

4.9 Land Use and Transportation

The ROI for land use is the FCPP Lease Area, the Navajo Mine Lease Area, and the transmission line ROWs. To provide context for the land use in these areas, a description of the general land use on the Navajo Nation and Hopi Reservation is provided, as well as a regional description of the San Juan Basin. In addition, land use within 0.5 mile of the subject transmission lines is described to provide a general idea of the land uses directly within and next to the ROI. The ROI for transportation is the roadway network within the Navajo Nation (including state and Federal highways that traverse it) as well as access roads used for maintenance of the transmission lines. This section describes land uses and the transportation and access network within the ROI and evaluates the potential impacts of the Proposed Action and alternatives on these resources.

4.9.1 Regulatory Compliance Framework

4.9.1.1 *Federal Regulations*

Surface Mining Control and Reclamation Act Permit

The OSMRE may approve surface mining after consultation with the BIA and in conjunction with appropriate environmental reviews (30 CFR 750.6). SMCRA restricts mining within the boundary of the National Park System, the National Wildlife Refuge System, the National Trail System, the National Wilderness Preservation System, the Wild and Scenic Rivers System, National Recreation Areas, National Forest Land, within 100 feet of the outside ROW of any public road, or within 300 feet of occupied dwellings unless certain regulatory conditions are met (30 CFR 761.11). A brief summary of the SMCRA provisions and regulations related to land use are included below:

30 USC 1236 (b) Conservation and development plans

The landowner, including the owner of water rights, resident, or tenant shall furnish to the Secretary of Agriculture a conservation and development plan setting forth the proposed land uses and conservation treatment which shall be mutually agreed by the Secretary of Agriculture and the landowner, including owner of water rights, resident, or tenant to be needed on the lands for which the plan was prepared. In those instances where it is determined that the water rights or water supply of a tenant, landowner, including owner of water rights, resident, or tenant have been adversely affected by a surface or underground coal mine operation which has removed or disturbed a stratum so as to significantly affect the hydrologic balance, such plan may include proposed measures to enhance water quality or quantity by means of joint action with other affected landowners, including owner of water rights, residents, or tenants in consultation with appropriate State and Federal agencies.

30 USC 1272 (a) Establishment of State planning process; standards; State process requirements; integration with present and future land use planning and regulation processes; savings provision

- (3) Upon petition pursuant to subsection (c) of this section, a surface area may be designated unsuitable for certain types of surface coal mining operations if such operations will –
 - (A) be incompatible with existing State or local land use plans or programs; or
- (4) To comply with this section, a State must demonstrate it has developed or is developing a process which includes –
 - (A) a State agency responsible for surface coal mining lands review;

- (B) a data base and an inventory system which will permit proper evaluation of the capacity of different land areas of the State to support and permit reclamation of surface coal mining operations;
 - (C) a method or methods for implementing land use planning decisions concerning surface coal mining operations; and
 - (D) proper notice, opportunities for public participation, including a public hearing prior to making any designation or redesignation, pursuant to this section.
- (5) Determinations of the unsuitability of land for surface coal mining, as provided for in this section, shall be integrated as closely as possible with present and future land use planning and regulation processes at the Federal, State, and local levels.

30 USC 1265 (b) General performance standards shall be applicable to all surface coal mining and reclamation operations and shall require the operation as a minimum to –

- (1) conduct surface coal mining operations so as to maximize the utilization and conservation of the solid fuel resource being recovered so that re-affecting the land in the future through surface coal mining can be minimized;
- (2) reclaim the land affected to a condition capable of supporting the uses which it was capable of supporting prior to any mining, or higher or better uses of which there is reasonable likelihood, so long as such use or uses do not present any actual or probable hazard to public health or safety or pose any actual or probable threat of water diminution or pollution, and the permit applicants' declared proposed land use following reclamation is not deemed to be impractical or unreasonable, inconsistent with applicable land use policies and plans, involves unreasonable delay in implementation, or is violative of Federal, State, or local law;
- (19) establish on the regraded areas, and all other lands affected, a diverse, effective, and permanent vegetative cover of the same seasonal variety native to the area of land to be affected and capable of self-regeneration and plant succession at least equal in extent of cover to the natural vegetation of the area; except, that introduced species may be used in the revegetation process where desirable and necessary to achieve the approved post-mining land use plan;

Through the following sections of SMCRA, OSMRE regulates mining activities to protect public roads and mine roads. Public roads are defined in the regulation as those maintained with public funds, with substantial public use, and meet road construction standards similar to other public roads. Compliance with these regulations would be a requirement before the SMCRA permit could be granted. A listing and brief summary of the SMCRA regulations applicable to transportation are included below:

- **30 CFR 761.11.** Under 761.11(d) surface coal mining is prohibited within 100 feet of the outside ROW of a public road unless the public road authority or regulatory authority allows the road to be relocated or closed according to 30 CFR 761.14;
- **30 CFR 761.14.** Describes the procedures and approvals necessary to relocate, close, or mine within a buffer zone of a public road;
- **30 CFR 816.150.** Defines the roads used to facilitate surface coal mining as either primary or ancillary roads and describes the performance standards for each road classification;
- **30 CFR 816.151.** Provides further design criteria and requirements for primary roads.

Energy Transmission Line ROW Renewal

The BIA is responsible for reviewing ROW renewal applications. Given the consent of landowners, a renewal may be granted for a like time if no change in the location or status of the original ROW grant is requested (25 CFR 169.19).

Mine Safety and Health Administration

MSHA has described general safety requirements for loading and haulage activities in 30 CFR Part 77 Subchapter Q. The former DOI – Bureau of Mines had published manuals to assist surface mine operators with the design requirements for mine haulage roads.

Taylor Grazing Act

Under this Act (43 USC 315, et seq.), the Federal government regulates grazing on public lands, including tribal lands, to improve rangeland conditions. Under this Act, the DOI established grazing districts. Section 3 of this Act provides for the issuance of grazing permits on public lands within established grazing districts. The designation of grazing districts and grazing permits within the ROI is described below and is used to assess the impacts of the Proposed Action and alternatives on this land.

4.9.1.2 Tribal Regulations

Navajo Nation Local Governance Act

The local government subdivisions within the Navajo Nation are identified as Chapters (Navajo Chapters 2012). This Act grants governmental authority to decide local matters to the Navajo Nation chapters. Each chapter must have a chapter land use plan approved by the Transportation and Community Development Committee. After approval, chapters may issue home and business leases (JJ Clacs and Company 2002). The following chapter land use plans were reviewed:

- Shiprock Chapter Land Use Plan and Housing Planning Project, 2001
- Nenahnezad Chapter Community Based Land Use Plan, 2004
- San Juan Chapter Community Based Land Use Plan, 2002
- Burnham (Tiis Tsoh Sikaad) Chapter Community Land Use Plan, 2005

Navajo Nation Homesite Lease

The Resource Committee of the Navajo Nation has the authority to approve or delegate to the Department Director of the Navajo Land Department the authority to approve homesite leases. The homesite lease policy is intended to help qualified applicants qualify for home and landownership within the Navajo Nation. It is open to Navajo tribal members and spouses over the age of 18 (Navajo Land Department n.d.).

4.9.2 Affected Environment Pre-2014

4.9.2.1 Land Use

Overview of Regional Land Use

Land use patterns in and near the ROI are characterized primarily by dispersed housing, grazing, agriculture (including dispersed family farm plots and commercial farming), mining, oil and gas extraction, electricity production, and recreation. A variety of roads (from paved to dirt) traverse the land, primarily within the Navajo Nation (Figure 4.9-1). Much of the population, as well as commercial activity in the region, are north of the ROI in the San Juan River corridor along U.S. Highway 64 where the towns of Shiprock, Kirkland, and Farmington are located.

Housing in and near the ROI is low density and characterized as rural. Many residences feature multiple generations occupying housing structures on the same land. Some residences are associated with Customary Use Areas (CUAs) which refers to an area where an individual traditionally confined his or her traditional grazing use and occupancy or can be referred to as an area traditionally inhabited by his or her ancestors (25 CFR Part 161.1). CUAs may only be occupied temporarily during the year when and where they are using the land for grazing. Since a CUA can be quite large, animals may be herded in a large geographic region, stopping for only a few weeks or months at a building or dwelling on a seasonal basis (Baldwin 2012). The San Juan, Nenahnezad, and Burnham chapters include planning for additional or updated housing in their land use plans. The San Juan Chapter has proposed 11 locations suitable for new housing (JJ Clacs and Company 2002). The Nenahnezad Chapter has located four blocks of land suitable for new housing (Nizhoni'go Nahata Consulting Service 2004). The Burnham Chapter is considering encouraging some clustered housing projects in addition to new scattered housing (Architectural Research Consultants, Incorporated 2005). The nearest areas proposed for new development to the ROI are located about 5 miles south of the Navajo Mine Lease Area.

Traditional, ceremonial, and sacred land uses include burial locations, historic gathering locations, geographically important features, and ceremonial community buildings. See Section 3.4, Archaeology and Cultural Resources, for a detailed description of these resources.

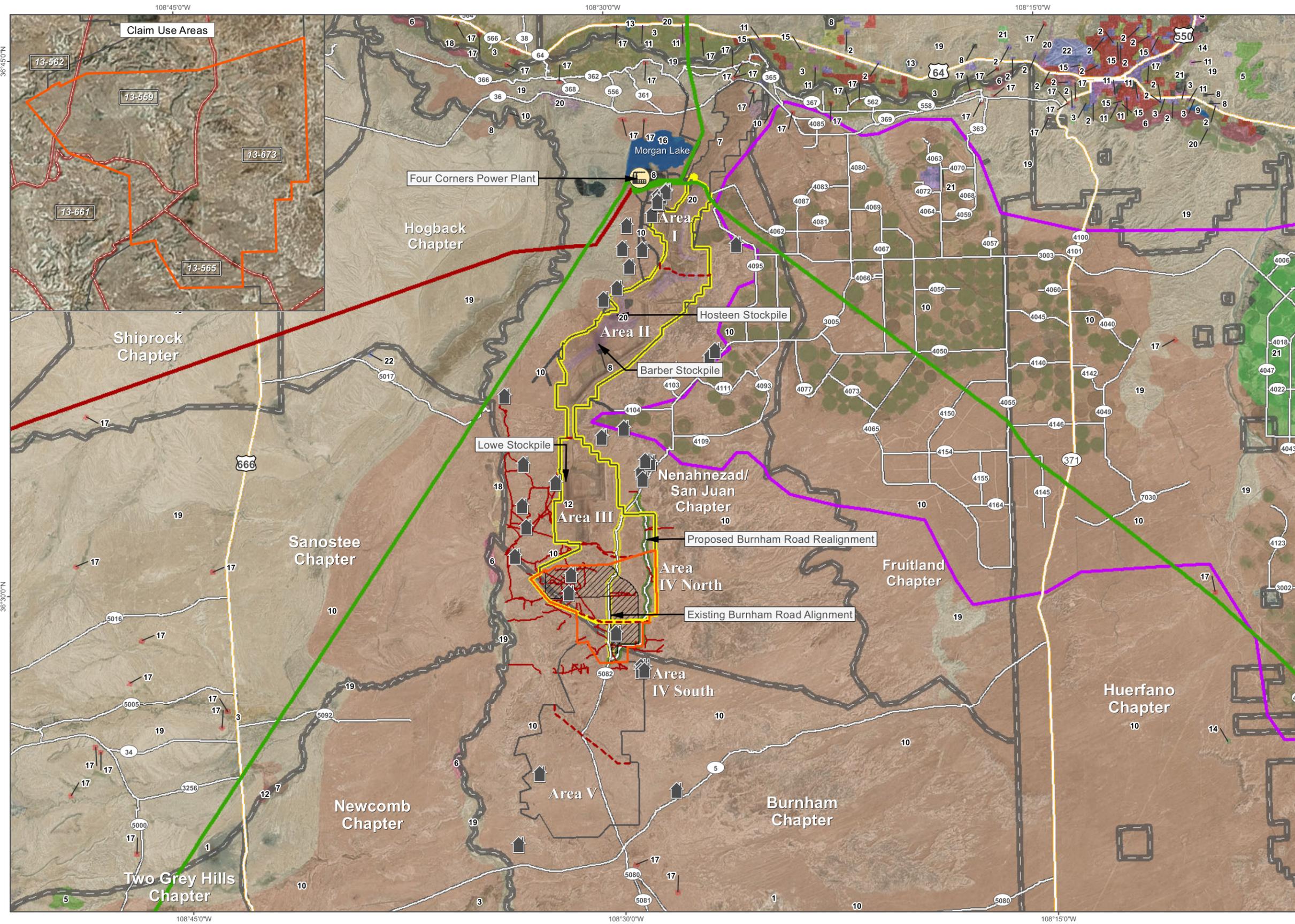
As discussed in greater detail in Section 3.16, Recreation, currently designated recreation areas in the Project vicinity include Morgan Lake (a human-made reservoir that is part of the FCPP Lease Area), a large area in the San Juan Chapter south of Navajo Route N36, and Bisti Wilderness Area in the Burnham Chapter (JJ Clacs and Company 2002; Architectural Research Consultants, Incorporated 2005). Currently, undesignated recreation areas include the Badlands and Chaco River areas. The Burnham Chapter proposed land use plan designates these areas as protected open space with only low-impact uses permitted (Architectural Research Consultants, Incorporated 2005). According to the San Juan Chapter Land Use Plan (2002), the San Juan Chapter would like to enhance the Morgan Lake recreation center to include additional hiking trails and diverse recreational opportunities to enhance fitness opportunities for its citizens. The San Juan Chapter would also like to designate sacred and culturally sensitive spaces as protected open spaces where only low-impact activities would be permitted (JJ Clacs and Company 2002).

Commercial land uses in and near the ROI are limited given its rural nature. The nearest hospitals are the Northern Navajo Medical Center located in Shiprock, New Mexico, and San Juan Regional Medical Center in Farmington, New Mexico (JJ Clacs and Company 2002). The Nenahnezad Chapter is planning a 10-acre small business development site at the junction of N36 (Nizhoni'go Nahata Consulting Service 2004). One of the Navajo Nation's future business objectives includes encouraging increased commercial activity on tribal land. Tribal members regularly travel to Shiprock, Kirkland, or Farmington to do their shopping, which minimizes economic activity on tribal lands. Increased commercial capacity on the reservation would allow local citizens and businesses to capture more of that revenue (Navajo Nation Division of Economic Development 2010).

Four Corners Power Plant and Navajo Mine Energy Project

ENVIRONMENTAL SETTING & CONSEQUENCES

Figure 4.9-1
Land Use Within the Project Area



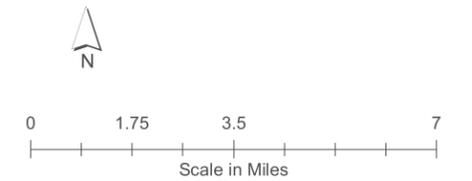
- PROJECT FACILITIES**
- Four Corners Power Plant
 - Navajo Mine Resource Areas
 - Navajo Mine Lease Area and ROWs
 - Navajo Mine SMCRA Permit Boundary
 - Proposed Pinabete SMCRA Permit Boundary
 - Development Area
 - Navajo Agricultural Products Industry
 - Navajo Chapter Boundaries
 - Residences
- TRANSMISSION LINES**
- 345kV
 - 500kV
- ROAD NETWORK**
- State Highways
 - Public Roads
 - Access Roads, 2-Track

Land use data produced by the New Mexico Water Resources Research Institute, November 2003.

The data was compiled from digital data provided by the New Mexico Resource Geographic Information System Program (RGIS). Original base maps digitized from 1:500,000 mylar sheets and 100,000 paper maps for New Mexico. These data meets National Mapping Accuracy Standards for 1:500,000 and 1:100,000 scale maps. Landuse coverage developed by USGS/EPA at 1:250,000 scale.

LAND USE CLASSIFICATIONS

- | | | | | | |
|-------------------------|-----------------------|------------------------------|--|--|--|
| Bare Exposed Rock | Evergreen Forest Land | Lakes | Orchards, Groves, Vineyards, and Nurseries | Residential | Transitional Areas |
| Commercial and Services | Forested Wetland | Mixed Rangeland | Other Agricultural Land | Sandy Areas Other Than Beaches | Transportation, Communications and Utilities |
| Cropland and Pasture | Herbaceous Rangeland | Mixed Urban or Built-up Land | Other Urban or Built-up Land | Shrub-Brushland Rangeland | |
| Deciduous Forest Land | Industrial | Nonforested Wetland | Reservoirs | Strip Mines, Quarries, and Gravel Pits | |



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Industrial land uses in and near the ROI include mining, oil and gas extraction, and utilities such as power plants, power lines, and water treatment facilities. The Navajo Mine Lease Area is on the San Juan and Nenahnezad chapter lands. The FCPP, including Morgan Lake, is also located on the San Juan and Nenahnezad chapter land. A series of transmission lines extends from the FCPP to the north, west, southwest, and southeast. The region has a number of oil and gas wells with plans to add more. Several gas companies plan to extract oil and gas in the NAPI land, and Western Oil and Gas has proposed approximately 600 natural gas wells in eastern Burnham Chapter extending north into Upper Fruitland, Nenahnezad, and San Juan chapters (DOI and BIA 2007). The San Juan Chapter states that one of its land use goals is to identify and minimize the impacts of major power lines, railroads, and mining within its chapter lands by developing standards to minimize the negative impacts of expansions to existing power plants, oil and gas, and mines; it views industrial land uses as intrusions and does not want to encourage additional industry in its chapter (JJ Clacs and Company 2002). The Nenahnezad Chapter has a goal of promoting orderly and environmentally sound industrial development by keeping similar land uses near one another to avoid conflicts; it supports industrial land uses if they encourage local employment opportunities and do not conflict with other nearby land uses (Nizhoni'go Nahata Consulting Service 2004). The Burnham Chapter land currently has no industrial activity, but the chapter supports increased industrial activity on its land.

Agriculture is also a primary land use in and near the ROI. The Navajo Nation has over 12,000 farms, totaling nearly 16 million acres (USDA 2009). While the USDA estimates that approximately 16 million acres of the Navajo Reservation is considered "farmable" land, the known land that is currently being farmed is less than one million acres. The majority of farms are small, comprising 1 to 9 acres (USDA 2009). An estimated 9,000 acres of Hopi land have been traditionally cultivated, mostly in 1- to 5-acre plots. No designated prime or unique farmland is located within 2 miles of the plant or the Navajo Mine Lease Area (USDA 2001). Also, no Navajo zoning ordinances designate any of the ROI for farming. Agricultural parcels are located to the south, east, and north of the FCPP on Navajo Nation tribal trust lands. These lands consist of both NAPI crop circles and family-run agricultural parcels. NAPI lands are also located between the Navajo Mine Lease Area and U.S. Highway 550; the nearest plots to the Navajo Mine Lease Area are located less than 0.01 mile from Area I. The majority of agricultural plots are used for growing sweet corn. Other common crops grown include alfalfa, squash, watermelon, cantaloupe, and potatoes.

Livestock grazing on Navajo Nation tribal trust lands and Hopi Tribe tribal trust lands takes place in grazing districts, which are established and managed by the BIA. There are 10,922 grazing permits issued by the BIA. Lands not designated for a specific use (i.e., business site leases, roads, homesite leases) are designated as grazing lands. Sheep and cattle grazing occurs on the land surrounding the power plant, typically in the spring when annual grasses sprout (see Figure 4.9-1 for a map of agricultural resources in the area). On Navajo Nation tribal trust lands, individuals and families are granted permits by the BIA to use land for grazing. Claims to land use are based on traditional (claim) use rights and grazing permits. Grazing permits issued by the BIA Regional Director are based on recommendations of the Navajo Nation's District Grazing Committee and entitle the permittee to a grazing area of sufficient size to graze a specified number of animals.

Navajo Mine

The Navajo Mine Lease Area is located wholly within the boundaries of Navajo Nation tribal trust lands. All mining operations at the Navajo Mine occur within the Navajo Mine Lease Area. As described in Section 2.1, operations currently occur within the Navajo Mine SMCRA Permit area in Areas III, IV North and IV South. The Pinabete SMCRA Permit Area is immediately south of the existing mining in Area III. The Pinabete SMCRA Permit application also includes realignment of Burnham Road out of Area IV North to accommodate local, non-mining traffic without interfering with mining activities. The proposed permit area is within the Nenahnezad, and Tiis Tsoh Sikaad (Burnham) chapters, and the proposed road realignment is located wholly within the Nenahnezad Chapter boundary. The San Juan and Nenahnezad

chapters do not agree upon boundaries and may overlap. Common land uses located within the ROI are described in more detail below.

Existing land use in the Pinabete SMCRA Permit Area is characterized by dispersed livestock grazing (principally small numbers of sheep, goats, cattle, and horses), with a few scattered dwellings and primitive roads crossing the area. Four residences were identified within 0.5 mile of the Pinabete SMCRA Permit Area. Of these four residences, three are located within the Project boundary. MMCo has relocated two of the residents out of the proposed mining area in Area IV North. MMCo has an agreement in place to relocate the third residence in advance of mining operations in Area IV South. The fourth residence is outside of the proposed Pinabete Permit Area and is approximately 0.5 mile from the proposed Pinabete SMCRA permit boundary and would be approximately 0.9 mile away from proposed mining activities. The land's primary use is grazing. All three of the chapters whose land overlaps with the Pinabete SMCRA Permit Area plan for additional housing sites; however, none of the proposed housing sites are within 0.5 mile of the Pinabete SMCRA Permit Area. Both the San Juan and Nenahnezad chapters plan on this area being returned to grazing land in the future.

Five CUAs intersect with the Pinabete SMCRA Permit Area (BNCC 2012a). Original grazing permits established by the BIA were limited to 10 head of horses or 350 sheep units annually per grazing area. The actual grazing capacity within each CUA was based on carrying capacity, which is a function of vegetative productivity and acreage. These CUAs are presented on Figure 4.9-1.

Four Corners Power Plant

The FCPP is located 20 miles west of Farmington, New Mexico, on Navajo Nation tribal trust land. It is on the overlapping/disputed lands of the San Juan and Nenahnezad chapters. Its primary components include five power generating units, Morgan Lake - a 1,200-acre human-made reservoir that provides water - a series of wet DFADAs, a coal handling and processing system, and an electric rail line that transports coal from the Navajo Mine to FCPP.

The FCPP site is currently used for electricity production, fly ash disposal, and coal transport. No other land uses currently exist in the proposed location. Twenty-six residences/structures are within 0.5 mile of the FCPP. They are located south of the FCPP and northwest of reclaimed land in Area I of the Navajo Mine SMCRA Permit Area, as shown on Figure 4.9-1 (DOI and BIA 2007).

Both chapters have also planned for future housing development; however, none of the proposed housing sites are within 0.5 mile of FCPP's proposed expansions (JJ Clacs and Company 2002; Nizhoni'go Nahata Consulting Service 2004). The nearest potential housing development is proposed by the Nenahnezad Chapter, which has identified multiple potential housing sites of which two sites are approximately 1 mile northeast of the FCPP.

Transmission Lines

A general discussion of land use along each transmission corridor is presented below.

Four Corners – Moenkopi 500-kV Transmission Line

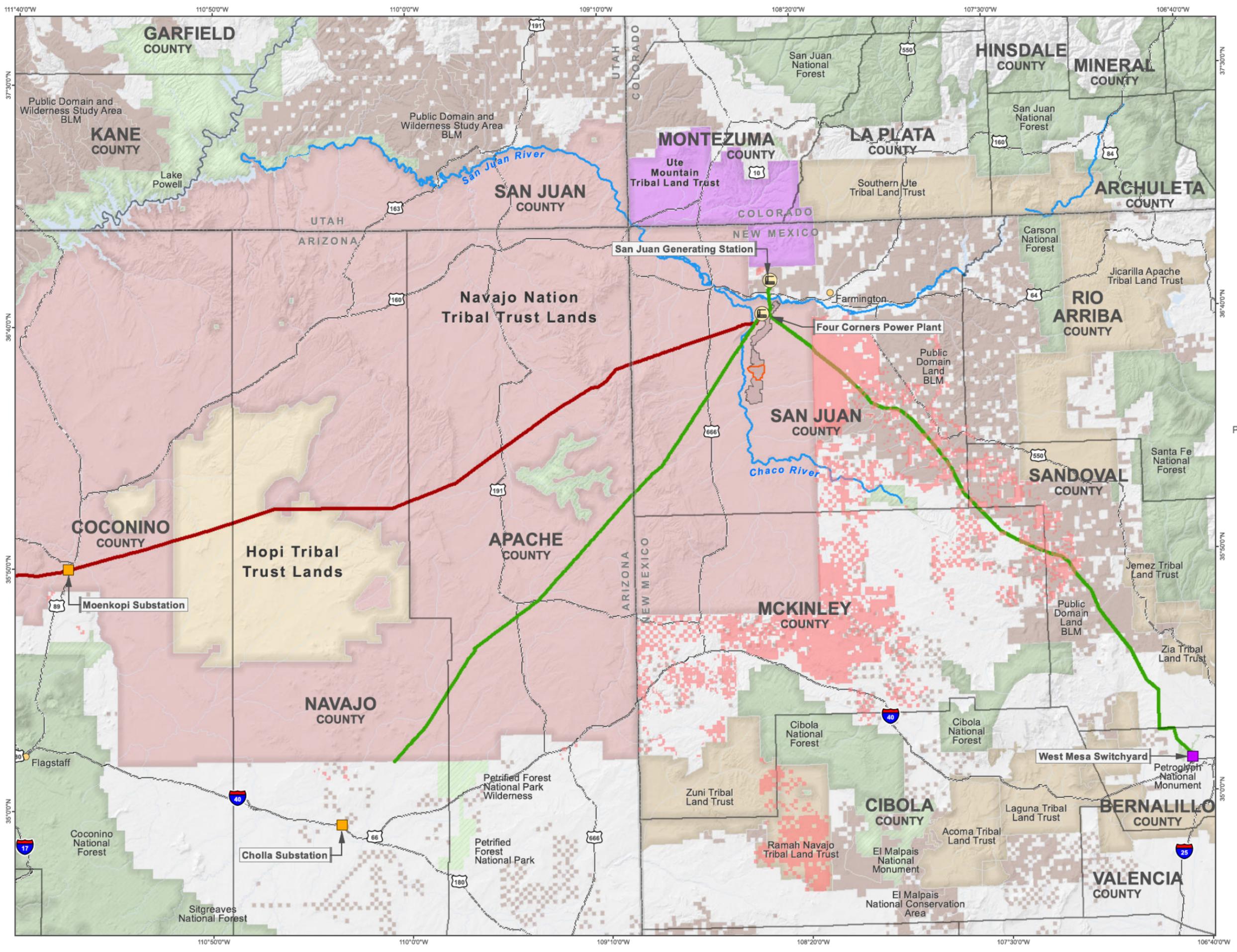
This transmission line is approximately 180 miles long and is owned by APS and runs from the FCPP to the Moenkopi Substation in Arizona to the west and continues for another 14 miles before exiting the Navajo Nation and continuing on. The primary use of this transmission line is to deliver power from the FCPP to other regions such as Arizona (U.S. Department of Energy n.d.). The Moenkopi transmission line occurs on Navajo Nation tribal trust lands, Hopi tribal trust lands, and allotted trust lands (Figure 4.9-2). Allotted trust lands are lands held in trust by the U.S. Federal Government (i.e. Bureau of Indian Affairs [BIA]) on behalf of individual Navajo tribal members. These individual Navajo members are not signatories to Lease Amendment No. 3 and, therefore, the segments of the Moenkopi transmission line that traverse allotted trust lands will not be addressed in BIA's Record of Decision.

Four Corners Power Plant and Navajo Mine Energy Project

ENVIRONMENTAL SETTING & CONSEQUENCES

Figure 4.9-2

Jurisdictional Boundaries Crossed by the Subject Transmission Lines



PROJECT FACILITIES

- Power Plant 
- Substation 
- Switchyard 

PROJECT BOUNDARIES

- Navajo Mine Lease Area 
- Proposed Pinabete SMCRA Permit Boundary 
- County Boundaries 

TRANSMISSION LINES

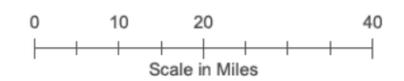
- 345kV 
- 500kV 

FEDERAL LANDS

- Bureau of Indian Affairs 
- Bureau of Land Management 
- Bureau of Reclamation 
- Forest Service 
- National Park Service 

PRIVATE LANDS

- Navajo Individual-Owned Trust Allotments 



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The land along this transmission line features open space (i.e., grassland and shrubland), mountains, and very small patches of agriculture. Houses are primarily scattered with few populated patches in the towns of Lukachukai and Chinle, both in Arizona. Few industrial/commercial uses other than the transmission line ROW are within 0.5 mile of the transmission line.

The transmission line crosses Chaco River at Mile 3 and Hogback Mountain at Mile 4 of the transmission line originating at the FCPP. Both sites are culturally important to the Navajo people. Big Gap Reservoir is within 0.5 mile of the transmission line at Mile 23. A gas station is within 0.5 mile of the transmission line at Mile 95. The transmission line ends at Moenkopi Substation. Additionally, approximately 215 dwellings lie within 0.5 mile of the path of the 180-mile-long transmission line. Cathedral Cliff is an informal recreation area located within 0.5 mile of the transmission line path at Mile 13.

Four Corners – Cholla 345-kV Transmission Lines

These transmission lines are a series of two parallel lines owned by APS. They run from the FCPP to the Cholla Station, which is over 155 miles to the southwest of the FCPP in Arizona. The primary use of this transmission line is to deliver power from FCPP to other regions in Arizona and New Mexico (U.S. Department of Energy n.d.). It traverses Navajo Nation tribal trust lands and Arizona lands to end near Joseph City, Arizona. The land along this transmission line features open space (i.e., grassland and shrubland), mountains, and very small patches of agriculture. Houses are mainly dispersed with a few patches of population, such as in the town of Kinlichee, Arizona. Also, a limited number of industrial buildings lie within 0.5 mile of the transmission line. Approximately 192 dwellings lie within 0.5 mile of the path of the 155-mile-long transmission line. Kinlichee Tribal Park is a recreation area located within 0.5 mile of the transmission line corridor at Mile 83.

Four Corners – San Juan 345-kV Transmission Line

This transmission line is approximately 10 miles long and is owned by PNM. It runs from the FCPP to the San Juan Switchyard to the north. It traverses Navajo Nation tribal trust lands and New Mexico lands to north of Waterflow, New Mexico. The land along this transmission line features agriculture, industry, residential, and open space (i.e., shrubland). Houses are clustered within the area near the San Juan River and U.S. Highway 64 between the towns of Waterflow and Nenahnezad, New Mexico.

Approximately 108 dwellings lie within 0.5 mile of the path of the 10-mile-long transmission line. Between Miles 5 and 7, the transmission line crosses the town of Waterflow, New Mexico, where the primary land use is agriculture. This area also contains commercial and industrial uses including two churches, a general store, and a quarry. Informal recreation takes place along the San Juan River, which the transmission line crosses at Mile 6.

Four Corners – West Mesa 345-kV Transmission Line

This transmission line is approximately 156 miles long and is owned by PNM and runs from the FCPP to the West Mesa Switchyard. It traverses Navajo Nation tribal trust lands, allotted trust lands for individual Navajo members, and Federal lands in New Mexico (BLM and NPS) to end northwest of Albuquerque, New Mexico. The land uses along this transmission line include agriculture, industrial, open space (i.e., shrubland), and mountains. The transmission line also runs through Petroglyph National Monument. Houses are primarily scattered with a few patches of population near major roads.

The transmission line runs through the NAPI lands, irrigated agricultural lands on Navajo Nation tribal trust land. Oil and gas wells lie along most of the transmission line. Additionally, approximately 195 dwellings lie within 0.5 mile of the path of the transmission line. Informal recreation takes place at Mesa Prieta, which extends into the area 0.5 mile from the transmission line at Mile 113.

4.9.2.2 *Transportation and Access*

Navajo Mine and FCPP Access

The ROI is primarily accessed from U.S. Highway 64 to the north, New Mexico Highway 371 to the east, or U.S. Highway 491 to the west. From the major highways listed above, access to the ROI is via infrastructure of San Juan County and/or BIA roads (Figure 4.9-3). U.S. Highway 64 is the primary transportation route running east to west between Farmington and Shiprock. NMDOT classifies New Mexico Highway 371, which runs north to south, as a rural minor arterial route for travel between Farmington and Interstate (I)-40 at Thoreau to the south (NMDOT 2007). According to the City of Farmington, Major Thoroughfare Plan, BIA Highway N-36 is considered a minor arterial road (NMDOT 2007). U.S. Highway 491 links I-40 at Gallup with U.S. Highway 191 in Monticello, Utah. To access the FCPP and the Navajo Mine from the main arterial roads listed above, the following paved BIA roads and San Juan County roads must be used:

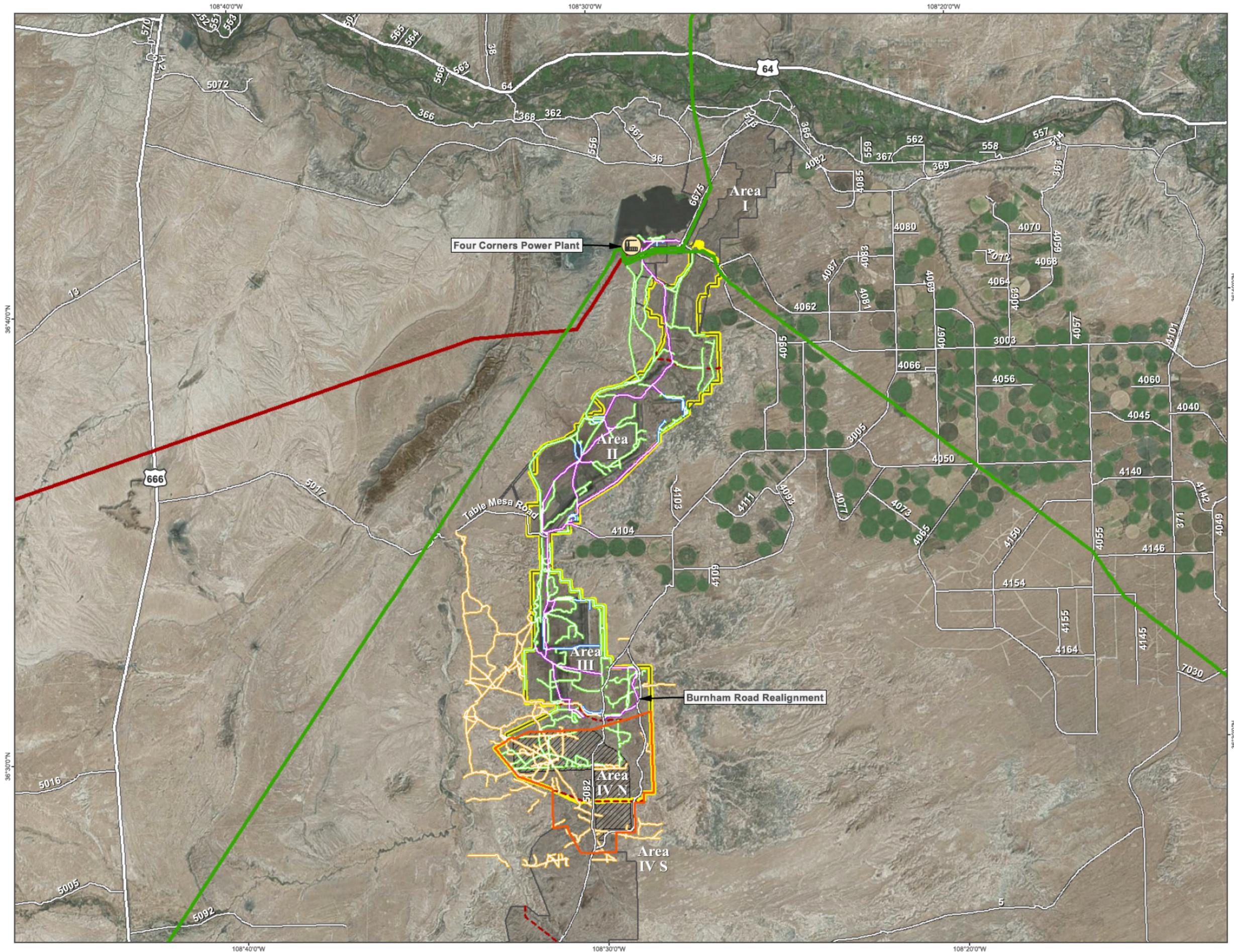
- From south on New Mexico Highway 371 via BIA Highway N-5 going west to Burnham Road (BIA Road 5082) going north to access Area IV North and South;
- From east on New Mexico Highway 371, via west on BIA Road 3003 to BIA Road 3005 to Burnham Road (BIA Road 5082) to access Area IV North and South;
- From east on U.S. Highway 491, Table Mesa Road, a dirt road, which enters the mining lease near the Area III facilities and continues east to west across the mining lease;
- From west (Shiprock) or east (Farmington) on U.S. Highway 64, via south on San Juan County Road (CR) 6675 to BIA Highway N-36 to BIA Road 3005 to Burnham Road (BIA Road 5082) to access Area IV North and South;
- From north on U.S. Highway 491, via east on BIA Highway N-36 to BIA Road 3005 to Burnham Road (BIA Road 5082) to access Area IV North and South;
- From south on U.S. Highway 491, via BIA Highway N-5 going east to Burnham Road (BIA Road 5082) going north to access Area IV North and South;
- Within the ROI, Ramp 7, a graded dirt road travelling generally east to west in Area I connects the Navajo Mine North facilities and FCPP with paved roads to the east of the mine lease;

Running through the ROI, Pinto Reroute or Doby Road goes through the center in a north-south direction from the FCPP. It turns into Yazzie Skyline Road, which runs through the middle of mining operations in Areas I and II where it meets BIA Road N-4104, from which one can access BIA Road 3005. This road runs north to south in the eastern ROI and then can be used to access Burnham Road (BIA Road 5082). Directly south of the intersection of BIA Road N-4104 and Yazzie Skyline Road is a series of dirt and gravel roads, which may be used to access Areas III, IV North, IV South, and V.

Four Corners Power Plant and Navajo Mine Energy Project

ENVIRONMENTAL SETTING & CONSEQUENCES

Figure 4.9-3
Local Road Network



PROJECT FACILITIES

Power Plant 

PROJECT BOUNDARIES

- Navajo Mine Resource Areas 
- Navajo Mine Lease Area and ROWs 
- Navajo Mine SMCRA Permit Boundary 
- Proposed Pinabete SMCRA Permit Boundary 
- Development Area 

TRANSMISSION LINES

- 345kV 
- 500kV 

LOCAL ROAD NETWORK

- Highways 
- Public Roads 
- Access Road 
- Ancillary Road 
- Primary Road 
- Other 



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Burnham Road (BIA Road 5082), which runs primarily north to south in the ROI, enters the mining lease in Area III and currently runs through the middle of Areas IV and V. Burnham Road is a BIA-managed and maintained gravel road and is one of the main access roads to the Tiis Tsoh Sikaad/ Burnham Chapter (Architectural Research Consultants, Incorporated 2005). BNCC rerouted Burnham Road in 2009 through and immediately adjacent to Area III and Area IV North. Travel on this road could be hazardous due to inclement weather and a 20 miles per hour sharp curve resulting from the 2009 rerouting of the road to avoid active mining in Area III (OSMRE 2009). As such, MMCo completed a permanent reroute of the Burnham Road in July and August 2012 to eliminate the portion of the road with the 20 miles per hour sharp curve. The permanent reroute is designed to BIA road specification for all weather travel with proper drainage. Prior to the 2012 rerouting, blasting and mining activities in Area III had gradually progressed to within 100 feet of the road, so traffic could be restricted multiple times per month during active coal mining operations to keep the public at a safe distance from blasting operations. Access restriction on the Burnham Road could result in delays of up to 30 minutes. However, the permanent reroute diverted traffic away from mining activities in Area III.

The roads open for public use within the Navajo Mine Lease area are Ramp 7 (North in Area I), Table Mesa Road (BIA N-4104), and the Burnham Road. All other road intersecting within the Mine lease are controlled and not open to public transportation. Numerous other unpaved two-track roads intersect the mining lease in Areas IV North, IV South, and V. These two-track roads are single-lane, low-traffic-volume roads typically used by the local residents to access grazing areas or water sources. While these roads are used by the public, they are not maintained with public funds, nor have they been designated as public roads by the Navajo Nation or other applicable road authorities.

Roads within the mining lease utilized by NTEC for mining and reclamation are designated as either primary or ancillary roads. Primary roads are roads used primarily for coal haulage. These roads are designed, constructed, and maintained to meet applicable performance standards. Ancillary roads are those used infrequently by small vehicles for accessing environmental monitoring stations, ponds/water control structures, surveying, and power line service inspection, as well as haul roads to topsoil stockpiles and temporary roads used during construction of support facilities. Heavy mining equipment over 25 tons is delivered directly to the Navajo Mine facilities via U.S. Highway 491 to BIA Highway N-36 to CR 6675. Equipment weighing less than 25 tons can be delivered directly to Area III industrial facilities via the mining area access routes described above.

As described further below, grazing permit areas lie within the Navajo Mine Lease Area. Access to the grazing permit areas and CUAs is supported by the existing Burnham Road (BIA Road 5082) and an array of unimproved two-track roads (Figure 4.9-3).

Transmission Line Maintenance and Operations Access

As discussed in Section 2, access to the transmission line ROW is achieved through the use of public roads and patrol trails; neither APS nor PNM hold easements outside the transmission line ROW. Access to the transmission line ROW is generally open to the public unless access is restricted by the landowner; APS and PNM do not restrict access to the transmission line ROWs. In the ROW, access to the lines and towers is generally achieved through the use of unpaved roads. APS and PNM do not perform regularly scheduled maintenance on roads within the ROWs. If access roads do not exist due to terrain constraints along the APS ROWs, maintenance crews use foot access or helicopters to access the transmission lines.

Traffic Data

According to NMDOT, for locations along New Mexico and U.S. Highways closest to the ROI, annual average daily traffic (AADT) volumes (NMDOT 2012) were as follows:

- AADT volumes in 2011 for the intersection of New Mexico Highway 371 and BIA Road N-36 directly north of the ROI was 1,274 vehicles;
- AADT volumes for Upper Fruitland Road, which is northeast of the ROI, was 3,578 vehicles in 2011;
- AADT volumes for the intersection of West Pinion Street and New Mexico Highway 371 within the city of Farmington, east of the ROI, was 5,351 vehicles going northbound and 5,709 vehicles heading southbound;
- AADT volumes for U.S. Highway 491 going south toward the Navajo Nation was 880 vehicles in 2011;
- AADT for U.S. Highway 64 was 3,949 vehicles in 2011 heading towards the Colorado state line from New Mexico
- The average daily traffic (ADT) count for CR 6675 in 2007 was 1,219, and the projected future ADT is 1,810.

Traffic counts for the major routes used to access Navajo Mine facilities were taken in 2006 and 2009. Currently, the traffic levels for all segments of these access routes are well within the design volume for annual average and flow (BNCC 2011c).

According to the Indian Reservation Roads Program's Official Indian Reservation Road (IRR) inventory dated May 3, 2012 (BIA 2012), ADT counts for BIA roads within the FCPP and Navajo Mine Lease Area, as well as future ADT volumes, which represent a 2 percent growth compounded annually for a 20-year period are as follows:

- Burnham Road (BIA Road 5082) in 1997 was 68 vehicles with a future ADT of 101 in 2017. More recently, BNCC traffic counts for Burnham Road (BIA Road 5082) conducted April 1, 2011, through June 14, 2011, found that traffic volume averages approximately 50 vehicles per day, with peak daily traffic occurring on Saturday when traffic counts increase to 70 or 80 vehicles per day (BNCC 2011c);
- BIA Highway N5 was 705 vehicles in 2009 with a future ADT of 1,047 in 2029;
- BIA Highway N-36 was 1,790 vehicles in 1998 with a future ADT of 2,658 in 2018;
- BIA Road 3005 was 841 vehicles on the southern end in 2000 with a future ADT of 1,249 in 2020 and 2,957 vehicles in 2000 at the northern end with a future ADT of 4,391 vehicles in 2020;
- BIA Road 3003 was 962 vehicles in 1998 with a future ADT of 1,429 in 2018.

Table 4.9-1 shows current employee commuting traffic at the FCPP.

Table 4.9-1 Current FCPP Operations Employee Traffic

Employee Traffic	Number of Daily Trips
Average # of Employees: Weekday Roundtrips	606 Trips
Average # of Employees: Weekend Roundtrips	172 Trips

Note:

Estimated average commute distance = 55-Miles Roundtrip.

Also, contract employees make 40,000 to 50,000 additional trips to the power plant during variable overhaul periods. Estimated average commute distance for contract employees to and from the power plant is 55 miles.

In addition to employee traffic, trucking of CCR occurs on a regular basis within the FCPP Lease Area, as shown in Table 4.9-2.

Table 4.9-2 Traffic Related to CCR Disposal

Activity	Number of Roundtrips per Year	Distance (Roundtrip Miles)	Maximum Traveling Speed (mph)
Contract trucking for all CCR and bottom ash produced by Units 4 and 5 (except CCR sold to SRMG) and bottom ash only from Units 1 through 3	15,800	3	30
Contract trucking for ash cleanout of sedimentation pond (Combined Waste Treatment Pond)	15,600	5	30
Vacuum trucks for equipment and area cleanup of ash and coal	1,095	3	30

Dedicated Railway

NTEC supplies coal for Units 4 and 5 of the FCPP from the Navajo Mine, utilizing a dedicated electric rail line that runs north to south between the mine and the power plant. The train carrying the coal is filled daily and travels uncovered to the power plant where it is offloaded. The railway is owned by NTEC and is located wholly within the Navajo Mine Lease Area and associated ROWs. The railway is operated under a ROW agreement between BHP Minerals International and the BIA, Real Property Management, effective January 25, 1974 (BNCC 2012g).

Airports

Two local airports provide air access to the ROI from outside locations. Shiprock Airstrip, also known as Shiprock Airport, is south of the central business district of Shiprock (Google Earth 2010). Shiprock Airport is approximately 10 miles west of the ROI. No commercial flights come into or out of Shiprock Airport. The airstrip facility is owned by the Navajo Nation and is available for public use (AirNav 2012). Also, a landing strip is located about 1 mile south of the southernmost portion of the Navajo Mine Lease Area in the Burnham Chapter. The community would like to see the airstrip reactivated as a regional airstrip or airport for both emergency services and commercial development (Architectural Research Consultants, Inc. 2005).

Four Corners Regional Airport is located in Farmington and is approximately 13 miles northeast of the ROI. The airport is owned and operated by the City of Farmington and serves a regional population of over 100,000. Air service is provided by Great Lakes Airlines to and from Denver, Phoenix, Las Vegas, Page, and Show Low via six daily scheduled flights in and out of the airport (six in and six out). The airport has two runways and is sited at a 5,506-foot elevation (City of Farmington 2012).

4.9.3 Changes to Land Use and Transportation Affected Environment Post-2014

Two completed Federal Actions have been incorporated into the baseline for this analysis: (1) the EPA has made its ruling with respect to BART to control air emissions; and (2) OSMRE has approved the SMCRA permit transfer from BNCC to NTEC (Section 2.4). These completed Federal Actions are considered part of the environmental baseline to which the impacts of continuing operations and the Proposed Actions are compared in the following Section. Neither of these completed Federal Actions would change the affected environment for land use or transportation, with the exception of the number of truck trips related to CCR

disposal (as shown in Table 4.9-2). Post-2014, bottom ash from Units 1, 2, and 3 would no longer be hauled within the FCPP lease.

4.9.4 Environmental Consequences

This section contains a qualitative assessment of impacts to land use including agricultural uses and transportation and access. Assessment of impacts on land use and agricultural resources is based on the type and amount of disturbance that would be caused by operation of the Project facilities. Potential adverse impacts that are considered include land use changes that would be inconsistent with existing land use plans and/or major loss of agricultural fields or grazing areas. The magnitude of impact on agricultural resources is based on the amount and type of loss, with a major impact defined as one that would permanently remove cropland or grazing area or make such lands largely unavailable for future farming and/or grazing activity. Impacts on transportation were assessed based on the amount of disturbance to access and the potential for long-term impacts on existing capacity for traffic flows.

4.9.4.1 *Alternative A – Proposed Action*

Navajo Mine

Land Use

Land uses in the Navajo Mine Lease Area include residential uses, limited recreation, grazing, and mining. Mining activity in the Pinabete SMCRA Permit Area would result in three direct impacts to existing land use: 1) three dwellings would require permanent relocation; 2) access to grazing areas in the Pinabete SMCRA Permit Area and surrounding area would be permanently altered through the removal of some two-track roads; and 3) up to 5,569 acres of forage area and all grazing area within five CUAs would be temporarily removed in order to realign Burnham Road and mine within the proposed area and would ultimately be reclaimed. Each of these impacts is discussed in more detail below.

The Proposed Action would require the permanent relocation of three dwellings located within the proposed Pinabete SMCRA Permit Area of the Navajo Mine Lease. NTEC's agreement with the Navajo Nation for the Navajo Mine Lease requires compensation of families and individuals with land use rights within the lease area (BNCC 2012g). Through compliance with the lease provisions, this impact although permanent, is considered minor. In addition increased dust and noise during construction associated with realignment of Burnham Road would result in short-term disturbance to residential land use (individual homesites in the unpermitted section of Area IV South) (see Section 4.14, Noise and Vibration and Section 4.1, Air Quality).

Relocation of Burnham Road and associated unnamed two-track roads would result in permanent changes to access to grazing areas, specifically the five CUAs that intersect the Pinabete SMCRA Permit Area (see Figure 3.9-2). However, this impact is considered minor because the relocated Burnham Road and the altered two-track roads would still provide access to grazing areas outside of the Pinabete SMCRA Permit Area but still within the grazing district. Further, any two-track roads removed during development of the Pinabete SMCRA Permit Area would be re-established in the post-mine landscape, in accordance with proposed reclamation activities.

The Proposed Action would change the existing land use within the Pinabete SMCRA Permit Area from grazing to mining during the permit period (2016-2041) and during the reclamation period (approximately 10 years). The five CUAs that intersect the Pinabete SMCRA Permit Area and seven associated BIA grazing permittees would be unable to graze within their CUA for the duration of mining operations and reclamation activities (BNCC 2012a); however, NTEC would compensate customary users for loss of grazing areas in accordance with Navajo Nation and BIA requirements and would reclaim the land in the Pinabete SMCRA Permit Area to conditions suitable for livestock grazing post-mining (BNCC 2012a), except for the 2.8 mile (approximately 22 acres) area lost due to the relocation of Burnham Road. The post-mining land use for the Pinabete SMCRA Mine Permit Area has been designated as rangeland for

the grazing of domestic livestock and wildlife habitat. The grazing capability of the reclaimed lands is expected to be equal to or greater than the pre-mining capability (BNCC 2012g). According to SMCRA 30 USC 1265(2), applicants are required to “restore the land affected to a condition capable of supporting the uses which was capable of supporting prior to any mining...”, thereby holding the applicant to return the land to grazing after mining operations have ceased.

During mining activities, however, there is potential for grazing outside of each customary user’s CUA and in the ROI outside the confines of the Pinabete SMCRA Permit Area. This long-term change in land use would occur within the existing Navajo Mine Lease Area, which was planned for use in mining operations as per NTEC’s lease with the Navajo Nation. The post-reclamation land use likely would revert back to the present-day land use of grazing within the CUAs.

Transportation and Access

NTEC would construct approximately 5 miles of primary roads and approximately 22 miles of ancillary roads within the Pinabete SMCRA Permit Area to support coal extraction. To facilitate operations in the Pinabete SMCRA Permit Area, NTEC would also realign the 2.8 miles of the existing Burnham Road and construct two new haul roads. It is anticipated that realignment of Burnham Road will take two to three months. Primary roads including Burnham Road would be designed by a New Mexico-registered professional engineer, in consultation with the BIA Transportation, to meet the SMCRA performance standards of 30 CFR Subchapter K, as well as 30 CFR Subchapter G, 780.33 for the public portions of Burnham Road, and the MSHA standards and requirements for roads. Under SMCRA regulations (30 CFR 761.14), NTEC is also required to designate road authority to determine if the interests of the public and landowners will be protected and to describe the public comment process that the road authority must follow. As a result, NTEC would be required to coordinate through public outreach and community involvement with the Navajo Nation and each individual chapters affected by the Proposed Action. The Proposed Action wholly incorporates these administrative requirements.

Primary and ancillary roads would continue to be used during mining of the Navajo Mine SMCRA Permit Area and the Pinabete SMCRA Permit Area. Primary roads are those used to transport coal and spoil, are main access roads to the mining areas used by small and heavy equipment, and provide access roads to the support facilities.

Road widths for primary roads may vary between 30 and 120 feet wide, include multiple traffic lanes, and may separate light and heavy equipment. Additionally, primary roads would be designed, constructed, and maintained in a manner to minimize the contribution of additional suspended solids to surface water runoff. Primary road crossings would use engineered crossing designs according to all applicable permit regulations. Culverts may be placed at topographic lows or areas where roads intersect drainage channels and are designed to safely pass the peak discharge from a 10-year, 6-hour storm event and minimize the alteration of the stream channel in order to improve traffic safety.

Ancillary roads generally would be constructed using a road grader to create the road surface. Typical widths range between approximately 12 feet for small vehicle roads and approximately 80 feet for topsoil haulage roads. Ancillary roads utilize low water crossings or culvert crossings depending upon how deeply incised the intersecting channels are.

Public roads within the SMCRA permit area would be built to standards as determined by the “public road authority” designated by OSMRE (CFR 30 Part 761.14(c)). OSMRE in past actions for the public Burnham Road has designated the BIA as the road authority. On previous relocations of the Burnham Road, BIA required design standards to the American Association of State Highway and Transportation Officials specifications. Restriction or modification of existing access routes specifically used for grazing activities would result in potential short-term impacts to traffic flow during realignment of Burnham Road. Direct short-term to long-term beneficial impacts resulting from the proposed realignment of Burnham Road would include improved road surface conditions and increased traffic safety compared to existing conditions. The realignment would eliminate a sharp curve that currently exists, thus improving safety on

the roadway. In addition, realignment of Burnham Road would eliminate the need to stop traffic during blasting operations, which would improve both safety and traffic flow. Realignment of the Burnham Road would have minor to moderate beneficial impacts upon traffic safety associated with use of this road. Following completion of Burnham Road realignment, long-term changes to this portion of the transportation network would provide access for post-mining land use for livestock grazing.

Under the Proposed Action, road construction would occur in order to allow for road construction. Construction-related truck trips are anticipated to temporarily increase to accommodate construction materials and equipment. However, this temporary and minor increase in traffic is not expected to significantly increase traffic on any local roads; therefore, no impacts would occur. Mining in the expanded Pinabete SMCRA Permit Area would utilize mining equipment already onsite from existing Navajo Mine SMCRA Permit Area operations, such that new mining equipment would not be brought on-site, so existing mining-related traffic volumes would not change.

As part of the SMCRA permit for the Pinabete SMCRA Permit Area, NTEC would prepare a Traffic Management Plan. All roads in the ROI would be established to minimize impacts on affected parties in the ROI such as the Burnham Chapter and those with grazing permits under CUAs. The Traffic Management Plan shall include provisions to provide reasonable access for grazing and necessary local traffic, emergency response agency notification, and notification of the public and emergency responders of all detours. In addition, affected parties shall be notified prior to initiation of new mining activities in Area IV as well as the realignment of Burnham Road. Notification shall include information regarding detours and contact numbers of the Proponent and the contractor. The plan shall be submitted to OSMRE for review and approval at least 60 days prior to initiation of any activity. With the implementation of this plan, short-term traffic impacts during construction of Burnham Road would be minimized.

Mining operations in Area IV South would likely require removing, restricting, and/or relocating unimproved two-track roads used for livestock grazing access. Temporary use restrictions would occur on some public roads and unimproved access routes to ensure public safety during active mining operations such as blasting, resulting in a minor impact that would last for the duration of mining. Adequate signage and security would be provided to communicate timing of such activities to the public and minimize the impact of mining activities.

In terms of post-mining plans for roads constructed for the Navajo Mine SMCRA Permit Area and Pinabete SMCRA Permit Area, NTEC does not plan to retain any of the mine roads for post-mining land use; however, prior to removal of roads NTEC will consult with the Navajo Nation and identify any roads that the Navajo Nation would like retained (BNCC 2009, 2012a).

Consequently, the following reclamation measures are planned:

1. Where a road traverses otherwise undisturbed land, the natural drainages would be reclaimed unless reestablishment would not enhance environmental values;
2. All culverts would be removed along with the removal of the associated road. All culvert work completed in waters of the U.S. would be completed in accordance with CWA Section 404 requirements. The culverts would be salvaged or recycled, if possible, otherwise they would be disposed in accordance with Section 20.6;
3. Roadbeds would be ripped, plowed, and scarified;
4. Fill slopes would be ripped and rounded or reduced and shaped to conform to the surrounding terrain and to meet natural drainage restoration;
5. Cut slopes would be shaped to blend with the regraded or natural contour;
6. Regraded surfaces would be covered with topdressing and revegetated according to the Reclamation Plan.

Four Corners Power Plant

Land Use

The primary effect to land use at the FCPP which would occur under the Proposed Action is the proposed expansion of the DFADAs and borrow areas which are currently undeveloped. The expansion areas would occur within the boundaries of the FCPP Lease Area; therefore, no major changes to existing land use within the FCPP Lease Area would occur. The Proposed Action would not change land use associated with Morgan Lake. Also, no land use changes would be associated with continued use of the electric rail line that transports coal from the mine to the FCPP. No dwellings are located in this area, and no residents would be directly impacted by the proposed DFADAs. DFADAs would be closed as they reach capacity, such that by 2041 all DFADAs are closed via evapotranspiration covers. APS would be responsible for developing a closure and post-closure management plan for areas where CCR have been disposed. The closure of any disposal unit would be required to be done in accordance with this closure plan that would include assurance criteria for financial liability. APS would decommission all facilities that are not required or permitted to be left behind by the 1960 and 1966 leases. As such, decommissioning and dismantling activities would need to be coordinated with the Navajo Nation so that the area meets the specific needs of any planned reuse. APS has not yet prepared a decommissioning plan, but any demolition activities would comply with all environmental laws and regulations applicable at the time, potentially including NEPA review.

Under the Proposed Action, there would be no change to the footprint of the lease boundary for the FCPP or to the facilities surface water rights (as described in Section 3.5, the FCPP would only draw as much water as allocated under its existing water rights agreement); therefore, none of the proposed changes to the current FCPP footprint would impact current or future agricultural operations on Navajo Nation tribal trust lands. Expansion of the ash area would be adjacent to the existing ash disposal area and proposed borrow areas would be located in this same area. No grazing occurs in this portion of the lease area; therefore, no impact would occur.

Transportation and Access

Construction-related activities at the FCPP would involve installation of new (selective catalytic reduction) SCR devices on Units 4 and 5 and a lime silo. Units 1 through 3 were shut down December 30, 2013 and could be dismantled and demolished prior to the end of the lease. During the installation of SCR devices on Units 4 and 5, and dismantling and demolition activities associated with Units 1-3, additional construction equipment would be used and additional truck trips would be anticipated; however, these additions would be temporary, lasting only until construction and dismantling were completed. Activities during construction and dismantling would include delivery of construction materials related to installation of SCR devices.

During operations at the FCPP, employment levels would be anticipated to remain at the same levels as existing conditions. Therefore, daily commuter trips to the FCPP during the new lease period are not anticipated to change as a result of the Proposed Action. With the installation of SCR devices on Units 4 and 5, ammonia delivery would be required. It is estimated that 15 truck roundtrips would be required per week to deliver enough urea to the plant. In addition, approximately 900 truck trips per year (17 truck roundtrips per week) would be required to deliver enough hydrated lime to the plant. Based on the current ADT on roadways to the FCPP, the increased truck trips would amount to approximately four to eight additional trucks on the roadways per day. Therefore, impacts on transportation systems over the 25-year lease period would be minor. Delivery of ammonia and associated hazards are discussed in Section 4.15, Hazardous and Solid Wastes and Section 4.17, Health and Safety.

Transmission Lines

Land Use

Renewal of the current ROW would not result in any changes to land use associated with the four existing transmission lines. All land uses would remain as described in the Affected Environment.

Continued operation of the transmission lines would not impact existing or future farming or grazing operations because no new construction activities would occur. Continued operation and maintenance activities would be conducted using existing access roads, within the current ROW; therefore, no impacts would result.

Transportation and Access

No new transmission line construction is proposed as part of the Project, nor are new access roads or any change in the frequency or type of maintenance activities to be conducted along the transmission corridor. Therefore, the Project would have no impacts associated with transportation and access related to transmission lines.

4.9.4.2 Alternative B – Navajo Mine Extension Project

Navajo Mine

Land Use

Implementation of this alternative would potentially result in the permanent relocation of three dwellings from within the Navajo Mine Extension Plan SMCRA Permit Area. This alternative would require an increased disturbance footprint of approximately 894.5 acres as compared to the Proposed Action. Additionally, Alternative B would require construction of 5 more miles of roadways and 8 more miles of transmission lines than described for the Proposed Action.

The overall land use would remain the same as discussed in the Proposed Action. Impacts would also be similar but at a greater magnitude than the Proposed Action due to the increased disturbance footprint related to mining activities and road construction as well as greater disturbance to Pinabete Arroyo.

Transportation

Alternative B would require construction of 5 more miles of roadways and 8 more miles of transmission lines than described for the Proposed Action. As a result of the increased construction, increased traffic, dust, and noise would occur during construction associated with additional road construction as well as with realignment of Burnham Road, which would result in short-term moderate adverse disturbance to residential land use (individual homesites in the unpermitted section of Area IV South) and public traffic on Burnham Road. Impacts during construction would be similar to the Proposed Action but at a greater magnitude due to the additional road construction activity under Alternative B.

During operations, the haul distance from the field coal stockpiles to the Lowe Stockpile would also increase by approximately 3 miles, which would require increased truck trips during operations. However, these activities would occur within the boundary of active mining operations and would not affect traffic levels on public roadways. Additionally, direct short-term to long-term beneficial impacts would be realized for the realignment of Burnham Road, which would improve road surface conditions and safety compared to existing conditions.

Four Corners Power Plant

Under Alternative B, the BIA would approve the lease amendment for the FCPP and the FCPP would operate as described under the Proposed Action. No additional land use or transportation impacts related to the FCPP would be anticipated from implementation of Alternative B.

Transmission Lines

Under Alternative B, the transmission line ROWs would be approved and they would continue to be operated and maintained as described under the Proposed Action. No additional land use or transportation impacts related to existing transmission lines would occur from implementation of Alternative B.

4.9.4.3 Alternative C – Alternative Pinabete Mine Plan

Navajo Mine

Land Use

Implementation of Alternative C would result in the permanent relocation of three dwellings from within the Alternative Pinabete SMCRA Permit Area. This alternative would require an increased disturbance footprint of approximately 2,389 acres as compared to the Proposed Action. Additionally, Alternative C would require an additional 3.4 miles of realignment of Burnham Road, 9.9 additional miles of primary roads, and 0.8 mile less of ancillary roadways as compared to the Proposed Action. Alternative C would also require 7.8 more miles of transmission lines than as described for the Proposed Action. The Navajo Mine would also need to construct additional infrastructure and support facilities (16 arroyo crossings). Reclamation activities would be conducted as described under the Proposed Action.

As a result of the increased construction, there would be increased traffic, dust, and noise during construction associated with additional road construction as well as with the additional realignment of Burnham Road which would result in short-term minor adverse disturbance to residential land use (individual homesites in the unpermitted section of Area IV South) similar to the Proposed Action but at a greater magnitude due to increased construction and disturbance footprint.

The overall land use would remain the same as discussed in the Proposed Action. Impacts would also be similar but at a greater magnitude as compared to the Proposed Action due to the increased disturbance footprint related to mining activities and road construction as well as greater disturbance to the Pinabete Arroyo.

Transportation

Overall, Alternative C would require construction of approximately 12.5 more miles of roadways and 8 more miles of transmission lines than as described for the Proposed Action. As a result of the increased construction, there would be increased traffic, dust, and noise during construction associated with additional road construction as well as with realignment of Burnham Road which would result in short-term minor adverse disturbance to residents in the area (individual home sites in the unpermitted section of Area IV South) and public traffic on Burnham Road. Impacts during construction would be similar to the Proposed Action but at a greater magnitude due to the additional road construction activity under this Alternative.

During operations, the haul distance from the field coal stockpiles to the Lowe Stockpile would also increase by approximately 3 miles, which would require increased truck trips during operations. However, these activities would be occurring within the boundary of active mining operations and would not affect public traffic. Additionally, direct short-term to long-term beneficial impacts would be realized for the realignment of Burnham Road which would improve road surface conditions and safety compared to existing conditions.

Four Corners Power Plant

Under Alternative C, the BIA would approve the lease amendment for the FCPP and the FCPP would operate as described under the Proposed Action. No additional land use or transportation impacts related to the FCPP are anticipated from implementation of Alternative C.

Transmission Lines

Under Alternative C, the transmission line ROWs would be approved and they would continue to be operated and maintained as described under the Proposed Action. No additional land use or transportation impacts related to existing transmission lines would occur from implementation of Alternative C.

4.9.4.4 *Alternative D – Alternative Ash Disposal Area Configuration*

Navajo Mine

Under this alternative, OSMRE would approve the Pinabete SMCRA Permit application and renew the Navajo Mine SMCRA Permit. The Navajo Mine would operate as described under the Proposed Action. No additional land use or transportation impacts related to the Navajo Mine are anticipated from implementation of Alternative D. As such, impacts would be the same as described for the Proposed Action.

Four Corners Power Plant

Under this alternative, the area of disturbance required for the DFADAs would be 350 acres instead of 385 acres. The 10 percent reduction in surface area of the DFADAs would result in the same land use and transportation related impacts as described for the Proposed Action. All other FCPP components of this alternative are the same as for the Proposed Action. Therefore, impacts would be the same as described for the Proposed Action.

Transmission Lines

Under this alternative, the transmission line ROWs would be approved and they would continue to be operated and maintained as described for the Proposed Action. No additional land use or transportation impacts related to existing transmission lines would occur from implementation of Alternative D. As such, impacts would be the same as described for the proposed action.

4.9.4.5 *Alternative E – No Action Alternative*

Under Alternative E, no mining would be permitted past 2014 in the Navajo Mine Lease Area, and the FCPP would subsequently shut down. No road realignment would occur, and the DFADAs would not be expanded. The No Action Alternative would not change land use along any of the four transmission lines if they were left in place. However, if they were dismantled, then changes to land use along the transmission corridor would potentially change if ROW is purchased and developed on a case by case basis. These changes would be addressed in subsequent environmental documents.

Navajo Mine

Land Use

Alternative E would result in no change in land use for the Pinabete SMCRA Permit Area and, therefore, no relocation of the three affected dwellings in the permit area would be required. Also, grazing and CUAs would not change. Alternative E would result in no additional noise, dust, and traffic during the road realignment construction period.

Additionally, under Alternative E, the existing CUAs and access roads to the grazing areas within the proposed Pinabete SMCRA Permit Area would not change. It is assumed that these lands would continue to be used for livestock grazing through the entire Project timeline (2041). In the Navajo Mine Permit Area, NTEC would mine until the ROD is issued in 2015 and then reclaim the land, as described in the existing Navajo Mine Permit.

Transportation and Access

Under Alternative E, two track access routes and Burnham Road would continue to experience short-term impacts associated with restricted use for the life of Area III operations. Burnham Road would not be rerouted and public benefits to transportation and safety would not be realized. No impacts on access in Area IV North would be anticipated. Traffic volume assumptions for the regional road system used by the Navajo Mine would remain as described until 2016 when Area III would no longer be mined. Mine-related traffic would decrease as early as 2021 when reclamation activities would be completed.

Four Corners Power Plant

Land Use

Alternative E would result in a shutdown of FCPP Units 4 and 5. Wet and DFADAs would be closed via evapotranspiration covers and therefore, the land use would not change. APS would decommission all facilities that are not required or permitted to be left behind by the 1960 and 1966 leases. As such, decommissioning and dismantling activities would need to be coordinated with the Navajo Nation so that the area meets the specific needs of any planned reuse. Several potential future uses of the site are possible. It could continue as an energy generation site with several potential technology scenarios. The infrastructure could also be demolished and the site redeveloped for industrial, commercial, or residential uses. It is entirely speculative at this time to predict the likely alternative future uses for the site. Any decisions regarding the future uses must be with the concurrence of the other owners. Currently, the site is undivided by all of the owners; future uses may therefore require subdivision of the property.

APS has not yet prepared a decommissioning plan, but any demolition activities would comply with all environmental laws and regulations applicable at the time, potentially including NEPA review. Decommissioning would require environmental abatement activities in the power block, including removal of environmental and safety hazards (e.g., asbestos, lead paint), and chemicals and oils. All waste generated during this phase would be managed and disposed of in accordance with applicable Federal environmental regulations. Dismantling and demolition would commence following the removal of asbestos, PCB, lead paint, and any other hazardous chemicals. Upon removal of structures and facilities, the structural foundations would be removed to 24 inches below grade, the site profiled to allow for proper drainage, and native vegetation planted as applicable. In addition to the five units, decommissioning and dismantling may also include removal of all three switchyards. The timeline for this process is at the discretion of APS and the Navajo Nation.

In the absence of FCPP operations, no water would be drawn from the San Juan River for use at the power plant and then subsequently discharged into Morgan Lake, so the lake would evaporate and cease to exist. If APS chose to leave the river pumping plant and the pipeline behind, and the Navajo Nation took possession of those facilities, it is not known if or how the river pump station would be operated. Following the possible dismantlement of the power plant and any associated remediation activities, additional land may be available for grazing, although it is uncertain at this time.

Transportation and Access

Under Alternative E, Units 4 and 5 would be shut down by 2016. During the demolition of FCPP, there would be temporarily increasing worker traffic and traffic of heavy machinery. However, future uses of the site are speculative and subject to environmental review at the tribal or Federal level at the time they are developed and proposed. Under Alternative E, the electric rail line would no longer be required to transport coal from the mine to the FCPP.

Transmission Lines

Land Use

Since the subject lines primarily transmit power from the FCPP, under Alternative E, the power source for the transmission lines would be removed. Since the FCPP would cease operations, the amount of electricity carried by the transmission lines would decrease substantially. It is unlikely that they would be decommissioned and demolished however, because they still support interconnection of the western U.S. energy grid and potential future energy supplies could use the excess capacity. If however, the lines are decommissioned and dismantled, such activities would be subject to environmental review at either the tribal or Federal level, possibly including NEPA analysis, and compliance with all environmental laws and regulations would occur throughout the demolition process.

4.9.5 Land Use and Transportation Mitigation Measures

The Project Applicants have proposed measures that would be implemented to reduce or eliminate some of the environmental impacts of the Proposed Action. These measures include specific mitigating measures for certain environmental impacts, standard operating procedures that reduce or avoid environmental impacts, and BMPs for specific activities. These are described in Section 3.2.6.9. These measures are part of their application materials and are enforceable through permit or lease conditions. In addition, the Project Applicants must comply with additional protective regulatory requirements including laws, ordinances, regulations, and standards that are enforceable by the responsible agency over that activity. These are described in the Regulatory Compliance Framework Section for each resource category. Where the environmental analysis in this EIS recommends additional protective measures, over and above the applicant proposed measures and regulatory compliance, they are listed below as specific mitigation measures.

The Proposed Action, including the continued operations of Navajo Mine, FCPP, and the transmission lines, would not result in major adverse impacts to land use and transportation. Therefore, no additional mitigation is recommended.