April 2025

CPS ENERGY

Spruce to Pawnee 345 kV Transmission Line Rebuild Project
Environmental Assessment and Route Analysis

Bexar, Wilson, and Karnes Counties, Texas

PROJECT NUMBER:
253743

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Spruce to Pawnee 345 kV Transmission Line Rebuild Project

PREPARED FOR: *CPS ENERGY*

PREPARED BY: *POWER ENGINEERS, INC.*
HOUSTON, TEXAS

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ACRONYMS AND ABBREVIATIONS

AM radio	Amplitude modulation radio
amsl	above mean sea level
BEG	Bureau of Economic Geology
BGEPA	Bald and Golden Eagle Protection Act
BMP(s)	Best Management Practice(s)
BP	Before Present
CCN	Certificate of Convenience and Necessity
C.F.R.	Code of Federal Regulations
CLF	civilian labor force
CMP	Costal Management Program
CMZ	Coastal Management Zone
CPS Energy	City Public Service Energy
CWA	Clean Water Act
DoD	Department of Defense
EA	Environmental Assessment and Route Analysis
EAA	Edwards Aquifer Authority
EOR	Element of occurrence record
ERCOT	Electric Reliability Council of Texas
ESA	Endangered Species Act
ESSS	Ecologically Significant Stream Segments
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FEMA	Federal Emergency Management Agency
FM	Farm-to-Market Road
FM radio	Frequency modulation radio
GIS	Geographic Information Systems
GLO	Texas General Land Office
HCP	Habitat Conservation Plan
HPA	high probability area
HTC	Historic Texas Cemeteries
IH	Interstate Highway
IPaC	Information for Planning and Consultation
ISD	Independent School District
kcmil	thousand circular mils

kV	kilovolt
MBTA	Migratory Bird Treaty Act
MVA	Megavolt-amperes
NAIP	National Agricultural Imagery Program
NCED	National Conservation Easement Database
NEPA	National Environmental Policy Act
NESC	National Electrical Safety Code
NHD	National Hydrography Dataset
NOI	Notice of Intent
NOT	Notice of Termination
NPS	National Park Service
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
NWP	Nationwide Permit
OHP	City of San Antonio Office of Historic Preservation
OTHM	Official Texas Historical Marker
PEM	palustrine emergent
PFO	palustrine forested
POWER	POWER Engineers, Inc.
Project	Spruce to Pawnee 345 kV Transmission Line
PSS	palustrine scrub-shrub
PUC	Public Utility Commission of Texas
PURA	Public Utility Regulatory Act
ROW	right-of-way
RRC	Railroad Commission of Texas
SAL	State Antiquities Landmark
SAWS	San Antonio Water Systems
SEP	Southern Edwards Plateau
SH	State Highway
SHPO	State Historic Preservation Office
STEC	South Texas Electric Cooperative
SWAP	State Wildlife Action Plan
SWPPP	Stormwater Pollution Prevention Plan
TAC	Texas Administrative Code
TARL	Texas Archeological Research Laboratory

TASA	Texas Archeological Sites Atlas
TCEQ	Texas Commission on Environmental Quality
THC	Texas Historical Commission
THSA	Texas Historical Sites Atlas
TLC	Texas Land Conservancy
TMDL	total maximum daily load
TNRC	Texas Natural Resource Code
TPWC	Texas Parks and Wildlife Code
TPWD	Texas Parks and Wildlife Department
TSDC	Texas State Data Center
TSS	Texas Speleological Survey
TWDB	Texas Water Development Board
TWSC	Texas Water Science Center
TxDOT	Texas Department of Transportation
TXNDD	Texas Natural Diversity Database
US	United States
USACE	United States Army Corps of Engineers
U.S.C.	United States Code
USCB	United States Census Bureau
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
US Hwy	United States Highway
WOTUS	Waters of the United States

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1.0 DESCRIPTION OF THE PROPOSED PROJECT

1.1 Scope of the Project

The City of San Antonio, acting by and through City Public Service Board (CPS Energy), is evaluating an existing single-circuit 345 kilovolt (kV) transmission line within Bexar, Wilson, and Karnes Counties (Figure 1-1) that it intends to rebuild as a double-circuit transmission line per an Electric Reliability Council of Texas (ERCOT) directive. The proposed rebuild of the Spruce to Pawnee 345 kV Transmission Line Rebuild (Project or Project Route) will extend approximately 45 miles from the CPS Energy Spruce Station, located at the Calaveras Power Station, approximately 2.5 miles north of United States Highway (US Hwy) 181, to the existing South Texas Electric Cooperative (STEC) Pawnee Station, located approximately 4.5 miles northwest of State Highway (SH) 72. The right-of-way (ROW) for the existing single-circuit 345 kV transmission line is approximately 125 feet in width on private property. The rebuilt double-circuit transmission line is anticipated to remain within the existing ROW for the majority of its length. The Project is anticipated to be in service by the end of 2026.

Because the Project is located outside the municipal boundaries of the City of San Antonio (San Antonio), CPS Energy is seeking an amendment to its Certificate of Convenience and Necessity (CCN) from the Public Utility Commission of Texas (PUC) to construct, own, and operate the Project. CPS Energy contracted with POWER Engineers, Inc. (POWER) to prepare this Environmental Assessment and Route Analysis (EA) for the Project. The EA will support CPS Energy's CCN application to be submitted to the PUC (Application). The EA may also be used to support any additional federal, state, or local permitting activities that might be required in association with construction of the Project.

The EA discusses and documents the environmental and land use constraints identified within the Project study area, routing methodologies, and public involvement. The EA additionally provides an evaluation of the route for the Project from an environmental and land-use perspective. CPS Energy will use the data presented in the EA to address how the route proposed in the Application (the Project Route) best addresses the requirements of the Public Utility Regulatory Act (PURA) and 16 Texas Administrative Code (TAC) § 25.101.

To assist POWER in its evaluation of the Project, CPS Energy provided POWER with information regarding the Project endpoints, the Project Route, the need for the Project, proposed construction practices, transmission line design, clearing methods, ROW requirements, and maintenance procedures.

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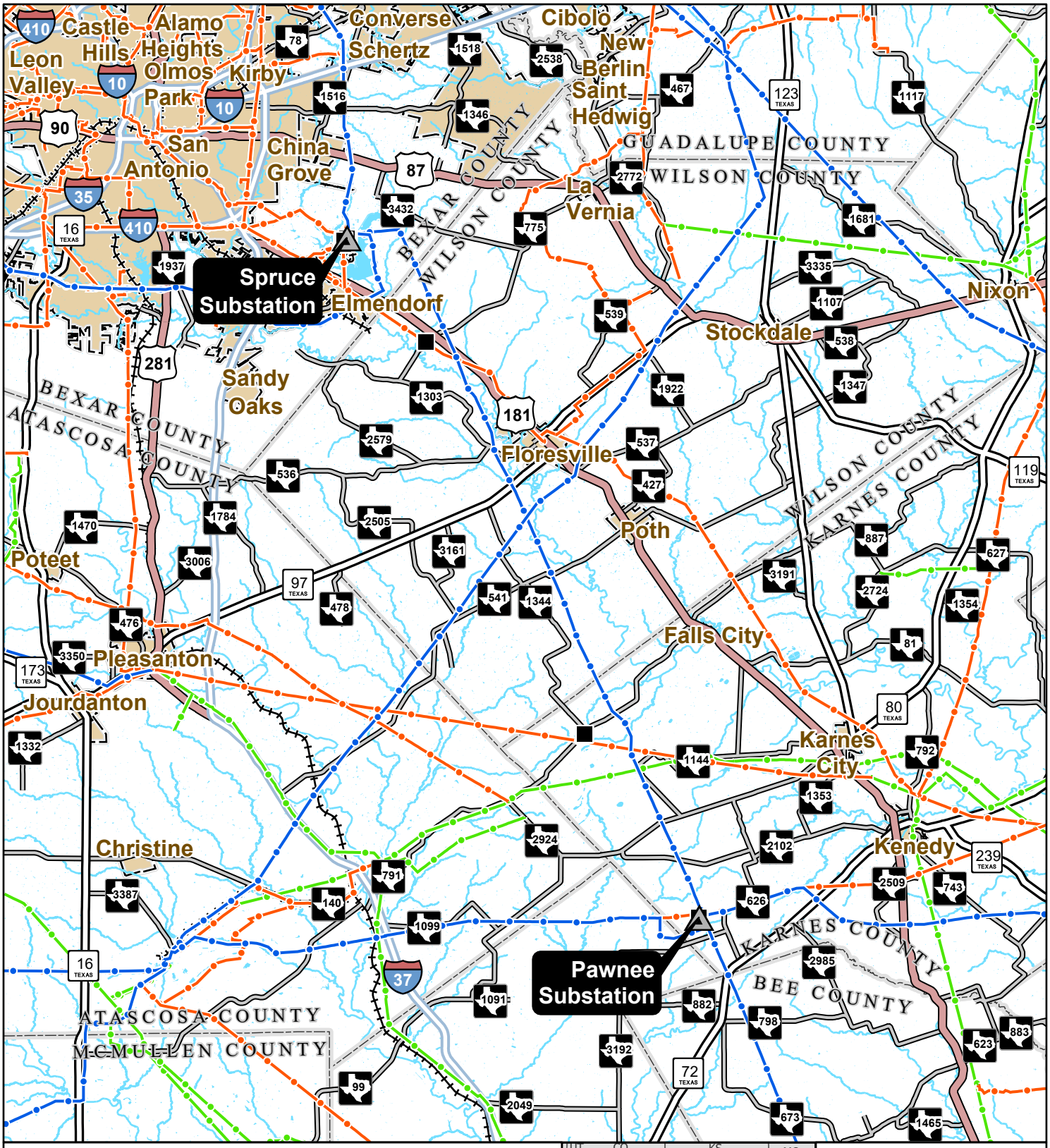
Spruce Substation
Pawnee Substation
Castle Hills
Alamo Heights
Converse
Schertz
Cibolo
New Berlin
Saint Hedwig
Leon Valley
Olmos Park
Kirby
San Antonio
China Grove
La Vernia
Elmendorf
Sandy Oaks
Floresville
Stockdale
Nixon
Poth
Poteet
Pleasanton
Jourdanton
Falls City
Karnes City
Kenedy
Christine
GUADALUPE COUNTY
WILSON COUNTY
BEXAR COUNTY
ATASCOSA COUNTY
KARNES COUNTY
BEE COUNTY
MCMULLEN COUNTY
Project Substation
Existing Substation
Existing 69 kV Transmission Line
Existing 138 kV Transmission Line
Existing 345 kV Transmission Line
Interstate Highway
US Highway
State Highway
Farm-to-Market Road
Railroad
River / Stream
Waterbody
City Limit
County Boundary
Project Area
SPRUCE TO PAWNEE
345 KV TRANSMISSION LINE
REBUILD PROJECT
FIGURE 1-1
VICINITY
0
6
12
Miles
Date: 1/23/2025

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1.2 Purpose and Need

CPS Energy is proposing to rebuild and add a second circuit to its existing Spruce to Pawnee 345 kV transmission line. The Project is needed due to historical high loading concerns of the existing Spruce to Pawnee 345 kV transmission line, new generation resources in South Texas, and planned retirement of generation in San Antonio. The ERCOT Board of Directors endorsed the Project as critical to the reliability of the ERCOT System on April 23, 2024, and requested acceleration of construction of the Project on March 13, 2025.

1.3 Description of Proposed Design

A general description of the transmission line design is provided below. Some details of the proposed installation will be determined following approval of the route.

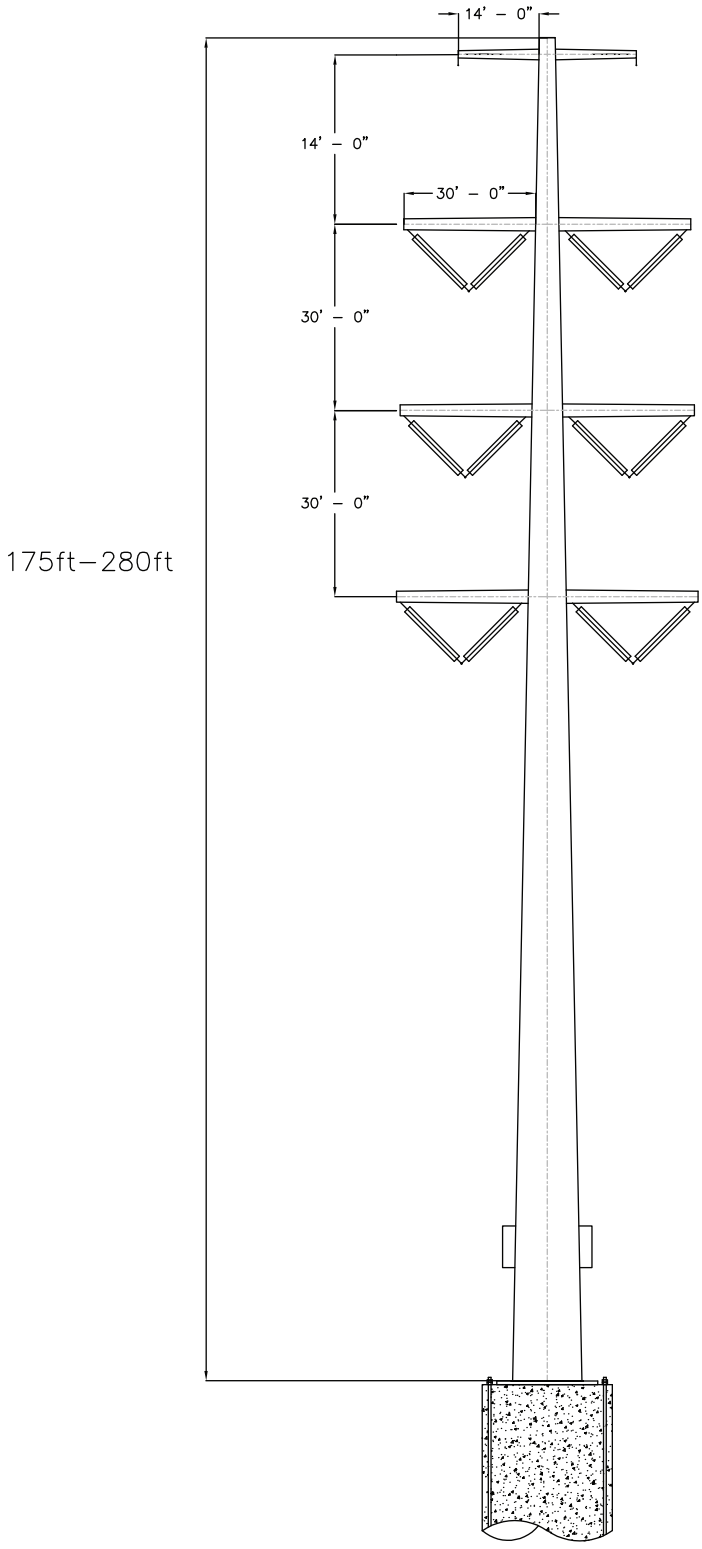
1.3.1 Transmission Line Design

The Project will be operated as a 345 kV transmission line with 1,272 thousand circular mils (kcmil) aluminum conductor, steel-supported Pheasant with two conductors per phase and Optical Ground Wire (OPGW) circuit. The transmission line will be installed on new monopole structures within the existing ROW. The ROW width will remain the same, typically 125 feet wide, to accommodate constraints and to meet engineering clearance specifications.

The Project will be rated for operation at 3,928 amperes, yielding a nominal 2,347-megavolt ampere (MVA) capacity. The configurations of the conductor and shield wire will provide adequate clearance for operation at 345 kV, considering icing and wind conditions. The Project will be designed and constructed to meet or exceed the specifications set forth in the current edition of the National Electrical Safety Code (NESC) and will comply with all applicable state and federal statutes and regulations.

1.3.2 Typical Transmission Line Structures and Easements

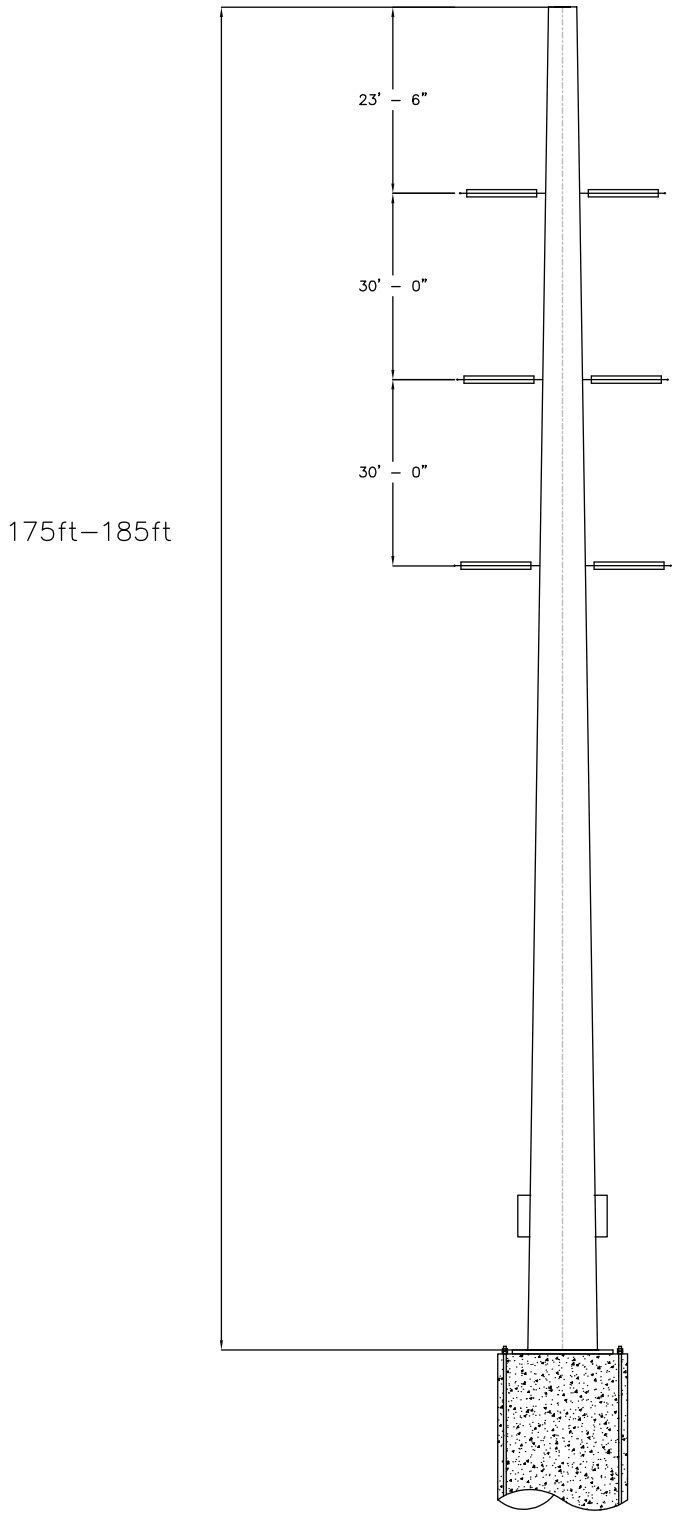
CPS Energy proposes to use 345 kV double-circuit monopole structures for typical tangent and single circuit dead-end structures. The geometries of the proposed typical tangent and dead-end structures are shown on Figures 1-2 and 1-3. All structure geometries are illustrative. In some areas, shorter than typical, taller than typical, or alternative structure types may be utilized. Actual structure types may differ slightly based on new or different designs available at the time of construction.



SPRUCE TO PAWNEE 345 KV TRANSMISSION LINE PROJECT

Figure 1-2

Typical 345 kV Double Circuit Tangent Structure



SPRUCE TO PAWNEE 345 KV TRANSMISSION LINE PROJECT

Figure 1-3

Typical 345 kV Double Circuit Dead-end Structure

The Project will be constructed within the existing ROW easements typically 125 feet in width, using spans that typically range from approximately 800 to 1,200 feet. In some areas, easement width and span length could be more or less than the typical depending on terrain and other engineering considerations. Access easements and/or temporary construction easements may be required in some areas.

1.3.3 Construction Schedule

Subject to appropriate regulatory approvals for the Project, CPS Energy plans to construct the Project between November 2025 and June 2026. The specific construction schedule will be refined following PUC approval of the Project, as any necessary surveys are completed, engineering designs are finalized, and any necessary species accommodations are considered. The transmission line is proposed to be constructed by a combination of contractor and CPS Energy crews.

1.4 Construction Considerations

Construction of the Project with minimal outages of the existing Spruce to Pawnee transmission line will require live line bare hand work (described further in Section 1.4.1), some potential clearing, structure assembly and erection, conductor and OPGW installation, and clean up when the project is completed. The following criteria will be taken into consideration (these criteria are subject to adjustment befitting the rules and judgments of any public agencies whose lands may be crossed by the proposed line):

1. Clearing and grading of construction areas such as storage areas, setup sites, etc., will be minimized to the extent practicable. These areas will be graded in a manner that will minimize erosion and conform to the natural topography.
2. Soil that has been excavated during construction and not used will be evenly backfilled onto a cleared area or removed from the site. The backfilled soil will be sloped gradually to conform to the terrain and the adjacent land. All disturbed areas as a result of construction activity will be restored and re-vegetated with native grass.
3. Soil disturbance during construction will be minimized and erosion control devices will be utilized where necessary. The Project will comply with Texas Commission on Environmental Quality (TCEQ), Bexar County, Wilson County, Karnes County, and the City of San Antonio requirements for stormwater discharges.
4. Clearing and construction activities in the vicinity of streambeds will be performed in a manner to minimize damage to the natural condition of the area. Where feasible, service and access roads will be constructed jointly. Roads will not be constructed on unstable slopes and as required, side

drainage ditches and culverts will be utilized to prevent soil or road erosion. Construction of access roads and drainage structures required for the Project will comply with any applicable local, state, or federal permit requirements.

5. When possible, in areas of high wildlife use or in areas of known endangered or threatened species habitat, construction will be performed during seasons of low wildlife occurrence, such as between periods of peak waterfowl migrations (generally spring and fall) and during nonbreeding season (species dependent).
6. If any archeological materials are uncovered during construction, construction will cease in the immediate area of the discovery and the discovery will be evaluated.

1.4.1 Live Line Bare Hand

In order to construct the Project within the existing 125ft wide ROW with minimal outages to the existing Spruce to Pawnee transmission line, CPS Energy intends to contract with qualified personnel with specialized equipment to perform 345 kV live line bare hand work in accordance with OSHA 1910.269 and as IEEE 516-2021. Construction crews may install temporary poles to temporarily relocate energized existing conductor of the Spruce to Pawnee transmission line. Such crews will utilize special insulated equipment to reposition the existing energized conductor. On dead end structures, temporary bypasses (jumpers) and temporary poles with guy wire and anchors will be installed to allow for a transition between new conductor and existing/bypass conductor. Crews will use specialized breakers to transfer the load to the new conductor while the existing line remains energized.

1.4.2 Clearing and ROW Preparation

Clearing plans, methods, and practices are extremely important to minimize the potential adverse effects of transmission lines on the environment. The ROW will not be clear cut, unless necessary in very limited circumstances. Only trees and vegetation that may interfere with the construction, operation, and maintenance of the transmission line will be removed in accordance with the San Antonio tree ordinance requirements as applicable. Trees and brush that are removed will be mulched and spread in the ROW to help stabilize the ground and prevent erosion. CPS Energy does not intend to use herbicides in ROW clearing and preparation.

1.4.3 Structure Assembly and Erection

Survey crews will stake or otherwise mark structure locations. Construction crews will install structures by excavating holes and placing a reinforced concrete drilled pier foundation. After the foundations have

cured sufficiently, crews will set the structures and install the conductor and shield wire suspension assemblies. Since a large amount of vehicular traffic will occur during this operation, construction crews will take care to minimize impacts to the ROW by minimizing the number of pathways traveled.

1.4.4 Conductor and Shield Wire Installation

The conductors and shield wires are typically installed via a tensioning system. Conductors and shield wires are pulled by ropes and held tight by tensioner to keep the wires from coming in contact with the ground and other objects that could be damaging to the wire. Guard structures (temporary wood-pole structures) will be installed where the transmission line crosses overhead electric power lines, overhead telephone lines, roadways, or other areas requiring sag. After the wire is pulled, it is placed in suspension and dead-end clamped for permanent attachment. In some areas, use of helicopters may be utilized for conductor and shield wire installation.

1.4.5 Cleanup

The cleanup operation typically involves returning disturbed areas to as close to the original contour as possible, the removal of debris, and the restoration of any items damaged by construction of the Project. Upon the completion of the construction work, all scrap, trash, excavated materials, waste materials, and debris resulting from construction of the transmission line will be promptly removed. All construction equipment and materials will be removed from the site, and waste disposal will be conducted in a legal manner. All disturbed areas will be re-vegetated with native grass seed mixture.

1.5 Maintenance Considerations

Following construction, CPS Energy will periodically inspect the substation, transmission line ROW, structures, and line to ensure the safe and reliable operation of the facilities. The primary maintenance for the completed Project will be the removal or trimming of trees that pose a potential danger to the conductors or structures. Preservation of natural resources requires a thoughtful, comprehensive maintenance program. The following factors are key components of CPS Energy's maintenance program that will be utilized for the Project.

1. Native vegetation, particularly that of value to fish and wildlife that does not have the potential to grow close enough to the transmission line so as to pose a hazard to the safe operation and maintenance of the transmission line, will be allowed to grow in the ROW. Likewise, if ecologically appropriate, native grass cover and low-growing shrubs will be left in the areas

immediately adjacent to transmission structures. Where grading is necessary, access roads will be graded to the proper slope to prevent soil erosion.

2. A cover of vegetation will be maintained within the ROW in a manner that minimizes erosion and does not interfere with the safe and reliable operation of the transmission facilities.
3. If used, United States Environmental Protection Agency (USEPA)-approved herbicides will be carefully selected to have a minimal effect on desirable indigenous plant life, and selective application will be used whenever appropriate.
4. CPS Energy performs routine maintenance inspections at appropriate intervals. Routine maintenance will be performed, when possible, when access roads are firm or dry.
5. Aerial and ground maintenance inspection activities of the transmission line facility will include observation of soil erosion problems, fallen timber, and conditions of the vegetation that require attention. Where necessary, on the basis of erosion control, native shrubs or grasses may be planted.
6. CPS Energy intends for the ROW to be utilized for compatible uses as long as the activity does not impact public safety or inhibit the safe operation and maintenance of the electrical system. The results of natural resources and cultural resources assessments will be followed as necessary and appropriate during maintenance of the ROW.

1.6 Agency Actions

If the proposed transmission line is located within, or across, the ROW of any county or state-maintained roads or highways, CPS Energy will obtain the appropriate permit(s) from the controlling governing entity. Since more than one acre will be cleared or disturbed during construction, a Stormwater Pollution Prevention Plan (SWPPP) will be prepared, a Notice of Intent (NOI) will be submitted to the TCEQ, and a construction notice will be submitted by CPS Energy to the Municipal Separate Storm Sewer System Operator, which is San Antonio Water System (SAWS). The controls specified in each SWPPP will be monitored in the field. Permits or regulatory approvals may also be required from the TCEQ, Texas Historical Commission (THC), United States Army Corps of Engineers (USACE), and the United States Fish and Wildlife Service (USFWS). Following the identification of environmental and ROW concerns, appropriate measures will be taken during engineering design to incorporate special provisions in construction documents, specifications, or other instructions. Following completion of the design, a preconstruction conference will be held, which will include a review of these provisions. Physical

inspections of the Project will be performed to assure all appropriate measures have been taken during construction.

Numerous federal, state, and local regulatory agencies and organizations have developed rules and regulations regarding the routing and potential impacts associated with the construction of the Project. This section describes the major regulatory agencies and additional issues that are involved in project planning and permitting of transmission lines in Texas. POWER solicited comments from various regulatory entities during the development of this document, and records of correspondence and additional discussions with these agencies and organizations are provided in Appendix A.

1.6.1 Public Utility Commission of Texas

The PUC regulates CPS Energy's routing of transmission lines in Texas under Sections 37.051(g) and 37.056(c)(4)(A)-(D) of the PURA. In addition to the specific legislative requirements in PURA, the PUC regulatory guidelines for routing transmission lines in Texas include:

- 16 TAC 25.101(b)(3)(B) (including the PUC's policy of prudent avoidance)
- 16 TAC 22.52(a)(4)
- The PUC's CCN application requirements
- PUC precedent related to transmission line applications

This EA has been prepared by POWER in support of CPS Energy's CCN application for this Project to be filed at the PUC for its consideration.

1.6.2 United States Army Corps of Engineers

The USACE is directed by Congress under Section 10 of the Rivers and Harbors Act of 1899 (33 United States Code [U.S.C.] § 403) and Section 404 of the Clean Water Act (CWA) (33 U.S.C. § 1344) to implement these statutes. Under Section 10, the USACE regulates all work or structures in or affecting the course, condition, or capacity of navigable waters of the United States (WOTUS). The intent of this law is to protect the navigable capacity of waters important to interstate commerce. Under Section 404, the USACE regulates the discharge of dredged and fill material into all WOTUS, including associated wetlands. The intent of this law is to protect the WOTUS and aquatic ecosystems from the indiscriminate discharge of material capable of causing pollution and to restore and maintain their chemical, physical, and biological integrity. The Project is located within the jurisdiction of the USACE – Fort Worth District and Galveston District.

Review of the National Hydrography Dataset (NHD) and National Wetland Inventory (NWI) maps indicate that surface WOTUS and associated areas of potential wetlands may occur within the study area. Upon PUC approval of a route, additional coordination, jurisdictional wetland verifications, and permitting with the USACE – Fort Worth District and/or Galveston District for a Section 404 Permit might be required. Based on the Project footprint and construction techniques proposed, the construction of the Project will likely meet the criteria for the Nationwide Permit (NWP) No. 57 – Electricity Utility Line and Telecommunications Activities. A Section 10 permit is not anticipated for this Project.

1.6.3 United States Fish and Wildlife Service

The USFWS is charged with the responsibility for enforcement of federal wildlife laws and providing comments on proposed construction projects with a federal nexus under the National Environmental Policy Act (NEPA) and within the framework of several federal laws including the Endangered Species Act (ESA), Migratory Bird Treaty Act (MBTA), and Bald and Golden Eagle Protection Act (BGEPA). POWER reviewed the USFWS' Information for Planning and Conservation (IPaC) (Project Code: 2025-0026827) website for federally protected species and designated critical habitats within the study area.

Upon PUC approval of a route and prior to construction, surveys will be completed as determined necessary and appropriate to identify any potentially suitable habitat for federally listed species. If suitable habitat is identified, then informal consultation with the USFWS – Texas Coastal and Central Plans Ecological Services Field Office might need to occur to determine the need for any required species-specific surveys and/or permitting under Section 10 of the ESA.

1.6.4 Federal Aviation Administration

According to Federal Aviation Administration (FAA) regulations, Title 14 Code of Federal Regulations (C.F.R.) 77.9 the construction of a transmission line requires FAA notification if a transmission tower structure height will exceed 200 feet or the height of an imaginary surface extending outward and upward at one of the following slopes:

- A 100:1 slope for a horizontal distance of 20,000 feet from the nearest point of the nearest runway of each airport described in paragraph (d) of 14 C.F.R. 77.9 having at least one runway longer than 3,200 feet, excluding heliports;

- A 50:1 slope for a horizontal distance of 10,000 feet from the nearest runway of a public or military airport described in paragraph (d) of 14 C.F.R. 77.9 where its longest runway is no longer than 3,200 feet in length, excluding heliports; or
- A 25:1 slope for a horizontal distance of 5,000 feet for a heliport described in paragraph (d) of 14 C.F.R. 77.9.

Paragraph (d) of 14 C.F.R. 77.9 includes public-use airports listed in the Airport/Facility Directory (currently the Chart Supplement), public-use or military airports under construction, airports operated by a federal agency or the Department of Defense (DoD), or an airport or heliport with at least one FAA-approved instrument approach procedure.
Notification is not required for structures that will be shielded by existing structures of a permanent and substantial nature or by natural terrain or topographic features of equal or greater height and will be located in a congested area of a city, town, or settlement where the shielded structure will not adversely affect safety in air navigation.

The PUC CCN application also requires listing private airports within 10,000 feet of any route centerline. Following PUC approval of a route for the proposed transmission line, CPS Energy will make a final determination of the need for FAA notification, based on specific structure locations and design. If any of the FAA notification criteria are met for the approved route, a Notice of Proposed Construction or Alteration, FAA Form 7460-1, will be completed and submitted to the FAA Southwest Regional Office in Fort Worth, Texas, at least 45 days prior to construction. The result of this notification, and any subsequent coordination with the FAA, could include changes in line design and/or potential requirements to mark and/or light the structures.

The PUC CCN application also requires listing private airports within 10,000 feet of any alternative route centerline.

1.6.5 Military Aviation and Installation Assurance Siting Clearinghouse

The DoD Military Aviation and Installation Assurance Siting Clearinghouse works with industry to overcome risks to national security while promoting compatible domestic energy development. Energy production facilities and transmission projects involving tall structures, such as electrical transmission towers, may degrade military testing and training operations. The electromagnetic interference from electricity transmission lines can impact critical DoD testing activities. Title 16 TAC §22.52 states that

upon filing of the application, the DoD shall be notified and an affidavit attesting to the notification shall also be provided with the applicant's proof of notice. The DoD shall also be provided written notice of the public meeting and if a public meeting is not held, the DoD shall be noticed of the planned filing of the application prior to the completion of the routing study. On October 15, 2024, the DoD was contacted about the proposed Project to provide notification and to solicit any input from the DoD about the proposed Project. In addition, on November 4, 2024, and in accordance with 16 TAC § 22.52 (a)(4), public meeting notice was provided via mail and email to the DoD Military Aviation and Installation Assurance Siting Clearing house for the public meeting that was held for the proposed Project on November 18, 2024. A notice of the filing of the CCN application will be sent to the DoD Military Aviation and Installation Assurance Siting Clearinghouse when the CCN application is filed with the PUC.

1.6.6 Texas Parks and Wildlife Department

The Texas Parks and Wildlife Department (TPWD) is the state agency with the primary responsibility for protecting the state's fish and wildlife resources in accordance with the Texas Parks and Wildlife Code (TPWC) Sections 12.0011(b). POWER solicited comment from TPWD during the scoping phase of the Project, and a copy of this EA will be submitted to TPWD when the CCN amendment application is filed with the PUC. Once the PUC approves a route, additional coordination with TPWD may be necessary to determine the need for any additional surveys, and to avoid or minimize any potential adverse impacts to sensitive habitats, threatened or endangered species, and other state regulated fish and wildlife resources.

1.6.7 Floodplain Management

Floodplain maps published by the Federal Emergency Management Agency (FEMA) were reviewed to identify the mapped 100-year floodplains within the study area. The mapped 100-year floodplains are typically associated with the larger creeks and streams or within the boundaries of a river. The 100-year floodplain represents a flood event that has a one percent chance of being equaled or exceeded for any given year. The construction of the proposed transmission line is not anticipated to create any significant permanent changes in the existing topographical grades and will not significantly increase the stormwater runoff within the study area due to increased areas of impermeable surfaces. Additional coordination with the study area county floodplain administrator may be required after PUC route approval to determine if any permits or mitigation is necessary.

1.6.8 Texas Commission on Environmental Quality

The TCEQ is the state agency with the primary responsibility for protecting the state's water quality. Construction of the Project will require a Texas Pollution Discharge Elimination System General Construction Permit (TXR150000) as implemented by the TCEQ under the provisions of Section 402 of the CWA and Chapter 26 of the Texas Water Code. More than five acres of land disturbance is anticipated during construction of the Project for all alternative routes; therefore, the construction will be considered a "Large Construction Project" under TXR150000. Before beginning construction, CPS Energy will develop and implement SWPPPs for use during construction activities. Site notices will be posted, and notifications sent to SAWS. The submittal of an NOI and Notice of Termination (NOT) to the TCEQ is also required for large construction projects.

1.6.9 Texas Historical Commission

Cultural resources are protected by federal and state laws if they have some level of significance under the criteria of the National Register of Historic Places (NRHP) (36 C.F.R. Part 60) or under state guidance (TAC, Title 13, Part 2, Chapter 26.7-8). The THC was contacted by POWER to identify known cultural resource sites within the study area boundary. POWER also reviewed Texas Archeological Research Laboratory (TARL) records for known locations of cultural resource sites. Additional coordination with the THC will occur regarding additional permitting requirements under the Antiquities Code of Texas (Texas Natural Resource Code [TNRC], Title 9, Chapter 191). CPS Energy propose to implement an unanticipated discovery procedure during construction activities. If artifacts are discovered during construction, activities will cease near the discovery, and CPS Energy will notify the State Historic Preservation Office (SHPO) for additional consultation.

1.6.10 Texas Department of Transportation

POWER notified the Texas Department of Transportation (TxDOT) of the Project during the development of the EA. If the route approved by the PUC crosses or occupies TxDOT ROW, it will be constructed in accordance with the rules, regulations, and policies of TxDOT. Best Management Practices (BMPs) will be used as required to minimize erosion and sedimentation resulting from construction. Revegetation will occur as required under the "Revegetation Special Provisions" and contained in TxDOT Form 1023 (Rev. 9-93). Traffic control measures will comply with applicable portions of the Texas Manual of Uniform Traffic Control Devices.

1.6.11 Texas General Land Office

The Texas General Land Office (GLO) requires a miscellaneous easement for ROWs within any state-owned riverbeds or navigable streams or tidally influenced waters. Coordination with the GLO will be completed after PUC approval of the Project route.

1.6.12 City of San Antonio

A portion of the Project area is within the extra territorial jurisdiction of San Antonio; therefore, San Antonio has jurisdiction on tree mitigation according to San Antonio Unified Development Code Section 35-523. Throughout the process of designing the Project and clearing any ROW for the safe and reliable operation of the transmission line, CPS Energy will make every effort to save tree canopy and heritage trees where possible. The construction of the Project may require a tree permit from San Antonio upon approval of a route by the PUC. San Antonio also has jurisdiction on Cultural Resources evaluation under the Unified Development Code Chapter 35, Article VI within San Antonio boundaries and Extra-Territorial Jurisdiction. CPS Energy will coordinate with the San Antonio Office of Historic Preservation for the portions of the project within their jurisdiction.

1.6.13 Bexar County

Bexar County will require a Storm Water Quality Permit, Post Construction Permit, and Floodplain Development Permit for the construction of the Project, as applicable. These permits will be completed after PUC approval of the Project route.

1.6.14 Wilson County

Wilson County will require a Floodplain Development Permit for the construction of the Project, as applicable. These permits will be completed after PUC approval of the Project route.

1.6.15 Karnes County

Karnes County will require a Floodplain Development Permit for the construction of the Project, as applicable. These permits will be completed after PUC approval of the Project route.

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2.0 ROUTE SELECTION METHODOLOGY

2.1 Objective of Study

The objective of this EA is to evaluate the Project Route for compliance with Section 37.056(c)(4)(A)-(D) of PURA, the PUC's Substantive Rules located at 16 TAC § 25.101(b)(3)(B), including the PUC's policy of prudent avoidance, the PUC's CCN application requirements, and the precedent established by the PUC for transmission line certification projects and CPS Energy's transmission line routing manual. The study methodology utilized by POWER for this EA included study area delineation based on the Project endpoints; identification and characterization of existing land use and environmental constraints; and evaluation of the route and potential impacts in relation to the environmental constraints. POWER identified potentially affected resources and considered each during the route evaluation process. Input from regulatory agencies and local officials was also considered during the route evaluation process.

The route was analyzed using evaluation criteria to determine potential impacts to existing land use and environmental resources. CPS Energy also will consider all of the certification criteria in PURA and the PUC Substantive Rules, engineering and construction constraints, grid reliability and security issues, and estimated costs to evaluate the route as it relates to the requirements of PURA and PUC Substantive Rules. This route will be submitted to the PUC in the CCN application.

2.2 Study Area Delineation

The study area is located southeast of the city of San Antonio in south central Texas within Bexar, Wilson, and Karnes Counties. The study area boundaries for the data collection process encompass the existing 345 kV transmission line and the Project termination points. The proposed Project, a rebuild of the existing single-circuit transmission line to a double-circuit transmission line, is proposed to utilize the existing transmission line ROW. Based on the ability to utilize the existing ROW, the study area is approximately 1,600 feet wide, approximately 800 feet on each side of the existing line.

The extent of the Project endpoints and the study area are described below and are illustrated in Figure 2-1. The study area is oriented in a northwest to southeast direction with the existing Spruce Substation located in the northern portion of the study area and the existing Pawnee Substation located in the southern portion of the study area.

More specifically, the Spruce Substation is located at Calaveras Power Station, approximately 2.5 miles north of US Hwy 181. The Pawnee Substation is located approximately 4.5 miles northwest of SH 72.

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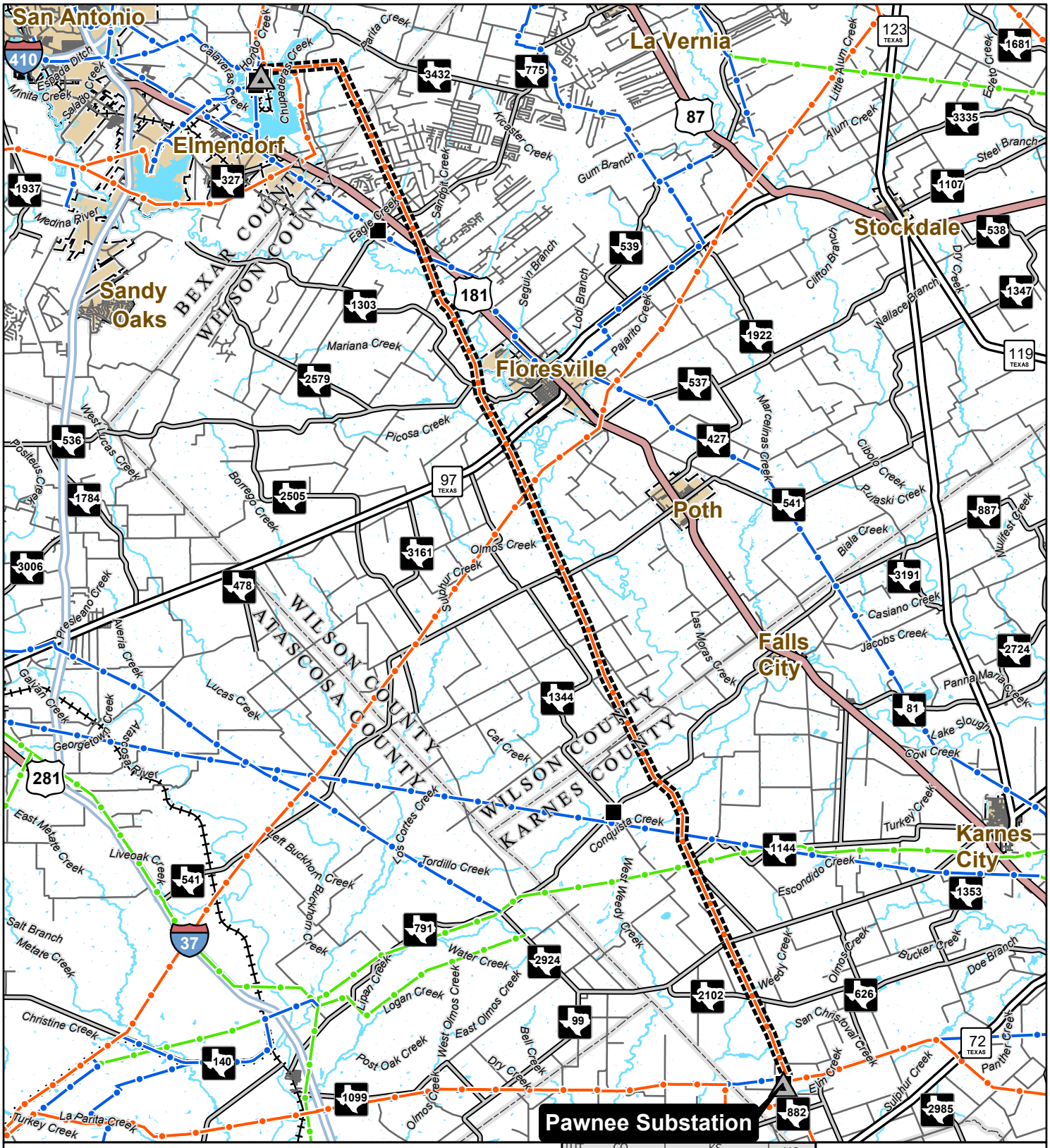
San Antonio
La Vernia
Elmendorf
Stockdale
Sandy Oaks
Floresville
Poth
Falls City
Karnes City
Pawnee Substation
BEXAR COUNTY
WILSON COUNTY
ATASCOSA COUNTY
KARNES COUNTY
Project Substation
Study Area Boundary
Existing Substation
Existing 69 kV Transmission Line
Existing 138 kV Transmission Line
Existing 345 kV Transmission Line
Interstate Highway
US Highway
State Highway
Farm-to-Market Road
County / Local Road
Railroad
River / Stream
Waterbody
City Limit
County Boundary
Project Area
SPRUCE TO PAWNEE
345 KV TRANSMISSION LINE
REBUILD PROJECT
FIGURE 2-1
STUDY AREA
0
4
8
Miles
Date: 1/23/2025

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2.3 Data Collection and Constraints Mapping

After delineation of the study area, a constraints map was prepared and used to initially display resource data and constraints for the Project area. The constraints map provides a broad overview of various resource locations indicating both routing constraints and areas of potential routing opportunities.

Several methodologies were utilized to collect and review environmental and land use data, including incorporation of readily available Geographic Information System (GIS) coverage with associated metadata; review of maps and published literature; and review of files and records from numerous federal, state, and local agencies. Data collected for each resource area was mapped within the study area utilizing GIS layers. The conditions of the existing environment are discussed throughout Section 3.0 of this document. Section 5.0 and Appendix A provide information regarding correspondence with agencies and officials.

Maps and/or data layers reviewed include (but are not limited to) United States Geological Survey (USGS) 7.5 minute topographic maps, NWI maps, TxDOT county highway maps, and recent aerial photography. USGS topographic maps and recent aerial photography (National Agricultural Imagery Program [NAIP] 2022) were used as the background for the environmental and land use constraint maps (see Appendices C and D [map pockets]).

Data typically displayed on the constraints map includes, but is not limited to:

- Major land jurisdictions and uses.
- Major roads including local roads, county roads, Farm-to-Market (FM) Roads, US Hwys, SHs, and Interstate Highways (IH).
- Existing transmission line and pipeline corridors.
- Airports, private airstrips, and heliports.
- Communication towers.
- Recreational areas.
- Major political subdivision boundaries.
- Lakes, reservoirs, rivers, streams, canals, and ponds.
- FEMA 100-year floodplains.
- NWI mapped wetlands.
- Mobile irrigation systems.
- Wells (including identifiable water, oil, and gas).

2.4 Agency Consultation

In consultation with CPS Energy, POWER developed a list of federal, state, and local regulatory agencies, elected officials, and organizations to receive a consultation letter regarding the Project. The purpose of the letter was to inform the various agencies and officials of the Project and provide them with an opportunity to provide information regarding resources and potential issues within the study area. A list of agencies contacted, and a summary of responses are included in Section 5.0. Copies of all correspondence with the various state/federal regulatory agencies and local/county officials and departments are included in Appendix A.

2.5 Public Involvement

CPS Energy and POWER evaluated the Project Route that was then presented to the public at an open house meeting held on November 18, 2024. The Project Route presented at the open house meeting is shown on Figure 4-2. Following the open house, CPS Energy continued to receive feedback in the form of emails and phone calls.

Based on input, comments, and information received by CPS Energy and POWER during and subsequent to the public open house meeting, POWER conducted an analysis of the public input received. The purpose of the public input analysis was to identify and evaluate the comments and additional information received at and following the public open house meeting. Information obtained during the analysis was used to determine any issues that would warrant modifications to the Project Route. A summary of the formal questionnaire responses obtained at and following the public open house meeting is presented in Section 6.0. Copies of the public open house notice letter with map, brochure, frequently asked questions, and questionnaire provided in association with the open house are located in Appendix B.

2.6 Route Development and Evaluation Criteria

The Project Route was reviewed by CPS Energy to determine engineering requirements, constructability, and long-term maintenance considerations. The POWER planning team reviewed the route using the environmental and land use constraints map while considering resource sensitivity. The Project Route was also reviewed in accordance with Section 37.056(c)(4)(A)-(D) of PURA, the PUC CCN application, and 16 TAC § 25.101, including the PUC's policy of prudent avoidance, and consistency with CPS Energy's transmission line routing manual. The Project Route was reviewed considering such factors as community values, parks and recreational areas, historical and aesthetic values, environmental integrity, route length utilizing and parallel to existing compatible corridors or parallel to apparent property boundaries, and prudent avoidance.

CPS Energy and POWER reviewed and refined the Project Route as more information became available. In evaluating the Project Route, land use and environmental evaluation criteria were developed to reflect accepted

practices for routing electric transmission lines in the state of Texas (see Table 2-1). Evaluation criteria were further refined based on data collection and reconnaissance surveys.

The Project Route is shown in relation to environmental and other land use constraints on topographic base in Figure 4-1 and on aerial photographic base in Figure 4-2. For the purposes of this analysis, only one route is addressed in this report. The analysis of the route involved inventorying and tabulating the number or quantity of each environmental criterion located along the route (e.g., number of habitable structures within 500 feet). The number or amount of each factor was determined by POWER using GIS layers, maps, recent aerial photography, and field verification from publicly accessible areas where practical. Potential environmental impacts are addressed in Section 4.0 of this document.

TABLE 2-1 LAND USE AND ENVIRONMENTAL EVALUATION CRITERIA

EVALUATION CRITERIA	
Land Use	
1	Length of route (miles)
2	Number of habitable structures[1] within 500 feet of the route centerline
3	Length of ROW using existing transmission line ROW
4	Length of ROW parallel and adjacent to existing transmission line ROW
5	Length of ROW parallel and adjacent to other existing ROW (roadways, railways, utilities, etc.)
6	Length of ROW parallel and adjacent to apparent property lines[2] or other natural or cultural features
7	Sum of evaluation criteria 3, 4, 5, and 6
8	Percent of evaluation criteria 3, 4, 5, and 6
9	Length of ROW across parks/recreational areas[3]
10	Number of additional parks/recreational areas[3] within 1,000 feet of ROW centerline
11	Length of ROW across cropland
12	Length of ROW across pasture/rangeland
13	Length of ROW across land irrigated by traveling systems (rolling or pivot type)
14	Length of route across conservation easements and/or mitigation banks (Special Management Area)
15	Length of route across gravel pits, mines, or quarries
16	Length of ROW parallel and adjacent to pipelines[4]
17	Number of pipeline[4] crossings
18	Number of transmission line crossings
19	Number of IH, US and state highway crossings
20	Number of FM road crossings
21	Number of FAA registered public/military airports[5] with at least one runway more than 3,200 feet in length located within 20,000 feet of ROW centerline
22	Number of FAA registered public/military airports[5] having no runway more than 3,200 feet in length located within 10,000 feet of ROW centerline
23	Number of private airstrips within 10,000 feet of the ROW centerline
24	Number of heliports within 5,000 feet of the ROW centerline
25	Number of commercial AM radio transmitters within 10,000 feet of the ROW centerline
26	Number of FM radio transmitters, microwave towers, and other electronic installations within 2,000 feet of ROW centerline
27	Number of identifiable existing water wells within 200 feet of the ROW centerline
28	Number of oil and gas wells within 200 feet of the ROW centerline (including dry or plugged wells)
Aesthetics	
29	Estimated length of ROW within foreground visual zone[6] of IH, US and state highways

TABLE 2-1 LAND USE AND ENVIRONMENTAL EVALUATION CRITERIA

EVALUATION CRITERIA	
30	Estimated length of ROW within foreground visual zone[6] of FM/Ranch-to-Market roads
31	Estimated length of ROW within foreground visual zone[6][7] of parks/recreational areas[3]
Ecology	
32	Length of ROW through upland woodlands/brushlands
33	Length of ROW through bottomland/riparian woodlands
34	Length of ROW across NWI mapped wetlands
35	Length of route across USFWS designated critical habitat for federally-listed threatened or endangered species
36	Length of ROW across open water (lakes, ponds)
37	Number of stream crossings
38	Length of ROW parallel (within 100 feet) to streams
39	Length of ROW across Edwards Aquifer Contributing Zones
40	Length of ROW across FEMA mapped 100-year floodplain
Cultural Resources	
41	Number of cemeteries within 1,000 feet of the ROW centerline
42	Number of recorded cultural resource sites crossed by ROW
43	Number of additional recorded cultural resource sites within 1,000 feet of ROW centerline
44	Number of resources determined eligible for or NRHP properties crossed by ROW
45	Number of additional resources determined eligible for or NRHP properties within 1,000 feet of ROW centerline
46	Length of ROW across areas of high archeological site potential

Notes: All length measurements are shown in miles unless noted otherwise.

[1]Single-family and multi-family dwellings, and related structures, mobile homes, apartment buildings, commercial structures, industrial structures, business structures, churches, hospitals, nursing homes, schools, or other structures normally inhabited by humans or intended to be inhabited by humans on a daily or regular basis within 500 feet of the centerline of a transmission project of 230 kV or more.

[2]Apparent property boundaries created by existing roads, highways, or railroad ROWs are not "double-counted" in the length of ROW parallel to apparent property boundaries criteria.

[3]Defined as parks and recreational areas owned by a governmental body or an organized group, club, or church within 1,000 feet of the centerline of the Project.

[4]Only steel pipelines six inches and greater in diameter carrying petrochemicals were quantified in the pipeline crossing and paralleling calculations.

[5]As listed in the Chart Supplement South Central US (FAA 2024b formerly known as the Airport/Facility Directory South Central US) and FAA 2024a.

[6]One-half mile, unobstructed. Lengths of ROW within the visual foreground zone of interstates, US and state highway criteria are not "double-counted" in the length of ROW within the visual foreground zone of FM roads criteria.

[7]One-half mile, unobstructed. Lengths of ROW within the visual foreground zone of parks/recreational areas may overlap with the total length of ROW within the visual foreground zone of interstates, US, and state highway criteria and/or with the total length of ROW within the visual foreground zone of FM roads criteria.

2.7 Field Reconnaissance

A reconnaissance survey of the study area (from public viewpoints) was conducted by POWER personnel to confirm the findings of the research and data collection activities, identify changes in land use occurring after the date of the aerial photography, and to identify potential unknown constraints that may not have been previously noted in the data. A reconnaissance survey of the study area was conducted by POWER personnel on October 21, 2024.

3.0 NATURAL RESOURCES/ENVIRONMENTAL INTEGRITY

3.1 Natural Resources/Environmental Integrity

Resource inventory data were collected for physiography, geology, soils, surface waters, wetlands, and ecological resource areas. These data were obtained from readily available sources and mapped within the study area utilizing GIS layers. Additional data collection activities consisted of file and record reviews conducted utilizing the various state and federal regulatory agencies, a review of published literature, and review of various maps and aerial photographs. Maps and data layers reviewed include USGS 7.5-minute topographic maps, aerial imagery, Bureau of Economic Geology (BEG) Geologic Atlas, NWI maps, TxDOT county highway maps, and county appraisal district land parcel boundary maps.

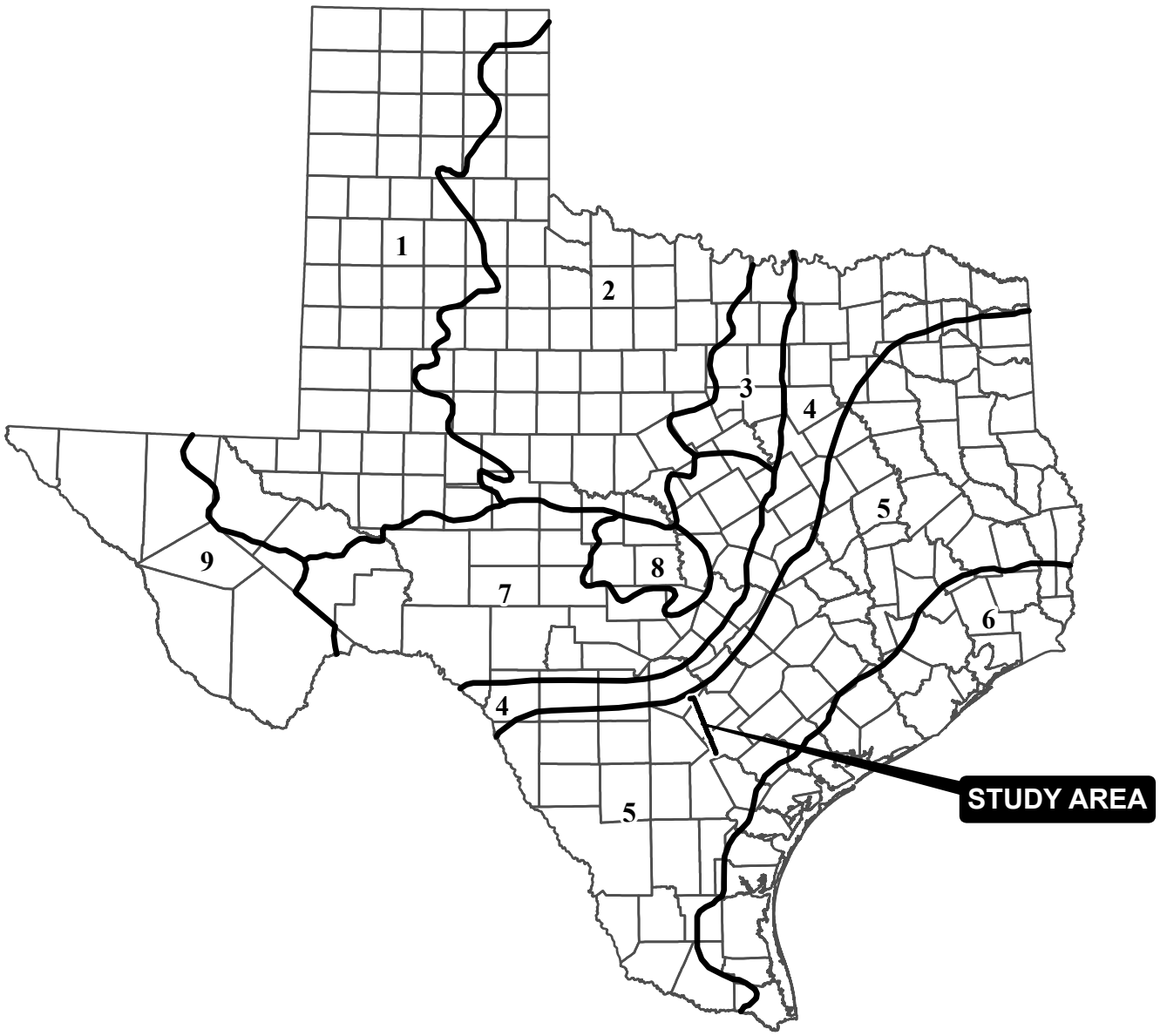
3.1.1 Physiography and Geology

As shown in Figure 3-1, the study area is located along the transitional area between the Blackland Prairies and the Interior Coastal Plains physiographic subprovince (BEG 1996). The Blackland Prairies are characterized by low, rolling terrain that has been cleared of most natural vegetation and is cultivated for crops. Bedrock chalks and marls are tilted south and east and weather to deep, black, fertile clay soils. Elevations in the Blackland Prairies range from 450 to 1,000 feet above mean sea level (amsl) (BEG 1996). The Interior Coastal Plains are punctuated by parallel ridges and valleys. West and south, tree density continuously declines, pines disappear in Central Texas, and chaparral brush and sparse grasses dominate between San Antonio and Laredo. Bedrock types of sand and mud are titled towards the Gulf of Mexico and erode into long, sandy ridges and clay. Interior Coastal Plain elevations range between 300 and 800 amsl (BEG 1996).

According to the USGS Texas Water Science Center's (TWSC) Geologic Database of Texas (USGS 2014), there are 15 geologic formations underlying the study area: Wilcox Group, Reklaw Formation, Fluviatile terrace deposits, Alluvium, Conquista Clay Member and Dilworth Sandstone Member (Whitsett), Deweesville Sandstone Member, Leona Formation, Catahoula Formation, Weches Formation, Yegua Formation, the Manning, Wellborn, and Caddell Formations (undivided), Carrizo Sand, and Sparta Sand (USGS 2014). Using the TWSC Geologic Database of Texas (USGS 2014), descriptions of each geologic formation is detailed below.

- The Wilcox Group is primarily comprised of mudstone with varying amounts of sandstone and lignite. In the uppermost and lowermost parts of the formation, it is commonly glauconitic and massive to thin bedded. The thickness of this formation ranges from about 440 to 1,200 feet.
- The Reklaw Formation is comprised of sandstone and clay. The sandstone is fine to medium grained with well-developed cross bedding and has an average thickness of 50 feet.

- Fluvatile terrace deposits are made up of gravel, sand, silt, and clay. These low terrace deposits are mostly above flood level along entrenched streams with the morphology usually being well preserved with point bars.
- Alluvium are local deposits from aquatic features such as point bars, natural levees, and stream channels comprised of clay, silt sand, and gravel. Organic matter is abundant in alluvium.
- The Conquista Clay Member and Dilworth Sandstone Member (Whitsett) are not separately mapped formations. The Conquista Clay Member is bentonitic, slightly carbonaceous, lignitic, and locally concentrated of at the soil surface. Uranium deposits are found in the upper part new Deweesville, Texas with a thickness of 50 feet. The Dilworth Sandstone Member is fine to medium grained with massive crossbedding and a thickness of 40 feet.
- The Deweesville Sandstone Member is comprised of sandstone, siltstone, clay, and tuff. Uranium deposits are found locally near the base of the formation with a thickness of 30 feet.
- The Leona Formation has fine calcareous silt grading down into coarse gravel.
- The Catahoula Formation is a volcaniclastic unit comprised of sandstone, ash, conglomerate, and lesser amounts of coal and shale.
- The Weches Formation is comprised of greensand, sand, and clay and a thickness of about 30 feet.
- The Yegua Formation is comprised of clay and sandstone that is fine grained with some instances of fossilized wood. The thickness of the Yegua Formation ranges from 400 to 1,050 feet and thickens the further south the formation goes.
- The Manning, Wellborn, and Caddell Formations are formations that are geologically grouped together.
  - The Manning Formation is comprised of clay, tuff, and sandstone with a thickness that ranges from 250 to 300 feet.
  - The Wellborn Formation includes sandstone that is fine to coarse grained and often contains abundant borings of worms and other invertebrates. This formation can have a thickness of up to 150 feet.
  - The Caddell Formation includes siltstone, clay, and sandstone that are all very fine grained and has a thickness of 50 feet.
- Carrizo Sand is comprised of sandstone that is medium to very coarse grained and becomes very fine towards the surface. The thickness of this formation ranges from 140 to 200 feet.
- Sparta Sand is comprised of sandstone that is very fine to fine grained with some silty clay partings and a thickness of about 130 feet.



0 30 60 120 180 240

Miles

Source: Texas Bureau of Economic Geology, 1996

Legend

Physiographic Region Boundary

1 High Plains
2 North-Central Plains
3 Grand Prairie
4 Blackland Prairies
5 Interior Coastal Plains
6 Gulf Coastal Prairies
7 Edwards Plateau
8 Central Texas Uplift
9 Trans-Pecos Basin and Range

County Boundary

SPRUCE TO PAWNEE 345 KV TRANSMISSION LINE REBUILD PROJECT

FIGURE 3-1

LOCATION OF THE STUDY AREA IN RELATION TO THE PHYSIOGRAPHIC REGIONS OF TEXAS

Date: 12/18/2024

- The Manning, Wellborn, and Caddell Formations are formations that are geologically grouped together.
  - The Manning Formation is comprised of clay, tuff, and sandstone with a thickness that ranges from 250 to 300 feet.
  - The Wellborn Formation includes sandstone that is fine to coarse grained and often contains abundant borings of worms and other invertebrates. This formation can have a thickness of up to 150 feet.
  - The Caddell Formation includes siltstone, clay, and sandstone that are all very fine grained and has a thickness of 50 feet.
- Carrizo Sand is comprised of sandstone that is medium to very coarse grained and becomes very fine towards the surface. The thickness of this formation ranges from 140 to 200 feet.
- Sparta Sand is comprised of sandstone that is very fine to fine grained with some silty clay partings and a thickness of about 130 feet.

Significant Geological Features

Several potential geologic features affecting the construction and operation of a transmission line were evaluated within the study area. Geologic areas reviewed included potential karst, known cave locations, fault lines, active or abandoned mining locations, aggregate operation locations, and potential subsurface contamination. Subsurface contamination (soils or groundwater) from previous commercial activities or dumps/landfills may require additional considerations during routing and/or may create a potential hazard during construction activities.

The study area is outside of known karst formation locations (Texas Speleological Survey [TSS] 2007). Additionally, review of TSS did not identify any named caves occurring within the study area (TSS 1966).

There are a few normal faults throughout the study area, primarily in the central and northern sections (USGS 2014). According to the Railroad Commission of Texas (RRC), there no active or reclaimed coal mine sites (RRC 2024a, 2024b, and 2024c) within the study area. Additionally, no historical abandoned coal mining locations (RRC 2015) were identified within the study area. The study area intersects one in-situ recovery uranium mine known as the Butler Ranch Wellfield in Falls City of Karnes County (RRC 2024d). Historically, the uranium mine operated under the name of the Brysch uranium mine (Dickinson and Sullivan 1976). There were no aggregate/gravel production operations (TCEQ 2024a) identified within the study area.

Subsurface contamination (soils or groundwater) from previous commercial activities or dumps/landfills may require additional considerations during transmission routing and/or may create a potential hazard during construction activities. Review of the state superfund site database indicated that the Butler Ranch Site (also

known as the J.M. Hackney site), was previously a state regulated superfund site due to two abandoned uranium mining pits, one being the Brysch uranium mine, that contained bulk loads of styrene tars, chlorinated hydrocarbons, and vinyl chloride tars and drums of spent metal catalyst related to uranium mining. Although the study area intersects the Brysch uranium mine, the coordinates listed for this superfund site (28.852222, -98.158056), approximately five miles away, are not within study area. The site was removed from the superfund registry in 2000 after remedial action had been completed. The site has since been referred by TCEQ to the Texas RRC and no further environmental superfund response actions are required (TCEQ 2024b and 2024c). No federal superfund sites were identified within the study area (USEPA 2024a). No state-listed solid waste facilities (TCEQ 2024d) were identified within the study area.

3.1.2 Soils

Soil Associations

Natural Resources Conservation Service (NRCS) Web Soil Survey data (NRCS 2024) was reviewed to identify and characterize mapped soils within the study area. Soil map units represent a collection of delineated areas defined and named the same in terms of their soil components (e.g., series). Mapped soils within the study area are listed in Table 3-1, including a brief description of the soil unit, landform of occurrence, and hydric and prime farmland classification status.

TABLE 3-1 MAPPED SOIL UNITS OCCURRING WITHIN THE STUDY AREA

SOIL MAP UNIT	LANDFORM	HYDRIC	PRIME FARMLAND
Bexar County			
Aluf sand, 0 to 5 percent slopes	Sand sheets	No	Farmland of statewide importance
Floresville fine sandy loam, 1 to 3 percent slopes	Ridges	No	Prime farmland if irrigated
Floresville fine sandy loam, 3 to 5 percent slopes	Ridges	No	Prime farmland if irrigated
Floresville fine sandy loam, 1 to 5 percent slopes, eroded	Ridges	No	Not prime farmland
Miguel fine sandy loam, 1 to 3 percent slopes	Low hills	No	Prime farmland if irrigated
Miguel fine sandy loam, 2 to 5 percent slopes, eroded	Low hills	No	Not prime farmland
San Antonio clay loam, 1 to 3 percent slopes	Stream terraces	No	All areas are prime farmland
San Antonio clay loam, 3 to 5 percent slopes	Stream terraces	No	All areas are prime farmland
Wilco loamy fine sand, 0 to 3 percent slopes	Interfluves	No	Prime farmland if irrigated
Wilco loamy fine sand, 3 to 5 percent slopes	Interfluves	No	Prime farmland if irrigated
Wilco loamy fine sand, 3 to 5 percent slopes, eroded	Interfluves	No	Not prime farmland
Zavala and Gowen soils, 0 to 2 percent slopes, frequently flooded	Floodplains	No	Not prime farmland

TABLE 3-1 MAPPED SOIL UNITS OCCURRING WITHIN THE STUDY AREA

SOIL MAP UNIT	LANDFORM	HYDRIC	PRIME FARMLAND
Karnes County			
Bryde fine sandy loam, 1 to 4 percent slopes	Interfluves	No	Prime farmland if irrigated
Buchel clay, 0 to 1 percent slopes, occasionally flooded	Floodplains	No	All areas are prime farmland
Buchel clay, 0 to 1 percent slopes, frequently flooded	Floodplains	No	Not prime farmland
Clareville clay loam, 0 to 1 percent slopes	Flats, drainageways	No	All areas are prime farmland
Condido clay, 0 to 2 percent slopes	Interfluves	No	Not prime farmland
Conquista clay, 1 to 3 percent slopes	Low hills	No	Not prime farmland
Coy clay loam, 0 to 1 percent slopes	Terraces	No	All areas are prime farmland
Coy clay loam, 1 to 3 percent slopes	Terraces	No	All areas are prime farmland
Coy clay loam, 3 to 5 percent slopes	Terraces	No	All areas are prime farmland
Ecleto sandy clay loam, 1 to 3 percent slopes	Ridges	No	Not prime farmland
Ecleto sandy clay loam, 3 to 5 percent slopes	Ridges	No	Not prime farmland
Eloso clay, 1 to 3 percent slopes	Interfluves	No	All areas are prime farmland
Eloso clay, 3 to 5 percent slopes	Interfluves	No	All areas are prime farmland
Gillett fine sandy loam, 1 to 4 percent slopes	Ridges	No	Not prime farmland
Gullied land	-	No	Not prime farmland
Monteola clay, 1 to 3 percent slopes	Hills	No	All areas are prime farmland
Pavelek clay, 0 to 3 percent slopes	Ridges	No	Not prime farmland
Pavelek clay, 3 to 5 percent slopes, severely eroded	Ridges	No	Not prime farmland
Rosenbrock clay, 0 to 1 percent slopes	Ridges	No	All areas are prime farmland
Rosenbrock clay, 1 to 3 percent slopes	Ridges	No	All areas are prime farmland
Rosenbrock clay, 0 to 1 percent slopes, rarely flooded	Draws	No	All areas are prime farmland
Sinton sandy clay loam, occasionally flooded	Floodplains	No	Not prime farmland
Tordia clay, 1 to 3 percent slopes	Interfluves	No	All areas are prime farmland
Weigang fine sandy loam, 1 to 5 percent slopes	Interfluves	No	Not prime farmland
Weigang-Gillett complex, 3 to 25 percent slopes, very stony	Ridges	No	Not prime farmland
Wilson County			
Aluf and Hitilo soils, undulating	Sand sheets	No	Not prime farmland
Atco loam, 0 to 3 percent slopes	Erosion remnants on stream terraces	No	Farmland of statewide importance, if irrigated
Buchel clay, 0 to 1 percent slopes, occasionally flooded	Floodplains	No	All areas are prime farmland
Buchel clay, 0 to 1 percent slopes, frequently flooded	Floodplains	No	Not prime farmland
Clareville clay loam, 0 to 1 percent slopes	Flats, drainageways	No	All areas are prime farmland

TABLE 3-1 MAPPED SOIL UNITS OCCURRING WITHIN THE STUDY AREA

SOIL MAP UNIT	LANDFORM	HYDRIC	PRIME FARMLAND
Clareville clay loam, 1 to 3 percent slopes	Drainageways	No	All areas are prime farmland
Colibro sandy clay loam, 1 to 3 percent slopes	Ridges, erosion remnants on stream terraces	No	Farmland of statewide importance, if irrigated
Colibro sandy clay loam, 3 to 5 percent slopes	Ridges, erosion remnants on stream terraces	No	Farmland of statewide importance, if irrigated
Coy clay loam, 0 to 1 percent slopes	Terraces	No	All areas are prime farmland
Coy clay loam, 1 to 3 percent slopes	Terraces	No	All areas are prime farmland
Degola and Zavala soils, frequently flooded	Floodplains	No	Not prime farmland
Elmendorf-Denhawken complex, 1 to 4 percent slopes	Interfluves	No	All areas are prime farmland
Fashing clay, 1 to 5 percent slopes	Ridges, interfluves	No	Not prime farmland
Floresville fine sandy loam, 0 to 1 percent slopes	Ridges	No	Prime farmland if irrigated
Floresville fine sandy loam, 1 to 3 percent slopes	Ridges	No	Prime farmland if irrigated
Floresville fine sandy loam, 3 to 5 percent slopes	Ridges	No	Prime farmland if irrigated
Floresville fine sandy loam, 1 to 5 percent slopes, eroded	Ridges	No	Not prime farmland
Leming loamy fine sand, 0 to 3 percent slopes	Stream terraces on drainageways	No	Prime farmland if irrigated
Loire and Divot soils, frequently flooded	Floodplains	No	Not prime farmland
Miguel fine sandy loam, 0 to 1 percent slopes	Low hills	No	Prime farmland if irrigated
Miguel fine sandy loam, 1 to 3 percent slopes	Low hills	No	Prime farmland if irrigated
Miguel fine sandy loam, 3 to 5 percent slopes	Low hills	No	Prime farmland if irrigated
Nocken stony soils and rock outcrop, 1 to 8 percent slopes	Ridges	No	Not prime farmland
Orelia fine sandy loam, 0 to 2 percent slopes	Flats	No	Not prime farmland
Picosa loam, 1 to 8 percent slopes	Ridges	No	Not prime farmland
Poth loamy fine sand, 0 to 3 percent slopes	Stream terraces	No	Prime farmland if irrigated
Runge fine sandy loam, 0 to 2 percent slopes	Hillslopes	No	All areas are prime farmland
Runge fine sandy loam, 1 to 3 percent slopes	Hillslopes	No	All areas are prime farmland
Runge fine sandy loam, 2 to 5 percent slopes	Hillslopes	No	All areas are prime farmland
Saspamco fine sandy loam, 1 to 3 percent slopes	Stream terraces	No	Farmland of statewide importance, if irrigated
Saspamco fine sandy loam, 3 to 5 percent slopes	Stream terraces	No	Farmland of statewide importance, if irrigated
Tordia clay, 0 to 1 percent slopes	Draws	No	All areas are prime farmland
Tordia clay, 1 to 4 percent slopes	Interfluves	No	All areas are prime farmland
Ustifluvents, broken, severely eroded	Stream terraces	No	Not prime farmland

TABLE 3-1 MAPPED SOIL UNITS OCCURRING WITHIN THE STUDY AREA

SOIL MAP UNIT	LANDFORM	HYDRIC	PRIME FARMLAND
Venus clay loam, 0 to 1 percent slopes	Stream terraces	No	All areas are prime farmland
Venus clay loam, 1 to 3 percent slopes	Stream terraces	No	All areas are prime farmland
Wilco loamy fine sand, 0 to 3 percent slopes	Interfluves	No	Prime farmland if irrigated
Wilco loamy fine sand, 3 to 8 percent slopes	Interfluves	No	Not prime farmland

Source: NRCS 2024

Hydric Soils

The National Technical Committee for Hydric Soils defines hydric soils as soils formed under conditions of saturation, flooding, or ponding long enough during growing seasons to develop anaerobic conditions in the upper soil horizons. These soils, under natural conditions, are either saturated or inundated long enough during the growing season to support growth and reproduction of hydrophytic vegetation (NRCS 2024).

Map units dominantly comprised of hydric soils might have small inclusions of non-hydric soils in higher areas of the landform. Conversely, map units dominated by non-hydric soils might have small inclusions of hydric soils in lower areas of the landform. According to NRCS Web Soil Survey data (NRCS 2024) for the study area, none of the soils mapped within the study area are considered hydric.

Prime Farmland

The United States Secretary of Agriculture, within U.S.C. §7-4201(c)(1)(A), defines prime farmland soils as those soils that have the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops. They have the soil quality, growing season, and moisture supply needed to economically produce sustained high yields of crops when treated and managed, including water management, according to acceptable farming methods. Soils designated as farmland of statewide importance are potential prime farmlands with soils that meet most of the requirements of prime farmland but fail due to the absence of sufficient natural moisture or water management facilities. The United States Department of Agriculture (USDA) would consider these soils prime farmland if such practices were installed. According to NRCS Web Soil Survey data (NRCS 2024) for the study area, there are multiple soil map units designated as prime farmland and as farmland of statewide importance within the study area.

Transmission line projects are typically not subject to the requirements of the Farmland Protection Policy Act unless they are associated with federal funding, which the proposed Project is not. Additionally, transmission line construction is not typically considered a conversion of prime farmlands as the site can still be used for farming after construction is complete.

3.1.3 Water Resources

Surface Water

The study area is located within the San Antonio and Nueces River Basins as well as the Upper San Antonio, Lower San Antonio, Atascosa, and Lower Nueces River Sub Basins (TPWD 2024a). The study area is also located within the Calaveras Creek-San Antonio River, Kicaster Creek-San Antonio River, Marcelinas Creek-San Antonio River, Lower Atascosa, and the Sulphur Creek-Nueces River watersheds (TPWD 2024a). Named surface waters within the study area include Calaveras Creek, Calaveras Lake, Conquista Creek, Eagle Creek, Olmos Creek, Parita Creek, Picosa Creek, San Antonio River (Upper), San Christoval Creek, Scared Dog Creek, Soil Conservation Service Site 2 Reservoir, Soil Conservation Service Site 9 Reservoir, Soil Conservation Service Site 10 Reservoir, and Weedy Creek (USEPA 2024b).

Special Status Waters

Under 31 TAC § 357.43 and 31 TAC § 358.2, TPWD has designated Ecologically Significant Stream Segments (ESSS) based on habitat value, threatened and endangered species, species diversity, and aesthetic value criteria (TPWD 2024b). No designated ESSS were identified within the study area (TPWD 2024b).

In accordance with Section 303(d) and 304(a) of the CWA, the TCEQ identifies surface waters for which effluent limitations are not stringent enough to meet water quality standards and for which the associated pollutants are suitable for measurement by total maximum daily load (TMDL). TMDL is a scientifically derived target for water quality that determines the greatest amount of a particular substance that can be added to a 303(d) and 304(a) waterbody without compromising its health. Review of TCEQ's (2024e) Texas Integrated Report of Water Quality Impairments indicated the occurrence of two impaired surface waters within the study area. These surface waters include the Upper San Antonio River (segment ID 1911) and Picosa Creek (segment ID 1911H). Of these two listed impaired waterbodies, only the Upper San Antonio River has a state developed TMDL that has been approved by the USEPA (TCEQ 2007).

Future Surface Water Developments

Review of the 2022 Texas Water Development Board (TWDB) State Water Plan and the 2021 Regional Water Plan for Region L – South Central Texas did not indicate any proposed surface water developments within the study area (TWDB 2021a, 2021b and 2022).

3.1.4 Groundwater

The major ground water aquifers mapped within the study area include the Carrizo-Wilcox (subcrop and outcrop) and Gulf Coast Aquifers. The Carrizo-Wilcox Aquifer is primarily composed of sand locally interbedded with gravel silt, clay, and lignite. Although the aquifer can reach 3,000 feet in thickness, the average freshwater

saturated thickness is 670 feet and commonly has isolated areas of saline groundwater (TWDB 2011). The Gulf Coast Aquifer is composed of discontinuous sand, silt, clay, and gravel beds. The maximum total sand thickness ranges from 700 feet to the south to 1,300 feet to the north. Freshwater saturated thickness averages about 1,000 feet (TWDB 2011). Other ground water resources include numerous domestic and public supply water wells (TWDB 2024 and 1975).

Although the study area does not lie within the Edwards Aquifer, the northern end of the study area is within District 5 of the Edwards Aquifer Authority [EAA] jurisdictional area (EAA 2024a and 2024b). The EAA has regulatory jurisdiction in Bexar County and authorizes groundwater withdrawals for municipal, industrial, and irrigation purposes. The study area is not located within a Subchapter Regulated Area as defined by the EAA Rules (EAA 2019). Due to the study area's location occurring outside the Edwards Aquifer Recharge, Transition, and Contributing Zones, the proposed Project does not need to be reviewed by the TCEQ (2020) Edwards Aquifer Protection Program prior to the start of construction.

3.1.5 Floodplains

FEMA's Flood Insurance Rate Maps and National Flood Hazard Layer were reviewed for the study area (FEMA 2024). The 100-year flood (one percent flood or base flood) represents a flood event that has a one percent chance of being equaled or exceeded for any given year. FEMA 100-year floodplain data are mapped throughout the entirety of the study area but are more prominent in association with named surface waters such as Calaveras Lake, Conquista Creek, Olmos Creek, Parita Creek, Picosa Creek, San Antonio River (Upper), San Christoval Creek, Scared Dog Creek, and Weedy Creek (FEMA 2024).

3.1.6 Wetlands

Mapped wetlands information was incorporated for the study area from USFWS NWI database (USFWS 2024a). NWI maps are based on topography and interpretation of infrared satellite data and color aerial photographs and are classified under the Cowardin System (Cowardin et al. 1979). Since the date of NWI data mapping, mapped wetland features within the study area may have changed, and actual site conditions may differ in wetland classification, size, or presence. The wetland types identified within the study area include palustrine emergent (PEM), palustrine forested (PFO), and palustrine scrub-shrub (PSS) (USWFS 2024a). Unmapped wetlands may also potentially occur in association with riparian areas near any surface drainage or pond within the study area.

Palustrine Emergent Wetland

PEM wetlands are defined as all non-tidal wetlands dominated by persistent emergent erect, rooted, herbaceous hydrophytes, excluding mosses and lichens, that occur in less than 2.5 meters of water and has a salinity of less than 0.5 parts per trillion (ppt) (Cowardin et al. 1979). Mapped PEM wetlands occur in the central and northern

sections of the study area and are associated with depressional topography and floodplains (Google Inc. 2024; USFWS 2024a). Within the study area dominant species that can potentially occur within PEM wetlands include cattails (*Typha* spp.), sedges (*Carex* spp.), spikerushes (*Eleocharis* spp.), rushes (*Juncus* spp.), bulrushes (*Scirpus* spp.), pondweed (*Potamogeton* spp.), arrowhead (*Sagittaria* spp.), and hornwort (*Ceratophyllum* spp.) (Elliot 2014).

Palustrine Forested Wetland

PFO wetlands include non-tidal wetlands that have less than 2.5-meter water depth and 0.5 ppt salinity and have more than 30% areal coverage of woody vegetation taller than 6.0 meters (Cowardin et al. 1979). Mapped PFO wetlands occur in the central and northern sections of the study area and are associated with denser tree vegetation along streams (Google Inc. 2024; USFWS 2024a). Within the study area plant species potentially occurring in PFO wetlands may include broad-leaved deciduous species such as American elm (*Ulmus americana*), black willow (*Salix nigra*), bur oak (*Quercus macrocarpa*), cedar elm (*Ulmus crassifolia*), common buttonbush (*Cephalanthus occidentalis*), possumhaw (*Ilex decidua*), sugar hackberry (*Celtis laevigata*), swamp privet (*Forestiera acuminata*), sweetgum (*Liquidambar styraciflua*), and water oak (*Quercus nigra*) (Elliot 2014).

Palustrine Scrub-Shrub Wetland

PSS wetlands include non-tidal wetlands that have less than 2.5-meter water depth and 0.5 ppt salinity and have more than 30% areal coverage of woody vegetation less than 6.0 meters in height (Cowardin et al. 1979). Mapped PSS wetlands occur in the central and northern sections of the study area and are associated with scattered tree vegetation along streams and ponds (Google Inc. 2024; USFWS 2024a). Within the study area potential plant species occurring within PSS wetlands may include honey mesquite (*Prosopis glandulosa*), black willow, western soapberry (*Sapindus saponaria* var. *drummondii*), lotebush (*Ziziphus obtusifolia*), and sugar hackberry (Elliot 2014).

3.1.7 Coastal Management Program

The PUC must comply with Coastal Management Program (CMP) policies when approving CCNs for electric transmission lines that are located within the Coastal Management Zone (CMZ) under the Coastal Zone Management Act of 1972. The study area is not located within the CMZ boundary as defined in 31 TAC § 27.1 and this excludes the Project from CMP conditions (Texas GLO 2024).

3.1.8 Vegetation

Data and information on ecological resources within the study area were obtained from a variety of sources, including aerial photograph interpretation, field reconnaissance surveys, correspondence with the USFWS, TPWD, published literature, and technical reports.

Ecological Region

As shown in Figure 3-2, the study area is located within the Post Oak Savanna, Blackland Prairies, and South Texas Plains vegetational areas (Gould et al. 1960). The study area is located within the East Central Texas Plains and Texas Blackland Prairies Level III Ecoregions and within the Northern Blackland Prairie and Southern Post Oak Savanna Level IV Ecoregions (Griffith et al. 2007). A general description of the of the ecoregions within the study area are included below. The plant species in the vegetation communities of the ecoregions are dependent on location, hydrology, soils, and disturbance history or land management activities.

East Central Texas Plains Level III Ecoregion

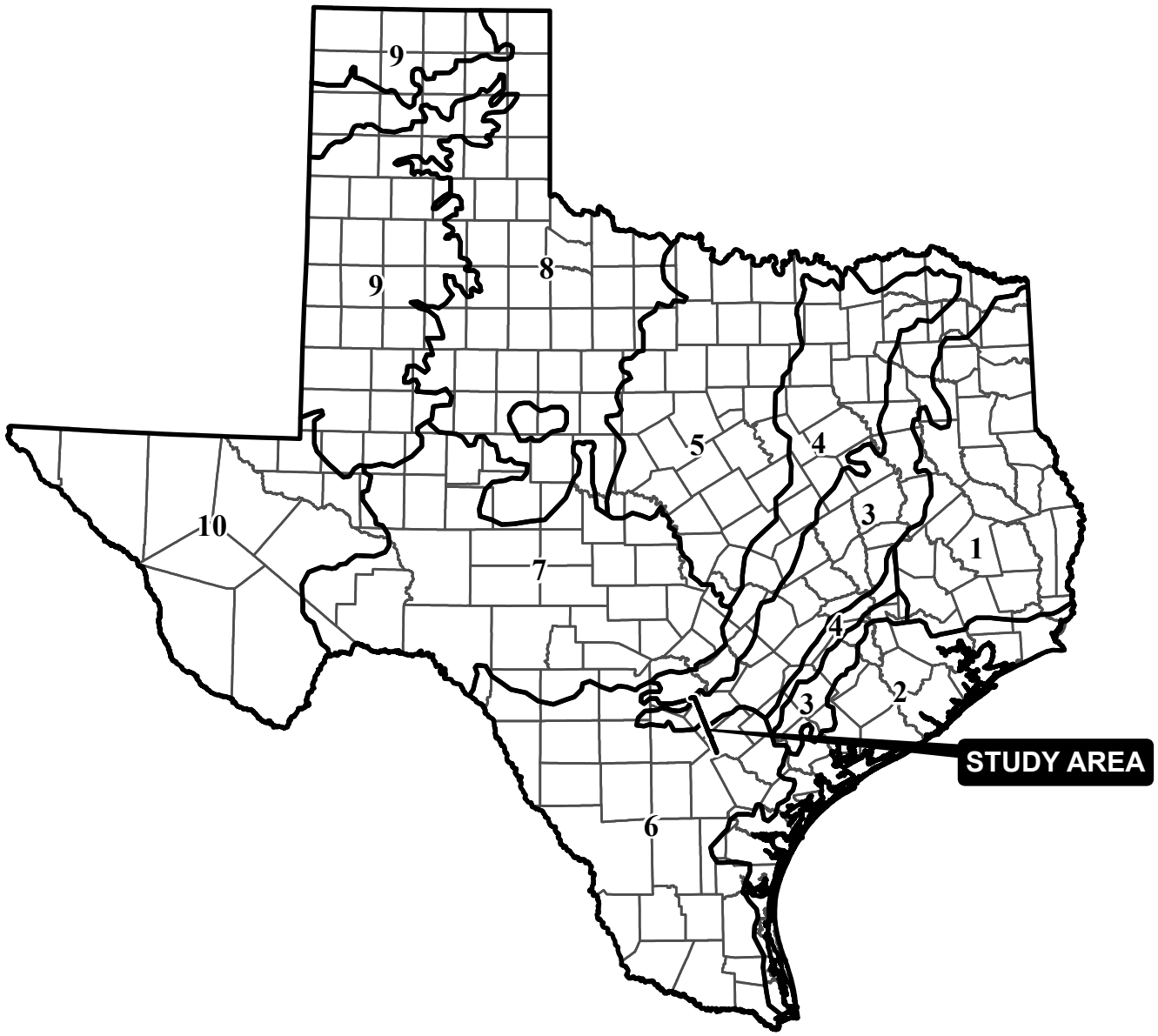
The boundary of this ecological region is a subtle transition of soils and vegetation from its adjacent regions. Soils are variable among parallel ridges and valleys and tend to be acidic with sands and sandy loams in upland areas and clay to clay loams in low-lying areas. Many areas have a dense underlying clay pan affecting water movement and available moisture for plant growth. The bulk of this region's land use includes pasture and rangelands (Griffith et al. 2007).

Texas Blackland Prairies Level III Ecoregion

Forms a disjunct ecological region, distinguishes from surrounding regions by fine-textured, clayey soils and predominantly prairie potential natural vegetation. Dominant grasses include little bluestem (*Schizachyrium scoparium*), big bluestem (*Andropogon gerardii*), yellow Indiangrass (*Sorghastrum nutans*), and switchgrass (*Panicum virgatum*). This region now contains more cropland than adjacent regions and land uses for pasture and forage production for livestock is common (Griffith et al. 2007).

Northern Blackland Prairie Level IV Ecoregion

Rolling to nearly level plains that generally coincide with a belt of Upper Cretaceous chalks, marls, limestones, and shales. Soils are mostly fine-textured, dark, calcareous, and productive. Common woody species include riparian forests of bur oak, Shumard's oak (*Quercus shumardii*), sugar hackberry, elm (*Ulmus* spp.), ash (*Fraxinus* spp.), eastern cottonwood (*Populus deltoides*) and pecan (*Carya illinoinensis*). Common grasses drastically differ than the region's historical tallgrass prairie species and now typically include eastern gamagrass (*Tripsacum dactyloides*) and switchgrass (Griffith et al. 2007).



N

0 30 60 120 180 240

Miles

Source: Gould, et. al., 1960.

Legend

Vegetational Areas Boundary

1 Pineywoods
2 Gulf Prairies and Marshes
3 Post Oak Savannah
4 Blackland Prairies
5 Cross Timbers and Prairies
6 South Texas Plains
7 Edwards Plateau
8 Rolling Plains
9 High Plains
10 Trans-Pecos

County Boundary

SPRUCE TO PAWNEE 345 KV TRANSMISSION LINE REBUILD PROJECT

FIGURE 3-2

LOCATION OF THE STUDY AREA IN RELATION TO THE VEGETATIONAL AREAS OF TEXAS

cps ENERGY

POWER ENGINEERS

Date: 12/18/2024

Southern Post Oak Savanna Level IV Ecoregion

Has more woods and forest than adjacent prairie ecoregions and consists of mostly hardwoods. Soils are generally acidic and have sand and sandy loam soil textures. Some clay to clay-loam occurs on lower areas, and a dense clay pan is usually underlying all soil types. Current land cover includes mixed post oak (*Quercus stellata*) woods, improved pasture, and rangeland with some invasive mesquite (*Prosopis* spp.) to the south of the region (Griffith et al. 2007). Common tree species include post oak, blackjack oak (*Quercus marilandica*), black hickory (*Carya texana*), and grasses of little bluestem, purpletop tridens (*Tridens flavus*), curly threeawn (*Aristida desmantha*), and yellow Indiangrass. The understory is typically composed of yaupon (*Ilex vomitoria*), eastern redcedar (*Juniperus virginiana*), winged elm (*Ulmus alata*), American beautyberry (*Callicarpa americana*), and farkleberry (*Vaccinium arboreum*).

Ecological Systems

Review of the TPWD (2024c) Texas Ecosystem Analytical Mapper indicates the dominant (total of more than 5% of the study area) ecological systems within the study area include: Post Oak Savanna: Savanna Grassland, South Texas: Disturbance Grassland, South Texas: Shallow Sparse Grassland, and South Texas: Clayey Mesquite Mixed Shrubland. Descriptions of each ecological system and common species found within each system are detailed below (TPWD 2024c).

Post Oak Savanna: Savanna Grassland

Includes disturbance and tame grasslands that are dominated by bermudagrass (*Cynodon dactylon*), bahiagrass (*Paspalum notatum*), King Ranch bluestem (*Bothriochloa ischaemum*), and kleingrass (*Panicum coloratum*). Little bluestem (*Schizachyrium scoparium*), Indiangrass (*Sorghastrum nutans*), silver bluestem (*Bothriochloa saccharoides*), Texas wintergrass (*Nassella leucotricha*), tall dropseed (*Sporobolus compositus*), and brownseed paspalum (*Paspalum plicatulum*) are species that are important throughout this ecological system. prairie broomweed (*Amphiachyris dracunculoides*), western ragweed (*Ambrosia psilostachya*), and hogwort (*Croton capitatus*) are common weedy herbaceous species. Post oak, mesquite, eastern redcedar, water oak, and yaupon are common woody species and may form sparse woodlands or shrublands throughout.

South Texas: Disturbance Grassland

Includes a variety of mainly heavily grazed grasslands, including managed exotic pastures. Common dominant species include buffelgrass (*Pennisetum ciliare*), bermudagrass, King Ranch bluestem, Kleberg's bluestem (*Dichanthium annulatum*), guineagrass (*Urochloa maxima*), pink pappusgrass (*Pappophorum bicolor*), threeawns (*Aristida* spp.), and red grama (*Bouteloua trifida*). Shrubs and small tress may include mesquite, huisache (*Acacia smallii*), blackbrush (*Acacia rigidula*), lotebush, bravo acacia (*Vachellia bravoensis*), and spiny hackberry (*Celtis ehrenbergiana*).

South Texas: Shallow Sparse Shrubland

Includes both grasslands, including managed pastures, and more natural grass/shrub mixes. Common grasses include buffelgrass, bermudagrass, King Ranch bluestem, Kleberg's bluestem, threeawns, buffalograss (*Bouteloua dactyloides*), Texas grama (*Bouteloua rigidiseta*), and hairy woolygrass (*Erioneuron pilosum*). Common shrubs include mesquite, blackbrush, lotebush, cenizo (*Leucophyllum frutescens*), guajillo (*Senegalia berlandieri*), guayacan (*Guaiacum angustifolium*), leatherstem (*Jatropha dioica*), and Texas persimmon (*Diospyros texana*). Succulents such as yucca (*Yucca* spp.), Lindheimer pricklypear (*Opuntia engelmannii* var. *lindheimeri*), tasajillo (*Cylindropuntia leptocaulis*), lechuguilla (*Agave lechuguilla*), and Texas sotol (*Dasylirion texanum*) are sometimes present.

South Texas: Sandy Mesquite Savanna Grassland

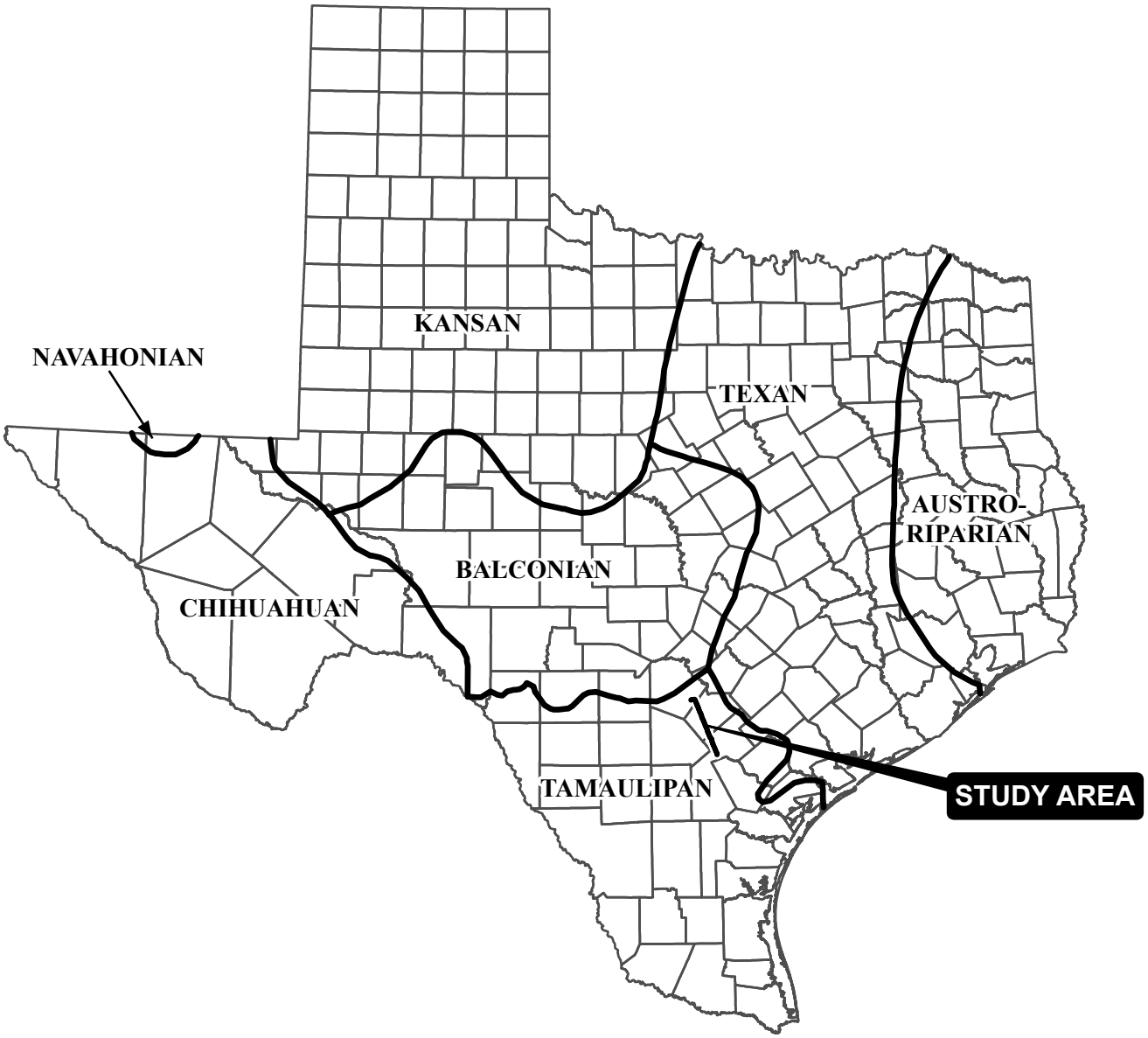
Characterized as grasslands with scattered mesquite. Herbaceous species such as buffelgrass, bermudagrass, King Ranch bluestem, Kleberg's bluestem, little bluestem, silver bluestem, purple threeawn (*Aristida purpurea*), tanglehead (*Heteropogon contortus*), and hogwort are common. Common shrubs include mesquite, huisache, granjeno, blackbrush, Texas persimmon, colima (*Zanthoxylum fagara*), Texas hogplum (*Colubrina texensis*), whitebrush (*Aloysia gratissima*), and brasil (*Condalia hookeri*).

South Texas: Clayey Mesquite Mixed Shrubland

Characterized by a continuous canopy of shrubs and small trees. Species such as mesquite, huisache, granjeno, blackbrush, sugar hackberry, brasil, guajillo, lotebush, whitebrush, and pricklypear (*Opuntia* spp.) are common. Buffelgrass is a common herbaceous dominant.

3.1.9 Wildlife

The study area occurs within the Tamaulipan Biotic Province (see Figure 3-3) as described by Blair (Blair 1950). The Tamaulipan province includes the Gulf coastal plain south of the Balcones Escarpment and west of the boundary between pedalfer and pedocal soils. This province is characterized by an intermixture of Neotropical species, Austroroparian species, and southwest desert species (Blair 1950) The following sections list species that may occur in and represent the faunal diversity of the study area today.



0 30 60 120 180 240

Miles

Source: Blair, 1950, modified

Legend

Biotic Province Boundary

County Boundary

SPRUCE TO PAWNEE 345 KV TRANSMISSION LINE REBUILD PROJECT

FIGURE 3-3

LOCATION OF THE STUDY AREA IN RELATION TO THE BIOTIC PROVINCES OF TEXAS

Date: 12/18/2024

Amphibians

A representative list of amphibian species (frogs, toads, and salamanders) that may occur within the study area are listed in Table 3-2. The likelihood for occurrence of each species within the study areas will depend upon suitable habitat. Frogs and toads may occur in all vegetation types, while salamanders are typically restricted to hydric habitats (Dixon 2013).

TABLE 3-2 AMPHIBIAN SPECIES POTENTIALLY OCCURRING WITHIN THE STUDY AREA[1]

COMMON NAME[2]	SCIENTIFIC NAME[2]
Frogs/Toads	
American bullfrog	*Lithobates catesbeianus*
Barking frog	*Eleutherodactylus augusti*
Blanchard's cricket frog	*Acris blanchardi*
Chihuahuan green toad	*Anaxyrus debilis*
Cliff chirping frog	*Eleutherodactylus marnokii*
Cope's gray treefrog	*Hyla chrysoscelis*
Couch's spadefoot	*Scaphiopus couchi*
Gray treefrog	*Hyla versicolor*
Green treefrog	*Hyla cinerea*
Gulf Coast toad	*Incilius nebulifer*
Hurter's spadefoot	*Scaphiopus hurterii*
Red-spotted toad	*Anaxyrus punctatus*
Rio Grande chirping frog	*Eleutherodactylus cystignathoides*
Rio Grande leopard frog	*Lithobates berlandieri*
Rocky Mountain toad	*Anaxyrus woodhousii*
Sheep frog	*Hypopachus variolosus*
Southern leopard frog	*Lithobates sphenocephala*
Spotted chorus frog	*Pseudacris clarkii*
Strecker's chorus frog	*Pseudacris streckeri*
Texas toad	*Anaxyrus speciosus*
Western narrow-mouthed toad	*Gastrophryne olivacea*
Salamanders	
Black-spotted newt	*Notophthalmus meridionalis*
Eastern tiger salamander	*Ambystoma tigrinum*
Small-mouthed salamander	*Ambystoma texanum*
Western slimy salamander	*Plethodon albagula*

[1] According to Dixon 2013.
[2] Nomenclature follows: Society for the Study of Amphibians and Reptiles (Crother 2017).

Reptiles

A representative list of reptiles (turtles, lizards, and snakes) that may occur in the study area are listed in Table 3-3. The likelihood for occurrence of each species within the study areas will depend upon suitable habitat. These

include those species that are more commonly observed near water (e.g., aquatic turtles) and those that are more common in terrestrial habitats (Dixon 2013).

TABLE 3-3 REPTILIAN SPECIES POTENTIALLY OCCURRING WITHIN THE STUDY AREA[1]

COMMON NAME[2]	SCIENTIFIC NAME[2]
Turtles	
Cagle's map turtle	*Graptemys caglei*
Eastern box turtle	*Terrapene carolina*
Eastern mud turtle	*Kinosternon subrubrum*
Eastern musk turtle	*Sternotherus odoratus*
Guadalupe spiny softshell	*Apalone spinifera guadalupensis*
Ornate box turtle	*Terrapene ornata*
Pond slider	*Trachemys scripta*
Snapping turtle	*Chelydra serpentina*
Texas cooter	*Pseudemys texana*
Texas tortoise	*Gopherus berlandieri*
Yellow mud turtle	*Kinosternon flavescens*
Lizards	
Brown anole	*Anolis sagrei*
Common spotted whiptail	*Cnemidophorus gularis*
Crevice spiny lizard	*Sceloporus poinsettii*
Eastern collared lizard	*Crotaphytus collaris*
Eastern six-lined racerunner	*Aspidoscelis sexlineata sexlineata*
Great Plains skink	*Plestiodon obsoletus*
Green anole	*Anolis carolinensis*
Keeled earless lizard	*Holbrookia propinqua*
Little brown skink	*Scincella lateralis*
Mediterranean gecko	*Hemidactylus turcicus*
Prairie lizard	*Sceloporus consobrinus*
Prairie skink	*Plestiodon septentrionalis*
Rose-bellied lizard	*Sceloporus variabilis*
Short-lined skink	*Plestiodon tetragrammus brevilineatus*
Slender glass lizard	*Ophisaurus attenuatus*
Southern spot-tailed earless lizard	*Holbrookia lacerata subcaudalis*
Texas alligator lizard	*Gerrhonotus infernalis*
Texas banded gecko	*Coleonyx brevis*
Texas greater earless lizard	*Cophosarus texanus texanus*
Texas horned lizard	*Phrynosoma cornutum*
Texas spiny lizard	*Sceloporus olivaceus*
Texas tree lizard	*Urosaurus ornatus ornatus*
Snakes	
Black-tailed rattlesnake	*Crotalus molossus*
Broad-banded copperhead	*Agkistrodon contortrix laticinctus*

TABLE 3-3 REPTILIAN SPECIES POTENTIALLY OCCURRING WITHIN THE STUDY AREA[1]

COMMON NAME[2]	SCIENTIFIC NAME[2]
Bullsnake	*Pituophis catenifer sayi*
Central American indigo snake	*Drymarchon melanurus*
Checkered gartersnake	*Thamnophis marcianus*
Chihuahuan night snake	*Hypsiglena jani*
Dekay's brownsnake	*Storeria dekayi*
Desert kingsnake	*Lampropeltis getula splendida*
Diamond-backed watersnake	*Nerodia rhombifer*
Eastern black-necked gartersnake	*Thamnophis cyrtopsis ocellatus*
Eastern hog-nosed snake	*Heterodon platirhinos*
Eastern rat snake	*Pantherophis obsoletus*
Eastern yellow-bellied racer	*Coluber constrictor flaviventris*
Flat-headed snake	*Tantilla gracilis*
Graham's crayfish snake	*Regina grahamii*
Long-nosed snake	*Rhinocheilus lecontei*
Mexican milksnake	*Lampropeltis triangulum annulate*
Northern cottonmouth	*Agkistrodon piscivorus*
Plain-bellied watersnake	*Nerodia erythrogaster*
Plains black-headed snake	*Tantilla nigriceps*
Plains hog-nosed snake	*Heterodon nasicus*
Prairie kingsnake	*Lampropeltis calligaster*
Prairie ring-necked snake	*Diadophis punctatus arnyi*
Rough earthsnake	*Haldea striatula*
Rough greensnake	*Opheodrys aestivus*
Schott's whipsnake	*Masticophis schotti*
Smooth earthsnake	*Virginia valeriae*
Southwestern rat snake	*Pantherophis emoryi meahllmorum*
Striped whipsnake	*Masticophis taeniatus*
Texas coralsnake	*Micrurus tener*
Texas gartersnake	*Thamnophis sirtalis annectens*
Texas glossy snake	*Arizona elegans arenicola*
Texas lined snake	*Tropidoclonion lineatum texanum*
Texas patch-nosed snake	*Salvadora grahamiae lineata*
Texas threadsnake	*Rena dulcis*
Timber rattlesnake	*Crotalus horridus*
Western coachwhip	*Masticophis flagellum*
Western diamond-backed rattlesnake	*Crotalus atrox*
Western groundsnake	*Sonora semiannulata*
Western ribbonsnake	*Thamnophis proximus*

[1] According to Dixon 2013.
[2] Nomenclature follows: Society for the Study of Amphibians and Reptiles (Crother 2017).

Birds

A representative list of numerous avian species may occur within the study area as year-round residents, summer residents, and/or winter residents/migrants as presented in Table 3-4. Texas Ornithological Society (Lockwood and Freeman 2014) data and TPWD ecoregion specific avian check lists (Lockwood 2008) were reviewed for species distribution and life history information. Avian species potentially occurring within the study area include year-round residents and summer, and/or winter migrants as shown in Table 3-4. Additional transient bird species may migrate within or through the study area in the spring and fall and/or use the area to nest (spring/summer) or overwinter. The likelihood for the occurrence of each species depends upon availability of suitable habitat and season. Migratory bird species that are native to the United States or its territories are protected under the MBTA.

TABLE 3-4 AVIAN SPECIES POTENTIALLY OCCURRING WITHIN THE STUDY AREA[1]

COMMON NAME[2]	SCIENTIFIC NAME[2]	RESIDENT[1]	SUMMER[1]	WINTER[1]
Accipitriformes: Accipitridae				
Cooper's hawk	*Accipiter cooperii*		X	X
Northern harrier	*Circus hudsonius*			X
Red-shouldered hawk	*Buteo lineatus*	X		
Red-tailed hawk	*Buteo jamaicensis*	X		
Sharp-shinned hawk	*Accipiter striatus*			X
Swainson's hawk	*Buteo swainsoni*		X	X
Swallow-tailed kite	*Elanoides forficatus*		X	
White-tailed hawk	*Buteo albicaudatus*	X		
Accipitriformes: Cathartidae				
Black vulture	*Coragyps atratus*	X		
Turkey vulture	*Cathartes aura*	X		
Apodiformes: Apodidae				
Chimney Swift	*Chaetura pelagica*		X	
Apodiformes: Trochilidae				
Black-chinned hummingbird	*Archilochus alexandri*		X	
Buff-bellied hummingbird	*Amazilia yucatanensis*		X	
Ruby-throated hummingbird	*Archilochus colubris*		X	
Rufous hummingbird	*Selasphorus rufus*			X
Caprimulgiformes: Caprimulgidae				
Common nighthawk	*Chordeiles minor*		X	
Common poorwill	*Phalaenoptilus nuttallii*		X	
Charadriiformes: Charadriidae				
Killdeer	*Charadrius vociferus*	X		
Columbiformes: Columbidae				
Eurasian collared-dove	*Streptopelia decaocto*	X		
Inca dove	*Columbina inca*	X		
Mourning dove	*Zenaida macroura*	X		
Rock pigeon	*Columba livia*	X		
White-winged dove	*Zenaida asiatica*	X		
Coraciiformes: Alcedinidae				
Belted kingfisher	*Megaceryle alcyon*			X
Green kingfisher	*Chloroceryle americana*	X		
Cuculiformes: Cuculidae				

TABLE 3-4 AVIAN SPECIES POTENTIALLY OCCURRING WITHIN THE STUDY AREA[1]

COMMON NAME[2]	SCIENTIFIC NAME[2]	RESIDENT[1]	SUMMER[1]	WINTER[1]
Greater roadrunner	*Geococcyx californianus*	X		
Yellow-billed cuckoo	*Coccyzus americanus*		X	
Falconiformes: Falconidae				
American kestrel	*Falco sparverius*			X
Crested caracara	*Caracara plancus*	X		
Merlin	*Falco columbarius*			X
Prairie falcon	*Falco mexicanus*			X
Gruiformes: Gruidae				
Sandhill cranes	*Antigone canadensis*			X
Whooping crane	*Grus americana*			X
Passeriformes: Bombycillidae				
Cedar waxwing	*Bombycilla cedrorum*			X
Passeriformes: Cardinalidae				
Blue grosbeak	*Passerina caerulea*		X	
Dickcissel	*Spiza americana*		X	
Indigo bunting	*Passerina cyanea*		X	
Northern cardinal	*Cardinalis cardinalis*	X		
Painted bunting	*Passerina ciris*		X	
Summer tanager	*Piranga rubra*		X	
Passeriformes: Corvidae				
American crow	*Corvus brachyrhynchos*			X
Blue jay	*Cyanocitta cristata*	X		
Common raven	*Corvus corax*	X		
Passeriformes: Emberizidae				
Cassin's sparrow	*Peucaea cassinii*	X		
Chipping sparrow	*Spizella passerina*	X		
Clay-colored sparrow	*Spizella pallida*			X
Dark-eyed junco	*Junco hyemalis*			X
Eastern towhee	*Pipilo erythrophthalmus*			X
Field sparrow	*Spizella pusilla*	X		
Grasshopper sparrow	*Ammodramus savannarum*		X	
Harris's sparrow	*Zonotrichia querula*			X
Lark bunting	*Calamospiza melanocorys*			X
Lark sparrow	*Chondestes grammacus*		X	
Lincoln's sparrow	*Melospiza lincolnii*			X
Savannah sparrow	*Passerculus sandwichensis*			X
Song sparrow	*Melospiza melodia*	X		X
Spotted towhee	*Pipilo maculatus*			X
Vesper sparrow	*Pooecetes gramineus*			X
White-crowned sparrow	*Zonotrichia leucophrys*			X
White-throated sparrow	*Zonotrichia albicollis*			X
Passeriformes: Fringillidae				
American goldfinch	*Spinus tristis*			X
House finch	*Haemorhous mexicanus*	X		
Lesser goldfinch	*Spinus psaltria*		X	
Pine siskin	*Spinus pinus*			X
Passeriformes: Hirundinidae				
Bank swallow	*Riparia riparia*			X

TABLE 3-4 AVIAN SPECIES POTENTIALLY OCCURRING WITHIN THE STUDY AREA[1]

COMMON NAME[2]	SCIENTIFIC NAME[2]	RESIDENT[1]	SUMMER[1]	WINTER[1]
Barn swallow	*Hirundo rustica*		X	
Cave swallow	*Petrochelidon fulva*		X	
Cliff swallow	*Petrochelidon pyrrhonota*		X	
Purple martin	*Progne subis*		X	
Tree swallow	*Tachycineta bicolor*		X	
Passeriformes: Icteridae				
Baltimore oriole	*Icterus galbula*		X	X
Brown-headed cowbird	*Molothrus ater*	X		
Bullock's oriole	*Icterus bullockii*		X	
Common grackle	*Quiscalus quiscula*	X		
Eastern meadowlark	*Sturnella magna*	X		
Great-tailed grackle	*Quiscalus mexicanus*	X		
Orchard oriole	*Icterus spurius*		X	
Red-winged blackbird	*Agelaius phoeniceus*	X		
Passeriformes: Laniidae				
Loggerhead shrike	*Lanius ludovicianus*	X		X
Passeriformes: Mimidae				
Gray catbird	*Dumetella carolinensis*			X
Long-billed thrasher	*Toxostoma longirostre*	X		
Northern mockingbird	*Mimus polyglottos*	X		
Passeriformes: Motacillidae				
American pipit	*Anthus rubescens*			X
Passeriformes: Paridae				
Black-crested titmouse	*Baeolophus atricristatus*	X		
Carolina chickadee	*Poecile carolinensis*	X		
Passeriformes: Parulidae				
Black-and-white warbler	*Mniotilta varia*		X	
Black-throated green warbler	*Septophaga virens*		X	
Canada warbler	*Cardellina canadensis*			X
Common yellowthroat	*Geothlypis trichas*			X
Hooded warbler	*Setophaga citrina*		X	
Magnolia warbler	*Setophaga magnolia*			X
Mourning warbler	*Geothlypis philadelphia*			X
Northern parula	*Setophaga americana*		X	
Orange-crowned warbler	*Oreothlypis celata*			X
Pine warbler	*Setophaga pinus*			X
Tennessee warbler	*Oreothlypis peregrina*			X
Wilson's warbler	*Cardellina pusilla*			X
Yellow warbler	*Setophaga petechia*			X
Yellow-rumped warbler	*Setophaga coronata*			X
Passeriformes: Passeridae				
House sparrow	*Passer domesticus*	X		
Passeriformes: Polioptilidae				
Blue-gray gnatcatcher	*Polioptila caerulea*		X	
Passeriformes: Regulidae				
Golden-crowned kinglet	*Regulus satropa*			X
Ruby-crowned kinglet	*Regulus calendula*			X
Passeriformes: Remizidae				

TABLE 3-4 AVIAN SPECIES POTENTIALLY OCCURRING WITHIN THE STUDY AREA[1]

COMMON NAME[2]	SCIENTIFIC NAME[2]	RESIDENT[1]	SUMMER[1]	WINTER[1]
Verdin	*Auriparus flaviceps*	X		
Passeriformes: Sturnidae				
European starling	*Sturnus vulgaris*	X		
Passeriformes: Troglodytidae				
Bewick's wren	*Thryomanes bewickii*	X		
Cactus wren	*Campylorhynchus brunneicapillus*	X		
Carolina wren	*Thryothorus ludovicianus*	X		
House wren	*Troglodytes aedon*			X
Winter wren	*Troglodytes hiemalis*			X
Passeriformes: Turdidae				
American robin	*Turdus migratorius*		X	
Eastern bluebird	*Sialia sialis*	X		
Swainson's thrush	*Catharus ustulatus*		X	
Passeriformes: Tyrannidae				
Brown-crested flycatcher	*Myiarchus tyrannulus*		X	
Eastern phoebe	*Sayornis phoebe*		X	
Eastern wood-pewee	*Contopus virens*		X	
Great crested flycatcher	*Myiarchus crinitus*		X	
Least flycatcher	*Empidonax minimus*		X	
Say's phoebe	*Sayornis saya*			X
Scissor-tailed flycatcher	*Tyrannus forficatus*		X	
Vermilion flycatcher	*Pyrocephalus rubinus*		X	
Western kingbird	*Tyrannus verticalis*		X	
Passeriformes: Vireonidae				
Bell's vireo	*Vireo bellii*		X	
Blue-headed vireo	*Vireo solitarius*			X
Hutton's vireo	*Vireo huttoni*		X	X
Warbling vireo	*Vireo gilvus*		X	
White-eyed vireo	*Vireo griseus*		X	
Yellow-throated vireo	*Vireo flavifrons*		X	
Pelecaniformes: Ardeidae				
Great blue heron	*Ardea herodias*	X		
Great egret	*Ardea alba*		X	
Piciformes: Picidae				
Downy woodpecker	*Dryobates pubescens*			X
Golden-fronted woodpecker	*Melanerpes aurifrons*	X		
Ladder-backed woodpecker	*Dryobates scalaris*	X		
Northern flicker	*Colaptes auratus*			X
Yellow-bellied sapsucker	*Sphyrapicus varius*			X
Strigiformes: Strigidae				
Barred owl	*Strix varia*	X		
Eastern screech owl	*Megascops asio*	X		
Great horned owl	*Bubo virginianus*	X		
Strigiformes: Tytonidae				
Barn owl	*Tyto furcata*	X		

[1] According to Lockwood and Freeman (2014).
[2] Nomenclature follows: American Birding Association (ABA 2023).

Mammals

A representative list of mammals that may occur in the study area are listed in Table 3-5 (Schmidly and Bradley 2016). The likelihood for occurrence of each species within the study area will depend upon suitable habitat.

TABLE 3-5 MAMMALIAN SPECIES POTENTIALLY OCCURRING WITHIN THE STUDY AREA[1]

COMMON NAME[2]	SCIENTIFIC NAME[2]
Mammals	
American badger	*Taxidea taxus*
American beaver	*Castor canadensis*
American perimyotis	*Perimyotis subflavus*
Attwater's pocket gopher	*Geomys attwateri*
Big brown bat	*Eptesicus fuscus*
Big free-tailed bat	*Nyctinomops macrotis*
Black rat	*Rattus rattus*
Black-tailed jackrabbit	*Lepus californicus*
Black-tailed prairie dog	*Cynomys ludovicianus*
Bobcat	*Lynx rufus*
Brazilian free-tailed bat	*Tadarida brasiliensis*
Cave myotis	*Myotis velifer*
Collared peccary	*Pecari tajacu*
Common gray fox	*Urocyon cinereoargenteus*
Common raccoon	*Procyon lotor*
Coyote	*Canis latrans*
Crawford's desert shrew	*Notiosorex crawfordi*
Eastern cottontail	*Sylvilagus floridanus*
Eastern fox squirrel	*Sciurus niger*
Eastern gray squirrel	*Sciurus carolinensis*
Eastern mole	*Scalopus aquaticus*
Eastern red bat	*Lasiurus borealis*
Eastern spotted skunk	*Spilogale putorius*
Eastern woodrat	*Neotoma floridana*
Feral pig	*Sus scrofa*
Fulvous harvest mouse	*Reithrodontomys fulvescens*
Ghost-faced bat	*Mormoops megalophylla*
Gulf Coast kangaroo rat	*Dipodomys compactus*
Hispid cotton rat	*Sigmodon hispidus*
Hispid pocket mouse	*Chaetodipus hispidus*
Hoary bat	*Aeorestes cinereus*
Hog-nosed skunk	*Conepatus leuconotus*
House mouse	*Mus musculus*
Lacey's white-ankled deermouse	*Peromyscus laceianus*
Least shrew	*Cryptotis parva*
Long-tailed weasel	*Mustela frenata*
Merriam's pocket mouse	*Perognathus merriami*
Mountain lion	*Puma concolor*
Nine-banded armadillo	*Dasypus novemcinctus*
North American deermouse	*Peromyscus maniculatus*

TABLE 3-5 MAMMALIAN SPECIES POTENTIALLY OCCURRING WITHIN THE STUDY AREA[1]

COMMON NAME[2]	SCIENTIFIC NAME[2]
Northern pygmy mouse	*Baiomys taylori*
Northern yellow bat	*Dasypterus intermedius*
Norway rat	*Rattus norvegicus*
Nutria	*Myocastor coypus*
Plains harvest mouse	*Reithrodontomys montanus*
Red fox	*Vulpes vulpes*
Red wolf	*Canis rufus*
Ringtail	*Bassariscus astutus*
Rio Grande ground squirrel	*Ictidomys parvidens*
Rock squirrel	*Otospermophilus variegatus*
Southern plains woodrat	*Neotoma micropus*
Striped skunk	*Mephitis mephitis*
Swamp rabbit	*Sylvilagus aquaticus*
Texas deermouse	*Peromyscus attwateri*
Tricolored bat	*Perimyotis subflavus*
Virginia opossum	*Didelphis virginiana*
Western spotted skunk	*Spilogale gracilis*
White-footed deermouse	*Peromyscus leucopus*
White-tailed deer	*Odocoileus virginianus*

[1] According to Schmidly and Bradley (2016).
[2] Nomenclature follows: Bradley et al. (2014).

Fishes and Aquatic Invertebrates

In Texas, the divisions of the biotic provinces were separated on the basis of terrestrial vertebrate distributions; however, the distribution of freshwater fishes generally corresponds with the terrestrial biotic province boundaries. Areas showing the greatest deviation from this general rule include northeast Texas and the coastal zone (Hubbs 1957). Review of USGS (2024a) topographic maps indicates that mapped surface waters within the study area include perennial, intermittent, and ephemeral streams. Additionally, unmapped surface waters may occur within the study area.

Perennial and large ponds provide consistent aquatic habitats for all trophic levels with fish being the most prominent. The relatively stable water levels of perennial ponds facilitate stable population growth. Species adapted for deeper waters will utilize pond environments (Hubbs 1957). Potential ponds located in the study area will exhibit variability in terms of their age, drainage, use by livestock, past fish stocking, and fertilization history. Typically for pond habitat, fluctuations in water levels are experienced during summer months because of high evaporation rates and repeated heavy rainfall required to fill ponds. Periods of extended drought in the region may reduce these seasonal water level fluctuations or dry ponds completely. Intermittent and ephemeral flowing streams support aquatic species primarily adapted to ephemeral pool habitats. Because intermittent streams consist of small headwater drainages, persistent flow is unlikely to be sufficient to support any substantial lotic species assemblage. Species in ephemeral aquatic habitats are typically adapted to rapid dispersal and completion

of life cycles. In streams dominated by scoured, sandy-clay bottoms, accumulations of woody debris or leaf pack provide the most important feeding and refuge areas for invertebrates and forage fish. Softer, muddy bottoms generally harbor substantial populations of burrowing invertebrates (e.g., larval diptera and oligochaetes), which can be an important food source to higher trophic levels (Thomas et al. 2007).

3.1.10 Southern Edwards Plateau Habitat Conservation Plan

The study area is located in the Southern Edwards Plateau (SEP) Habitat Conservation Plan (HCP) area (City of San Antonio 2015). The SEP HCP was established in 2015 in coordination between USFWS, San Antonio, and Bexar County to streamline project compliance for landowners and private developers in accordance with the ESA. It created an incidental take credit bank in the form of a preserve system for nine federally listed species: golden-cheeked warbler (*Setophaga chryosparia*), black-capped vireo (*Vireo atricapilla*), Government Canyon Bat Cave spider (*Neoleptoneta microps*), Madla Cave meshweaver (*Cicurina madla*), Braken Cave meshweaver (*Cicurina venii*), Government Canyon Bat Cave meshweaver (*Cicurina vespera*), unnamed beetle (*Rhadine exilis*), unnamed beetle (*Rhadine infernalis*), and Helotes mold beetle (*Batrisodes venyivi*). If the Project is expected to impact any of these listed species, presence or absence surveys and/or coordination with the SEP HCP may be necessary.

3.1.11 Threatened and Endangered Species

Information on sensitive wildlife and vegetation resources within the study area were obtained from a variety of sources, including correspondence with the USFWS and TPWD. Additional information was obtained from published literature and technical reports.

For the purpose of this EA, emphasis was placed on obtaining documented occurrences of special status species and/or their designated critical habitat within the study area. Documented occurrences of unique vegetation communities within the study area were also reviewed. Special status species include those listed by the USFWS (2024b) as threatened, endangered, or proposed for listing; and those species listed by TPWD identified by Rare, Threatened, and Endangered Species by County, Annotated County Lists (TPWD 2024d). Spatial data of known occurrences for listed species and/or sensitive vegetation communities was obtained from the TPWD's TXNDD on September 25, 2024 (TPWD 2024e). The TXNDD data provides a data record, known as an element of occurrence record (EOR), of state-listed rare or threatened/endangered species and rare vegetation communities that have been documented within a given area. The TXNDD data does not preclude the potential for a species to exist within the study area. Only a species-specific survey within the study area can determine the presence or absence of a special status species.

The USFWS regulates activities affecting plants and animals designated as endangered or threatened under the ESA (16 U.S.C. § 1531 *et seq.*). A USFWS IPaC Official Species List (USFWS 2024b; Project Code: 2025-0032488) and Resource List was received on December 16, 2024. The IPaC report identifies federally listed threatened, endangered, and proposed species and designated critical habitat potentially occurring within the study area (USFWS 2024b). By federal definition, an endangered species is in danger of extinction throughout all or a significant portion of its range. A threatened species is defined as likely to become endangered within the near foreseeable future throughout all or a significant portion of its range. Proposed species are those that have been proposed in the Federal Register to be listed under the ESA. Candidate species are those that have sufficient information on their biological vulnerability and threats to support listing as threatened or endangered and are likely to be proposed for listing in the near future. The ESA also provides for the conservation of "designated critical habitat," which is defined by the USFWS as the areas of land, water, and air space that an endangered species needs for survival. These areas include sites with food and water, breeding areas, cover or shelter sites, and sufficient habitat to provide for normal population growth and behavior for the species. The IPaC report received for the study area states that there are no designated critical habitats within the study area (USFWS 2024b).

The TPWD also regulates plants and animals designated at the state level as endangered or threatened (Chapters 67 and 68 of the TPWC and § 65.171 - 65.176 of Title 31 of the TAC; and Chapter 88 of the TPWC and § 69.01 - 69.9 of the TAC). Under Texas law, endangered animal species are those deemed to be "threatened with statewide extinction" and endangered plant species are those "in danger of extinction throughout all or a significant portion of its range". Threatened animal and plant species are those deemed likely to become endangered within the foreseeable future.

Special Status Plant Species

USFWS (2024b) IPaC species list for the study area and TPWD (2024d) county listings were reviewed for special status plant species potentially occurring within the study area. One federally listed endangered plant species, the black lace cactus (*Echinocereus reichenbachii var. albertii*) and the bracted twistflower (*Streptanthus bracteatus*), were identified as having the potential to occur within the study area (USFWS 2024b). A brief description of these species' life history, habitat requirements, and potential to occur within the study area are summarized below. The legal status and in which county these species could potentially be found are indicated in Table 3-6. TPWD's TXNDD data identified five EORs for special status plant species occurring within the study area (TPWD 2024e). Two EORs were observed for the Elmendorf's onion (*Allium elmendorfii*) in 1949, two EORs were observed for the Texas peachbush (*Prunus texana*) in 1945 and 2001, and one EOR was observed for the low spurge (*Euphorbia peplidion*) in 2002. Although none of these species are federally or state listed, they are endemic to Texas and considered species of greatest conservation need under the State Wildlife Action Plan

(SWAP) (TPWD 2023). The SWAP identifies what mitigative actions can be taken to provide the best chance of continual survival for these species.

Black Lace Cactus

Black lace cactus is a succulent perennial growing approximately eight inches tall and produces a bright purple-pink flower with a crimson center (TPWD 2024f). Habitat includes dense mesquite shrublands and woodlands on poorly drained sandy soils within coastal grasslands of the Gulf Coastal Plain (TPWD 2024f). Although most of the study area is north and northeast of this species' known range, the southern portion of the study area intersects known ranges of where this species is found. This species may have the potential to occur within the study area where suitable habitat is available.

Bracted Twistflower

The bracted twistflower is endemic to the Edwards Plateau ecoregion. It is a short annual plant, growing to about eight inches tall. The entire plant is glabrous with pink to purple flowers. Bracted twistflower occurs on shallow, well-drained gravelly clays and clay loams over limestone hillsides and slopes in openings of live oak (*Quercus virginiana*) and juniper woodlands, as well as in canyon bottoms (Brazos River Authority 2024). Populations of this species may change extensively between years depending on the amount of winter rainfall. The primary causes for its decline are residential development and browsing by white-tailed deer (Poole et al. 2007). This species is not anticipated to occur within the study area due to lack of suitable rocky limestone hillsides and canyon habitat.

Special Status Animal Species

The USFWS (2024b) IPaC official species list identified federally listed animal species potentially occurring within the study area. Additionally, the TPWD (2024d) Rare, Threatened, and Endangered Species of Texas by County interactive web map identified state-listed animal species potentially occurring within the study area counties. Federally and/or federally proposed, state-listed, and candidate status animal species potentially occurring within each county of the study area are listed in Table 3-6. Some federal status species listed in the TPWD Annotated County Lists of Rare Species but were not identified in the IPaC have been included in Table 3-6 for consistency. Only USFWS listed threatened or endangered species are afforded federal protection under the ESA. Although only federally-listed threatened or endangered species are protected under the ESA, state-listed species may receive protection under other federal and/or state laws, such as the MBTA, BGEPA, Chapters 67, 68, and 88 of the Texas Parks and Wildlife Code, and Section 65.171–65.184 and 69.01–69.14 of Title 31 of the TAC. A brief description of each species' life history, habitat requirements, and any documented occurrences within the study area are summarized below.

TPWD's TXNDD data did not identify any EORs for animal species within or near the study area (TPWD 2024e).

TABLE 3-6 LISTED THREATENED AND ENDANGERED SPECIES FOR THE STUDY AREA COUNTIES[1]

SPECIES		LEGAL STATUS[3]		COUNTY[4]		
COMMON NAME[2]	SCIENTIFIC NAME[2]	USFWS	TPWD	BEXAR	KARNES	WILSON
Amphibians						
Cascade Caverns salamander	*Eurycea latitans*	-	T	X	-	-
San Marcos salamander	*Eurycea nana*	T	-	-	-	-
Sheep frog	*Hypopachus variolosus*	-	T	-	X	-
Texas salamander	*Eurycea neotenes*	-	T	X	-	-
Arachnids						
Cokendolpher Cave harvestman	*Texella cokendolpheri*	E	-	X	-	-
Government Canyon Bat Cave meshweaver	*Cicurina vespera*	E	-	X	-	-
Government Canyon Bat Cave spider	*Tayshaneta microps*	E	-	X	-	-
Madla Cave meshweaver	*Cicurina madla*	E	-	X	-	-
Robber Baron Cave meshweaver	*Cicurina baronia*	E	-	X	-	-
Birds						
Black rail	*Laterallus jamaicensis*	-	T	-	X	X
Golden-cheeked warbler	*Setophaga chrysoparia*	E	E	X	-	-
Interior least tern	*Sternula antillarum athalassos*	-	E	X	X	X
Piping plover	*Charadrius melodus*	T	T	X	X	X
Rufa red knot	*Calidris canutus rufa*	T	T	-	X	-
Swallow-tailed kite	*Elanoides forficatus*	-	T	-	X	X
White-faced ibis	*Plegadis chihi*	-	T	X	X	X
White-tailed hawk	*Buteo albicaudatus*	-	T	-	X	-
Whooping crane	*Grus americana*	E	E	X	X	X
Wood stork	*Mycteria americana*	-	T	X	X	X
Fishes						
Fountain darter	*Etheostoma fonticola*	E	-	-	-	-
Toothless blindcat	*Trogloglanis pattersoni*	PE	T	X	-	-
Widemouth blindcat	*Satan eurystomus*	PE	T	X	-	-
Flowering Plants						
Black lace cactus	*Echinocereus reichenbachii* var. *albertii*	E	-	X	X	X
Bracted twistflower	*Streptanthus bracteatus*	T	-	X	-	-
Insects						
Beetle (no designated common name)	*Rhadine exilis*	E	-	-	-	-
Beetle (no designated common name)	*Rhadine infernalis*	E	-	-	-	-
Helotes mold beetle	*Batrisodea venyivi*	E	-	-	-	-
Monarch butterfly	*Danaus plexippus*	PT	-	X	X	X

TABLE 3-6 LISTED THREATENED AND ENDANGERED SPECIES FOR THE STUDY AREA COUNTIES[1]

SPECIES		LEGAL STATUS[3]		COUNTY[4]		
COMMON NAME[2]	SCIENTIFIC NAME[2]	USFWS	TPWD	BEXAR	KARNES	WILSON
Mammals						
American black bear	*Ursus americanus*	-	T	X	-	-
Ocelot	*Leopardus pardalis*	E	E	-	X	-
Tricolored bat	*Perimyotis subflavus*	PE	-	X	X	X
White-nosed coati	*Nasua narica*	-	T	X	X	X
Mollusks						
False spike	*Fusconaia mitchelli*	E	E	X	-	-
Reptiles						
Cagle's map turtle	*Graptemys caglei*	-	T	X	-	-
Texas horned lizard	*Phrynosoma cornutum*	-	T	X	X	X
Texas tortoise	*Gopherus berlandieri*	-	T	X	X	X

[1] According to USFWS (2024b) and TPWD (2024d).
[2] Nomenclature follows: USFWS (2024b) and TPWD (2024d)
[3]Legal status abbreviations: E – Endangered, PE – Proposed Endangered, PT – Proposed Threatened, T – Threatened
[4] Indicates the county(ies) the species could potentially occur in based on the TPWD Rare, Threatened, and Endangered Species by County, Annotated County Lists database, habitat descriptions described below, and known documented ranges.

Federal Listed Threatened and Endangered Species

AMPHIBIANS

San Marcos Salamander

The San Marcos salamander requires clear, constant flowing water with aquatic vegetation over sand and gravel substrates. Its reddish-brown color allows it to camouflage well with aquatic vegetation. The San Marcos salamander is restricted to the outflows of Spring Lake and the riffle just below Spring Lake dam near the City of San Marcos (Tipton et al. 2012). This species is not anticipated to occur within the study area due to the study area being outside of the known range of this species.

ARACHNIDS

Cokendolpher Cave Harvestman

The Cokendolpher Cave harvestman is a species of eyeless spider also referred to as the Robber Baron Cave harvestman. It is a troglobite (NatureServe 2024a) endemic to Bexar County, Texas, where it has only been documented in Robber Baron Cave, a cave which runs underneath a heavily urbanized area in the City of San Antonio. Threats to this species include habitat loss from quarrying operations, cave filling, habitat degradation via pollution, and alterations in water flow (USFWS 2012). This species is not anticipated to occur within the study area due to the study area being outside of the known range of this species.

Government Canyon Bat Cave Meshweaver

The Government Canyon Bat Cave meshweaver is a spider endemic to Bexar County, Texas. It is a troglobite (NatureServe 2024b) that is only known to occur in Bexar County at Government Canyon Bat Cave located within Government Canyon State Natural Area. Threats to this species include habitat loss from quarrying operations, cave filling, habitat degradation via pollution, and alterations in water flow (USFWS 2012). This species is not anticipated to occur within the study area due to the study area being outside of the known range of this species.

Government Canyon Bat Cave Spider

The Government Canyon Bat Cave spider is endemic to Bexar County, Texas. It is a troglobite (NatureServe 2024c) that has only been documented in Bexar County at Government Canyon Bat Cave and Surprise Sink located within Government Canyon State Natural Area. Threats to this species include habitat loss from quarrying operations, cave filling, habitat degradation via pollution, and alterations in water flow (USFWS 2012). This species is not anticipated to occur within the study area due to the study area being outside of the known range of this species.

Madla Cave Meshweaver

The Madla Cave meshweaver is an eyeless spider endemic to Bexar County, Texas. It is a troglobite that has been observed in eight caves including Lost Pothole, Christmas Cave, Helotes Blowhole, Madla's Cave, Madla's Drop Cave, Headquarters Cave, the Hills and Dales Pit, and Robbers Cave within the University of Texas at San Antonio main campus (NatureServe 2024d). Threats to this species include habitat loss from quarrying operations, cave filling, habitat degradation via pollution, and alterations in water flow (USFWS 2012). Genetic research of this species suggests that additional populations may exist outside the eight documented caves (Paquin and Hedin 2004). This species is not anticipated to occur within the study area due to the study area being outside of the known range of this species and lack of karst topography within the study area.

Robber Baron Cave Meshweaver

The Robber Baron Cave meshweaver is an eyeless spider endemic to Bexar County, Texas. It is a troglobite (NatureServe 2024e) that is only known from Robber Baron Cave within the Alamo Heights karst region. Threats to this species include habitat loss from quarrying operations, cave filling, habitat degradation via pollution, and alterations in water flow (USFWS 2012). This species is not anticipated to occur within the study area due to the study area being outside of the known range of this species.

BIRDS

Golden-cheeked Warbler

The golden-cheeked warbler's entire nesting range is confined to habitat in 33 counties located in central Texas. Nesting typically occurs from March to May in mature oak-juniper woodland areas with a moderate to high

density of mature ashe juniper (*Juniperus ashei*) trees mixed with deciduous trees (e.g., oaks) creating dense foliage in the upper canopy (Pulich 1976; Campbell 2003). These oak-juniper woodland vegetation communities are typically located in moist areas along steep-sided slopes, drainages, and bottomlands. However, golden-cheeked warblers will also nest in upland oak-juniper woodlands on flat topography (TPWD 2024g). The golden-cheeked warbler is also a state listed species and migrates southward to southern Mexico and northern Central America to overwinter. This species is not anticipated to occur within the study area due to lack of contiguous dense, mature ashe juniper stands that would provide adequate habitat. However, if during surveys habitat for the species is observed occurring within the study area, an absence/presence survey must be conducted and depending on the outcome of these surveys coordination with the SEP HCP may be necessary.

Piping Plover

The piping plover is a small migratory shorebird that nests within the Great Lakes, Northern Great Plains or Atlantic Coast (USFWS 2024c). Primary fall migration to Texas is from July to early September, while spring migration occurs from March to early May. Piping plovers are also state listed species and are common to locally uncommon winter residents along the Gulf of Mexico coastline (Lockwood and Freeman 2014). Multiple large lakes, ponds, streams, and other aquatic features occur within the study area that could potentially be utilized for migratory habitat by the piping plover during winter migration. This species has the potential to occur within the study area as a transient migrant wherever suitable habitat is available. However, within the study area this species only needs to be considered for wind-related projects that occur within the species' migratory route.

Rufa Red Knot

Rufa red knots are migratory and breed in the drier arctic tundra areas while overwintering takes place along shorelines of the Gulf of Mexico and Central and South America (USFWS 2024d). Spring migration occurs in large flocks and takes place from April to June. This species, which is also state listed, preferers habitat that includes the shoreline of coasts and bays and sometimes inland mudflats. Their primary prey items are small mussels, clams, snails, and other invertebrates (USFWS 2013). Due to the study area being located outside the migratory corridor and the rare transient nature of the species, it is anticipated that this species will not occur within the study area. However, within the study area this species only needs to be considered for wind-related projects that occur within the species' migratory route.

Whooping Crane

The study area is located within the central migratory corridor for the whooping crane (USGS 2024b). The migration path includes a 220-mile-wide corridor that begins at their nesting site at Wood Buffalo National Park in Canada and continues south to their wintering grounds at the Aransas National Wildlife Refuge along the Texas coast (USFWS 2024e). The migratory corridor contains 95% of all confirmed whooping crane stopover sightings, during migration. Whooping cranes, which are also state listed species, overwinter in the Aransas National

Wildlife Refuge from November through March. During migration, they typically fly at altitudes greater than 1,000 feet but will roost and feed in areas away from human disturbance during nightly stopovers. Stopover areas include large rivers, lakes and associated wetlands, playa lakes, pastureland, and cropland (USFWS 2009). Aquatic features, pastureland, and cropland located within the study area might be utilized during migration. This species has the potential to occur within the study area as a transient migrant wherever suitable habitat is available.

FISHES

Fountain Darter

The fountain darter is a species of perch that is endemic to the San Marcos and Comal River headwaters in Hays and Comal Counties, Texas (Thomas et al. 2007). It inhabits clear waters with aquatic vegetation and constant water temperatures. Diet consists of small crustaceans and insect larvae. Females lay their eggs year-round and utilize calmer waters of the river. Fountain darters are often associated with algae mats (Thomas et al. 2007). This species is not anticipated to occur within the study area due to the study area being outside of the known range of this species.

INSECTS

Unnamed Beetle (*Rhadine exilis*)

This unnamed beetle species is endemic to Bexar County, Texas. It is an eyeless cave obligate that has been documented in about 50 different caves (NatureServe 2024f). *Rhadine exilis* is known only from caves in the southern portion of Camp Bullis Military Base (Reddell and Cokendolpher 2004). Threats to this species include habitat loss from quarrying operations, cave filling, and habitat degradation via pollution, and alterations in water flow (USFWS 2012). This species is not anticipated to occur within the study area due to the study area being outside of the known range of this species and lack of karst topography within the study area.

Unnamed Beetle (*Rhadine infernalis*)

This unnamed beetle species is an eyeless cave obligate that has been documented in approximately 39 different caves in Bexar County, Texas (NatureServe 2024g). Threats to this species include habitat loss from quarrying operations, cave filling, and habitat degradation via pollution, and alterations in water flow (USFWS 2012). This species is not anticipated to occur within the study area due to the study area being outside of the known range of this species and lack of karst topography within the study area.

Helotes Mold Beetle

The Helotes mold beetle is endemic to karst features within Texas. It has been documented in eight caves near Helotes, Texas, northwest of San Antonio. This species is a cave obligate, growing up to 2.4 millimeters long and is believed to be predatory in nature (USFWS 2012; NatureServe 2024h). This species is not anticipated to occur

within the study area due to the study area being outside of the known range of this species and lack of karst topography within the study area.

MAMMALS

Ocelot

In Texas, ocelots are also state-listed species and occur in dense thorny shrublands of the Lower Rio Grande Valley and Rio Grande Plains. Deep fertile clay or loamy soils are generally needed to produce suitable habitat. Typical habitat consists of mixed brush species such as granjeno, brasil, desert yaupon (*Schaefferia cuneifolia*), lotebush, wolfberry (*Lycium bernlandieri*), amargosa (*Nitrophila mohavensis*), whitebrush, blackbrush, guayacan, catclaw (*Acacia greggii*), cenizo, desert olive (*Forestiera pubescens*), and Texas persimmon (TPWD 2011). Dense shrubs and canopy cover are important considerations for suitable habitat. Although the study area shares similar plant species for suitable habitat for the ocelot, this species is not anticipated to occur within the study area due to the study area being north of the known range of this species.

MOLLUSKS

False Spike

The false spike, which is also a state listed species, is a Guadalupe River Basin endemic and known to occur in the mainstem Guadalupe River between Gonzales and Victoria, Texas (USFWS 2024f). Until as recently as 2011, the false spike was thought to be extinct prior to the re-discovery of the species in the Guadalupe River near Gonzales. This species tends to occur in larger creeks and rivers with heterogenous mixtures of sand, gravel, or cobble substrates. This species is not anticipated to occur within the study area due to the study area being outside of the known range of this species.

Federal Proposed Threatened and Endangered Species

FISHES

Toothless Blindcat

The toothless blindcat, which is also a state-listed species, is a small, eyeless fish restricted to freshwater pools and groundwater within caves and karst located in the Medina and Upper San Antonio River watersheds. Diet of the toothless blindcat may consist of detritus and fungi (USFWS 2024g). This species is not anticipated to occur within the study area due to the lack of karst topography within the study area.

Widemouth Blindcat

The widemouth blindcat, which is also a state listed species, is a small, white to pink eyeless fish restricted to freshwater pools and groundwater within caves and karst located in the Medina and Upper San Antonio River watershed. Diet of the widemouth blindcat consists of shrimp, amphipods, and isopods (USFWS 2024h). This

species is not anticipated to occur within the study area due to the lack of potential karst topography within the study area.

INSECTS

Monarch Butterfly

The monarch butterfly ranges from North and South America to the Caribbean, Australia, New Zealand, the Pacific Islands, and Western Europe. The species has been proposed as candidate species for protection under the ESA due to decreasing populations and habitat loss. Eastern and western monarch populations migrate both north and south on an annual basis. Populations usually overwinter in Mexico, Texas, Florida, and California and then spend the spring and summer months migrating back north. The entire migration cycle last for four generations of monarchs and no individual makes the round trip. Monarchs are heavily dependent on milkweed plants (*Asclepias* spp.) as larval hosts and to help produce poison. Preferred overwintering habitat includes appropriate roosting vegetation, dense tree cover, access to streams, and warm enough temperatures to allow for flight (USFWS 2024j). This species has the potential to occur as a temporary migrant at specific times of year within the study area wherever suitable habitat is available. However, due to the Project being a rebuild of an existing transmission line, it is unlikely that suitable habitat occurs within the expected Project ROW.

MAMMALS

Tricolored Bat

The tricolored bat has a large extensive range throughout eastern and central North America. Throughout its range, the species has many types of roost sites and locations due to their expansive foraging habitat. Tricolored bats are closely associated with forested landscapes and bottomland riparian forest with most foraging occurring within forested riparian corridors. In spring and summer, non-reproductive individuals roost in trees near perennial streams. Maternal and other summertime roosts are found in dead or live tree foliage, caves, mines, and rock crevices, with maternal colonies also occasionally occurring within man-made structures. Winter hibernation sites typically found within caves, mines, cave like tunnels, or large box culverts adjacent to forest habitat (USFWS 2024i). This species is a habitat generalist and has the potential to occur within the study area wherever suitable habitat is available. However, due to the Project being a rebuild of an existing transmission line, it is unlikely that suitable habitat occurs within expected Project ROW.

Other Federally Protected Species

BIRDS

Bald Eagle

The bald eagle (*Haliaeetus leucocephalus*) was delisted in 2007 by the USFWS, because the population has recovered beyond the ESA criteria for listing. The status of the bald eagle population is currently monitored by USFWS, and the species is still protected under the MBTA and the BGEPA. Bald eagles may nest and/or winter

in Texas. Nests are built in treetops or on cliffs near rivers or large lakes. The bald eagle primarily preys on fish but will also eat birds, small mammals, and turtles and will often scavenge or steal carrion (Campbell 2003; USFWS 2024k). This species has the potential to occur within the study area wherever suitable habitat is available. However, due to the Project being a rebuild of an existing transmission line, it is unlikely that suitable habitat occurs within the expected Project ROW.

Golden Eagle

The golden eagle (*Aquila chrysaetos*) is one of the largest raptors in North America. Breeding range spans from western and northern Alaska, eastward to the Northwest Territories of Canada, south to northern Mexico and Texas, western Oklahoma, and western Kansas. The species' North American winter range extends from south-central Alaska, southern Canada, and casually further southward. As habitat generalists, this species has been found inhabiting open to semi-open country that includes prairies, sage brush, artic alpine and tundra, savanna, sparse woodlands, and mountainous or hilly barren areas (USFWS 2024l). In Texas, golden eagles occur more commonly in the western portion of the state where they breed at high elevation (8,600 above mean sea level) in mountains and canyons. This species is not anticipated to occur within the study area due to the study area being outside of known breeding populations.

State Listed Threatened and Endangered Species

AMPHIBIANS

Cascade Caverns Salamander

The Cascade Caverns salamander is a small amphibian endemic to Texas and restricted to springs and karst aquatic habitats within the Edwards Aquifer (USFWS 2024m). The salamander is pale brown to yellowish in color and grows up to four inches in length. Cave-dwelling forms of the Cascade Caverns salamander have greatly reduced nonfunctional eyes and little skin pigmentation. Other populations of this species have more skin pigmentation and functional eyes (Powell et al. 2016). This species is not anticipated to occur within the study area due to the study area being outside of the known range of this species and lack of karst topography within the study area.

Sheep Frog

The sheep frog's range extends from south Texas through the Pacific and Atlantic slopes of Mexico to Costa Rica. In Texas, this species is known to occupy various habitats such as grasslands, savannas, and in moist sites in arid areas (AmphibiaWeb 2024). Eggs are usually laid after heavy rainfall or when their habitat is flooded by irrigation water. Species are known to migrate unknown distances through unsuitable habitats from their home range to breeding ponds (AmphibiaWeb 2024). This species has the potential to occur within the study area wherever suitable habitat is available.

Texas Salamander

The Texas salamander is endemic to north Bexar and south Kendall Counties, Texas near the city of Helotes. It is adapted to living in subterranean streams and creeks. This subterranean species is capable of traversing upland habitats when conditions are wet but may rarely do so successfully (NatureServe 2024i). This species is not anticipated to occur within the study area due to the study area being outside of the known range of this species.

BIRDS

Black Rail

The black rail has a large range throughout North, Central, and South America. Breeding habitat includes marshes with salt, brackish, and freshwater salinity; grass swamps; wet prairies; and pond borders. Preferred habitat is salty prairie and high salt marsh where grass stem counts of 10 to 20 centimeters or higher (TPWD 2015). Wintering habitat along the Gulf Coast has been identified as either tidally or non-tidally influenced persistent, herbaceous emergent wetlands occurring over the wetland-upland interface. This species is not anticipated to occur within the study area due to lack of potential suitable habitat.

Interior Least Tern

The interior least tern is a subspecies of least tern. The USFWS recognizes any nesting least tern that is 50 miles or greater from a coastline as being an interior least tern (Campbell 2003). Interior least terns nest inland along sand and gravel bars within large, braided streams and rivers as well as salt flats associated with rivers and reservoirs. They are also known to nest on man-made structures (inland beaches, wastewater treatment plants, gravel quarries, etc.) (Thompson et al. 2020). This species is not anticipated to occur within the study area due to lack of potential suitable habitat.

Swallow-tailed Kite

The swallow-tailed kite historically occurred along the coastal plains, interior lowlands, and riparian areas throughout the southeastern United States and into central Texas. Today in Texas, the species is a rare to uncommon migrant throughout the eastern third of the state and a rare to locally uncommon summer resident in southeast Texas. The most recent breeding records exist from Chambers, Liberty, Orange, and Tyler counties (Lockwood and Freeman 2014). Habitats include lowland forested swampy areas ranging into open woodland, marshes, rivers, lakes, and ponds. Nesting occurs in tall trees within clearings or on forest woodland edge, usually in pine, bald cypress, or other deciduous trees (Meyer 1995). This species has the potential to occur within the study area as a rare temporary migrant wherever suitable habitat is available. However, due to the Project being a rebuild of an existing transmission line, it is unlikely that suitable habitat occurs within the expected Project ROW.

White-faced Ibis

The white-faced ibis prefers freshwater marshes, swamps, ponds, rivers, sloughs, and irrigated rice fields, but will also use brackish and saltwater habitats (Lockwood and Freeman 2014). This species is a colonial nester and forages on insects, newts, leeches, earthworms, snails, crayfish, frogs, and fish (TPWD 2024h). The white-faced ibis commonly breeds and winters along the Texas Gulf Coast (Arvin 2007). This species is not anticipated to occur within the study area due to lack of potential suitable habitat.

White-tailed Hawk

White-tailed hawks are resident species in their range which extends local from coastal south Texas plains to Mexico and as far south as South America. This species nests from near sea level to about 160 feet in elevation in savannas with short trees with average heights of 12 feet and shrubs (Arnold 2001a). This species has the potential to occur within the study area wherever suitable habitat is available. However, due to the Project being a rebuild of an existing transmission line, it is unlikely that suitable habitat occurs within the expected Project ROW.

Wood Stork

The wood stork inhabits prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including saltwater areas. This species usually roosts communally in tall snags, sometimes in association with other wading birds and historically nested in Texas (Arnold 2001b). This species is not anticipated to occur within the study area due to lack of potential suitable habitat.

MAMMALS

American Black Bear

The American black bear is listed as threatened due to similarities with the Louisiana black bear (*Ursus americanus luteolus*), which has now been federally delisted. The black bear is a stocky, large, omnivore with black to cinnamon brown fur that consumes insects, roots, and tubers. Preferred habitat in Texas includes bottomland hardwood forest and large tracts of inaccessible forested areas (TPWD 2024i). This species historically inhabited large tracts of forest and woodland throughout Texas and was once thought to be extirpated from the state. This species is extremely rare in Texas where recent sightings have only been recorded in deep east Texas. This species is not anticipated to occur within the study area due to the study area being outside of the known range of this species.

White-nosed Coati

The white-nosed coati is a member of the raccoon family (*Procyonidae*) that inhabits cropland/hedgerows, mesquite grasslands, oak scrub, riparian corridors, and canyons of far south and west Texas but could once historically be found throughout central Texas as well (Schmidly and Bradley 2016). Denning occurs in snags or hollow trees. Adult males are solitary while females and young males travel in groups of 12 or more. White-nosed

coatis are most active during mornings and evenings at which times they forage canopies and the ground for fruits, insects, birds, and small mammals (Schmidly and Bradley 2016). This species is not anticipated to occur within the study area due to the study area being outside of the known range of this species.

REPTILES

Cagle's Map Turtle

The Cagle's map turtle habitat range is limited to the Guadalupe and San Antonio River basins, inhabiting the Guadalupe, San Antonio, and San Marcos Rivers. This species prefers rivers with slow to moderate flow and silt and gravel substrates. Optimal habitat includes riffles and pools. Like most other turtles, this species basks in the sun on brush piles along river and stream banks (Conant and Collins 1991; Dixon 2013). This species has the potential to occur within the study area wherever suitable habitat is available.

Texas Horned Lizard

The Texas horned lizard inhabits open, arid to semiarid regions with sparse vegetation including open desert, grasslands, and shrubland containing bunch grasses, cacti, and yucca (TPWD 2024j). Preferred soils vary from pure sands and sandy loams to coarse gravels, conglomerates, and desert pavements (Henke and Fair 1998). Texas horned lizards are active between early spring to late summer and thermo-regulate by basking or burrowing into the soil. During winter inactivity periods, this species aestivates beneath the surface six to 12 inches deep under rocks, leaf litter, or abandoned animal burrows. Populations are thought to have decreased because of land use conversions, increased pesticide/herbicide use, collection, and increased fire ant populations. The Texas horned lizard forages primarily on the red harvester ant (*Pogonomyrmex barbatus*), but also consumes grasshoppers, beetles, and grubs (Dixon 2013; Henke and Fair 1998). This species has the potential to occur within the study area wherever suitable habitat is available.

Texas Tortoise

The Texas tortoise is a long-lived species with a shell that has characteristically yellowish-orange, bluntly-horned scutes (shell plates). Habitat preferences include arid brush, scrub woods, and grass-cactus associations with grassy understories (TPWD 2024k). The Texas tortoise is active during March to November and when inactive, it occupies shallow depressions at the base of bushes or cactus, underground burrows, or under other suitable objects such as man-made debris. The tortoise feeds on fruits of prickly pear and other mostly succulent plants. This species has the potential to occur within the study area wherever suitable habitat is available.

3.2 Human Resources/Community Values

3.2.1 Land Use

Jurisdiction does not necessarily represent land ownership. Potential conflicts that could arise from crossing jurisdictional boundaries were evaluated in this study. The study area is located within the jurisdictional boundary

of Bexar, Wilson, and Karnes Counties and partially within the City of Floresville. A portion of the City of San Antonio's extraterritorial jurisdiction is located within the study area.

The study area covers approximately 14.22 square miles in Bexar, Wilson, and Karnes Counties. Land uses within the study area were identified and placed into the following categories: urban/developed, planned land use, agriculture, oil and gas facilities, communication towers, and parks and recreation areas. The primary sources of land use information were obtained from interpretation of aerial imagery, USGS topographical maps and vehicular reconnaissance surveys from accessible public viewpoints. Planned land use features were limited to known features obtained from governmental entities and mobility authorities.

Residential Areas

The urban/developed classification represents concentrations of surface disturbing land uses, which include habitable structures and other developed areas, characterized with low, medium and high intensities. The various levels of development include a mix of institutional, commercial, and/or industrial land uses. Developed low, medium, and high intensity areas were identified using aerial photograph interpretation and reconnaissance surveys. These classifications are described below:

- **Developed Low Intensity** areas typically include rural settings with single-family housing units.
- **Developed Medium Intensity** areas typically include single-family housing units that are grouped in residential subdivisions and might include peripheral commercial structures.
- **Developed High Intensity** includes highly developed areas where people reside or work in high numbers. Examples include apartment complexes, row houses, and commercial/industrial parks. Areas with the highest concentration of development are typically located within or near the towns and communities in the study area.

The study area is located within Bexar, Wilson, and Karnes Counties. A portion of the study area also falls within the City of Floresville and the City of San Antonio's extraterritorial jurisdiction. The primary land use in the study area along the existing 345 kV transmission line ROW includes a mix of agricultural development, low and medium-density residential and commercial development, industrial development, and transportation infrastructure. Habitable structures were identified using aerial imagery Google Earth (Google Earth 2024) and reconnaissance surveys. The PUC definition of a habitable structure was used for this routing study. The PUC's Substantive Rules (16 TAC § 25.101(a)(3)) define habitable structures as "structures normally inhabited by humans or intended to be inhabited by humans on a daily or regular basis. Habitable structures include, but are not limited to, single-family and multi-family dwellings and related structures, mobile homes, apartment buildings, commercial structures, industrial structures, business structures, churches, hospitals, nursing homes, and schools."

Schools

The study area is located within the East Central, Floresville, Poth, Falls City, Karnes City, Kenedy and Pawnee Independent School Districts. However, no schools were identified within the study area (Texas Education Agency 2024).

Planned Land Use

The planned land use component identifies objectives and/or policies regarding land use goals and plans, including conservation easements, managed lands, and proposed developments. Cities and counties typically prepare comprehensive land use plans to provide strategic direction by goals and objectives for the individual city or county. City and county websites were reviewed, and correspondence was submitted to local and county officials to identify potential planned land use conflicts. The City of San Antonio has a Comprehensive Plan which is a long-term planning initiative aimed at guiding development, economic growth and environmental conservation (City of San Antonio 2024). The City of Floresville has a Master Plan (City of Floresville 2024a) and a Land Use Plan (City of Floresville 2024b) intended to provide guidance in future decisions related to land use, infrastructure improvements, transportation, and more. Additionally, the City of Floresville has set up zoning districts to provide information on how a property may be developed (City of Floresville 2024c). No Neighborhood Conservation Districts were identified within the study area, but there are platted subdivisions. There are no zoning regulations in the unincorporated areas of Bexar, Wilson and Karnes Counties. Bexar County has the 2021-2025 5-Year Consolidated Plan which outlines the county's goals and actions related to community development over a five year period (Bexar County 2024a). Bexar County is implementing a parks master plan. Bexar County updated the Bexar County Parks Master Plan in 2021, but no new parks were planned within the study area (Bexar County 2024b). The Bexar County Office of Emergency Management has an Emergency Management Plan which provides guidance for emergency management activities and an overview of methods for mitigation, preparedness, response, and recovery (Bexar County 2024c). Wilson and Karnes Counties do not have comprehensive land use plans.

Conservation Easements

A conservation easement is a restriction that property owners voluntarily place on specified uses of their property to protect natural, productive or cultural features. The property owner retains legal title to the property and determines the types of uses to allow or restrict. The property can still be bought, sold, and inherited, but the conservation easement is tied to the land and binds all present and future owners to its terms and restrictions. Conservation easement language will vary as to the individual property owner's allowances for additional developments on the land. The land trusts facilitate the easement and ensure compliance with the specified terms and conditions.

Based on review of numerous non-governmental groups (e.g., the Nature Conservancy, Texas Land Conservancy [TLC] and the National Conservation Easement Database [NCED]) that are land trusts and databases for conservation easements within Texas, two conservation easements were identified. The Calaveras Lake Park and the San Antonio Missions National Historical Park are conservation easements located within the study area (Nature Conservancy 2024; TLC 2024; NCED 2024).

3.2.2 Agriculture

Agriculture is a significant segment of the economy throughout Texas, and study area counties have an active agricultural sector. According to the USDA's National Agricultural Statistics Service's 2017 Census of Agriculture, the total market value for agricultural products sold for all of the study area counties was $165,945,000, an 18% decrease from the 2012 market value $202,084,000. Livestock sales accounted for 26% of agricultural sales in Bexar County, while crop sales accounted for 74% of agricultural sales. The number of farms in Bexar County increased slightly from 2,457 in 2012 to 2,520 in 2017 (an increase of 3%). Livestock sales accounted for 82% of agricultural sales in Wilson County, while crop sales accounted for 18% of agricultural sales. The number of farms in Wilson County increased slightly from 2,444 in 2012 to 2,621 in 2017 (an increase of 7%). Livestock sales accounted for 63% of agricultural sales in Karnes County, while crop sales accounted for 37% of agricultural sales. The number of farms in Karnes County decreased slightly from 1,288 in 2012 to 1,213 in 2017 (a decrease of 6%) (USDA 2012 and 2017). Detailed agricultural information for the study area counties is provided in Table 3-7.

TABLE 3-7 AGRICULTURE INFORMATION IN THE STUDY AREA COUNTIES

COUNTY	TOTAL MARKET VALUE OF AGRICULTURAL PRODUCTS			DISTRIBUTION OF PRODUCTS (2017)		NUMBER OF FARMS		
	2012	2017	Change	Crop Sales	Livestock Sales	2012	2017	Change
Bexar County	$72,387,000	$67,877,000	-6%	74%	26%	2,457	2,520	+3%
Wilson County	$102,098,000	$68,632,000	-33%	18%	82%	2,444	2,621	+7%
Karnes County	$27,599,000	$29,436,000	+7%	37%	63%	1,288	1,213	-6%

Source: USDA 2012 and 2017.

3.2.3 Transportation/Aviation

Transportation

Federal, state, and local roadways were identified using TxDOT county transportation maps, Texas Natural Resources Information System data, and field reconnaissance surveys. The roadway transportation system within the study area includes US Hwy 181, SH 1604 Loop, SH 97, FM 775, FM 536, FM 541, FM 791, FM 197, FM 1144, FM 99, and several County roads (TxDOT 2024a).

TxDOT's "Project Tracker," which contains detailed information by county for every project that is or could be scheduled for construction, was reviewed to identify any state roadway projects planned within the study area. The TxDOT Project Tracker indicated there are eight projects planned within the study area (TxDOT 2024b).

Bexar County

- There are two projects to perform a seal coat and one safety improvement project within the study area on SH 1604 Loop that is underway or begins soon.
- There is one project to widen non-freeway on SH 1604 Loop that will begin construction within five to ten years.

Wilson County

- There are a total of four projects to perform a seal coat within the study area, with one on US Hwy 181, FM 775, FM 536, FM 541, and SH 97 that is underway or will begin soon.
- There is one project to perform safety improvements within the study area on US Hwy 181 and FM 536 that is underway or will begin soon.

Karnes County

- There are a total of two projects to perform safety improvements within the study area on FM 791 and FM 2102 that is underway or begins soon.
- There is one project to perform a seal coat within the study area on FM 99 that begins construction within four years.
- There is one project to perform safety improvements within the study area on FM 791 that begins construction within four years.

There is one Union Pacific railroad spur identified within the northern portion of study area (United States Department of Transportation 2024).

Aviation

POWER reviewed the San Antonio Sectional Aeronautical Chart (FAA 2024a) and the Chart Supplement for the South Central United States (US) (formerly the Airport/Facility Directory) (FAA 2024b) to identify FAA registered facilities within the study area subject to notification requirements listed in 14 C.F.R. 77.9. Facilities subject to notification requirements listed in 14 C.F.R. 77.9 include public-use airports listed in the Airport/Facility Directory (currently the Chart Supplement), public-use or military airports under construction, airports operated by a federal agency or DoD, or an airport or heliport with at least one FAA-approved instrument approach procedure.

The Chart Supplement for the South Central US used in conjunction with the San Antonio Sectional Aeronautical Chart, contains all public-use airports, seaplane bases and public-use heliports, military facilities, and selected private-use facilities specifically requested by the DoD for which a DoD Instrument Approach Procedure has been published in the US Terminal Procedures Publication.

No public-use or military FAA registered airports were identified within the study area (FAA 2024b).

Although pre-existing landing areas for air ambulance services may exist in the study area, no public-use heliports or heliports with an instrument approach procedure are listed for the study area in the Chart Supplement for the South Central US (FAA 2024b).

In addition, POWER also reviewed the FAA database (FAA 2024c), USGS topographic maps, recent aerial imagery, and conducted field reconnaissance from publicly accessible areas to identify private-use airstrips and private-use heliports not subject to notification requirements listed in 14 C.F.R. 77.9. There were no private-use airstrips and no private-use heliports identified within the study area.

3.2.4 Communication Towers

Review of the Federal Communication Commission (FCC) database indicated that there are no amplitude modulation radio (AM radio) transmitters within the study area. There are three frequency modulation radio (FM radio) transmitters/microwave towers/other electronic installations identified within the study area. There are two additional FM radio transmitters/microwave towers/other electronic installations within 2,000 feet of the study area boundary (FCC 2024).

3.2.5 Utility Features

Utility features reviewed include existing electrical transmission lines, pipelines, water and gas/oil wells, and water and gas/oil storage tanks. Data sources used to identify existing electrical transmission and distribution lines include utility company and regional system maps, aerial imagery, USGS topographic maps, additional available planning documents, and field reconnaissance surveys. Existing transmission lines identified within the study area include seven 345-kV transmission lines, four 138-kV transmission lines, and one 69-kV transmission line. Distribution lines are prevalent throughout the developed portions of the study area; however, these features were not mapped or inventoried.

Data was obtained from the RRC (RRC 2024a) which provided a GIS layer for existing oil and gas wells, pipelines, and supporting facilities. The 2024 RRC dataset along with aerial imagery interpretation and field reconnaissance were used to identify and map existing oil and gas related facilities. Several pipelines and oil and

gas wells were identified within the study area (RRC 2024a). Pipeline information was also provided by CPS Energy regarding the pipelines within the existing ROW (CPS Energy 2024).

Water wells within the study area are scattered throughout study area (TWDB 2024).

3.2.6 Socioeconomics

This section presents a summary of economic and demographic characteristics for the county and describes the socioeconomic environment of the study area. Literature sources reviewed include publications of the United States Census Bureau (USCB), and the Texas State Data Center (TSDC).

Population Trends

Bexar and Wilson Counties experienced a population increase between 2010 and 2020 of 17% and 16% respectively. Karnes County experienced a population decrease between 2010 and 2020 of 1%. By comparison, population at the state level increased by nearly 16% between 2010 and 2020 (USCB 2010 and 2024).

According to TSDC projections, Bexar, Wilson and Karnes Counties are projected to experience a population growth between 2020 and 2050. The population of Bexar County is expected to experience population increases of 15%, 13% and 10%, respectively. The population of Wilson County is expected to experience population increases of 12%, 11% and 10%, respectively. The population of Karnes County is expected to experience population increases of 4%, 5% and 4%, respectively. By comparison, the population of Texas is expected to experience population increases of 13%, 12%, and 10% over the next three decades, respectively (TSDC 2022). Table 3-8 presents the past population trends and projections for the study area counties and for the state of Texas.

TABLE 3-8 POPULATION TRENDS

STATE/COUNTY	PAST		PROJECTED		
	2010	2020	2030	2040	2050
Texas	25,145,561	29,145,505	32,912,882	36,807,213	40,645,784
Bexar County	1,714,773	2,009,324	2,302,829	2,599,727	2,865,834
Wilson County	42,918	49,753	55,858	61,941	67,968
Karnes County	14,824	14,710	15,357	16,052	16,739

Sources: USCB 2010 and 2024; TSDC 2022.

Employment

From 2010 to 2022, the civilian labor force (CLF) in Bexar, Wilson and Karnes Counties increased by 28%, 14% and 7%, respectively. By comparison, the CLF at the state level grew by 23% (2,711,288 people) over the same time period (USCB 2024). Table 3-9 presents the CLF for the study area counties and the state of Texas for the years 2010 and 2022.

Between 2010 and 2020, Bexar County experienced a decrease in its unemployment rate from 6.90% in 2010, to 5.50% in 2020. Wilson County experienced a decrease in its unemployment rate from 5.60% in 2010 to 3.40% in 2020. Karnes County experienced an increase in its unemployment rate from 3.20% in 2010 to 5.30% in 2020. By comparison, the state of Texas experienced a decrease in the unemployment rate over the same period. The state's unemployment rate decreased from 7.00% in 2010, to 5.20% in 2020 (USCB 2024). Table 3-9 presents the employment and unemployment data for the study area counties and the state of Texas for the years 2010 and 2020.

TABLE 3-9 CIVILIAN LABOR FORCE AND EMPLOYMENT

STATE/COUNTY	2010	2022
Texas		
Civilian Labor Force	11,962,847	14,674,135
Employment	11,125,616	13,908,128
Unemployment	837,231	766,007
Unemployment Rate	7.00%	5.20%
Bexar County		
Civilian Labor Force	793,358	1,014,064
Employment	738,564	957,948
Unemployment	54,794	56,116
Unemployment Rate	6.90%	5.50%
Wilson County		
Civilian Labor Force	21,215	24,145
Employment	20,026	23,332
Unemployment	1,189	813
Unemployment Rate	5.60%	3.40%
Karnes County		
Civilian Labor Force	4,829	5,177
Employment	4,675	4,904
Unemployment	154	273
Unemployment Rate	3.20%	5.30%

Source: USCB 2010 and 2024.

Leading Economic Sectors

The major occupations in Bexar and Wilson counties in 2022 are listed under the category of management, business, science, and arts occupations, followed by sales and office occupations (USCB 2024). The major occupations in Karnes County in 2022 are listed under the category of management, business, science, and arts occupations, followed by service occupations (USCB 2024). Table 3-10 presents the number of persons employed in each occupation category during 2022 in the study area counties.

TABLE 3-10 OCCUPATIONS IN THE STUDY AREA COUNTIES

OCCUPATION	BEXAR COUNTY	WILSON COUNTY	KARNES COUNTY
Management, business, science, and arts occupations	359,381	8,579	1,320
Service occupations	177,740	3,440	1,284
Sales and office occupations	221,469	5,252	1,098
Natural resources, construction, and maintenance occupations	91,230	2,919	762
Production, transportation, and material moving occupations	108,128	3,142	440

Source: USCB 2024.

In 2010 and 2022, the industry group employing the most people in Bexar, Wilson and Karnes counties was educational services, and healthcare and social assistance (USCB 2024). Table 3-11 presents the number of persons employed in each of the industries in the study area counties for the years 2010 and 2022.

TABLE 3-11 INDUSTRY IN THE STUDY AREA COUNTIES

INDUSTRY GROUP	BEXAR COUNTY		WILSON COUNTY		KARNES COUNTY	
	2010	2022	2010	2022	2010	2022
Agriculture, forestry, fishing and hunting, and mining	4,864	9,829	802	1,064	559	518
Construction	60,387	78,240	2,112	2,493	254	599
Manufacturing	44,307	52,214	1,638	1,917	242	242
Wholesale trade	21,801	20,302	778	559	54	15
Retail trade	87,948	112,093	2,064	2,636	414	607
Transportation and warehousing, and utilities	35,297	50,748	1,561	1,741	279	136
Information	18,424	15,106	353	204	90	154
Finance and insurance, and real estate and rental and leasing	71,493	84,923	1,472	1,075	260	103
Professional, scientific and management, and administrative and waste management services	79,856	117,949	1,427	2,455	218	274
Educational services, and health care and social assistance	163,102	221,059	4,540	5,057	1,261	925
Arts, entertainment, and recreation, and accommodation and food services	73,044	105,164	1,056	1,417	319	344
Other services, except public administration	37,264	45,614	766	1,049	272	234
Public administration	40,777	44,707	1,457	1,665	453	720

Source: USCB 2024.

3.2.7 Community Values

The term "community values" is included as a factor for the consideration of transmission line route approval under PURA 37.056(c)(4)(A-D); however, the term has not been defined by the PUC. The PUC CCN application requires information concerning the following items related to community values:

- Public open-house meeting if applicable.
- Approval or permits required from other governmental agencies.

- Brief description of the area traversed.
- Habitable structures within 500 feet of the centerline for transmission lines of 230 kV or more.
- AM and FM radio, microwave, and other electronic installations in the area.
- FAA-registered public use airstrips, private airstrips, and heliports located in the area.
- Irrigated pasture or croplands utilizing center-pivot or other traveling irrigation systems.
- Parks and recreation areas.
- Historical and archeological sites.

In addition, POWER also evaluated the Project for community values and resources that might not be specifically listed by the PUC, but that might be of importance to a particular community as a whole. Although the term "community values" is not formally defined in PUC rules, in several dockets the PUC and Staff have used the following as a working definition: the term "community values" is defined as *a shared appreciation of an area or other natural resource by a national, regional, or local community*. Examples of a community resource would be a park or recreational area, historical or archeological site, or a scenic vista (aesthetics). POWER mailed consultation letters to various local elected and appointed officials to identify and collect information regarding community values and community resources.

3.3 Recreational and Park Areas

The PUC's CCN application specifically requires reporting of recreational and park areas owned by a governmental body or an organized group, club, or church. Federal and state database searches and county/local maps were reviewed to identify any parks and/or recreational areas within the study area. A reconnaissance survey was also conducted to identify any additional park or recreational areas.

3.3.1 National/State/County/Local Parks

One national and one state park were identified within the study area (National Park Service [NPS] 2024a; TPWD 2024l). Rancho de Las Cabras is managed by the NPS as part of San Antonio Missions National Historical Park. The park offers a guided tour with a park ranger to explore the stories, myths, and mysteries surrounding Rancho de loas Cabras (NPS 2024b). Calaveras Lake Park is owned by CPS Energy and is managed by TPWD. The park offers camping, picnic areas, boat ramps and good shoreline access (TPWD 2024m). No county or local parks were identified within the study area.

There are no public hunting areas or wildlife management areas identified within the study area (TPWD 2024n). Additional recreational activities such as hunting and fishing might occur on private properties throughout the study area but are not considered to be open to the general public.

3.3.2 Wildlife Viewing Trails

Review of the TPWD *Heart of Texas East Wildlife Trail* and the *Central Texas Coast – Great Texas Coastal Birding Trail* did not indicate any wildlife viewing loops within the study area. However, the Calaveras Lake Park was identified as a site of interest within the study area (TPWD 2024o and 2024p).

3.4 Aesthetic Values

PURA § 37.056(c)(4)(C) incorporates aesthetics as a consideration when evaluating proposed electric transmission facilities. There are currently no formal guidelines provided for managing visual resources on private, state, or county owned lands. For the purposes of this study, the term aesthetics is defined by POWER to accommodate the subjective perception of natural beauty in a landscape and measure an area's scenic qualities. The visual analysis was conducted by describing the regional setting and determining a viewer's sensitivity. Related literature, aerial photograph interpretation, and field reconnaissance surveys were used to describe the regional setting and to determine the landscape character types for the area.

Consideration of the visual environment includes a determination of aesthetic values (where the major potential effect of a project on the resource is considered visual) and recreational values (where the location of a transmission line could potentially affect the scenic enjoyment of the area) that would help define a viewer's sensitivity. POWER considered the following aesthetic criteria that combine to give an area its aesthetic identity:

- Topographical variation (hills, valleys, etc.).
- Prominence of water in the landscape (rivers, lakes, etc.).
- Vegetation variety (woodland, meadows).
- Diversity of scenic elements.
- Degree of human development or alteration.
- Overall uniqueness of the scenic environment compared with the larger region.

The study area is primarily rural, with some residential, commercial, and industrial development scattered throughout. The predominant land use within the study area is pastureland/rangeland. The majority of the study area has been impacted by land improvements associated with residential structures, commercial and industrial activities, local roadways, and various utility corridors including the existing 345 kV transmission line. Overall, the study area viewscape consists of medium intensity urban development.

However, no known high-quality aesthetic resources, designated views, or designated scenic roads or highways were identified within the study area (Federal Highway Administration 2024).

The study area is located within the Texas Independence Trail Region There are no identified sites of interest within the study area (THC 2024a).

A review of the NPS website did not indicate any Wild and Scenic Rivers, National Monuments, National Memorials, National Historic Sites, National Battlefields, within the study area; however, as mentioned above in Section 3.3.1, the El Camino Real de los Tejas National Historic Trail is located within the study area. A review of the THC Atlas indicated a recorded Texas Historic Landmark *Flores Rancho*, located within the study area (National Wild and Scenic Rivers System 2024; NPS 2024c, 2024d, and 2024e).

Based on these criteria, the study area exhibits a moderate degree of aesthetic quality for the region. The majority of the study area maintains the feel of a rural community and agricultural setting. Although some portions of the study area might be visually appealing, the aesthetic quality of the study area overall is not distinguishable from that of other adjacent areas within the region.

3.5 Historical (Cultural Resource) Values

PURA § 37.056(c)(4)(A-D) incorporates historical and aesthetic values as a consideration when evaluating proposed electric transmission facilities. The PUC's CCN application requires that known historical sites within 1,000 feet of a route be listed, mapped, and their distance from the centerline of the route documented in the application filed for consideration. Archeological sites within 1,000 feet of a route are required to be listed and their distance from the centerline documented, but they need not be shown on maps for the protection of the site. Sources consulted to identify known sites (national, state, or local commission) must also be listed.

The THC is the state agency responsible for preservation of the state's cultural resources. The THC, working in conjunction with the TARL, maintains records of previously recorded cultural resources as well as records of previous field investigations. Information from the THC's restricted-access Texas Archeological Sites Atlas (TASA) and Texas Historical Sites Atlas (THSA) was reviewed to identify and map locations of previously recorded cultural (archeological and historical) resources within the study area. TxDOT Historic Resources of Texas Aggregator was also reviewed for listed or determined eligible for listing on the NRHP historic properties and bridges. At the national level, NPS websites and data centers were reviewed to identify locations and boundaries for nationally designated historic landmarks, trails, and battlefield monuments.

Together, archeological and historical sites are often referred to as cultural resources. Under the NPS standardized definitions, cultural resources include districts, sites, buildings, structures, or objects important to a culture, subculture, or community for scientific, traditional, religious, or other reasons. For this study, cultural resources

have been divided into three major categories: archeological resources, historical resources, and cemeteries. These three categories correlate to the organization of cultural resource records maintained by the THC and TARL.

Archeological resources are sites where human activity has measurably altered the earth and left deposits of physical remains (e.g., burned rock middens, stone tools, petroglyphs, house foundations, trails, trash scatters). Most archeological sites in Texas are Native American (prehistoric), Euro/African American, or Hispanic in origin. Much of the study area has not been studied intensively for archeological resources. Therefore, high probability areas (HPAs) for prehistoric and historic archeological resources were determined based on proximity to perennial water sources, certain topographic features, previously recorded cultural resources, and the presence of structures on historic maps in currently undeveloped areas.

Historical resources include standing buildings or structures (e.g., houses, barns and outbuildings), and may also include dams, canals, bridges, transportation routes, silos, etc., and districts that are non-archeological in nature and generally more than 50 years of age.

Cemeteries are locations of intentional human interment and may include large public burial grounds with multiple individuals, small family plots with only a few burials, or individual grave sites. In some instances, cemeteries may be designated as Historic Texas Cemeteries (HTCs) by the THC or recognized with an Official Texas Historic Marker (OTHM). Cemeteries may also be documented as part of the THC Record-Investigate-Protect Program.

3.5.1 Cultural Background

Prehistory

Pertulla (2004) includes the study area in the northern portion of the South Texas Plains archeological region of Texas, and the THC (Mercado-Allinger et al. 1996) places the study area in the Central and Southern Planning Region (Figure 3-4). The study area is near several cultural regions, and thus shares culture histories with the Central Texas Region to the north, the Savannah and Prairie Region to the east, and the Coastal Texas region to the south. The following culture history is drawn primarily from Hester's (1995) discussion of South Texas prehistory, unless otherwise noted. Like most of Texas, the prehistory of South Texas is divided into three broad periods of cultural development based on technological changes evident in the archeological record, and on broad changes in the physical and cultural environment. These periods, the Paleoindian, Archaic and Late Prehistoric Periods, are discussed below, followed by a discussion of the study area following the arrival of Europeans. All dates pertaining to the prehistory of the area are given as approximate years before present (BP).

Paleoindian Period (11,500 to 8,800 BP)

The Paleoindian period is the earliest generally accepted period of human occupation in North America. During this period, prehistoric populations exploited now-extinct giant mammals, such as ancient bison (*Bison antiquus*) and mammoth (*Mammuthus columbi*), although recent emphasis has been placed on the wide diversity of plants and animals exploited by these early groups (Collins 1995 and 2002). Late Pleistocene fauna and possibly associated lithic materials have been reported at the Buckner Ranch Site (41BE2) on the Berclair Terrace in Bee County near its border with Goliad County. The Paleoindian Period coincided with the end of the last major North American glaciation, known geologically as the Late Pleistocene, and with the beginning of the Holocene.

In South Texas, the Paleoindian tradition is represented by fluted projectile points and specialized blade production (Hester 1995). Sites containing diagnostic dart point types such as Clovis, Folsom, Plainview, and Angostura are often attributed to this early period of human occupation in South Texas and elsewhere. The late Paleoindian period corresponds to a greater variety of point styles, including smaller side-notched points that are believed to reflect a more diverse hunting strategy. Climate changes including a warming trend at the end of the Pleistocene contributed to the extinction of Pleistocene mega-fauna and regional changes in flora and fauna.

During this time, while the focus shifted to hunting large game, small animals, fish, reptiles, and plant life remained vital components of the diet. Small groups continued their traditional practices of hunting, gathering, and sourcing materials for stone tools across a wide region. The distinctive Clovis spear points of the early Paleoindian era transitioned to the shorter, fluted Folsom points. There was also an increased diversity of smaller dart points, including the St. Mary's Hall point found at the St. Mary's Hall site and the Brackenridge Park site in Bexar County.

N

0 30 60 120 180 240

Miles

Source: Mercado- Allinger et. al., 1996

Legend

Cultural Resource Planning Region Boundary

County Boundary

SPRUCE TO PAWNEE 345 KV TRANSMISSION LINE REBUILD PROJECT

FIGURE 3-4

LOCATION OF THE STUDY AREA IN RELATION TO THE CULTURAL RESOURCE PLANNING REGIONS OF TEXAS

cps ENERGY

POWER ENGINEERS

Date: 12/18/2024

Archaic Period (8,000 to 1,150 BP)

The long-lasting Archaic Period in South Texas followed the Paleoindian period and is distinguished by changes in material culture representing cultural adaptation to the changing North American environment. It is thought that human population density gradually increased during this period, and the Archaic Period is characterized by a shift to the hunting of smaller game, plant gathering, and an emphasis on the exploitation of marine resources in coastal zones. The hunting and gathering lifeway is epitomized by the Archaic tradition. The Archaic period is generally subdivided into three subperiods: Early, Middle and Late.

Early Archaic archeological sites are rare in South Texas, and the settlement patterns and subsistence strategies of this period are poorly understood. Early Archaic groups were likely organized into small hunting and gathering bands and were similar to their Paleoindian predecessors in their lifestyle and population density. Typical food resources probably consisted of deer, mussels, small game, fish and acorn nuts (Hester 1995). In Central Texas, the transition from the late Paleoindian period to the Early Archaic is characterized by a gradual shift from broad hunting and gathering practices to more localized methods. This transition also resulted in a wider array of artifacts compared to the late Paleoindian period (Collins 2004). Key aspects of the Early Archaic included a greater usage of groundstone tools and the prevalent use of heat-treated rocks, which may have served as hearths or ovens. Bison are notably absent during the early Archaic in Central Texas (Collins 2004).

The Middle Archaic Period (4,500 BP to 2,400 BP) has a distinct lithic technology separating it from earlier periods. Dart points from this period are distinguished by their triangular shape. Middle Archaic dart points, such as the Tortugas and Abasolo point types, differ sharply from the stemmed points of the Early Archaic Period. Pedernales, Langtry, Kinney, and Bulverde dart points are also Middle Archaic dart point types (Turner and Hester 1999). This period also exhibits a large amount of distally-beveled “gouges.” Use-wear analysis suggests the gouges were used for woodworking (Hester 1995). During the early Middle Archaic in central Texas, evidence of bison hunting can be found in the archaeological record (Collins 2004). However, around 5,000 BP, bison disappear from the central Texas sites, coinciding with some of the driest conditions experienced by humans in the region (Collins 2004). The Middle Archaic is marked by growing populations and increased population density from earlier periods, although the population density remained low (Hester 1995). Site densities in South Texas increased markedly during the Middle Archaic, possibly reflecting a decrease in group mobility and/or an increase in territoriality among groups (Black 1989). Early cemeteries, dating to the end of the Middle Archaic, suggest territoriality increased during the Middle Archaic.

The Late Archaic Period (2,400 BP to 1,300 BP) is the best understood and best represented of the Archaic subperiods. Shumla, Ensor, Frio, Marco, and Montell point types are typical of the Late Archaic period. Ground stones are more frequently encountered in Late Archaic sites than in previous periods, consisting primarily of

manos and metates. The increased use of ground stones likely represents an increased exploitation of mesquite, acacia beans, and other plant resources. Hester (1995) suggests this shift reflects a continued increase in population density. Cultural deposits on Late Archaic sites also tend to be deeper than during preceding periods, suggesting that occupations were either more extended in duration or that sites were reoccupied more frequently (Black 1989).

Late Prehistoric Period (1,150 to 350 BP)

The primary hallmarks of the Late Prehistoric Period are the introduction of the bow and arrow and the introduction of pottery in the region. The arrow points found from this period are much smaller and lighter than the dart points from earlier periods, and include Fresno, Scallorn, Starr, Zavala, and Perdiz points (Hester 1995). Evidence points to the presence of two ceramic traditions in South Texas, bone-tempered and sandy paste. The bone-tempered pottery, often referred to as Leon Plain ware, is primarily recovered from inland South Texas sites and associated with the Toyah culture (Hester 1989). These wares include mostly undecorated jars and bowls. The sandy paste ceramic tradition, commonly referred to as Rockport ware, originates along the Texas Gulf Coast. These wares tend to be thin walled, sandy textured, and often decorated and waterproofed with asphaltum (Hester 1989).

The Late Prehistoric period is often considered to have begun around 1,250 BP, although it might have actually started as late as 800 BP. During this time, subsistence practices remained relatively stable, with hunting and gathering still prominent and the processing of plants in burned rock middens continuing. A significant change marking the transition from the Late Archaic to the Late Prehistoric was the rise of arrow points, which became more common in archaeological findings compared to dart and spear points. Additionally, there seems to be an uptick in intergroup violence, likely linked to rising population pressures, as seen in many skeletal remains showing fatal arrow wounds. Toward the end of the Late Prehistoric period, pottery and signs of small-scale agriculture begin to emerge in the archaeological records (Collins 2004).

As Europeans began to explore Mexico and South Texas in the sixteenth century, European goods were introduced to the native groups, some of which appear in contact-era artifact assemblages. Records made by early European explorers, such as Alvar Nunez Cabeza da Vaca, provide the earliest ethnohistoric accounts of the Coahuiltecan-affiliated groups located in South Texas at the time. Based on these records, it appears that native groups in the region were highly nomadic hunter gatherers who moved in a seasonal pattern within distinctive territories (Hester 1989). The combined effects of diseases introduced by Europeans as well as violent cultural conflicts decimated local Native American populations.

Post-contact Period (ca. 500 to 50 BP)

Direct European contact in the region began with exploratory expeditions in the late seventeenth and early eighteenth centuries. Spain was the pioneer among European nations in exploring and claiming territories in the New World, which included present-day Texas and the Lower Rio Grande. In 1528, Cabeza de Vaca found himself journeying across South Texas after being shipwrecked near Galveston Bay. For over 200 years, Spanish expeditions into the Rio Grande Valley mainly focused on military objectives aimed at reinforcing Spain's claim to the area and thwarting other European countries from encroaching on Spanish lands. During this time, the roads and trails established by the Spanish often traced the paths previously used by Native American communities and relied heavily on natural springs and other water sources for navigation.

The earliest interaction occurred in 1691, when Domingo Terán de los Ríos and Damián Massanet traveled through East Texas and encountered the indigenous Payaya population, naming an indigenous village and nearby river San Antonio de Padua (Jasinski 2024). This area saw further exploration in 1709 with an expedition led by Antonio de San Buenaventura y Olivares and Isidro Félix de Espinosa (Chipman 2024a), after which it was frequently revisited by various explorers (Chipman 2024b). Beginning in 1718 and throughout the 1720s, the Spanish occupation grew more robust as the population expanded, largely due to the establishment of the presidio of San Antonio de Bexar and several missions (Handbook of Texas Online 2024). On May 1st, Olivares founded Mission San Antonio de Valero at its original site west of San Pedro Springs. Shortly after, Martín de Alcarón, the governor of Coahuila y Texas, established the presidio of San Antonio de Béxar near the mission (Jasinski 2024). In September 1718, he journeyed through what is now Wilson County, while exploring the bay of Espíritu Santo. Nearly a decade later, in 1727, Pedro de Rivera y Villalón traveled north across the area during his inspection tour between La Bahía and Bexar (Long 2024a). As earlier European explorers journeyed through Mexico and South Texas in the sixteenth century, they introduced various goods to local native populations. Accounts from explorers like Alvar Nunez Cabeza da Vaca shed light on the Coahuiltecan-affiliated groups in South Texas, revealing their nomadic hunter-gatherer lifestyle and seasonal patterns of movement within specific territories (Hester 1989).

Unfortunately, the introduction of diseases and violent cultural clashes led to a significant decline in the local Native American populations. By 1722 and 1724, both the presidio and mission were moved to their current positions, with the presidio located on the west bank of the San Antonio River and the mission on the opposite east bank. As the area's population continued to grow, more missions were established to accommodate the increasing number of settlers (Schoelwer 2024). Development in the region ramped up as construction efforts expanded to accommodate the growing population and support the emerging government. Founded in 1731, the San Fernando de Béxar settlement marked the establishment of the first civil government in Texas (de la Teja 2024).

Beginning in 1682, the Spanish in conjunction with Franciscan missionaries, established the mission system throughout Texas. The San Francisco de la Espada Mission was established in 1731 (Davis 2024) and The Rancho de las Cabras, located within the study area, was an outpost of the mission (Long 2024c). These missions were used to encourage the eradication of Indigenous practices and replace with Christian indoctrination. Many native groups would not stay in the mission permanently but would stay for a time in accordance with a seminomadic lifestyle (Wright 2024).

In 1758, a land grant was given to Andrés Hernández and Luis Antonio Menchaca in present-day Karnes County, and they proceeded to establish ranches soon thereafter (Long 2024a). The Spanish established a fort, Fuerte de Santa Cruz del Cibolo, on Cibolo Creek in present-day Karnes County in 1770. The fort lasted 13 years before it was abandoned after multiple Comanche attacks (Long 2024a). By 1773, San Fernando had ascended to the status of the capital of Spanish Texas (de la Teja 2024).

San Fernando de Béxar began as a community of military personnel and various civilians, including Mexican frontiersmen, local families, and Native Americans residing at the missions. Over time, it transformed into a caste system, characterized by a social hierarchy rooted in racial distinctions. This type of society was common in North American Spanish colonies, incorporating Europeans and their descendants, Native Americans, individuals of African descent, and mixed-race populations (Jasinski 2024). Between 1766 and 1776, the Marqués de Rubí included the Wilson County region in his inspection of the Spanish frontier. During the early eighteenth century, ranchers from nearby San Antonio began to graze cattle here, leading to temporary settlements for vaqueros and herdsmen emerging by the mid-century. The first land grants in the area were awarded to Luis Menchaca and Andrés Hernández, who established their ranches in the southern part of what is now the county. Permanent settlement in the area began before 1830 (Long 2024b).

During the late eighteenth and early nineteenth centuries, San Fernando faced a turbulent time. Native American groups like the Apache and Comanche exerted pressure on communication networks and local agriculture, while the city experienced military strife (de la Teja 2024). In 1811, Captain Juan Bautista de las Casas took charge as governor of Texas during what came to be known as the Casas Revolt. However, this uprising was short-lived, concluding with the re-establishment of the previous governor, Manuel María de Salcedo, and the city's recapture in 1813 (Caldwell 2024). This period of unrest ultimately resulted in the reorganization of Texas and Coahuila into a single state, governed from Saltillo (de la Teja 2024). As the Texas Revolution began, San Fernando de Béxar was besieged and taken over by rebel forces. By 1837, it had changed its name to San Antonio and became the county seat of Bexar County (de la Teja 2024).

The Texas Revolution was sparked when several Mexican states revolted against President Antonio Lopez de Santa Anna's decision to replace the 1824 constitution with a new government. Among those states was Coahuila y Tejas. On February 23, 1836, Santa Anna's army responded to the Texian rebels by besieging San Antonio, leading to the infamous Battle of the Alamo. This uprising ultimately concluded on April 21, 1836, with Texas gaining independence and Mexican forces being expelled from San Antonio (Barker and Pohl 2024).

After the war for independence, San Antonio became the heart of Bexar County in the Republic of Texas (Long 2024a). In 1842, Mexico reclaimed San Antonio twice (Jasinski 2024). The situation escalated further when Texas joined the US in 1845, leading to the outbreak of the Mexican-American War in 1846. The US military set up a headquarters in San Antonio in 1848, but when Texas seceded from the Union at the beginning of the American Civil War in 1861, they had to surrender control to militia forces (Jasinski 2024).

With hostilities coming to an end, the regional population and economy increased to the point that Karnes County was formed in 1854 (Long 2024a). Wilson County was established shortly before in 1860 after the area was carved out from Bexar and Karnes Counties. Wilson County was named after James C. Wilson, a member of the Somervell expedition and a legislator (Long 2024b). In 1867, John W. Longsworth, who had been appointed judge and Wilson County clerk by the military government during Reconstruction, moved the county records to Lodi, sparking a debate over the county seat that would continue for over ten years (Long 2024b). To settle the issue, an election took place in November 1873, resulting in the selection of Floresville, located near the county's geographic center, as the new Wilson County seat (Long 2024b).

After the Civil War, San Antonio and Wilson County flourished into a bustling center for various industries, attracting a growing population (Jasinski 2024; Long 2024b). Cattle drives played a vital role in the local economy of Wilson and Karnes Counties, alongside wool production from the nearby hill country (Long 20924a and 2024b). In 1877, the arrival of the Galveston, Harrisburg and San Antonio Railway marked a significant development for the city, reaching Floresville in 1886 (Long 2024b). This was soon followed by the International-Great Northern Railway in 1881. These railroads not only boosted local industries but also established five more connections by 1900, linking the area to broader markets (Jasinski 2024). When the railroads reached Karnes County, they brought an economic and population boom and an increased reliance on farming (Long 2024a).

Tenant farming became common, and the farmers were hit by the combination of falling prices and the boll weevil during the Great Depression (Long 2024a). The discovery of oil in Pettus in 1929 and in Karnes County in 1930 aided in the post-Depression recovery in the area. In the 1940s and 1950s, the regional economy began shifting towards large farms and ranches worked by agricultural laborers (Long 2024a).

3.5.2 Literature and Records Review

On November 19, 2024, shapefiles were acquired from TARL to identify and map the locations of recorded archeological resources within the study area. Descriptive data pertaining to archeological sites and surveys were obtained from the TASA in November 2024. The locations of, and information pertaining to, State Antiquities Landmarks (SALs), NRHP properties, Historic Texas Cemeteries, and OTHMs within the study area were obtained from the TASA (THC 2024a) and the THSA (THC 2024b). The TASA, THSA, and USGS topographic maps were reviewed to identify cemeteries within the study area. Texas Department of Transportation's Historic Resources Aggregator database was reviewed to identify historic resources within the study area that are listed or determined eligible for listing on the NRHP (TxDOT 2024c). At the national level, the NRHP database (NPS 2024c) and NPS websites for National Historic Landmarks (NPS 2024c) and National Historic Trails (NPS 2024d) were reviewed. At the local level, the City of San Antonio's Office of Historic Preservation (OHP) was reviewed for identify historic resources that are listed or determined eligible for listing on the NRHP (OHP 2024b).

The records search indicated that two NRHP-listed resources and 10 archeological sites, including one that has been determined eligible for listing on the NRHP and is also an SAL, and four previous investigations have been recorded in the study area. No cemeteries, OTHM, TxDOT historic properties, TxDOT eligible- or listed bridges, or OHP properties are documented within the study area. The cultural resources within the study area are summarized below in Table 3-12.

TABLE 3-12 RECORDED CULTURAL RESOURCES WITHIN THE STUDY AREA

ARCHEOLOGICAL SITES	NRHP-LISTED RESOURCES	NRHP DETERMINED - ELIGIBLE RESOURCE	STATE ANTIQUITIES LANDMARKS	CEMETERIES	OTHM
11	2	1	1	1	0

Source: THC 2024a and 2024b.

The NRHP-listed Rancho de las Cabras District and a portion of the El Camino Real de los Tejas National Historic Trail are within the study area. The Rancho de las Cabras District was a ranch outpost for the San Francisco de la Espada Mission. Occupied between 1731 and 1794, Spanish missionaries and indigenous people raised livestock at the ranch. During its occupation, the site included fortifications and a chapel, though only the foundation survived until the 1980s (Long 2024b). Rancho de las Cabras is listed under Criterion D for information that can be gained from archeological remains. Archeological sites 41WN30, 41WN91, 41WN92, and 41WN93 are recorded within the historic district. Sites 41WN92 and 41WN93 are within the study area. Both sites are pre-contact lithic scatters that have been determined ineligible for listing on the NRHP (THC 2024b).

El Camino Real De Los Tejas National Historic Trail, as mapped by the NPS, crosses the proposed rebuild in Bexar County. El Camino Real de Los Tejas was one of the roads connecting regions of the Spanish territories to Mexico City. This road provided an overland route to the Red River Valley in Louisiana. Consisting of established Indian trails and trade routes, El Camino Real de Los Tejas continued to be utilized by the Spanish during their conquests, by Mexico, the Republic of Texas, and eventually the United States (NPS 2024b, 2024c, 2024d, and 2024e).

A total of 10 archeological sites, including 41WN92 and 41WN93, have been recorded within the study area (Table 3-13). Pre-contact archeological sites that have been recorded in the study area include lithic procurement site 41WN67; lithic scatters 41BX726, 41BX1306, 41BX1310, 41BX1312, 41KA42, 41WN67, 41WN92, and 41WN93; and two isolated flakes (41KA121 and 41KA122). These pre-contact sites are near streams (e.g., Hondo Creek and Calaveras Lake [formally Calaveras Creek]) or uplands adjacent to these streams (USGS 1953 and 1967). Site 41BX732 is a horse ranch complex with a cement slab, barn, silo, cistern and a scatter of cement, barbed wire, metal, glass, piping, and bricks. The site was determined eligible for listing on the NRHP and designated an SAL in 1989. However, in 2008, Pape-Dawson Engineers recommended further investigation at the site to determine its eligibility for listing on the NRHP. Despite this discrepancy, site 41BX732 has been determined eligible for listing on the NRHP and is a designated SAL (THC 2024b).

TABLE 3-13 RECORDED ARCHEOLOGICAL SITES WITHIN THE STUDY AREA

TRINOMIAL	PERIOD	ELIGIBILITY STATUS	SITE DESCRIPTION
41BX726	pre-contact	Undetermined	lithic scatter with debitage, uniface, cores
41BX732	post-contact	SAL/Eligible	Horse ranch complex with a cement slab, barn, silo, and cistern and a scatter of cement, barbed wire, metal, glass, piping, and bricks
41BX1306	pre-contact	Ineligible*	lithic scatter
41BX1310	pre-contact	Ineligible	lithic scatter with debitage and dart and Ensor or Ellis-like dart point
41BX1312	pre-contact	Ineligible	lithic scatter with debitage and dart and Ensor or Ellis-like dart point
41KA42	pre-contact	Undetermined	lithic scatter with debitage, a biface blade, biface tools, and a small chopping tool.
41KA121	pre-contact	Undetermined	one flake
41KA122	pre-contact	Undetermined	one flake
41WN67	pre-contact	Undetermined	lithic procurement site with cores and flakes
41WN92	pre-contact	Ineligible	lithic scatter with debitage, biface, cores
41WN93	pre-contact	Ineligible	lithic scatter

Source: THC 2024b.
Note: asterisks (*) indicate the site has been partially determined ineligible.

The Gilley Family Cemetery (WN-C052) is mapped within the study area (THC 2024b). The Gilley Family Cemetery is a vicinity cemetery with approximately 20 graves and has not been designated an HTC. A vicinity

cemetery as recorded by the THC, is the location where a cemetery was reported at one time, but the exact location is unknown (THC 2024b).

3.5.3 Previous Investigations

According to the TASA (THC 2024b), there have been 13 cultural resource investigations within the study area (Table 3-14). The surveys were conducted in advance of oil and gas (Clark 2012; Justen and Clark 2013; Nickels 2014; Sager et al. 2012), and water supply (Iruegas 2016) projects. The remaining eight investigations had little to no information available on the TASA (THC 2024b).

TABLE 3-14 PREVIOUS CULTURAL RESOURCE INVESTIGATIONS WITHIN THE STUDY AREA

Atlas Number	AUTHOR	YEAR	REPORT TITLE	INVESTIGATING AGENCY/ FIRM
8400002813	-	-	Information unavailable on the TASA	-
8400002873	-	-	Information unavailable on the TASA	-
8400002864	-	1978	Information unavailable on the TASA	Texas Department of Highways and Public Transportation
8400000789	-	1984	Information unavailable on the TASA	NPS
8500003077	-	1991	Information unavailable on the TASA	Texas Department of Highways and Public Transportation
8500010908	-	1999	Information unavailable on the TASA	City of San Antonio
8400010247	-	2000	Information unavailable on the TASA	FHA
8500020704	Clark, Reign	2012	Cultural Resources Survey of the Proposed +6,698-Foot Enterprise to Milton HUD Crude, Karnes County, Texas (Clark 2012)	Goshawk Environmental Consulting, Inc.
8500021127	Stanyard, William, et al.	2012	-	TRC
8500025418	Rebecca Sager, Reign Clark, and Scott Justen	2012	Cultural Resources Survey of the Proposed ±22,053-Foot Jarzombeck Unit Gathering Pipeline, Karnes County, Texas (Sager et al. 2012)	Goshawk Environmental Consulting, Inc.
8500054673	Scott Justen and Reign Clark	2013	Cultural Resources Survey of the Proposed ±8,786-Foot Myrtle Unit #1H Flowline, Wilson County, Texas (Justen and Clark 2013)	Goshawk Environmental Consulting, Inc.
8500060418	Nickels, David L.	2014	A Cultural Resources Survey of a Segment of the Proposed Karnes North Pipeline on a Tract of Land Owned by the City of Poth, Wilson County, Texas (Nickels 2014)	Tierras Antiguas Archaeological Investigations; Martindale, TX
8500079971	Sergio A. Iruegas	2016	An Intensive Archaeological Survey for the El Oso Water Supply Corporation Project, Atascosa and Karnes Counties, Texas (Iruegas 2016)	GTI Environmental, LLC

Source: THC 2024b.

3.5.4 High Probability Areas

Review of the previously recorded cultural resource site data indicates that the study area has not been entirely examined during previous archeological and historical investigations. Consequently, the records review results do not include all possible cultural resource sites within the study area. To further assess and avoid potential impacts to cultural resources, HPAs for pre-contact archeological sites were defined during the route analysis process. HPAs were designated based on a review of the site and survey data within the study area, as well as soils and geologic data, topographic variables, and previously surveyed areas. Within the study area, the pre-contact HPAs typically occur near and along streams, at the heads of major draws, near springs, and outcroppings of chert gravels suited to stone tool manufacture. Terraces and topographic high points that would provide flats for camping and expansive landscape views as well as access to fresh water sources are also considered to have a high probability of containing prehistoric archeological sites.

4.0 ENVIRONMENTAL IMPACTS OF THE PROJECT ROUTE

Potential impacts of the Project that could occur from, and are unique to, the construction (new and rebuild) and operation of a transmission line are discussed separately in this section of the EA. Evaluation of the potential impacts of the Project Route identified in Section 3.0 was conducted by tabulating the data for each of the 46 evaluation criteria in Table 2-1. The data tabulation for land use and environmental criteria for the Project Route is presented in Table 4-1.

TABLE 4-1 LAND USE AND ENVIRONMENTAL DATA FOR PROJECT ROUTE EVALUATION

EVALUATION CRITERIA		
Land Use		**Route**
1	Length of project route (miles)	45.83
2	Number of habitable structures[1] within 500 feet of ROW centerline	143
3	Length of ROW using existing transmission line ROW	45.83
4	Length of ROW parallel and adjacent to existing transmission line ROW	0
5	Length of ROW parallel and adjacent to other existing ROW (e.g., roadways, highways, utilities, etc.)	0
6	Length of ROW parallel and adjacent to apparent property lines[2] or other natural or cultural features	0
7	Sum of evaluation criteria 3, 4, 5, and 6	45.83
8	Percent of evaluation criteria 3, 4, 5, and 6	100%
9	Length of ROW across parks/recreational areas[3]	0.44
10	Number of additional parks/recreational areas[3] within 1,000 feet of ROW centerline	0
11	Length of ROW across cropland	1.08
12	Length of ROW across pasture/rangeland	43.24
13	Length of ROW across land irrigated by traveling systems (rolling or pivot type)	0.56
14	Length of route across conservation easements and/or mitigation banks (Special Management Area)	0
15	Length of route across gravel pits, mines, or quarries	0
16	Length of ROW parallel and adjacent to pipelines[4]	36.92
17	Number of pipeline[4] crossings	76
18	Number of transmission line crossings	5
19	Number of IH, US and state highway crossings	3
20	Number of FM or RM road crossings	6
21	Number of FAA registered airports[5] with at least one runway more than 3,200 feet in length located within 20,000 feet of ROW centerline	0
22	Number of FAA registered airports[5] having no runway more than 3,200 feet in length located within 10,000 feet of ROW centerline	0
23	Number of private airstrips within 10,000 feet of the ROW centerline	1
24	Number of heliports within 5,000 feet of the ROW centerline	1
25	Number of commercial AM radio transmitters within 10,000 feet of the ROW centerline	0
26	Number of FM radio transmitters, microwave towers, and other electronic installations within 2,000 feet of ROW centerline	7
27	Number of identifiable existing water wells within 200 feet of the ROW centerline	0
28	Number of oil and gas wells within 200 feet of the ROW centerline (including dry or plugged wells)	2
Aesthetics		
29	Estimated length of ROW within foreground visual zone[6] of interstate, US and state highways	4.25

TABLE 4-1 LAND USE AND ENVIRONMENTAL DATA FOR PROJECT ROUTE EVALUATION

EVALUATION CRITERIA		
30	Estimated length of ROW within foreground visual zone[6] of FM/RM roads	7.00
31	Estimated length of ROW within foreground visual zone[6][7] of parks/recreational areas[3]	2.56
Ecology		
32	Length of ROW across upland woodlands/brushlands	0.05
33	Length of ROW across bottomland/riparian woodlands	0.02
34	Length of ROW across NWI mapped wetlands	0.02
35	Length of route across USFWS designated critical habitat for federally-listed threatened or endangered species	0
36	Length of ROW across open water (lakes, ponds)	0.54
37	Number of stream crossings	59
38	Length of ROW parallel (within 100 feet) to streams	1.63
39	Length of ROW across Edwards Aquifer Zones	0
40	Length of ROW across FEMA mapped 100-year floodplain	9.86
Cultural Resources		
41	Number of cemeteries within 1,000 feet of the ROW centerline	2
42	Number of recorded cultural resource sites crossed by ROW	2
43	Number of additional recorded cultural resource sites within 1,000 feet of ROW centerline	8
44	Number of resources determined eligible for or NRHP properties crossed by ROW	2
45	Number of additional resources determined eligible for or NRHP properties within 1,000 feet of ROW centerline	1
46	Length of ROW across areas of high archeological site potential	33.26

Notes: All length measurements are shown in miles unless noted otherwise.
[1]Single-family and multi-family dwellings, and related structures, mobile homes, apartment buildings, commercial structures, industrial structures, business structures, churches, hospitals, nursing homes, schools, or other structures normally inhabited by humans or intended to be inhabited by humans on a daily or regular basis within 500 feet of the centerline of a transmission project of 230 kV or more.
[2]Apparent property boundaries created by existing roads, highways, or railroad ROWs are not "double-counted" in the length of ROW parallel to apparent property boundaries criteria.
[3]Defined as parks and recreational areas owned by a governmental body or an organized group, club, or church within 1,000 feet of the centerline of the Project.
[4]Only steel pipelines six inches and greater in diameter carrying petrochemicals were quantified in the pipeline crossing and paralleling calculations.
[5]As listed in the Chart Supplement South Central US (FAA 2024b formerly known as the Airport/Facility Directory South Central US) and FAA 2024a.
[6]One-half mile, unobstructed. Lengths of ROW within the visual foreground zone of interstates, US and state highway criteria are not "double-counted" in the length of ROW within the visual foreground zone of FM roads criteria.
[7]One-half mile, unobstructed. Lengths of ROW within the visual foreground zone of parks/recreational areas may overlap with the total length of ROW within the visual foreground zone of interstates, US, and state highway criteria and/or with the total length of ROW within the visual foreground zone of FM roads criteria.

4.1 Impacts on Natural Resources/Environmental Integrity

4.1.1 Impacts on Physiography and Geology

Construction related to rebuilding the existing transmission line is not anticipated to have any significant adverse effects on the physiographic or geologic features and resources of the area. Replacement and erection of the new pole structures proposed for the Project will require the excavation and/or minor disturbance of small quantities of near-surface materials but should have no measurable impacts on the geologic resources or features along the Project Route. Although the existing transmission line and Project Route intersects one in-situ recovery uranium mine, no geological hazards were identified within the study area and no geologic hazards are anticipated along the Project Route.

4.1.2 Impacts on Soils

Potential impacts to soils from the construction, operation, and maintenance of electric transmission lines include erosion and compaction. Such impacts can be avoided by CPS Energy's implementation of appropriate mitigative measures during construction. No conversion of prime farmland soils is anticipated because of the Project.

The highest risk for soil erosion and compaction is associated with the clearing and construction phases of the Project. In accordance with CPS Energy standard construction specifications, woody vegetation will be cleared within the ROW as necessary to achieve the conductor to ground clearances of the transmission line. Areas with vegetation removed will have the highest potential for soil erosion and the movement of heavy equipment down the cleared ROW creates the greatest potential for soil compaction. Prior to construction, CPS Energy will develop a SWPPP to minimize potential impacts associated with soil erosion, compaction, and off-ROW sedimentation. Implementation of this plan will incorporate temporary and permanent BMPs to minimize soil erosion on the ROW during rainfall events. The SWPPP will also establish the criteria for mitigating soil compaction and re-vegetation to maintain soil stabilization during the construction and post construction phases. The native herbaceous layer of vegetation will be maintained, to the extent practical, during construction. Denuded areas will be seeded and/or further stabilized with the implementation of permanent soil berms or interceptor slopes to stabilize disturbed areas and minimize soil erosion potential. The ROW will be inspected during and post construction to identify potential high erosion areas and that BMPs are implemented and maintained.

The potential for erosion and compaction will be minimized by CPS Energy's development and implementation of a SWPPP for the Project.

4.1.3 Impacts on Surface Water

The Project Route crosses surface waters within the study area. CPS Energy proposes to span all surface waters and construct any structures outside of the ordinary high-water marks for any surface waters. CPS Energy will limit the removal of woody vegetation as necessary to meet the necessary conductor to ground clearances. The shorter understory and herbaceous layers of vegetation will remain, where allowable, and BMPs will be implemented in accordance with the SWPPP for the Project to reduce the potential for sedimentation into surface waters. Since CPS Energy intends to span all surface waters and a SWPPP will be implemented during construction, no significant impacts to surface waters are anticipated for the Project Route. The length of open water crossings (lakes, ponds), number of streams and rivers crossed, and length of the Project Route paralleling (within 100 feet) streams or rivers are provided in Table 4-1.

The Project Route crosses approximately 0.54 mile of open water (lakes, ponds), has 59 stream and river crossings, and parallels (within 100 feet) streams or rivers for approximately 1.63 miles. These determinations are based on the NHD and, since the dataset's inception, the hydrology of some stream features may have been altered by construction of drainage ditches, impoundments, and residential areas. A Section 10 permit is not anticipated for this Project.

4.1.4 Impacts on Ground Water

The Project Route occurs within the Carrizo-Wilcox Aquifer, Gulf Coast Aquifer, and the EAA Jurisdictional Boundary but does not cross the Edwards Aquifer Contributing Zone (Table 4-1). Due to the Project's location within the EAA Jurisdictional Boundary, CPS Energy will consult with the EAA to ensure compliance with program requirements. The construction, operation, and maintenance of the Project are not anticipated to adversely affect groundwater resources within the study area.

During construction activities, a potential impact to groundwater resources is related to fuel and/or other chemical spills. Avoidance and minimization measures of potential contamination of water resources will be identified in the SWPPP. CPS Energy will take all necessary precautions to avoid the occurrence of these spills. If an unauthorized discharge occurs during construction, CPS Energy will comply with TCEQ and/or EAA notification requirements.

4.1.5 Impacts on Floodplains

The construction of the Project Route is not anticipated to impact the overall function of floodplains within the study area, or adversely affect adjacent or downstream properties. Engineering design should alleviate the potential of construction activities to adversely impact flood channels and proper structure placement will minimize any flow impedance during a major flood event. Typically, the small footprint of pole structures as proposed for the Project does not significantly alter the flow of water within a floodplain.

The Project Route crosses approximately 9.86 miles of FEMA-mapped floodplain associated with named surface waters including but not limited to Calaveras Lake, Conquista Creek, Olmos Creek, Parita Creek, Picosa Creek, San Antonio River (Upper), San Christoval Creek, Scared Dog Creek, and Weedy Creek. Prior to construction CPS Energy will coordinate with the respective county floodplain administrator(s) to acquire any permits.

4.1.6 Impacts on Wetlands

As indicated in Table 4-1, the Project Route crosses approximately 0.02 mile of NWI mapped wetlands. Unmapped wetlands still have the potential to occur within the study area. Removal of vegetation in wetlands

increases the potential for erosion and sedimentation, which can be detrimental to downstream plant communities and aquatic life. Wetland areas also provide habitat to a number of species and are often used as migration corridors for wildlife. Mitigation measures with BMPs will be implemented, as appropriate, in identified areas of wetland potential during construction activities to further avoid and minimize impacts to those areas. CPS Energy proposes to implement BMPs as a component of their SWPPP to prevent off-ROW sedimentation and degradation of potential wetland areas. With the use of these avoidance and minimization measures, the Project Route is not anticipated to have a significant impact on potential wetlands.

The temporary and/or permanent placement of fill material within jurisdictional waterways and wetlands may require a permit from the USACE under Section 404 of the CWA. If necessary, CPS Energy will coordinate with the USACE – Fort Worth District and/or Galveston District prior to clearing and construction to ensure compliance with Section 404 of the CWA. The construction of the Project will likely meet the criteria for the NWP 57 – Electricity Utility Line and Telecommunications Activities.

4.1.7 Impacts on Coastal Natural Resources Areas

The study area is not located within the CMZ boundary as defined by 31 TAC § 27.1, which excludes the Project from CMP conditions. Therefore, no impacts from the Project Route on coastal natural resource areas are anticipated.

4.1.8 Impacts on Vegetation

Potential impacts to vegetation will result from clearing the ROW of woody vegetation and/or mowing/clearing of herbaceous vegetation. These activities facilitate ROW access for structure construction, line stringing, and future maintenance activities of the proposed transmission line.

Impacts to vegetation will generally be limited to the transmission line ROW. Additional clearing might be necessary in temporary easements outside of the ROW to facilitate the construction of the transmission line. The clearing activities will be completed while minimizing the impacts to existing groundcover vegetation when practical. Future ROW maintenance activities might include periodic mowing and/or herbicide applications to maintain an herbaceous vegetation layer within the ROW.

Clearing trees and shrubs from woodland areas typically generates a degree of habitat fragmentation. The magnitude of anticipated habitat fragmentation was minimized to the extent possible during the routing process by utilizing the existing transmission line ROW. Vegetation clearing will occur only where necessary to provide access, workspace, and future maintenance access to the ROW.

As indicated in Table 4-1, the Project Route crosses approximately 0.02 mile of bottomland/riparian woodlands and approximately 0.05 mile across upland woodlands/brushlands.

4.1.9 Impacts on Wildlife

The primary impacts of construction activities on wildlife species are typically associated with temporary disturbances from construction activities, and with the removal of vegetation (habitat modification). Increased noise and equipment movement during construction might temporarily displace mobile wildlife species from the immediate workspace area. These impacts are considered short-term and normal wildlife movements would be expected to resume after construction is completed. Potential long-term impacts include those resulting from habitat modifications and/or fragmentation. The Project Route crosses areas of upland woodlands/brushlands, which can represent the highest degree of habitat fragmentation by converting the area within the ROW to an herbaceous habitat. During the routing process, POWER attempted to minimize potential woodland habitat fragmentation by utilizing the existing transmission line ROW.

Construction activities might impact small, immobile, or fossorial (living underground) animal species through incidental impacts or from the alteration of local habitats. Incidental impacts to these species might occur due to equipment or vehicular movement on the ROW by direct impact or due to the compaction of the soil if the species is fossorial. Potential impacts of this type are not typically considered significant and are not likely to have an adverse effect on any species population dynamics.

If ROW clearing occurs during bird nesting seasons, potential impacts could occur within the ROW area related to bird eggs and/or nestlings. Increases in noise and equipment activity levels during construction could also potentially disturb breeding or other activities of species nesting in areas immediately adjacent to the ROW. If ROW clearing activities are necessary during the migratory bird nesting season (March 15 to September 15), CPS Energy will comply with state (TPWC Chapter 64) and federal (MBTA) regulations regarding avian species by having a qualified biologist conduct surveys for active nests prior to ground disturbance and/or vegetation clearing.

Transmission lines can also present additional hazards to birds due to electrocutions and/or collisions. Measures would be implemented to minimize this risk with transmission line through engineering designs. The electrocution risk to birds would not be significant since the engineering design distance between conductors, conductor to structure, or conductor to ground wire for the proposed transmission line is greater than the wingspan of most birds typically expected to occur within the area (i.e., greater than eight feet). The risk for avian

collisions with the shield wire can be minimized by installing bird flight diverters or other marking devices on the line within determined high bird use areas.

4.1.10 Impacts on Aquatic Resources

Potential impacts to aquatic resources would include potential effects of erosion, siltation, and sedimentation. Vegetation clearing of the ROW might result in increased suspended solids entering surface waters traversed by the Project. Increases in suspended solids might adversely affect aquatic organisms that require relatively clear water for foraging and/or reproduction. Physical aquatic habitat loss or alteration could result wherever riparian vegetation is removed and at temporary crossings required for access. Increased levels of siltation or sedimentation might also potentially impact downstream areas primarily affecting filter feeding benthic and other aquatic invertebrates. Implementation of a SWPPP utilizing BMPs will minimize these potential impacts. No significant adverse impacts are anticipated to any aquatic habitats crossed or located adjacent to the ROW for the Project Route.

Construction of the Project is not anticipated to have significant impacts to wildlife and aquatic resources within the study area. Direct impacts would be associated with the loss of woodland/brushland habitat, which is reflected in the vegetation analysis discussed above. Habitat fragmentation was minimized for the Project Route within woodland areas by utilizing the existing transmission line. While highly mobile animals might temporarily be displaced from habitats near the ROW during the construction phase, normal movement patterns should return after Project construction is complete. Implementation of a SWPPP utilizing BMP will minimize potential impacts to aquatic habitats.

4.1.11 Impacts to Threatened and Endangered Species

In order to assess potential impacts to threatened or endangered species, POWER utilized available information for the species under review. Known occurrence data from TXNDD for the study area and Project scoping comments from TPWD were reviewed as discussed in Section 3.1.11. A USFWS IPaC consultation, TPWD county listings, USFWS designated critical habitat locations, and the SEP HCP were included in the review.

The TXNDD data provides a GIS data record of state-listed, rare, and federally threatened and endangered species and special status vegetation communities that have been documented within a given area. The absence of species within the TXNDD database is not a substitute for a species-specific field survey as may be needed to assess potential habitat for state or federal listed special status species. Prior to construction, a field survey would be completed of the Project Route to determine if suitable habitat for threatened and endangered species is present. Additional consultation with the USFWS and TPWD may be required if suitable habitat is observed during field

surveys. Review of TPWD'S TXNDD data (TPWD 2024e) identified five EORs for special status plant species including Elmendorf's onion, Texas peachbush, and low spurge. Although none of these species are federally or state listed, they are endemic to Texas and considered species of greatest conservation need under the SWAP (TPWD 2023). If these species are found during field surveys and/or construction of the Project Route, TPWD recommends that precautions outlined in the SWAP be taken to avoid impacts to them. TPWD's full recommendations are outlined in Appendix A.

Threatened and Endangered Plant Species

Review of the TPWD (2024d) and USFWS (2024b) data identified two plant species that are federally listed (see Table 3-6 in Section 3.1.11).

The black lace cactus is a federally endangered species that may have the potential to occur within the study area where suitable habitat is available. The bracted twistflower is also a federally listed species that is not anticipated to occur within the study area due to lack of suitable habitat. Federally listed plant species are only afforded federal protection from take if they are located on federal lands and/or federal funding or actions are associated with the Project. If necessary, CPS Energy would coordinate with the USFWS regarding the black lace cactus. Construction of the Project Route is not anticipated to have adverse effects on federally listed threatened or endangered plant species.

Threatened and Endangered Animal Species

Review of the TPWD (2024d) and USFWS (2024b) data identified 34 animal species that are federally and/or federally proposed listed or state-listed for Bexar, Karnes, and/or Wilson Counties (see Table 3-6 in Section 3.1.11).

As indicated in Table 4-1, the Project Route does not cross known critical habitat of federally listed threatened or endangered species.

Federally Listed and Proposed Species

The study area is located outside of the recognized/known distributions of the San Marcos salamander, Cokendolpher Cave harvestman, Government Canyon Bat Cave meshweaver, Government Canyon Bat Cave spider, Madla Cave meshweaver, Robber Baron Cave meshweaver, fountain darter, unnamed beetle, (*Rhadine exilis*), unnamed beetle (*Rhadine infernalis*), Helotes mold beetle, ocelot, and false spike. Therefore, no impacts to these species are anticipated to occur from the Project.

Additionally, impacts to the golden-cheeked warbler, rufa red knot, toothless blindcat and widemouth blindcat are not anticipated due to lack of suitable habitat. Therefore, impacts to these species are not anticipated. Similarly, if

suitable potential habitat for the golden-checked warbler is observed occurring within the study area during field surveys, coordination with the SEP HCP and the USFWS may be necessary. However, due to the Project being limited to existing, maintained utility ROW, impacts from the Project Route are not anticipated to occur to this species.

The piping plover and whooping crane may potentially occur temporarily within the study area as transient migrants wherever suitable habitat is available. The Project is not anticipated to have adverse impacts to piping plover or whooping crane nesting habitat due to the Project being limited to existing, maintained utility ROW. The USFWS only requires consideration of impacts to the piping plover and rufa red knot for wind energy projects within their migratory route; however, for due diligence, they have been included in this impact evaluation.

The monarch butterfly is a federally proposed threatened species that may occur within the study area as a temporary migrant at specific times of year within the study area wherever suitable habitat is available. The recent proposal by USFWS to list the monarch butterfly as a threatened species under the ESA includes section 4(d) protective regulations (USFWS 2024n). This species may be susceptible to minor temporary disturbance during construction efforts; however, due to the Project being limited to existing, maintained utility ROW, impacts from the Project Route are not anticipated to occur to this species. If the monarch butterfly becomes federally listed prior to construction, additional consultation with USFWS may be required.

The tricolored bat is a federally proposed species that may occur within the study area wherever suitable habitat is available. TPWD recommends that tree clearing activities should be avoided during the pupping season from May 1 to July 15, during winter torpor from December 15 to February 15, and minimizing the Project's overall tree clearing footprint in anticipation of a listing decision by USFWS. This species may be susceptible to minor temporary disturbance during construction efforts; however, due to the Project being limited to existing, maintained utility ROW, impacts from the Project Route are not anticipated to occur to this species' roosting or foraging habitat. If the tricolored bat becomes federally listed prior to construction, additional consultation with USFWS and/or a voluntary environmental review process as detailed by the USFWS Consultation Guidance (USFWS 2024o) for the tricolored bat may be required to determine appropriate mitigation practices, if any.

Other Federally Protected Species

The bald eagle may occur within the study area wherever suitable habitat is available. Bald eagles and their nests are protected under the MBTA and BGEPA. Nests are protected if they have been used within the previous five nesting seasons. If nests are identified or individuals are observed during field surveys of the Project Route, CPS Energy will further coordinate with the TPWD and USFWS to determine avoidance or mitigation measures. However, due to the Project being limited to existing, maintained utility ROW, impacts from the Project Route

are not anticipated to occur to this species. Golden eagles are not anticipated to occur within the study area due to the study area being outside of known breeding populations. Therefore, impacts to golden eagles are not anticipated.

State-Listed Species

The study area is located outside of the recognized/known distributions of the Cascade Caverns salamander, Texas salamander, American black bear, and white-nosed coati, and therefore, no impacts to these species are anticipated to occur from the Project.

The black rail, interior least tern, white-faced ibis, and wood stork are not anticipated to occur within the study area due to the lack of potential suitable habitat and the Project being limited to existing, maintained utility ROW. Therefore, impacts to these species are not anticipated.

The sheep frog, swallow-tailed kite, white-tailed hawk, Cagle's map turtle, Texas horned lizard, and Texas tortoise may occur within the study area wherever suitable habitat is available. If suitable habitat is identified for these species during field surveys, CPS Energy shall follow the recommendations outlined in Appendix A to avoid and minimize impacts to these species.

CPS Energy proposes to conduct ROW clearing activities in compliance with state (TPWC Chapter 64) and federal (MBTA) regulations regarding avian species and appoint a qualified biologist to conduct surveys for active nests prior to vegetation clearing.

4.2 Impacts on Human Resources/Community Values

4.2.1 Impacts on Land Use

The magnitude of potential impacts to land use resulting from the construction of a transmission line is determined by the amount of land (land use type) temporarily or permanently displaced by the actual ROW and by the compatibility of the facility with adjacent land uses. During construction, temporary impacts to land uses within the ROW might occur due to the movement of workers, equipment, and materials through the area. Construction noise and dust, as well as temporary disruptions of traffic flow, might also temporarily affect local residents and businesses in the area immediately adjacent the ROW. Coordination between CPS Energy, their respective contractors, and landowners regarding ROW access and construction scheduling should minimize these disruptions.

The evaluation criteria used to compare potential land use impacts include overall route length, route length using existing ROW, parallel to existing linear features (including apparent property boundaries), route proximity to habitable structures, route proximity to park and recreational areas, and route length across various land use types.

An analysis of the existing land use within and adjacent to the proposed ROW is required to evaluate the potential impacts.

Route Length

The length of a proposed route can be an indicator of the relative magnitude of land use impacts. Generally, all other things being equal, the shorter the route, the less land is crossed, which usually results in the least amount of potential impacts. The total length of the Project Route that will be rebuilt as a double-circuit line is approximately 45.83 miles (see Table 4-1).

Compatible ROW

PUC Substantive Rule 25.101(b)(3)(B) requires that an applicant for a CCN, and ultimately the PUC, consider whether new transmission line routes are within existing compatible ROWs and/or are parallel to existing compatible ROWs, apparent property lines, or other natural or cultural features. Criteria were used to evaluate the use of existing transmission line ROW, length parallel and adjacent to existing transmission line ROW, length of route parallel to other existing linear ROWs, and length of ROW parallel and adjacent to apparent property lines. The entire length of the Project Route, approximately 45.83 miles, will be rebuilt in and utilize existing transmission line ROW. As a result, the Project Route is not parallel or adjacent to additional existing transmission line ROW, other existing ROW (roadways, railways, utilities, etc.), or apparent property lines or other natural or cultural features (see Table 4-1).

Typically, a more representative account for the consideration of whether new transmission line routes are within and/or parallel to existing compatible ROWs, apparent property lines, or other natural or cultural features is demonstrated with the percentage of total route length parallel to any of these existing linear features. The percentage can be calculated for the Project Route by adding up the total length within and/or parallel to existing transmission lines, other existing ROW, and apparent property lines and then dividing the result by the total length of the route. The percentage of the Project Route within and/or paralleling existing linear features is 100% (see Table 4-1).

Developed and Residential Areas

Typically, one of the most important measures of potential land use impacts is the number of habitable structures located in the vicinity of the route. Based on direction provided by the PUC, habitable structure identification is included with the CCN application. POWER determined the number of habitable structures located within 500 feet of the Project Route and the distance from the centerline through the use of GIS software, interpretation of aerial photography, and verification during reconnaissance surveys. The existing transmission line that will be rebuilt, or the Project Route has 143 habitable structures located within 500 feet of its centerline (see Table 4-1).

Table 4-6 presents detailed information on the habitable structures. All known habitable structure locations are shown on Figure 4-2 located in Appendix D (map pocket).

Lands with Conservation Easements

As discussed in Section 3.2.1, there are two conservation easements within the study area, Calaveras Lake Park, and the San Antonio Missions National Historical Park. However, the Project Route's current alignment crosses both of these conservation easements, and therefore would have additional direct impact on lands with the conservation easements.

4.2.2 Impacts on Agriculture

Impacts to agricultural land uses can generally be ranked by degree of potential impact, with the least potential impact occurring in areas where cultivation is not the primary use (pastureland/rangeland), followed by cultivated croplands, which have a higher degree of potential impact. Most existing agricultural land uses may be resumed within the ROW following construction. The Project Route crosses approximately 1.08 miles of cropland (see Table 4-1).

The Project Route crosses approximately 43.24 miles of land categorized as pastureland/rangeland; however, because the ROW for this project will not be fenced or otherwise separated from adjacent lands, there will be no significant long-term displacement of ongoing activities. The Project Route crosses lands with known mobile irrigation systems (rolling or pivot type) for approximately 0.56 mile (see Table 4-1).

4.2.3 Impacts on Transportation/Aviation Features

Transportation Features

Potential impacts to transportation could include temporary disruption of traffic or conflicts with future proposed roadways and/or utility improvements. Traffic disruptions would include those associated with the movement of equipment and materials to the ROW, and slightly increased traffic flow and/or periodic congestion during the construction phase of the Project. In the rural areas, these impacts are typically considered minor, temporary, and short-term. In the urban areas, the temporary impacts to traffic flow can be significant during construction; however, the Project Route is not located in areas that are considered densely developed areas. CPS Energy will coordinate with the agencies in control of the affected roadways to address these traffic flow impacts. As mentioned in Section 3.2.3, there were several state roadway projects within the study area. The Project Route crosses US Hwy 181, SH 1604 Loop, and SH 97, at one crossing each. The Project Route has six FM road crossings (see Table 4-1).

Aviation Facilities

According to FAA regulations, Title 14 C.F.R. 77, the construction of a transmission line requires FAA notification if tower structure heights exceed the height of an imaginary surface extending outward and upward at a slope of 100:1 for a horizontal distance of 20,000 feet from the nearest point of the nearest runway of a public or military airport having at least one runway longer than 3,200 feet. The FAA also requires notification if tower structure heights exceed a 50:1 slope for a horizontal distance of 10,000 feet from the nearest runway of a public or military airport where no runway is longer than 3,200 feet in length, and if tower structure heights exceed a 25:1 slope for a horizontal distance of 5,000 feet for heliports.

No public FAA registered airports with at least one runway longer than 3,200 feet were identified within 20,000 feet of the Project Route. There were no FAA registered airports with a runway longer than 3,200 feet identified within 10,000 feet of the Project Route. There is one heliport, Calaveras Ehlf, identified within 5,000 feet of the Project Route.

Following PUC and CPS Energy approval of a complete route for the Project, CPS Energy will make a final determination of the need for FAA notification, based on specific route location and structure design of the approved route. The result of this notification, and any subsequent coordination with the FAA, could include changes in the line design and/or potential requirements to mark the conductors and/or light the structures.

There is one private airstrip, San Christoval Ranch, identified within 10,000 feet of the Project Route.

The Project Route is not anticipated to have a substantial impact on aviation activities within the study area. The number of airports, airstrips, and heliports for the Project is presented in Table 4-1. Table 4- 6 presents detailed information on airports, airstrips, and heliports. The distance for each airport/airstrip from the Project Route was measured using GIS software and aerial photography interpretation (see Table 4-2). All known airport/airstrip locations are shown on Figures 4-1 and 4-2 located in Appendix C and D (map pockets).

TABLE 4-2 AIRPORT FACILITIES AND RUNWAY LOCATIONS

FIGURE 4-2 MAP ID	AIRPORTS	DISTANCE FROM PROJECT ROUTE (FEET)*	ESTIMATED RUNWAY LENGTH (FEET)[1/*]	EXCEEDS THE SLOPE[1,2]
2001	Calaveras Ehlf Heliport (Private)	3,902	42	N/A
2002	San Christoval Ranch Airstrip (Private)	6,147	3,955	N/A

[1]FAA 2024b; *POWER aerial photo and USGS interpretation.
[2]POWER used aerial photo and USGS interpretation considering elevation information obtained from USGS topographic maps and a typical maximum transmission structure height of 150 feet.

4.2.4 Impacts on Communication Towers

The Project Route would not have a significant impact on electronic communication facilities or operations in the study area. No commercial AM radio transmitters were identified within 10,000 feet of the Project Route. Seven FM radio tower or other electronic communication facilities were identified within 2,000 feet of the Project Route centerline.

The number of other communication facilities located within 2,000 feet of the Project Route is presented in Table 4-1. Table 4-6 presents detailed information on the electronic communication facilities. The distance to the electronic communication facilities from the Project Route was measured using GIS software and aerial photograph interpretation (see Table 4-3). All known radio and communication facility locations are shown on Figures 4-1 and 4-2 located in Appendix C and D (map pockets).

TABLE 4-3 ELECTRONIC COMMUNICATION FACILITIES

FIGURE 4-1 MAP ID	TOWER TYPE	DISTANCE FROM PROJECT ROUTE (FEET)*
3001	Other Electronic Installation	1,654
3002	Other Electronic Installation	1,563
3003	Other Electronic Installation	1,840
3004	Other Electronic Installation	324
3005	Other Electronic Installation	367
3006	Other Electronic Installation	606
3007	Other Electronic Installation	1,275

*POWER aerial photo and USGS interpretation; FCC 2024.

4.2.5 Impacts on Utility Features

Utility features include existing electrical transmission lines, distribution lines, water wells, pipelines, and oil and gas wells. Some water wells were identified within the study area and were mapped and avoided to the extent practicable. There are no identifiable water wells within 200 feet of the Project Route (see Table 4-1).

The Project Route crosses five existing transmission lines (see Table 4-1).

There are two identifiable oil and gas wells within 200 feet of the Project Route (see Table 4-1).

The Project Route crosses 76 identified pipelines and is parallel and adjacent to existing pipelines for approximately 36.92 miles. Additionally, the Project Route does not cross any gravel pits, mines, or quarries (see Table 4-1).

If additional unidentified utility features are crossed by or are in close vicinity to the Project Route centerline approved by the PUC, CPS Energy will coordinate with appropriate entities to obtain necessary permits or permission as required.

4.2.6 Impacts on Socioeconomics

Construction and operation of the Project is not anticipated to result in a significant change in the population or employment rate within the study area. For this project, some short-term employment would be generated. CPS Energy normally uses contract labor supervised by CPS Energy employees during the clearing and construction phases of transmission line projects. Construction workers for the Project would likely commute to the work site on a daily or weekly basis instead of permanently relocating to the area. The temporary workforce increase would likely result in an increase in local retail sales due to purchases of lodging, food, fuel, and other merchandise for the duration of construction activities. No additional CPS Energy staff will be required for line operations and maintenance.

4.2.7 Impacts on Community Values

Adverse effects upon community values are defined as aspects of the Project that would significantly and negatively alter the use, enjoyment, or intrinsic value attached to an important area or resource by a community. This definition assumes that community concerns are applicable to this specific project's location and characteristics, and do not include objections to electric transmission lines in general.

Potential impacts to community resources can be classified into direct and indirect effects. Direct effects are those that would occur if the location and construction of a transmission line and station result in the removal or loss of public access to a valued resource. Indirect effects are those that would result from a loss in the enjoyment or use of a resource due to the characteristics (primarily aesthetic) of the proposed transmission line, structures, or ROW.

4.3 Impacts on Parks and Recreation Areas

Potential impacts to parks or recreation areas include the disruption or preemption of recreation activities. As previously mentioned in Section 3.3.1, there are two parks or recreational areas meeting the definition set forth in the PUC application were identified within the study area. The Project Route crosses a portion of both a park and recreational areas. The length of ROW across parks or recreational areas is approximately 0.44 mile. However, since the existing line will be rebuilt within the existing transmission line ROW, no substantial impacts to the use of the parks and recreation areas located within the study area are anticipated from the Project Route. Also, no

adverse impacts are anticipated for any other potential fishing or hunting areas from the Project Route. The Project Route is not located within 1,000 feet of any other parks or recreation facilities.

The number of park or recreational areas crossed by the Project Route is presented in Table 4-1. Table 4-6 presents detailed information on the park or recreational areas. The distance to the park or recreational areas from the Project Route was measured using GIS software and aerial photograph interpretation (see Table 4-4). All known park or recreational area locations are shown on Figures 4-1 and 4-2 located in Appendix C and D (map pockets).

TABLE 4-4 PARK AND RECREATIONAL AREAS

FIGURE 4-1 MAP ID	PARK OR RECREATIONAL AREA	DISTANCE FROM PROJECT ROUTE (FEET)*
4001	Calaveras Lake Park	0
4002	San Antonio Missions National Historical Park	0

*POWER aerial photo and USGS interpretation.

4.4 Impacts on Aesthetic Values

Aesthetic impacts, or impacts to visual resources, exist when the ROW, lines and/or structures of a transmission line system create an intrusion into, or substantially alter the character of the existing view. The significance of the impact is directly related to the quality of the view, in the case of natural scenic areas, or to the importance of the existing setting in the use and/or enjoyment of an area, in the case of valued community resources and recreational areas.

Construction of the Project could have both temporary and permanent aesthetic impacts. Temporary impacts would include views of the actual assembly and erection of the tower structures. If wooded areas are cleared, the brush and wood debris could have an additional negative temporary impact on the local visual environment. Permanent impacts from the Project would involve the views of the cleared ROW, tower structures, and lines from public viewpoints including roadways, recreational areas, and scenic overlooks.

Since no designated landscapes protected from most forms of development or by legislation exist within the study area, potential aesthetic impacts were evaluated by estimating the length of the Project Route that would fall within the foreground visual zones (one-half mile with unobstructed views) of major highways, FM roads, and parks or recreational areas. The Project Route lengths within the foreground visual zone of IH, US Hwys, SH, FM roads, and parks or recreational areas were tabulated and are discussed below.

The Project Route has a portion of its ROW length located within the foreground visual zone of US Hwys and SHs for approximately 4.25 miles. Additionally, the Project Route has a portion of its ROW length located within the foreground visual zone of FM roads for approximately 7.00 miles. The Project Route also has a portion of its ROW length located within the foreground visual zone of parks or recreational areas for approximately 2.56 miles (see Table 4-1).

Overall, the study area along the existing 345 kV transmission line maintains the characteristics of a rural landscape which includes partially wooded areas with low-density residential and agricultural development scattered throughout. The residential and agricultural developments within the study area have already impacted the aesthetic quality within the area. The rebuild construction of the Project Route is not anticipated to significantly impact the aesthetic quality of the landscape.

4.5 Impacts on Historical (Cultural Resources) Values

Methods for identifying, evaluating, and mitigating impacts to cultural resources have been established for federal projects or permitting actions, primarily for purposes of compliance with the National Historic Preservation Act. Similar methods are often used when considering cultural resources affected by state-regulated undertakings. In either case, this process generally involves identification of significant (i.e., national- or state-designated) cultural resources within a project area, determining the potential impacts of a project on those resources, and implementing measures to avoid, minimize, or mitigate those impacts.

Impacts associated with the construction, operation, and maintenance of transmission lines can affect cultural resources either directly or indirectly. Construction activities associated with any proposed project can adversely impact cultural resources if those activities alter the integrity of key characteristics that contribute to a property's significance as defined by the standards of the NRHP or the Antiquities Code of Texas. These characteristics might include location, design, setting, materials, workmanship, feeling, or association for architectural and engineering resources or archeological information potential for archeological resources.

4.5.1 Direct Impacts

Typically, direct impacts could be caused by the actual construction of the line or through increased vehicular and pedestrian traffic and excavation for towers during the construction phase. If construction is required near historic structures, landscapes, or districts, proper mitigation and avoidance measures will avoid adversely impacting such features during construction of a transmission line. Additionally, an increase in vehicular and/or pedestrian traffic might damage surficial or shallowly buried sites. Excavation for transmission structures could impact shallow or

deeply buried archeological sites. Direct impacts might also include isolation of a historic resource from or alteration of its surrounding environment.

4.5.2 Indirect Impacts

Indirect impacts include those effects caused by a project that are farther removed in distance or that occur later in time but are reasonably foreseeable. These indirect impacts might include introduction of visual or audible elements that are out of character with the resource or its setting. Indirect impacts might also occur as a result of alterations in the pattern of land use, changes in population density, accelerated growth rates, or increased pedestrian or vehicular traffic. Absent BMPs, proper mitigation, and avoidance measures, historic buildings, structures, landscapes, and districts are among the types of resources that could be adversely impacted by the indirect impact of a transmission line.

The preferred form of mitigation for direct and indirect impacts to cultural resources is avoidance through project modifications. Additional mitigation measures for direct impacts might include implementing a program for data recovery excavations if an archeological site cannot be avoided. Indirect impacts on historical properties and landscapes can be lessened through careful design and landscaping considerations, such as using vegetation screens or berms if practicable. Additionally, relocation might be possible for some historic structures.

4.5.3 Summary of Cultural Resource Impacts

The distance of each recorded site located within 1,000 feet of the Project Route was measured using GIS software and aerial photography interpretation (see Table 4-3). A review of the THC (2024a and b), NPS (2024c - e), and TxDOT (2024c) data indicated that two NRHP-listed resources; 11 archeological sites, one of which has been determined eligible for listing on the NRHP; and two cemeteries are recorded within 1,000 feet of the Project Route (see Table 4-2).

The Rancho de las Cabras Historic District and El Camino Real De Los Tejas National Historic Trail are NRHP-listed resources crossed by the Project Route. The historic ranching features associated with the Rancho de las Cabras District are approximately 0.5 mile east of the Project Route near the San Antonio River and will not be directly impacted by the Project. Because this is the rebuild of an existing transmission line, it is anticipated that there will be no appreciable change to the viewshed of these features as a result of the Project. Archeological sites 41WN92 and 41WN93 are recorded within the NRHP district within 1,000 feet of the Project Route. Both sites have been determined ineligible and are not anticipated to be impacted by the rebuild construction.

As mapped by the NPS, El Camino Real De Los Tejas National Historic Trail is crossed by the Project Route near State Highway 181. Highway and residential construction along and near El Camino Real De Los Tejas suggest the area has been disturbed where the Project crosses the trail. The trail location has not been ground-truthed and is mapped by the NPS based on research. The current line spans the mapped location of the trail along the highway. El Camino Real De Los Tejas National Historic Trail is not anticipated to be directly impacted by the Project Route.

One archeological site recorded within 1,000 feet of the Project Route, 41BX732, has been determined eligible for the NRHP, and is a designated SAL. Site 41BX732 is the remains of a horse ranch complex, including a concrete slab, outbuildings, a cistern, and an associated scatter of artifacts. Site 41BX732 is approximately 374 feet from the Project Route thus no impacts are anticipated.

Of the 10 remaining archeological sites within 1,000 feet of the Project Route, sites 41BX1312 and 41KA122 are crossed by the Project Route. Site 41BX1312 is a lithic scatter that has been determined ineligible for listing on NRHP. Site 41KA122 is described as a single flake and has not been evaluated for inclusion on the NRHP. Both sites are spannable as the transmission line structure spans typically range from approximately 800 to 1,200 feet. No impacts are anticipated for the remaining sites recorded within 1,000 feet due to their distance from the Project Route. The cultural resources recorded within the study area are described in Section 3.2 and the distances of recorded resources within 1,000 feet of the Project Route are given in Table 4-2.

The Gilley Family Cemetery, a vicinity cemetery, is crossed by the Project Route. According to the THC, vicinity cemetery location information is a general area where a cemetery was reported at one time, but the exact location is unknown (THC 2024a and 2024b). The Gilley Family vicinity cemetery polygon is over a mile in diameter and the Project Route crosses the polygon at the far eastern edge. The Project Route is a proposed rebuild of an existing line, that in conjunction with the large general area indicated by the vicinity cemetery polygon, the Project Route most likely does not cross the actual location of the cemetery. The San Lorenzo Cemetery (BX-C009), although not located in the study area, is located within 1,000 feet of the Project Route. The San Lorenzo Cemetery mapped approximately 880 feet from the Project Route (THC 2024a) and no impacts to the San Lorenzo Cemetery are anticipated.

TABLE 4-5 CULTURAL RESOURCES RECORDED WITHIN 1,000 FEET OF THE PROJECT ROUTE

RESOURCE NAME	DISTANCE IN FEET FROM CENTERLINE	NRHP ELIGIBILITY
El Camino Real De Los Tejas National Historic Trail	**0**	**Listed**
Rancho de las Cabras	**0**	**Listed**
41BX726	371	Undetermined
41BX0732	374	Eligible/SAL
41BX1306	69	Portions of this site have been determined ineligible
41BX1310	114	Ineligible
41BX1312	**36**	**Ineligible**
41KA42	226	Undetermined
41KA121	772	Undetermined
41KA122	**10**	**Undetermined**
41WN67	105	Undetermined
41WN92	648	Ineligible
41WN93	167	Ineligible
San Lorenzo Cemetery	880	-
Gilley Family Vicinity Cemetery	**0**	**-**

Note: Bold entries will be crossed by 125-foot-wide ROW.

Although much of the Project Route has been surveyed for cultural resources, the potential for undiscovered cultural resources does exist along the route. To assess this potential, a review of geological, soils, and topographical maps was undertaken by a professional archeologist to identify areas along the route where unrecorded pre-contact archeological resources have a higher probability to occur. These HPAs for pre-contact archeological sites were identified near the San Antonio River, Parita Creek, Olmos Creek, Eagle Creek, Scared Dog Creek, Conquista Creek, and their tributaries, particularly where previous surveys have not been conducted, and near previously recorded sites. To facilitate the data evaluation each HPA was mapped using GIS and the length of HPA tabulated. Post-contact HPA were mapped near previously recorded historic sites and NRHP properties, and near structures depicted on historic topographic maps. Based on the analysis, the Project Route crosses 33.26 miles of HPA (see Table 4-1)

TABLE 4-6 HABITABLE STRUCTURES AND OTHER LAND USE FEATURES IN THE VICINITY OF THE PROJECT ROUTE

MAP NUMBER	STRUCTURE OR FEATURE	APPROXIMATE DISTANCE FROM ROUTE CENTERLINE[1] (FEET)
1	Commercial	401
2	Single Family Residential	390
3	Single Family Residential	154
4	Single Family Residential	179
5	Single Family Residential	114

TABLE 4-6 HABITABLE STRUCTURES AND OTHER LAND USE FEATURES IN THE VICINITY OF THE PROJECT ROUTE

MAP NUMBER	STRUCTURE OR FEATURE	APPROXIMATE DISTANCE FROM ROUTE CENTERLINE[1] (FEET)
6	Single Family Residential	151
7	Single Family Residential	188
8	Single Family Residential	212
9	Single Family Residential	363
10	Single Family Residential	381
11	Single Family Residential	259
12	Single Family Residential	461
13	Single Family Residential	174
14	Single Family Residential	323
15	Single Family Residential	479
16	Single Family Residential	466
17	Single Family Residential	475
18	Single Family Residential	266
19	Single Family Residential	248
20	Single Family Residential	497
21	Single Family Residential	168
22	Single Family Residential	493
23	Single Family Residential	215
24	Single Family Residential	435
25	Single Family Residential	275
26	Single Family Residential	125
27	Single Family Residential	195
28	Single Family Residential	331
29	Single Family Residential	348
30	Single Family Residential	355
31	Single Family Residential	139
32	Single Family Residential	112
33	Single Family Residential	338
34	Single Family Residential	138
35	Single Family Residential	131
36	Single Family Residential	204
37	Single Family Residential	94
38	Single Family Residential	229
39	Single Family Residential	91
40	Single Family Residential	146
41	Single Family Residential	147
42	Single Family Residential	392
43	Single Family Residential	350
44	Single Family Residential	505

TABLE 4-6 HABITABLE STRUCTURES AND OTHER LAND USE FEATURES IN THE VICINITY OF THE PROJECT ROUTE

MAP NUMBER	STRUCTURE OR FEATURE	APPROXIMATE DISTANCE FROM ROUTE CENTERLINE[1] (FEET)
45	Single Family Residential	266
46	Single Family Residential	117
47	Single Family Residential	113
48	Single Family Residential	299
49	Single Family Residential	458
50	Single Family Residential	393
51	Single Family Residential	340
52	Single Family Residential	192
53	Single Family Residential	326
54	Single Family Residential	201
55	Single Family Residential	338
56	Single Family Residential	169
57	Single Family Residential	275
58	Single Family Residential	199
59	Single Family Residential	412
60	Single Family Residential	139
61	Single Family Residential	116
62	Single Family Residential	337
63	Single Family Residential	459
64	Single Family Residential	505
65	Single Family Residential	288
66	Single Family Residential	238
67	Single Family Residential	85
68	Single Family Residential	145
69	Single Family Residential	345
70	Single Family Residential	338
71	Single Family Residential	184
72	Single Family Residential	302
73	Single Family Residential	235
74	Single Family Residential	87
75	Single Family Residential	414
76	Single Family Residential	419
77	Single Family Residential	202
78	Single Family Residential	448
79	Single Family Residential	372
80	Single Family Residential	322
81	Single Family Residential	494
82	Single Family Residential	227
83	Single Family Residential	135

TABLE 4-6 HABITABLE STRUCTURES AND OTHER LAND USE FEATURES IN THE VICINITY OF THE PROJECT ROUTE

MAP NUMBER	STRUCTURE OR FEATURE	APPROXIMATE DISTANCE FROM ROUTE CENTERLINE[1] (FEET)
84	Single Family Residential	382
85	Single Family Residential	165
86	Single Family Residential	267
87	Single Family Residential	250
88	Single Family Residential	327
89	Single Family Residential	478
90	Single Family Residential	465
91	Single Family Residential	171
92	Single Family Residential	288
93	Single Family Residential	133
94	Single Family Residential	193
95	Single Family Residential	453
96	Single Family Residential	420
97	Single Family Residential	480
98	Single Family Residential	316
99	Single Family Residential	132
100	Single Family Residential	427
101	Single Family Residential	263
102	Single Family Residential	169
103	Single Family Residential	118
104	Single Family Residential	279
105	Single Family Residential	131
106	Single Family Residential	177
107	Commercial	413
108	Commercial	428
109	Single Family Residential	252
110	Single Family Residential	220
111	Single Family Residential	212
112	Commercial	350
113	Single Family Residential	156
114	Single Family Residential	306
115	Single Family Residential	470
116	Single Family Residential	465
117	Single Family Residential	250
118	Single Family Residential	197
119	Single Family Residential	357
120	Single Family Residential	358
121	Single Family Residential	382
122	Single Family Residential	188

TABLE 4-6 HABITABLE STRUCTURES AND OTHER LAND USE FEATURES IN THE VICINITY OF THE PROJECT ROUTE

MAP NUMBER	STRUCTURE OR FEATURE	APPROXIMATE DISTANCE FROM ROUTE CENTERLINE[1] (FEET)
123	Single Family Residential	395
124	Single Family Residential	193
125	Single Family Residential	298
126	Single Family Residential	191
127	Single Family Residential	275
128	Single Family Residential	326
129	Single Family Residential	468
130	Single Family Residential	461
131	Single Family Residential	373
132	Single Family Residential	305
133	Single Family Residential	466
134	Single Family Residential	335
135	Single Family Residential	480
136	Single Family Residential	474
137	Single Family Residential	416
138	Single Family Residential	471
139	Single Family Residential	432
140	Single Family Residential	225
141	Single Family Residential	425
142	Single Family Residential	209
143	Single Family Residential	201
2001	Calaveras Ehlf Helicopter	3,902
2002	San Christoval Ranch Airstrip	6,147
3001	Other Electronic Installation	1,654
3002	Other Electronic Installation	1,563
3003	Other Electronic Installation	1,840
3004	Other Electronic Installation	324
3005	Other Electronic Installation	367
3006	Other Electronic Installation	606
3007	Other Electronic Installation	1,275
4001	Calaveras Lake Park	0
4002	San Antonio Missions National Historical Park	0
5001	San Lorenzo Panteon Cemetery	880
--	Gilley Family Vicinity Cemetery (Not Public)	0
--	41BX1306	69
--	41BX1310	114
--	41BX1312	36
--	41BX726	371
--	41KA121	772

TABLE 4-6 HABITABLE STRUCTURES AND OTHER LAND USE FEATURES IN THE VICINITY OF THE PROJECT ROUTE

MAP NUMBER	STRUCTURE OR FEATURE	APPROXIMATE DISTANCE FROM ROUTE CENTERLINE[1] (FEET)
--	41KA122	10
--	41KA42	226
--	41WN67	105
--	41WN92	648
--	41WN93	167
--	Rancho de las Cabras (Not Public)	0
--	41BX732	374
6001	El Camino Real de los Tejas National Historic Trail	0

[1] Due to the potential horizontal accuracies of the aerial photography and data utilized, all habitable structures within 510 feet have been identified.

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5.0 AGENCY CORRESPONDENCE

A list of federal, state, and local regulatory agencies, elected officials, and organizations was developed to receive a consultation letter regarding the Project. The purpose of the letter was to inform the various agencies and officials of the Project and provide them with an opportunity to provide information regarding resources and potential issues within the study area. Various federal, state, and local agencies and officials that may have potential concerns and/or regulatory permitting requirements for the proposed Project were contacted. POWER utilized websites and telephone confirmations to identify local officials. Copies of all correspondence with the various state/federal regulatory agencies and local/county officials and departments are included in Appendix A.

Federal, state and local agencies/officials contacted include:

- Federal Aviation Administration (FAA)
- Federal Emergency Management Agency (FEMA) – Region 6
- National Park Service (NPS)
- Natural Resource Conservation Service (NRCS) – Texas Office
- United States Army Corps of Engineers (USACE) – Fort Worth District
- Military Aviation and Installation Assurance Siting Clearinghouse
- United States Environmental Protection Agency (USEPA) – Region 6
- United States Fish and Wildlife Service (USFWS)
- Applicable United States Congressman
- Applicable Texas Senators
- Applicable Texas House Members
- Railroad Commission of Texas (RRC)
- Texas Commission on Environmental Quality (TCEQ)
- Texas Department of Transportation (TxDOT) – Aviation Division, Environmental Affairs Division, Planning & Programming, San Antonio and Corpus Christi District Engineers
- Texas General Land Office (GLO)
- Texas Historical Commission (THC)
- Texas Parks and Wildlife Department (TPWD)
- Texas Water Development Board (TWDB)
- Bexar County Judge and Commissioners Court
- Bexar County Economic and Community Development
- Bexar County Flood Control
- Bexar County Historical Commission
- Bexar County Manager

- Wilson County Judge and Commissioners Court
- Wilson County Permitting & Development
- Karnes County Judge and Commissioners Court
- Karnes County Special Projects and Permits
- City of San Antonio Officials
- Alamo Area Council of Governments
- Alamo Soil and Water Conservation District
- Edwards Aquifer Authority Chairman
- San Antonio River Authority
- San Antonio World Heritage Office
- San Antonio Water System
- East Central Independent School District (ISD)
- Floresville ISD
- Poth ISD
- Falls City ISD
- Karnes City ISD
- Kenedy ISD
- The Nature Conservancy – Texas
- Texas Land Trust Council
- Texas Land Conservancy (TLC)
- Texas Agricultural Land Trust
- Texas Cave Management Association

In addition to letters sent to the agencies listed, POWER also requested and reviewed TXNDD Element Occurrence Records from TPWD (TXNDD 2024). POWER also requested and reviewed previously recorded archeological site information from TARL and reviewed the THC's TASA for additional cultural resource information. As of the date of this document, written responses to letters sent in relation to the study area that were received are listed and summarized below.

FEMA responded with a letter dated October 24, 2024, requesting that the community floodplain administrator be contacted for the review of, and possible permit requirements for, the Project. CPS Energy will coordinate with the floodplain administrator as needed.

The USACE Regulatory Division responded with an email dated October 19, 2024, stating that they had assigned Project Number SWF-2024-00513 and a regulatory project manager to the request. CPS Energy will coordinate with USACE as needed.

The USACE Regulatory Division responded with an email dated November 12, 2024, requesting some Project-specific information and whether a pre-application meeting might be necessary. CPS Energy will coordinate with USACE as needed.

The USACE Section 408 Coordinator responded with an email dated October 18, 2024, stating that they had assigned Project Number 408-SWF-2024-0076. They have determined that the Project will not require authorization under Section 408. However, authorization may still be required under Section 404 of the Clean Water Act. CPS Energy will coordinate with USACE as needed.

The USFWS Texas Coastal and Central Plains Ecological Services Field Office responded with a letter dated December 3, 2024, providing a list of the federally listed threatened and endangered species for the study area county. The USFWS also provided the definitions of the affected determinations and referenced the MBTA and BGEPA. CPS Energy will coordinate with the USFWS as needed.

The RRC of Texas responded with a letter dated October 31, 2024, stating that information is available on the RRC's GIS concerning existing oil and gas well and pipeline locations. They also provide the web address for information regarding oil and gas drilling permits, pipeline permits, and surface mining operations. CPS Energy will coordinate with the RRC as needed.

The Texas GLO responded with a letter dated October 31, 2024, stating that it did not appear that the GLO will have any environmental issues or land use constraints at this time.

The THC responded with an email dated November 22, 2024, stating that it is likely an archeological survey and a Texas Antiquities Permit will be required. CPS Energy will coordinate with the THC as needed.

The TPWD responded with a letter dated November 27, 2024, providing several recommendations. In summary, TPWD recommended avoiding or minimizing potential impacts to nesting migratory birds and listed or rare species. The TPWD also recommended a list of beneficial management practices to follow. CPS Energy will coordinate with the TPWD as needed.

TxDOT responded with an email dated January 30, 2025, providing various maps illustrating publicly available environmental constrains and other data from the TxDOT databases. CPS Energy will coordinate with the TxDOT as needed.

Bexar County responded with a letter dated December 10, 2024, stating that there are no zoning or land use regulations in the unincorporated area of Bexar County. They also provided the Permit Verification Guidelines. CPS Energy will coordinate with Bexar County as needed.

Karnes County responded with an email dated January 7, 2025, stating that they were the new Commissioner for Precinct 1. They requested property owner information and an update on the Project. CPS Energy will coordinate with Karnes County as needed

The Poth ISD responded with an email dated October 31, 2024, stating that they did not have any existing environment, cultural, or land use constraints within the proposed Project area.

6.0 PUBLIC INVOLVEMENT

CPS Energy hosted a public open house meeting within the study area to solicit comments, concerns, and input from residents, landowners, public officials, and other interested parties. The purpose of the meeting was to:

- Promote a better understanding of the Project, including the purpose, need, potential benefits and impacts, and the PUC CCN application approval process.
- Inform the public with regard to the procedure, schedule, and decision-making process.
- Ensure that the decision-making process adequately identifies and considers the values and concerns of the public and community leaders.

The public meeting was held on November 18, 2024, at the Floresville Early Childhood Center in Floresville, Texas from 6:00 p.m. to 8:00 p.m. Invitation letters were sent to landowners who owned property within 500 feet from the Project Route. CPS Energy mailed approximately 633 invitation letters to landowners. Each landowner that received an invitation letter also received a map of the study area depicting the Project Route. Advertisements for the open house was also published in *The Karnes Countywide* on November 7 and 14, 2024, in *Wilson County News* on November 6 and 13, 2024, in *Conexion* on November 6 and 13, 2024, and in *San Antonio Express News* on November 10 and 17, 2024.

At the public meeting, engineers, GIS analysts, biologists, project managers, and regulatory professionals from CPS Energy and POWER were available to answer questions regarding the Project. Manned information stations were set up that provided typical 345 kV pole types, a list of agencies contacted, land-use and environmental criteria for transmission lines, and an environmental and land use constraints map on aerial base. CPS Energy also provided two GIS interactive stations operated by POWER GIS analysts. These computer stations allowed attendees to view more-detailed digital maps of the Project Route and to submit comments digitally and spatially. The information station format is advantageous because it facilitates one-on-one discussions and encourages personalized landowner interactions.

CPS Energy established a Project website, https://www.cpsenergy.com/en/about-us/new-infrastructure/spruce-to-pawnee-transmission-line.html, to provide information to the public. The website content explains the scope and need for the Project. The website also provides several Project documents including the public meeting invitation letter, Project brochure, open house displays, the questionnaire, Frequently Asked Questions document, and aerial map.

Each individual in attendance was offered the opportunity to sign their name on the sign-in sheet and given three handouts. The first handout was an information brochure that provided general information about the Project. The

second handout was a questionnaire that solicited comments on the Project and an evaluation of the information presented at the public meeting. Individuals were asked to fill out the questionnaire after visiting the information stations and speaking with POWER and CPS Energy personnel. The third handout was a Frequently Asked Questions document providing an overview of the Project as well as a description of the regulatory process. Copies of the public notice letter with map, brochure, questionnaire, and Frequently Asked Questions are located in Appendix B.

A total of 51 individuals signed in as attendees at the public meeting and 11 submitted questionnaire responses at or after the public meeting. Results from the questionnaires were reviewed and analyzed. Table 6-1 summarizes general response information from the questionnaires.

TABLE 6-1 GENERAL RESPONSE SUMMARY FROM QUESTIONNAIRES

GENERAL INFORMATION RESPONSES	PERCENTAGE (%) OF RESPONDENTS
Was the need for the project clearly explained?	
Strongly Agree	9%
Agree	64%
Neutral	27%
Disagree	0%
Strongly Disagree	0%
The project team responded to and answered questions about the Project.	
Strongly Agree	9%
Agree	55%
Neutral	27%
Disagree	0%
Strongly Disagree	9%
The exhibits at the open house were helpful.	
Strongly Agree	36%
Agree	45%
Neutral	18%
Disagree	0%
Strongly Disagree	0%

Respondents were then presented with a list of 13 factors that are taken into consideration for a routing study (see a complete list of the criteria on the questionnaire in Appendix B). They were asked to rank each of these criteria, with **1** being the most important factor and **5** being the least important factor. Of those attendees that ranked the criteria, the three criteria that were ranked by the respondents as being the most important are listed in descending order:

- Impact to residences: 6 questionnaires (55%)
- Impact to woodlands/grassland/wetlands: 2 questionnaire (18%)
- Impact to businesses: 1 questionnaire (33%)

Respondents were asked if there are other factors that should be considered when evaluating the Project Route, written responses were as follows:

- Concerns about additional ROW on their property
- Concerns about property value
- Concerns about future residential development
- Concerns about placement of new structures

Respondents were then asked if there are other features that should be added to the Land Use and Environmental Constraints map; however, no responses were provided.

Respondents were asked which of three situations applied to them, written responses were as follows:

- Six indicated that the Project Route is near their home/business
- Seven indicated that the Project Route crosses their property
- Three answered "Other"

Respondents were also asked if there was any other information they would like the Project team to know or take into consideration when evaluating the Project, and the responses included:

- Concerns about letting their cows out
- Concerns about removal of existing concrete footers below ground level when abandoning the existing lattice towers
- Concerns about construction timeframe and easement maintenance
- Concerns about cattle and securing gates
- Concerns about interruption farm/ranch activities
- Concerns about tower placement and access

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7.0 LIST OF PREPARERS

This EA and Route Analysis was prepared for CPS Energy by POWER. A list of the POWER employees with primary responsibilities for the preparation of this document is presented below.

RESPONSIBILITY	NAME	TITLE
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Land Use/Aesthetics	Ashley Brewer Katie Jordan	Environmental Planner I Environmental Planner I
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Maps/Figures/Graphics	Gray Rackley Evan Doss Logan Daniels	Senior GIS Analyst I GIS Analyst II GIS Analyst I

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