owner is Washington County Special Services District #1 and has a remaining capacity of 535,961 cubic yards (UDEQ 2007). The Kanab site is a Class II landfill in Kane County, Utah. The facility owner is Western Kane County Special Service District No. 1 and has a remaining capacity of 250,000 cubic yards (UDEQ 2011).

LPP Project waste may be defined by both materials that are typically considered trash and by excess soil left over from pipe displacement and bedding or backfill. There are no known active or abandoned landfills or waste transfer sites directly within the effect area of the LPP Project, its alternative alignments, and associated facilities. There are, however, several borrow and spoil pits near the alignments that are anticipated to be utilized for spoils stockpiling and permanent spoil deposition. Borrow and spoil is discussed more thoroughly in the Geology and Soil Resources study report (UBWR 2011a).

**Hazardous Waste**

There are no known occurrences of hazardous waste, remediation sites, nor active hazardous waste sites within the study area. For this analysis, the study area is defined as those areas affected by LPP Project

construction and operation for all proposed alignments and associated facilities. Issues of concern that are typically associated with such sites are:

- Short- and long-term liability associated with the acquisition of environmentally distressed properties
- Spread of existing soil or groundwater contamination caused by construction activities
- Worker health and safety
- Construction cost effects

The Utah Division of Environmental Response and Remediation (DERR) maintains environmental databases of sites with known contamination and sites that are regulated according to the requirements of state or federal laws. Following is a list of environmental databases maintained by DERR:

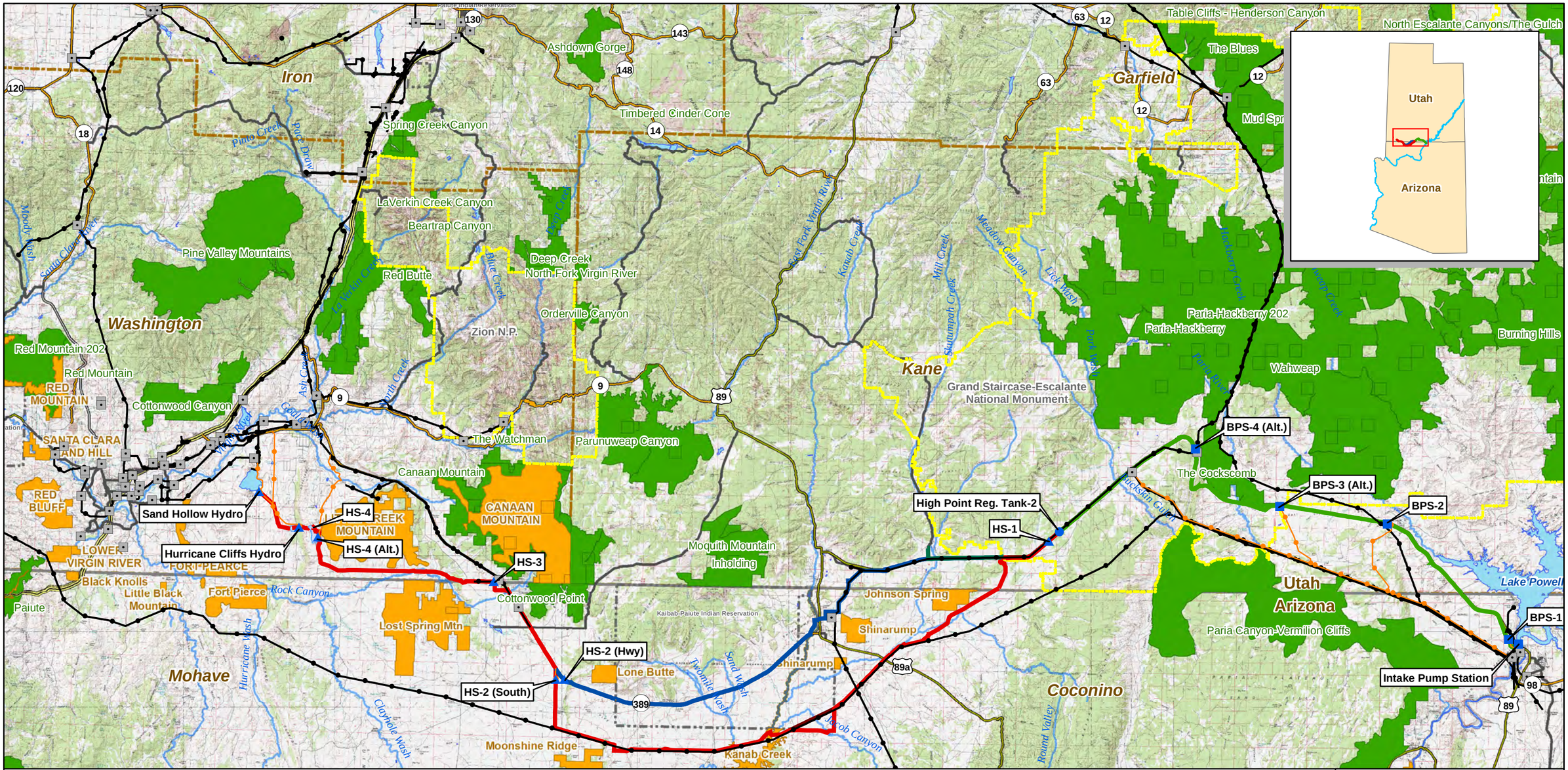
- Superfund Sites, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
- National Priorities List (NPL), priority CERCLA sites
- Underground Storage Tanks (UST), Resource Conservation and Recovery Act (RCRA)
- Leaking Underground Storage Tanks (LUST)
- Brownfield Projects
- Toxic Release Inventory (TRI)
- Voluntary Cleanup Program (VCP)

Based upon a review of DERR's data and interactive maps (ADEQ 2012, UDEQ 2011a) (which includes links to the databases listed above) on the Utah and Arizona Department of Environmental Quality (UDEQ and ADEQ) web pages (UDEQ 2011b), no known areas of hazardous waste are present along any of the LPP Project alignments. Also, there were no DEUR (Declaration of Environmental Use Restriction) sites, nor LQG (Large Quantity Generator) sites. These databases represent both public and private land records.

#### *5.3.14.1.2.5 Designated Wilderness, WSAs and Land with Wilderness Characteristics.*

This analysis considers wilderness as designated WAs, WSAs and land with wilderness characteristics. The LPP Project alignment alternatives would be located near several WAs, WSAs, and land with wilderness characteristics. However, the LPP Project alternatives would not physically intersect any designated WAs, land with wilderness characteristics or WSAs. WAs and WSAs in close proximity to the LPP Project features include Paria Canyon-Vermilion Cliffs, The Cockscomb WSA, Paria-Hackberry WSA, Cottonwood Point Wilderness, Canaan Mountain Wilderness, Spring Creek Canyon, and Wahweap (BLM 1999b and BLM 2000).

The congressionally-authorized utility corridor that the LPP Project would be constructed within is adjacent to The Cockscomb WSA. The Cockscomb WSA covers 10,827 acres and was recommended suitable for designation as wilderness to Congress in 1991. WSAs are managed under BLM's Interim Management Policy and Guidelines for Lands Under Wilderness Review (BLM Manual H-8550-1) (BLM 1995). Under these guidelines, WSAs are administered as designated WAs. Figure 5-173 shows the location of the WSAs within proximity of the LPP Project.




Area of Critical Environmental Concern (ACEC)
Wilderness, Wilderness Study Area (WSA) & Designated Wilderness
Project Pump Station
Project Regulating Tank
Project Hydro Station
Substation
Water Conveyance System
Hydro System - South Alternative
Hydro System - Southeast Corner Alternative
KCWCD System
Hydro System - Existing Highway Alternative
Project Transmission Line
Existing Transmission Lines
Interstate
US Highway
ST Highway
Hwy
Major Road
Major Rivers & Streams
National Park/Monument
Tribal Lands
State Boundaries
County Boundaries
Hurricane Cliffs Forebay/Afterbay
Lakes & Reservoirs

**FERC Project Number:**
**12966-001**
**BLM Serial Numbers:**
**AZA-34941**
**UTU-85472**

N

0 2.5 5 10 15 20 Miles

**Lake Powell Pipeline Project**

Spatial Reference: UTM Zone 12N, NAD-83

UDWRe Figure 5-173 MWH

**Areas of Critical Environmental Concern (ACEC) - Wilderness, Wilderness Study Areas (WSA) & Designated Wilderness Areas**

### *5.3.14.1.2.6 Wild and Scenic Rivers.*

The Wild and Scenic Rivers Act (WSR 1968) provides that selected rivers which possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition. The Act provides for designation of components by Congress or by a state legislature through specified procedures.

A literature review has been performed for all drainages that would be directly crossed by LPP Project components. In 2009, Congress designated approximately 165.5 miles of segments of the Virgin River and tributaries of the Virgin River across federal land within and adjacent to Zion National Park, listed in Table 5-111. In Arizona, only the Verde River, which is outside of the LPP Project footprint, is a designated Wild and Scenic River. In Utah, BLM has considered the Paria to be eligible for designation into the Wild and Scenic Rivers (WSR) System.

The LPP Project pipeline and transmission line alignments were evaluated for potential conflicts with the Congressional designations in Washington County, for which a resource management plan (RMP) is currently underway, and through review of the GSENM MMP for the Paria River, also listed in Table 5-111.

**Table 5-111**
**Wild and Scenic Rivers**

**Page 1 of 6**

| Name | Location/Description | Class | Affected by LPP Project | Administering Agency |
|---|---|---|---|---|
| Taylor Creek | 4.5-mile segment from the junction of the north, middle, and south forks of Taylor Creek, west to the park boundary and adjacent land rim-to-rim | Scenic | No | St George BLM |
| N. Fork Taylor Creek | Segment from the head of North Fork to the junction with Taylor Creek and adjacent land rim-to-rim | Wild | No | St George BLM |
| Middle Fork Taylor Creek | Segment from the head of Middle Fork to the junction with Taylor Creek and adjacent land rim-to-rim | Wild | No | St George BLM |
| S. Fork Taylor Creek | Segment from the head of South Fork to the junction with Taylor Creek and adjacent land rim-to-rim | Wild | No | St George BLM |
| Timber Creek and tributaries | 3.1-mile segment from the head of Timber Creek and tributaries of Timber Creek to the junction with LaVerkin Creek and adjacent land rim-to-rim | Wild | No | St George BLM |
| LaVerkin Creek | 16.1-mile segment beginning in T. 38 S., R. 11 W., sec. 21, on Bureau of Land Management land, southwest through Zion National Park, and ending at the south end of T. 40 S., R. 12 W., sec. 7, and adjacent land 1/2-mile wide | Wild | No | St George BLM |

**Table 5-111**
**Wild and Scenic Rivers**



| Name | Location/Description | Class | Affected by LPP Project | Administering Agency |
|---|---|---|---|---|
| Willis Creek | 1.9-mile segment beginning on Bureau of Land Management land in the SWSW sec. 27, T. 38 S., R. 11 W., to the junction with LaVerkin Creek in Zion National Park and adjacent land rim-to-rim | Wild | No | St. George BLM |
| Beartrap Canyon | 2.3-mile segment beginning on Bureau of Management land in the SWNW sec. 3, T. 39 S., R. 11 W., to the junction with LaVerkin Creek and the segment from the headwaters north of Long Point to the junction with LaVerkin Creek and adjacent land rim-to-rim | Wild | No | St. George BLM |
| Hop Valley Creek | 3.3-mile segment beginning at the southern boundary of T. 39 S., R. 11 W., sec. 20, to the junction with LaVerkin Creek and adjacent land 1/2-mile wide | Wild | No | St. George BLM |
| Current Creek | 1.4-mile segment from the head of Current Creek to the junction with LaVerkin Creek and adjacent land rim-to-rim | Wild | No | St. George BLM |
| Cane Creek | 0.6-mile segment from the head of Smith Creek to the junction with LaVerkin Creek and adjacent land 1/2-mile wide | Wild | No | St. George BLM |
| Smith Creek | 1.3-mile segment from the head of Smith Creek to the junction with LaVerkin Creek and adjacent land 1/2-mile wide | Wild | No | St. George BLM |
| North Creek Left and Right Forks | Segment of the Left Fork from the junction with Wildcat Canyon to the junction with Right Fork, from the head of Right Fork to the junction with Left Fork, and from the junction of the Left and Right Forks southwest to Zion National Park boundary and adjacent land rim-to-rim | Wild | No | St. George BLM |
| Wildcat Canyon (Blue Creek) | Segment of Blue Creek from the Zion National Park boundary to the junction with the Right Fork of North Creek and adjacent land rim-to-rim | Wild | No | St. George BLM |
| Little Creek | Segment beginning at the head of Little Creek to the junction with the Left Fork of North Creek and adjacent land 1/2-mile wide | Wild | No | St. George BLM |
| Russell Gulch | Segment from the head of Russell Gulch to the junction with the Left Fork of North Creek and adjacent land rim-to-rim | Wild | No | St. George BLM |

**Table 5-111**
**Wild and Scenic Rivers**



| Name | Location/Description | Class | Affected by LPP Project | Administering Agency |
|---|---|---|---|---|
| Grapevine Wash | 2.6-mile segment from the Lower Kolob Plateau to the junction with the Left Fork of North Creek and adjacent land rim-to-rim | Scenic | No | St. George BLM |
| Pine Spring Wash | 4.6-mile segment to the junction with the left fork of North Creek and adjacent land 1/2-mile | Scenic | No | St. George BLM |
| Wolf Springs Wash | 1.4-mile segment from the head of Wolf Springs Wash to the junction with Pine Spring Wash and adjacent land 1/2-mile wide | Scenic | No | St. George BLM |
| Kolob Creek | 5.9-mile segment of Kolob Creek beginning in T. 39 S., R. 10 W., sec. 30, through Bureau of Land Management land and Zion National Park land to the junction with the North Fork of the Virgin River and adjacent land rim-to-rim | Wild | No | St. George BLM |
| Oak Creek | 1-mile stretch of Oak Creek beginning in T. 39 S., R. 10 W., sec. 19, to the junction with Kolob Creek and adjacent land rim-to-rim | Wild | No | St. George BLM |
| Goose Creek | 4.6-mile segment of Goose Creek from the head of Goose Creek to the junction with the North Fork of the Virgin River and adjacent land rim-to-rim | Wild | No | St. George BLM |
| Deep Creek | 5.3-mile segment of Deep Creek beginning on Bureau of Land Management land at the northern boundary of T. 39 S., R. 10 W., sec. 23, south to the junction of the North Fork of the Virgin River and adjacent land rim-to-rim | Wild | No | St. George BLM |
| North Fork Virgin River | 10.8-mile segment of the North Fork of the Virgin River beginning on Bureau of Land Management land at the eastern border of T. 39 S., R. 10 W., sec. 35, to Temple of Sinawava and adjacent land rim-to-rim | Wild | No | St George BLM |
| North Fork Virgin River | 8-mile segment of the North Fork of the Virgin River from Temple of Sinawava south to the Zion National Park boundary and adjacent land 1/2-mile wide | Recreational | No | St George BLM |

**Table 5-111**
**Wild and Scenic Rivers**



| Name | Location/Description | Class | Affected by LPP Project | Administering Agency |
|---|---|---|---|---|
| Imlay Canyon | Segment from the head of Imlay Creek to the junction with the North Fork of the Virgin River and adjacent land rim-to-rim | Wild | No | St George BLM |
| Orderville Canyon | Segment from the eastern boundary of Zion National Park to the junction with the North Fork of the Virgin River and adjacent land rim-to-rim | Wild | No | St George BLM |
| Mystery Canyon | Segment from the head of Mystery Canyon to the junction with the North Fork of the Virgin River and adjacent land rim-to-rim | Wild | No | St George BLM |
| Echo Canyon | Segment from the eastern boundary of Zion National Park to the junction with the North Fork of the Virgin River and adjacent land rim-to-rim | Wild | No | St George BLM |
| Behunin Canyon | Segment from the head of Behunin Canyon to the junction with the North Fork of the Virgin River and adjacent land rim-to-rim | Wild | No | St George BLM |
| Heaps Canyon | Segment from the head of Heaps Canyon to the junction with the North Fork of the Virgin River and adjacent land rim-to-rim | Wild | No | St George BLM |
| Birch Creek | Segment from the head of Birch Creek to the junction with the North Fork of the Virgin River and adjacent land 1/2-mile wide | Wild | No | St George BLM |
| Oak Creek | Segment of Oak Creek from the head of Oak Creek to where the forks join and adjacent land 1/2-mile wide | Wild | No | St George BLM |
| Oak Creek | 1-mile segment of Oak Creek from the point at which the 2 forks of Oak Creek join to the junction with the North Fork of the Virgin River and adjacent land 1/2-mile wide | Recreational | No | St George BLM |
| Clear Creek | 6.4-mile segment of Clear Creek from the eastern boundary of Zion National Park to the junction with Pine Creek and adjacent land rim-to-rim | Recreational | No | St George BLM |
| Pine Creek | 2-mile segment of Pine Creek from the head of Pine Creek to the junction with Clear Creek and adjacent land rim-to-rim | Wild | No | St George BLM |

**Table 5-111**
**Wild and Scenic Rivers**



| Name | Location/Description | Class | Affected by LPP Project | Administering Agency |
|---|---|---|---|---|
| Pine Creek | 3-mile segment of Pine Creek from the junction with Clear Creek to the junction with the North Fork of the Virgin River and adjacent land rim-to-rim | Recreational | No | St George BLM |
| East Fork Virgin River | 8-mile segment of the East Fork of the Virgin River from the eastern boundary of Zion National Park through Parunuweap Canyon to the western boundary of Zion National Park and adjacent land 1/2-mile wide | Wild | No | St George BLM |
| Shunes Creek | 3-mile segment of Shunes Creek from the dry waterfall on land administered by the Bureau of Land Management through Zion National Park to the western boundary of Zion National Park and adjacent land 1/2-mile wide | Wild | No | St George BLM |
| North Fork Virgin River—Segment 48-49 | Northwest of Mt Carmel - Kolob Terrace - T39S, R9W - Zion National Park | Wild | No | Kanab BLM |
| East Fork Virgin River—Segment 37-40a | West of Mt Carmel - White Cliffs - T42S, R8W - Zion National Park | Scenic | No | Kanab BLM |
| East Fork Virgin River—Segment 40a-41 | West of Mt Carmel - White Cliffs - T42S, R9W - Zion National Park | Wild | No | Kanab BLM |
| Orderville Gulch (Esplin Gulch)—Segment 44-45 | Northwest of Mt Carmel - T40S, R9W - Zion National Park | Wild | No | Kanab BLM |
| Meadow Creek/Mineral Gulch—Segment 33-35, 35-38 | West of Mt Carmel - White Cliffs - T41S, R8W - Zion National Park | Wild | No | Kanab BLM |
| Paria River — Segment 68-69* | Adairville - The Rimrocks - T43S, R1W | Wild | No | Kanab BLM |

| Table 5-111<br>Wild and Scenic Rivers<br> | | | | |
|---|---|---|---|---|
| **Name** | **Location/Description** | **Class** | **Affected by LPP Project** | **Administering Agency** |
| Upper Paria River – 1* | T38S, R2W, Sec 21 to T41S, R1W, Sec 7 - Little Dry Valley | Wild | No | GSENM BLM |
| Upper Paria River – 2* | T41S, R1W, Sec 7 to T42S, R1W, Sec 28 - Crosses Highway 89 | Rec | No | GSENM BLM |
| Lower Paria River – 1* | T43S, R1W, Sec 10 to T43S, R1W, Sec 23 – from Highway 89 south to the Wilderness Boundary | Rec | Yes | GSENM BLM |
| *The Paria River segments have not been designated as part of the Wild and Scenic Rivers System by Congress. | | | | |

The only river segment considered by the GSENM MMP as eligible that is within the LPP Project area is Lower Paria River -1. The Paria River upstream and downstream of the Highway 89 bridge flows through privately-owned land. The Water Conveyance System pipeline would cross the Paria River through the private land, and the transmission line alignment would cross over the Paria River downstream of the private land. The Water Conveyance alignment would cross Buckskin Gulch along Highway 89. This reach of Buckskin Gulch would not be directly affected because the segment considered eligible by BLM begins far downstream of the Highway 89 crossing. The Glen Canyon to Buckskin transmission line alternative (230 kV) would cross the Lower Paria River – 1 segment parallel to the existing Navajo-McCullough Transmission Line and Glen Canyon to Buckskin transmission line. The GSENM MMP articulates plans for the Paria River segment to curtail motorized use, enhance southwestern willow flycatcher habitat, enhance deer and other wildlife populations, and close the area to cross-country vehicle use (BLM 2000).

#### *5.3.14.1.2.7 Grazing Land.*

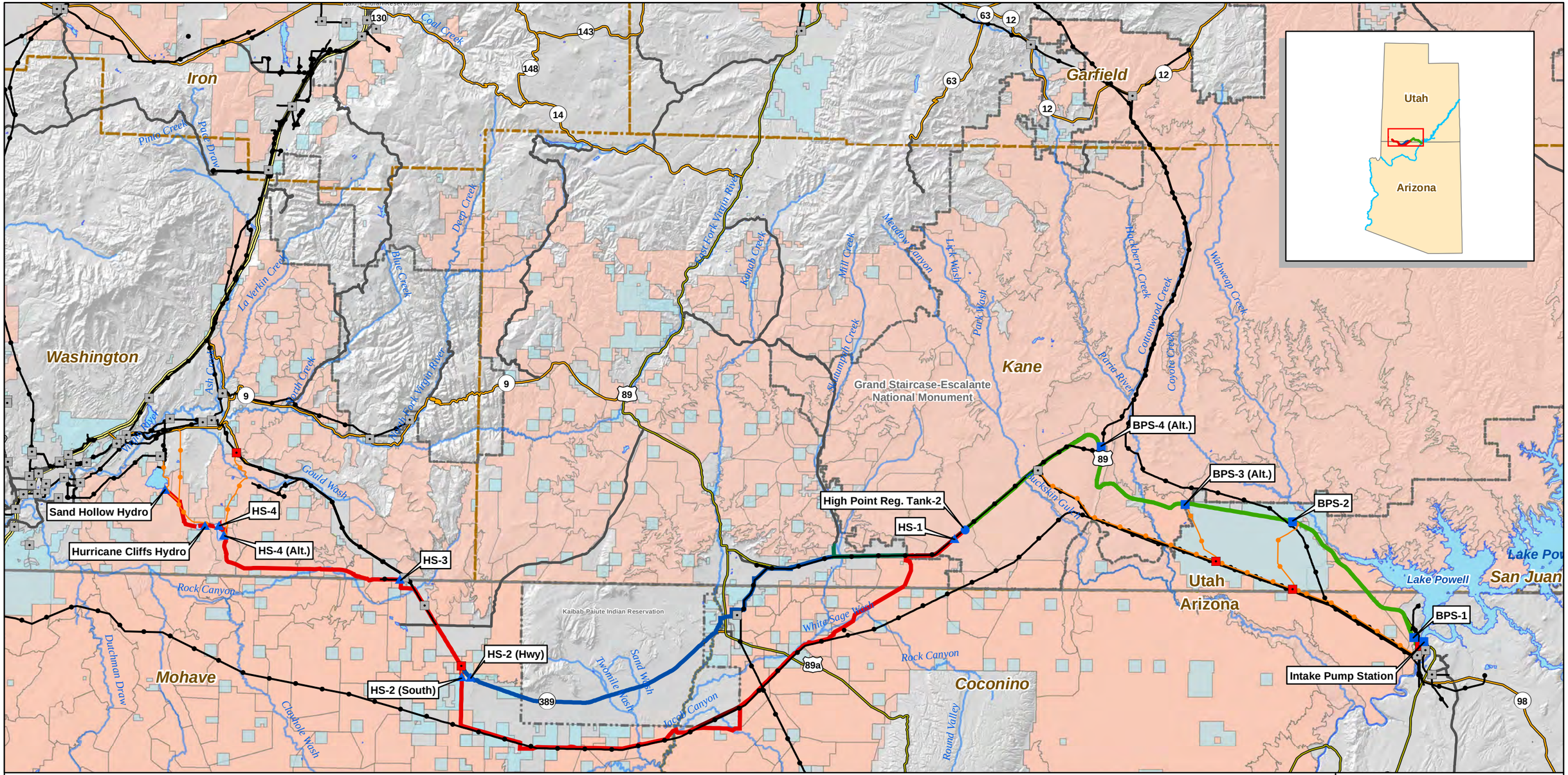
Upon review of the GIS mapping information retained from information obtained from the BLM and the states of Utah and Arizona (Utah AGRC 2011, AGIC 2011), it was concluded that approximately 33 percent (65 miles) of the LPP Project pipeline and penstock alignments would cross land available for grazing. Approximately 24 percent (48 miles) of the LPP Project electrical transmission line alignments would cross land administered by the BLM and states. Following is a list of agencies that administer public grazing land within the LPP Project area:

- BLM Arizona Strip Field Office (ASFO)
- BLM Grand Staircase-Escalante National Monument (GSENM)
- BLM Kanab Field Office (KFO)
- BLM St. George Field Office (SGFO)
- National Park Service (NPS)
- School Institutional Trust Lands Administration, Utah (SITLA)

- Arizona State Land Department (ASLD)

The LPP Project as a whole would affect 21 ASFO grazing allotments, 8 GSENM grazing allotments, 16 SGFO grazing allotments, 11 SITLA grazing allotments, and 10 ASLD grazing allotments (Figure 5-174). Following is a list of grazing issues that could be encountered during the construction and operation of the LPP Project facilities:

- Need for continued access to grazing allotments during construction
- Loss of use or damage to access roads during and following construction
- Destruction of fences, water pipelines, corrals or other range improvements
- Disruption to grazing rotations
- Loss of forage resulting from pipeline construction and reclamation processes at reservoir sites


Iron
Washington
Garfield
Kane
Mohave
Coconino
Utah
Arizona
San Juan
Lake Powell
Grand Staircase-Escalante National Monument
Kaibab-Paiute Indian Reservation
Sand Hollow Hydro
Hurricane Cliffs Hydro
HS-4
HS-4 (Alt.)
HS-3
HS-2 (Hwy)
HS-2 (South)
High Point Reg. Tank-2
HS-1
BPS-4 (Alt.)
BPS-3 (Alt.)
BPS-2
BPS-1
Intake Pump Station
Coal Creek
Pinto Creek
Pine Drow
La Verkin Creek
Ash Creek
North Creek
Blue Creek
Deep Creek
North Fork Virgin River
East Fork Virgin River
Kanab Creek
Mill Creek
Meadow Canyon
Lick Wash
Park Wash
Hackberry Creek
Cottonwood Creek
Coyote Creek
Wahweap Creek
Paria River
Virgin River
Gould Wash
Buckskin Gulch
Rock Canyon
White Sage Wash
Sand Wash
Twomile Wash
Jacob Canyon
Round Valley
Dutchman Draw
Clayhole Wash
130
143
148
14
63
12
9
89
89a
389
98
Project Pump Station
Project Regulating Tank
Project Hydro Station
Substation
Proposed Substation
Water Conveyance System
Hydro System - South Alternative
Hydro System - Southeast Corner Alternative
KCWCD System
Hydro System - Existing Highway Alternative
Project Transmission Line
Existing Transmission Lines
Interstate
US Highway
ST Highway
Hwy
Major Road
Major Rivers & Streams
National Park/Monument
Tribal Lands
State Boundaries
County Boundaries
Hurricane Cliffs Forebay/Afterbay
Lakes & Reservoirs
State Land
Available
FERC Project Number:
12966-001
BLM Serial Numbers:
AZA-34941
UTU-85472
N
0 2.5 5 10 15 20 Miles
Lake Powell Pipeline Project
Spatial Reference: UTM Zone 12N, NAD-83
UDWRe Figure 5-174 MWH
Lake Powell Pipeline
Grazing Allotment Boundaries

In establishing Glen Canyon GCNRA in 1972, Congress directed that, "The administration of…grazing leases within the recreation area shall be by the BLM. The same policies followed by the BLM in issuing and administering…grazing leases on other land under its jurisdiction shall be followed in regard to land within the boundaries of the recreation area, subject to provisions of Section 3(a) and 4 of this Act." The BLM administers grazing on GCNRA subject to this enabling legislation and in accordance with the NRA Strategic Plan, Grazing Management Plan, and interagency agreements, and Memoranda of Understanding. BLM administers livestock grazing on three allotments that occur on public land and within GCNRA: the Ferry Swale, Wahweap, and Bunting Well allotments (BLM 2008a).

Each of the applicable BLM field offices follows a set of standards for managing rangeland: Utah Standards for Rangeland Health and Guidelines for Grazing Management; Arizona Standards for Rangeland Health and Guidelines for Grazing Administration (both approved in 1997). The guidelines are used to evaluate all surface disturbing activities on public land where BLM administers grazing privileges (BLM 2008a, BLM 2008b, BLM 2008c).

SITLA rules do not specifically identify suggested measures to follow in the event of disruption of grazing land. The rules identify rangeland management and permitting procedures.

The Arizona State Legislature does not specifically identify measures to follow or limitations in the event of disruption of grazing land during construction within the jurisdiction of ASLD-administered land. The rules identify rangeland management, permitting procedures, and laws governing the lease of state land.

Utah State Parks and Recreation administers two grazing allotments within the Sand Hollow Recreation Area. The allotments are managed according to the Utah Standards for Rangeland Health and Guidelines for Grazing Management (BLM 1999a).

#### *5.3.14.1.2.8 Rights-of-Way.*

The proposed LPP Project would require ROW grants and approvals from the NPS, Reclamation, BLM, potentially BIA, and state and local agencies including agreements with ADOT, UDOT and various transmission organizations in the region. Research was performed on ROW acquisition and issues with crossing other ROWs through approved RMPs and ROD of the land management agencies mentioned above. Following are the BLM offices affected by the LPP Project that have approved RMPs:

- Arizona Strip Field Office
- Grand Staircase-Escalante National Monument Office
- Kanab Field Office
- St. George Field Office

Upon reviewing the appropriate BLM RMPs pertaining to the LPP Project construction limits, it was determined the Utah and Arizona BLM field offices have provisions accommodating utilities within identified utility corridors with appropriate site-specific environmental analysis. Much of the LPP Project construction would take place within several existing highway ROWs while other portions lie within existing utility corridors. Using existing ROWs is encouraged as it helps restrict construction and associated disturbance to the least sensitive areas.

The St. George Field Office RMP provides a general overview statement on ROWs:

> "*This plan will continue to make public land available for a variety of ROWs where consistent with planning goals and prescriptions for other resources. Where possible, BLM will encourage project sponsors to locate new ROWs in existing or designated utility and transportation corridors.*" (BLM 1999a).

This mandate is consistent across the BLM jurisdictions that could be crossed by the LPP Project. Applications for ROWs are analyzed on a case-by-case basis, and compared to planning decisions within the agency and to the standards of NEPA. All applications would be subject to applicable standards for surface disturbing activities. Consideration of a plan amendment if conflicts arise with the introduction of a new ROW corridor is mentioned in this RMP and those following.

The GSENM RMP has planning measures in place that allow for issuing a ROW within a portion of the Congressionally-designated utility corridor along Highway89. It states that planning and environmental studies would be necessary, along with conformance on specific ROW guidelines and NEPA standards, all considered on a case-by-case basis (BLM 2000).

The BLM Kanab Field Office RMP directs BLM to expedite processes involving ROW acquisition for legitimate uses of public land. All ROWs are issued with use stipulations and other mitigation measures to minimize resource effects (BLM 2008c).

Within the NPS administered land, the LPP Project would require ROW grants on Federal land within Glen Canyon GCNRA along the State Highway 89 corridor, which bisects GCNRA in Coconino County, Arizona. The portion of State Highway 89 that bisects GCNRA is managed by a ROW agreement that ADOT and UDOT have with the NPS. Section 7 of Public Law 92-593 (GCNRA Enabling Act), passed in October 27, 1972, says that the Secretary of the Interior has the right to "grant easements and ROWs on a nondiscriminatory basis upon, over, under, across, or along any component of the recreation area unless he finds that the route of such easements and ROWs would have significant adverse effects on the administration of the recreation area". The ROWs that ADOT and UDOT hold do not allow them to issue easements or ROWs to other entities; rather they may only issue encroachment permits that have been previously approved by the NPS; therefore, the State of Utah must apply for a NPS ROW as well as an encroachment permit from ADOT and UDOT to construct and operate the LPP Project.

The proposed LPP Project would include the Lake Powell intake pump station facilities and a short initial pipeline section on Reclamation-managed land adjacent to Glen Canyon Dam. Reclamation has provided the State of Utah an initial agreement to allow for access to Reclamation land and/or facilities to conduct site investigations in connection with LPP Project permit and licensing activities. Once final design requirements are known, the right-of-way or use and occupancy agreement can be finalized with Reclamation.

UDOT has indicated that acquisition of an LPP Project ROW within the Highway 89 ROW is possible. But where possible, it is the preference of UDOT that the LPP Project ROW lie outside the Utah highway ROWs.

Acquisition of ROW easements within Arizona would require the applicant to follow guidelines set forth by the Arizona Revised Statutes (ARS) and all applicable federal regulations. These guidelines apply to ADOT-administered land as well as state, tribal, federal, and private land. ADOT has indicated that boring is mandatory unless extreme circumstances exist where LPP Project highway crossings would occur. The LPP Project is currently intended to stay within ADOT ROWs at all times when traversing Highway 89 and Highway 389.

In Section 368 of the Energy Policy Act of 2005, Congress directed the Secretaries of Agriculture, Commerce, Defense, Energy, and the Interior to designate, under their respective authorities, corridors for oil, gas, and hydrogen pipelines and electricity transmission and distribution facilities on Federal land in the 11 contiguous Western States (BLM 2009). This action led to the identification of the West Wide Energy Corridor, which the LPP Project would make use of in several areas along the pipeline alignments. The West Wide Energy Corridor does not cross land administered by Reclamation.

The Southern Corridor Highway will be a four-lane, limited-access highway beginning at Interstate 15 approximately two miles north of the Arizona border near the southwest end of St. George (at the Atkinville interchange) and connecting with Highway 9 near Hurricane (USDOT et al. 2005). The highway will be 26 miles long. A multiple-use trail for pedestrians, bicyclists, and equestrians would parallel the highway. The primary purpose of the Southern Corridor is to provide a regional transportation facility between St. George, Washington City, and Hurricane that would complement local land use plans. Construction is complete on some segments and is expected to be complete on the entire corridor before construction begins on the LPP Project.

Utah State Parks and Recreation administers within that area 4,047-acres of WCWCD-owned land called the Sand Hollow Recreation Area and containing Sand Hollow State Park; therefore, ROW acquisition is managed by WCWCD.

Tribal lands are vested in a particular tribe, community, or individual (allottee), but the land itself is held in trust by the Bureau of Indian Affairs (BIA). The approval of Indian land usage or ROW acquisition requires consent of the tribal council of the tribe whose lands would be affected and the authorizing document from BIA. The State of Utah would have to negotiate an easement with the Kaibab Band of Paiute Indians to obtain access through the Kaibab-Paiute Indian Reservation. All such acquisitions would need to be in accordance with 16 U.S.C. §§ 797 and 803 (U.S.C. 2011, 2011a).

The Arizona Strip Field Office RMP emphasizes protection and restoration of the natural and cultural resources while still providing for resource use and enjoyment. The RMP proposes a combination of management actions including allowing natural processes to continue, and protecting the remote settings that currently exist in the field office. The RMP encourages the use of designated utility corridors to the extent possible, but allows variances consistent with other RMP provisions. The RMP discourages new ROWs in avoidance areas (such as ACECs, national historic trails, and riparian areas).

#### *5.3.14.1.2.9 Trails and National Historic Trails.*

There are three historic trails within the LPP Project area: The Honeymoon Trail, The Dominguez-Escalante Trail and The Old Spanish National Historic Trail. Of these trails, the Old Spanish National Historic Trail is a National Historic Trail (NHT). “The National Trails System Act of 1968” was established to designate and protect national scenic trails, national historic trails and national recreational trails. Each of the trails is managed by the federal agency whose administered land the trail resides on (USFS, BLM, or NPS).

The Honeymoon Trail is a four-hundred mile long trail through the desert of Arizona and Utah that connected the Latter Day Saint (LDS) settlers to the St. George LDS Temple. The trail crosses public land administered by BLM and NPS, and also crosses tribal, state and private lands. The St. George Temple was built in 1877, and the first trip on the trail to the Temple took place in 1881.

The Dominguez-Escalante Trail is managed by BLM. The trail is approximately two thousand miles long and defines the route of the 1776 expedition led by Father Francisco Atanasio Dominguez and Father Silvestre Velez de Escalante. It originated in Santa Fe, NM and headed northwest along the San Juan,

Dolores, Gunnison, and White Rivers in Colorado. It then headed west to Utah Lake where it turned south to Arizona before returning the loop back to Santa Fe. Only general mapping of the trail is available making it difficult to determine exactly where the pipeline crossings would be located. A marked portion of the trail is located 30 miles northwest of Cedar City. The marked portion is approximately 25 miles long (BLM 2011).

The Old Spanish National Historic Trail is co-managed by BLM and NPS. Currently, the two agencies are working on a Comprehensive Management Plan and Draft Environmental Impact Statement. When the planning is complete the two agencies will jointly administer the National Historic Trail which crosses New Mexico, Colorado, Arizona, Utah, Nevada and California (NPS 2012).

The Old Spanish National Historic Trail (NHT) includes roughly 2,700 miles from Abiquiu and Santa Fe, NM through Colorado, Utah, Nevada, and Arizona to its terminus in Los Angeles, CA. During the height of its use between 1829 and 1848 mule pack-trains and traders brought woolen goods west and herds of stock east. The trail was added to the National Trails System in 2002 in coordination with the National Trails System Act, to "promote the preservation of, public access to, travel within, and enjoyment and appreciation of the open air, outdoor areas and historic resources of the Nation" (BLM et al. 2006, NPS 2009).

#### *5.3.14.1.2.10 Areas of Critical Environmental Concern (ACEC).*

ACECs are outlined in the Federal Land Policy and Management Act (FLPMA) of 1976. ACECs are managed as "avoidance areas", meaning areas with sensitive resource values where ROWs, land use permits, leases, and easements are strongly discouraged. Authorizations made in ACECs would have to be compatible with the purpose for which the ACEC was designated and not otherwise feasible on lands outside the ACEC (BLM 2008a). Section 103(a) of FLPMA, defines ACECs as areas where special management attention is required to protect and prevent damage to a particular resource. Regulations for implementing ACEC provisions of FLPMA are outlined in 43 CFR 1610.7-2 (43 CFR 1610.7-2). ACECs are considered for designation as part of the BLM land management planning process and must meet certain relevance and importance criteria to be considered for designation (BLM 1999a). ACECs are managed to protect certain resources within that area, but the designation does not automatically prohibit other uses in the designated area. The following restrictions generally apply to all Arizona Strip ACECs areas:

- Motorized and mechanized vehicle use will be limited to existing or designated routes
- The BLM will authorize only temporary upgrading of existing roads
- New roads will be authorized on a temporary basis only
- New mineral material disposal sites are not to be authorized

LPP Project facilities have been sited outside of most ACECs to avoid unnecessary effects on sensitive habitats and riparian areas. However, the Proposed Action would cross the Kanab Creek ACEC in two places. Table 5-112 shows the ACECs that are within or adjacent to the LPP Project area.

The following restriction applies to the Kanab Creek ACEC, through which the proposed LPP would cross:

- Riparian areas will be managed to achieve and/or maintain proper functioning condition.

| Table 5-112<br>ACECs within Project Vicinity | | | |
|---|---|---|---|
| **Name** | **Size (ac)** | **Admin.** | **Resource** |
| Johnson Spring | 3,444 | AZ Strip | T/E Plants (Siler's pincushion) |
| Shinarump | 3,237 | AZ Strip | T/E Plants (Siler's pincushion) |
| Water Canyon South Fork Indian Canyon | 222 | St. George | T/E Wildlife, Riparian Resources |
| Kanab Creek | 13,075 | AZ Strip | T/E Wildlife (SWFC) Riparian Resources, Cultural Resources, Scenic Quality |
| Moonshine Ridge | 9,310 | AZ Strip | T/E Plants (Siler's pincushion) |
| Lone Butte | 1,762 | AZ Strip | T/E Plants (Jones Cyclad) |
| Lost Spring Mountain | 19,247 | AZ Strip | T/E Plants (Siler's pincushion) |
| Canaan Mountain | 31,355 | St. George | Topography and Scenic Values |
| Little Creek Mountain | 19,302 | St. George | Historic Values, Cultural Resources |
| Fort Pierce | 5,560 | AZ Strip | T/E Plants (Siler's pincushion) soils/riparian |
| Fort Pierce | 164 | AZ Strip | T/E Plants (Siler's pincushion) |
| Little Black Mountain | 241 | AZ Strip | Cultural Resources |
| Warner Ridge Fort Pierce | 4,281 | St. George | T/E Plants (Siler's pincushion) soils/riparian |
| Note: *T/E = Threatened and Endangered* | | | |

### *5.3.14.1.2.11 Growth.*

Development in the area of potential effect was started by Mormon settlers in the 1800s. In the 1970s, land use began to change from rural, agricultural and open space to more urban developed area. The main reason for this change was an increase in population as people began to migrate from colder climates to a warmer year-round climate. A large number of those migrants were retirees. According to the U.S. Census Bureau National and State Census Counts between 2010 and 2011, Utah was ranked third in the nation for percent change in population, with a 1.9 percent increase. It is expected that Utah will continue to experience population growth at a rate higher than most states on account of strong natural increase in addition to in-migration. Natural increase is anticipated to add 39,000 people to Utah's population (GOPB 2012). In 2010 there were a total of 9,344 new housing units (including single, multi-family, and mobile homes) in Utah. The 2012 Governor's Office of Planning and Budget (now Governor's Office of Management and Budget – GOMB) report estimates 8,700 units for 2012 and forecasts 10,000 units for 2012 (GOPB 2012).

Between 2000 and 2009, Washington County Utah was the 16$^{th}$ fastest growing county in the nation in terms of housing units with an increase of 20,571 new units, an increase of 56.4 percent (U.S. Census Bureau, 2010) According to 2012 GOPB, the population growth rate for Washington County from 2000 to 2010 was 52.9 percent. The population in Washington County increased from 90,354 to 138,115 from 2000 to 2010 (GOPB 2011). Table 5-113 shows the population and housing unit trends for the counties in the growth study from 2000 to 2060 (GOPB 2012). The 2012 Baseline Projections completed by the GOPB are the most recent and best available data for population projection and household projections by area.

**Table 5-113**
**GOPB Population Prediction Comparison**

| Total Population by Area | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **2000** | **2010** | **2020** | **2030** | **2040** | **2050** | **2060** |
| Kane County | 6,077 | 7,125 | 8,357 | 10,259 | 12,601 | 15,314 | 18,583 |
| Washington County | 91,090 | 138,748 | 196,762 | 280,558 | 371,743 | 472,567 | 581,731 |
| State of Utah | 2,246,214 | 2,774,283 | 3,309,234 | 3,914,984 | 4,570,433 | 5,257,239 | 5,965,658 |
| **Household Population by Area** | | | | | | | |
| | **2000** | **2010** | **2020** | **2030** | **2040** | **2050** | **2060** |
| Kane County | 6,010 | 7,025 | 8,228 | 10,090 | 12,378 | 15,043 | 18,264 |
| Washington County | 89,718 | 136,887 | 194,115 | 276,508 | 366,132 | 465,265 | 572,691 |
| State of Utah | 2,205,419 | 2,727,953 | 3,253,854 | 3,848,136 | 4,491,810 | 5,167,414 | 5,861,563 |
| **Group Quarters Population by Area** | | | | | | | |
| | **2000** | **2010** | **2020** | **2030** | **2040** | **2050** | **2060** |
| Kane County | 67 | 100 | 129 | 169 | 223 | 271 | 319 |
| Washington County | 1,372 | 1,861 | 2,647 | 4,050 | 5,611 | 7,302 | 9,040 |
| State of Utah | 40,795 | 46,330 | 55,380 | 66,848 | 78,623 | 89,825 | 104,095 |
| **Number of Households by Area** | | | | | | | |
| | **2000** | **2010** | **2020** | **2030** | **2040** | **2050** | **2060** |
| Kane County | 2,254 | 2,900 | 3,353 | 3,945 | 4,681 | 5,634 | 6,823 |
| Washington County | 30,191 | 46,545 | 70,919 | 112,378 | 151,647 | 192,884 | 237,065 |
| State of Utah | 705,588 | 880,926 | 1,088,997 | 1,373,259 | 1,641,340 | 1,909,039 | 2,185,563 |

Sources: U.S. Census Bureau (2010)
Governor's Office of Planning & Budget, 2012 Baseline Projections

Washington County has experienced extensive growth and development including areas of urban sprawl and strip-type commercial development. The general definition of sprawl by Robert W. Burchell (Burchell et al. 1998) is development that expands in an unlimited and noncontiguous (leapfrog) manner outward from the solidly built-up core of a metropolitan or downtown area and includes both residential and nonresidential development. A common trait of sprawl is the consumption of agricultural and sensitive lands in abundance found at the periphery of development. The loss of large amounts of agricultural land often occurs because it is the cheapest land available for development and sensitive lands are often lost due to a lack of environmental protection. The conversion of land to more urban uses has historically taken place on open space, agricultural land, along major transportation routes, and on sensitive resource land such as steep slopes, hillsides and ridgelines. In a report titled "Costs of Sprawl – 2000" (Burchell et al. 2002) Washington County, Utah and Mohave County, Arizona showed extensive sprawl (Figure 5-175). As urban sprawl continues, some urban decay is becoming apparent in the core areas as populations move farther away from city centers and downtown areas. During the last decade, Washington County has experienced more infill and city center revitalization. Additional planning, zoning, development requirements, and regulation show what may be the beginning of "smart growth" practices, which would help reduce and control sprawl and strategically plan where development should take place to reduce effects on sensitive land resources, reduce the conversion of agricultural land and open space land, and reduce the costs associated with infrastructure expansion and maintenance.

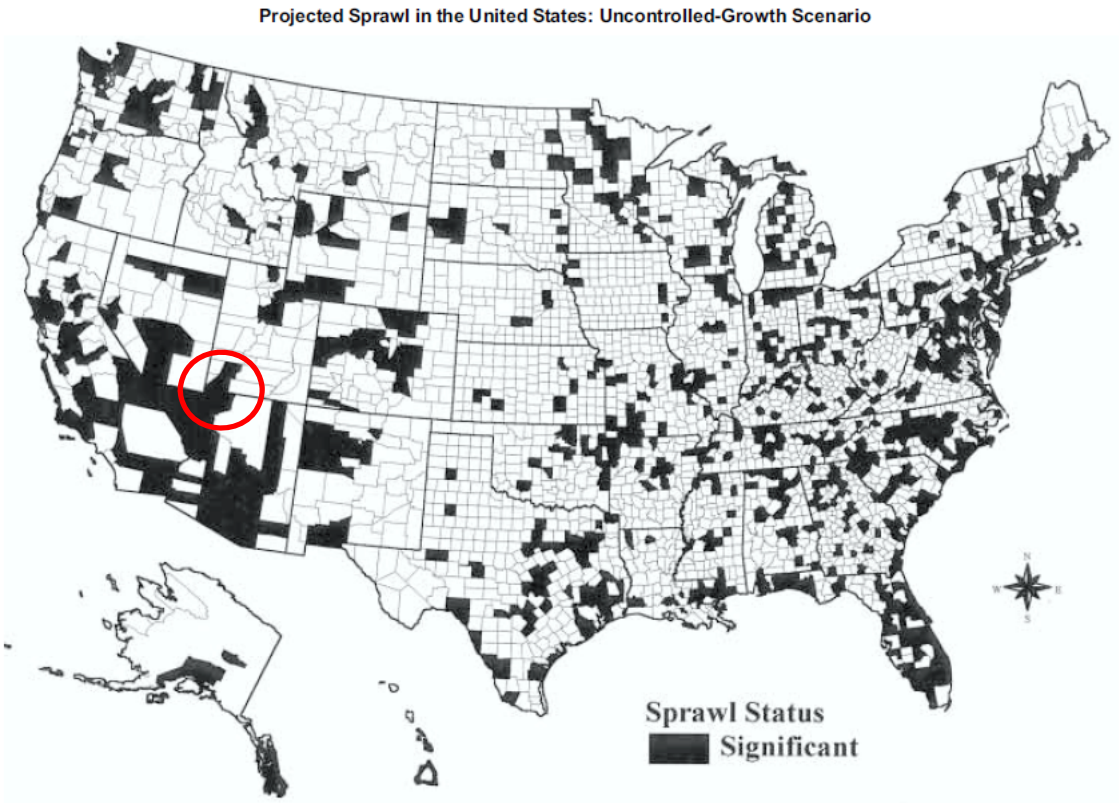
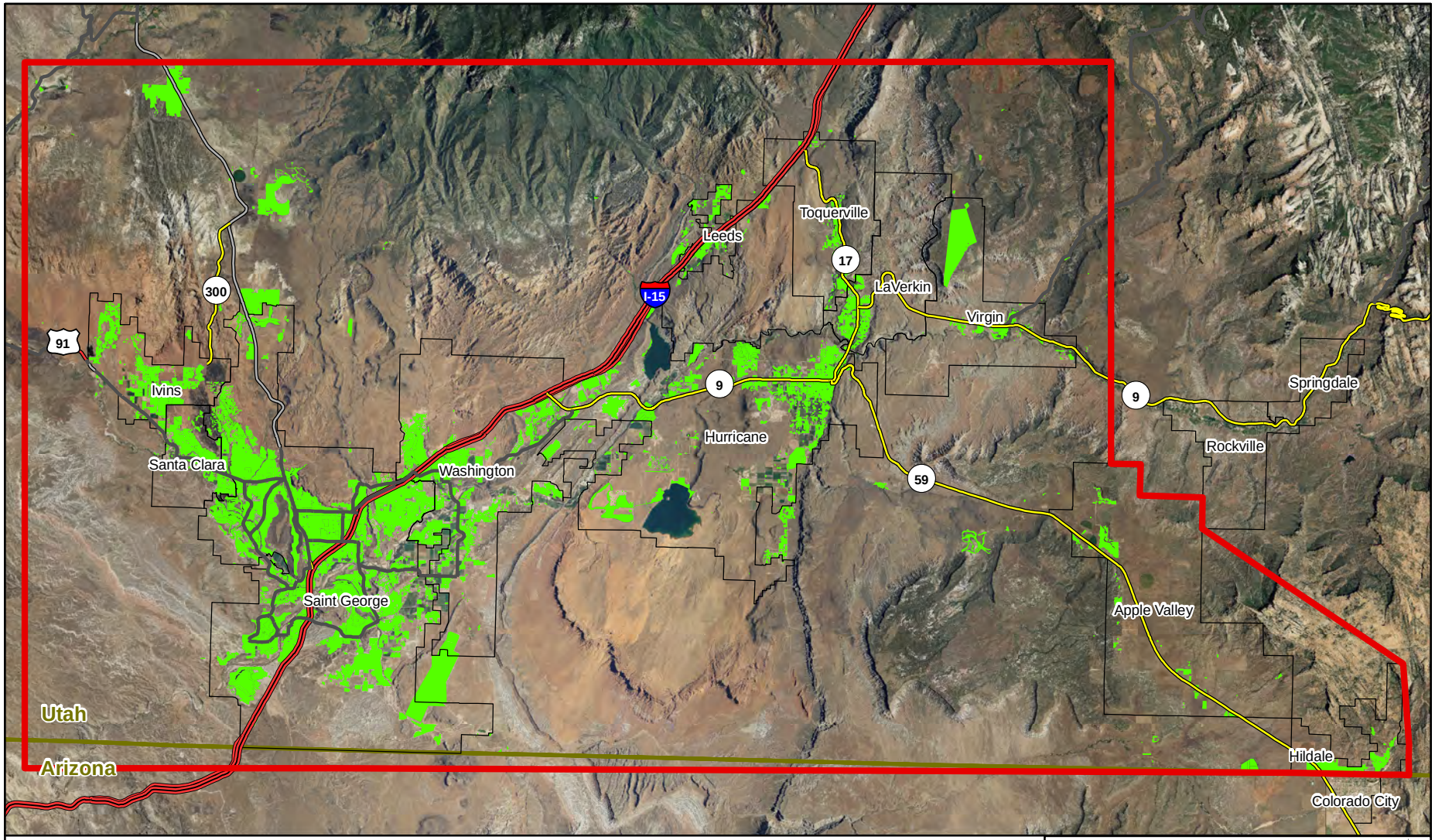



**Figure 5-175**
**Projected Sprawl in the United States: Uncontrolled-Growth Scenario**

*This figure was obtained from TCRP Report 74 "Cost of Sprawl 2000" (Burchell et al. 2002)*

The growth analysis study area for purposes of this analysis includes 540,155 acres within the more highly populated areas encompassing the cities of Ivins, Santa Clara, St. George, Washington City, Hurricane, Virgin, LaVerkin, Toquerville, Leeds, and Apply Valley (Figure 5-176). In the mid-1990s there were approximately 15,381 acres of developed land, of which, 1,972 acres was on high hazard rock and soil areas. In 2009, there were approximately 33,714 acres of developed land with 5,295 acres of developed land that were on what is considered high hazard rock and soil areas. In 2011, there were approximately 34,773 acres of developed land with 5,474 acres of developed land that were on what is considered high hazard rock and soil areas (Figure 5-177). Historically, the presence of hazardous rock and soil did not appear to constrain development. However, in more recent years, land use plans appear to be advocating more stringent engineering practices along with policies constraining use and development on the higher hazard rock and soil areas.




Growth Analysis Study Area
Cities
State Boundaries
Developed Area - 34,773 Acres (2011)

Interstate
US Highway
ST Highway
Hwy
Major Road

**FERC Project Number:**
**12966-001**
**BLM Serial Numbers:**
**AZA-34941**
**UTU-85472**

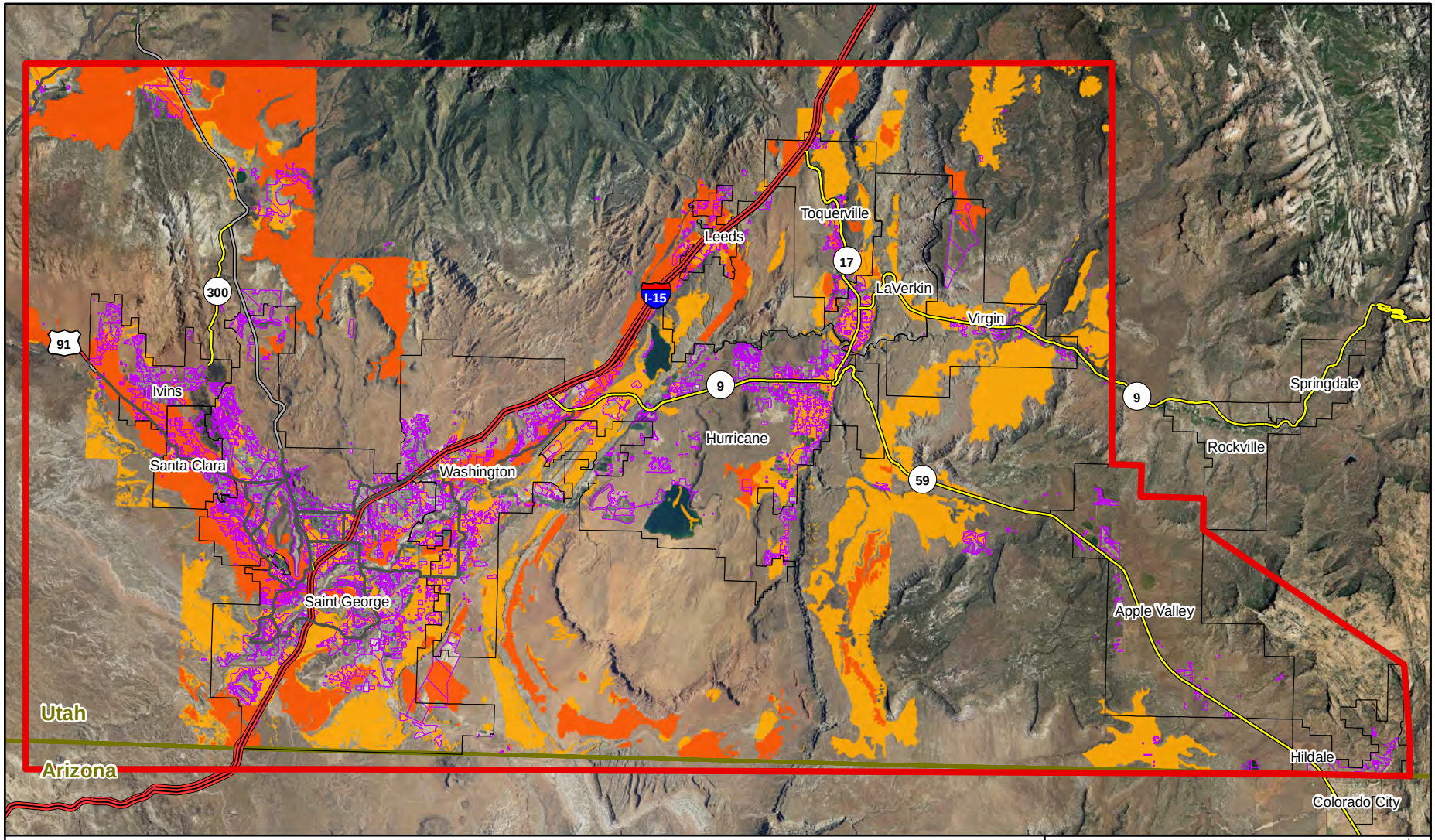
0 1 2 4 6 Miles

**Lake Powell Pipeline**
**Aerial Imagery: NAIP 2011**
**Spatial Reference: UTM Zone 12N, NAD-83**

N

**UDWRe Figure 5-176** MWH

**Developed Areas 2011**




Growth Analysis Study Area
Cities
State Boundaries
Developed Area - 34,773 Acres (2011)
High Expansive Rock and Soil Hazard Area
Moderate Expansive Rock and Soil Hazard Area

Interstate
US Highway
ST Highway
Hwy
Major Road

**FERC Project Number:**
**12966-001**
**BLM Serial Numbers:**
**AZA-34941**
**UTU-85472**

0 1 2 4 6 Miles

**Lake Powell Pipeline**
**Aerial Imagery: NAIP 2011**
**Spatial Reference: UTM Zone 12N, NAD-83**

N

**UDWRe Figure 5-177** MWH

**Developed Area 2011 - Expansive Rock and Soil Hazard Areas**

## *5.3.14.2 Environmental Effects*

### 5.3.14.2.1 Significance Criteria.

The following would be significant effects on land use and land use plans.

#### *5.3.14.2.1.1 Land Ownership and Management.*

- LPP Project activities that would not be in conformance with management direction set forth in federal RMPs, and state and local general plans.

- LPP Project activities resulting in the rendering of a portion of land as not-useable as defined or designated in the RMP by the current land-administering agency.

#### *5.3.14.2.1.2 Farmland.*

- LPP Project activities that would convert designated farmland from one level to another (prime, unique, and state-important) or to a non-farm land use.

#### *5.3.14.2.1.3 Floodplain.*

- LPP Project activities that would permanently alter floodplain characteristics.

#### *5.3.14.2.1.4 Waste Disposal and Hazardous Waste.*

- LPP Project activities resulting in the production of unmanageable quantities of waste.

#### *5.3.14.2.1.5 Designated Wilderness, WSAs and Land with Wilderness Characteristics.*

- LPP Project activities resulting in land designated as 'wilderness' or road-less having permanent diminishment of naturalness, opportunities for solitude, opportunities for primitive and unconfined recreation, and supplemental values (such as ecological, geological, or other features of scientific, educational, scenic, or historical value).

#### *5.3.14.2.1.6 Wild and Scenic Rivers.*

- LPP Project activities crossing any land or waterway designated or considered to be eligible for designation as Wild, Scenic, or Recreational under the National Wild and Scenic Rivers System.

#### *5.3.14.2.1.7 Grazing Land.*

- LPP Project activities resulting in the termination of grazing contracts between public land-administering agencies and private livestock operations.

#### *5.3.14.2.1.8 Trails and National Historic Trails.*

- LPP Project activities resulting in permanent disturbance of a National Historic Trail and effects on the values for which the trail was created.

*5.3.14.2.1.9 Areas of Critical Environmental Concern.*

- LPP Project activities that would permanently disturb land designated as an ACEC, or activities that would require a change in status of an ACEC.

*5.3.14.2.1.10 Growth.*

- LPP Project operation causing growth outside of existing infrastructure and designated municipal boundaries, resulting in conversion of agricultural, conservation and open space land to additional urban land use.

**5.3.14.2.2 Land Use Effects.**

The permanent ROW for the pipeline components of the LPP Project would be 100-feet wide. Land use would be affected by construction in the short-term of the LPP Project in several different ways, all of which are reviewed and explained in the following sections. However, the direct effect of the permanent LPP Project footprint would only involve the area needed for above-ground facilities. These facilities include the intake pump station, booster pump stations, regulating tank, hydropower stations, forebay and afterbay reservoirs, and roads. Cumulatively, these facilities would require approximately 785-acres of land transfers, leases, or ROW mostly from SITLA, BLM, NPS, and ASLD. The land for the various pump stations, reservoirs, and hydro stations would be converted from generally open space use to utility use. The land for pipelines, penstocks, and transmission lines would remain open space where compatible with the use of the land for LPP Project activities.

Much of the pipeline and penstock would be sited within existing utility corridors, transportation corridors, and within existing highway ROWs. Several penstock segments would be outside of designated utility corridors. A significant portion of private, incorporated, and public land would be disturbed. Illustrations of the temporary and permanent ROW effects on public and private land are shown in Figures 5-178, 5-179 and 5-180.

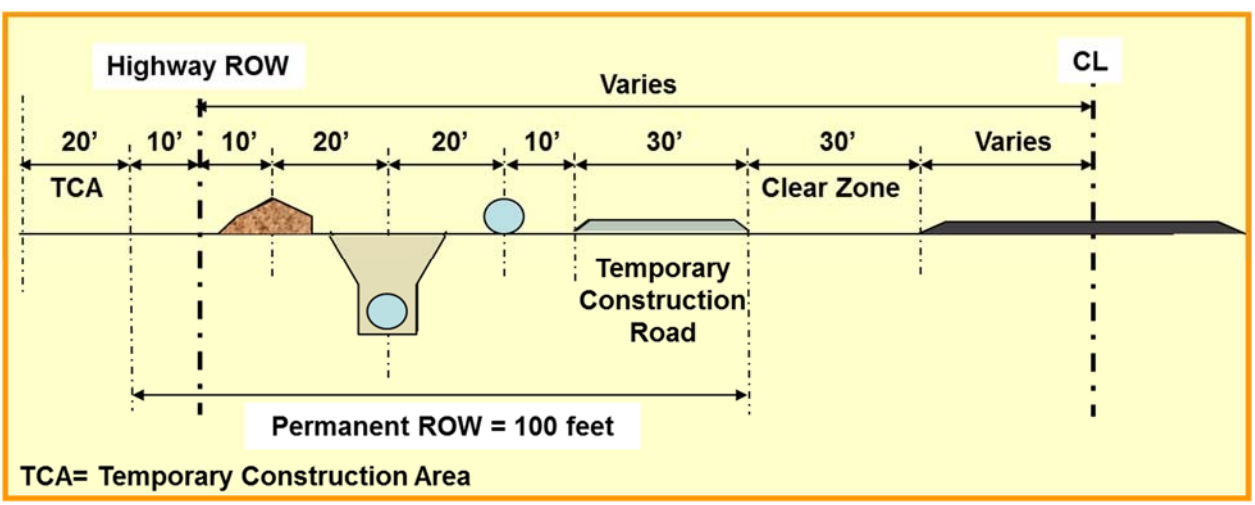



**Figure 5-178**
**Highway Right-of-Way Construction**

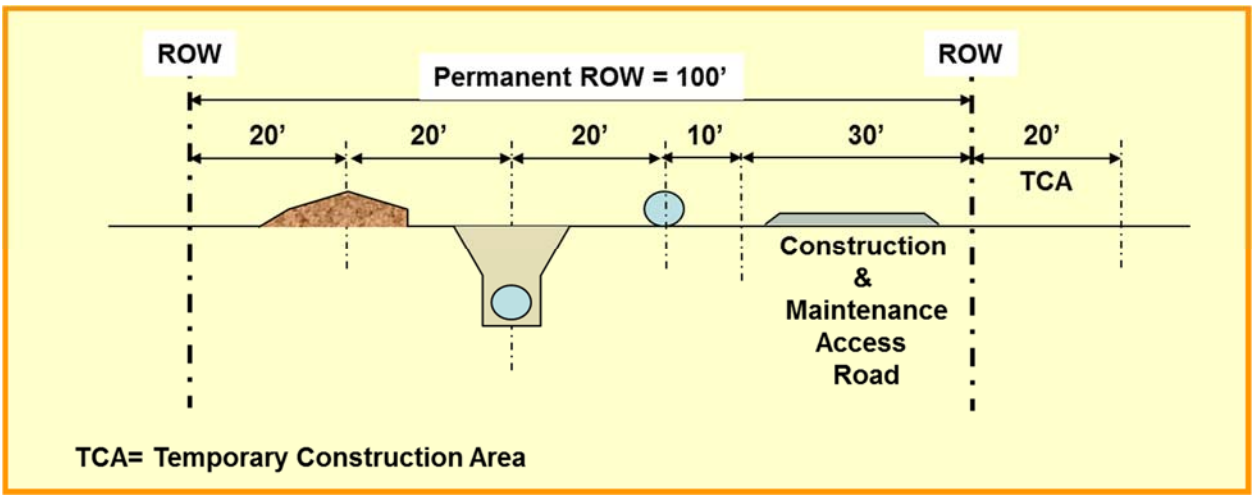



**Figure 5-179**
**Right-of-Way Construction Not Adjacent to Highway**

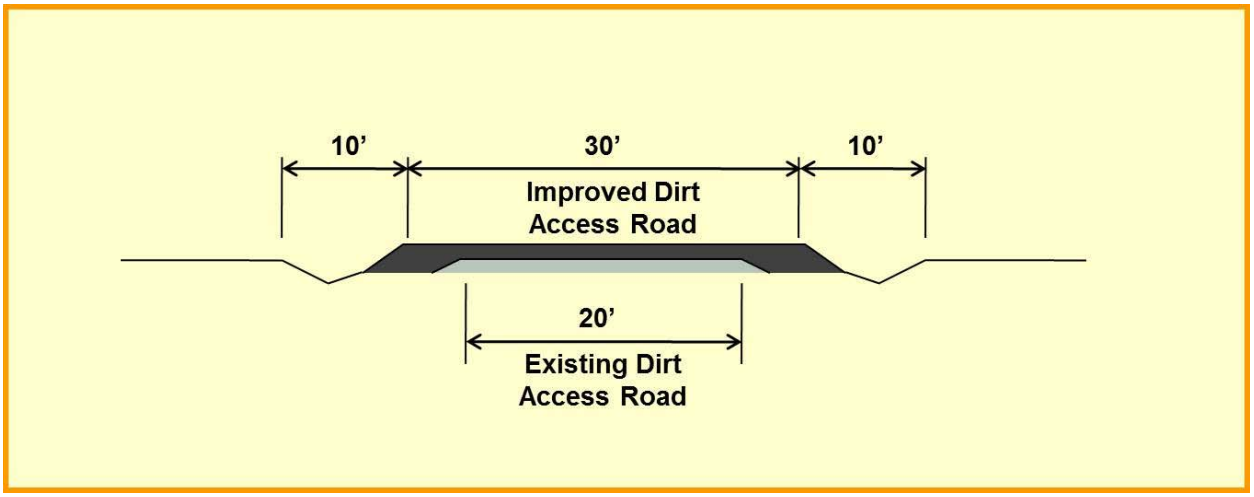



**Figure 5-180**
**ROW for Typical Access Road Improvement**

### *5.3.14.2.2.1 Land Ownership and Management.*

The LPP Project would require authorization of use on both public and private land, and in some facility locations, land acquisition would be necessary. Figure 5-172 illustrates the Federal, state, tribal and private land that would be affected by LPP Project alternatives. All land acquisitions, leases and associated studies would need to occur on an as-needed basis upon final determination of the preferred

alignment. All Water Conveyance System facilities except for BPS-4 (Alt.) would be located on public land, requiring ROWs from the BLM. The BPS-4 (Alt.) facility would be on private land. The Proposed Action would require approximately 17 acres of private land for two permanent access roads and Hydro Station-2 (South). The Existing Highway Alternative would require approximately nine acres of private land for one permanent access road and Hydro Station-2 (Highway). The Southeast Corner Alternative would have the same private land acquisition requirements as the Proposed Action. The electrical transmission lines system would require approximately nine acres of private land for one permanent transmission line access road.

LPP Project construction would affect approximately 16.5 miles of Kaibab-Paiute Indian Reservation land under the Existing Highway Alternative. The Arizona Department of Transportation (ADOT) maintains a transportation ROW along the Highway 389; however, ADOT has requested the construction limits be set outside the ROW through Reservation land. This would result in a significant land use effect on Reservation land as there is no dedicated energy corridor along Highway 389; therefore, LPP Project sponsors would need to complete all necessary applications and studies outlined in the Energy Transport Corridor Siting for Tribal Planners Guidance Manual (Manual) (BIA 2010).

The Manual defines an Energy Transport Corridor as a designated strip of land across the landscape that is determined to be most appropriate for siting energy transmission facilities based on the opportunities or needs for transmission connectivity, environmental considerations, and other siting concerns (BIA 2010).

The review process for utility requests or plans for energy transportation ROWs across tribal lands includes the following procedure (BIA 2010):

(1) Identify an Unrestricted Energy Transport Corridor(s)
    a. Identify straight-line (shortest distance) paths connecting energy generation areas with energy demand areas while considering the locations of existing energy transport infrastructure and future energy planning activities.
(2) Revise the Unrestricted Corridor Route to Avoid Siting Constraints
    a. Revise the unrestricted energy transport corridor to avoid known environmental and regulatory constraints while still meeting the specified need for the corridor. In addition, the location of the unrestricted corridor is also examined for opportunities to follow existing utility and transportation ROWs (e.g., roads and rail lines), thereby minimizing the placement of future energy transport projects in 'greenfield' (undeveloped) locations where there could be greater effects on valued natural and cultural resources.
    b. Potential Energy Corridor Constraints: Existing laws, regulations and policies; resources that are ecologically, culturally, scientifically, educational and/or recreationally important; military installations and training and testing areas; and public concerns.
(3) Refine the Preliminary Corridor Route Using Site-Specific Resource Information and Environmental Impact Analyses
    a. The tribal and, if appropriate, federal, state, and local land and resource managers and their staffs examine the preliminary energy transport corridor.
    a. In addition, environmental effect analyses should be conducted that examine the potential for valued resources to be adversely affected by any projects developed within the preliminary corridor route.
(4) Finalize the Proposed Energy Transport Corridor Using Input from Tribal and Non-Tribal Stakeholders
    a. The tribal planners may make adjustments to the proposed corridor or ROW route to address comments and concerns raised by tribal and non-tribal stakeholders on the corridor route proposed in Step 3 of the siting process. The corridor planners should examine the comments received from the public, tribal, federal, state and local

governments; non-government organizations (e.g., The Wilderness Society); and other stakeholders.

(5) Oversight of Use and Occupancy of Corridors or Right-of-Ways

a. Once a tribe has designated an energy corridor or ROW route, all applications for use of the corridor or ROW will be evaluated by the appropriate tribal authority. Through this review, appropriate BMPs and mitigation measures will be identified to ensure that the proposed energy transmission project is planned, implemented, operated, and eventually removed in a manner that protects natural and cultural resources.

The Southeast Corner Alternative would affect Reservation land for a distance of approximately 4 miles and would follow an established energy corridor. The Proposed Action would avoid all land use effects on Reservation land.

In an effort to account for tribal resource management goals the Kaibab Band of Paiute Indians was contacted to acquire a resource management plan, land use plan or other management plan(s). The Economic Development/Resource Manager stated that the Kaibab Band of Paiute Indians was working to complete a resource management plan; the anticipated completion date was 2013 (Robb 2012). Attempts to determine the status of the Kaibab Band of Paiute Indians RMP have been unsuccessful.

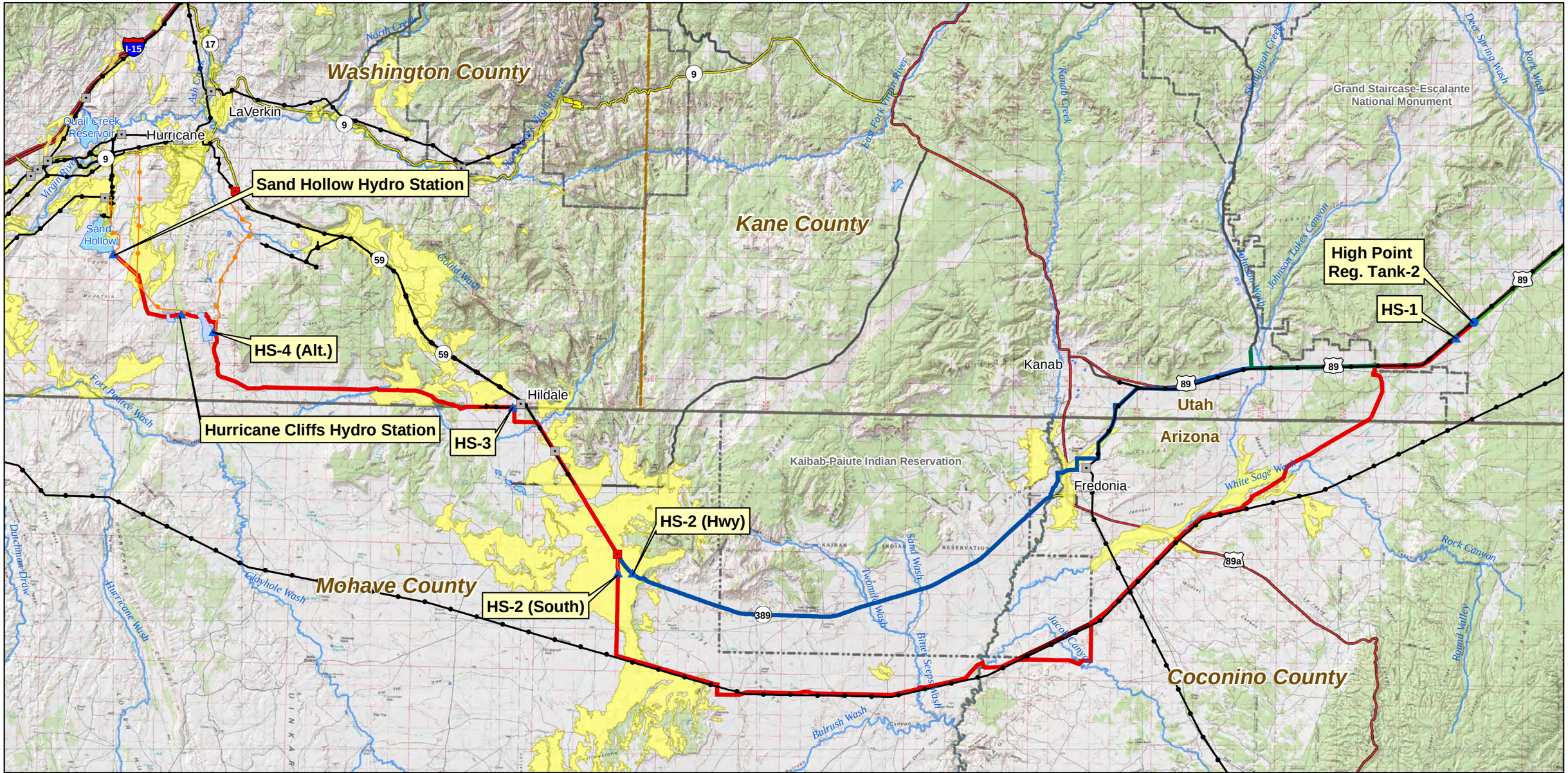
#### *5.3.14.2.2.2 Farmland.*

Farmland effects were identified based on GIS analysis of data from the Geospatial Data Gateway collected by NRCS soil surveys (NRCS 2011a). The soil surveys have been performed in the counties of Washington, Utah, and Mohave and Coconino, Arizona. Within Kane County, only GSENM has been surveyed, with data available to the public. The NRCS is currently performing a survey within the remainder of Kane County, but data is not yet available to the public. Upon request, the NRCS evaluated the LPP Project areas, and provided preliminary conclusions based on their most current data. The LPP Project would not affect any prime farmland within Kane County.

LPP Project construction would have a short-term effect on farmland; land would be disrupted within the Temporary Construction Easement (TCE), but shortly after installation of the pipeline, topsoil would be replaced to the original contours and to a condition as good as existing. Farmland would not be converted to nonagricultural use unless a new access road is constructed above the pipeline, or a permanent LPP Project facility is planned within the farmland. Figure 5-181 illustrates soils designated as prime farmland that would be traversed by the LPP Project.

There would be no effects on existing farmland along the electrical transmission lines system for two reasons. First, the area where transmission lines would cross farmland near Sand Hollow Reservoir is adjacent to the new Southern Corridor Highway and would not require excessive excavation. Second, the remaining transmission line features would either not cross farmland or an existing access road would be utilized during construction, operation, and maintenance.

LPP Project operation would have a significant effect upon farmland where planned facilities and access roads would convert the land from agricultural to nonagricultural use. Development of the alternative alignments was based in part on preventing unnecessary and irreversible conversion of farmland to nonagricultural uses. Upon submittal and evaluation of USDA's AD 1006 Farmland Impact Rating Form, mitigation options would be explored and implemented.




Prime Farmland Soil
Project Pump Station
Project Regulating Tank
Project Hydro Station
Substation
Proposed Substation
Project Transmission Line
Existing Transmission Lines
Hurricane Cliffs Forebay/Afterbay
Lakes & Reservoirs
Major Rivers & Streams
Water Conveyance System
Hydro System - South Alternative
Hydro System - Southeast Corner Alternative
KCWCD System
Hydro System - Existing Highway Alternative
Interstate
US Highway
ST Highway
Hwy
Major Road
National Park/Monument
Tribal Lands
State Boundaries
County Boundaries

**FERC Project Number:**
**12966-001**
**BLM Serial Numbers:**
**AZA-34941**
**UTU-85472**

N

0 2.5 5 7.5 10 Miles

**Lake Powell Pipeline Project**

Spatial Reference: UTM Zone 12N, NAD-83

UDWRe Figure 5-181 MWH

**Lake Powell Pipeline**
**Hydro System**
**Potential Prime Farmland**

The following site-specific facilities would require a conversion of prime farmland soil to industrial use and would result in significant effects on prime farmland soil:

- Hydro Station-2 (South) – Proposed Action (5.0 acres)
- Hydro Station-2 (Highway) – Existing Highway Alternative (8.7 acres)

***5.3.14.2.2.3 Floodplain.***

An analysis of Flood Insurance Rate Maps (FIRMs) by the FEMA within the LPP Project vicinity and its alternatives led to the identification of several waterways with associated floodplains that would be crossed during construction. There are several dry washes that convey storm water runoff, however, it was determined that these washes have no defined floodplain regulatory boundaries. Table 5-114 defines the affected waterways and quantifies the affected areas of designated floodplains.

**Table 5-114**
**100-Year Floodplain Crossings**

| County | Waterway | Pipeline/Penstock Alignment | Floodplain Disturbance Area (acres) |
|---|---|---|---|
| Mohave | Short Creek | Proposed Action/ Existing Highway | 0.5 |
| Mohave | Cottonwood Wash | Existing Highway | 16.4 |
| Mohave | Pipe Valley Wash | Proposed Action | 1.7 |
| Mohave | Sand Wash | Existing Highway | 1.9 |
| Mohave | Two Mile Wash | Existing Highway | 1.4 |
| Mohave | Bitter Seeps Wash | Proposed Action | 1.1 |
| Mohave | Kanab Creek | Proposed Action/ Existing Highway | 1.1 |
| Kane | Johnson Canyon | Existing Highway | 2.0 |
| Kane | Buckskin Gulch | Water Conveyance | 1.1 |
| Kane | Sand Gulch | Water Conveyance | 0.8 |
| Kane | Paria River | Water Conveyance | 10.6 |
| Coconino | Lost Spring Wash | Existing Highway | 8.5 |
| Coconino | Kanab Creek | Proposed Action/ Existing Highway | 0.9 |
| Coconino | White Sage Wash | Proposed Action | 9.5 |

The Existing Highway Alignment Alternative is the only LPP Project alternative that is proposed to parallel a waterway (Lost Spring Wash), thus potentially affecting the floodplain for an extended length of the stream. However, the alignment is located outside of the floodplain to avoid disturbance of existing floodplain functions and riparian habitat.

Any project in a floodplain must be reviewed to determine if the project would significantly increase flood heights (FEMA 2011). The No-rise Certification for Floodways under the National Flood Insurance Program (NFIP) is met by the LPP Project because of the nature of construction and operation. Within all floodplains, the pipeline and penstock would be installed underground and the landscape would be

reclaimed to the original contours of the area. Surface water flows, flooding risk increase, and significant encroachments would not be experienced either during LPP Project construction or during operation and maintenance. The LPP Project would have minor effect on vegetation and habitat of each of the floodplains crossed.

#### *5.3.14.2.2.4 Waste Disposal and Hazardous Waste.*

**Waste Disposal**

During construction, cardboard, steel, plastic, asphalt, general trash, and pipe remnants would be transported to the appropriate local landfills, transfer stations, and recycling stations by truck. There would be an estimated 19 cubic yards of waste per project mile resulting in an estimated total of 2,508 cubic yards of waste for pipeline construction. Research indicates that there is availability for disposal of all anticipated trash, including large pieces of steel, within designated facilities in Washington City and Kanab. It appears that all of the above jurisdictions have adequate landfills and/or transfer stations that would accommodate construction waste.

Excess soil resulting from trench excavation would be spread over the ROW where appropriate. Negligible effects on local transfer sites or landfills are expected from operations and maintenance of the LPP Project. There are no apparent conflicts found with provisions and policies of relevant land use plans regarding the waste disposal aspects of the LPP Project.

**Hazardous Waste**

Construction, operation, and maintenance activities would not be expected to create any measureable amounts of hazardous wastes. However, some oils and solvents would likely be used for maintenance and operation of construction equipment. Construction BMPs would be followed by the contractors and would be expected to avoid or minimize potential problems with on-site spills of equipment fuels and oils. BMPs would require that any soils contaminated with pollutants be removed from the site and properly disposed of in an approved facility. Disposal of some types of hazardous materials would be possible through the solid waste landfill in St. George, Utah, which accepts oil/fuel-contaminated soils.

If a previously unidentified hazardous waste site is encountered in Utah, the construction contractor would be required to complete a remedial work plan to clean up the site with approval from Utah DEQ and/or EPA. Within Arizona, if a previously unidentified hazardous waste site is encountered, construction work would stop and testing would be undertaken to determine disposal and handling requirements following Arizona DEQ standards and guidelines. In the event that an unidentified hazardous waste site is encountered on or adjacent to the Kaibab-Paiute Indian Reservation, the Kaibab Band of Paiute Indians would be contacted.

#### *5.3.14.2.2.5 Designated Wilderness, WSAs and Land with Wilderness Characteristics.*

Currently, no wilderness characteristics inventory exists for GSENM south of Highway 89. Additionally, the LPP Project would not cross any designated as wilderness, WSA, or lands inventoried to possess wilderness characteristics. The Cockscomb WSA is the only WSA near the LPP Project. The LPP Project could have indirect effects on the Cockscomb WSA including residual noise, air pollutants, and visual changes because of the close proximity to construction and operation. There are no apparent conflicts with the Grand Staircase-Escalante National Monument Management Plan (GSENM MMP) regarding uses adjacent to a WSA.

#### *5.3.14.2.2.6 Wild and Scenic Rivers (WSR).*

No designated WSRs would be affected by the LPP Project. The Upper Paria River at the Highway 89 crossing is the only river considered by BLM to be eligible for designation as a WSR that could be affected by the Water Conveyance System pipeline. This portion of the Paria River flows through privately-owned land. The Upper Paria River-2 segment crossing is located west of Church Wells at the Highway 89 crossing (BLM 2000). The temporary construction easement is expected to require approximately eight acres of land and water where it crosses the Paria River.

The proposed Glen Canyon to Buckskin transmission line alternative (230 kV) would cross over the Lower Paria River – 1 segment, parallel to two existing transmission lines (Navajo-McCullough 500 kV transmission line and Glen Canyon to Buckskin 169 kV transmission line) north of the Paria Canyon-Vermilion Cliffs Wilderness boundary. The new transmission line would have direct visual effects on the Paria River corridor, although the proposed transmission line would be difficult to visually distinguish the proposed Glen Canyon to Buckskin transmission line from the two existing transmission lines from observation points within the deep canyon.

Typical construction practices include restoring the temporary construction area to original conditions and functions, with the exception of facility locations and new access roads.

#### *5.3.14.2.2.7 Grazing Land.*

The construction ROW along a non-highway ROW would be 120-feet wide (100-foot permanent ROW plus a 20-foot TCE) throughout most of the alignment, except near aboveground LPP Project facilities and at select areas where extra workspace is required. Access to grazing allotments and local access roads could be temporarily restricted because of open trenches, pipe material stockpiling, and spoil stockpiling. Fences, water lines, corrals, water tanks, loading chutes, and reservoirs that need to be removed would be replaced with equal or better materials. There would be intermittent disruption of grazing activities depending on the location of the crossing with respect to the specific allotment. The constructed areas are expected to be void of vegetation for a minimum of one growing season during re-vegetation and reclamation activities. In many or most locations, re-establishment of vegetation may take several growing seasons. LPP Project sponsors would notify and coordinate with all grazing permittees and landowners prior to construction activities to identify potential concerns and reduce potential effects on grazing activities. All fences crossed during construction would be braced and secured prior to cutting. Temporary gates would be used if construction were to result in damage to natural barriers used for livestock control.

Following construction, affected areas would be reseeded with an approved seed mix and then allowed to re-vegetate naturally. The length of time to restore vegetation to preconstruction conditions may take several years, depending on available soil moisture and growing season temperatures. Following construction and restoration, grazing activity could return to its pre-construction pattern, except near facilities. Typical cross sections illustrating the limits of ROW construction disturbance are shown in Figures 5-178, 5-179 and 5-180.

Construction along an existing highway ROW would require an additional 30-foot path of disturbance beyond the highway ROW (120-foot permanent ROW plus a 30-foot TCE (Figure 5-178)). However, this extra workspace is not expected to be needed for all of the pipeline or penstock alignments paralleling highways. Using the typical ROW construction layouts, the amount of affected grazing land area by allotment can be calculated. Tables 5-115 and 5-116 present a summary of the affected areas by allotment names and numbers for Utah and Arizona respectively. The tables outline the effect areas associated with construction. After construction, all land would be restored to original conditions or better except where

12-foot wide access roads would be retained along the pipeline centerline outside the highway ROW areas.

**Table 5-115**
**Utah Grazing Allotments (BLM/State) – East to West**

| Allotment Name | ID | Descr. | Area (acre) | Percent Total | Admin. | Align. Alt. | Comments |
|---|---|---|---|---|---|---|---|
| Five Mile Mount | 24043 | New | 91 | 0.51 | GSENM | Conv. | Buckskin Wash |
| Mollies Nipple | 24083 | New | 80 | 0.29 | GSENM | Conv. | Buckskin Wash |
| Vermilion | 4130 | New | 27 | 1.33 | GSENM | Conv. | |
| Vermilion | 4130 | New | 42 | 4.51 | GSENM | P.A./Hwy | |
| White Sage | 4134 | New | 22 | 8.20 | GSENM | P.A./Hwy | |
| Rock Reservoir | 5345 | New | 32 | 0.31 | AZ Strip | P.A. | Seaman Wash |
| Perkins | 5205 | Rehab | 2 | 0.12 | St George | P.A./Hwy | Colorado City |
| Canaan Flat | 4099 | New | 11 | 0.64 | St George | P.A./Hwy | |
| Canaan Gap | 4141 | New | 22 | 0.99 | St George | P.A./Hwy | |
| Short Creek | 5270 | New | 13 | 0.42 | St George | P.A./Hwy | |
| Haslem Spring | 5239 | New | 16 | 0.37 | St George | P.A./Hwy | |
| West Canyon | 4074 | Rehab | 36 | 0.70 | St George | P.A./Hwy | Hurricane Hydro |
| Lost Creek | 4028 | New | 10 | 0.07 | St George | P.A./Hwy | |
| Middle Canyon | 4082 | new | 11 | 0.05 | St George | P.A./Hwy | |
| Lakeside | 4028 | Rehab | 25 | 1.36 | St George | P.A./Hwy | |
| Allen Basin/Snd Mt. | 4045 | New | 31 | 0.20 | St George | P.A./Hwy | |
| West Grassy | 4042 | New | 8 | 0.10 | St George | P.A./Hwy | |

**Notes:** The 'Descr.' field describes whether the affected land lies in an area where a new 120-foot wide path is necessary or if the construction coincides with an existing roadway that would be rehabilitated and widened. The 'Area' field consists of the total acreage of land that is expected to be disturbed during construction, and is computed with a variable width directly relating to the aforementioned cross sections. The 'Percent Total' column consists of the ratio of the construction-affected allotment to the entire allotment.
P.A. = Proposed Action
Hwy = Existing Highway
Conv. = Water Conveyance System

**Table 5-116**
**Arizona Grazing Allotments (BLM/State) – East to West**

| Allotment Name | ID | Descr. | Area (acres) | Percent Total | Admin. | Align. Alt. | Comments |
|---|---|---|---|---|---|---|---|
| Fuller Road | 185 | New | 46 | 0.16 | AZ Strip | P.A. | Seaman Wa. |
| Chatterly | 62 | New | 37 | 0.65 | AZ Strip | P.A. | Muggins Fla. |
| Muggins Flat | 63 | New | 14 | 0.11 | AZ Strip | P.A. | |
| Button | 58 | Rehab | 33 | 0.57 | AZ Strip | P.A. | |
| Sunshine | 57 | Rehab | 15 | 0.40 | AZ | P.A. | Hwy 89 |
| Highway | 58 | Rehab | 15 | 0.09 | AZ | P.A. | |
| Highway | 58 | Rehab | 13 | 0.08 | AZ Strip | P.A. | |
| | 1041 | Rehab | 44 | 0.66 | AZ Strip | P.A. | |
| | 337 | Rehab | 45 | 0.03 | Kaibab R. | P.A. | |
| | 1041 | New | 21 | 0.32 | AZ Strip | SE Corner | |
| Rock C. Tank | 53 | New | 79 | 0.06 | AZ Strip | SE Corner | |
| Loco Point | 217 | Rehab | 53 | 0.81 | AZ Strip | P.A. | Bitter Seeps |
| Valley Wash | 951 | Rehab | 12 | 0.37 | AZ | P.A. | |
| Valley Wash | 952 | Rehab | 21 | 0.66 | AZ Strip | P.A. | |
| Pipe Spring | 951 | Rehab | 6 | 0.57 | AZ Strip | P.A. | |
| Scotties Seep | 215 | Rehab | 10 | 0.15 | AZ Strip | P.A. | |
| Pipe Valley | 950 | Rehab | 13 | 0.19 | AZ Strip | P.A. | |
| Pipe Valley | 212 | Rehab | 12 | 0.75 | AZ | P.A. | Indian Knoll |
| Pipe Valley | 205 | Rehab | 15 | 0.66 | AZ | P.A. | |
| Sand Wash | 207 | Rehab | 13 | 0.67 | AZ | P.A. | |
| | 337 | Rehab | 12 | 0.01 | AZ | P.A. | Cedar Ridge |
| Cane Beds | 203 | Rehab | 7 | 0.05 | AZ Strip | P.A. | |
| Lost Spring | 46 | New | 19 | 0.75 | AZ | Highway | |
| Cowboy Butte | 49 | New | 28 | 0.58 | AZ | Highway | |
| Cowboy Butte | 49 | New | 8 | 0.16 | AZ Strip | Highway | |
| Fredonia West | 219 | Rehab | 7 | 0.40 | AZ | Highway | |
| | 337 | New | 240 | 0.18 | Kaibab R. | Highway | |
| Short Creek | 193 | Rehab | 20 | 0.18 | AZ Strip | P.A./Hwy | |
| | 334 | Rehab | 3 | 0.15 | AZ Strip | P.A./Hwy | Colorado City |
| Caanan Gap | 189 | Rehab | 3 | 0.06 | AZ Strip | P.A./Hwy | Colorado City |

**Notes:** The 'Descr.' field refers to whether the affected land lies in an area where a new 120-foot wide ROW is necessary or if the construction coincides with an existing roadway that would be rehabilitated and widened. The 'Area' field consists of the total acreage of land that is expected to be disturbed during construction, and is computed with a variable width directly relating to the aforementioned cross sections. The 'Percent Total' column consists of the ratio of the construction-affected allotment to the entire allotment.
P.A. = Proposed Action
Hwy = Existing Highway Alternative

The LPP Project would affect private property with active grazing operations between the crossings of state and federal land. Construction, operation, and maintenance activities for private property would follow the same standard techniques as those followed on public land, including minimizing construction and operational footprints and construction of access roads as much as possible.

Most of the electrical transmission lines serving the LPP Project would be constructed within existing transmission corridors, within a highway ROW, or directly within the pipeline ROW. For the proposed transmission lines, existing access roads may need to be upgraded to accommodate construction traffic, which is not expected to significantly disturb grazing land. Where new transmission lines would cross land with little-to-no access, a new 12-foot wide access road would be constructed along the new transmission line ROW. Table 5-117 quantifies the effects of the new and upgraded access roads for transmission line construction in Utah. Transmission line access road construction is not anticipated to disturb grazing land in Arizona. Table 5-118 summarizes temporary and permanent effects of LPP Project construction on BLM and state grazing land along all alignments.

**Table 5-117**
**Utah Grazing Allotments (BLM/State) – East to West – Transmission**

| Allotment Name | ID | Descr. | Area (acres) | Percent Total | Admin. | Align. Alt. | Comments |
|---|---|---|---|---|---|---|---|
| Ferry Swale | 5336 | Rehab | 8 | 0.02 | SITLA | Trans Line | Blue Pool Wash |
| Bunting Well | 25026 | Rehab | 10 | 0.08 | SITLA | Trans Line | Judd Hollow |
| Wiregrass | 4145 | Rehab | 7 | 0.11 | SITLA | Trans Line | S Wiregrass |
| Bunting Well | 25026 | New | 6 | 0.05 | SITLA | Trans Line | Judd Hollow |
| Bunting Well | 25027 | New | 11 | 0.08 | SITLA | Trans Line | Judd Hollow |
| Wiregrass | 4145 | New | 26 | 0.44 | SITLA | Trans Line | S Wiregrass |
| Bunting Well | 25026 | Rehab | 8 | 0.07 | SITLA | Trans Line | Cedar Mt |
| Bunting Well | 25026 | Rehab | 10 | 0.08 | SITLA | Trans Line | Judd Hollow |
| State Block | 25002 | Rehab | 12 | 0.09 | SITLA | Trans Line | |
| Bunting Well | 25026 | Rehab | 7 | 0.10 | GSENM | Trans Line | East Clark Bench |
| State Block | 25001 | Rehab | 2 | 0.02 | GSENM | Trans Line | |
| State Block | 25002 | Rehab | 21 | 0.17 | SITLA | Trans Line | |
| State Block | 25002 | Rehab | 1 | 0.01 | GSENM | Trans Line | Outback |
| Clark Bench | 15003 | Rehab | 22 | 0.09 | GSENM | Trans Line | Outback |
| Five Mile Mount | 2403 | Rehab | 9 | 0.05 | SITLA | Trans Line | Front Country |
| Five Mile Mount | 2403 | Rehab | 22 | 0.12 | SITLA | Trans Line | Outback |
| Mollies Nipple | 24083 | Rehab | 2 | 0.27 | GSENM | Trans Line | Passage |
| Allen Basin | 4045 | Rehab | 7 | 0.04 | GSENM | Trans Line | |

**Table 5-118**
**Total Disturbed Grazing Land (acres)**

| | Utah | | Arizona | |
|---|---|---|---|---|
| **Alternative** | **Pipeline/Penstock Construction** | **Roads (new/old)** | **Pipeline/Penstock Construction** | **Roads (new/old)** |
| Proposed Action | 423 | 27 | 604 | 22 |
| Existing Highway | 422 | 18 | 357 | 8 |
| Water Conveyance | 198 | 0 | N/A | N/A |
| Southeast Corner | 423 | 27 | 659 | 37 |
| Kane County Pipeline | 0 | 0 | N/A | N/A |
| Transmission Line | 0 | 25 | 0 | 0 |

**Notes:** The 'Pipeline/Penstock Construction' column indicates the grazing land that would be affected by the 120-foot wide temporary construction easement. Affected grazing land on the Kaibab-Paiute Indian Reservation is included in the Arizona 'Pipeline/Penstock Construction' column as applicable. The 'Roads (new/old)' column indicates the total land that would be permanently affected by roads construction/reconstruction.
N/A = Not Applicable

The permanent right-of-way for the pipeline components of the LPP Project would be 100-feet wide. Above-ground facilities such as the hydropower stations, regulating tanks, and booster pump stations would require additional land with some permanently affecting grazing land. Effects on grazing allotments from above-ground facility placement are presented in Table 5-119.

**Table 5-119**
**Grazing Allotments By Above-Ground Facilities**

| Allotment Name | ID | Facility | Area (acres) | Percent Total | Admin. |
|---|---|---|---|---|---|
| Wahweap | 05340 | BPS-1 | 15 | 0.26 | AZ Strip BLM |
| Wiregrass | 4145 | BPS-2 | 5 | 0.08 | SITLA |
| Five Mile Mount | 24043 | BPS-4 Alt. | 5 | 0.02 | GSENM BLM |
| Vermilion | 4130 | Tank-2 | 2 | 0.10 | GSENM BLM |
| Vermilion | 4131 | Hydro-1 | 5 | 0.24 | GSENM BLM |
| West Canyon | 4074 | Hydro-4 Alt. | 5 | 0.10 | St. George BLM |
| Middle Canyon | 4082 | Hurricane Cliffs Hydro | 5 | 0.02 | St. George BLM |
| Middle Canyon | 4083 | Hurricane Cliffs Forebay | 500 | 2.45 | St. George BLM |
| Middle Canyon | 4084 | Hurricane Cliffs Afterbay | 200 | 0.98 | St. G. BLM/SITLA |
| West Grassy | 4042 | SH Hydro | 5 | 0.06 | WCWCD |

**Notes:** The 'Percent Total' column indicates the amount of land that would be affected by construction of facilities compared to the total size of the affected grazing allotment.

The loss of grazing forage from access road improvement and the addition of new access roads is expected to be a minor effect. However, the affected areas have been quantified in the "roads" columns of summary Table 5-118. A typical access road improvement section is shown in Figure 5-180, which illustrates the extent of long-term effects of the LPP Project access roads.

Some existing range resources would be lost on private land occupied by aboveground LPP Project facilities, and coordination with landowners and grazing lessees would be necessary before construction begins. Each permit holder's affected animal unit months (AUMs) quantity and other land improvements would need to be negotiated on a case-by-case basis to determine potential compensation. In areas affected by permanent facilities, mitigation measures would entail modification and some form of compensation. For those areas where complete reclamation would occur after construction, mitigation measures would be implemented on an as-needed basis. These actions would be consistent between the states of Utah and Arizona and all BLM field offices.

From the two grazing allotments administered by Utah Parks and Recreation, only one would be affected by the LPP Project. Approximately 31 acres of the Sand Mountain grazing allotment would be affected by the Sand Hollow Hydro Station and the pipeline. There would be no conflict with the current management plan because the area is managed under BLM guidelines.

#### *5.3.14.2.2.8 Rights-of-Way.*

Detailed ROW centerline alignments within BLM jurisdiction have not been identified at this time. However, each of the BLM RMP generally states that ROW issues would be resolved on an as-needed basis. Utilization of existing ROWs is planned for both public and private land uses. Existing utility corridors would be utilized to the maximum extent possible. Typical ROW effects on surrounding land are illustrated in Figures 5-178, 5-179 and 5-180. Table 5-120 identifies four known corridors within the LPP Project vicinity that would be utilized.

**Table 5-120**
**Designated Utility Corridors within the Project Area**

| Administration | Width (ft) | Location | Type | Alignment Alternative/LPP Facility |
|---|---|---|---|---|
| Kanab BLM | 750 | From GSENM boundary west and north to Mt. Carmel Junction along Highway 89 | Utility | Existing Highway |
| GSENM BLM | 750 | Along Highway 89 from east GSENM boundary to west GSENM boundary | Utility | Water Conveyance and Hydro System |
| AZ Strip BLM | 5280 | Overlaps West Wide Energy Corridor in AZ from Page to near Colorado City | Utility | Transmission Lines |
| AZ Strip BLM | 5280 | West Wide Energy Corridor from Page to St. George Area | Utility | Transmission Lines/Proposed Action/Water Conveyance/S.E. Corner |
| UDOT | 4 Lanes | Southern Corridor Highway (St. George/Hurricane) | Highway | Existing Highway/Proposed Action |

Where the pipeline and penstock traverses land within GSENM, the alignment paralleling the highway would be constructed and operated entirely within the congressionally-designated utility corridor. The utility corridor is situated within GSENM front country management zone, which is the focal point for monument visitation. This zone accommodates primary interpretation areas, overlooks, trails, and associated facilities. This is the least sensitive zone within the monument in terms of preserving GSENM's primary focus of protecting monument resources, but is the most frequented by the public and the most utilized for recreation (BLM 2000).

The LPP Project would be aligned within GSENM utility corridor beginning at BPS-3 (Alt.) and following Highway 89 to the western boundary of GSENM along Highway 89.

The electrical transmission lines system would be within the Arizona Strip Utility Corridor for approximately 11 miles near Lake Powell within the BLM Arizona Strip district. The electrical transmission lines system then would follow the West Wide Energy Corridor for approximately 8 miles within Utah. The Proposed Action would follow the Arizona Strip Utility Corridor for approximately 32 miles; the Southeast Corner Alternative would leave the Proposed Action alignment for approximately 4 miles.

Reclamation administers a 34-acre land area extending approximately 2000 feet downstream of Glen Canyon Dam and approximately 2500 feet north of the dam on the west side of Lake Powell. The LPP Project intake pump station lies within Reclamation-administered area. A ROW use agreement would need to be authorized by Reclamation.

The LPP Project Hydro System facilities would cross the UDOT Southern Corridor Highway near Sand Hollow Reservoir. Through coordination with UDOT, an agreement was reached to install a sleeve under the corridor in preparation for the LPP Project penstock crossing.

The LPP Project would follow approximately 31 miles of Highway 89 and approximately four miles of Highway 389 within ADOT-administered roadways. ADOT has indicated that it would be acceptable to place the LPP Project within their ROW. Therefore an easement could be acquired following the proper filing and fees procedure. However, ADOT has indicated that it would be necessary to bore the pipeline under the highway at all highway crossings to avoid unnecessary disruption of traffic.

On private land, the land required for each of the above-ground facilities may be leased or purchased.

Public access to the land occupied by the above-ground facilities would be permanently restricted. Further discussions with the BLM would be necessary to determine if other compensating actions are needed to allow for LPP Project use of these lands. Table 5-121 presents the public land in ROWs that would be required for above-ground facilities.

The LPP Project would cross approximately 16.5 miles of Kaibab-Paiute Indian Reservation tribal land if the Existing Highway Alternative is selected for construction. The UDWRe would have to negotiate an easement with the Kaibab Band of Paiute Indians to obtain access though the Kaibab-Paiute Indian Reservation, who would then contact the BIA. A study of the area and alternatives would be requested by the BIA, then a decision would be made regarding the granting of an easement for the LPP Project.

| Table 5-121<br>Land Required for Above-Ground Facilities | | |
|---|---|---|
| **Facility** | **Area (acres)** | **Administration** |
| IPS | 34 | Reclamation |
| BPS-1 | 15 | NPS |
| BPS-2 | 5 | SITLA |
| BPS-3 (Alt.) | 5 | Kanab BLM |
| BPS-4 (Alt.) | 5 | GSENM BLM |
| Regulating Tank-2 | 2 | GSENM BLM |
| HS-1 | 5 | GSENM BLM |
| HS-4 | 5 | St. George BLM |
| Hurricane Cliffs Hydro | 5 | St. George BLM |
| Hurricane Cliffs Forebay | 500 | St. George BLM |
| Hurricane Cliffs Afterbay | 200 | St. George BLM/SITLA |
| Sand Hollow Hydro | 5 | WCWCD |

**Notes:** The 'Area (acres)' column is an approximate facility footprint upon the public land administered by the designated agency under 'Administration'. Facility names are: Intake Pump Station (IPS), Booster Pump Station (BPS), Regulating Tank (Tank), Hydroelectric Station (HS), Hydropower Facility (Hydro).

#### *5.3.14.2.2.9 Trails and National Historic Trails.*

The Honeymoon Trail would be crossed by the Proposed Action, Existing Highway Alternative and Southeast Corner Alternative as part of the Hydro System. The Existing Highway Alternative would cross the trail near Pipe Spring, Arizona at approximately milepost 17 along Highway 389. The Proposed Action and Southeast Corner Alternative would cross the trail about three miles south of Highway 389 on BLM road #239.

The Dominguez-Escalante Trail would be crossed by the LPP Project in several locations. The Proposed Action would cross the trail at White Sage Wash approximately four miles northeast of mile marker 603 on Highway 89 Alt. The second crossing would be approximately 1.6 miles southwest of the southwest corner of the Kaibab-Paiute Indian Reservation. All LPP Project alignments would cross the trail where the penstock runs west of the Hurricane Cliffs approximately two miles south of the Sky Ranch Airfield.

The Water Conveyance System would cross the Old Spanish National Historic Trail (NHT) just south of Big Water, Utah, where the Paria River intersects Highway 89 and would also cross the trail near mile post 30 along Highway 89. The Existing Highway Alternative would potentially cross the trail northwest of Fredonia, Arizona where it goes through Lost Spring Wash. The Proposed Action would cross the trail near mile post 49 on Highway 89 and just north of HS-2 (South).

Construction BMP guidelines would be followed through each of the trail crossings. Following construction, affected areas would be reseeded with species adapted to the region and then allowed to re-vegetate naturally. The re-establishment of native and endemic vegetation species to preconstruction conditions may take more than one growing season depending on available soil moisture and

temperatures during the growing season. Typical cross sections illustrating the limits of pipeline and penstock construction disturbance are shown in Figures 5-178, 5-179, and 5-180.

Where the LPP Project would cross historic trails the following criteria would be met as stipulated in the BLM RMPs for the LPP Project area:

- Where significant trail corridor segments and associated sites are documented, viewsheds, as observed from these areas, would be maintained
- Any changes to the characteristic landscape must be low in the Old Spanish NHT corridor on public land (Visual Resource Management Class II)
- Reduce and minimize potential visual (including night sky conditions), audible, and recreation setting effects associated with surface disturbing activities and construction of above ground structures. Exceptions to these measures may be specifically authorized through a permit issued by the federal surface management agency if it is shown to the satisfaction of the authorized officer that the proposed operations and occupancy would not adversely affect the recreation opportunities in the vicinity of the trails.

#### *5.3.14.2.2.10 Areas of Critical Environmental Concern.*

The LPP Project would avoid crossing into ACECs to the maximum extent possible; however, the Proposed Action would cross the Kanab Creek ACEC in Arizona. The ACEC is administered by the BLM Arizona Strip Field Office and is the only ACEC that would be directly affected by the LPP Project (BLM 2008a). The Kanab Creek ACEC is located on the south side of the Kaibab-Paiute Indian Reservation; Kanab Creek is a headwater tributary of the Colorado River. The Arizona Strip BLM management direction for this ACEC includes the following provisions:

- Individual land use authorizations (ROWs, permits, easements) will be evaluated on a case-by-case basis in accordance with RMP provisions and NEPA conformance
- New land use authorizations will be discouraged in ACEC.
- Motorized and mechanized vehicle use will be limited to existing or designated routes.
- The BLM will authorize only temporary upgrading of existing roads.
- New roads will be authorized on a temporary basis only.
- New mineral material disposal sites will not be authorized.

The Proposed Action would cross the Kanab Creek ACEC in two places; on the east side crossing through Kanab Creek Canyon for a distance of approximately 2,990 feet and again where it traverses through Bitter Seeps Wash crossing approximately 1,350 feet of the ACEC. The two crossings would temporarily disturb eight-acres and four-acres, respectively. A permanent ROW would be established, however, a permanent access road would not be constructed or maintained within the ACEC. The Proposed Action penstock alignment through the Kanab Creek ACEC would be restored to approximate original contours, revegetated with endemic plant species, and desert soil stain applied where necessary to mitigate visual effects of recently disturbed soils. The BLM would continue to work with the UDWRe to further identify and analyze the most suitable route for the LPP Project based on botanical and wildlife surveys.

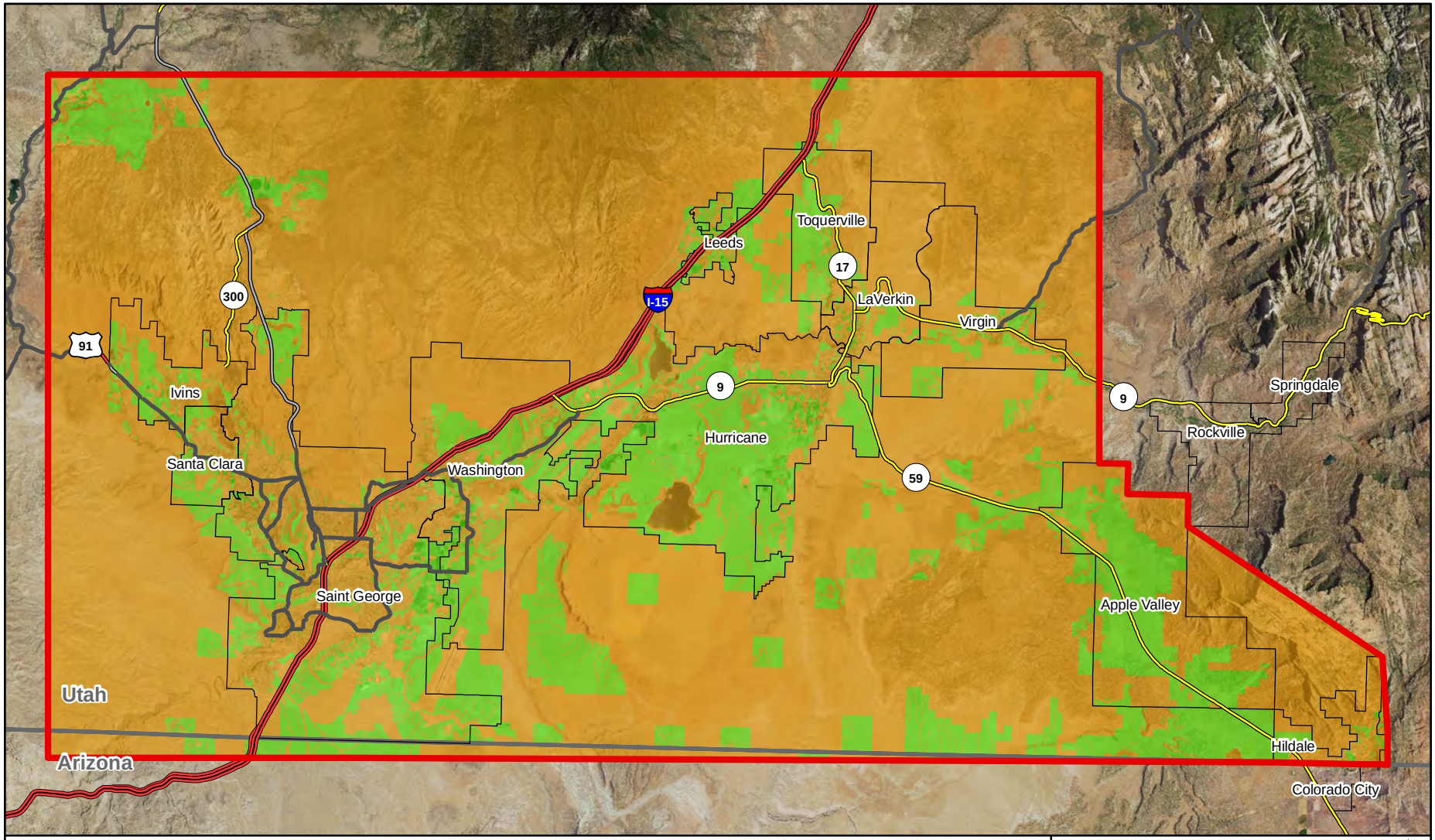
***5.3.14.2.2.11 Growth.***

The area of potential effect considered for future growth and development potential consists of private land, existing agricultural land, School and Institutional Trust Lands Administration (SITLA) and BLM land designated for disposal. In the initial screening, land excluded from potential development includes existing developed land, state parks, BLM land, Indian Reservations, conservation land, Red Cliffs Desert Reserve, U.S. Forest Service land, , open water, flood plains, wetlands, slopes greater than 25 percent, ridgelines, streams, dry washes, and threatened and designated habitat areas. The total area of potential effect is 540,155 acres. The land excluded from future development potential consists of 431,411 acres, with 108,744 acres of land potentially available for urban and suburban development (Figure 5-182). Regardless of scenario, the existing acreage available for infill within current municipal boundaries would require a water resource that exceeds the amount of water provided by the LPP Project.

Multiple growth scenarios were analyzed to determine how the growth area of potential effect could be developed with different exclusions (e.g. excluding rock and soil hazard areas, proximity to existing infrastructure, probability of conflicts between potential land use conversions, and land use preference and suitability). The growth scenarios are performed with common assumptions for population growth, number of housing units, and household size, and the modeling results are presented in terms of total developable area and housing unit density per unit area.

Developable land within the growth study area not connected to municipal boundaries, not proximate to existing or planned transportation networks, and not having infrastructure to support new development are excluded from Growth Scenario 2B, Scenario 3B, and Scenario 4B. Excluding these developable lands focuses the growth analysis on areas that would infill with development to accommodate future housing and population. The analyzed scenarios presented would be consistent with smart growth principles

Growth Scenario 2B excludes high and moderate hazard rock and soil areas and would provide about 68,567 acres of land available for growth and development. Growth Scenario 2B includes 32,107 acres that would be highly favorable for growth and development, based on proximity analysis, and 36,460 acres would be favorable for growth and development (Figure 5-183). The highly favorable land receives a higher rating because it is closer in proximity to features such as existing utilities, schools, hospitals, retail stores, business centers, existing development and other infrastructure. The effects of growth and development on 68,567 acres of land would include an increase of agricultural land conversion to urban land and the conversion of current undesignated open space areas to developed areas. Table 5-122 shows the projected population, housing units and average household size for the area of potential effect. It also shows the housing density in number of housing units per square mile and the number of housing units per acre for the existing developed land and land available for development in Growth Scenario 2B in 10 year increments.




Cities
State Boundaries
Growth Analysis Study Area - 540,155 Acres
Land Excluded from Development - 431,411 Acres
Potentially Developable Land - 108,744 Acres

Interstate
US Highway
ST Highway
Hwy
Major Road

**FERC Project Number: 12966-001**
**BLM Serial Numbers: AZA-34941 UTU-85472**

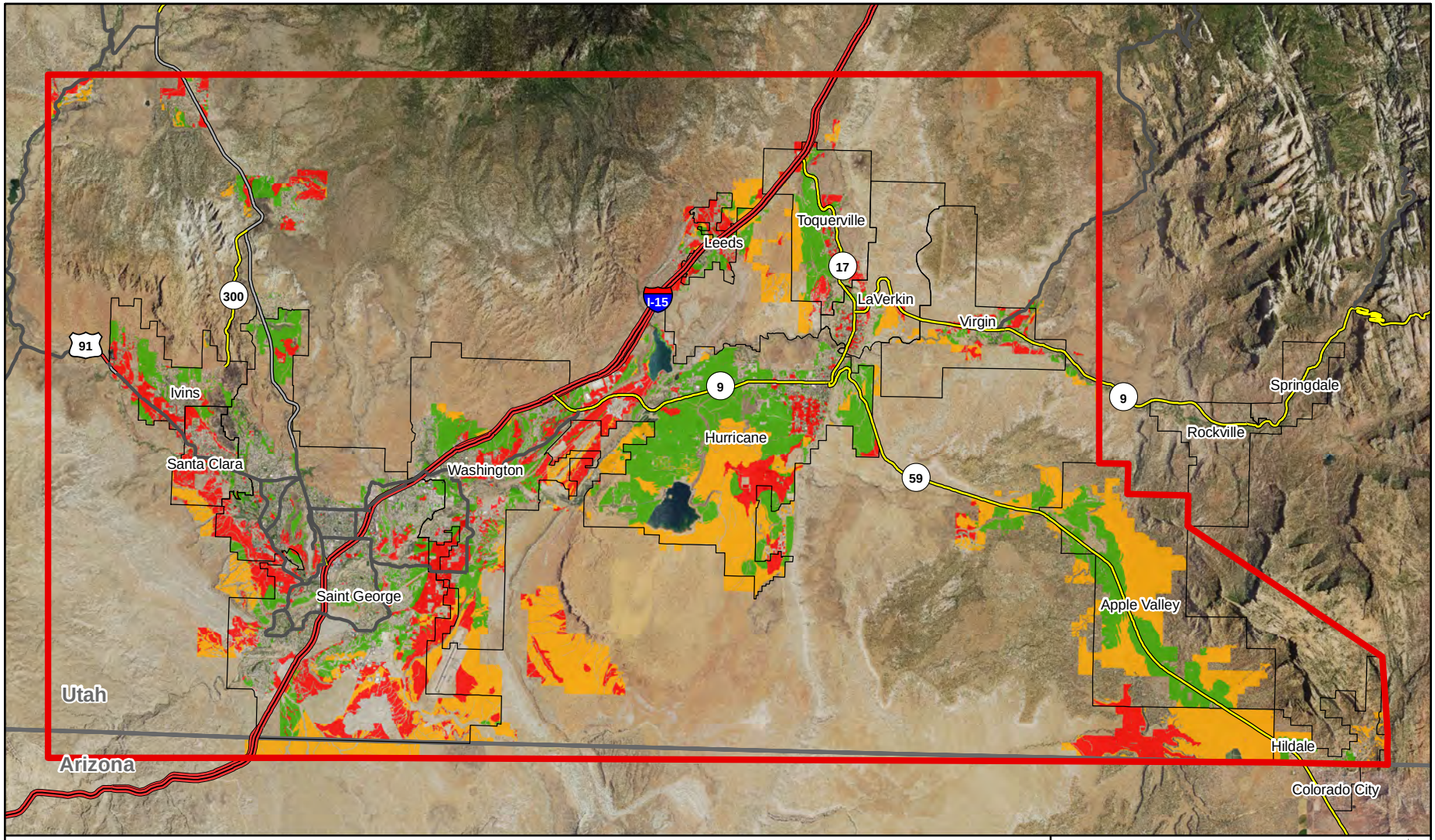
0 1 2 4 6 Miles

**Lake Powell Pipeline**
Aerial Imagery: NAIP 2014
Spatial Reference: UTM Zone 12N, NAD-83

N

UDWRe **Figure 5-182** MWH

**Developable and Development Exclusion Areas**




Cities
State Boundaries
Growth Analysis Study Area - 540,155 Acres
Unfavorable Development Area - 24,331 Acres
Favorable Development Area - 36,460 Acres
Highly Favorable Development Area - 32,107 Acres

Interstate
US Highway
ST Highway
Hwy
Major Road

**FERC Project Number:**
**12966-001**
**BLM Serial Numbers:**
**AZA-34941**
**UTU-85472**

0 1 2 4 6 Miles

**Lake Powell Pipeline**
Aerial Imagery: NAIP 2014
Spatial Reference: UTM Zone 12N, NAD-83

N

**UDWRe Figure 5-183** MWH

**Scenario 2B**
**Developable Areas**

| Table 5-122<br>Growth Scenario 2B | | | | | |
|---|---|---|---|---|---|
| **Growth Area of Potential Effect Demographic Indicator** | **2020** | **2030** | **2040** | **2050** | **2060** |
| Population | 196,762 | 280,558 | 371,743 | 472,567 | 581,731 |
| Number of Housing Units | 70,919 | 112,378 | 151,647 | 192,884 | 237,065 |
| Household Size (# of people/HU) | 2.74 | 2.46 | 2.41 | 2.41 | 2.42 |
| Housing Units/mi$^2$ | 439 | 696 | 939 | 1,194 | 1,468 |
| Housing Units/acre | 0.69 | 1.09 | 1.47 | 1.87 | 2.29 |

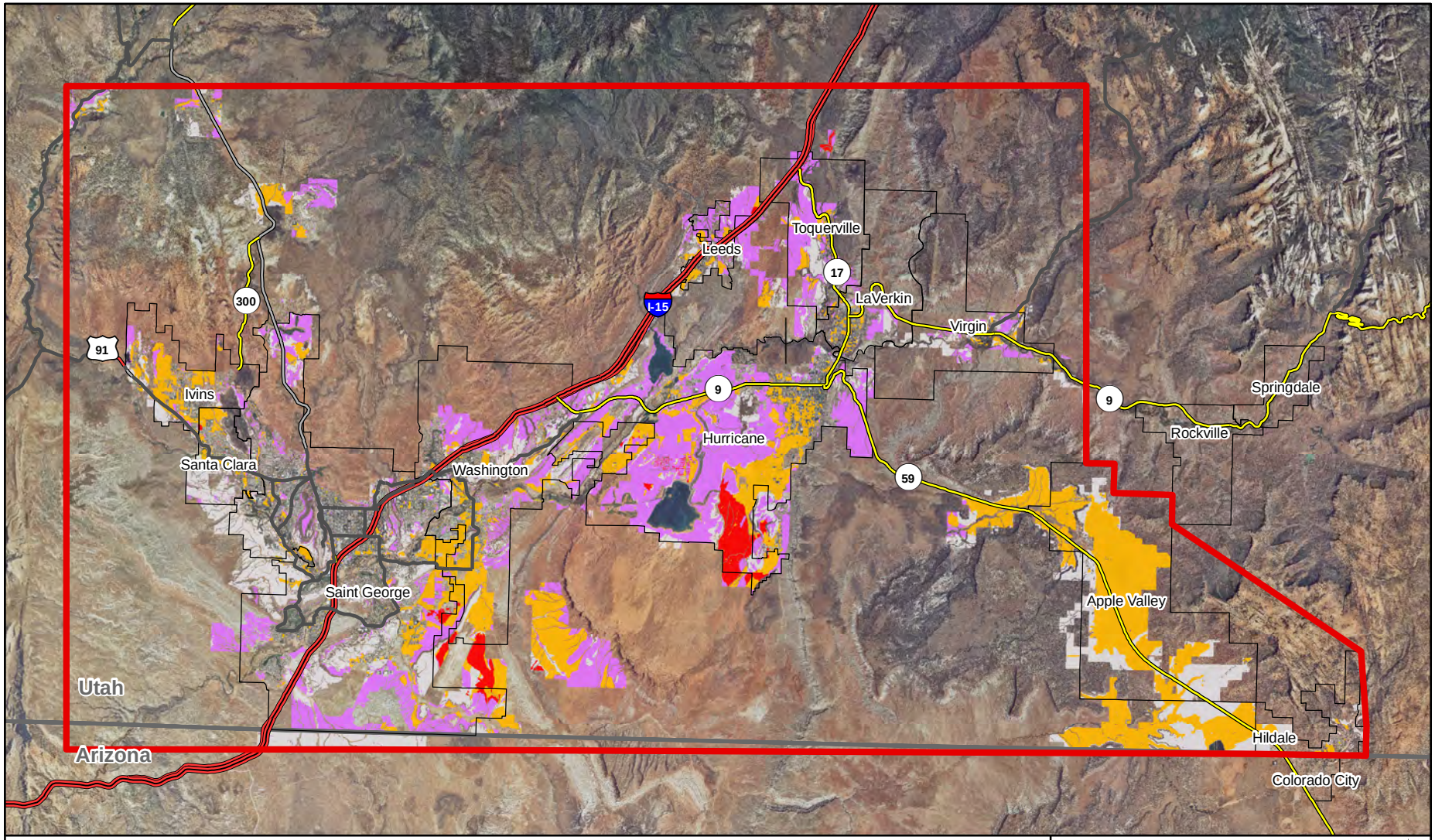
**Notes:** Housing Units/mi$^2$ = Housing Units per square mile; values include existing and future development
Housing Units/acre: values include existing and future development
Population and housing data was compiled using the Governor's Office of Planning and Budget, 2012 Baseline Projections.

Growth Scenario 3B consisted of land use and growth conflict-based analyses which fully incorporates the LUCIS® model. LUCIS® is an acronym for Land Use Conflict Identification Strategy. The LUCIS® model method is a goal-driven GIS model which spatially represents probable future land use patterns and probable areas of future land use conflict and preference. It was developed over a period of 10 years at the University of Florida. Geospatial data for this analysis were obtained from Bureau of Land Management (BLM), Washington County, City of Santa Clara, City of St. George, Washington City, Hurricane City, Utah Department of Natural Resources (DNR), and Utah Automated Geographic Reference Center (AGRC). The methodology of the LUCIS® model incorporates multiple layers of data that are ranked and weighted for determining land use suitability and then combined to create final output analysis raster data. In the LUCIS® model, three general goals are set: identify lands most suitable for agricultural use; identify lands most suitable for conservation and protection strategies; and identify lands most suitable for urban development. Ranked beneath these goals are objectives and sub-objectives which ultimately represent the raster layers to be ranked and weighted for use in the analysis model. Once this is completed, the model can be run to determine areas of potential land use conflict and preferences. Through this analysis model, land use conflicts and preferences can be identified to better aid in visualization and planning. Growth Scenario 3B includes the total developable land from Growth Scenario 2B and analyzes where land conversion conflicts would most likely occur. Developable land within the growth area of potential effect not connected to municipal boundaries, not proximate to existing or planned transportation networks, and not having infrastructure to support new development is excluded from Growth Scenario 3B.

Growth Scenario 3B considers potential land use conflicts that could impede conversion of agricultural or conservation land to more urbanized uses. This scenario identifies where the greatest probability of conflicts between land uses would likely occur within the growth study area. Available land is ranked according to agricultural, conservation and urban suitability to identify areas of potential land use conflict. Land with high suitability for more than one type of use would have a higher potential for land use conflicts. Land with high suitability for only one type of use would have low or no potential land use conflicts. The Growth Scenario 3B hazard areas consist of highly and moderately expansive rock and soil. Developable land areas with no land use conflict total 24,981 acres. The existing developed land and developable land areas would have a 2060 housing density of 2,538 housing units per square mile (3.96 housing units per acre). Areas with major land use conflicts total 2,963 acres. Areas with urban/conservation land use conflicts total 32,895 acres. Areas with urban/agriculture land use conflicts total 32,059 acres. Areas with agriculture/conservation land use conflicts total 22 acres. The Growth

Scenario 3B analysis identifies the land use conflicts that may be more controversial for future development (Figure 5-184).

Growth Scenario 4B considers land use preference and conflict-based analyses which fully incorporates the LUCIS® model. This scenario includes the total developable land from Growth Scenario 2B and analyzes where land use preference and conflicts would most likely occur. Developable land within the growth area of potential effect not connected to municipal boundaries, not proximate to existing or planned transportation networks, and not having infrastructure to support new development is excluded from Growth Scenario 4B.




Growth Analysis Study Area - 540,155 Acres
Major Conflict Area - 2,963 Acres
Agriculture / Conservation Conflict Area - 22 Acres
Urban / Agriculture Conflict Area - 32,059 Acres
Urban / Conservation Conflict Area - 32,895 Acres
No Conflict Area - 24,981 Acres

Cities
Interstate
US Highway
ST Highway
Hwy
Major Road

**FERC Project Number:**
**12966-001**
**BLM Serial Numbers:**
**AZA-34941**
**UTU-85472**

0 1 2 4 6 Miles

**Lake Powell Pipeline**
Aerial Imagery: NAIP 2014
Spatial Reference: UTM Zone 12N, NAD-83

N

**UDWRe Figure 5-184** MWH

**Scenario 3B**
**Areas of Potential Land-Use Conflict**

Growth Scenario 4B identifies areas of land use preference and conflict. Available land is ranked according to agricultural, conservation and urban suitability. Land areas with high and medium potential for land use conflicts, as demonstrated by high suitability for multiple use types, are designated as high or moderate conflict areas, respectively. Land showing high suitability for only one type of use is designated as having either an agricultural, conservation or urban preference. The Growth Scenario 4B hazard areas consist of highly and moderately expansive rock and soil. The analysis results indicate there would be 2,963 acres of land with high land use conflicts; 33,341 acres of land with moderate land use conflicts; 44,493 acres of land with an urban land use preference; 11,888 acres of land with an agricultural land use preference; and 235 acres with a conservation land use preference (Figure 5-185). The existing developed land and developable land areas would have a 2060 housing density of 1,915 housing units per square mile (2.99 housing units per acre).

An increase in urban and suburban growth and development around the Southern Corridor Highway alignment (Figure 5-186) would likely occur as demonstrated along other regional transportation routes. The phased construction of the Southern Corridor Highway and the results of this growth analysis demonstrate the continued need for strong regional cooperation and planning among communities and municipalities to determine what land should and could be available for growth.

### 5.3.14.2.3 Effects Analysis Conclusions.

#### *5.3.14.2.3.1 Proposed Action.*

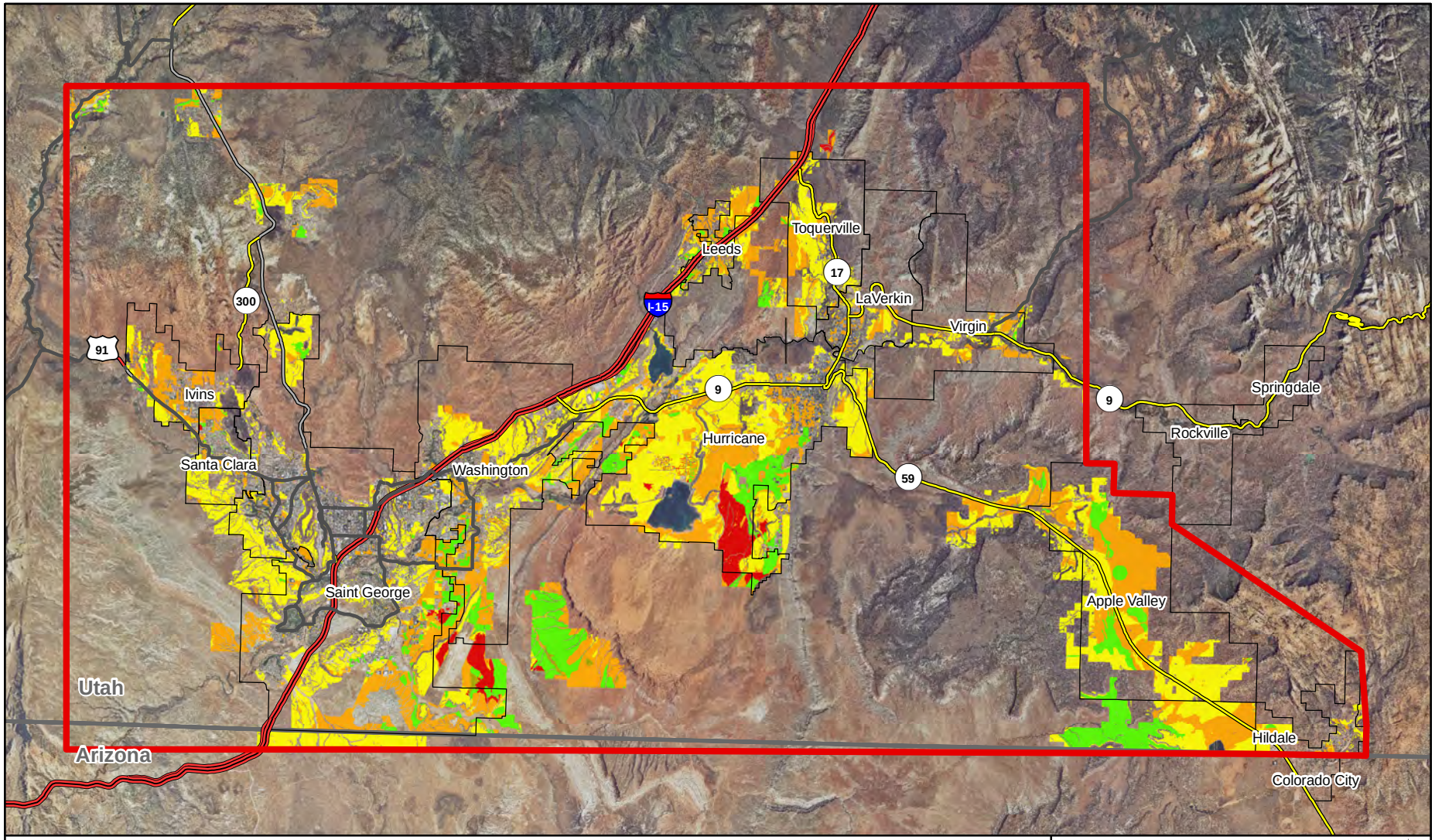
This section summarizes the Proposed Action effects analysis conclusions for the land use effect topics.

**Land Ownership and Management**

There are locations along the Proposed Action that could involve transfer of land ownership because of permanent facility construction, operation, and maintenance. Permanent facilities would cover a total of 831 acres, with 22 acres on private land and 809 acres on public land. Access roads and pipelines would not require potential transfer of land ownership. Pipeline, penstock and access road construction would not permanently affect land ownership. The Proposed Action would have no direct land use effects on the Kaibab-Paiute Indian Reservation.

**Farmland**

The Proposed Action construction, operation and maintenance would require converting approximately five acres of designated prime farmland soil to industrial use for one proposed permanent facility, HS-2 (South), which would be a significant effect on designated prime farmland soil. Farmland disrupted during penstock construction (393 acres) would be rehabilitated back to original condition by replacing removed soil and topsoil to the original contours and to a condition as good as or better than existing.




Growth Analysis Study Area - 540,155 Acres
Urban Preference Area - 44,493 Acres
Agriculture Preference Area - 11,888 Acres
Conservation Preference Area - 235 Acres
High Conflict Area - 2,963 Acres
Moderate Conflict Area - 33,341 Acres

Cities
Interstate
US Highway
ST Highway
Hwy
Major Road

**FERC Project Number:**
**12966-001**
**BLM Serial Numbers:**
**AZA-34941**
**UTU-85472**

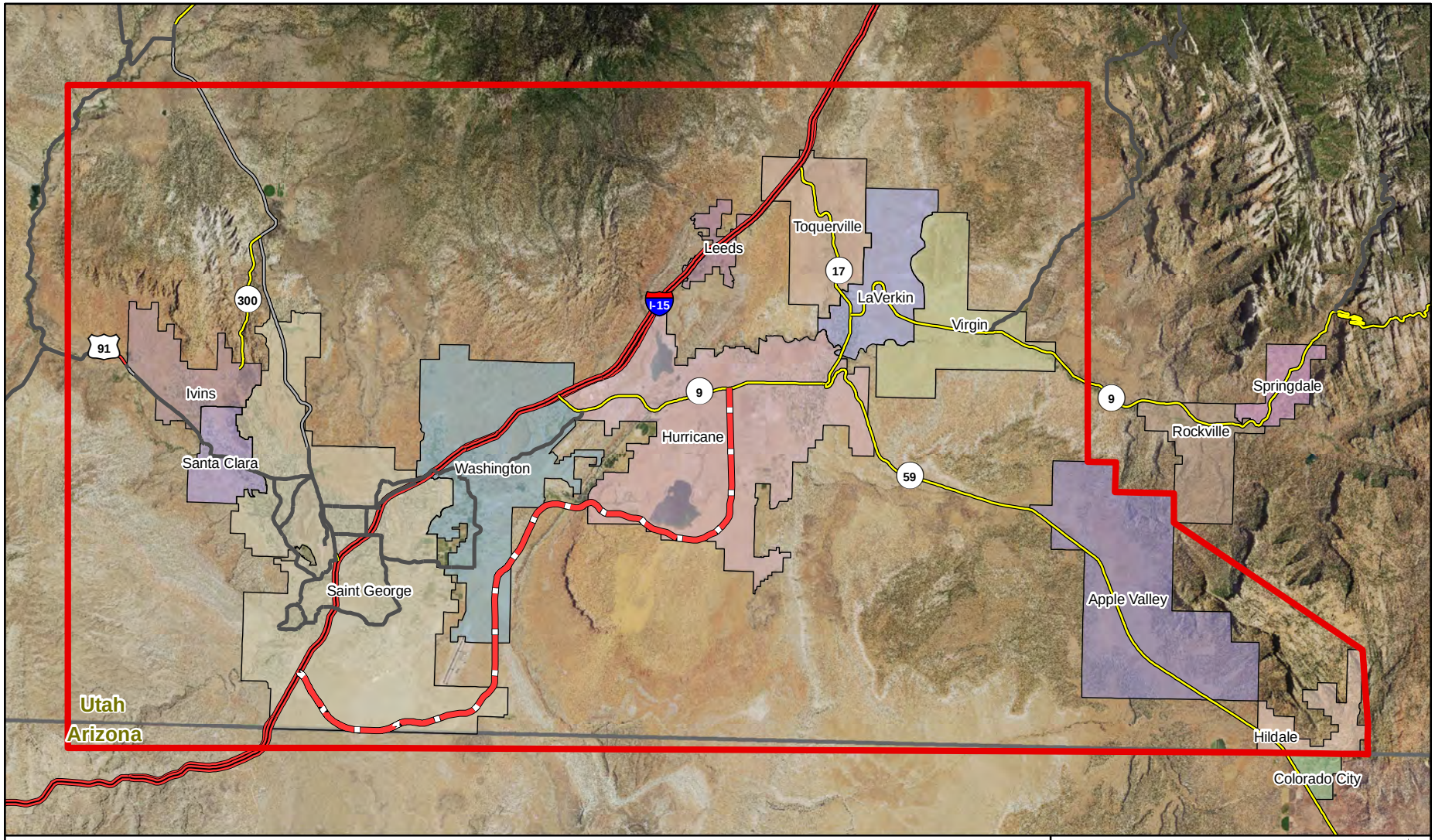
0 1 2 4 6 Miles

**Lake Powell Pipeline**
**Aerial Imagery: NAIP 2014**
**Spatial Reference: UTM Zone 12N, NAD-83**

N

**UDWRe Figure 5-185** MWH

**Scenario 4B**
**Areas of Land-Use**
**Preference and Conflict**




Growth Analysis Study Area - 540,155 Acres
Southern Corridor
Cities
State Boundaries

Interstate
US Highway
ST Highway
Hwy
Major Road

**FERC Project Number:**
**12966-001**
**BLM Serial Numbers:**
**AZA-34941**
**UTU-85472**

0 1 2 4 6 Miles

**Lake Powell Pipeline**
**Aerial Imagery: NAIP 2014**
**Spatial Reference: UTM Zone 12N, NAD-83**

N

**UDWRe Figure 5-186** MWH

**Southern Corridor Highway**

### Floodplain

The Proposed Action alignment was identified to minimize disturbance of land character or scenic designation. Pipeline and penstock alignments parallel to floodplains. Potentially affected floodplains would be at pipeline crossings along waterways, which would be reclaimed and restored back to original contours to avoid long term effects on floodplains. The Proposed Action would have temporary direct effects on 27.3 acres of floodplains at pipeline and penstock crossings during construction and no measurable effects during operation. The Proposed Action would have no significant effects on floodplains.

### Waste Disposal and Hazardous Waste

The Proposed Action construction, operation, and maintenance actions would result in manageable waste disposal for excess fill and hazardous water materials. Local and regional disposal facilities are available to accept both types of waste materials. There are no apparent hazardous waste sites within the Proposed Action alignment. The Proposed Action would have no measurable effects and no significant effects on waste disposal and hazardous waste management.

### Designated Wilderness, WSAs, and Land with Wilderness Characteristics

The Proposed Action would be constructed adjacent to The Cockscomb WSA. The Proposed Action would have no direct effects on the Cockscomb WSA as there is no construction anticipated to occur within the Cockscomb WSA boundary; there could be minor temporary indirect effects from residual noise, air pollutants, and changes in views from the WSA. There would be no land use constraints associated with the WSA on the Proposed Action. The Proposed Action would not cross any designated wilderness or land with wilderness characteristics. The Proposed Action therefore would have no significant effects on wilderness, land with wilderness characteristics, or WSAs.

### Wild and Scenic Rivers

The Proposed Action would not cross any designated Wild and Scenic Rivers or eligible segments. The Proposed Action would have no direct effects and no significant effects on Wild and Scenic Rivers or segments considered by BLM to be eligible for designation.

### Grazing Land

The Proposed Action construction would directly affect a narrow band of grazing land covering 1,225 acres and remove it from use during the following growing season(s), depending on available soil moisture and temperatures. Operation and maintenance activities would have minimal effects on grazing land along the pipeline and penstock. Permanent facilities would remove 757 acres of currently grazed lands from future livestock grazing. The Proposed Action would not have significant effects on grazing land.

### Rights-of-Way

The Proposed Action construction and operation would involve ROW acquisition throughout much of its length. On private and state lands, easement acquisition would be necessary where utility ROWs are

currently unavailable. These effects on existing ROWs would be minor as they have either already been disturbed and/or their disturbance has been subject to previous analysis and determinations..

### Trails and National Historic Trails

The Proposed Action would cross trails and National Historic Trails in several places. These pipeline and penstock crossings would temporarily affect the trail during construction. The trail and surrounding areas would be restored back to original condition. Proposed Action operation would have no direct or indirect effects on the trail. The Proposed Action would have no significant effects on National Historic Trails.

### Areas of Critical Environmental Concern

The Kanab Creek ACEC would be directly affected by the Proposed Action. The two penstock crossings would temporarily disturb approximately 12 acres of land and water. Long-term effects would be avoided by implementing construction BMPs and the area would be restored and rehabilitated to its original condition and contours. The Proposed Action would have no significant land use effects on the Kanab Creek ACEC.

### Growth

The Proposed Action construction would have no direct effects on growth. Proposed Action operation, in conjunction with delivering water to the St. George metropolitan area, would provide water for projected population increases and in-fill development within municipal boundaries served by transportation networks, schools, power, water distribution, sewer collection and other utility infrastructure. The growth scenario analysis excluded threatened and endangered species (TES) critical habitat areas, existing developed land, state parks, BLM land, Indian reservations, conservation land, Red Cliffs Desert Reserve, U.S. Forest Service land, open water, flood plains, wetlands, slopes greater than 25 percent, ridgelines, streams, and dry washes. Potentially developable land on high- and moderate-hazard rock and soil areas are excluded in Growth Scenario 2B. Developable areas not connected to municipal boundaries, not proximate to existing or planned transportation networks, and that would not have infrastructure to provide new development are excluded from Growth Scenarios 2B, 3B, and 4B. Growth Scenarios 2B, 3B and 4B exclude development in rock and soil hazard areas.

The three primary growth scenario analyses are 2B, 3B and 4B. The Growth Scenario 2B analysis indicates the resulting developable land areas for future growth would have an average housing unit density of 1,468 per square mile (2.29 housing units per acre) to provide water to the growth area of potential effect population of 581,731 people in 2060 using smart growth principles. The Growth Scenario 3B analysis indicates the resulting developable land with no land use conflicts based on current land uses would have an average housing unit density of 2,538 per square mile (3.96 housing units per acre) to provide water to the growth area of potential effect population of 581,731 people in 2060 using smart growth principles. The Growth Scenario 4B analysis indicates the resulting developable land based on urban preference with no land use conflicts would have an average housing unit density of 1,915 per square mile (2.99 housing units per acre) to provide water to the growth area of potential effect population of 581,731 people in 2060 using smart growth principles. The housing unit densities indicated under Growth Scenarios 2B, 3B and 4B are within the densities for urban development and would be consistent with smart growth principles.

These analyses demonstrate the 2060 population could be accommodated within the growth area of potential effect and within areas already served by infrastructure, incorporating conservative development assumptions. The LPP Project would supply water to meet Washington County needs through approximately 2052, when the growth area population would be slightly more than 490,000 with an

average housing unit density of 2 units per acre. Regardless which of the scenarios or combinations thereof ultimately occurs, the projected growth is based on past and current trends in growth and local land use planning. The proposed LPP Project is not driving this growth. Therefore, there are no reasonably foreseeable potential indirect effects of the LPP Project operation on urban and suburban growth within the Washington County growth area. Sensitive habitat areas and resources would be outside of the areas developed to provide water for projected population increases from 2020 through 2060, based on using smart growth principles.

#### *5.3.14.2.3.2 Existing Highway Alternative.*

This section summarizes the Existing Highway Alternative effects analysis conclusions for the land use effect topics.

**Land Ownership and Management**

There are locations along the Existing Highway Alternative that could involve transfer of land ownership because of permanent facility construction, operation, and maintenance. Permanent facilities would cover a total of 798 acres, with 18 acres on private land and 780 acres on public land. Penstock, pipeline and access road construction would not require transfer of land ownership, therefore a minimum amount of land title transfer would be necessary.

The Existing Highway Alternative would have temporary direct land use effects on the Kaibab-Paiute Indian Reservation. The penstock alignment parallel to the Highway 389 ROW would not follow a designated energy corridor; therefore, LPP Project sponsors would need to complete all necessary applications and studies outlined in the Energy Transport Corridor Siting for Tribal Planners Guidance Manual (BIA 2010).

In an effort to account for tribal resource management goals, the Kaibab Band of Paiute Indians was contacted to acquire a resource management plan, land use plan or other management plan(s). The Economic Development/Resource Manager stated that the Kaibab Band of Paiute Indians was working to complete a resource management plan; the anticipated completion date was 2013 (Robb 2012). Attempts to determine the status of the Kaibab Band of Paiute Indian's RMP have been unsuccessful.

**Farmland**

LPP Project construction, operation and maintenance would require converting approximately five acres of designated prime farmland soil to industrial use for one proposed permanent facility, HS-2 (Highway), which would be a significant effect on designated prime farmland soil. Farmland disrupted during penstock construction would be rehabilitated back to original condition by replacing removed topsoil to the original contours and to a condition as good as or better than existing.

**Floodplain**

The Existing Highway Alternative alignment was identified to minimize disturbance of land character or scenic designation. Pipeline and penstock alignments parallel to floodplains were moved outside of them to avoid effects. Potentially affected floodplains would be at pipeline and penstock crossings along waterways, which would be reclaimed and placed back to original contours to avoid long-term effects on floodplains. The Existing Highway Alternative would have temporary direct effects on 45.2 acres of floodplains at pipeline and penstock crossings during construction and no measurable effects during operation. The Existing Highway Alternative would have no significant effects on floodplains.

**Waste Disposal and Hazardous Waste**

The Existing Highway Alternative effects from waste disposal and hazardous waste would be the same as described for the Proposed Action in Section 5.3.14.2.3.1.

**Designated Wilderness, WSAs and Land with Wilderness Characteristics**

The Existing Highway Alternative would be constructed adjacent to the Cockscomb WSA, which is managed as wilderness. The Existing Highway Alternative would have no direct effects on the Cockscomb WSAs; there could be minor temporary indirect effects from residual noise, air pollutants, and changes in views from the WSA. There would be no land use constraints associated with the WSA on the Existing Highway Alternative. The Existing Highway Alternative would not cross any designated wilderness, land with wilderness characteristics or WSA's. The Existing Highway Alternative would have no direct effects and no significant effects on wilderness, land with wilderness characteristics or WSAs.

**Wild and Scenic Rivers**

The Existing Highway Alternative would not cross any designated Wild and Scenic Rivers considered by BLM to be eligible for designation. The Existing Highway Alternative would have no direct or indirect effects on Wild and Scenic Rivers.

**Grazing Land**

The Existing Highway Alternative construction would directly affect a narrow band of grazing land covering 977 acres and remove it from use during the following growing season(s), depending on available soil moisture and temperatures. Operation and maintenance activities would have minimal effects on grazing land along the pipeline and penstock. Permanent surface facilities would remove 749 acres of currently grazed lands from future livestock grazing. The Existing Highway Alternative would have no significant effects on grazing land.

**Rights-of-Way**

The Existing Highway Alternative effects on ROWs would be the same as described for the Proposed Action in Section 5.3.14.2.3.1.

**Trails and National Historic Trails**

The Existing Highway Alternative effects on trails and National Historic Trails would be the same as described for the Proposed Action in Section 5.3.14.2.3.1.

**Areas of Critical Environmental Concern**

The Existing Highway Alternative would have no direct or indirect effects on Areas of Critical Environmental Concern.

**Growth**

The Existing Highway Alternative effects on growth would be the same as described for the Proposed Action in Section 5.3.14.2.3.1.

#### *5.3.14.2.3.3 Southeast Corner Alternative.*

This section summarizes the Southeast Corner Alternative effects analysis conclusions for the land use effect topics.

**Land Ownership and Management**

The effects on land management from the Southeast Corner Alternative would be similar to the Proposed Action effects described in Section 5.3.14.2.3.1. The Southeast Corner Alternative would have temporary direct land use effects on the Kaibab-Paiute Indian Reservation where the penstock would parallel the Navajo-McCullough transmission line corridor for 3.8 miles across the southeast corner of the Reservation. This would not be a significant effect on land use and management within the Kaibab-Paiute Indian Reservation boundaries because the penstock would be within an established energy corridor and consistent with the Energy Transport Corridor Siting for Tribal Planners Guidance Manual (Manual) (BIA 2010).

**Farmland**

The Southeast Corner Alternative effects on farmland would be the same as described for the Proposed Action in Section 5.3.14.2.3.1.

**Floodplain**

The Southeast Corner Alternative effects on floodplains would be the same as described for the Proposed Action in Section 5.3.14.2.3.1.

**Waste Disposal and Hazardous Waste**

The Southeast Corner Alternative effects from waste disposal and hazardous waste would be the same as described for the Proposed Action in Section 5.3.14.2.3.1.

**Designated Wilderness, WSAs and Land with Wilderness Characteristics**

The Southeast Corner Alternative effects on wilderness and land with wilderness characteristics would be the same as described for the Proposed Action in Section 5.3.14.2.3.1.

**Wild and Scenic Rivers**

The Southeast Corner Alternative effects on wilderness areas, WSAs, and wild and scenic rivers would be the same as described for the Proposed Action in Section 5.3.14.2.3.1.

**Grazing Land**

Southeast Corner Alternative construction would directly affect a narrow band of grazing land covering 1,082 acres and remove it from utilization during the following growing season(s), depending on available soil moisture and temperatures. Operation and maintenance activities would have minimal effects on grazing land along the penstock. Permanent surface facilities would remove 757 acres of currently grazed lands from future livestock grazing. The Southeast Corner Alternative would have no significant effects on grazing land.

**Rights-of-Way**

The Southeast Corner Alternative effects on ROWs would be the same as described for the Proposed Action in Section 5.3.14.2.3.1.

**Trails and National Historic Trails**

The Southeast Corner Alternative effects on trails and National Historic Trails would be the same as described for the Proposed Action in Section 5.3.14.2.3.1.

**Areas of Critical Environmental Concern**

The Southeast Corner Alternative effects on Areas of Critical Environmental Concern would be the same as described for the Proposed Action in Section 5.3.14.2.3.1.

**Growth**

The Southeast Corner Alternative effects on growth would be the same as described for the Proposed Action in Section 5.3.14.2.3.1.

***5.3.14.2.3.4 Electrical Transmission Lines System.***

This section summarizes the electrical transmission lines system effects analysis conclusions for the land use effect topics.

**Land Ownership and Management**

There are numerous locations along the electrical transmission lines system that could involve transfer of land ownership because of permanent facility construction, operation, and maintenance. However, access roads and transmission lines would not require transfer of land ownership. Transmission line and access road construction would not permanently affect land ownership, thus a minimum amount of land title transfer would be necessary.

**Farmland**

LPP Project electrical transmission line construction, operation and maintenance would require converting narrow corridors of prime farmland to permanent access roads. The prime farmland soils that would be disturbed by permanent access roads are located between the Hurricane Cliffs and Sand Hollow Reservoir. Farmland disrupted during transmission line construction would be rehabilitated back to its original condition by replacing removed topsoil to the original contours and to a condition as good as or better than existing.

**Floodplain**

Construction and operation of the electrical transmission lines system would have no direct effects on floodplains. Indirect effects could occur on existing access roads extending across dry washes for transmission line inspection and repair activities. Transmission line access roads would have no significant effects on floodplains and their functions.

**Waste Disposal and Hazardous Waste**

The electrical transmission lines system effects from waste disposal and hazardous waste would be the same as described for the Proposed Action in Section 5.3.14.2.3.1.

**Designated Wilderness, WSAs and Land with Wilderness Characteristics**

Construction and operation of the electrical transmission lines system would have no direct effects on designated wilderness, land with wilderness characteristics, and WSAs. Several transmission lines could be visible from the boundaries of WSAs, potentially resulting in indirect visual effects on users of these areas. The electrical transmission lines system would not have any significant effects on wilderness, land with wilderness characteristics or WSAs.

**Wild and Scenic Rivers**

The electrical transmission lines system would not cross any designated WSR segments. The Glen Canyon to Buckskin transmission line would cross the Paria River in a segment considered by BLM to be eligible for designation as a Wild and Scenic River for recreational values. This alternative would have direct visual effects on the Lower Paria River – 1 eligible segment; however, the transmission line would be installed parallel to two existing transmission lines and would be difficult to distinguish from the existing transmission lines crossing the Paria River canyon, which ranges from 230 to 290 feet deep at the crossing; therefore, the effects of the proposed transmission line would not be considered significant.

**Grazing Land**

Access road construction and improvement along transmission line alternatives would directly affect up to 25 acres of grazing land. Most of the electrical transmission lines system has existing access roads along it that would be used during the construction. New access roads along transmission line alignments would be constructed between the Hurricane Cliffs peaking and pumped storage hydro stations and Sand Hollow hydro station. Following transmission line construction, the access roads would be periodically used for transmission line inspection and maintenance activities. The electrical transmission lines system and associated access roads would not have significant effects on grazing land or specific grazing allotments.

**Rights-of-Way**

The electrical transmission lines system effects on ROWs would be the same as described for the Proposed Action in Section 5.3.14.2.3.1.

**Trails and National Historic Trails**

The electrical transmission lines system effects on trails and National Historic Trails would be the same as described for the Proposed Action in Section 5.3.14.2.3.1.

**Areas of Critical Environmental Concern**

The electrical transmission lines system would not cross any Areas of Critical Environmental Concern. The electrical transmission lines system would have no direct effects and no significant effects on Areas of Critical Environmental Concern.

**Growth**

The electrical transmission lines system effects on growth would be the same as described for the Proposed Action in Section 5.3.14.2.3.1.

***5.3.14.2.3.5 No Lake Powell Water Alternative.***

This section summarizes the No Lake Powell Water Alternative effects analysis conclusions for the land use effect topics.

**Land Ownership and Management**

The No Lake Powell Water Alternative would not directly change residential land use to another type of land use. However, residential landscapes and the physical uses of those landscapes would be indirectly changed by converting residential landscapes to desert landscapes resulting from eliminating outdoor watering with culinary water. Residential landscapes including shade trees, shrubs, gardens, lawns, and other water consuming vegetation would be converted to desert landscapes, which would support only the type of vegetation that naturally grows in the St. George metropolitan area. Typically, only weeds naturally grow in areas where land has been disturbed and native vegetation has been removed. Individual private lots and residential common areas would no longer be allowed to use culinary water supply for outdoor watering because water would need to be used only for indoor uses to meet the growing population demands; therefore, outdoor use of residential land by residents would change and likely decrease or diminish to a minimum level. The elimination of residential outdoor culinary water use would have an indirect effect on local general plans and would be a significant effect. Land use management restrictions resulting from the No Lake Powell Water Alternative would have indirect effects on more than 9,000 acres of existing developed land within the growth analysis area of potential effect. By 2060, land use management restrictions resulting from the No Lake Powell Water Alternative would have indirect effects on more than 25,000 acres of projected developed land.

**Farmland**

The No Lake Powell Water Alternative would have no direct effects on farmland because eliminating outdoor watering with culinary would be applied only to residential areas. However, prime farmland and other farmland currently receiving agricultural grade irrigation water would be pressured to convert that water to raw water supply for treatment in the reverse osmosis water treatment facility comprising part of the No Lake Powell Water Alternative; therefore, prime farmland and other farmland in the St. George metropolitan area could be indirectly affected by converting agricultural irrigation water to culinary water supply through treatment by reverse osmosis processes. The conversion of agricultural irrigation water supply to culinary water supply would be a significant effect on prime farmland.

**Other Land Uses**

The No Lake Powell Water Alternative would have no direct or indirect effects on the following other land uses:

- Floodplains
- Waste Disposal and Hazardous Waste
- Designated Wilderness, and WSAs and Land with Wilderness Characteristics
- Wild and Scenic Rivers
- Grazing Land

- Rights-of-Way
- Trails and National Historic Trails
- Areas of Critical Environmental Concern

**Growth**

The No Lake Powell Water Alternative would have no direct effect on growth in the St. George metropolitan area. The water developed from local surface water and groundwater supplies, conserved by restricting residential outdoor watering, and treatment of Virgin River water using reverse osmosis treatment would meet the population growth projected by the Utah Governor's Office of Planning and Budget through 2048.

The No Lake Powell Water Alternative could have indirect effects on growth in the St. George metropolitan area. The indirect effects on growth and growth rates over time are difficult to assess. The areas of St. George identified for future growth would continue to infill with population as long as power, water, sewer, gas, and other infrastructure are available; the rate of growth could be slower than that projected by the Utah Governor's Office of Planning and Budget.

### *5.3.14.3 Protection, Mitigation and Enhancement Measures*

Protection, mitigation and enhancement measures would be implemented in addition to applying BMPs during construction, operation, and maintenance of the LPP Project. The following BMPs would be incorporated into the LPP Project construction, operation and maintenance to avoid or minimize effects on land use.

- Fences and gates removed during construction would be replaced with fences and gates of equal or better construction and materials. Temporary fences and gates would be installed as necessary to control livestock and human access during construction.
- Erosion control measures would be implemented in disturbed areas to minimize soil erosion and sedimentation. Temporary slope breakers would be placed to reduce runoff velocity and divert water and sediments away from construction areas within the ROWs and easements. Temporary slope breakers would be constructed with materials such as soil, silt fence, staked hay or straw bales, sandbags, biologs, or similar at 300 foot spacing on 5 to 15 percent slopes, 200 foot spacing on 15 to 30 percent slopes, and 100 foot spacing on greater than 30 percent slopes.
- Erosion control matting or crimped mulch would be installed on soil slopes greater than 15 percent as necessary to help retain soil during revegetation periods following final grading.
- Farmland topsoil would be carefully removed and stockpiled prior to pipeline/penstock trenching and replaced after pipeline/penstock trenches are backfilled. Topsoil stripping would not be performed during excessively wet weather. Topsoil would not be stockpiled in one location for longer than two years. Topsoil stockpiles maintained longer than one growing season would be planted with an annual seed mix to help control erosion and keep soil micro-organisms active. Farmland topsoil replaced over backfilled pipeline and penstock trenches would be ripped and left bare for the landowner to cultivate and plant at the same time as adjacent farmland, unless other arrangements are negotiated with the landowner.
- Maintain livestock watering outside of construction ROWs if access to livestock watering is interrupted by construction activities.

- Vegetated areas disturbed during construction would be revegetated following construction, with the objective of returning the surface land use back to the original condition.
- Existing land uses would be continued over buried pipeline and penstock ROWs following construction; however, trees and shrubs would not be allowed to re-grow above pipelines and penstocks.

The following subsections define the protection and mitigation measures that would be implemented to avoid and minimize LPP Project effects on land use.

#### 5.3.14.3.1 Proposed Action.

##### *5.3.14.3.1.1 Land Ownership and Management.*

Potential effects on land use within Temporary Construction Easements (TCEs) would be anticipated and agreements would be negotiated between LPP Project sponsors, landowners, and public land administrators. The negotiated agreements with private grazing leaseholders and landowners would include compensation for lost use during construction.

##### *5.3.14.3.1.2 Farmland.*

Owners of farmland within the Proposed Action TCE would be compensated according to the requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act (URAA), as amended (FHA 2010).

##### *5.3.14.3.1.3 Floodplain.*

No mitigation measures are identified for construction and operation of the LPP alternatives. Floodplain areas disturbed during construction would be restored to original conditions and functions. Restored floodplains would be monitored using visual observations of stream flow, vegetation and erosion for one year following construction to document that original conditions and functions have been achieved.

##### *5.3.14.3.1.4 Waste Disposal and Hazardous Waste.*

It is recommended during final surveying of the pipeline and penstock alignments and facility locations that visual inspection of soils in previously disturbed areas be performed to check for the potential presence of contaminated soils. If contaminated soil areas are identified, proper sampling and waste disposal procedures would be followed in coordination with either Arizona's or Utah's Department of Environmental Quality. The LPP Project sponsors must notify waste disposal facility operators in advance of transferring a large series of waste loads to each corresponding disposal facility, per requests from waste disposal facility operators.

If significant amounts of irrecoverable hazardous materials are encountered during LPP alternatives construction, a land disposal plan by the land administering agency (State or Federal) could become necessary. The BLM policy in the St. George Field Office states: "*BLM policy does not authorize public land to be used for hazardous waste disposal unless such lands are first transferred out of public ownership.*" (BLM 1999a). This statement was written to comply with all applicable state and federal laws and regulations pertaining to the use and storage of hazardous materials on public land.

#### *5.3.14.3.1.5 Designated Wilderness, WSAs and Land with Wilderness Characteristics.*

No mitigation measures are identified for construction and operation of the LPP alternatives. The LPP Project would not have any significant effects on designated wilderness, land with wilderness characteristics or WSAs.

#### *5.3.14.3.1.6 Wild and Scenic Rivers.*

No mitigation measures are identified for construction and operation of the LPP Project alternatives because the LPP Project would not have any significant effects on segments considered by BLM to be eligible for designation as a Wild and Scenic River.

Construction and operation of Glen Canyon to Buckskin transmission line would cross over the top of the Paria River canyon in the Lower Paria River-1 segment, considered by BLM to be eligible for designation as a Wild and Scenic River, parallel to two existing high-voltage transmission lines. Non-reflective conductor wire would be installed over the Paria River canyon at the proposed transmission line crossing to minimize potential visual effects.

#### *5.3.14.3.1.7 Grazing Land.*

Prior to construction, grazing permits on public lands directly affected by permanent surface features of the Proposed Action would be modified or terminated. If necessary, all permit-issuing land administration agencies would review each permit holder's affected Animal Unit Months (AUMs) and other land improvements on a case-by-case basis to determine potential compensation to lessees. Private grazing land directly and permanently affected by project construction would be evaluated for AUM compensation and negotiations would be held between the LPP Project sponsors and private landowners to reach agreements on use of the land. Grazing land directly affected by project construction would be monitored using visual observations of vegetation cover for two growing seasons following construction to document that original conditions and functions have been achieved.

#### *5.3.14.3.1.8 Rights-of-Way.*

All ROWs would be surveyed to meet BLM, National Park Service, SITLA, BIA, Arizona State Land Department and other agency requirements. All pipeline and penstock segments, aboveground facilities, extra workspace, staging areas, contractor yards and access roads would be mapped on 1:24,000-scale or larger maps with milepost markers. Mileposts or engineering stationing would be used to locate and specify mitigation measures for significantly affected resources. ROW surveys would be used to help negotiate agreements with Federal, State, and Tribal agencies and private land owners to establish ROWs or easements.

#### *5.3.14.3.1.9 Trails and National Historic Trails.*

No mitigation measures are identified for construction or operation of the LPP alternatives because there would be no significant effects on National Historic Trails. Temporary crossings of National Historic Trails would involve restoring the affected trail areas to original condition following construction. Restored portions of National Historic Trails affected by LPP alternatives construction activities would be monitored using visual observations of vegetation cover and erosion control for two growing seasons following construction to document that original conditions and functions have been achieved.

#### *5.3.14.3.1.10 Areas of Critical Environmental Concern.*

The UDWRe would identify site-specific protection and mitigation measures in a plan submitted to the Arizona Strip BLM as part of the application for ROW to construct, operate and maintain the LPP. Construction effects on the Kanab Creek ACEC would be mitigated by restoring disturbed areas to original condition and ecological functions. Pipeline trenches on slopes above the riparian area would be backfilled to original grade and re-vegetated with an approved seed mix. The penstock crossing the riparian area at the bottom of Kanab Creek Canyon would be encased in concrete at an elevation below the scour depth of the stream channel. Riparian vegetation areas disturbed by the construction would be restored to original contours and re-vegetated with non-invasive riparian plant species. Trees growing over the top of the penstock alignment would be removed during operations to protect the penstock from deep roots. The restored penstock corridors across the Kanab Creek ACEC would be monitored using visual observations of the land surface, vegetation cover, stream channel alignment, and erosion control for two growing seasons following construction to document that original conditions and functions have been achieved. The penstock alignment crossing the riparian area would continue to be monitored annually during operations to identify and remove small trees that could grow roots down to the penstock.

#### *5.3.14.3.1.11 Growth.*

Mitigation measures that could minimize indirect effects of growth include implementing smart growth, planning, zoning, re-zoning, community involvement, and strictly-enforced policies. Typical measures used to control or mitigate growth effects include zoning and re-zoning to guide desired types of development within planned community growth areas. Allowable housing densities can be increased in identified growth areas to accommodate increasing population. Community planners and zoning authorities can utilize land use growth models and land use conflict models to predict where potential conflicts may occur and determine zoning and housing density standards and plan smart growth more efficiently and accurately. Additionally, modeling results would be mapped and used to visually and spatially show different development scenarios to government and community constituents to aid in zoning, re-zoning, future land public land disposal, land transfer, and general plan updates. Modeling can aid in implementing smart growth practices to avoid effects of urban sprawl and effects on adjacent natural resources. Community planners and zoning authorities would annually utilize land use growth models and land use conflict models to monitor where potential conflicts may occur, determine zoning and housing density standards, and plan smart growth more efficiently and accurately. Modeling results would be mapped and used to visually and spatially analyze projected development scenarios to guide government leaders and community constituents to aid in making decisions regarding zoning, re-zoning, future public land disposal, land transfer, and general plan updates.

### 5.3.14.3.2 No Lake Powell Water Alternative.

#### *5.3.14.3.2.1 Land Ownership and Management.*

Mitigation measures for the No Lake Powell Water Alternative would include implementing dust and particulate suppression and controls on residential landscapes and common areas converted to desert landscapes. Prevailing winds from the southwest and other wind storm events would mobilize soil particles throughout residential areas, resulting in soil erosion, poor visibility, and particulate air pollution. Water would not be available for particulate suppression and control, and chemical stabilizers applied to soil may not be compatible with desert vegetation species, limiting the effectiveness of particulate suppression mitigation measures. Individual landowners would be responsible for managing their desert landscapes and particulate suppression, with management actions ranging from none to full.

Residential properties and common areas within developments would require extensive monitoring during and following elimination of outdoor watering with culinary water leading to converting residential landscapes to desert landscapes. The water districts and/or communities would need to hire full-time residential water monitors to inspect, document, and enforce the restrictions on residential outdoor watering. The water monitors would have to patrol residential areas 24 hours per day to monitor outdoor water use and visually identify violators. Residential water customers found to be exceeding per capita water use levels based on monitoring records would receive violation notices and would be successively fined for each violation until water service is turned off for non-conformance.

#### *5.3.14.3.2.2 Farmland.*

The only mitigation measure to avoid indirect effects of converting prime farmland agricultural irrigation water to raw water supply for reverse osmosis treatment would be to compensate water right holders and users for the value of their irrigation water. Agreements would be negotiated individually between the water district and water right holders/users to determine acceptable compensation.

#### *5.3.14.3.2.3 Growth.*

Protection and mitigation measures would be same as described for the LPP alternatives in Section 5.3.14.3.1.11.

## *5.3.14.4 Cumulative Effects*

### 5.3.14.4.1 Proposed Action.

The Proposed Action effects would have no measurable cumulative effects when combined with the effects of the following actions:

- Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead EIS and ROD
- Operation of Glen Canyon Dam EIS and ROD
- Interim Surplus Criteria EIS and ROD
- Development and Implementation of a Protocol for High-Flow Experimental Releases from Glen Canyon Dam, Arizona, 2011 through 2020 EA
- Bureau of Reclamation and National Park Service LTEMP EIS

The Proposed Action effects on Lake Powell elevations and Glen Canyon Dam releases would not be measurable on a daily basis as demonstrated by the results of CRSS modeling; therefore, there would be no measurable cumulative effects with these listed past, present and reasonably foreseeable future actions.

The Proposed Action would have minimal short-term direct cumulative effects on land use when combined with the effects of the Southern Corridor Highway. The Proposed Action penstock would cross the Southern Corridor Highway through the future intersection of both alignments. The Proposed Action would have significant long-term indirect cumulative effects on land use when combined with the Southern Corridor Highway effects. The combined effects of providing a regional transportation route and providing water to meet projected population increases associated with in-fill development would change existing land uses from open space and livestock grazing to semi-urban and urban development in areas

suitable for development as defined with the exclusions described in Section 5.3.14.2.2.11, particularly along the Southern Corridor Highway alignment.

The Proposed Action would have long-term cumulative effects on land use with the effects of the BLM and Department of Energy West-Wide Energy Corridor Final Programmatic EIS and ROD. Proposed Action electrical transmission lines and penstock segments would be aligned within preferred locations for existing and future utility ROWs, Segments 68-116 and 113-116, which are parallel with and encompass portions of the Navajo-McCullough transmission line. This long-term cumulative effect would be beneficial because the energy corridor is suitable to accommodate the Proposed Action ROW with compatible and identical features. The preferred energy corridor provides the following expected benefits in combination with the Proposed Action:

- Streamlining and expediting the processing of energy related permits and projects
- Providing applicants for ROW within designated corridors with a clear set of actions required by the BLM to implement projects in designated corridors
- Reducing duplicative assessment of generic environmental effects by focusing further effect assessment on site-specific environmental studies to determine route suitability and appropriate mitigation
- Ensuring needed inter-agency coordination as part of the application process
- Encouraging new and innovative technologies to increase corridor capacity

The Proposed Action would have potential cumulative effects on land use when combined with the effects of the proposed Kern River-Hurricane Natural Gas Pipeline, which would be constructed parallel to the Southern Corridor Highway. The Proposed Action would have direct cumulative effects with the Kern River-Hurricane Natural Gas Pipeline where the two projects would intersect. The Proposed Action penstock would be buried deeper than the natural gas pipeline. Direct cumulative effects on land use would be minimal where the two project alignments intersect.

The Proposed Action could have cumulative effects on land use when combined with the effects of the proposed BLM St. George Field Office Resource Management Plan and Amendments (proposed RMP). The Proposed Action effects on land use could cause beneficial or adverse cumulative effects, depending on the BLM decisions regarding specific land use administration and management for motorized off-highway vehicle travel and biological conservation actions. Some of the BLM land use and management decisions could be in conflict with the indirect Proposed Action land use effects regarding recreation and other land uses in the Sand Mountain SRMA. These cumulative effects are expected to be minimal and long-term.

#### 5.3.14.4.2 Existing Highway Alternative.

The Existing Highway Alternative would have the same cumulative effects on land use as described for the Proposed Action in Section 5.3.14.4.1 and have the following additional cumulative effects on land use.

The Existing Highway Alternative could have short-term cumulative effects on land use when combined with the effects of the Jackson Flat Reservoir south of Kanab. The Existing Highway Alternative alignment would be proximate to the Jackson Flat Reservoir, which converted upland vegetated areas used as open space and wildlife habitat to a reservoir and earthen embankment. The Existing Highway Alternative construction would temporarily change land use in the vicinity of the Jackson Flat Reservoir.

The resulting cumulative effect would be minimal and not measurable in terms of overall land use in the Kanab area.

The Existing Highway Alternative and Fredonia Natural Resource Conservation District/Town of Fredonia Flood Retarding Structure would have short-term cumulative effects on land use. The Existing Highway Alternative penstock would be constructed under a portion of the earthen embankment forming the flood retarding structure, which would provide flood protection for the Town of Fredonia and its residents. The short-term cumulative effects would occur during the Existing Highway Alternative construction and would be minimal and not measurable.

## *5.3.14.5 Unavoidable Adverse Effects*

### 5.3.14.5.1 Proposed Action.

#### *5.3.14.5.1.1 Land Ownership and Management.*

The Proposed Action would have unavoidable adverse effects on land ownership and management because of permanent facilities constructed for the Water Conveyance System, the Hydro System, and electrical transmission lines system. The Proposed Action would permanently affect private land ownership of 17 acres and permanently affect the public land management of 762 acres by limiting the actions available to the land management agency. These Proposed Action effects would be long-term unavoidable adverse effects.

#### *5.3.14.5.1.2 Farmland.*

The Proposed Action would have unavoidable adverse effects on five acres of prime farmland that would be converted to use as a hydro station.

#### *5.3.14.5.1.2 Wild and Scenic Rivers.*

The Glen Canyon to Buckskin transmission line would have an unavoidable adverse indirect effect on the Lower Paria River-1 segment considered by BLM to be eligible for designation as a Wild and Scenic River. The proposed 230-kV transmission line would cross over the Paria River Canyon parallel to two existing high voltage transmission lines, resulting in potential visual effects from observations points in the deep canyon. The Proposed Action transmission line would have an unavoidable adverse effect on a river considered by BLM to be eligible for designation as a Wild and Scenic River.

#### *5.3.14.5.1.3 Grazing Land.*

The Proposed Action would have unavoidable adverse effects on up to 762 acres of grazing land. The grazing land effects would result from converting grazing land uses to permanent features of the Proposed Action. Much of the ROW area would revegetate and return to suitable rangeland but there would be new roads, new transmission lines, booster pump stations, hydro stations, reservoirs, and segments of a buried pipeline where permanent land use conversion would occur.

#### *5.3.14.5.1.4 Areas of Critical Environmental Concern.*

The Proposed Action would have temporary unavoidable adverse effects on the Kanab Creek ACEC where the ACEC would be crossed by the penstock in two places. Wildlife habitat would be temporarily unavailable within the construction corridor in Kanab Creek Canyon and Bitter Seeps Wash until construction activities are completed and re-vegetation objectives are accomplished.

#### 5.3.14.5.2 Existing Highway Alternative.

##### *5.3.14.5.2.1 Land Ownership and Management.*

The Existing Highway Alternative would permanently affect private land ownership of nine acres, permanently affect the public land management of 754 acres by limiting the actions available to the land management agency, and require conformance with the Energy Transport Corridor Siting for Tribal Planners Guidance Manual (BIA 2010) for the penstock alignment across the Kaibab-Paiute Indian Reservation. These effects on land use would be long-term unavoidable adverse effects.

##### *5.3.14.5.2.2 Farmland.*

The Existing Highway Alternative would have long-term unavoidable adverse effects on nine acres of prime farmland that would be converted to use as a hydro station.

##### *5.3.14.5.2.3 Wild and Scenic Rivers.*

The Glen Canyon to Buckskin transmission line would have an unavoidable adverse indirect effect on the Lower Paria River-1 segment considered by BLM to be eligible for designation as a Wild and Scenic River. The proposed 230-kV transmission line would cross over the Paria River Canyon parallel to two existing high voltage transmission lines, resulting in potential visual effects from observations points in the deep canyon. The Existing Highway Alternative transmission line would have an unavoidable adverse effect on a river considered by BLM to be eligible for designation as a Wild and Scenic River.

##### *5.3.14.5.2.4 Grazing Land.*

The Existing Highway Alternative would have unavoidable adverse effects on up to 754 acres of grazing land. The grazing land effects would result from converting grazing land uses to permanent features of the Existing Highway Alternative. Much of the ROW area would revegetate and return to suitable rangeland but there would be new roads, new transmission lines, booster pump stations, hydro stations, reservoirs, and segments of a buried pipeline where permanent land use conversion would occur.

#### 5.3.14.5.3 Southeast Corner Alternative.

The Southeast Corner Alternative would have the same unavoidable adverse effects as described for the Proposed Action in Section 5.3.14.5.1 except for Land Ownership and Management.

##### *5.3.14.5.3.1 Land Ownership and Management.*

The Southeast Corner Alternative would permanently affect private land ownership of 17 acres and permanently affect the public land management of 762 acres by limiting the actions available to the land management agency. These effects on land use would be long-term unavoidable adverse effects.

#### 5.3.14.5.4 Electrical Transmission Lines System.

##### *5.3.14.5.4.1 Land Ownership and Management.*

The electrical transmission lines system would permanently affect private land ownership of nine acres. This would be an unavoidable adverse effect on private land ownership and management.

#### *5.3.14.5.4.2 Grazing Land.*

The electrical transmission lines system would have long-term unavoidable adverse effects on up to 25 acres of grazing land. Much of the ROW area would revegetate and return to suitable rangeland but there would be new roads and new transmission lines where permanent land use conversion would occur.

### 5.3.14.5.5 No Lake Powell Water Alternative.

#### *5.3.14.5.5.1 Land Ownership and Management.*

Land management actions on privately-owned residential properties and common areas in residential developments converted to desert landscapes could result in uncontrolled particulate emissions causing chronic unavoidable adverse effects on soil erosion, visibility, and air quality during wind storm events.

Eliminating residential outdoor watering with culinary water would be difficult to monitor, implement and enforce, resulting in unavoidable adverse effects on residential water users and municipalities. These effects could include higher rates to pay for enforcement activities, fines for violations of water use restrictions, and no water service for successive violations of water use restrictions.

## *5.3.14.6 References*


16 U.S.C. Sec. 1531, Endangered Species Act of 1973.

25 CFR 169 Code of Federal Regulations; *Title 25 – Indians; Chapter I – Bureau of Indian Affairs, Department of the Interior; Subchapter H – Land and Water; Part 169 – Rights-of-Way over Indian Lands.*

43 CFR 1610.7-2. Code of Federal Regulations; *Title 43 – Public Lands: Interior; Subtitle B – Regulations Relating to Public Lands; Chapter II – Bureau of Land Management, Department of the Interior; Subchapter A – General Management (1000); Part 1600 – Planning, Programming, Budgeting; Subpart 1610 – Resource Management Planning; 1610.7-2 – Designation of Areas of Environmental Concern.*

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