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1.0 INTRODUCTION

1.1 Purpose and Need and Project Description

Southwestern Public Service Company (SPS), a subsidiary of Xcel Energy Inc, is a member of the Southwest Power Pool (SPP), a Regional Transmission Organization (RTO). All of SPS's transmission system is located within the SPP.

In the spring of 2010, the SPP determined the proposed transmission project is needed to mitigate overloads and voltage conditions in the project area in order to improve reliability of the transmission system. In response to this need, SPS is proposing to construct two 230-kilovolt (kV) single-circuit transmission lines, referred to as the Roosevelt County Substation to Pleasant Hill Substation and the Pleasant Hill Substation to Oasis Connection Point 230 kV Transmission Line Project (proposed project).

The proposed project includes two new sections of 230 kV transmission lines; a new 115/230 kV substation, referred to as Pleasant Hill in Curry County, New Mexico, and substation expansion to the existing Roosevelt County Substation in Roosevelt County, New Mexico. The location of the project area is illustrated on Figure 1.1, located in the map pocket at the back of the document.

The Pleasant Hill Substation to Oasis Connection Point 230 kV transmission line would include approximately 20 miles of new transmission line, extending from the proposed Pleasant Hill Substation, to be located approximately five miles northeast of the City of Clovis, to an existing 115/230 kV double-circuit transmission line located immediately south of US 60/84 and northwest of Cannon Air Force Base. The existing 230 kV transmission line continues from that point to the south for approximately 12 miles to the Oasis Substation. The proposed new transmission line would be joined with the existing line, thereby allowing a connection between the proposed Pleasant Hill Substation and the existing Oasis Substation.

The Roosevelt County Substation to Pleasant Hill Substation 230 kV transmission line would be approximately 17.5 miles in length, extending from the proposed Pleasant Hill Substation to the existing Roosevelt County Substation. The Roosevelt County Substation would be expanded at its present location, approximately seven miles south of Clovis.

The proposed Pleasant Hill Substation would be located northeast of Clovis, south of County Road 16; on the west side of County Road G. The substation expansion at the Roosevelt County Substation would be located immediately east of the existing Roosevelt County substation.

1.2 New Mexico Certificate of Convenience and Necessity Application

TRC provided updated information to the Environmental Assessment (EA) in support of SPS's application for a Certificate of Convenience and Necessity, to be filed with the New Mexico Public Regulation Commission (NMPRC) in accordance with Title 17 Chapter 9 Part 592.

2.0 PROPOSED FACILITIES

2.1 Alternatives Studied in Detail

The general area studied was southeast, east, north, and west of the City of Clovis. The study area was developed to avoid conflicts with existing development and infrastructure. The location of the proposed transmission line within the rural and undeveloped lands outside of Clovis would improve reliability of the existing transmission infrastructure.

A series of alternatives were developed for proposed routes for the project. Generally the proposed alternatives follow property lines, section lines, and roadways. Several alternatives parallel each other and provide alternative segments through a specific part of the study area.

This comparison process includes the following activities described in detail below.

- Identification of preliminary routes and study corridor
- Resource inventory
- Alternatives refinement and public review
- Alternatives analysis, screening, and comparison
- Selection of the proposed alternatives

2.1.1 Identification of Preliminary Routes and Study Corridor

Preliminary alternatives for the proposed project were identified through a combination of field reconnaissance and regional opportunities and constraints analysis. First, SPS conducted field studies in order to identify potential alternative routes for the 230 kV transmission line between the Roosevelt County Substation and Pleasant Hill Substation and the Pleasant Hill Substation to Oasis Connection Point. Field reconnaissance assisted with the proposed location of the Pleasant Hill Substation site.

SPS reviewed these alternatives through a combination of additional field work and a regional opportunities and constraints analysis. Opportunities identified included linear features such as public roads, property lines, and section lines. Major constraints identified in the area included the City of Clovis and higher-density residential communities, Cannon Air Force Base, aviation facilities, and major agricultural features such as large scale animal husbandry operations. In addition, maintaining a 1-mile separation from existing high-voltage transmission lines (115 kV and greater) was also considered key by SPS.

This process identified alternatives for refinement, new alternatives for consideration, or alternatives to be eliminated. Each of the preliminary alternative routes identified through this process were divided into links of each route and shared common endpoints with adjacent links.

Once the preliminary alternative routes and their respective links were identified, a 1-mile-wide study corridor (0.5 mile on either side of the assumed centerline) was identified for detailed inventory and study. The corridor provided an area of opportunity to refine alternatives based on localized issues, as needed.

Regional opportunities and constraints, the study corridor, preliminary alternative transmission line routes (including links), and the proposed substation sites are illustrated on Figure 1.1, located in the map pocket at the back of the document.

2.1.2 Alternatives Studied in Detail

2.1.2.1 Proposed Action

SPS is proposing to construct, operate, and maintain two 230 kV transmission lines in Curry and Roosevelt counties. One transmission line would originate from the proposed Pleasant Hill

Substation north of Clovis to the Oasis Connection Point, approximately 12 miles north of the existing Oasis Substation and west of Clovis. The second line would originate from the existing Roosevelt County Substation, located south of Clovis in the northeastern portion of Roosevelt County, to the Pleasant Hill Substation. The existing Roosevelt County Substation would be expanded as a part of this project.

2.1.2.2 Proposed Alternatives

A series of alternatives was developed for the proposed action. The general area studied was southeast, east, north, and west of Clovis. The general study area avoids conflicts with existing development and infrastructure. The location of the proposed transmission line within the rural and undeveloped lands outside of Clovis would improve reliability to the area by locating new infrastructure away from existing transmission lines.

Generally the proposed alternatives follow property lines, section lines, and roadways. Several alternatives parallel each other and provide alternative segments through a specific part of the study area.

2.1.3 Resource Inventory

With the alternative routes and study corridor established, environmental resources within the study corridor were inventoried to establish a baseline of existing environmental conditions for each of the alternatives, based on secondary information and field review of existing land use. This information was compiled and mapped, as appropriate, for the study corridor.

2.1.4 Identification of Preliminary Routes and Study Corridor

In conjunction with the inventory, the transmission routes were further refined for each proposed project, and a substation site was selected for the Pleasant Hill Substation by SPS. These preliminary alternatives and substation site (Figure 2.1) were presented in a public open house meeting held on April 26, 2011; where landowners within 300 feet of project alternatives and federal, state, and local officials were invited to learn about the process used to identify the alternative routes and to provide comments. In addition, landowners were provided the opportunity to identify key factors to be considered in the comparison of alternatives and selection of the proposed routes. Following this meeting, alternatives were finalized for detailed study and are discussed in Section 4.1.

2.1.5 Alternatives Analysis, Screening, and Comparison

During this step, the potential impacts for each alternative route were initially analyzed based on the effects to land use and recreation, and visual, biological, and cultural resources within the study corridor; including consideration of the key issues and factors identified during the study process and as a result of the public open house meeting. Through this process, alternatives considered less desirable were eliminated from further consideration and a few alternatives were added based on landowner input (Figure 1.1, located in the map pocket at the back of the document).

For the proposed project, efforts were made to include the public and local agencies in the planning process. Local agency personnel were contacted in conjunction with inventory efforts (Table 4.1 in Section 4). An open house format public meeting was held in Clovis at the Clovis-Carver Public Library on April 26, 2011. A newsletter/postcard (Appendix A) describing the project was sent to landowners within 300 feet of the centerline of the proposed project alternatives, as well as federal and state agencies,

local government, and key stakeholders in the area. The newsletter invited individuals to attend and provide comments on the proposed project at the open house, and also provided access to project information available on Xcel Energy's Power for the Plains website[1].

At the meeting, attendees were provided comment forms and allowed to browse informational boards and maps of the proposed project and ask questions of representative staff from SPS. Detailed aerial photographs illustrating the location of alternatives were also available for the landowners to review and to identify their properties. Each property was marked with a unique number that corresponded to a number assigned to each landowner when signing in at the meeting. This same number was also recorded on each of the comment forms.

The comment forms (Appendix A) provided the opportunity for attendees to identify themselves and provide information regarding key potential factors they felt should be considered in the environmental studies and their relative importance in the selection of the proposed route. The comment forms could be completed onsite and submitted at the open house or returned via mail to SPS (by May 10, 2011).

A total of 24 individuals attended the open house, and nine comment forms were submitted for consideration.

2.1.6 Selection of the Proposed Alternatives

The review and comparison of remaining alternatives resulted in the identification of two alternative routes for each section of the project. Results of the comparison of these alternatives indicated that both routes for each section were environmentally acceptable (with certain advantages associated with one route over the other route for each section), pending additional information, including landowner input, right-of-way considerations, and engineering. Identification of the proposed routes for each section was dependent upon the ability to mitigate impacts associated with each of these alternatives in localized areas. SPS selected the proposed routes based upon a review of the results of the comparison of the final alternative routes for both sections, including potential environmental issue areas, engineering, right-of-way, and landowner considerations.

2.1.6.1 Oasis Connection Point – Pleasant Hill Route A

Route A consists of links O1, O2, O5, O10 and O9 and is 19.9 miles in length. There are 11 residences within 300' of the center line. The proposed route crosses 4.0 miles of irrigated land. If necessary all of the wire will be turned or placed on one side of the structures in order to avoid crossing directly over any wellhead or irrigation system.

The proposed route crosses 6.8 miles of statewide importance soils and 13.2 miles of prime farmland (if irrigated). There are wetland areas adjacent to links O1, O2 and O5. A wetland is approximately 360 feet east of Link O1. There is a wetland approximately 750 west of Link O2. Four wetlands are east of Link O2: approximately 55 feet, 240 feet, 1,415 feet, and 2,030 feet east of Link)2. There are several wetlands north of Link O5; approximately 340 feet, 625 feet, and 930 feet north of the link. A portion of one FEMA Flood Hazard Zone is crossed by link O5.

The proposed route crosses the southern edge of a recreation and park area. Route A parallels existing distribution lines for approximately 8.6 miles.

Five prehistoric, three historic structures, and two historic features have been recorded adjacent to links within the Route A corridor. LA 30487, a Paleoindian artifact scatter with tools, is 4,530 to 4,630 feet east of the link O1 centerline and 3,400 to 3,500 feet south of the link O3 centerline. LA 30488, an Archaic

[1] www.powerfortheplains.com

artifact scatter, is 1,642 to 2,200 feet east of the link O1 centerline and 4,206 to 4,436 feet south of the link O3 centerline. LA 30489, a historic homestead, is 110 to 360 feet west of the link O1 centerline. LA 30490, a prehistoric artifact scatter with tools, is 675 to 775 feet southeast of the link O1 centerline. LA 37403, a prehistoric artifact scatter, is 792 to 1,153 feet west of the link O1 centerline and 2,767 to 2,920 feet south-southwest of the link O3 centerline. LA 64779, an Archaic artifact scatter, is 3,930 to 4,055 feet south of the link O3 centerline.

There is one black-tailed prairie dog community within link O5 and two within link O9. North edge of the community is at the centerline of link O5 and this colony is located east of CR N and south of CR 17/SR311. There are two colonies in the Ned Houk Memorial Park area. The south edge of the first community is 60 ft north of link O9, and the south edge of the second community is at the centerline of link O9.

2.1.6.2 Oasis Connection Point – Pleasant Hill Route B

Route B consists of links O1, O3, and O8 and is 17.5 miles in length. There are 12 residences within 300' of the center line. The proposed route crosses 10.0 miles of irrigated land. There are eight wellheads and seven pivot irrigation structures that could potentially be within the right-of-way.

The proposed route crosses 6.5 miles of statewide importance soils and 10.5 miles of prime farmland (if irrigated). Two wetland areas are crossed; one by link O3 and another by link O8. A portion of one FEMA Flood Hazard Zone is crossed by link O8.

Route B parallels existing distribution lines for approximately 6.4 miles.

Five prehistoric, three historic structures, and one prehistoric/archaic sites have been recorded adjacent to links within the Route B corridor. There are two black-tailed prairie dog communities in the vicin9ity of link O8: one is approximately 75 feet north of link O8 and two communities are crossed by link O8..

2.1.6.3 Roosevelt – Pleasant Hill Route C

Route C consists of links R1, R2, R5, R6, R8, R9, R11, R19, R24, R27, R 28, and R30. Route C is 19.02 miles in length. There are 17 residences within 300' of the center line. The proposed route crosses 2.7 miles of irrigated land. There are seven wellheads and eighteen pivot irrigation structures that could potentially be within the right-of-way.

The proposed route crosses 6.9 miles of statewide importance soils and 9.9 miles of prime farmland (if irrigated). One wetland area is adjacent to link R19. A portion of one FEMA Flood Hazard Zone is crossed by links R19 and R24.

Route C parallels existing distribution lines for approximately 8.6 miles. Two historic sites have been recorded adjacent to a link within the Route C corridor. LA 135089, historic trash, is 620 to 882 feet west of the link R1 centerline. LA 143104, historic features, is 0 to 100 feet west of the link R8 centerline and 5,280 to 5,200 feet north of the link R6 centerline.

There is a prairie dog community approximately 710 feet west of Link R11 (north of CR 10). Link R24 crosses one black-tailed prairie dog community. A prairie dog community exists approximately 30 feet north of Link R30. A small prairie dog community is located 2,850 feet north of R30.

2.1.6.4 Roosevelt – Pleasant Hill Route D

Route D consists of links R1, R2, R3, R8, R12, R14, R22, R21, R24, R27, and R 28. Route D is 17.9 miles in length. There are sixteen residences within 300' of the center line. The proposed route crosses 2.8 miles

of irrigated land. There are nine wellheads and nineteen pivot irrigation structures that could potentially be within the right-of-way.

The proposed route crosses 7.8 miles of statewide importance soils and 9.1 miles of prime farmland (if irrigated). One wetland area is adjacent to link R8 and one is adjacent to link R21. A portion of one FEMA Flood Hazard Zone is crossed by links R21 and R24. Link R8 is adjacent to a FEMA Flood Hazard Zone.

Route D parallels existing distribution lines for approximately 4.5 miles.

Two historic sites have been recorded adjacent to a link within the Route D corridor. LA 135089, historic trash, is 620 to 882 feet west of the link R1 centerline. LA 143104, historic features, is 0 to 100 feet west of the link R8 centerline. Links R14, R21, R22, and R24 each cross a black-tailed prairie dog community. Link R1 is adjacent to one black-tailed prairie dog community. Link R26 is adjacent to two black-tailed prairie dog communities.

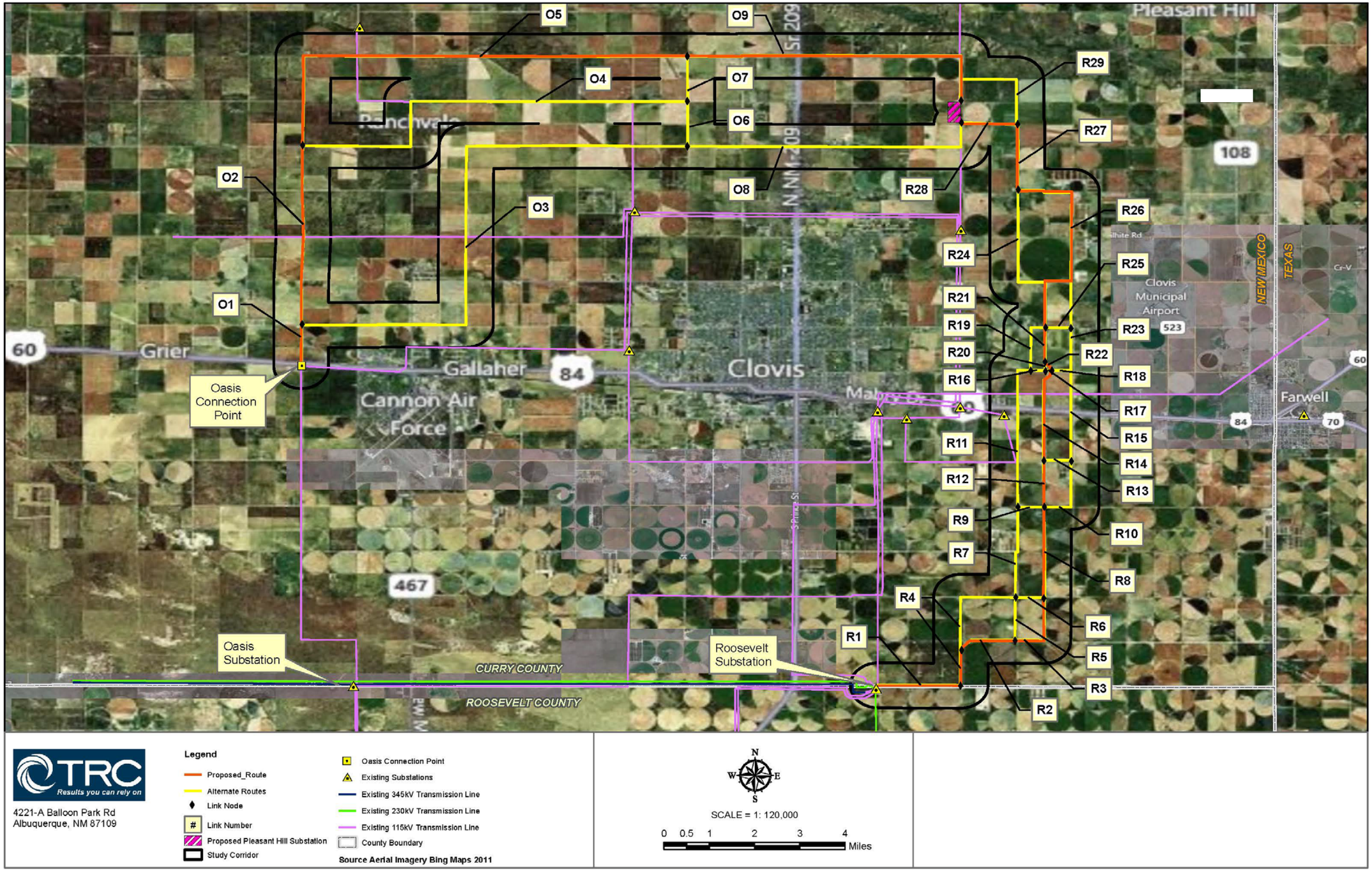

Figure 2.1 Preliminary Alternatives and Substation site presented to the public

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Introduction

This chapter combines the discussions of the affected environment and the potential environmental consequences that may result from the construction and operation of the proposed project. Environmental resources that were studied include:

- Climate and Air Quality
- Land Use and Recreation
- Visual Resources
- Cultural Resources
- Biological, Earth, and Water Resources
- Socioeconomics

Data were collected and analyzed between March and November 2011, by review of existing documentation, consultation with agencies and individuals, and field reconnaissance to verify existing land use conditions. The study area that was evaluated for each resource is described in each resource section.

Environmental consequences (potential impacts) are discussed in each resource section. The impact analysis is based on the inventory results and mitigation factors, combined with the professional judgment of TRC's principal investigator for each environmental component. The impact analysis included consideration of mitigation measures to reduce potential impacts.

3.2 Climate and Air Quality

3.2.1 Affected Environment

3.2.1.1 Climate

The climate of the high plains of eastern New Mexico is influenced by regional weather systems, elevation, and topographic features. The Clovis area is characterized by low relative humidity, a high percentage of sunshine, and relatively large annual and diurnal temperature ranges. Wind flows are driven by passage of frontal systems, but also are strongly influenced by local topography. Due to the clear, dry air, the earth's surface warms rapidly during the day and cools rapidly at night. (New Mexico State University, 2011)

In the Clovis area, average temperatures vary seasonally. The maximum average temperatures is 92F (degrees Fahrenheit) in July and 51.1F in January. The average minimum temperatures are 63.6F in July and 23.5F in January. (Western Region Climate Center, 2011) The Clovis area is at an elevation of 4,268', the annual precipitation usually falls as snow in the winter and as rain during the summer thunderstorms. This area has a total precipitation average of 17.85 inches per year, with a total average snowfall of 11.1 inches per year. (Western Region Climate Center, 2011)

3.2.1.2 Air Quality

Standards and regulations for primary and secondary federal air quality allowances, monitoring, and permitting for the pollutants of concern are established under the Clean Air Act of 1970, as amended. Ambient air quality is measured by the attainment status for pollutants, determined by monitoring levels

of criteria pollutants against the National Ambient Air Quality Standards (NAAQS). Criteria pollutants considered are carbon monoxide (CO), lead (Pb), ozone (O_3), sulfur dioxide (SO_x), nitrogen dioxide (NO_2), and particulate matter (PM_5 and PM_{10}). If the concentration of one or more of the criteria pollutants exceeds the regulated level of the NAAQS, the area may be classified as a nonattainment area. Areas with concentrations below the levels established by the NAAQS are considered either an attainment or unclassifiable area. Curry County is an attainment area. (US EPA Region 6 and New Mexico Environment Department, 2011)

The air quality index (AQI) for Clovis was 54.0 compared to the United States average of 32.0. The particulate matter (PM_{10} μ/m^3) level for Clovis in 2010 was 28.0 compared to the United States average of 22.1. The particulate matter (PM_5 μ/m^3) level for Clovis in 2010 was 18.4 compared to the United States average of 9.6. The overall air quality of the Clovis area is below the US average. (City Data, 2011)

The existing air quality along the alternative routes is characteristic of rural areas. The prevailing wind direction in the area is north-northeast and typically occurs in the spring. (New Mexico State University, 2011) In general, the air quality is less than average and affected primarily by agricultural activities that cause windblown dust, which contributes to local and regional suspended particulate concentrations.

3.2.2 Environmental Consequences

During construction of the line, sources of air emissions would include particulate emissions originating from fugitive dust from construction operations. Other sources of air emissions would include tailpipe emissions (nitrogen oxides, carbon monoxide, sulfur oxides, and hydrocarbons) from vehicles and gasoline- or diesel-powered construction equipment. Emissions from construction activities would be confined to the daytime hours and would exist in the short term during active construction periods. The identified emission sources are generally fugitive and source-based but are temporary.

The transmission line may be visually inspected periodically by vehicle. The substations may be inspected and maintained by staff. Staff would drive vehicles, either light-duty trucks or if necessary heavy vehicles to facilitate equipment replacement. The emission sources would include tailpipe emissions similar to those emitted during the construction process. The emissions would be temporary in nature and duration.

3.3 Land Use and Recreation

The land use inventory identified existing and planned land uses within the study corridor following the review and interpretation of existing plans, maps, documents, and field reconnaissance. The land use inventory included the total study corridor width of one mile. (Figure 3.1, located in the map pocket at the back of this document) Aerial photo interpretation was completed for the study corridor to inventory all land uses within the corridor. A review of existing land use plans for Curry County and the Clovis area was completed to identify any existing or future development in the area. Contact was made with key federal and local agencies and officials, including Cannon Air Force Base, Curry County, Roosevelt County, and the City of Clovis.

Key land use issues in the study corridors are associated primarily with potential impacts and effects to rural residences and agricultural operations including crops and animal husbandry operations. The following is a description of the affected environment and environmental consequences associated with land uses for the proposed project.

3.3.1 Affected Environment

The proposed project includes privately-owned and municipal land under the jurisdiction of the City of Clovis. Existing land uses include agriculture (center pivot irrigation of crops, dry land farming, livestock

grazing, and animal husbandry operations), rural residential areas; utility and other infrastructure (transmission and distribution lines, pipelines, and water wells); a recreation area; and transportation routes.

Agriculture is the predominant land use in the study corridor and is composed of large scale cultivation of crops and animal husbandry operations. Some of the cattle operations exceed 1,000 animals and are considered as confined animal feeding operation (CAFO) by US EPA regulations. (US EPA 2011)

The land use types are described below and followed by a detailed description of key land use features specific to the Pleasant Hill to Oasis and Pleasant Hill to Roosevelt segments of the project, the new Pleasant Hill Substation, and the expansion at the Roosevelt County substations.

3.3.1.1 Existing Land Use

3.3.1.1.1 Residential

Residential land uses include rural single-family residences with associated support structures and rural settlements. Residences are scattered throughout the study corridor and are typically associated with agricultural operations. The rural settlement of Ranchvale is in the project area. The density of rural residences increases in proximity to the Clovis city limits.

3.3.1.1.2 Agriculture

Agriculture is the predominant land use in the proposed project area. Pivot irrigation and dry land farming occur throughout the study area. The types of agricultural crops grown in this region include sorghum, wheat, feeder maize, cotton, pumpkins, and coastal hay. (New Mexico State University 2011) The CAFOs within the project study corridor include dairy farms, beef cattle operations, and stockyards.

3.3.1.1.3 Public

Public land uses within the study corridor are primarily associated with the unincorporated settlement of Ranchvale, approximately one mile from the proposed Pleasant Hill to Oasis section of the project corridor. Public facilities associated with this community include Ranchvale Elementary School, Ranchvale Baptist Church, and Ranchvale Cemetery. The Ranchville School and former post office were established in a period between 1913 and 1919 when scattered rural establishments were common outside cities. (Roudat and Doak, 2004)

3.3.1.1.4 Recreation Areas

The Ned Houk Memorial Park is 3,320 acres located approximately 6.5 miles north of Clovis, on the north side of County Road 17. The park is operated by the City of Clovis. Ned Houk Memorial Park includes the Ned Houk Motor Sports Complex, which has a 3/8-mile, high-banked clay tract for stock car racing. The Old Homestead Museum displays antique farming equipment. A recreational trail system weaves through the park and accommodates hikers, mountain bikers, equestrians, motorcycles, and ATVs. The trails have shelters, benches, and campsites. Other uses at the park include freshwater fishing in four stocked lakes, playground activities, wildlife viewing, and disc golf. Competitive and charity 5k runs are held at the park. (Southern New Mexico, 2011)

The park has a remote-controlled airfield located near the proposed Pleasant Hill to Oasis segments, approximately 475 feet north of segment O9. Conflicts with the proposed project are not expected to occur because of the location of the proposed segment in context to the remote-controlled model airfield. No recreation facilities are located within the study corridor for the Pleasant Hill to Roosevelt section of the project. A small portion of the Pleasant Hill to Oasis proposed route is parallel to the southern boundary of the park.

The Ned Houk Memorial Park has received Land and Water Conservation funds (LWCF) for improvements within the park. One of the requirements of LWCF funds is the use of the park for outdoor recreation. The LWCF funding could be in jeopardy if the park lands are converted from outdoor recreation to another use. The proposed project parallels the south boundary of the Ned Houk Memorial Park and would not convert park lands to another use. There are no other LWCF-funded parks in the vicinity of the proposed project corridor. (National Park Service LWCF, 2011)

3.3.1.1.5 Aviation Facilities

There are two aviation facilities within the project vicinity, but located outside of the study corridor: Cannon Air Force Base, located east and south of the proposed Pleasant Hill to Oasis section, and the Clovis Municipal Airport located east of the proposed Pleasant Hill to Roosevelt section. A private facility, AeroTech, is located on the edge of the study corridor for the Pleasant Hill to Roosevelt section. The location of Clovis Municipal Airport and AeroTech are described below, and Cannon Air Force Base is described under the military portion of this section.

- Clovis Municipal Airport (ICAO: KCVN) is an uncontrolled public airport located approximately six miles east of Clovis, on State Highway 523. The airport has three runways: two asphalt and one turfgrass. The airport provides services that include twelve weekly round trips to Albuquerque on Great Lakes Airlines, private flights, and air ambulance transportation. (FlightAware, 2011) This facility is located east of the study corridor for the Pleasant Hill to Roosevelt section.
- AeroTech is a privately-owned facility with one runway located approximately 3.5 miles east of Clovis, on the south side of State Highway 523, adjacent to the western portion of the study corridor for the Pleasant Hill to Roosevelt section. AeroTech provides helicopter and fixed-wing aviation services for both public and private entities.

3.3.1.1.6 Military

Cannon Air Force Base is located 8 miles west of Clovis and east of the location of the Oasis Connection Point. It is home to the 27th Special Operations Wing, whose missions include infiltration, exfiltration, and resupply of special operations forces; air refueling of special operations rotary wing and tilt rotor aircraft; and precision fire support. Cannon AFB is located outside of the study corridor, the facility's Accident Potential Zones (APZ) cross into the study corridor in this area. APZs are developed based on statistical analysis of past Department of Defense (DOD) aircraft accidents (27th Fighter Wing Air Installation Compatible Use Zone Report, Volume 1 2005). Through discussions with military personnel, no perceived conflicts are anticipated for the project, as described in the General Plans section of this document (section 3.3.1.2).

3.3.1.1.7 Linear Features

Numerous linear facilities are present in the study corridor. A detailed description of these features is presented below.

Utilities - Transmission lines and distribution lines owned by Farmers Electrical Co-op (FEC) parallel and cross many areas along the proposed project. The lines are 115 kV and lower that mainly follow the county roads. SPS has a limited number of existing transmission lines that cross throughout the study corridor area, including one that runs south and east from the proposed Oasis Connection Point location, two lines located to the north, east, and south of Clovis, and one line from the north that crosses through Ned Houk Memorial Park going into Clovis. In order to support the need for reliability, no alternatives are located parallel to or within one mile of these transmission lines, with the exception of the immediate vicinity of the Pleasant Hill and Roosevelt County substations.

Major Pipelines – There are three pipelines greater than eight inches in diameter in the project area. The pipelines generally run southwest to northeast and ship natural gas, petroleum products (gasoline and diesel fuel), and carbon dioxide (CO_2). The New Mexico Gas pipeline enters the Pleasant Hill to Oasis section of the project alternative corridor, just north of the proposed Oasis Connection Point and proceeding out of the corridor northeast of Ranchvale. The NuStar Pipeline transports petroleum products and is located in the southern portion of the Pleasant Hill to Roosevelt section of the project, crossing just north of County Road 7 and continuing towards the town of Texico. The Bravo Pipeline transports carbon dioxide and is located along segments of the Pleasant Hill to Roosevelt section of the project.

Railroads – The Burlington Northern Santa Fe (BNSF) Railroad parallels US 60/84 and crosses through a portion of both proposed project alternative corridors. BNSF operates a railyard in Clovis and ships consumer products, agricultural products, raw material and coal. (BNSF, 2011)

Roads – U.S. Highways and State Roads within the study corridors include the following:

- US 60/84 runs east to west through the southern portion of Clovis, and crosses the project alternative corridors;
- US 70 runs east to west before turning south, crosses the central portion of Clovis and proceeds south, and continues beyond the Curry and Roosevelt county line;
- SR 311 crosses the Pleasant Hill to Oasis section of the project from the northwest corner of the proposed project alternative corridors to the south, until it connects with US 60/84;
- SR 209 crosses the Pleasant Hill to Oasis section of the project one mile west of County Road I;
- SR 245 proceeds east and west and crosses the southern portion of the Pleasant Hill to Oasis section of the project, and eventually connects to SR 311 and SR 209;
- SR 77 crosses the Roosevelt County to Pleasant Hill section of the project just southeast of the proposed Pleasant Hill Substation and proceeds west, and eventually connects into SR 209; and
- SR 523 crosses the Roosevelt County to Pleasant Hill section of the project to the south and west of the Clovis Municipal Airport, before it eventually joins SR 209.

County Roads - The following county roads are located within one or more of the project alternative corridors. The roads are maintained as unpaved bladed dirt or gravel surfaces:

- County Roads E, F, G, H, I, J, K, L, M, N, O, P, Q, R, and S all proceed north and south; and
- County Roads 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, and 17 all proceed east and west

3.3.1.2 Future Land Use

3.3.1.2.1 General Plans

Future land use activities are guided by the 2007 Curry County and City of Clovis Joint Action Comprehensive Guide and the 2007 City of Clovis Comprehensive Plan. However, the plans have no specific guidelines for transmission line planning or development. Curry County does not have zoning. (Consensus Planning Engineers, 2007)

The area crossed by the project is categorized as agricultural and heavy industrial. The expansion of the Roosevelt County Substation is located in Roosevelt County. However, Roosevelt County does not have general/land use plans or zoning designations.

Cannon Air Force Base has developed plans in context to the base and the surrounding area. The plans reviewed included the 27th Fighter Wing, Air Installation Compatible Use Zone Report (2005); Joint Land

Use Plan: Cannon Air Force Base and Melrose Air Force Base (2011); and Noise Reports Produced as Part of AFSOC Assets Beddown at Cannon Air Force Base, New Mexico Environmental Impact Analysis Process (2008).

An important designation that the Cannon Air Force Base has given to the base and the surrounding area are APZs. These zones were created based on past statistical analysis of DOD aircraft accidents. The first zone is the Clear Zone, which is located at the end of the runway and is the most hazardous. The next zone is APZ I, which is located just beyond the Clear Zone and has a significant potential for accidents. This is followed by APZ II, which has less potential for accidents than does APZ I. Land in APZs I and II do not warrant acquisition by the Air Force, but land use planning and controls are strongly encouraged in these areas. The proposed Pleasant Hill to Oasis section of the project is located in APZ II, which is based on the Clovis Comprehensive Plan and allows for utilities.

3.3.1.3 Proposed Action Alternatives—Pleasant Hill to Oasis

3.3.1.3.1 Proposed Route A

Route A consists of Links O1, O2, O5, and O9, and O10 as depicted in Figure 1.1. This proposed route is 19.9 miles in length. There are 11 homes within 300 feet of this route. This route is located parallel to section boundaries for its entire length; approximately 19 miles of which are parallel or adjacent to roadways, including 8.6 miles of which are parallel or adjacent to existing transmission/distribution lines. The segments would parallel and cross the New Mexico Gas and NuStar pipelines. The proposed route is characterized by a mixture of irrigated and dry farmland, crossing approximately 10.7 miles of land irrigated by 14 center-pivot sprinklers. Approximately 6.7 miles of dry, fallow farmland, or pastureland would be crossed. There are six irrigation wellheads located within immediate proximity to the proposed route. The proposed route would parallel the southern edge of the Ned Houk Motor Sports Complex and Ned Houk Memorial Park for two miles.

3.3.1.3.2 Alternative Route B

Route B consists of Links O1, O3, and O8 as depicted in Figure 1.1. This alternative route is approximately 17.5 miles in length. There are 12 homes within 300 feet of this route. The alternative is located parallel to section boundaries for its entire length; approximately 13.5 miles of which are parallel or adjacent to roadways, including 6.4 miles of which are parallel or adjacent to existing transmission/distribution lines. The segments would parallel and cross the New Mexico Gas and NuStar pipelines. This alternative is characterized primarily by irrigated farmland. Route B crosses approximately ten miles of irrigated farmland and seven center-pivot sprinklers. Approximately three miles of dry, fallow farmland or pastureland would be crossed. There are eight irrigation well heads located within close proximity to this alternative.

3.3.1.4 Proposed Action Alternatives—Pleasant Hill to Roosevelt County Substation

3.3.1.4.1 Proposed Route C

Route C consists of Links R1, R2, R5, R6, R8, R9, R11, R19, R24, R27, R28, and R30 as depicted in Figure 1.1. This proposed route is approximately 17.5 miles in length. There are 17 homes within 300 feet of this route. It is located parallel to section boundaries for 13.7 miles. Approximately 14.5 miles of this route are parallel or adjacent to roadways, and 5.3 miles of this route are parallel or adjacent to existing transmission/distribution lines. The segments would cross the Bravo Pipeline. This alignment is characterized primarily by irrigated farmland, crossing approximately 2.7 miles of irrigated farmland and 18 center-pivot sprinklers. Approximately 2.3 miles of dry, fallow farmland or pastureland would be crossed. There are seven irrigation wellheads located within immediate proximity to this route, which is located approximately 0.75 mile from AeroTech's runway.

3.3.1.4.2 Alternative Route D

Route D consists of Links R1, R2, R3, R8, R12, R14, R22, R21, and R28 as depicted in Figure 1.1. This proposed route is approximately 17.6 miles in length. There are 16 homes within 300 feet of this route. This alternative is located parallel to section boundaries for 7.7 miles. Approximately 10.2 miles of this alternative are parallel or adjacent to roadways, and 2.5 miles are parallel or adjacent to existing transmission/distribution lines. The segments would cross the Bravo Pipeline. This alternative is characterized primarily by irrigated farmland, crossing approximately 2.8 miles of irrigated farmland with approximately 19 center-pivot sprinklers. Approximately 2.3 miles of dry, fallow farmland or pastureland would be crossed. There are nine irrigation wellheads located within immediate proximity to this alternative, which is located approximately 0.75 mile from AeroTech's runway.

3.3.1.5 Proposed Action Alternatives—Pleasant Hill and Roosevelt County Substations

The proposed Pleasant Hill Substation site is located in the northeast corner of Section 15, Township 3 North, Range 6 East. It is bordered on the north by County Road 16 and on the east by County Road G. A 115 kV transmission line is located on the eastern edge of the site. This parcel of land is in agricultural production as dryland farming. Links O8, O9, and R28 connect with the substation from the south, north and east, respectively.

Additions to the Roosevelt County Substation would occur in an area immediately adjacent to the edge of this existing substation, in an area that is presently used for dryland farming. Link R1 connects to the substation and is an east-west alignment along North Roosevelt Road.

3.3.2 Environmental Consequences

Impacts to land use may be defined as physical restrictions or displacement of existing and future land uses that would result from the construction and operation of the proposed project. Typically, land use impacts related to transmission lines would occur as a result of the granting of a right-of-way or easement across property and/or potential conflict with project facilities.

Of key importance for the project is the consideration for potential impacts associated with agricultural practices. In general, the types of impacts related to agriculture that could result during construction and operation of the transmission line include: (1) temporary and/or permanent removal of cropland from production at pole locations (2) permanent removal of cropland from production at substation sites; (3) reduction in crop yields around poles due to soil compaction during construction; (4) increased difficulties with weed and pest control after construction; (5) increased time required for farming operations; (6) disruption of agricultural aircraft operations; and (7) impedance to center-pivot irrigation systems and irrigation wells.

Indirect impacts on residential and agricultural uses could also occur after construction of the transmission lines. For example, construction of new buildings or additions to existing structures would be prohibited within the right-of-way to avoid conflicts with operation of the transmission line, periodic maintenance activities, and to ensure safety.

3.3.2.1 Proposed Action Alternatives—Pleasant Hill to Oasis

3.3.2.1.1 Proposed Route A

Proposed Route A consists of Links O1, O2, O5, O9, and O10. Impacts to irrigated farmland totaling 10.6 miles, and dry, fallow farmland or pastureland totaling 6.7 miles would be mitigated through location of the right-of-way, selective tower placement along field edges, and spanning the edge of center-pivot sprinklers. In addition, clearance over irrigation wells would be maintained through selective placement of the line in localized areas.

The proposed transmission line is not expected to create direct conflicts with activities associated with the Ned Houk Memorial Park and Ned Houk Motorsports Complex. The proposed alignment of the link parallels the park's southern boundary. The Ned Houk Memorial Park is presently crossed by an existing 115 kV transmission line near the entrance to the Motor Sports Park in this area and has a distribution line that runs within and adjacent to the park along most of the park's southern boundary. Based on conversation between SPS and the City of Clovis regarding Ned Houk Memorial Park and Ned Houk Motorsports Complex no conflicts are anticipated as long as the line is parallel to County Road 17. No conflicts are anticipated with Cannon Air Force Base, APZ II restrictions.

3.3.2.1.2 Alternative Route B

Proposed Route B consists of Links O1, O3, and O8. Direct impacts to residences would be avoided with this alternative. Impacts to irrigated farmland totaling 13.75 miles, and dry, fallow farmland or pastureland totaling three miles would be mitigated through right-of-way location, selective tower placement along field edges, and spanning the edge of center-pivot irrigated farmland. Clearance over irrigation wells would be maintained through selective placement of the line in localized areas. No conflicts with Cannon Air Force Base, APZ II restrictions are anticipated for this route.

3.3.2.2 Proposed Action Alternatives—Pleasant Hill to Roosevelt County Substation

3.3.2.2.1 Proposed Route C

Proposed Route C consists of Links R1, R2, R5, R6, R8, R9, R11, R19, R24, R27 R28, and R030. Direct impacts to residences would be avoided with this route. Impacts to irrigated farmland totaling 12.7 miles, and dry, fallow farmland or pastureland totaling 2.3 miles would be mitigated through selective tower placement along field edges, and spanning the edge of center-pivot irrigated farmland. Clearance over irrigation wells would be maintained through right-of-way location and selective placement of the line in localized areas. If required, marker balls or high visibility devices would be attached to the shield wire in the vicinity of AeroTech.

3.3.2.2.2 Alternative Route D

Proposed Route D consists of Links R1, R2, R3, R8, R12, R14, R22, R21, and R28. Direct impacts to residences would be avoided with this alternative. Impacts to irrigated farmland totaling 13.3 miles, and dry, fallow farmland or pastureland totaling 2.3 miles would be mitigated through selective tower placement along field edges, and spanning the edge of center-pivot irrigated farmland. Clearance over irrigation wells would be maintained through right-of-way location and selective placement of the line in localized areas. If required, marker balls or high visibility devices would be attached to the shield wire in the vicinity of AeroTech.

3.3.2.3 Proposed Action Alternatives—Pleasant Hill and Roosevelt County Substations

Construction of the Pleasant Hill Substation would result in the permanent loss of approximately four acres of dry farmland with the development of the new substation. The balance of the area examined for the substation during the study will remain as dry farmland. The substation would be designed and constructed in a manner that prevents, controls, and contains accidental spills from oil-filled equipment. The ground level of the substation yard would be graded to direct the flow of water runoff. The yard would be covered with a layer of gravel (4 or more inches thick) that would help inhibit flow of water or other liquids and would serve as an absorbent in the event of an oil spill. Berms or other barriers would be used around the perimeter of the yard to control runoff. Containment structures, usually made of cement and designed to contain spills, would be constructed at the base of oil-filled equipment. The substation facilities would be enclosed by chain-link fence with a locking gate and adequate night lighting for security.

Construction of additions to the Roosevelt County Substation would result in the permanent loss of approximately two acres of dry farmland with the expansion of the existing substation. Similar to the

Substation, this addition would be designed and constructed in a manner that protects adjacent land use, and new facilities would be enclosed in a chain-link fence.

3.3.2.4 Mitigation

Many of the impacts associated with land use have been addressed through selective siting of the alternatives. In addition, specific key mitigation measures would include, but not be limited to, the following:

- Selective tower placement and spanning of features to avoid conflicts with center-pivot irrigation, irrigation wells, animal husbandry operations, and other agricultural infrastructure, as appropriate;
- Right-of-way location and collocation with other existing rights-of-way;
- Use of marker balls or high visibility devices in the vicinity of airfields;
- Site restoration practices that reduce soil erosion and compaction; and
- Seasonal timing of construction to avoid conflicts with agricultural practices.

3.4 Visual Resources

The visual resource study included consideration of the effects of the proposed project on landscape character, sensitive viewers, and agency management plans. In conjunction with land use investigations, the visual resource studies were focused in an area 0.5 mile on either side of the assumed centerline for a total corridor width of one mile. Aerial photo interpretation was completed for the study corridor to inventory land use that may be considered sensitive to viewers within the corridor.

A review of existing land use plans for Curry County and the City of Clovis did not reveal visual resource management guidelines for the area. Roosevelt County does not have a land use plan or guidelines for visual resources.

3.4.1 Affected Environment

3.4.1.1 Landscape Character

The proposed project is located on the Llano Estacado section of the Southern Great Plains physiographic province. The Llano Estacado is a broad, flat to slightly rolling and semi-arid plateau that is dry and treeless. The physiographic features have been heavily modified over time in the project area through the development of cities, towns and rural settlements as well as and agricultural practices. Figure 3.2 illustrates the typical rural and agricultural character of the project area.

Figure 3.2 Typical rural and agricultural landscape setting of the project area

The City of Clovis, agricultural operations, rural residential, and three aviation facilities are common cultural modifications in the Curry and Roosevelt county area. Transportation corridors create a web across the landscape and three pipelines cross from the south and southwest to the north and northeast. A network of transmission and distribution lines is present in the Curry and Roosevelt county area. Generally, the cultural modifications appear as clusters of blocks and low cylinders, flat and linear features, and a series of structures evenly spaced across the landscape.

The setting of the study corridor and alternatives is common for the region, characterized primarily by agricultural activities, such as dry land and irrigated farming, including mechanized irrigation systems with rural residential farmsteads scattered throughout the landscape. Figures 3.3 and 3.4 illustrate the agricultural character of the project area. Large industrial-scale agricultural activities such as dairy farms, feedlots, and grain elevators are also present and are present in the foreground and middleground within the project area. Several distribution lines and high voltage transmission lines have modified the setting from the foreground to the background as viewed from the study corridor. Figure 3.5 illustrates the transmission lines in the vicinity of the proposed Pleasant Hill Substation.

Figure 3.3 Typical agricultural operations in the project area

Figure 3.4 Typical agricultural operation with pivot irrigation

Figure 3.5 Existing transmission lines in the vicinity of the proposed Pleasant Hill Substation

Little or no native vegetation remains in the farmland areas because agricultural practices removed the native groundcover and shrubs. Junipers and non-native tree species, are often planted around residences for shade, windbreaks, or landscaping, and provide some variety of color, line, form and texture in the landscape. Figure 3.6 illustrates a typical farmstead with a windbreak and residential landscaping. Running Water Draw is located north of the Pleasant Hill Substation and is present along the northern boundary of the study corridor. The gently to moderately sloping v-shaped drainage contains the only substantial area of native vegetation remaining within the vicinity of the project.

Figure 3.6 Existing farmstead with residential landscaping and windbreak

3.4.1.2 Sensitive Viewers

Visual sensitivity reflects the degree of public concern for change in the landscape character from key viewing areas. The type of viewpoint and distance from sensitive viewers were considered in this analysis. Distance from the viewer is defined as foreground, middleground, and background. For the purposes of this study, alternatives were specifically evaluated within a foreground viewing area at distances ranging from immediate foreground (zero to 300 feet), near foreground (300 feet to ¼ mile), and foreground areas (from ¼ to ½ mile). Middleground distance range from ½ mile to five miles and background is considered from five miles to the edge of the viewing area.

Key viewing areas within the study corridor are associated with residences, park and recreation areas, and vehicle travel routes. The majority of residences within the study corridor consist of scattered farmsteads and rural residential clusters. The Ned Houk Motor Sports Complex and Ned Houk Memorial Park is the only park and recreation area in the project area. The park is adjacent to the Pleasant Hill to Oasis alternative segments. No other park or recreation areas are located within the alternative study corridors for the proposed Pleasant Hill to Roosevelt project. Major vehicular travel routes with views of the alternatives include US 60/84, a four lane undivided urban roadway, which would be crossed by the project. Other county roads are listed in section 3.3.1.1, Existing Land Use.

3.4.2 Environmental Consequences

Visual impacts would be immediate and long-term, remaining over the life of the proposed project. Construction and operation of the proposed facilities may result in impacts that affect the landscape character of an area and views from sensitive viewing locations such as residences, parks and recreation areas, and vehicular travel routes in the vicinity of the transmission lines and substations.

Impacts to the landscape character for the proposed project would vary based upon the level of modifications to the setting. The proposed project would create a linear series of fine, splinter-like lines across the landscape. The wires may have varying degrees of visibility depending on materials used, lighting, and weather conditions. The lack of topographic features would permit the transmission line to be visible from the foreground to the background, with the visual impact decreasing in the background setting.

Impacts on sensitive viewers could range depending on visibility, including distance from viewers, screening potential, and contrast, based on existing visual conditions. Terrain features would have little impact on the visibility since the project area is predominantly flat with few areas of slightly rolling terrain. Areas of highest impact would occur in those areas where the transmission lines or substations would be viewed in the immediate and near foreground distance zones from sensitive viewing locations, in settings that have not been previously impacted by cultural modifications such as other distribution and transmission lines and/or other industrial-scale agricultural activities (e.g., feedlots, pivot irrigation structures).

The alternatives for the Pleasant Hill to Roosevelt and Pleasant Hill to Oasis transmission lines, as well as the proposed Pleasant Hill Substation, are located in areas zoned by Curry County as Rural Agriculture. Curry County does not have specific visual management guidelines. Roosevelt County does not have visual management guidelines. Therefore no impacts are anticipated with regard to compliance with either county's visual management objectives for the proposed project.

Following is a detailed description of the visual impacts associated with the proposed project. This discussion is followed by a summary of key visual resource mitigation measures that would be implemented in order to reduce visual impacts.

3.4.2.1 Proposed Action Alternatives—Pleasant Hill to Oasis

3.4.2.1.1 Proposed Route A

This alternative would parallel existing distribution facilities for approximately 8.6 miles. Sensitive viewers include vehicular travelers along US 60/84 near the Oasis Connection Point west of Clovis and travelers using SR 311 and SR 209. The visual impacts would be in the immediate foreground, near foreground, and foreground views.

The proposed project would parallel SR 311 for approximately two miles. A total of 11 residences are located within the immediate foreground area; 25 are located within the near foreground area, and 37 are located within the foreground area. Views from these locations may vary from open to partially screened and fully screened. Visual impacts from these locations would range from minimal to high, dependent on the distance and visibility of the proposed transmission and other lines, and the presence of localized screening in the form of trees (including shelterbelts) and out-structure buildings, where present.

The transmission line would be viewed from portions of the Ned Houk Motor Sports Complex and Ned Houk Memorial Park. However, the setting has been modified by an existing 115 kV transmission line near the entrance to the Motor Sports Complex. There is a distribution line that runs within and adjacent to the park, north and south of County Road 17, along most of the park's southern boundary, as well as a distribution line along portions of the western boundary. Figure 3.7 illustrates the lines running north from County Road 17 and into the park.

3.4.2.1.2 Alternative Route B

This alternative would parallel existing distribution facilities for approximately 6.4 miles. Sensitive viewers include vehicular travelers along US 60/84 near the Oasis Connection Point and at SR 311 and SR 209 crossings. The impacts would be in the immediate foreground, near foreground, and foreground views.

A total of 12 residences are located within the immediate foreground area, 22 are located within the near foreground area, and 33 are located within the foreground area. Views from these locations may vary from open to partially screened and fully screened. Visual impacts from these locations would range from minimal to high, dependent on the distance to and visibility of the proposed transmission line and other existing lines, and the presence of localized screening in the form of trees, including shelterbelts, and out-structure buildings.

Figure 3.7 View north from County Road 17 into Ned Hoak Memorial Park and the existing 115kV transmission line

3.4.2.2 Proposed Action Alternatives—Pleasant Hill to Roosevelt County Substation

3.4.2.2.1 Proposed Route C

This route would parallel existing distribution facilities for approximately 5.3 miles. Industrial development on the eastern edge of Clovis, and a large dairy farm south of Clovis and adjacent to this alternative, have further modified the setting.

Sensitive viewers include vehicular travelers along US 70, where this alternative crosses the highway east of Clovis. Viewers in this area would have immediate foreground, near foreground, and foreground views of the transmission line and substation. A total of 16 residences are located within the immediate foreground area, 40 are located within the near foreground area, and 59 are located within the foreground area. Most of the viewers are located west of the Clovis Municipal Airport on County Road E. Views from all of these locations may vary from open to partially screened and fully screened. Visual impacts from these locations would range from minimal to high, dependent on the distance to and visibility of the proposed transmission line and other lines, and the presence of localized screening in the form of trees, including shelterbelts, and out-structure buildings.

3.4.2.2.2 Alternative Route D

This alternative would parallel existing distribution facilities for approximately 2.5 miles. Sensitive viewers include vehicular travelers along US 70, where this alternative crosses the highway east of Clovis. Viewers in this area would have immediate foreground, near foreground, and foreground views. A total of 17 residences are located within the immediate foreground area, 53 are located within the near foreground area, and 89 are located within the foreground area. Most of the viewers within the foreground area are located along County Road E, west of the Clovis Municipal Airport. Views from all of these locations may vary from open to partially screened and fully screened. Visual impacts from these locations would range from minimal to high, dependent on the distance to and visibility of the proposed transmission line and other lines, and presence of localized screening in the form of trees, including shelterbelts, and out-structure buildings.

3.4.2.3 Proposed Action Alternatives—Pleasant Hill and Roosevelt County Substations

The Pleasant Hill Substation is located on a site currently being used for dry land farming. The landscape setting is modified by the presence of a 115 kV transmission line along the site's eastern boundary. One residence is located within 0.5 mile of the proposed site. Local travelers along County Road G and County Road 16 would have immediate to near foreground and foreground views of the substations. Views from the Ned Houk Motor Sports Park would be over one mile to the Pleasant Hill Substation.

The expansion of the Roosevelt County Substation would result in minimal visual impacts because the footprint of the expansion would be smaller than the existing substation. County Road 3 is located immediately north of the substation. There are no residences within the foreground viewing area.

3.4.2.4 Mitigation

The proposed project will be visible from several viewpoints in the project corridor. Mitigation measures could help reduce the visible contract and impact to the setting. Mitigation measures could include the following:

- Selection of the proposed links and segments removed from densely populated areas;
- Selective structure placement within the right-of-way;
- Structure type, including but not limited to the use of single-pole structures; and
- Type of structure material, including but not limited to Corten steel and non-specular conductors to reduce contrast in the visible landscape.

3.5 Cultural Resources

This section presents the cultural resources that occur within the proposed project study corridor, and that could be affected by the construction, operation, and maintenance of the transmission lines and substations, including any subsequent impacts.

3.5.1 Affected Environment

In an effort to identify known cultural resources that could be affected by the proposed project, New Mexico State Records searches were conducted by the New Mexico State Historic Preservation Division (HPD) in April 2011 and TRC on November 15, 2011. This included searches of prior surveys, previously recorded archaeological sites, the State Register of Cultural Properties, and the National Register of Historic Places (NRHP).

The search revealed a total of 27 prior cultural resources surveys, three historic buildings, and 16 previously recorded archaeological sites within a 1-mile radius of the transmission alternatives (Table A-1, Appendix A). The three historic buildings are all in the community of Ranchvale within the Oasis Project alternative corridor. The three buildings—30499, 30450, 30451—consist of a school, a church, and a residence. For the 16 archaeological sites, five—(Laboratory of Anthropology site numbers) LA30487, LA30488, LA30490, LA37403, and LA64799—are artifact scatters (less than 1,000 feet in length) dating to prehistoric times. The remaining 11 sites—LA30489, LA38658, LA75218, LA75219, LA75221, LA75222, LA75227, LA135089, LA143098, LA143099, and LA143104—date from the early- to mid-twentieth century and consist of abandoned homesteads, ranching and agricultural features, and trash scatters. The eligibility of the 16 previously recorded sites to be listed on State or National Registers has not been evaluated. In addition, according to the ARMS database LA 143098 and LA 143099 have been deleted and are no longer considered sites. They are mentioned herein because they are still shown on the ARMS GIS database map.

3.5.2 Environmental Consequences

This section discusses impacts to cultural resources that may occur with the construction and operation of the proposed project.

3.5.2.1 Proposed Action Alternatives

The three recorded historic buildings in the community of Ranchvale are north of the Pleasant Hill to Oasis alternative route and will be within the view shed of the proposed power line. Building 30499, a school, is 200 to 505 feet north, Building 30450, a church, is 160 to 793 feet north, and Building 30451, a residential or commercial building, is 650 to 690 feet north of the link 04 centerline. For the 16 archaeological sites recorded in the study corridors, six are intersected by the proposed transmission lines. Four sites—LA 30489, LA 30490, LA 143098, and LA 143099—are within the proposed Pleasant Hill to Oasis project study corridor. LA 30489 and LA 30490 are at the south connection point (substation) for the Pleasant Hill to Oasis study corridor. LA 30489 has an early- to mid-twentieth century affiliation and LA 30490 is a prehistoric artifact scatter with tools. LA 143098 and LA 143099 are along the Pleasant Hill to Oasis alternative route. LA 143099 is an abandoned historic homestead and LA 143098 is an unspecified historic site with no structural features. However, although these two sites occur on the ARMS GIS database, according to the ARMS site file records both sites have been deleted and are no longer considered sites. Tables 3.1 and 3.2 show pertinent information on the Archaeological sites and Historic buildings within the 2-mile buffer zone.

Two historic sites—LA 38658 and LA 143104—are within the proposed Pleasant Hill to Roosevelt County substation power line alternative study corridor. LA 38658, a no longer standing historic homestead, is 50 to 100 feet west of the link R23 centerline. LA 143104, historic features (no site form), is 5,200 to 5,280 feet north of the link R6 centerline and 0 to 100 feet west of the link R8 centerline.

Depending on the distance across the sites that intersect these routes, it may be possible to avoid impacts by monitoring construction activity in these areas and through careful tower placement. The remaining 10 sites are not intersected by the proposed or alternative routes, nor are there any recorded sites located at the proposed Pleasant Hill Substation or at the expansion to the Roosevelt County Substation. There are two sites—LA 30489 and LA 30490—that are within or adjacent to the south connection point for the Pleasant Hill to Oasis power line. Because there have been few cultural resources surveys in the project vicinity, there is a possibility that unknown cultural resources exist in the project study area.

The New Mexico State Historic Preservation Officer (SHPO) has requested a Class III (100% pedestrian survey) of the corridor right-of-way prior to construction. (NMSHPO 2011) If avoidance of cultural resource sites is not feasible, then mitigating the project impacts on important cultural resources may be conducted in consultation with the New Mexico SHPO.

Table 3.1 Recorded Archaeological sites and Historic buildings within 2-mile buffer

LA Number	Link	Site Type	Centerline/ Substation or Buffer	Min-Max Distance to Centerline ft	Direction from Centerline	Features	NRHP Eligibility
30487	O1, O3	Paleoindian artifact scatter with tools	Buffer	01=4,530 to 4,630 03=3,400 to 3,500	East South	No	Unknown
30488	O1, O3	Archaic artifact scatter	Buffer	01=1,642 to 2,200 03=4,206 to 4,436	East South	Possible Hearth	Unknown
30489	O1	Historic homestead	Buffer	110 to 360	West	Yes	Unknown
30490	O1	Prehistoric artifact scatter with tools	Buffer	675 to 775	Southeast	No	Unknown

LA Number	Link	Site Type	Centerline/ Substation or Buffer	Min-Max Distance to Centerline ft	Direction from Centerline	Features	NRHP Eligibility
37403	O1, O3	Prehistoric artifact scatter	Buffer	01=792 to 1,153 03=2,767 to 2,920	West South-Southwest	Unknown	Unknown
38658	R23	Historic homestead (no longer standing)	Centerline	50 to 100	West	Yes	Unknown
64779	O3	Archaic artifact scatter	Buffer	3,930 to 4,055	South	No	Unknown
75218	O9	Historic homestead	Buffer	~ 800 no site form	North	Yes	Unknown
75219	O9	Historic ranching features	Buffer	>2,500 no site form	North	Yes	Unknown
75221	O9	Historic trash	Buffer	>2,500 no site form	North	Yes	Unknown
75222	O9	Historic ranching features	Buffer	>2,500 no site form	North	Yes	Unknown
75227	O9	Historic features	Buffer	>2,500 no site form	North	Yes	Unknown
107382	R26	Historic Homestead	Buffer	5,050 to 5,247	East	Yes	Unknown
135089	R1	Historic trash	Buffer	620 to 882	West	No	Unevaluated
143098	O4	Historic site, unspecified DELETED, No longer a site	Centerline	NA	NA	No	No longer a site (designated isolated occurrence)
143099	O4	Historic features DELETED, No longer a site	Centerline	NA	NA	Yes	No longer a site (designated isolated occurrence)
143104	R6 R8	Historic features	Centerline Buffer	R6=5,280 to 5,200 R8= 0 to 100 no site form	North West	Yes	Unknown

Table 3.2 Recorded Historic Buildings within 2-mile Buffer

Building No.	Link	Site Type	Along Centerline	Min-Max Distance to Centerline ft	Direction from Centerline	Features	NRHP Eligibility
30499	O4 O5	School	Buffer	04=200 to 505 05=4,820 to 5,120	North South	Building, Ranchvale Community	Unknown
30450	O4 O5	Church	Buffer	04=160 to 793 05=4,500 to 5,150	North South	Building, Ranchvale Community	Unknown
30451	O4 O5	Residential	Buffer	04=650 to 690 05=4,684 to 4,700	North South	Building, Ranchvale Community	Unknown

3.6 Biological, Earth, and Water Resources

This section discusses the biological resources that could potentially occur within the proposed project area, and identifies sensitive biological conditions that could be affected by the construction and operation of the project.

3.6.1 Biological Resources

3.6.1.1 Affected Environment

Below is a description of the likely occurring and observed vegetation, wildlife, and sensitive species located within the alternatives for the proposed project.

3.6.1.2 Vegetation

Located in the southwestern portion of the Great Plains, the study corridor was once dominated by shortgrass prairie before it was converted to farmland. Project alternatives are located almost entirely on the edges of active or fallow farmland, with the active farmland primarily supported by center-pivot irrigation. Little to no native vegetation remains in these areas, although roadside ditches and the margins of center-pivot irrigated fields may support a mixture of native and non-native grasses and forbs. Low-density rural development exists within the study corridors for the proposed project as isolated farmhouses or small clusters of buildings. Trees, generally non-native and/or coniferous species, are often planted around residences for shade, windbreaks, orchards, or landscaping, and may provide some wildlife habitat. Swales, often remaining as unplowed patches surrounded by farmland, support plant associations dominated by alkali sacaton (*Sporobolus airoides*) and saltgrass (*Distichlis spicata*). Fallow agricultural fields within the study corridor also recover some degree of native ground cover, although introduced and early seral weedy species [such as field bindweed (*Convolvulus arvensis*) and Russian thistle (*Salsola* ssp.)] and yucca (*Yucca glauca*) were observed are typically more dominant.

Running Water Draw, located approximately two miles north of the Pleasant Hill Substation running west to east, contains the only substantial area of somewhat native vegetation remaining in the vicinity of the study corridor. Approximately 2 miles of the Pleasant Hill to Oasis section are located in this area, near the vicinity of the Ned Houk Memorial Park. Within this ephemeral drainage are several plant species occur that are typical of shortgrass prairie, including blue grama (*Bouteloua gracilis*), buffalograss (*Bouteloua dactyloides*), several other species of *Bouteloua*, and purple threeawn (*Aristida purpurea*). Some shrubs such as mesquite (*Prosopis* spp.) occur along drainages where soil is sufficiently moist. Crack willows (*Salix fragilis*) were observed along a historic, but dry, irrigation canal.

Several playa lakes and isolated (non-jurisdictional) wetlands are also located within the study area (Figure 3.1). Under the Curry County Playa Restoration Program, an agreement was reached between certain landowners and the National Resources Conservation Service (NRCS) to keep cattle from grazing portions of their land that contain a specific playa lake (a type of ephemeral wetland) and a surrounding buffer zone, for a period of 10 years. The program is co-administered by the U.S. Fish and Wildlife Service (USFWS) and the New Mexico Office of Natural Resources Trustee. The terms of the agreement stipulate that there will be no ground disturbance in the playa lake or in the buffer zone. A transmission line cannot span the playa lake/buffer zone or be constructed around the playa lake/buffer zone, because transmission line construction would likely break the agreement. In this case, the landowner would have to return any funds previously paid under the agreement and pay a 20 percent penalty. The Curry County Soil and Water Conservation District and the NRCS are responsible for enforcing the agreement. Further disputes would be settled by the County Board of Supervisors. Link R24 is located east of the playa lake and does not cross the designated area.

3.6.1.3 Wildlife

The following subsections describe the wildlife resources associated with the alternatives for the proposed project.

3.6.1.3.1 Mammals

Prior to widespread European colonization, the mammalian fauna of eastern New Mexico was dominated by large grazing mammals, but is now limited primarily to pronghorn (*Antilocapra americana*) and white-tailed deer (*Odocoileus virginianus*). Numerous rodent burrows [likely voles (Subfamily Arvicolinae)] were observed in the project corridor, as were several black-tailed prairie dog towns (Figure 3.10). One of these rodents' predators, a road-killed coyote (*Canis latrans*), was observed in the project corridor, and it is likely other rodent predators may occur within or near the project corridor, including the badger (*Taxidea taxus*) and swift fox (*Vulpes velox*). Some bat species may be present in the study corridor, roosting in either old buildings and other manmade structures, or any natural caves or cavities that may be present. Potentially occurring sensitive and non-sensitive mammal species are listed in Appendix B.

There are several types of observed livestock in the project corridor, from horses (*Equus ferus caballus*) to cows (*Bos primigenius*) (both dairy and beef CAFO and rangeland) to an exotic animal farm with dromedary camels (*Camelus dromedarius*), llamas (*Lama glama*), and plains zebras (*Equus quagga*). Also a small herd of bison (*Bison bison*) is located in the Ned Houk Memorial Park.

3.6.1.3.2 Birds

The southwestern Great Plains host a suite of birds adapted to the low cover and relative aridity of the shortgrass prairie ecosystem. Many of these bird species have experienced significant range reductions over the past century as much of the Great Plains was converted to farmland. Sprague's pipit (*Anthus spragueii*), lesser prairie-chicken (*Tympanuchus pallidicinctus*), and western burrowing owl (*Athene cunicularia hypugaea*) are grassland-associated species with special agency status, and further described below in Section 3.6.1.3.

Waterfowl, shorebirds, and wading birds may occur near permanent or ephemeral man-made ponds or playas in the study corridor, although most or all species are migratory and would not remain to nest in the area. Bird diversity is highest during spring and fall migration, when a number of passerine and other avian species pass through the area and may use atypical habitats as feeding or resting stopovers. In the relatively treeless Great Plains, urbanized areas or parks with trees may be particularly attractive to migrants.

Eleven bird species were observed during TRC's November 10, 2011 site visit, and include American crow (*Corvus brachyrhynchos*), American kestrel (*Falco sparverius*), horned lark (*Eremophila alpestris*), meadowlark (*Sturnella* spp.), mourning dove (*Zenaida macroura*), northern flicker (*Colaptes auratus*), northern harrier (*Circus cyaneus*), red-tailed hawk (*Buteo jamaicensis*), rock dove (pigeon) (*Columba livia*), and white-crowned sparrow (*Zonotrichia leucophrys*). Also chickens (*Gallus gallus domesticus*) were observed in some areas, and a quail (Order Galliformes) habitat sign was observed on a private property. Other than the rock dove, three other non-native bird species probably occur within the study corridor, including the ring-necked pheasant (*Phasianus colchicus*), European starling (*Sturnus vulgaris*), and house sparrow (*Passer domesticus*). Many other potentially occurring sensitive and non-sensitive bird species may occur in the study corridor, and are listed in Appendix B.

3.6.1.3.3 Reptiles

Reptile diversity is relatively low in this area primarily due to the conversion of shortgrass prairie to agricultural land. The heterogeneous environment, plus the arid climate result in a lack of cover and topographical diversity which reduces the amount of habitat variability for reptiles, many of which specialize in high-cover microhabitats. However, the burrowing rodents in the study corridor, provide a

food and shelter source for some snake and lizard species, including the Six-lined Racerunner (*Aspidoscelis sexlineatus*), two skink species, and two species of venomous snake, the Western Diamondback Rattlesnake (*Crotalus atrox*) and Prairie Rattlesnake (*Crotalus viridis*); although their populations are often reduced or eliminated near human activity, particularly through traffic mortality. No reptiles were observed during TRC's November 2011 site reconnaissance. A list of potentially occurring sensitive and non-sensitive reptilian species are listed in Appendix B.

3.6.1.3.4 Amphibians

Several species of amphibians may occur within the study corridor. Arid-adapted toads, American Bullfrog (*Lithobates catesbeianus*), Plains Leopard Frog (*Lithobates blairi*), and the tiger salamander (*Ambystoma tigrinum*) may occur near drainages or temporary ponds, where they breed following summer heavy rains. The American Bullfrog is probably not native to the region given the absence of suitable natural habitat, but has been introduced widely throughout western North America and likely occurs in ponds within the study corridor. No amphibians were observed during TRC's November 2011 site reconnaissance. A list of the potentially occurring non-sensitive amphibian species are listed in Appendix B.

3.6.1.3.5 Fish

No fish are native to the study corridor. However, Channel Catfish (*Ictalurus punctatus*) are stocked annually at the Ned Houk Memorial Park for recreational fishing opportunities. (USFWS 2009a; Clovis News Journal 2007) Other fish species, including members of the families Centrarchidae (bass and sunfish), Cyprinidae (carp and minnows), and Poeciliidae (mosquitofish and livebearers), have likely been stocked in permanent ponds in and around the study corridor. No fish were observed during TRC's November 2011 site reconnaissance.

3.6.1.4 Sensitive Species

The below discussion describes the likelihood of the 24 federally and state-listed species that are located within the alternatives for the proposed project. (Biota Information System of New Mexico [BISON-M] 2011), (USFWS 2011a, 2011b) These species are also described on Table 3.3, and include 13 birds, 9 mammals, one reptile and one plant species. (United States Department of Agriculture [USDA] 2011) Of these species, six bird species and three mammals may occur in the proposed corridor and are further described below. (United State Forest Service [USFS] 2006), (BISON-M 2011), (USFWS 2011a, 2011b) (University of Kansas 2011)

3.6.1.4.1 Wildlife

Birds

The Baird's sparrow (*Ammodramus bairdii*) is listed as a species of concern by the USFWS (2011a), and as threatened by the State of New Mexico. Baird's sparrows are migratory grassland birds that winter along the United States-Mexico border into central Mexico, and nest in the northern Great Plains. The species has been reported occasionally in Curry and Roosevelt Counties and other locations in eastern New Mexico during migration, but does not occur regularly or for long periods of time.

The lesser prairie-chicken (*Tympanuchus pallidicinctus*) is a candidate for listing under the ESA. (USFWS 1998) It is a non-migratory, grassland-obligate bird that was once distributed throughout southern shortgrass prairies and shinnery-oak or sandscrub habitats from south-central Texas to northeastern Kansas, including the eastern one-third of New Mexico (Johnson et al. 2006). As shortgrass prairie was converted to farmland, the range of the species was greatly reduced. Populations and potential habitats are present near the northwestern and southwestern portions of the corridor. (University of Kansas 2011) The species could potentially occur within the study corridor, as depicted in Figure3.1.

The loggerhead shrike (*Lanius ludovicianus*) is a sensitive state species (BISON-M 2011) that occurs in Curry and Roosevelt counties. This species ranges altitudinally from agricultural lands on the prairies to montane meadows (BISON-M 2011). Even though native grasslands were converted, this generalist species is able to find rodent prey capable of tolerating land disturbances. This species is likely in the study corridor.

The mountain plover (*Charadrius montanus*) is a sensitive state species (BISON-M 2011) that occurs in Curry and Roosevelt counties. This species prefers low vegetation in natural or man-made environments. (BISON-M 2011) Even though native grasslands were converted, this species is likely to find suitable habitat in the study corridor.

Table 3.3 Federal and State Listed Threatened and Endangered Species in Curry and Roosevelt Counties

COMMON NAME	SCIENTIFIC NAME	COUNTY OCCURRENCE	PREFERRED HABITAT	FEDERAL AND/OR STATE STATUS	LIKELY TO OCCUR IN PROJECT AREA?
Birds					
American Peregrine Falcon	Falco peregrinus anatum	Curry and Roosevelt	Cliffs in wooded/forested habitats, with large "gulfs" of air nearby in which these predators can forage	Federal: FWS Species of Concern State NM: Threatened	No
Arctic Peregrine Falcon	Falco peregrinus tundrius	Curry and Roosevelt	Migrates through Nevada, as it breeds in the Arctic tundra, and winters along coastlines and mountains from Florida to South America	Federal: FWS Species of Concern State NM: Threatened	No
Baird's Sparrow	Ammodramus bairdii	Curry and Roosevelt	Ranges from desert grasslands to prairies to mountain meadows	Federal: FWS Species of Concern State NM: Threatened	Yes
Bald Eagle	Haliaeetus leucocephalus alascanus (NM)	Curry and Roosevelt	Large trees or cliffs near water with a good supply of fish. They winter beside rivers and lakes, or where carrion is available	State NM: Threatened	No
Least Tern	Sterna antillarum athalassos (NM)	Curry and Roosevelt	Typically sandy areas that are relatively free of vegetation, such as river sandbars, lake beaches, and alkali flats	Federal: Endangered State NM: Endangered	No
Lesser Prairie-Chicken	Tympanuchus pallidicinctus	Curry and Roosevelt	Mid-grass rangelands characterized by shinnery oak, sand sagebrush, and mixed-grass communities within the southern Great Plains	Federal: Candidate State NM: Sensitive taxa (informal)	Yes
Loggerhead Shrike	Lanius ludovicianus excubitorides (NM); sonoriensis (NM); gambeli (NM)	Curry and Roosevelt	Ranges altitudinally from agricultural lands on the prairies to montane meadows	State NM: Sensitive taxa (informal)	Yes
Mountain Plover	Charadrius montanus	Curry and Roosevelt	Strongly associated with sites of heaviest grazing pressure to the point of excessive surface disturbance also attracted to man-made landscapes (e.g., sod farm, cultivated fields) that mimic the natural habitat associations, or sites with grassland characteristics (alkali flats, other agricultural lands)	State NM: Sensitive taxa (informal)	Yes
Northern Goshawk	Accipiter gentilis	Roosevelt	Mature, closed canopied coniferous forests of mountains and high mesas	Federal: FWS Species of Concern	No
Varied Bunting	Passerina versicolor versicolor (NM); dickeyae (NM)	Roosevelt	Dense stands of mesquite (*Prosopis* spp.) and associated growth in canyon bottoms	State NM: Threatened	No
Western Burrowing Owl	Athene cunicularia hypugaea (NM,AZ)	Curry and Roosevelt	Abandoned burrows in grasslands, prairies, or open areas near human habitation, especially golf courses, and airports	Federal: FWS Species of Concern	Yes
Whooping Crane	Grus americana	Curry and Roosevelt	Marshes and prairie potholes in the summer, and coastal marshes and prairies in the winter.	Federal: FWS Experimental, Non-essential Population	Yes
Yellow-billed Cuckoo	Coccyzus americanus occidentalis (eastern pop.)	Curry and Roosevelt	Lowland deciduous woodlands, willow and alder thickets, second-growth woods, deserted farmlands, and orchards	Federal: FWS Species of Concern State NM: Sensitive taxa (informal)	Yes
Mammals					
Black-footed Ferret	Mustela nigripes	Curry and Roosevelt	Prairie dog towns typically larger than 80 acres in grasslands and mixed shrub.	Federal: Endangered	Yes
Black-tailed Prairie Dog	Cynomys ludovicianus ludovicianus (NM)	Curry and Roosevelt	Great Plains grasslands onto former shinnery savannahs which have been converted by livestock grazing into shortgrass-like habitat	Federal: FWS Species of Concern State NM: Sensitive taxa (informal)	Yes
Eastern Red Bat	Lasiurus borealis	Roosevelt	Sycamore, cottonwood, and rabbitbrush riparian areas	State NM: Sensitive taxa (informal)	No
Least Shrew	Cryptotis parva parva (NM); berlandieri (NM)	Roosevelt	Confined to mesic habitats	State NM: Threatened	No
Red Fox	Vulpes vulpes fulva (NM); macroura (NM)	Curry and Roosevelt	Mixed shrub, sagebrush, Pinon/Juniper, and agricultural areas	State NM: Sensitive taxa (informal)	No
Ringtail	Bassariscus astutus arizonensis (NM,AZ); flavus (NM); yumanensis (AZ); nevadensis (AZ)	Curry and Roosevelt	Brushy and rocky areas of montane, oak woodlands, pinyon-juniper, chaparral, desert and riparian areas	State NM: Sensitive taxa (informal)	No
Sandhill White-tailed Deer	Odocoileus virginianus texana	Roosevelt	Sandhills east of Roswell	State NM: Sensitive taxa (informal)	No
Swift Fox	Vulpes velox velox (NM)	Curry and Roosevelt	Plains-Mesa Sand Scrub and Grasslands areas with relatively flat to gently rolling topography	Federal: FWS Species of Concern State NM: Sensitive taxa (informal)	Yes
Western Spotted Skunk	Spilogale gracilis	Roosevelt	Woodlands, grasslands, deserts, farmlands, and mountainous regions	State NM: Sensitive taxa (informal)	Yes
Reptiles					
Sand Dune Lizard	Sceloporus arenicolus	Roosevelt	Sand dune habitat with shinnery oak	Federal: Proposed State NM: Endangered	No
Plants					
Sandhill Goosefoot	Chenopodium cycloides	Roosevelt	Frequently, but not exclusively, sandy soils around the vegetated edges of blowouts on sand dunes (USFS 2006)	Federal: FWS Species of Concern	No

(Source: Biota Information System of New Mexico [BISON-M] 2011; USFS 2006) http://www.fs.fed.us/r2/projects/scp/assessments/chenopodiumcycloides.pdf; http://bison-m.org/speciesbooklet.aspx

The western burrowing owl (*Athene cunicularia hypugaea*) is listed as a species of concern by the USFWS (USFWS 2011a) that occurs in Curry and Roosevelt counties. Burrowing owls are distributed across New Mexico at low to moderate elevations in a variety of open habitats. They are generally migratory and winter in Mexico, although some individuals may remain year-round in southern New Mexico. Burrowing owls may be abundant in farmland, nesting in roadside ditches and canal banks, and are strongly associated with prairie dog colonies. The species may occur anywhere within the study corridor, but is likely to be most abundant near black-tailed prairie dog colonies (Figure 3.1).

The whooping crane (*Grus americana*) is a federally-listed experimental, non-essential population that could occur in Curry and Roosevelt counties (BISON-M 2011). This migratory species heads to northern states during the summer and to the gulf shores for the winter (BISON-M 2011). This species prefers wet meadows next to agricultural fields, which mean this species could occur in the proposed corridor during the spring and fall migration periods.

The Eastern population of the yellow-billed cuckoo (*Coccyzus americanus*), east of the Pecos River as delineated by the USFWS, is listed as a species of concern by the USFWS (2011a) and state of New Mexico. This species could occur in Curry and Roosevelt counties. The study corridor contains marginal suitable nesting habitat for the species, through the form of the fruit orchards in the area. However, some of these orchards are completely dead, and would have little to no value for nesting cuckoos.

Mammals

The black-footed ferret (*Mustela nigripes*) is a federally endangered species that is historically known to occur in Curry and Roosevelt counties. (USFWS 2011) This species is a prairie dog-obligate species, meaning they fully depend on prairie dogs and their burrows to complete their life cycle. This species typically needs prairie dog towns larger than 80 acres to sustain their populations. There are approximately seven prairie dog towns in the proposed corridor that exceed 80 acres, which increases the likelihood of the occurrence of ferrets.

Black-tailed prairie dogs (*Cynomys ludovicianus*) are listed as a species of concern by the USFWS and the State of New Mexico (USFWS 2011a) for both Curry and Roosevelt counties. The species was petitioned for listing under the Endangered Species Act (ESA), but listing was found to be unwarranted. (USFWS 2009b) Black-tailed prairie dogs were one of the most widely distributed and abundant mammals in North America; but its total population size and the number of its occupied acres have been reduced significantly through human activities. Although perhaps 2 percent of historical acreage is occupied by the species, this represents an approximately seven-fold increase range-wide since the 1960s, and a doubling of occupied acres within New Mexico. (USFWS 2009b) There are approximately 19 colonies of black-tailed prairie dogs within the study corridor in (Figure 3.1). Ned Houk Memorial Park and other areas within Running Water Draw support a complex of small colonies, and fallow fields such as those that may be enrolled in the U.S. Department of Agriculture (USDA) Conservation Reserve Program also support several colonies.

The red fox (*Vulpes vulpes*) is a state sensitive species that is known to occur in both Curry and Roosevelt counties (BISON-M 2011). This habitat generalist is known to occur in urban areas as much as rural areas, which makes this omnivore likely to occur in the project corridor.

The swift fox (*Vulpes velox*) was designated a candidate for listing under the ESA (USFWS 1995), but after numerous conservation efforts were initiated and additional information on distribution and biology of the species was acquired, listing was found to be no longer warranted and the swift fox was removed from the candidate list. (USFWS 2001a) Swift foxes are listed as a species of concern by the USFWS. (USFWS 2011a) The swift fox is distributed throughout the western Great Plains from central Texas to south-central Canada, including New Mexico from the Pecos River Valley eastward. (Egoscue 1979)

Swift foxes are often associated with Black-tailed Prairie Dogs, an important food source. The foxes may adapt to moderate levels of human presence and occur near agricultural areas (USFWS 2001a), although traffic mortality and incidence of disease may increase in those situations. Swift Foxes may occur in the study corridor, primarily in or near Running Water Draw.

The western spotted skunk (*Spilogale gracilis*) is a state sensitive species that is known to occur in both Curry and Roosevelt counties. (BISON-M 2011) Like the red fox, this habitat generalist is known to occur in urban areas as much as rural areas, which makes this omnivore likely to occur in the project corridor.

3.6.2 Earth and Water Resources

This section presents an overview of earth and water resources present within the project area. The main purpose of this overview is to identify geological hazards that could have a potential impact on project construction or operation, as well as sensitive mineral, soil, paleontological, and water resources that may potentially be impacted by the construction and operation of the proposed project.

3.6.2.1 Affected Environment

The project is located on the Llano Estacado section of the Southern Great Plains physiographic province. The Llano Estacado is a broad, flat plain dissected by several intermittently active washes and streams.

3.6.2.2 Geological Hazards

Geological hazards include earthquakes and Quaternary faults. No earthquakes have been recorded within the project study corridor since 1973, the oldest year for which data is available. (U.S. Geological Survey [USGS] 2010) The nearest recorded earthquakes to the study corridor include a group of epicenters located more than 60 miles to the northwest of the proposed project, ranging in magnitude from 2.7 to 3.4.

Quaternary faults, which are considered to still be active, are not present within the project study corridor. The nearest Quaternary faults are located in the Rio Grande Valley far to the west of the proposed project. (USGS 2006)

3.6.2.3 Mineral Resources

An inventory of federal mineral resources was reviewed to identify locatable, leasable, and salable mineral resources present in the project study corridor. Locatable resources are typically metallic mineral deposits, such as copper and gold; leasable resources include energy resources, such as petroleum, natural gas, and coal; and salable resources include sand and gravel. Information for the inventory was obtained primarily from the Bureau of Land Management's (BLM) Land and Mineral Legacy Rehost 2000 System (LR2000) database maintained online by the BLM and USFS (BLM and USFS 2011). Additional information was obtained by surveying aerial photos of the project study corridor.

No active mining or closed mining claims are recorded within either the Pleasant Hill to Oasis or Pleasant Hill to Roosevelt study corridor areas.

There are no active leasable resources within the overall study corridor; however, closed oil and gas leases are present near the Pleasant Hill to Oasis study corridor in sections 3 and 4 of 3N 36E and south of the Roosevelt County Substation in sections 28 and 29 of Township 1N, Range 36E.

No salable mineral claims are recorded in the LR2000 database within the proposed project study corridor, and no sand or gravel pits were observed in a survey of aerial photos of the study corridor.

3.6.2.4 Soil Resources

Soil data were obtained from the USDA NRCS Soil Survey Geographic Database (SSURGO), from the following surveys: NM669 (Curry County and Southwest Part of Quay County) and NM041 (Roosevelt County) (Soil Survey Staff 2011a, 2011b).

Soil map units were assessed for their susceptibility to both water and wind erosion and for designated Prime or Unique Farmlands. Susceptibility to water erosion was assessed based on the K_w values assigned to the soil units by the NRCS. Generally, soils that have been assigned higher K_w values are more susceptible to water erosion. K_w values less than 0.20 correspond to a low susceptibility, K_w values greater than or equal to 0.20 but less than 0.40 correspond to a moderate susceptibility, and K_w values greater than or equal to 0.40 correspond to a high susceptibility. Susceptibility to wind erosion was assessed based on Wind Erodibility Groups (WEG), to which the individual soil units have been assigned. Soils that are largely pure sand or silt with no binding agents, such as clay or organic material, are most susceptible to wind erosion; whereas rock outcrops or areas covered in a rock armature, or desert pavement, are not as susceptible to wind erosion. Soils with a WEG of 1 or 2 have a high susceptibility; 3, 4, or 4L have a moderate susceptibility; 5, 6, or 7 have a slight susceptibility; and 8 are not susceptible. Soils may be designated by the NRCS as capable of supporting Prime or Unique farmlands under a variety of conditions based on a number of characteristics. Soils in the southwestern United States typically are not capable of supporting Prime or Unique farmlands unless they are irrigated.

Fifteen soil map units are present within the Pleasant Hill to Oasis area, and 21 soil map units are present within the Pleasant Hill to Roosevelt study corridor area. These soil map units, including a brief summary of their susceptibilities, are provided in Tables 3.4 and 3.5.

Table 3.4 Soil map units along the Pleasant Hill to Oasis section

Map Unit	Map Name	K_w	WEG	Farmland
AcA	Acuff loam, 0-1% slopes	0.37	6	Prime, if Irrigated
AcB	Acuff loam, 1-3% slopes	0.37	6	Prime, if Irrigated
AfA	Amarillo fine sandy loam, 0-1% slopes	0.28	3	Statewide Importance
AfB	Amarillo fine sandy loam, 1-3% slopes	0.28	3	Statewide Importance
AnB	Amarillo loamy fine sand, 1-3% slopes	0.20	2	Statewide Importance
BcA	Bippus clay loam, 0-2% slopes, occasionally flooded	0.32	6	Statewide Importance
EsA	Estacado loam, 0-1% slopes	0.37	4L	Statewide Importance
EsB	Estacado loam, 1-3% slopes	0.37	4L	Statewide Importance
OcA	Olton clay loam, 0-1% slopes	0.32	6	Prime, if Irrigated
PeB	Pep loam, 1-3% slopes	0.37	4L	Statewide Importance
PsB	Posey fine sandy loam, 1-3% slopes	0.28	3	Statewide Importance
PsC	Posey fine sandy loam, 3-8% slopes	0.28	3	Not Prime
RaA	Randall clay, 0-1% slopes, frequently ponded	0.20	7	Not Prime
RcA	Ranco clay, 0-1% slopes	0.20	7	Not Prime
SpA	Sparenberg clay, 0-1% slopes, occasionally flooded	0.20	7	Not Prime

Table 3.5 Soil map units along the Pleasant Hill to Roosevelt section

Map Unit	Map Name	K_w	WEG	Farmland
Aa	Amarillo loamy fine sand, 0-3% slopes	0.15	2	Not Prime
Ab	Amarillo loamy fine sand, 0-1% slopes	0.24	3	Not Prime
AcA	Acuff loam, 0-1% slopes	0.37	6	Prime, if Irrigated
AcB	Acuff loam, 1-3% slopes	0.37	6	Prime, if Irrigated

Map Unit	Map Name	K_w	WEG	Farmland
Af	Amarillo and Clovis soils, 0-3% slopes, severely eroded	0.15	2	Not Prime
AfA	Amarillo fine sandy loam, 0-1% slopes	0.28	3	Statewide Importance
AfB	Amarillo fine sandy loam, 1-3% slopes	0.28	3	Statewide Importance
Am	Arch soils, severely eroded	0.10	2	Not Prime
AnB	Amarillo loamy fine sand, 1-3% slopes	0.20	2	Statewide Importance
Av	Arvana soils, 0-3% slopes, severely eroded	0.15	2	Not Prime
Cd	Clovis fine sandy loam, 0-1% slopes	0.24	3	Not Prime
EsA	Estacado loam, 0-1% slopes	0.37	4L	Statewide Importance
EsB	Estacado loam, 1-3% slopes	0.37	4L	Statewide Importance
PeB	Pep loam, 1-3% slopes	0.37	4L	Statewide Importance
PsA	Posey fine sandy loam, 0-1% slopes	0.28	3	Statewide Importance
PsB	Posey fine sandy loam, 1-3% slopes	0.28	3	Statewide Importance
PsC	Posey fine sandy loam, 3-8% slopes	0.28	3	Not Prime
RcA	Ranco clay, 0-1% slopes	0.20	7	Not Prime
Sf	Springer loamy fine sand	0.17	2	Not Prime
Sp	Springer soils, severely eroded	0.15	2	Not Prime
SpA	Sparenberg clay, 0-1% slopes, occasionally ponded	0.20	7	Not Prime

3.6.2.4.1 Summary of Soil Resource Susceptibilities

The Acuff loam, 0 to 1 percent slopes, and the Amarillo fine sandy loam, 0 to 1 percent slopes, are the dominant soil units within the project study corridor. This Acuff loam is moderately susceptible to water erosion, slightly susceptible to wind erosion, and designated Prime Farmland if irrigated; whereas the Amarillo fine sandy loam is moderately susceptible to water erosion, moderately susceptible to wind erosion, and designated Farmland of Statewide Importance.

The other 13 soil units within the Pleasant Hill to Oasis study corridor are all moderately susceptible to water erosion. The Amarillo loamy fine sand, 1 to 3 percent slopes, is highly susceptible to wind erosion; while seven are moderately susceptible to wind erosion. Three soil units are designated Prime Farmland if Irrigated and eight are designated Farmland of Statewide Importance.

Of the 21 soil units within the Pleasant Hill to Roosevelt study corridor, 15 soil units are moderately susceptible to water erosion, seven are highly susceptible to wind erosion, and 10 are moderately susceptible to wind erosion. Two soil units are designated Prime Farmland if Irrigated; whereas, eight soil units are designated Farmland of Statewide Importance.

3.6.2.5 Paleontological Resources

Paleontological resources are any fossilized remains, traces, or imprints of organisms that are preserved in the Earth's crust and provide information about the history of life on Earth. Fossil remains may include bones, teeth, shells, leaves, and wood. Paleontological resources include not only the actual fossils, but also the collecting localities and the geological deposits that contain the fossils. Paleontological resources are recognized as nonrenewable scientific resources and are protected by federal statutes and policies.

Information for the paleontological inventory was obtained from a review of the scientific literature and from a record search at the New Mexico Museum of Natural History. A search for paleontological localities was also conducted using records from the online Paleobiology Database operated by the University of California, Santa Barbara; the online collection database maintained by the University of California Museum of Paleontology; and MioMap, also at the University of California Museum of Paleontology.

Information about the geological units and known fossil localities in the region were used to identify the paleontological resource potential of areas within the project study corridor. Paleontological potential levels were assigned to each geological unit using the Potential Fossil Yield Classification (PFYC) system that was adopted by the BLM in 2007 for assessing paleontological potential on federal land. The PFYC is a five-tiered system that is used to classify geological units based on the relative abundance of vertebrate fossils or scientifically significant invertebrate and plant fossils and their potential to be adversely impacted, with a higher class number indicating a higher potential.

- PFYC 5 Very High Potential
- PFYC 4 High Potential
- PFYC 3 Moderate or Unknown Potential
- PFYC 2 Low Potential
- PFYC 1 Very Low Potential

The PFYC system is applied to the geological formation, member, or other distinguishable map unit, preferably at the most detailed mappable level. This approach was followed in recognition of the direct relationship that exists between paleontological resources and the geological units within which fossils are entombed.

The Pleasant Hill to Oasis study corridor contains two geological units that include older Quaternary alluvium deposits and the Ogallala Formation (Table 3.6). (New Mexico Bureau of Geology and Mineral Resources [NMBGMR] 2003) The proposed alternatives only cross older Quaternary alluvium deposits; whereas, the Ogallala Formation is present north of the proposed Pleasant Hill Substation where the study corridor intersects with Running Water Wash.

Table 3.6 Geological units and their associated paleontological sensitivity along the Pleasant Hill to Oasis alternatives

Map Unit	Age	Geological Name	Rock Type	PFYC	Paleontological Sensitivity
Quaternary Terrestrial Sediments					
Qoa	Quaternary	Older alluvial deposits	Unconsolidated sand and gravel	1	Low
Tertiary Sedimentary Rocks					
To	Miocene-Pliocene	Ogallala Formation	Older windblown and alluvial sediments	3	Moderate

The Pleasant Hill to Roosevelt study corridor contains three geological units that include older Quaternary alluvium deposits, Quaternary eolian deposits, and the Ogallala Formation (Table 3.7). (NMBGMR 2003) The alternatives associated with the Pleasant Hill to Roosevelt section cross older Quaternary alluvium deposits; whereas Quaternary alluvium deposits are present at the southern end of this study corridor. The Ogallala Formation is present north of the proposed Pleasant Hill Substation where the study corridor intersects with Running Water Wash.

Table 3.7 Geological units and their associated paleontological sensitivity along the Pleasant Hill to Roosevelt alternatives

Map Unit	Age	Geological Name	Rock Type	PFYC	Paleontological Sensitivity
Quaternary Terrestrial Sediments					
Qe	Quaternary	Eolian deposits	Young windblown sediments	1	Low

Map Unit	Age	Geological Name	Rock Type	PFYC	Paleontological Sensitivity
Qoa	Quaternary	Older alluvial deposits	Unconsolidated sand and gravel	1	Low
Tertiary Sedimentary Rocks					
To	Miocene-Pliocene	Ogallala Formation	Older windblown and alluvial sediments	3	Moderate

No fossil localities are reported from within the project study corridors. However, draw localities between Clovis and Portales are known paleontological data sources. (Kues 1982: 205-206) One of these, the Big Bear Blowout, is located approximately seven miles south and east of the Pleasant Hill to Roosevelt section. A second such site, the Blackwater Draw locality, is located approximately ten miles south and east of this section of proposed line (see Carrasco et al. 2005). Pleistocene-aged fossil taxa collected from these localities include *Bison* sp., *Arctodus simus* (bear), *Equus* sp. (horse), *Mammuthus* sp. (mammoth), *Geomys bursarius* (gopher), and *Microtus* sp. (vole).

The Ogallala Formation is present at the land surface in Running Water Wash to the north of the project study corridors and is likely not far below the alluvium-dominated land surface that is present throughout the study corridors. The Ogallala Formation is geographically extensive with deposits present from South Dakota to Texas and typically contains Blancan-aged fossils. Two fossil localities are reported from the Ogallala Formation within New Mexico, one locality to the northeast of Roswell and the other locality associated with the Blackwater Draw locality between the cities of Clovis and Portales (see above). The locality northeast of Roswell contains a series of trackways that include footprints made by a large camel, a small camel, a possible small dog, and a large cat. (Williamson and Lucas 1996) The Ogallala Formation locality from the Blackwater Draw locality is located stratigraphically below the Pleistocene-aged Blackwater Draw mammoth-kill site and includes the lower jaw of the proboscidean *Amebelodon* sp. (Lucas and Morgan 2008) Fossil localities are common in the Ogallala Formation of the Texas and Oklahoma panhandles such as the Hereford Dump locality, Monument Lake Local Fauna, and Upper and Lower Cita Canyon localities. (Carrasco et al. 2005; Bell et al. 2004)

3.6.2.6 Water Resources

This section describes the affected environment for water resources, including waters of the United States, designated floodplains, and wetlands.

3.6.2.6.1 Waters of the United States

The U.S. Army Corps of Engineers (USACE) regulates some aspects of water use and quality under Sections 401 and 404 of the Clean Water Act. The jurisdiction of the USACE includes discharge of material into "waters of the United States," a term describing wetlands, streams, and other bodies of water with a hydrologic connection to a traditional navigable waterway. Within the study corridor, surface water includes numerous small natural depressions (playas) and stock ponds, which may hold water permanently or for periods of several months. Isolated wetlands, such as playa lakes, are generally not under the jurisdiction of the Clean Water Act. No jurisdictional drainages would be affected by the project.

3.6.2.6.2 Floodplains and Wetlands

An inventory of 100-year floodplains was conducted using data from the Federal Emergency Management Agency (FEMA). The Pleasant Hill to Oasis study corridor includes six mapped areas determined to be 100-year floodplains. Of these six areas, two are crossed by the Pleasant Hill to Oasis alternatives. The Pleasant Hill to Roosevelt study corridor includes ten mapped areas determined to be 100-year floodplains. Of these ten areas, four are crossed by the Pleasant Hill-Roosevelt alternatives.

An inventory of wetland areas was conducted using data from the USFWS (2011). The project study corridor includes 59 mapped palustrine and lacustrine wetland areas. Of these 59 wetland areas, 7 are crossed by the Oasis alternatives and 3 are crossed by the Roosevelt alternatives. Many of these wetland areas occur in close proximity to developed areas, including roads, center pivot irrigation structures, and homes.

One-hundred year floodplains and wetland areas within the study area are illustrated on Figure 3.8, which is located in the map pocket at the back of this document.

3.6.3 Environmental Consequences

3.6.3.1 Biological Resources

Impacts to biological resources, including vegetation, wildlife, and special-status species, are expected to be minimal for the construction and operation of the project. As previously described, both the Pleasant Hill to Oasis and Pleasant Hill to Roosevelt sections (including the Pleasant Hill Substation and upgrades to the Roosevelt County Substation) are located almost entirely within active or fallow farmland, which have significantly modified the natural environment. The proposed route and the alternative route for the Pleasant Hill to Oasis section do not cross playa lakes.

Predation risk for Lesser Prairie-chickens could be raised somewhat by the construction of a transmission line near Running Water Draw; although as previously described, the habitat quality within the study corridor is generally low. Little or no native vegetation remains elsewhere within the study corridor, and while certain species of wildlife remain abundant in this area, the project would have minimal effects on these populations.

Under the New Mexico Wildlife Conservation Act, there are no specific regulations that require a survey for New Mexico state or endangered species. NMSA 17-2-41 stipulates that it is illegal to take (harass, hunt, capture, kill, or attempt to do so) an endangered species. (NMGFD 2011) However, if burrowing owl habitat is found along the project corridor and/or substation sites, a 150-m buffer zone around the project should also be assessed for potential burrowing owl habitat. Avoidance of the burrows requires that a minimum of 6.5 acres of foraging habitat be maintained in an undisturbed habitat condition for each pair or unpaired burrowing owl. No disturbance should occur within 50 meters of occupied burrows during the non-breeding season (September through February) or within 75 meters during the breeding season (March through August). (NMGFD 2011)

3.6.3.2 Earth and Water Resources

3.6.3.2.1 Geological Hazards

The potential for geological hazards, such as earthquakes, is low for the proposed project. Damage to transmission line structures and equipment associated with substations from ground shaking is unlikely, given the lack of recorded earthquakes and absence of Quaternary faults within the project study corridor.

Site-specific geotechnical and seismic factors would be appropriately addressed, as needed, during the design and construction of the proposed project. Project facilities would be designed and constructed to withstand geological hazards by taking seismicity into consideration.

3.6.3.2.2 Mineral Resources

The project area includes no active mineral locations and a small number of closed oil and gas leases. Project construction would not limit access to or permanently occupy mineral resource locations in association with the proposed project.

3.6.3.2.3 Soil Resources

Erosion is the natural process by which water or wind removes soil from its natural location. Structure site clearing, access road construction, and overland access could adversely affect soil resources by increasing the exposure of soil that is susceptible to water or wind erosion at the land surface. This could result in degradation of the land surface, reduced long-term soil productivity through loss of topsoil material, and nonpoint pollution as eroded soil material is washed into nearby streams or water bodies.

Soil resources would be directly affected by ground-disturbing activities associated with the construction of the proposed project. These activities would crush or clear vegetative cover, compact soils, possibly result in rutting, and could indirectly increase local soil susceptibility to water or wind erosion. These activities could potentially affect soil resources by exposing or compacting surface horizons, thereby increasing the likelihood that soil could be removed by erosion from the project area. If impacts on soils are not properly mitigated, degradation of the land surface, and reduced long-term soil productivity through loss of topsoil material may occur.

Proper mitigation measures would be required during construction of the proposed project in order to avoid or minimize damage resulting from erosion and prevent acceleration of natural erosion processes. No new permanent access roads are anticipated for the project, and where necessary, overland access and temporary roads would be selected to minimize the clearing of vegetation and recontouring of the land surface. In areas of structure construction, excess soil would be used during restoration to promote vegetation regrowth, which would assist in stabilizing soils. If necessary, cross drains and water bars to limit water erosion would be installed and ditches filled.

3.6.3.2.4 Paleontological Resources

While the paleontological inventory described earlier demonstrates that the geological units present within the project study corridors could contain paleontological resources, the project primarily traverses farmland and developed roadways. No draws or extensive washes are crossed by the proposed line; nor does it cross any playa lakes that might have been localities of Paleoindian kill sites. Consequently, the potential for the project to have an effect on paleontological resources is evaluated as low. Should paleontological resources be encountered during construction, construction would cease and the proper authorities contacted in order to mitigate potential impacts.

3.6.3.2.5 Water Resources

While two floodplains are crossed by the Pleasant Hill to Oasis alternatives and four are crossed by the Pleasant Hill to Roosevelt alternatives, it is unlikely that the project would be adversely affected based on appropriate construction methods in those areas.

The construction and operation of the project would be unlikely to further impact wetland areas. No new access roads or structure pads would be placed in wetlands crossed by the Pleasant Hill to Oasis or Pleasant Hill to Roosevelt sections, and no wetlands are located at the Pleasant Hill Substation site or in the area of improvement at the Roosevelt County Substation. Wetlands potentially crossed by the transmission lines are no greater in width than the typical span of a 230 kV transmission line, and in a majority of cases the transmission line would be placed along existing access roads on or adjacent to farmland. No effects to any wetlands or other water resources are anticipated, and no discharge would occur into waters of the United States.

Prior to construction, all wetlands potentially affected by the project would be field reviewed and structures and access identified that allow these wetlands to be avoided and/or spanned.

3.7 Socioeconomics

3.7.1 Affected Environment

Socioeconomics identifies the main characteristics of the population in the study area, including demographics, principal economic activities, and employment and income. For the purposes of this analysis, data available for Curry County, the City of Clovis, and Roosevelt County served as the primary source of information.

The proposed project is located in an area mainly dominated by agriculture and rural residences in the eastern portion of Curry County and in the northern-most portion of Roosevelt County. Curry County is located in the east-central portion of New Mexico, with the Texas state line approximately four miles from the Roosevelt County Substation to Oasis section of the project.

The population of Curry County in 2010 was 48,376; with a 7.4 percent increase in population from 2000 to 2010. (US Census, 2010) Curry County encompasses approximately 1,406 square miles, with a population density of 34.4 persons per square mile. (U.S. Census, 2005-09) The Curry County seat is located in Clovis. The incorporated area of Clovis is 22 square miles, with a population of 32,425; making it the largest city in Curry County. (U.S. Census, 2005-09)

The nearest city and communities to the proposed project include:

- City of Clovis—approximately 3.5 miles from the proposed Pleasant Hill to Oasis project and approximately two miles from the proposed Pleasant Hill to Roosevelt project;
- Community of Ranchvale—located within approximately one mile of the proposed Pleasant Hill to Oasis project; and
- City of Texico—located approximately four miles east of the proposed Roosevelt project.

Roosevelt County is located in the east-central portion of New Mexico, with the eastern boundary of the county adjacent to the Texas state line. The population of Roosevelt County in 2010 was 19,846, with a 10.1 percent increase in population from 2000 to 2010. (US Census, 2010) Roosevelt County encompasses 2,447 square miles, with a population density of 8.1 persons per square mile. (U.S. Census, 2005-09) The Roosevelt County seat is located in Portales (population 12,280) and is located approximately eleven miles east of Cannon Air Force Base.

3.7.1.1 Principal Economic Activities

While farming, dairy and livestock production are the major economic activities within the project study corridor, the largest workforce by type in Curry County is in the management, professional, or related occupations field at 28 percent, with 23 percent of the workforce employed in sales or office occupations. Service occupations such as healthcare, food preparation, building maintenance and personal care are 19.2 percent of the county's workforce. Construction, extraction and maintenance and repair occupations are 13.8 percent of the workforce and production, transportation and material moving is 11.7 percent of the county's workforce. Farming comprises the smallest part of the county's workforce at 4.2 percent (US Census, 2005-2009) . Major employers in the city of Clovis and Curry County area are shown in the Table 3.8.

Table 3.8 Major employers by number of employees in the Clovis and Curry County area

Number of Employees	Employer	Industry
2,900	Allsup's Convenience Store	Retail
2,658	Cannon AFB - Active Duty	Government
1,500	Eastern New Mexico University	Education

Number of Employees	Employer	Industry
1,062	Clovis Municipal Schools	Education
570	Plains Regional Medical Center	Healthcare
564	Cannon AFB – Civilian	Government
500	Wal-Mart	Retail
500	BNSF	Transportation
455	Clovis Community College	Education
422	City of Clovis	Government
372	US Government	Government
363	Community Homecare	Healthcare
300	ENMR Plateau Communications	Communications
250	Southwest Cheese LLC	Food & Beverage
220	State of New Mexico	Government
160	Curry County	Government
100	Coca Cola Bottling	Food & Beverage

Reference: Clovis Industrial Development Corporation, 2011.

Clovis County's largest field of employment is management, professional and related occupations (31.6 percent). Sales and office occupations is 25.2 percent of the workforce, and service occupations is 15.3 percent of the workforce in Roosevelt County. Construction, extraction, maintenance and repair operations are 10.8 percent and production, transportation and material moving is 11.7 percent of the county's workforce. Farming is the smallest component of the county's workforce at 5.2 percent. (US Census, 2005-2009)

3.7.1.2 Income and Employment

Curry County has a median household income of $36,621, with an unemployment rate of 4.7 percent; the City of Clovis has a median household income of $28,878, with an unemployment rate of 3.8 percent; and Roosevelt County has a median household income of $32,169, with an unemployment rate of 4.5 percent. (City Data, 2011 and U.S. Census, 2005-09) In comparison, New Mexico has a median household income of $42,742 in 2009. (US Census, 2011) New Mexico's unemployment rate in April 2011 was 7.4 percent (City Data, 2011)

One of the most important employers in Curry County is Cannon Air Force Base. Cannon AFB is located on 3,789 acres of land and is the home of the 27th Special Operations Wing, a base for the CV-22 Osprey and unmanned aircraft. (Cannon AFB, 2011) Cannon AFB generated 5,000 military and civilian positions during fiscal year 2010. (Cannon AFB, 2011) In 2010, the total monetary impact for the Clovis area was estimated at $478 million. A combined military and civil service civilian payroll totaled $223.7 million, and contracts and purchase orders totaled $243 million. The estimated value of local jobs created by Cannon AFB is $49.7 million. (Cannon AFB, 2011)

The Clovis Industrial Park is located in Clovis and is an area suitable for industrial development. Companies within the park and in the general Clovis area such as Southwest Cheese (cheese processing), American Medical Alert (in-bound call center), SEI Call Center (in-bound call center), and Quality Liquid Feeds (livestock feed) have generated over 500 direct jobs and 600 indirect jobs in the Clovis industrial area. (Clovis Industrial Development Corporation, 2011)

3.7.2 Environmental Consequences

3.7.2.1 Economic Impacts

During construction, short-term beneficial impacts such as increased revenue could result from construction workers' use of local hotels and restaurants in the city of Clovis area. SPS would be utilizing skilled labor force and specially trained crews and contractors to construct the transmission line and build the substation. The crews would temporarily reside in the Clovis area during the construction of the project. While specialized components for the project would come from areas outside of Clovis, the crews may purchase food, fuel and reside at local hotels.

The transmission line and substation would be unmanned facilities. Operation of these facilities would have minimal effects on Curry County employment, income, or social services.

3.8 Conclusion

Results from the EA studies indicated that the impacts associated with the proposed and alternative routes studied are within the acceptable range for facilities of this type, given appropriate mitigation within this setting. Through these mitigation measures, the transmission line, new substation, and substation addition will not unduly impair important environmental values overall, including consideration for air and water quality, land use and recreation, soils, flora and fauna, and water, mineral, socioeconomic, cultural, historic, visual, geologic, and geographic resources.

Application of mitigation measures identified for the proposed alternatives by SPS in conjunction with landowner input has reduced, and may further assist in reducing, the potential effects of the proposed routes for each section of the project based on final engineering, right-of-way location, and specific placement of transmission line structures.

4.0 CONSULTATION AND COORDINATION

This section of the EA provides a summary of consultation and coordination activities in support of the project. These activities were conducted throughout the spring and early summer of 2011, and included interaction with the members of the public and local agencies, as presented below. Public participation, the public meeting and public comments are discussed in Section 2.1.5.

4.1 Agency Coordination

The following agencies were contacted and provided with project information (Table 4.1). Copies of the letters sent by TRC and the agency responses are in Appendix C.

Table 4.1 Agencies consulted

Name	Agency
Elizabeth M. Knight, Contracting Officer, 27 SOCONS/A FLIGHT Charles Shurlow, Project Manager, 27 SOCES/CEP	Cannon Air Force Base
Jeff Robertson	US EPA, Region 6
Nova Rogers, Administrative Assistant	New Mexico Department of Transportation
Rachel Armstrong, District Conservationist	Natural Resource Conservation Service
Angela Fogerson	Central Curry Soil and Water Conservation District
Laila Lienesch, Renewable Energy Coordinator	USFWS Albuquerque
Debra Hill	USFWS, New Mexico Ecological Services Field Office
Will Setner	New Mexico Office of Natural Resources Trustee
Robert Sandoval, Daniel Stoddard, Frank Blackburn, Wendell Bostwick, and Caleb Chandler	Curry County Commissioners
Steve Summers, Director	Clovis Municipal Airport
Gayla Brumfield, Mayor	City of Clovis, New Mexico
Jan Biella, Acting NM SHPO	New Mexico Department of Cultural Affairs

5.0 LIST OF PREPARERS AND REFERENCES

5.1 List of Preparers

Preparers involved throughout the proposed project study are listed in Table 5.1.

Table 5.1 Environmental Assessment preparers

TRC Environmental Corp.	
Howard Higgins, PhD, RPA	Project Director and QA/QC
Erin Degutis, RLA, AICP, LEED AP	Project Manager; Land Use and Recreation Resources, Visual Resources, Socioeconomics, and Climate and Air Quality
Ken Brown, PhD	Cultural and Historical Resources
Brandon Marette, CWB, PWS	Wildlife Biology and Vegetation Resources
Susan Crespin	Technical Editing, Graphics, and Document Production
Karyn Sernka	Geographic Information Systems

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