July 2020

CPS ENERGY

Scenic Loop 138 kV Transmission Line and Substation Project Environmental Assessment and Alternative Route Analysis

Bexar County, Texas

PROJECT NUMBER:
156816

PROJECT CONTACT:
Lisa Barko Meaux
EMAIL:
lisa.barko@powereng.com
PHONE:
281-765-5507

POWER ENGINEERS

This page left blank intentionally.

Scenic Loop 138 kV Transmission Line and Substation Project

PREPARED FOR: *CPS ENERGY*
PREPARED BY: *POWER ENGINEERS, INC.*
HOUSTON, TEXAS

This page left blank intentionally.

TABLE OF CONTENTS

APPENDICES:

FIGURES:

TABLES:

ACRONYMS AND ABBREVIATIONS

Air Force	United States Air Force
AM radio	Amplitude modulation radio
amsl	above mean sea level
Army	United States Army
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
CFR	Code of Federal Regulations
CLF	civilian labor force
CMP	Costal Management Program
CMZ	Coastal Management Zone
CPS Energy	City Public Service Board
CWA	Clean Water Act
DoD	Department of Defense
EA	Environmental Assessment and Alternative Route Analysis
EAA	Edwards Aquifer Authority
EOR	Element of occurrence record
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
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
NCED	National Conservation Easement Database
NEPA	National Environmental Policy Act
NESC	National Electrical Safety Code
NHD	National Hydrography Dataset
NHPA	National Historic Preservation Act
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
POWER	POWER Engineers, Inc.
project	new double-circuit 138 kV transmission line
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
SH	State Highway
SHPO	State Historic Preservation Office
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
TPWD	Texas Parks and Wildlife Department
TSS	Texas Speleological Survey
TWDB	Texas Water Development Board
TxDOT	Texas Department of Transportation
TXNDD	Texas Natural Diversity Database
TXSDC	Texas State Data Center
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

This page left blank intentionally.

1.0 DESCRIPTION OF THE PROPOSED PROJECT

1.1 Scope of the Project

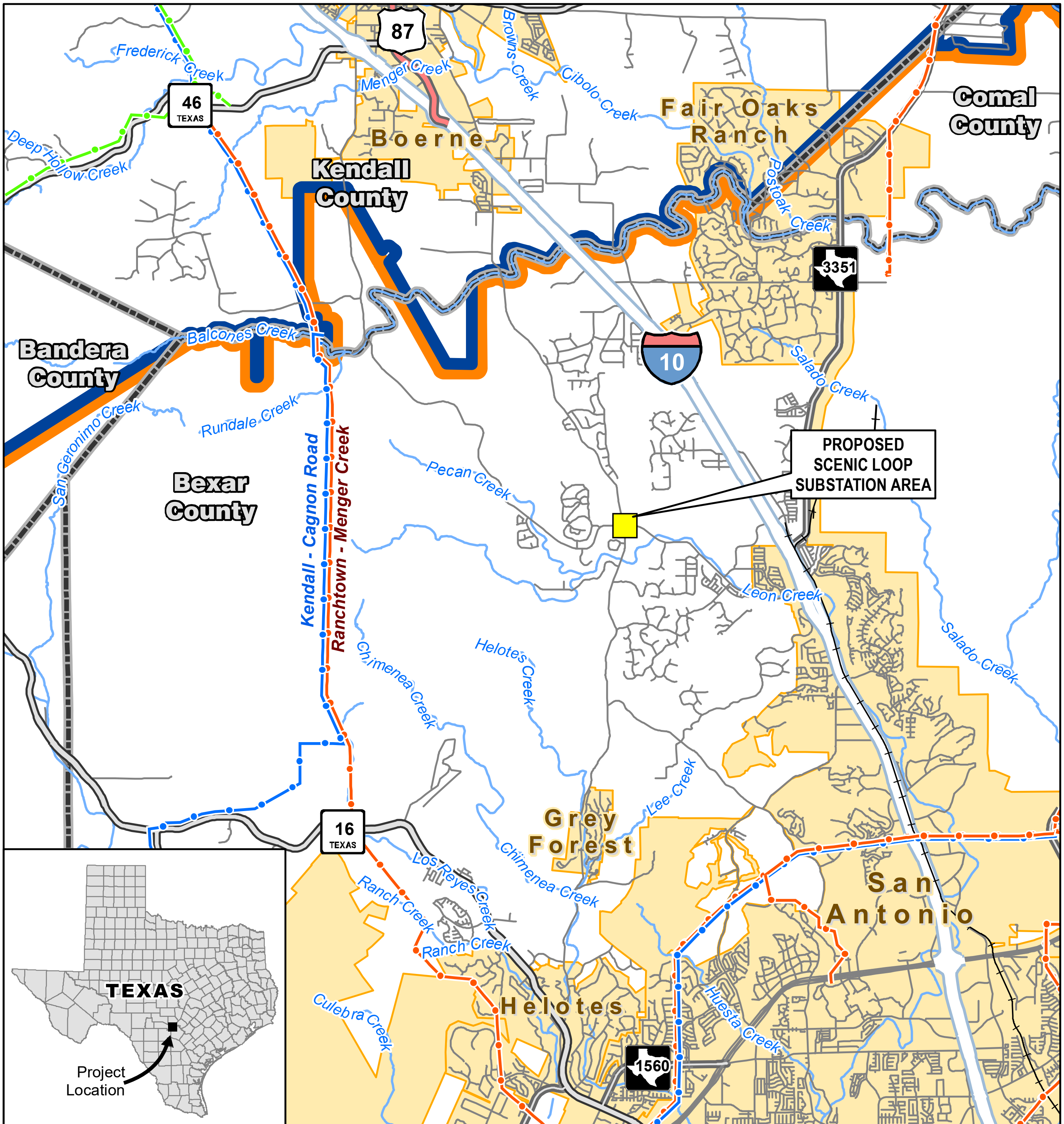
The City of San Antonio, acting by and through City Public Service Board (CPS Energy), is proposing to construct a new double-circuit 138 kilovolt (kV) transmission line within Bexar County (Figure 1-1) but outside of the municipal boundaries of the City of San Antonio (San Antonio). The transmission line project (project) will connect the existing transmission grid to a proposed Scenic Loop Substation in the area of the intersection of Scenic Loop Road and Toutant Beauregard Road. The proposed Scenic Loop Substation is needed to improve the reliability of electric service to homes and businesses in the area of the project and to provide additional electric capacity to support community growth. The new substation will cover an area of approximately four to six acres and will be connected to the existing Ranchtown to Menger Creek 138 kV transmission line. Depending on which route is approved for the project, the total length of the transmission line will be approximately five to seven miles and occupy a right-of-way (ROW) approximately 100 feet in width. The project is scheduled to be in service by summer of 2024.

Because the project is located outside the municipal boundaries of San Antonio, CPS Energy is required to seek an amendment to its Certificate of Convenience and Necessity (CCN) from the Public Utility Commission of Texas (PUC) in order to construct, own, and operate the project. CPS Energy contracted with POWER Engineers, Inc. (POWER) to prepare this Environmental Assessment and Alternative Route Analysis (EA) for the project. The EA will support CPS Energy's CCN application to be submitted to the PUC. 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 alternative routes for the project from an environmental and land-use perspective. CPS Energy will use the data presented in the EA in identifying an alternative route that best addresses the requirements under 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 potential project endpoints, substation siting vicinity, the need for the project, proposed construction practices, transmission line design, clearing methods, ROW requirements, and maintenance procedures.

This page left blank intentionally.



Project Components

Proposed Scenic Loop Substation Area

Administrative Features

City Boundary

County Boundary

CPS Energy Service Boundary

Transportation Features

Interstate Highway

US Highway

State Highway

FM Road

Local Road

Railroad

Surface Waters

River / Stream

Existing Utility Features

69 kV Transmission Line

138 kV Transmission Line

345 kV Transmission Line

SCENIC LOOP 138 kV TRANSMISSION LINE AND SUBSTATION PROJECT

Figure 1-1
Project Vicinity

0 1 2 3 4
Miles

CPS ENERGY

POWER ENGINEERS

Date: 7/2/2020

This page left blank intentionally.

1.2 Purpose and Need

The area in and around the project is comprised of both established homes and businesses and new growth and development. To support an increasing demand for reliable electricity in the project area, CPS Energy needs to improve the capacity of its electric delivery facilities. The project will significantly improve the reliability of electric service to existing and future customers through the construction of a new substation in the vicinity of the intersection of Scenic Loop Road and Toutant Beauregard Road. The new substation will be connected to the existing transmission grid through the proposed double circuit 138 kV transmission line that will connect to the Ranchtown to Menger Creek transmission line approximately five miles to the west of the new substation area. Electricity customers in the project area are currently served from an existing distribution infrastructure that is nearing the limit of its capacity. Currently, electric customers in the project area are served from either the La Sierra Substation or Fair Oaks Ranch Substation by long, heavily loaded distribution feeders, some of which are 6-8 times longer than the average CPS Energy distribution circuit. As a distribution line is extended over a longer distance and as more customers (load) are connected to the line, the reliability and quality of the electric service declines. The longer the line, the more opportunity for electrical disturbances caused by vehicles, animals, storms, vegetation, and other factors.

Likewise, as the capacity of substation transformers and distribution lines reach their operational limits, the potential for outage events associated with overheating, breaker trips, and increased maintenance increase. As a result, CPS Energy limits the loading on transformers and backbone distribution lines to 80 percent of their normal rating during expected peak energy usage conditions.

The metrics CPS Energy uses to measure reliability (the number of outages and the duration of outages) have shown an increasing decline over the last eight years in the project area. In addition, the substation transformers and backbone distribution lines serving the project area have and are forecasted in the future to exceed 80 percent of their normal rating during expected peak energy usage conditions. Continuing to serve the area's electric load without the project will result in continued degradation of electric service reliability to end-use customers and could significantly limit the continued healthy economic development of the broader area. Without the project, all CPS Energy customers served from the La Sierra and Fair Oaks Ranch substations will be exposed to longer more frequent interruptions caused by equipment or structural failure and maintenance needs.

The project will allow CPS Energy to serve customers in the project area with shorter distribution lines originating from the new Scenic Loop Substation that will have the capacity to serve the current and forecasted load in the area for many years to come. Shorter distribution lines with lower loadings will increase reliability and power quality in the region.

The project will significantly improve reliability by spreading the electric load (customers) among three substations located geographically closer to the load, with shorter distribution lines for delivery of quality power to customers. Because the new substation will be closer to the customers being served, it will improve reliability and power quality in ways that cannot be achieved by simply expanding capacity of existing lines connected to distant substations.

Based on the limited capacity of the existing distribution system in the area and the declining reliability of service, CPS Energy developed and evaluated distribution, transmission, and generation alternatives. Ultimately, after consideration of the alternatives available to improve reliability to the project area and to increase the capacity of the system to serve current and future load growth, CPS Energy determined that a new Scenic Loop Substation and associated transmission line project was the best alternative to meet the current and future needs of CPS Energy customers.

1.3 Description of Proposed Design

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

1.3.1 Transmission Line Design

The project will be operated as a 138 kV transmission line with 795 thousand circular mils (kcmil) aluminum conductor, steel-reinforced Drake with two conductors per phase and one static wire per circuit. In most areas, the transmission line will be installed on new structures and within new easements. ROW widths will typically be 100 feet to accommodate constraints and to meet engineering clearance specifications.

The project will be rated for operation at 1,848 Amperes, yielding a nominal 441-Megavolt amperes (MVA) capacity. The configurations of the conductor and shield wire will provide adequate clearance for operation at 138 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

For most segments of the proposed routing, CPS Energy proposes to use 138 kV double-circuit pole structures for typical tangent, angle, and dead-end structures. The geometries of the proposed typical tangent, angle, and dead-end structures are shown on Figures 1-2 through 1-5. All structure geometries are illustrative. In some areas shorter than typical, taller than typical, or alternative structure types may be utilized. A geometry of a potential alternative structure is shown on Figure 1-5. Actual structure types may differ slightly based on newer or different designs available at the time of construction.

The project will be constructed in new ROW, within easements typically 100 feet in width, using spans that typically range from approximately 600 to 1,000 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 needed in some areas.

1.3.3 Substation Design

The proposed Scenic Loop Substation will be designed as a three-unit site with one 138/35 kV, 100-MVA transformer and one 4-feeder switchgear. The substation will be looped into the existing Ranchtown to Menger Creek 138 kV transmission line, requiring two 138 kV line terminals. The substation will include one 138 kV circuit switcher and a 2000-A main bus design. It will also be configured for future installation of a 138 kV capacitor bank. Figure 1-6 shows an example of a substation layout similar to what will be constructed at the Scenic Loop site.

1.3.4 Construction Schedule

CPS Energy plans to construct the project primarily between August 2023 and June 2024. The specific construction schedule will be refined as the substation site and ROW is acquired and surveyed, engineering designs are finalized, and any necessary species accommodations are considered. The transmission line and substation are proposed to be constructed by a combination of contractor and CPS Energy crews.

1.4 Construction Considerations

Projects of this type require clearing, structure assembly and erection, conductor and shield wire 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, 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. Tension stringing of conductors may be employed to reduce the amount of vegetation clearing before final conductor locations are established.
6. 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).
7. 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 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. 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. 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. Landowners' preferences will be considered if other methods are preferred.

1.4.2 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.

1.4.3 Conductor and Shield Wire Installation

The conductors and shield wires are typically installed via a tensioning system. Conductor 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.

1.4.4 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 road or highway, 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 and a construction notice will be submitted by CPS Energy to the San Antonio Water Systems (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 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 (US). 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 waters of the US, including associated wetlands. The intent of this law is to protect the "waters of the US" 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. Review of the National Hydrography Dataset (NHD) and National Wetland Inventory (NWI) maps indicate surface waters of the US 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 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. 12 - Utility Line Activities, which applies to activities associated with any cable, line, or wire for the transmission of electrical energy. 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 requested a USFWS Information for Planning and Conservation (IPaC) review and official species list to identify potentially occurring federally protected species and designated critical habitats within the study area (Consultation Code: 02ETAU00-2020-SLI-1016). POWER also reviewed the Texas Natural Diversity Database (TXNDD) records of federal- and state-listed species occurrences, rare vegetation communities, and/or species of concern. POWER considered these listings during the route development process.

Because the project area is located within Karst Zones 1-5, a karst survey must be performed in accordance with the USFWS, Section 10(a)(1)(A) Scientific Permit Requirements for Conducting Presence/Absence Surveys for Endangered Karst Invertebrates in Central Texas. Should a karst feature be observed during the initial survey, a Section 10(a)(1)(A) permit would be required to facilitate excavation of the feature to determine the presence of suitable endangered karst invertebrate habitat. If suitable habitat exists, a karst invertebrate survey and subsequent report would be required by the Section 10(a)(1)(A) permit.

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 – Austin 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 (CFR) Part 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 CFR Part 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 CFR Part 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 CFR Part 77.9.

Paragraph (d) of 14 CFR Part 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 alternative route centerline. It is not currently anticipated that any route for the project will require FAA notification. 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 30 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.

1.6.5 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 Texas Parks and Wildlife Code Section 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 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.

1.6.6 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 counties floodplain administrators may be required after PUC route approval to determine if any permits or mitigation is necessary.

1.6.7 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. A SWPPP will be developed and implemented during construction activities, a site notice will be posted, and notification sent to the Municipal Separate Sewer System Operator (if applicable). The submittal of a Notice of Intent (NOI) and Notice of Termination (NOT) to the TCEQ is also required for large construction projects.

1.6.8 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 CFR 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. Once a route is approved by the PUC, additional coordination with the THC might determine the need for any archeological surveys or additional permitting requirements under the Antiquities Code of Texas. Even if no surveys are required, CPS Energy proposes 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.

1.6.9 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.

1.6.10 Texas General Land Office

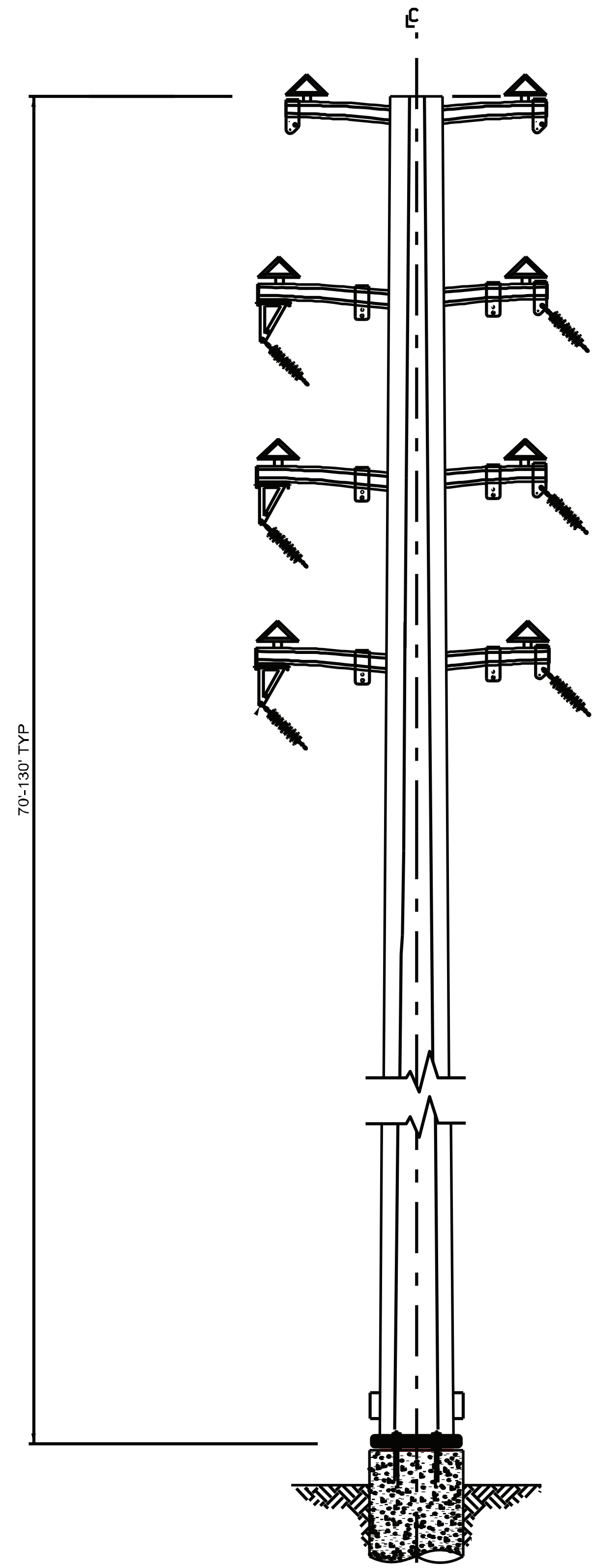
The Texas General Land Office (GLO) requires a miscellaneous easement for ROWs within any state-owned riverbeds or navigable streams or tidally influenced waters. Coordination with the GLO will be completed after PUC approval of a route.

1.6.11 City of San Antonio

The project area is within the extra territorial jurisdiction of San Antonio and 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 property for the safe and reliable operation of the transmission line and substation, CPS Energy will make every effort to save tree canopy and heritage trees where possible. The construction of the project will require a tree permit from San Antonio upon approval of a route by the PUC.

1.6.12 Bexar County

Bexar County will require a Storm Water Quality Permit, Post Construction Permit, and Floodplain Permit for the construction of the project, as applicable. In addition to the permits listed above, construction of the substation will also require a Site Development permit from the Bexar County Fire Marshal’s office. These permits will be completed after PUC approval of the project route.



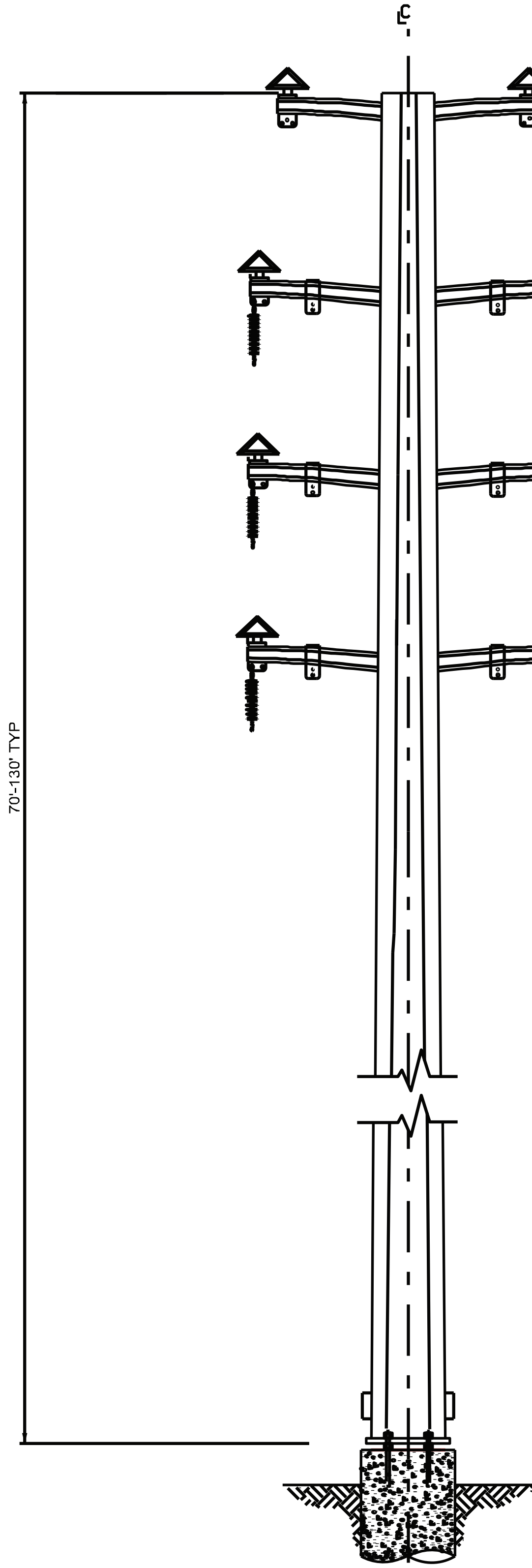
SCENIC LOOP 138 KV TRANSMISSION LINE AND SUBSTATION PROJECT

Figure 1-2

Typical 138 kV Double Circuit Running Angle Structure

CPS ENERGY

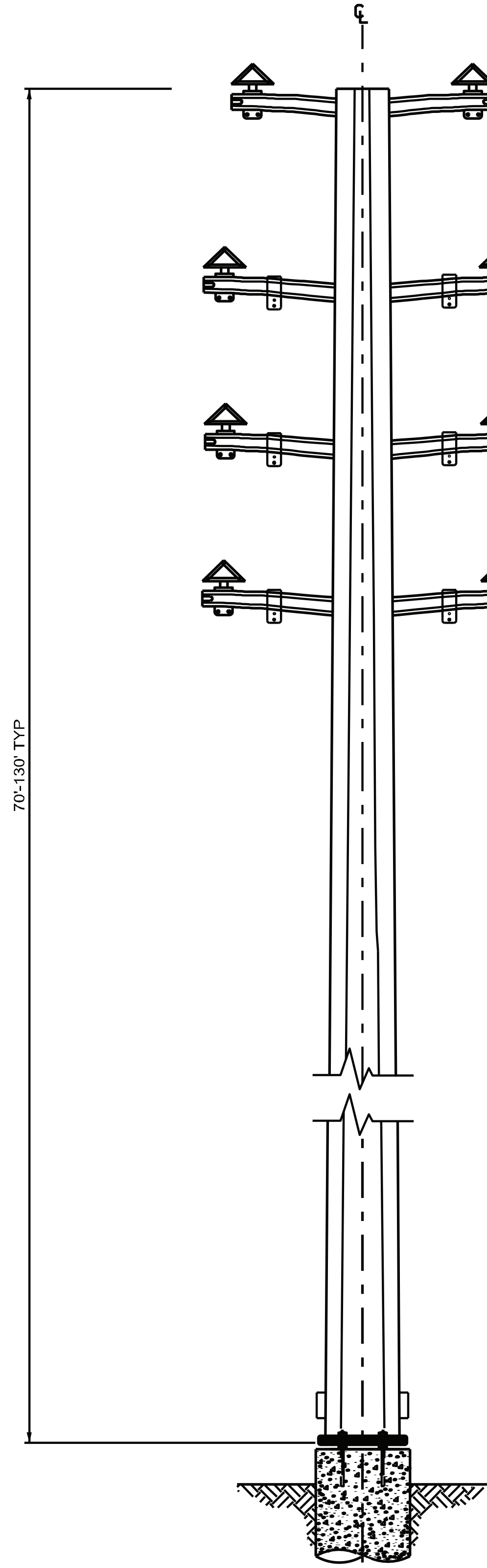
POWER ENGINEERS



SCENIC LOOP 138 KV TRANSMISSION LINE AND SUBSTATION PROJECT

Figure 1-3

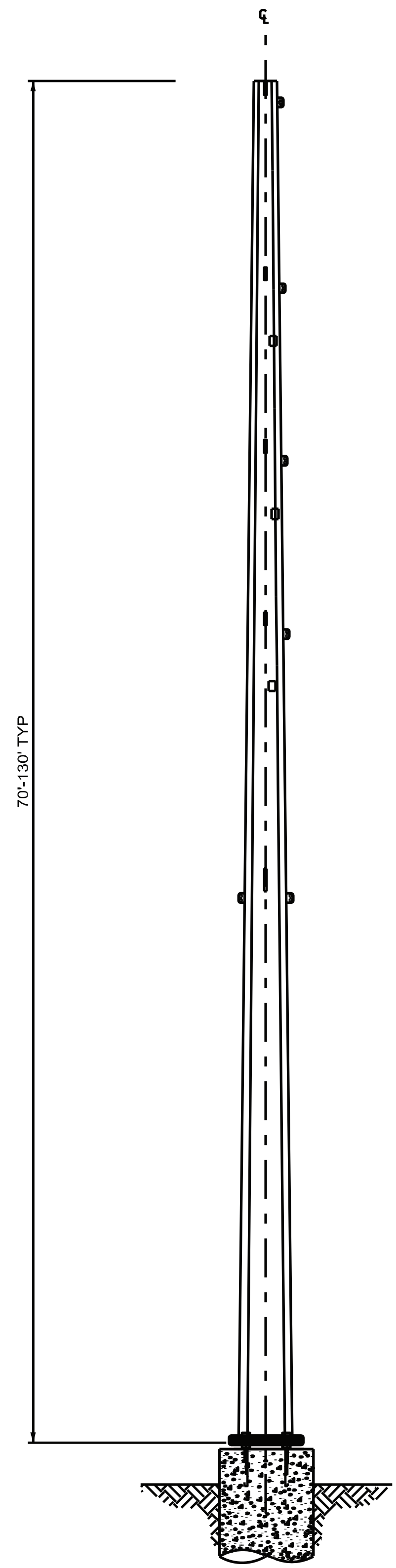
Typical 138 kV Double Circuit Tangent Structure



SCENIC LOOP 138 KV TRANSMISSION LINE AND SUBSTATION PROJECT

Figure 1-4

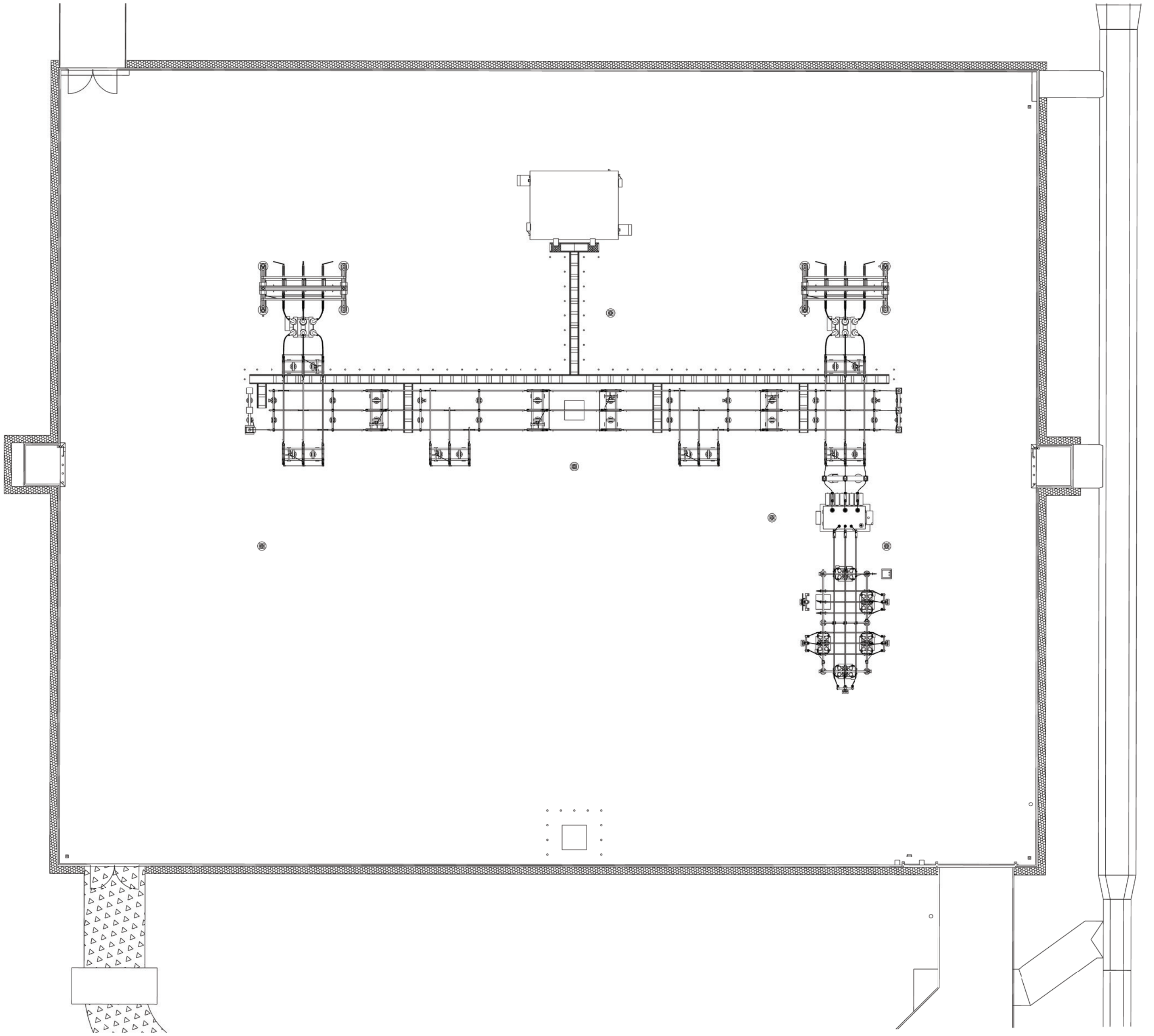
Typical 138 kV Double Circuit Dead-end Structure



SCENIC LOOP 138 KV TRANSMISSION LINE AND SUBSTATION PROJECT

Figure 1-5

Typical 138 kV Single Circuit Dead-end 90 Degree Structure



SCENIC LOOP 138 KV TRANSMISSION LINE AND SUBSTATION PROJECT

Figure 1-6

Typical 3-Unit Substation Layout

CPS ENERGY

POWER ENGINEERS

This page left blank intentionally.

2.0 ALTERNATIVE SUBSTATION AND ROUTE SELECTION METHODOLOGY

2.1 Objective of Study

The objective of this EA is to develop and evaluate alternative transmission line routes that provide geographic diversity and comply with Section 37.056(c)(4)(A)-(D) of the Public Utility Regulatory Act (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 identification of areas of potential substation site and routing opportunity located within the study area. POWER identified potentially affected resources and considered each during the substation site and route development process. Input from regulatory agencies, local officials, and public meetings was also considered during the alternative substation site and route development process. Modifications, additions, and deletions of preliminary alternative substation sites and segments were made while considering resource sensitivities and public input.

Feasible and geographically diverse alternative routes were then selected for analysis and comparison 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 identify one alternative route that they believe best addresses the requirements of PURA and PUC Substantive Rules. This alternative route, as well as other alternative routes that provide geographic diversity and sufficient routing options, will all be submitted to the PUC in the CCN application.

2.2 Study Area Delineation

To locate potential sites for the substation, POWER and CPS Energy first identified a study area large enough to capture several alternative sites, each of which would satisfy the project needs (as described in Section 1.0). POWER and CPS Energy identified potential substation sites within the study area based on the following criteria:

> **Size of the substation site, based on needed capacity.** To relieve the growing demand on the La Sierra and Fair Oaks Ranch substations and to provide a reliable electric supply in the project area, approximately four to six acres is needed to construct the new substation near the intersection of Scenic Loop Road and Toutant Beauregard Road.

Location of the substation site, based on available electric supply. The existing Ranchtown to Menger Creek 138 kV transmission line is the nearest available connection point to the interconnected transmission grid from which to provide a source of electricity to the new substation. Thus, the study area needed to be large enough to allow for connection of each substation site from geographically diverse routes to the Ranchtown to Menger Creek line.

Location of the substation site, based on the distribution system. To create the best mix of additional, shorter distribution lines, the new substation is best located near the primary existing distribution lines serving the load in the study area (while also being relatively close to the existing Ranchtown to Menger Creek transmission line).

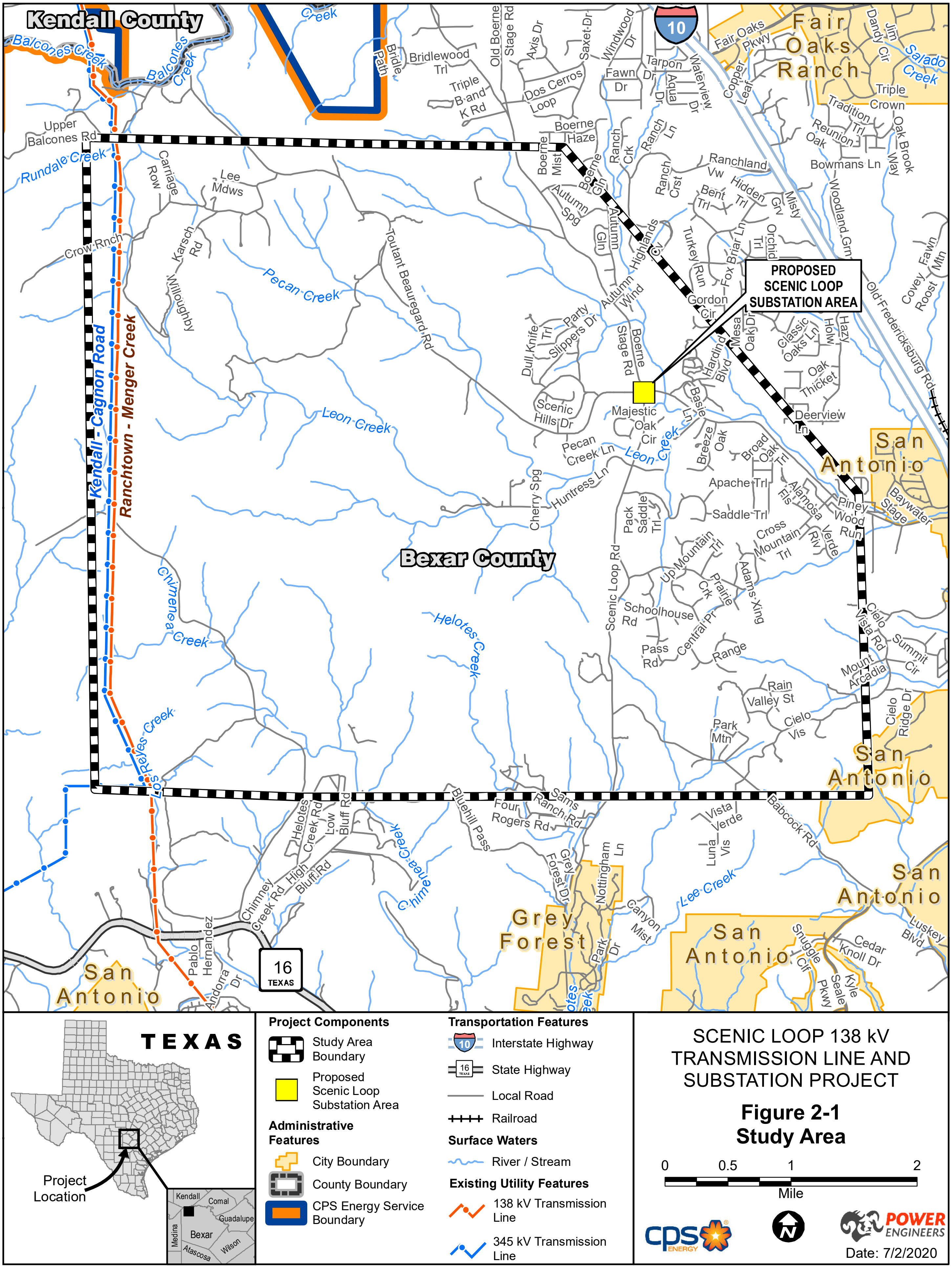
The study area also needed to include a large enough area within which a sufficient number of geographically diverse alternative routes could be developed between the preliminary substation sites and the existing Ranchtown to Menger Creek 138 kV transmission line. The study area POWER developed in coordination with CPS Energy is approximately 5.2 miles long, 6.1 miles wide at its widest point, and encompasses approximately 28 square miles in northwestern Bexar County (see Figure 2-1).

2.3 Data Collection and Constraints Mapping

After delineation of the study area, a constraint map was prepared and used to initially display resource data and constraints for the project area. The constraint 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 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 (January 2019) were used as the background for the environmental and land use constraint maps (see Appendices C and D [map pockets]).


Kendall County
Bexar County
PROPOSED SCENIC LOOP SUBSTATION AREA
Fair Oaks Ranch
San Antonio
Grey Forest
Kendall - Cagnon Road
Ranchtown - Menger Creek
Balcones Creek
Rundale Creek
Pecan Creek
Leon Creek
Chimenea Creek
Helotes Creek
Los Reyes Creek
Lee Creek
Salado Creek
Toutant Beauregard Rd
Scenic Loop Rd
Old Fredericksburg Rd
Babcock Rd
Upper Balcones Rd
Crow Rnch
Karsch Rd
Willoughby
Carriage Row
Lee Mdws
Bridlewood Trl
Triple B and K Rd
Dos Cerros Loop
Old Boerne Stage Rd
Boerne Stage Rd
Scenic Hills Dr
Majestic Oak Cir
Pecan Creek Ln
Huntress Ln
Cherry Spg
Schoolhouse Rd
Pass Rd
Central Pr
Range
Rain Valley St
Park Mtn
Cielo Vis
Cielo Vista Rd
Mount Arcadia
Summit Cir
Cielo Ridge Dr
Apache Trl
Saddle Trl
Cross Mountain Trl
Up Mountain Trl
Prairie Crk
Adams Xing
Bluehill Pass
Four Rogers Rd
Sams Ranch Rd
Vista Verde
Luna Vis
Helotes Creek Rd
Low Bluff Rd
High Bluff Rd
Chimney Creek Rd
Pablo Hernandez
Andorra Dr
Nottingham Ln
Canyon Mist
Park Dr
Grey Forest Dr
Snuggle Cir
Seale Pkwy
Kyle
Cedar Knoll Dr
Luskey Blvd
10
16 TEXAS
TEXAS
Project Location
Kendall
Comal
Guadalupe
Medina
Bexar
Atascosa
Wilson
Project Components
Study Area Boundary
Proposed Scenic Loop Substation Area
Administrative Features
City Boundary
County Boundary
CPS Energy Service Boundary
Transportation Features
Interstate Highway
State Highway
Local Road
Railroad
Surface Waters
River / Stream
Existing Utility Features
138 kV Transmission Line
345 kV Transmission Line
SCENIC LOOP 138 kV TRANSMISSION LINE AND SUBSTATION PROJECT
Figure 2-1
Study Area
0
0.5
1
2
Mile
cps ENERGY
POWER ENGINEERS
Date: 7/2/2020

This page left blank intentionally.

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

- Major land jurisdictions and uses.
- Major roads including local roads, county roads, Farm-to-Market (FM) Roads, United States Highways (US Hwy), State Highways (SH), 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 Field Reconnaissance

Reconnaissance surveys of the study area (from public viewpoints) were conducted by POWER personnel to confirm the findings of the research and data collection activities, identified 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. Reconnaissance surveys of the study area were conducted by POWER personnel on May 13, 2019; October 3, 2019; April 23, 2020; and May 20, 2020. CPS Energy also conducted numerous reconnaissance trips to the study area and provided information back to POWER regarding their findings.

2.6 Selection of Preliminary Substation Sites and Route Segments

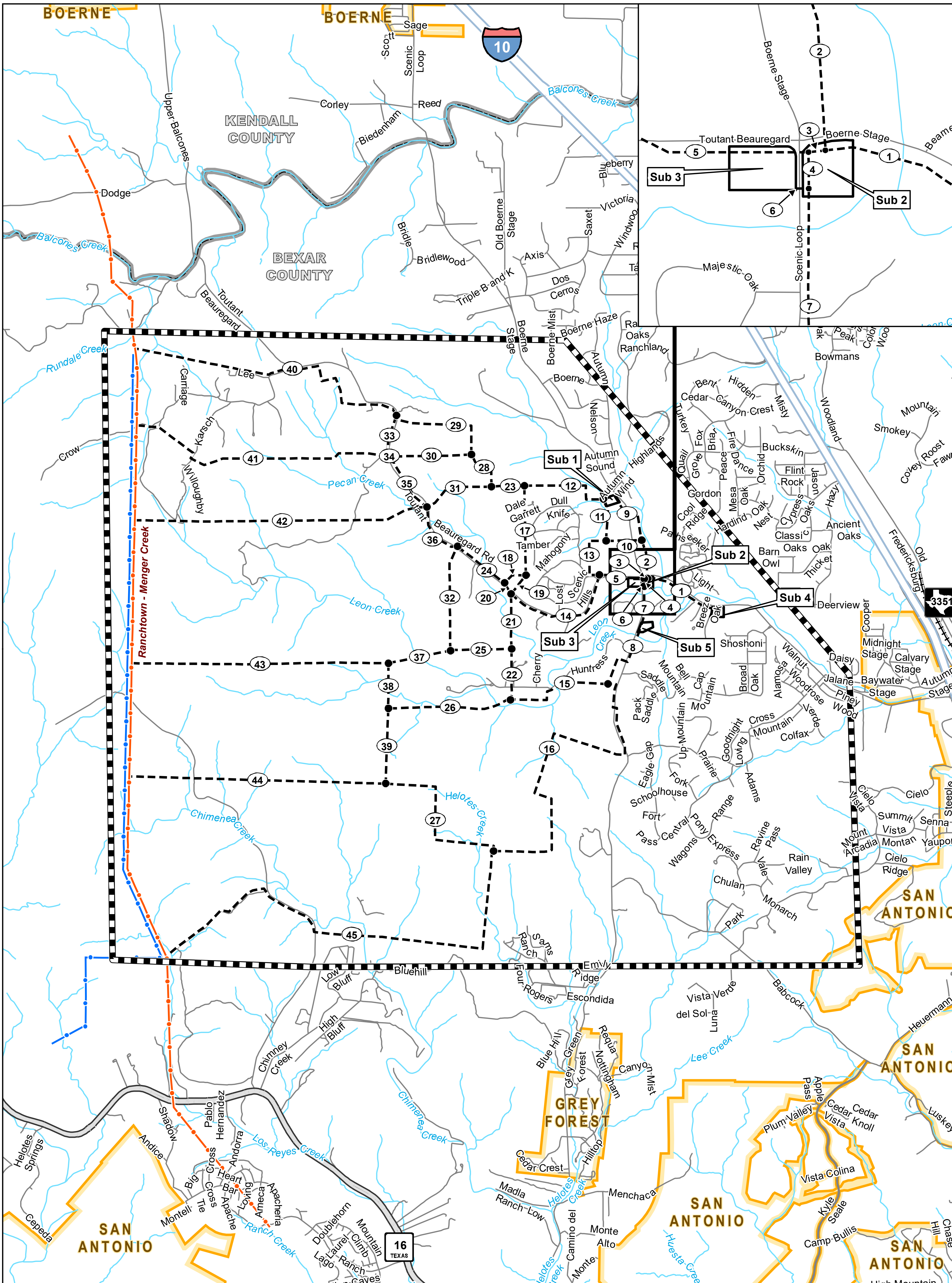
Preliminary alternative substation sites and route segments were identified by POWER with input from CPS Energy by using the environmental and land use constraint map while considering resource sensitivity. The preliminary alternative substation sites and route segments were developed based upon maximizing the use of opportunity areas while avoiding areas of higher environmental constraint or conflicting land uses. Existing aerial photography and USGS topographic maps were used in conjunction with constraints superimposed to identify potential locations of preliminary alternative substation sites and route segment centerlines.

The preliminary alternative substation sites and route segments were presented to CPS Energy for review and comment. The preliminary alternative route segments were reviewed in accordance with PURA § 37.056 (c)(4)(A)-(D), 16 TAC § 25.101, including the PUC's policy of prudent avoidance, and consistency with CPS Energy's transmission line routing manual. It was POWER's intent to identify an adequate number of environmentally acceptable and geographically diverse preliminary alternative substation sites and route segments while considering such factors as community values, recreational and park areas, historical and aesthetic values, environmental integrity, engineering constraints, costs, route length utilizing and parallel to existing compatible corridors or parallel to apparent property boundaries, and prudent avoidance. The process was iterative. CPS Energy and POWER continually reviewed the preliminary alternative substation sites and route segments and made refinements as more information became available.

2.7 Open House Public Meeting

CPS Energy and POWER ultimately identified five preliminary alternative substation sites and 45 preliminary alternative route segments that were then presented to the public at an open house meeting held on October 3, 2019. The five preliminary alternative substation sites and 45 preliminary alternative route segments presented at the open house meeting are shown on Figure 2-2. Following the open house, CPS Energy continued to receive feedback from mailed questionnaire responses, emails, phone calls, and additional landowner-requested meetings.

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 existing preliminary alternative route segments and/or the identification of new route segments that were not presented at the public meeting. A summary of the formal questionnaire responses obtained at and following the 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.



Project Components	Transportation Features	Existing Utility Features
Study Area Boundary	Interstate Highway	138 kV Transmission Line
Preliminary Segment, Node, & Label	State Highway	345 kV Transmission Line
Preliminary Substation Site	FM Road	
	Local Road	
	Railroad	

Administrative Features
- City Limits
- County Boundary

Surface Waters
- River / Stream

Project Location

TEXAS

Kendall County

Bexar County

SCENIC LOOP 138 kV TRANSMISSION LINE AND SUBSTATION PROJECT

Figure 2-2
Preliminary Segments Presented at Open House Meeting

0 4,000 8,000
Feet

POWER ENGINEERS

Date: 6/29/2020

Path: C:\PowerENG\156816_CPS_Scenic_Loop\DD\GIS\apps\EA\Fig_2_2_Preliminary_Segments.mxd

This page left intentionally blank.

2.8 Alternative Substation Sites and Alternative Route Selection

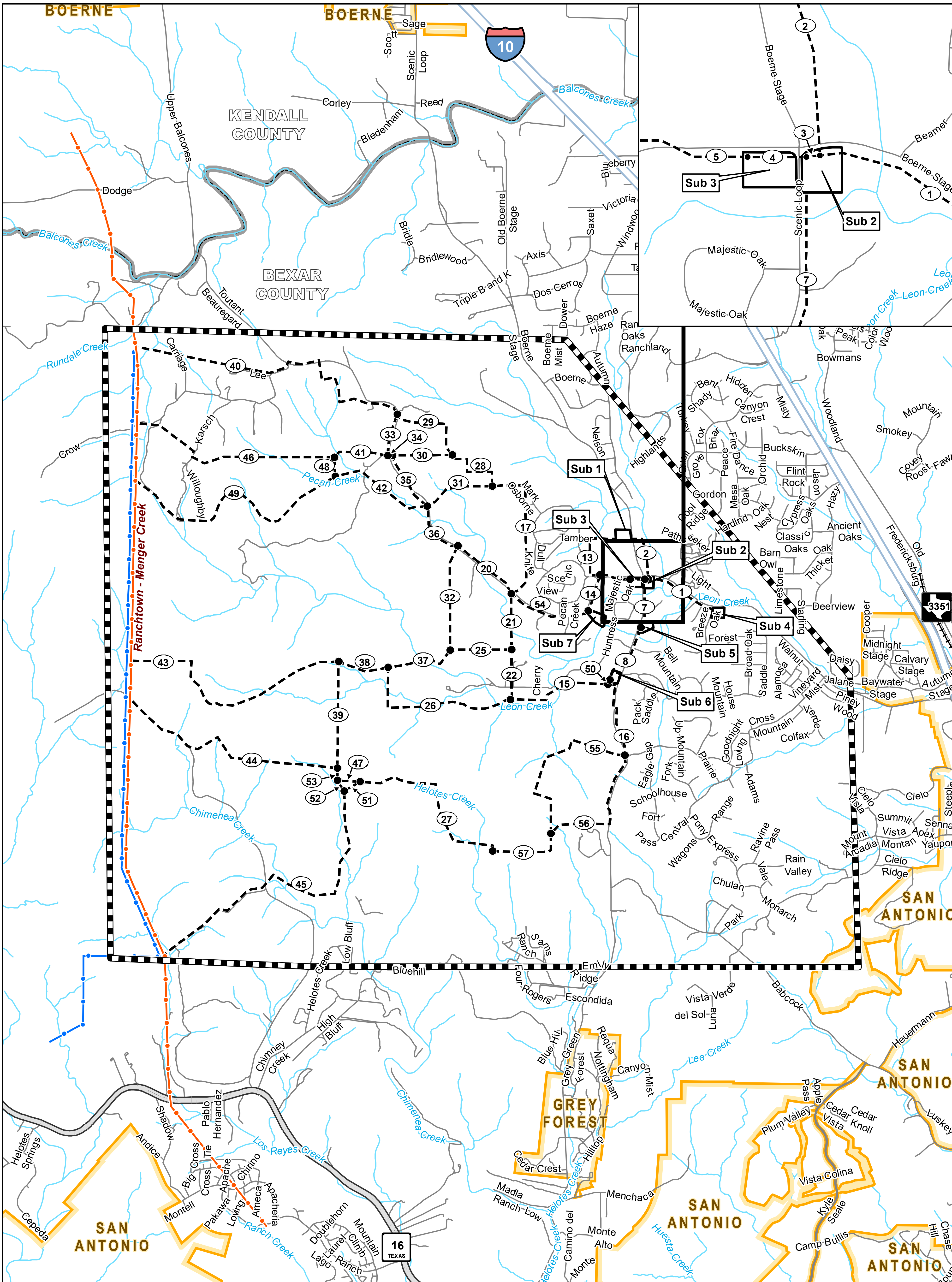
POWER's objective in performing the routing study for the project was to develop and evaluate numerous primary alternative segments, that when combined with the alternative substation sites, would form an adequate number of overall reasonable and geographically diverse alternative routes that reflect all of the previously discussed routing considerations.

As previously discussed, the study area for this project is a nearly square shaped area approximately 5.2 miles north to south and 6.1 miles east to west and encompasses approximately 28 square miles in northwestern Bexar County. Following the open house, it was determined that the original study area remained sufficient for development of alternative routes for the project. Considering the distance to the project endpoints, the amount of area encompassed, and routing constraints and opportunities (densely developed areas, existing transmission facilities, and current land uses, etc.) the 29 alternative routes evaluated in this EA represent an adequate number of reasonable, viable, geographically varied alternative routes for an approximately four- to seven-mile project.

Environmental/land use criteria data was collected for all of the primary alternative segments that were used to develop the 29 alternative routes. Additionally, potentially directly affected landowners along all of the 48 primary alternative segments will receive formal notification regarding the project from CPS Energy at the time of the filing of the application with the PUC. Therefore, to the extent necessary, various additional alternative routes could be formulated by different combinations of the primary alternative segments. The 48 primary alternative segments and seven alternative substation sites included in the application for consideration by the PUC are depicted on Figure 2-3 and in Appendices D and E. The primary alternative segments and alternative substation sites comprising each of the 29 alternative routes are presented in Table 2-1.

TABLE 2-1 ALTERNATIVE SUBSTATION AND ROUTE COMPOSITION AND LENGTH

PRIMARY ALTERNATIVE ROUTES	ALTERNATIVE SUBSTATION AND ROUTE SEGMENT COMPOSITION	TOTAL LENGTH IN MILES
A	Sub 1 – 13-14-54-17-28-29-40	6.66
B	Sub 1 – 13-14-54-17-31-42-48-46	6.24
C	Sub 1 – 2-3-4-5-14-54-20-36-35-34-41-46	5.71
D	Sub 2 – 4-5-14-54-20-36-42-48-46	5.27
E	Sub 2 – 4-5-14-54-17-28-30-34-33-40	6.62
F	Sub 2 – 7-8-50-15-26-38-43	5.66
G	Sub 3 – 5-14-54-17-31-42-49	6.08
H	Sub 3 – 5-14-54-17-28-29-40	6.32
I	Sub 3 – 5-14-54-20-36-42-48-46	5.15
J	Sub 3 – 5-14-54-20-36-42-49	5.33
K	Sub 3 – 5-14-54-21-25-37-38-43	5.29
L	Sub 3 – 5-14-54-21-25-37-38-39-53-52-45	6.91
M	Sub 4 – 1-3-4-5-14-54-20-36-42-48-46	5.90
N	Sub 5 – 8-50-15-26-38-43	5.33
O	Sub 5 – 8-50-16-56-57-27-47-53-44	6.83
P	Sub 6 – 50-15-22-25-37-38-43	4.89
Q	Sub 6 – 50-15-26-38-39-44	5.55
R	Sub 6 – 50-15-26-38-43	4.75
S	Sub 6 – 50-16-56-57-27-51-45	6.73
T	Sub 6 – 50-15-22-25-32-36-42-48-46	5.98
U	Sub 6 – 50-15-26-38-39-53-52-45	6.37
V	Sub 6 – 50-16-55-57-27-47-53-44	6.60
W	Sub 6 – 50-16-56-57-27-47-53-44	6.25
X	Sub 7 – 54-17-28-30-34-41-46	5.27
Y	Sub 7 – 54-20-36-35-34-33-40	5.23
Z	Sub 7 – 54-20-36-42-48-46	4.58
AA	Sub 7 – 54-20-36-42-49	4.77
BB	Sub 7 – 54-21-25-37-38-43	4.73
CC	Sub 7 - 54-20-32-37-38-43	5.23



Project Components

- Study Area Boundary
- Primary Segment, Node, & Label
- Proposed Substation Site

Administrative Features

- City Limits
- County Boundary

Transportation Features

- Interstate Highway
- State Highway
- FM Road
- Local Road
- Railroad

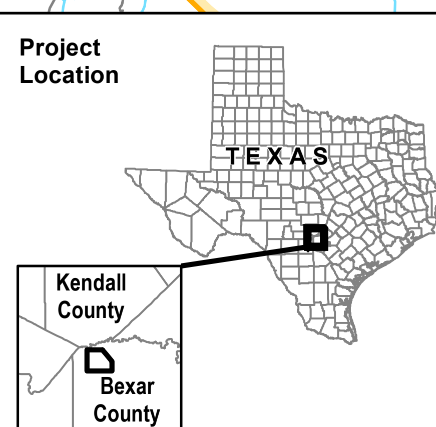
Surface Waters

- River / Stream

Existing Utility Features

- 138 kV Transmission Line
- 345 kV Transmission Line

Project Location



SCENIC LOOP 138 kV TRANSMISSION LINE AND SUBSTATION PROJECT

Figure 2-3
Resulting Primary Alternative Segments Following the Open House Meeting

0 4,000 8,000
Feet

POWER ENGINEERS
Date: 6/29/2020

Path: C:\PowerENG\156816_CPS_Scenic_Loop\DD\GIS\apps\EA\Fig_2_3_Primary_Segments.mxd

This page left intentionally blank.

2.9 Alternative Route Evaluation

In evaluating each of the 29 alternative routes, a variety of environmental criteria were considered. These criteria were selected because of their relevance to public and regulatory environmental concerns associated with the construction of transmission lines in a suburban setting. Many of these criteria are factors addressed by PURA § 37.056(c)(4), PUC Substantive Rule 25.101(b)(3)(B) for granting of a CCN, CPS Energy's transmission line routing manual, as well as relevant questions in the PUC's CCN application. The environmental criteria evaluated for this EA are presented in Table 2-2. The 29 alternative routes are shown in relation to environmental and other land use constraints on a USGS topographic based map in Appendix D and in relation to habitable structures and other land use features on an aerial imagery base map in Appendix E, and constitute, for the purposes of this analysis, the alternative routes evaluated in this EA. The analysis of each alternative route involved inventorying and tabulating the number or quantity of each environmental criterion located along each alternative route (e.g., number of habitable structures within 300 feet, length parallel to roads). 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 report.

The advantages and disadvantages of each alternative route were then evaluated by POWER. Specifically, POWER conducted an environmental evaluation that was a comparison of 29 alternative routes from a strictly environmental viewpoint based upon the measurement of land use, aesthetics, ecology, and cultural resource criteria addressed in Section 4.0. This information was made available to CPS Energy, along with its evaluation of engineering, construction, maintenance, operational factors, and cost to determine CPS Energy's recommendation of a route that best addresses the requirements of PURA and PUC Substantive Rules.

TABLE 2-2 LAND USE AND ENVIRONMENTAL EVALUATION CRITERIA

EVALUATION CRITERIA	
Land Use	
1	Length of alternative route (miles)
2	Number of habitable structures[1] within 300 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, canals, etc.)
6	Length of ROW parallel and adjacent to apparent property lines[2]
7	Sum of evaluation criteria 4, 5, and 6
8	Percent of evaluation criteria 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 and substation site
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 crossings[4]

TABLE 2-2 LAND USE AND ENVIRONMENTAL EVALUATION CRITERIA

EVALUATION CRITERIA	
18	Number of transmission line crossings
19	Number of IH, US and state highway crossings
20	Number of FM or RM road crossings
21	Number of cemeteries within 1,000 feet of the ROW centerline and substation site
22	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 and substation site
23	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 and substation site
24	Number of private airstrips within 10,000 feet of the ROW centerline and substation site
25	Number of heliports within 5,000 feet of the ROW centerline and substation site
26	Number of commercial AM radio transmitters within 10,000 feet of the ROW centerline and substation site
27	Number of FM radio transmitters, microwave towers, and other electronic installations within 2,000 feet of ROW centerline and substation site
28	Number of identifiable existing water wells within 200 feet of the ROW centerline and substation site
29	Number of oil and gas wells within 200 feet of the ROW centerline (including dry or plugged wells) and substation site
Aesthetics	
30	Estimated length of ROW within foreground visual zone[6] of IH, US and state highways
31	Estimated length of ROW within foreground visual zone[6] of FM/RM roads
32	Estimated length of ROW within foreground visual zone[6][7] of parks/recreational areas[3]
Ecology	
33	Length of ROW through upland woodlands/brushlands
34	Length of ROW through bottomland/riparian woodlands
35	Length of ROW across NWI mapped wetlands
36	Length of ROW across critical habitat of federally listed endangered or threatened species
37	Area of ROW across golden-cheeked warbler modeled habitat designated as 3-Moderate High and 4-High Quality (acres)[8]
38	Area of ROW across golden-cheeked warbler modeled habitat designated as 1-Low and 2-Moderate Low Quality (acres)[8]
39	Length of ROW across open water (lakes, ponds)
40	Number of stream and river crossings
41	Length of ROW parallel (within 100 feet) to streams or rivers
42	Length of ROW across Edwards Aquifer Contributing Zone
43	Length of ROW across FEMA mapped 100-year floodplain
Cultural Resources	
44	Number of recorded cultural resource sites crossed by ROW
45	Number of additional recorded cultural resource sites within 1,000 feet of ROW centerline
46	Number of NRHP listed properties crossed by ROW
47	Number of additional NRHP listed properties within 1,000 feet of ROW centerline
48	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 300 feet of the centerline of a transmission project of 230 kV or less.

[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 2019b formerly known as the Airport/Facility Directory South Central US) and FAA 2019a.

[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.

[8] From Model C by Diamond et al. 2010 and modified by POWER 2020.

3.0 NATURAL RESOURCES/ENVIRONMENTAL INTEGRITY

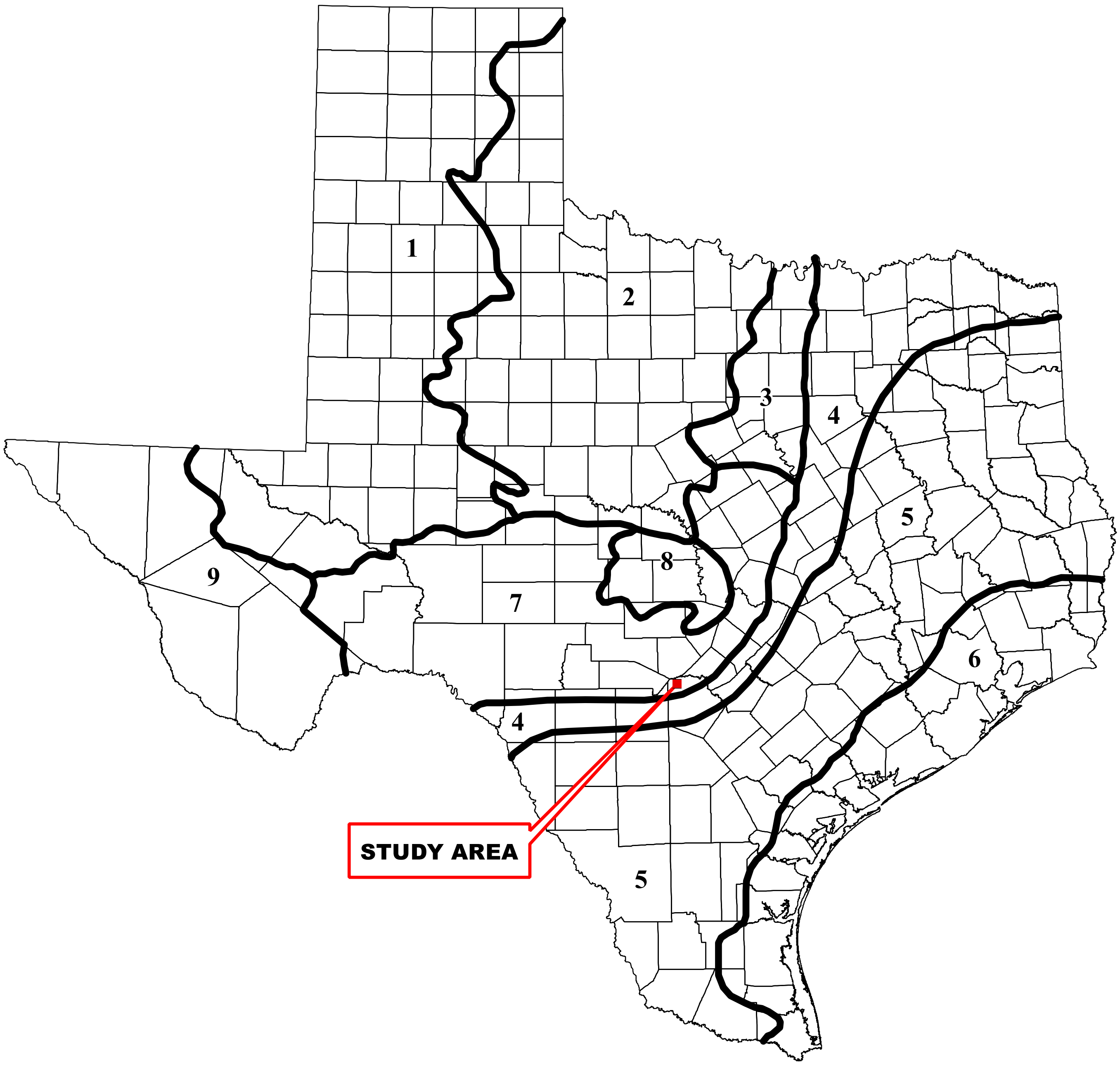
3.1 Natural Resources/Environmental Integrity

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 Balcones Escarpment/Blackland Prairies and the Edwards Plateau physiographic subprovince (BEG 1996). The Edwards Plateau is typically characterized by flat upper surfaces, interspersed by drainages that open into larger draws or box canyons. Bedrock types typically include Cretaceous limestone and dolomite. Elevations in the Edwards Plateau range between 3,000 feet above mean sea level (amsl) within the western and northern portions, to 450 feet amsl towards the Gulf Coast (BEG 1996). The Balcones Escarpment/Blackland Prairies is generally characterized by a gently rolling terrain over chalk and marl bedrock (BEG 1996). Elevations within the study area generally decrease from northwest to southeast and range between approximately 1,250 and 1,400 feet amsl (USGS 2019a).

The BEG (1981) geologic atlas maps were reviewed for geologic formations that occur within the study area. Underlying formations include the Cretaceous-aged Fredericksburg and Trinity groups, with portions of Quaternary-aged fluviatile low terrace deposits along streams and creeks (USGS 2019b; BEG 1981). Regional rock units include the Edwards Limestone within the Fredericksburg Group and the Upper and Lower Glen Rose Formations within the Trinity Group (BEG 1981). The Edwards Limestone rock unit is comprised of chert with fossil and shell fragments and ranges in thickness from 300 to 500 feet. The Upper and Lower Glen Rose Formations are generally comprised of limestone, dolomite, and marl, and are approximately 900 feet thick (BEG 1981; USGS 2019a and 2019b).



N

0 50 100 200

Miles

Source: Texas Bureau of Economic Geology, 1996

Date: 6/29/2020

Legend

Physiographic Region Bounday

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

SCENIC LOOP 138 kV
TRANSMISSION LINE AND
SUBSTATION PROJECT

Figure 3-1
Location of the Study Area In Relation to the Physiographic Regions of Texas

cps ENERGY

POWER ENGINEERS

Significant Geological Features

Several geological features potentially affecting construction and operation of a transmission line were reviewed within the study area. Geological related issues reviewed include karst areas with known karst/cave locations, fault lines, and subsurface contamination. Review of the Geologic Atlas of Texas (BEG 1981; USGS 2019b) maps identified three normal faults within the study area.

The geology within the study area is conducive to the formation of karst features and caves due to the dissolution of limestone, creating underground fissures and caverns (Griffith et al. 2007). The study area is located in the Balcones Fault Zone, Lower Glen Rose, and Isolated Edwards Group Outliers Karst. Because of the limestone geology of the Edwards Plateau, karst features may be common in this region and may occur within the study area (Texas Speleological Survey [TSS] 2007). Review of TSS data indicates three documented caves occur within the study area: Saddle Trail Cave, Some Monk Chanted Evening Cave, and Post Hole. All three caves are located east of Scenic Loop Road and are surrounded by residential development. Saddle Trail Cave is located immediately southwest of the intersection of Saddle Trail and Broad Oak Trail. Some Monk Chanted Evening Cave is located immediately west of Fortaleza Drive. Post Hole is located immediately southwest of the intersection of Chulan Pass and Monarch Pass (TSS 1962). Additional undocumented cave formations or karst features have the potential to occur in 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 Superfund/National Priority List (USEPA 2019a), Texas' Index of Superfund sites (TCEQ 2019a and 2019b), and state solid waste facilities data (TCEQ 2019c) did not indicate any superfund or active landfill sites within the study area.

Review of the Railroad Commission of Texas ([RRC] 2016, 2019a, and 2019b) and BEG (2019) data did not indicate any historical or current coal/uranium mining activities within the study area.

3.1.2 Soils

Soil Associations

Natural Resources Conservation Service (NRCS) Web Soil Survey data was reviewed for Bexar County. Descriptions of soil associations occurring within the study area are summarized in Table 3-1. A soil association is a group of soils defined as a single unit that is geographically associated in a characteristic repeating pattern (NRCS 2019).

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

SOIL MAP UNIT	LANDFORM	HYDRIC	PRIME FARMLAND
Brackett gravelly clay loam, 3 to 12 percent slopes	Backslopes of ridges on dissected plateaus	No	No
Brackett gravelly clay loam, 12 to 20 percent slopes	Backslopes of ridges on dissected plateaus	No	No
Brackett-Eckrant association, 20 to 60 percent slopes	Backslopes of ridges on dissected plateaus	No	No
Anhalt clay, 0 to 2 percent slopes	Gently sloping uplands	No	Yes, if irrigated
Crawford and Bexar stony soils	Gently sloping uplands	No	No
Heiden clay, 3 to 5 percent slopes, eroded	Base of various slopes	No	No
Krum clay, 1 to 5 percent slopes	Stream terraces and dissected plains	No	Yes, if irrigated
Lewisville silty clay, 1 to 3 percent slopes	Upland slopes	No	Yes
Patrick soils, 1 to 3 percent slopes, rarely flooded	Stream terraces and dissected plains	No	No
Patrick soils, 3 to 5 percent slopes, rarely flooded	Stream terraces and dissected plains	No	No
Eckrant cobbly clay, 1 to 8 percent slopes	Backslopes of ridges on dissected plateaus	No	No
Eckrant cobbly clay, 5 to 15 percent slopes	Backslopes of ridges on dissected plateaus	No	No
Eckrant-Rock outcrop association, 8 to 30 percent slopes	Backslopes of ridges on dissected plateaus	No	No
Tinn and Frio soils, 0 to 1 percent slopes, frequently flooded	Floodplains of dissected plains	Yes	No

Source: NRCS 2019.

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 2019).

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 (2019) Web Soil Survey data for Bexar County within the study area, only the Tinn and Frio soil unit,0-1 percent slopes, is classified as hydric (NRCS 2019).

Prime Farmland

The Secretary of Agriculture within 7 U.S.C. § 4201 defines prime farmland soils as those soils with the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops. Prime farmlands have the soil quality, growing season, and moisture supply needed to economically produce sustained high yields of crops when treated and managed with acceptable farming methods. Additional potential prime farmlands contain soils that meet most of the prime farmland requirements but lack the installation of water management facilities or sufficient natural moisture. The United States Department of Agriculture (USDA) would consider these soils prime farmland if such practices were installed.

Construction of transmission line projects are typically not subject to requirements of the Farmland Protection Policy Act unless they are associated with federal funding. The NRCS responded to POWER's solicitation for information in a letter dated July 3, 2019 stating, "The major concerns within the study area are soil depth and slope. Most of the very shallow and shallow soils (less than 100 cm [centimeters]) are also on steep to very steep slopes. These limitations may require additional consideration in equipment required for construction as well as site selection. We strongly encourage the use of acceptable erosion control methods during the construction of this project" (see Appendix A).

3.1.3 Surface Water

The study area is located within the San Antonio River Basin and within the Medina and Cibolo Sub-Basins (USEPA 2019b). Other named surface waters within the study area include Chimenea Creek, Helotes Creek, Leon Creek, Los Reyes Creek, Morales Spring, Pecan Creek, and Rundale Spring. Additional unnamed surface waters include stock ponds and ephemeral/intermittent streams. Review of the 2017 Texas Water Development Board (TWDB) State Water Plan and the 2016 Regional Water Plan for South Central Texas did not indicate any proposed surface water developments within the study area (TWDB 2016; South Central Texas Regional Water Planning Group 2015).

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 2019a). No designated ESSS were identified within the study area (TPWD 2019a).

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. Review of TCEQ's (2016) Texas Integrated Report of Surface Water Quality does not indicate any surface waters within the study area that do not meet their water quality standards.

3.1.4 Groundwater

The study area is located within the Edwards Aquifer Contributing Zone (Edwards Aquifer Authority [EAA] 2020a) and District 4 of the EAA (2020b) jurisdictional area. The EAA has regulatory jurisdiction in Bexar County and authorizes groundwater withdrawals for municipal, industrial, and irrigation purposes. The study area is located within the Subchapter E and F Regulated Area as defined by the EAA Rules. Subchapter E of the rules states that in addition to notification requirements of the TCEQ, a responsible party shall notify the EAA of any unauthorized discharges or spills into surface waters. Subchapter F states that the responsible party of a facility storing more than 1,000 gallons of regulated substances in containers of less than 500 gallons, that are located on the Recharge Zone must register the facility with the EAA (2019). Due to the study area's location within the Edwards Aquifer Contributing Zone, the proposed project must be reviewed and approved by the TCEQ (2020) Edwards Aquifer Protection Program prior to start of construction.

The major ground water aquifers mapped within the study area include the Edwards Balcones Fault Zone (subcrop) and Trinity (subcrop) aquifers. The Trinity Aquifer underlies eastern and southern portions of the study area and underlies a large area across central and northeast Texas. It consists primarily of limestone, sand, clay, gravel, and various conglomerates. The average freshwater saturated thickness in Central Texas is approximately 1,900 feet with total dissolved solids, sulfates, and chloride increasing with the depth of the aquifer (TWDB 2011). The Edwards-Balcones Aquifer underlies a portion of the study area as well as much of the Central Texas Escarpment area. The average thickness fluctuates between 200 and 600 feet with an average saturated thickness of over 560 feet. Water quality ranges from fresh to slightly saline, with salinity typically increasing westward within the Trinity Group (TWDB 2011). Other ground water resources include numerous domestic and public supply water wells located primarily in the southeast portion of the study area; four springs located in the northeast corner of the study area; one spring located along Pecan Creek; two springs located along Leon Creek; and four springs located near the southern boundary of the study area (TWDB 2019 and 1975).

3.1.5 Floodplains

FEMA's Flood Insurance Rate Maps and National Flood Hazard Layer were reviewed for the study area. The 100-year floodplains are primarily associated with Pecan Creek and Leon Creek and their associated tributaries. The 100-year flood (1.0 percent flood or base flood) represents a flood event that has a 1.0 percent chance of being equaled or exceeded for any given year (FEMA 2019).

3.1.6 Wetlands

NWI mapped wetland data are based on topography and interpretation of infrared satellite data and color aerial photographs and are classified under the Cowardin Classification System (Cowardin et al. 1979). No NWI mapped wetlands were identified within the study area (USFWS 2019a).

3.1.7 Coastal Management Program

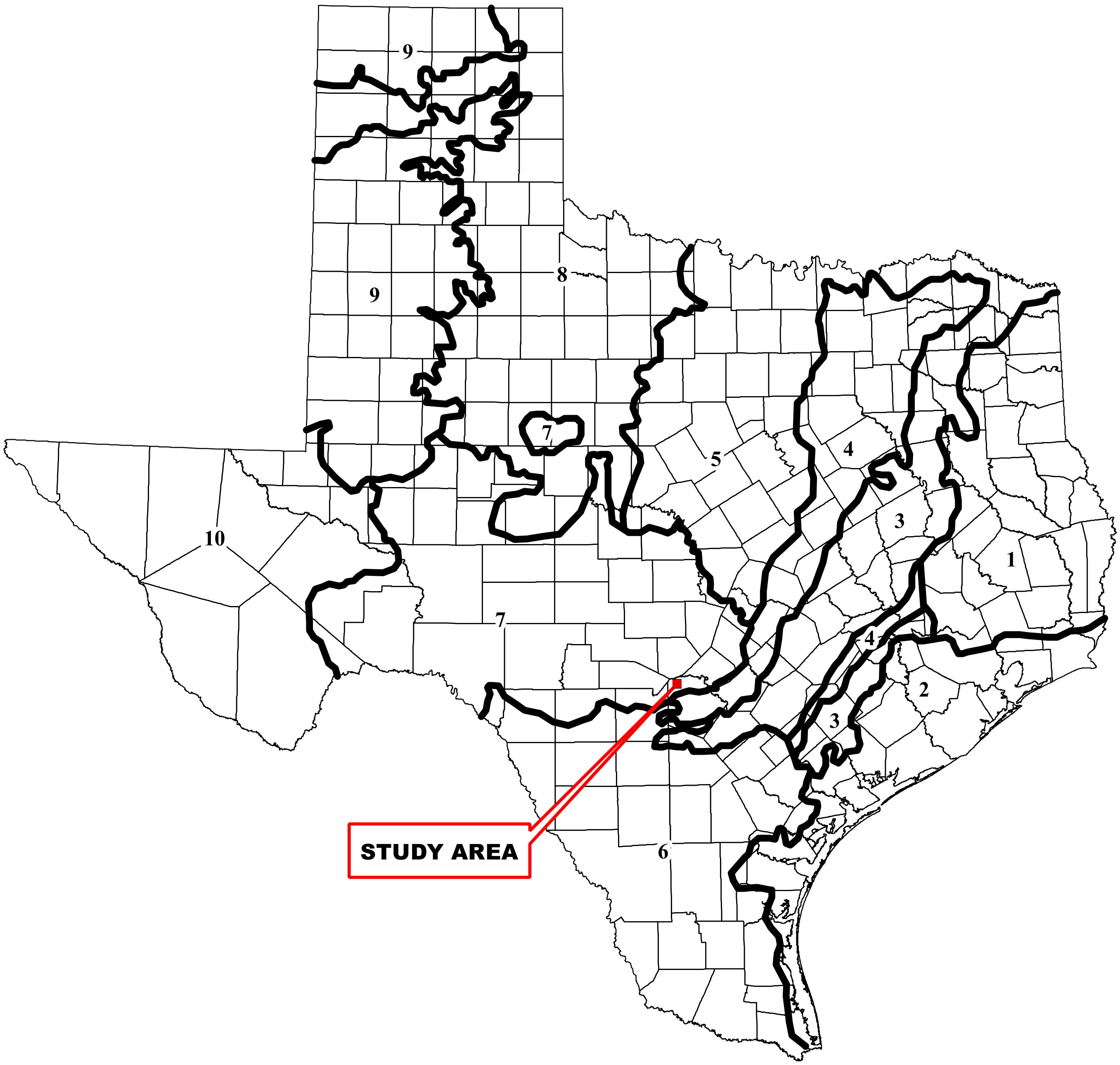
The PUC must comply with Coastal Management Program (CMP) policies when approving CCNs for electric transmission lines that are located within the Coastal Management Zone (CMZ) under the Coastal Zone Management Act of 1972. The study area is not located within the CMZ boundary as defined in 31 TAC § 503.1 and this excludes the Project from CMP conditions.

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, and published literature and technical reports. All biological resource data for the study area was mapped utilizing GIS.

Ecological Region

The study area is located within the USEPA Edwards Plateau Level III Ecoregion and within the Balcones Canyonlands Level IV Ecoregion (Griffith et al. 2007). As shown in Figure 3-2, the study area is located within the Edwards Plateau Vegetational Area (Gould et al. 1960). A general description of the historical climax vegetation community of the Balcones Canyonlands ecoregion is included below. For the vegetation community, plant species composition and density are dependent on location, hydrology, soils, and disturbance history or land management activities.



0 50 100 200

Miles

Source: Gould, F.W., Hoffman, G.O., and Rechenthin, C.A. 1960, modified

Date: 6/29/2020

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

SCENIC LOOP 138 kV TRANSMISSION LINE AND SUBSTATION PROJECT

Figure 3-2
Location of the Study Area In Relation to the Vegetational Areas of Texas

cps ENERGY

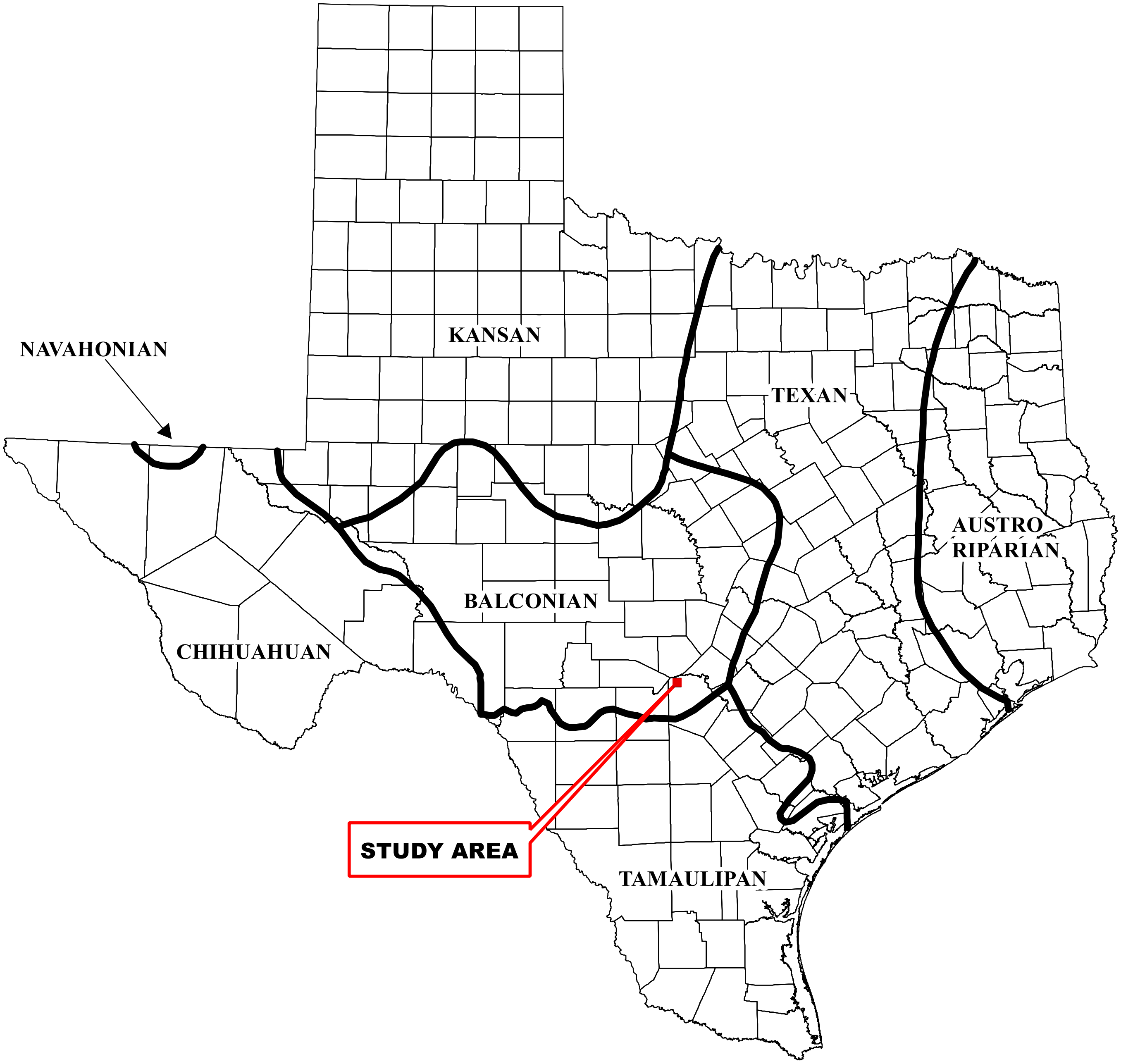
POWER ENGINEERS

Balcones Canyonlands Ecoregion

The Balcones Canyonland Ecoregion forms the southern border of the Edwards Plateau and is distinctly unique due to the extent of the escarpments. This region is highly dissected by streams, springs, and rivers, and serves as an important recharge zone for the Edwards Aquifer. Plant communities vary in the Balcones Canyonlands and occur along soil and moisture gradients, from evergreen woodlands on slopes, to deciduous north-slope forest, to mesic riparian forest. Sheltered canyons support slippery elm (*Ulmus rubra*), Ohio buckeye (*Aesculus glabra*), boxelder (*Acer negundo*), bigtooth maple (*Acer grandidentatum*), Carolina basswood (*Tilia americana*), and escarpment black cherry (*Prunus serotina* var. *exima*). Relict species such as baldcypress (*Taxodium distichum*) and black willow (*Salix nigra*) may also occur along major streams. Westward canyons support more arid species such as Ashe juniper (*Juniperus asheii*), sumac (*Rhus* spp.), Texas sotol (*Dasylirion texanum*), acacia (*Acacia* spp.), honey mesquite (*Prosopis glandulosa*), and ceniza (*Leucophyllum frutescens*). Oak savannas composed of plateau live oak (*Quercus fusiformis*), Texas oak (*Quercus buckleyi*), ashe juniper, cedar elm, and escarpment black cherry occur on ridgetops and benches between canyons and drainages. With the cessation of wildfires in recent times, Ashe juniper has invaded much of the oak savanna, but where these grasslands still persist species such as threeawns (*Aristida* spp.) and gramas (*Bouteloua* ssp.) are dominant (Griffith et al. 2007).

3.1.9 Wildlife

The study area occurs within the Balconian Biotic Province (see Figure 3-3) as described by Blair (Blair 1950). The Balconian province’s faunal composition is characterized as an intermixed representation of Austroriparian, Tamaulpian, Chihuahuan, and Kansan province species. The following sections list species that may occur in and represent the faunal diversity of the study area today.



Legend

Biotic Province Boundary

County Boundary

Source: Blair, 1950, modified

Date: 6/29/2020

SCENIC LOOP 138 kV
TRANSMISSION LINE AND
SUBSTATION PROJECT

Figure 3-3
Location of the Study Area
In Relation to the
Biotic Provinces of Texas

Amphibians

Amphibian species (frogs, toads, and salamanders) that may occur within the study area are listed in Table 3-2. Frogs and toads may occur in all vegetation types, while salamanders are typically restricted to hydric habitats (Tipton et al. 2012).

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

COMMON NAME	SCIENTIFIC NAME
Frogs/Toads	
American bullfrog	*Lithobates catesbeianus*
Barking frog	*Eleutherodactylus augusti*
Blanchard's cricket frog	*Acris blanchardi*
Cliff chirping frog	*Eleutherodactylus marnokii*
Cope's gray treefrog	*Hyla chrysoscelis*
Couch’s spadefoot	*Scaphiopus couchi*
Eastern green toad	*Anaxyrus debilis*
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*
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*
Comal blind salamander	*Eurycea tridentifera*
Small-mouthed salamander	*Ambystoma texanum*
Tiger salamander	*Ambystoma tigrinum*
Western slimy salamander	*Plethodon albagula*

Source: Dixon 2013.

Reptiles

Reptiles (turtles, lizards and snakes) that may occur in the study area are listed in Table 3-3. 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

COMMON NAME	SCIENTIFIC NAME
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 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 collaris*
Eastern six-lined racerunner	*Cnemidophorus 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*

TABLE 3-3 REPTILIAN SPECIES POTENTIALLY OCCURRING WITHIN THE STUDY AREA

COMMON NAME	SCIENTIFIC NAME
Snakes	
Black-tailed rattlesnake	*Crotalus molossus*
Broad-banded copperhead	*Agkistrodon contortrix laticinctus*
Bullsnake	*Pituophis catenifer sayi*
Central American indigo snake	*Drymarchon melanurus*
Checkered garter snake	*Thamnophis marcianus*
Chihuahuan night snake	*Hypsiglena jani*
Cottonmouth	*Agkistrodon piscivorus*
Desert kingsnake	*Lampropeltis getula splendida*
Diamond-backed watersnake	*Nerodia rhombifer*
Eastern black-necked garter snake	*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 annulata*
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	*Virginia striatula*
Rough green snake	*Opheodrys aestivus*
Schott’s whipsnake	*Masticophis schotti*
Smooth earthsnake	*Virginia valeriae*
Southwestern rat snake	*Pantherophis emoryi meahllmorum*
Striped whipsnake	*Masticophis taeniatus*
Texas brown snake	*Storeria dekayi texana*
Texas coral snake	*Micrurus tener*
Texas garter snake	*Thamnophis sirtalis annectens*
Texas glossy snake	*Arizona elegans arenicola*
Texas lined snake	*Tropidoclonion lineatum texanum*
Texas patch-nosed snake	*Salvadora grahamiae lineata*
Texas thread snake	*Rena dulcis*
Timber rattlesnake	*Crotalus horridus*
Western coachwhip	*Masticophis flagellum*
Western diamond-backed rattlesnake	*Crotalus atrox*
Western ground snake	*Sonora semiannulata*
Western ribbon snake	*Thamnophis proximus*

Source: Dixon 2013.

Birds

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.

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

COMMON NAME	SCIENTIFIC NAME	RESIDENT	SUMMER	WINTER
Accipitriformes: Accipitridae				
Cooper's hawk	*Accipiter cooperii*		X	X
Northern harrier	*Circus cyaneus*			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
Zone-tailed hawk	*Buteo albonotatus*		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				
Greater roadrunner	*Geococcyx californianus*	X		
Yellow-billed cuckoo	*Coccyzus americanus*		X	

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

COMMON NAME	SCIENTIFIC NAME	RESIDENT	SUMMER	WINTER
Falconiformes: Falconidae				
American kestrel	*Falco sparverius*			X
Crested caracara	*Caracara cheriway*	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
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	

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

COMMON NAME	SCIENTIFIC NAME	RESIDENT	SUMMER	WINTER
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				
Verdin	*Auriparus flaviceps*	X		
PASSERIFORMES: Sturnidae				
European starling	*Sturnus vulgaris*	X		

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

COMMON NAME	SCIENTIFIC NAME	RESIDENT	SUMMER	WINTER
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	*Picoides pubescens*			X
Golden-fronted woodpecker	*Melanerpes aurifrons*	X		
Ladder-backed woodpecker	*Picoides scalaris*	X		
Northern flicker	*Colaptes auratus*			X
Yellow-bellied sapsucker	*Sphyrapicus varius*			X
Strigiformes: Strigidae				
Barn owl	*Tyto alba*	X		
Barred owl	*Strix varia*	X		
Great horned owl	*Bubo virginianus*	X		

Source: Lockwood 2008; Lockwood and Freeman 2014

Mammals

Mammals that may occur in the study area are listed in Table 3-5. The occurrence of each species within the study area is dependent on available suitable habitat.

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

COMMON NAME	SCIENTIFIC NAME
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*

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

COMMON NAME	SCIENTIFIC NAME
Mountain lion	*Puma concolor*
Nine-banded armadillo	*Dasypus novemcinctus*
North American deermouse	*Peromyscus maniculatus*
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*
Virginia opossum	*Didelphis virginiana*
Western spotted skunk	*Spilogale gracilis*
White-footed deermouse	*Peromyscus leucopus*
White-tailed deer	*Odocoileus virginianus*
White-toothed woodrat	*Neotoma leucodon*

Source: Schmidly and Bradley 2016.

3.1.10 Aquatic Resources

Perennial and intermittent streams and creeks occur within the study area. Perennial aquatic environments may support species of smartweeds and docks (*Polygonaceae*), pennyworts (*Hydrocotyle* spp.), widgeon-grass (*Ruppia cirrhosa*), pondweed (*Potamogetonaceae*), and duckweeds (*Lemna* spp.). Emergent wetlands may be located along the edges of ponds and streams during wetter periods and may be comprised of rushes (*Juncus* spp.), spikerushes (*Eleocharis* spp.), sedges (*Carex* spp.), and flatsedges (*Cyperus* spp.). Typical woody plant species in these wetland or riparian areas may include elms (*Ulmus* spp.), bald cypress, American sycamore (*Platanus occidentalis*), pecan (*Carya illinoinensis*), cottonwood (*Populus deltoides*), black willow, and rattlebush (*Sesbania* spp.) (Chadde 2012a and 2012b).

Intermittent 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 (Hubbs 1957).

Perennial streams and ponds offer relatively stable water levels and the constant pools and flow facilitate stable population growth. Species with flowing water or pooled area habitat requirements will use perennial streams and those adapted for deeper waters will use lake/pond environments. With distance downstream, especially in pooled areas where sufficient water is present, fish communities tend to be heavily dominated by widely distributed sunfish (*Lepomis* spp.), bass (*Micropterus* spp.), and catfish (*Ictalurus* spp.) (Hubbs 1957). Numerous species of turtles, snakes, and amphibians are also dependent on perennial surface waters for their habitat requirements. Some of these herptile species infrequently use terrestrial habitats to migrate between surface waters, but primarily use impounded and perennial surface waters.

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.

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. Available biological resource data for the study area were mapped using GIS.

For the purpose of this EA, emphasis was placed on obtaining known occurrences of special status species and unique vegetation communities that have been previously documented within the study area. Special status species include those listed by the USFWS as threatened, endangered, proposed, or candidate; and those listed by TPWD as threatened, endangered, or as a rare species. Spatial data of known occurrences for listed species and/or sensitive vegetation communities was obtained from the TPWD's TXNDD on April 04, 2019 (TXNDD 2019). 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.

A USFWS IPaC Official Species List (USFWS 2020b; Consultation Code: 02ETAU00-2020-SLI-1016) and Resource List was received on April 8, 2019. This USFWS (2020b) report identifies potentially occurring federal-listed threatened, endangered, and candidate species and habitats within the study area. By definition, a threatened species is defined as likely to become endangered within the near foreseeable future throughout all or a significant portion of its range. An endangered species is in danger of extinction throughout all or a significant portion of its range. Candidate species are those that have sufficient information regarding their biological vulnerability and threat(s) to support listing as threatened or endangered and are likely to be proposed for listing in the near foreseeable future (USFWS 2019b).

The ESA also provides for the conservation of "designated critical habitat," which is defined 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. Critical habitat for the endangered Madla Cave meshweaver (*Cicurina madla)* is mapped within the southeast corner of the study area, south of the Cielo Vista community (USFWS 2020b). The critical habitat for the Madla Cave meshweaver is mapped within areas known to contain karst features. Karst habitat is used by several federally protected species listed in Table 3-6. According to USFWS (2020a) Ecological Services Southwest Region, the study area for the project intersects portions of Karst Zones 1, 2, 3, 4, and 5. Karst Zone 1 is defined as areas known to contain karst invertebrate species. Karst Zone 2 is defined as areas having a high probability of containing suitable habitat for endangered karst invertebrate species. Karst Zone 3 is defined as areas that probably do not contain endangered karst invertebrate species. Karst Zone 4 is defined as areas that require further research but are generally equivalent to Zone 3, although they may include sections that could be classified as Zone 2 or 5 as more information becomes available. Karst Zone 5 is defined as areas, both cavernous and non-cavernous, that do not contain endangered karst invertebrate species (Veni 2002). Karst Zone 5 occurs in the north portion of the study area. Karst Zones 2, 3, and 4 occur intermixed across the south portion of the study area. Karst Zone 1 is restricted to the southeast corner of the study area, southeast of the Cross Mountain community.

Threatened and Endangered Plant Species

USFWS (2020b) IPaC species list for the study area and TPWD (2019b) county listings were reviewed for special status plant species potentially occurring within the study area. One federal- / state-listed endangered plant species, Texas wild-rice (*Zizania texana*), and one candidate plant species, the Bracted twistflower (*Streptanthus bracteatus*), was identified as having the potential to occur within the study area (USFWS 2020b; TPWD 2019b; TXNDD 2019). A brief description of these species' life history, habitat requirements, and documented occurrences within the study area are summarized.

Texas Wild-rice

Texas wild-rice is endemic to Texas and the only known populations occur in portions of the Upper San Marcos River within Hays County (Poole et al. 2007). This species occurs in the spring-fed San Marcos River within clear, cool, shallow, swift water. Sediments are typically coarse sandy soils and this species flowers year-round (Poole et al. 2007; TPWD 2019b). This species is not anticipated to occur within the study area due to a lack of potential suitable aquatic habitat.

Bracted Twistflower

Bracted twistflower is endemic to the Edwards Plateau ecoregion. It is a short annual, 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 in openings of oak-juniper woodlands, as well as in canyon bottoms. It can be found growing amidst dense shrub areas; however, plants are often more robust in sites with plentiful sunlight. Associate plant species include shrubby boneset (*Ageratina havanensis*), desert barberry (*Berberis trifoliata*), Texas hog plum (*Colubrina texensis*), bush croton (*Croton fruticulosus*), Texas oak, Mexican buckeye (*Ungnadia speciosa*), featherleaf desertpeony (*Acourtia runcinata*), green milkweed vine (*Matelea reticulata*), blue curls (*Phacelia congesta*), Buckley's fluffgrass (*Tridens buckleyanus*), little bluestem, and sideoats grama. Populations of this species may change extensively between years depending on the amount winter rainfall. The primary causes for its decline are residential development and browsing by white-tailed deer (Poole et al. 2007). This species may occur within the study area if suitable habitat is available.

Threatened and Endangered Animal Species

The USFWS (2020b) IPaC species report for the study area and TPWD (2019b) county listings were reviewed for special status animal species potentially occurring within the study area. Federally- and/or state-listed, and candidate status animal species potentially occurring within the study area are listed in Table 3-6. Federal status species listed in the TPWD Annotated County Lists of Rare Species have been included in Table 3-6 for consistency. 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. Brief descriptions of life history, habitat requirements, and documented occurrences within the study area are summarized below for each species.

TABLE 3-6 LISTED THREATENED AND ENDANGERED ANIMAL SPECIES FOR BEXAR COUNTY

SPECIES		LEGAL STATUS	
COMMON NAME	SCIENTIFIC NAME	USFWS[1]	TPWD[2]
Amphibians			
Cascade Caverns salamander	*Eurycea latitans*	-	T
Mexican treefrog	*Smilisca baudinii*	-	T
San Marcos salamander	*Eurycea nana*	T	T
Texas blind salamander	*Typhlomolge rathbuni*	E	-
Texas salamander	*Eurycea neotenes*	-	T
Arachnids			
Bracken Bat Cave meshweaver	*Cicurina venii*	E	-
Cokendolpher Cave harvestman	*Texella cokendolpheri*	E	-
Government Canyon Bat Cave meshweaver	*Cicurina vespera*	E	-
Government Canyon Bat Cave spider	*Neoleptoneta microps*	E	-
Madla Cave meshweaver	*Cicurina madla*	E	-
Robber Baron Cave meshweaver	*Cicurina baronia*	E	-
Birds			
Golden-cheeked warbler	*Dendroica chrysoparia*	E	E
Interior least tern	*Sternula antillarum athalassos*	E	E
Piping plover	*Charadrius melodus*	T	T
Reddish egret	*Egretta rufescens*	-	T
Tropical parula	*Setophaga pitiayumi*	-	T
White-faced ibis	*Plegadis chihi*	-	T
Whooping crane	*Grus americana*	E	E
Wood stork	*Mycteria americana*	-	T
Zone-tailed hawk	*Buteo albonotatus*	-	T
Crustaceans			
Peck's Cave amphipod	*Stygobromus pecki*	E	-
Fishes			
Fountain darter	*Etheostoma fonticola*	E	-
Sharpnose shiner	*Notropis oxyrhynchus*	E	-
Smalleye shiner	*Notropis buccula*	E	-
Toothless blindcat	*Trogloglanis pattersoni*	-	T
Widemouth blindcat	*Satan eurystomus*	-	T
Insects			
Beetle (No designated common name)	*Rhadine exilis*	E	-
Beetle (No designated common name)	*Rhadine infernalis*	E	-
Comal Springs dryopid beetle	*Stygoparnus comalensis*	E	-
Comal Springs riffle beetle	*Heterelmis comalensis*	E	-
Helotes mold beetle	*Batrisodea venyivi*	E	-
Mammals			
American black bear	*Ursus americanus*	-	T

TABLE 3-6 LISTED THREATENED AND ENDANGERED ANIMAL SPECIES FOR BEXAR COUNTY

SPECIES		LEGAL STATUS	
White-nosed coati	*Nasua narica*	-	T
Mollusks			
Golden orb	*Quadrula aurea*	C	T
Guadalupe orb	*Cyclonaias necki*	-	T
Texas fatmucket	*Lampsilis bracteata*	C	-
Texas pimpleback	*Quadrula petrina*	C	-
Reptiles			
Cagle's map turtle	*Graptemys caglei*	-	T
Texas horned lizard	*Phrynosoma cornutum*	-	T
Texas tortoise	*Gopherus berlandieri*	-	T

[1] USFWS 2020b, [2] TPWD 2019b.
E – Federal- or State-Listed Endangered
T – Federal- or State-Listed Threatened
C – Federal Candidate for Listing

<u>Federal Listed Species</u>

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 the known range of suitable habitat.

Texas Blind Salamander

The Texas blind salamander is white, like many other species adapted to living in aquatic caves of the Edwards Aquifer, and measures up to five inches in length. Similar to the San Marcos salamander, the Texas blind salamander requires constant flow of clear water. This subterranean species is only seen above ground when strong water flows bring it to the surface. The Texas blind salamander is only known to occur in the Balcones Escarpment near the city of San Marcos and is found within subterranean streams of the Purgatory Creek (Tipton et al. 2012). This species is not anticipated to occur within the study area due to the known range of suitable habitat.

ARACHNIDS

Braken Bat Cave Meshweaver

The Braken Bat Cave meshweaver is a species of eyeless spider known only from a single specimen at the type locality, Braken Bat Cave, Bexar County, Texas This invertebrate species is a troglobite, which is an organism that spends its entire life in subterranean environments (NatureServe 2019). 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 known range of suitable habitat.

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 2019) 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 known range of suitable habitat.

Government Canyon Bat Cave Meshweaver

The Government Canyon Bat Cave meshweaver is a spider endemic to Bexar County, Texas. It is a troglobite (NatureServe 2019) 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 known range of suitable habitat.

Government Canyon Bat Cave Spider

The Government Canyon Bat Cave spider is endemic to Bexar County, Texas. It is a troglobite (NatureServe 2019) 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 known range of suitable habitat.

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 2019). 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). Review of TXNDD (2019) data identified one EOR located within 0.5 mile of the study area. Critical habitat for this species is mapped within the southeast corner of the study area (USFWS 2020a). This species may occur within the study area if suitable cave/karst habitat is available.

Robber Baron Cave Meshweaver

The Robber Baron Cave meshweaver is an eyeless spider endemic to Bexar County, Texas. It is a troglobite (NatureServe 2019) 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 known range of suitable habitat.

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 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 (Pulich 1976). The golden-cheeked warbler migrates southward to southern Mexico and northern Central America to overwinter. Review of TXNDD (2019) data identified one EOR mapped within the northeast and northwest portion of the study area.

In order to identify potential suitable habitat within the study area, POWER used published data developed by Diamond et al. (2010) to analyze the location, extent, relative quality, and relative occupancy potential of the golden-cheeked warbler. As defined by the Diamond et al. (2010) Model C, mapped areas of potential suitable habitat for the golden-cheeked warbler were assigned a numeric value of **1**, **2**, **3**, or **4**, where **1** represents the lowest quality habitat and **4** represents the highest quality habitat. The Model C habitat designation descriptions are as follows:

- **1** - potential low-quality habitat when bordering higher ranked habitat; not habitat when not bordering higher ranked habitat;
- **2** - potential low-quality habitat when bordering higher ranked habitat; not habitat when not bordering higher ranked habitat;

- **3** - potential moderate quality habitat when bordering habitat ranked 4; potential low-quality habitat when not bordering habitat ranked 4; and
- **4** - potential moderate to high quality habitat.

During the data analysis, POWER biologists evaluated each route segment. Using GIS applications, Model C habitat data and route segments were superimposed on 2010 (date of Diamond Model results) and 2019 (the most recent imagery currently available for the study area) aerial imagery to perform a side-by-side analysis of observable habitat alteration. Biologists identified obvious vegetation alterations in areas designated as potential suitable habitat by the Model C. Examples of obvious vegetation alterations included newly constructed infrastructure (e.g., roads, transmission lines, and pipelines), commercial/residential developments, and clear-cut or thinned vegetation. Unaltered areas (no obvious alterations of vegetation) were assumed to remain the same quality and retained their Model C value designation. Using GIS applications, altered areas were subtracted from the Model C data and not included in the data tabulation presented in Table 4-1.

Model C mapped areas were avoided to the greatest extent possible, with an emphasis on avoiding areas with a numeric value of **3** and **4** where high-quality habitat is most likely to occur. POWER did not consider an increase in habitat quality during the data analysis assessment. Areas without Model C value designation were not considered to have the minimal characteristics required to support golden-cheeked warbler populations and were not evaluated. This species may occur within the study area if suitable habitat is available. Pedestrian field surveys by qualified biologists may be necessary to verify modeled habitat and determine presence or absence of golden-cheeked warblers.

Interior Least Tern

The interior least tern is a subspecies of the least tern that nests inland along sand and gravel bars within braided streams and rivers. It is also known to nest on man-made structures (inland beaches, wastewater treatment plants, gravel quarries, etc.). Breeding may begin as early as April and typically ends by late August. The USFWS recognizes any nesting least tern located 50 miles or greater from a coastline as the interior least tern subspecies (Campbell 2003; TPWD 2014). This species is not anticipated to occur within the study area due to lack of suitable habitat.

Piping Plover

The piping plover is a small migratory shorebird that nests within the Great Lakes, Northern Great Plains or Atlantic Coast (TPWD 2019b). Primary fall migration to Texas is from July to early September, while spring migration occurs from March to early May. Piping plovers are common to locally uncommon winter residents along the Gulf of Mexico coastline (Lockwood and Freeman 2014). This species is not anticipated to occur within the study area due to lack of suitable habitat.

Whooping Crane

The eastern half of the study area is located within the central migratory corridor for the whooping crane. 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. The migratory corridor contains 95 percent of all confirmed whooping crane stopover sightings, during migration. Whooping cranes 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). This species may occur within the study area as a rare transient during migration.

CRUSTACEANS

Peck's Cave Amphipod

Little is known about the life history of the Peck's Cave amphipod, except that it is an eyeless cave obligate. This species has only been observed at spring openings of Comal and Hueco springs in the Edwards Aquifer area (NatureServe 2019). This species is not anticipated to occur within the study area due to the known range of suitable habitat.

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 known range of suitable habitat.

Sharpnose Shiner

The sharpnose shiner occurs in the Brazos, Wichita, and Colorado river systems. Historically it occurred throughout the Brazos River system but is currently only known from the Brazos River system upstream of Possum Kingdom Reservoir. This species is generally found in river runs and pools and is thought to prefer large turbid waters with sand, gravel, and clay-mud bottoms (NatureServe 2019). This species is not anticipated to occur within the study area due to the known range of suitable habitat.

Smalleye Shiner

The smalleye shiner is endemic to the Brazos River system, although the current known distribution for this species includes the Brazos River system upstream of Possum Kingdom Reservoir and may be found in portions of the Colorado River above Lake Buchanan as a result of introductions. The smalleye shiner is believed to be extirpated downstream of Possum Kingdom Reservoir. This species typically inhabits river channels or medium to large prairie streams with sandy substrate and turbid to clear water (NatureServe 2019). This species is not anticipated to occur within the study area due to the known range of suitable habitat.

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 2019). *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). Review of TXNDD (2019) data identified two EO records located within 0.5 mile of the study area. This species may occur within the study area if suitable habitat is available.

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 2019). Threats to this species include habitat loss from quarrying operations, cave filling, and habitat degradation via pollution, and alterations in water flow (USFWS 2012). Review of TXNDD (2019) data identified two EO records located within 0.5 mile of the study area. This species may occur within the study area if suitable cave/karst habitat is present and available.

Comal Springs Dryopid Beetle

The Comal Springs dryopid beetle is translucent, with a rust-colored exoskeleton. It is eyeless and measures approximately three to four millimeters long. The larvae may inhabit the ceilings of spring openings where organic soil and roots are present, whereas the adults are completely aquatic. Diet of the Comal Springs dryopid beetle is unknown; however, it may be like that of other dryopid beetles, which includes detritus and aquatic plants. It has only been collected from Comal Springs and Fern Bank Springs of the Edwards Aquifer (USFWS 2007). This species is not anticipated to occur within the study area due to the known range of suitable habitat.

Comal Springs Riffle Beetle

The Comal Springs riffle beetle is approximately two millimeters long, with a reddish-brown exoskeleton. Diet consists of detritus and microorganisms. They are restricted to springs within the Edwards Aquifer and are only known to occur near headwaters of the Comal and San Marcos rivers (USFWS 2007). This species is not anticipated to occur within the study area due to the known range of suitable habitat.

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). This species may occur within the study area if suitable cave habitat is available.

Federal Candidate Species

Golden Orb

The golden orb is a freshwater mussel endemic to central and south Texas. The shell is orange, yellow, or yellowish brown with occasionally green rays. This mussel species inhabits sandy, gravely, and muddy bottoms of lentic and lotic water bodies with depths varying from a few centimeters to over three meters. The golden orb is presumed to be extirpated from the Medina and Cibolo watersheds (HUC 12100302 and HUC 12100304), which occur in the study area (NatureServe 2019). This species is not anticipated to occur within the study area due to the known range of suitable habitat.

Guadalupe Orb

The Guadalupe orb is a freshwater mussel that inhabits sand, gravel, and cobble bottoms, in medium-sized streams to large rivers with low to moderate flow. It has primarily found in riffles and runs, and only occasionally in pools. It is considered intolerant of impoundments (Howells 2014; Randklev et al. 2017). This species is endemic to the Guadalupe river basin and reports from the San Antonio basin are based on unreliable locality information (Neck 1982; Howells 2014; Randklev et al. 2017; Johnson et al. 2018). This species is not anticipated to occur within the study area due to the limits of its known distribution.

Texas Fatmucket

The Texas Fatmucket is a freshwater mussel endemic to central Texas. This species is currently known to inhabit the Colorado and Guadalupe river basins. It is believed to be intolerant of impoundments and inhabits streams with low water capacity that dry quickly during drought and low water events. The Texas Fatmucket primarily occupies water bodies bedrock substrates but sometimes occurs in muddy substrates. Small populations of this species have only been documented in Runnels, Tom Green, Menard, Kerr, and Gillespie counties. In 2015, surveys documented three abundant populations in portions of the San Saba, Llano, and Pedernales rivers. (NatureServe 2019). This species is not anticipated to occur within the study area due to the known range of suitable habitat.

Texas Pimpleback

The Texas Pimpleback is a freshwater mussel endemic to central Texas in the Colorado River Basin. One viable population occurs in the Concho River in a sanctuary managed by TPWD (NatureServe 2019). This species is not anticipated to occur within the study area due to the known range of suitable habitat.

Other Federally Protected Species

Bald Eagle

The bald eagle 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 tree tops 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). This species may occur within the study area if suitable habitat is available.

State Listed Species

AMPHIBIANS

Cascade Caverns Salamander

The Cascade Caverns salamander is a small, subaquatic amphibian endemic to Texas. Its range includes springs and caves within the Edwards Aquifer area (TPWD 2019b). 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 may occur within the study area if suitable habitat is available.

Mexican Treefrog

The Mexican treefrog is nocturnal and seeks shelter under loose tree bark or in damp soil during the heat of the day. It breeds during May to October during rainy periods and lays eggs in temporary rain pools, ponds, canals, and flooded fields (TPWD 2019b). This species may occur within the study area if suitable habitat is available.

Texas Salamander

The Texas salamander is endemic to Bexar and Kendall counties in Texas. 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 2019). This species may occur within the study area if suitable habitat is available

BIRDS

Reddish Egret

The reddish egret is a wading bird with blue legs and a pink bill. This species may occur as white (white phase) or as gray with a rusty colored head and neck (dark phase). The Reddish Egret is a permanent resident of the Texas Gulf Coast and inhabits brackish marshes, shallow salt ponds, and tidal flats (Alsop 2002). They nest on the ground or in trees and bushes on dry coastal islands in brushy thickets of yucca and prickly pear (TPWD 2019b). This species may occur in the study area as a rare non-breeding migrant (Lockwood and Freeman 2014) if suitable habitat is available.

Tropical Parula

The tropical parula inhabits dense or open woods, undergrowth, brush, and trees along edges of rivers and resacas. This species is a breeding resident in Texas and feeds on insects and berries (Alsop 2002). This species may occur in the study area if suitable habitat is available.

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. This species is a colonial nester and forages on insects, newts, leeches, earthworms, snails, crayfish, frogs, and fish (TPWD 2019b). White-faced ibis commonly breeds and winters along the Texas Gulf Coast (Arvin 2007). This species may occur in the study area as a non-breeding migrant (Lockwood and Freeman 2014) if suitable habitat is available.

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 (TPWD 2019b). This species is not anticipated to occur within the study area due to lack of suitable habitat.

Zone-tailed Hawk

The zone-tailed hawk inhabits arid open country, including open deciduous or pine-oak woodland, mesa or mountain country (often near watercourses), wooded canyons, and tree-lined rivers along middle-slopes of desert mountains. This species nests in a wide range of habitats and sites, including small trees in lower desert, giant cottonwoods in riparian areas, and mature conifers in high mountain regions (TPWD 2019b). This species may occur in the study area as a rare resident or migrant (Lockwood and Freeman 2014) if suitable habitat is available.

FISHES

Toothless Blindcat

The toothless blindcat is a small, eyeless fish restricted to freshwater pools within caves located in the Medina watershed (HUC 12100302), which partially occurs within the study area, and Upper San Antonio River watershed. Diet of the toothless blindcat may consist of detritus and fungi (NatureServe 2019). This species may occur within the study area if suitable habitat is available.

Widemouth Blindcat

The widemouth blindcat is a small, white to pink eyeless fish restricted to freshwater pools within caves located in the Medina watershed (HUC 12100302), which partially occurs within the study area, and Upper San Antonio River watershed. Diet of the widemouth blindcat consists of shrimp, amphipods, and isopods (NatureServe 2019). This species may occur within the study area if suitable habitat is available.

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 American 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 2019b). This species historically inhabited large tracts of forest and woodland throughout Texas and was once thought to be extirpated from the state. In recent years sightings have increased near the Chisos Mountains in west Texas and the Texas Panhandle by bears dispersing from Mexico and New Mexico (Schmidly and Bradley 2016). Review of TXNDD (2019) data identified one American black bear EO record from the year 1980 mapped with the study area. This species may occur within the study area if suitable habitat is available.

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 south and west Texas. 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; Nature Serve 2019). This species may occur within the study area if suitable habitat is available.

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 is not anticipated to occur within the study area due to the lack of suitable perennial river habitat.

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. 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 may occur within the study area if 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 (NatureServe 2019). 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 trash. The tortoise feeds on fruits of prickly pear and other mostly succulent plants (TPWD 2019b). This species may occur within the study area if potential 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 County. A portion of the City of San Antonio is located within the study area.

The study area covers approximately 28 square miles in Bexar County. Land uses within the study area were identified and placed into the following categories: urban/developed, planned land use, agriculture, oil and gas facilities, transportation/aviation/utility features, communication towers, and parks and recreation areas. The primary sources of land use information were obtained from interpretation of aerial photographs, 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 County and partially within the City of San Antonio. The study area is suburban, with residential development and some industrial and commercial development in the eastern and central portion of the study area. The habitable structures in the study area would be considered medium and low intensity development. Habitable structures were identified using aerial photographs (DigitalGlobe 2019), Google Earth, 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 Northside Independent School District (ISD) and Boerne ISD. One public elementary school, Dr. Sara B. McAndrew Elementary School, was identified within the study area (Texas Education Agency 2019).

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 also has a Master Plan intended to provide guidance in future decisions related to land use, infrastructure improvements, transportation, and more (City of San Antonio 2019a and 2019b). Additionally, the City of San Antonio has set up zoning districts to provide information on how a property may be developed. No Neighborhood Conservation Districts were identified within the study area, but there are platted subdivisions. Bexar County is implementing a parks master plan. No zoning was identified for Bexar County (Bexar County 2019).

An email response was received from Bexar County on July 03, 2019 containing shape files of data within the study area, including Master Development Plans for numerous neighborhoods and subdivisions. Additional information regarding Master Development Plans was requested on July 17, 2019 from Bexar County. The Master Development Plans are at various stages of development and typically take 20 to 30 years to be fully developed. Refer to Appendix A.

Conservation Easements

A conservation easement is a restriction 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.

A 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 indicated four conservation easements within the study area. They are all listed under the same name, Bandera Pass Easement, and held by the Nature Conservancy. They encompass a total of 607 acres in the northeastern portion of the study area (Nature Conservancy 2019; TLC 2019; NCED 2019). The United States Army (Army) has third party contingent rights in the Bandera Pass Easement related to the Army's activities at the Camp Bullis Military Installation. Correspondence from the Army regarding the project is included in Appendix A. Based on landowner communication, the landowner that established the Bandera Pass Easement is considering establishment of additional conservation easements on property located to the west and south of the existing easements. At the time of preparation of the EA, POWER understands that the land acquisition and grant of the easements has not been finalized.

3.2.2 Agriculture

Agriculture is a significant segment of the economy throughout Texas, and the study area county has an active agricultural sector. According to the USDA's National Agricultural Statistics Service's 2012 Census of Agriculture, the total market value for agricultural products sold for Bexar County was $72,387,000, a 14 percent decrease from the 2007 market value of $84,223,000. Livestock sales accounted for 24 percent of agricultural sales in Bexar County, while crop sales accounted for 76 percent of agricultural sales. The number of farms in Bexar County decreased slightly from 2,496 in 2007 to 2,457 in 2012 (a decrease of two percent) (USDA 2012).

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 does not include any US Hwys, SHs, or FM roads. Numerous county roads were identified in the study area, including Scenic Loop Road, Babcock Road, Upper Balcones Road, Cross Mountain Trail, Toutant Beauregard Road, and Boerne Stage Road (TxDOT 2019a).

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 no state roadway projects planned within the study area (TxDOT 2019b).

A review of the City of San Antonio Transportation and Capital Improvements did not indicate any city roadway projects planned within the study area (City of San Antonio 2019c).

No railroads were identified within the study area (United States Department of Transportation [USDOT] 2019).

Aviation

POWER reviewed the San Antonio Sectional Aeronautical Chart (FAA 2019a) and the Chart Supplement for the South Central US (formerly the Airport/Facility Directory) (FAA 2019b) to identify FAA registered facilities within the study area subject to notification requirements listed in 14 CFR Part 77.9. Facilities subject to notification requirements listed in 14 CFR Part 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. One FAA registered public use airport, Boerne Stage Field Airport, was identified within 20,000 feet of the study area boundary (FAA 2019b).

Although pre-existing landing areas (PELAs) 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 2019b).

In addition, POWER also reviewed the FAA database (FAA 2019c), USGS topographic maps, recent aerial photography, 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 CFR Part 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 two 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 2019).

3.2.5 Utility Features

Utility features reviewed include existing electrical transmission lines, distribution 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 a 138-kV transmission line, Ranchtown to Menger Creek, and a 345-kV transmission line, Kendall to Cagnon Road. 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 2019c) which provided a GIS layer for existing oil and gas wells, pipelines, and supporting facilities. The 2019 RRC dataset along with aerial photograph interpretation and field reconnaissance were used to identify and map existing oil and gas related facilities. No pipelines or oil and gas wells were identified within the study area (RRC 2019c).

Water wells are located throughout the study area, with higher density in the eastern portion of the study area. Twelve of the water wells located within the study area are public supply water wells (TWDB 2020).

3.2.6 Socioeconomics

This section presents a summary of economic and demographic characteristics for these counties 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 (TXSDC).

Population Trends

Bexar County experienced a population increase between 2000 and 2010 of 19 percent. By comparison, population at the state level increased by nearly 21 percent during the 2000s (USCB 2000 and 2010).

According to TXSDC projections, Bexar County is projected to experience population growth of 41 percent during the next 30 years, from 2010 to 2040. By comparison, the population of Texas is expected to experience population increase of 38 percent over the next three decades (TXSDC 2018). Table 3-7 presents the past population trends and projections for the study area county and for the state of Texas.

TABLE 3-7 POPULATION TRENDS

STATE/COUNTY	PAST		PROJECTED		
	2000	2010	2020	2030	2040
Texas	20,851,820	25,145,561	29,677,772	34,894,429	40,686,490
Bexar County	1,392,931	1,714,773	2,093,427	2,502,208	2,912,144

Sources: USCB 2000 and 2010; TXSDC 2018.

Employment

From 2000 to 2017, the civilian labor force (CLF) in the study area county increased by 33 percent (318,787 people). By comparison, the CLF at the state level grew by 29 percent (4,087,709 people) over the same time period (USCB 2000 and 2017). Table 3-8 presents the CLF for the study area county and the state of Texas for the years 2000 and 2017.

Between 2000 and 2017, Bexar County experienced a decrease in its unemployment rate from 5.9 percent in 2000, to 5.4 percent in 2017. By comparison, the state of Texas also experienced a decrease in the unemployment rate over the same period. The state's unemployment rate decreased from 6.1 percent in 2000, to 5.1 percent in 2017 (USCB 2000 and 2017). Table 3-8 presents the employment and unemployment data for the study area county and the state of Texas for the years 2000 and 2017. Although we recognize that employment rates have recently decreased due to the virus responsible for COVID-19, we anticipate that these changes in the employment rates are temporary and will return to the mean.

TABLE 3-8 CIVILIAN LABOR FORCE AND EMPLOYMENT

STATE/COUNTY	2000	2017
Texas		
Civilian Labor Force	9,830,599	13,918,308
Employment	9,234,372	13,201,891
Unemployment	596,187	716,417
Unemployment Rate	6.1%	5.1%
Bexar County		
Civilian Labor Force	633,001	951,788
Employment	595,911	900,337
Unemployment	37,090	51,451
Unemployment Rate	5.9%	5.4%

Source: USCB 2000 and 2017.

Leading Economic Sectors

The major occupations in Bexar County in 2017 are listed under the category of management, business, science, and arts occupations, followed by sales and office occupations (USCB 2017). Table 3-9 presents the number of persons employed in each occupation category during 2017 in the study area county.

TABLE 3-9 OCCUPATIONS IN THE COUNTY OF THE STUDY AREA

OCCUPATION	BEXAR COUNTY
Management, business, science, and arts occupations	319,947
Service occupations	172,444
Sales and office occupations	228,895
Natural resources, construction, and maintenance occupations	83,808
Production, transportation, and material moving occupations	95,243

Source: USCB 2017.

In 2000 and 2017, the industry group employing the most people in Bexar County was educational services, and health care and social assistance (USCB 2000 and 2017). Table 3-10 presents the number of persons employed in each of the industries in the study area county for the years 2000 and 2017.

TABLE 3-10 INDUSTRY IN THE COUNTY OF THE STUDY AREA

INDUSTRY GROUP	BEXAR COUNTY	
	2000	2017
Agriculture, forestry, fishing and hunting, and mining	2,776	8,901
Construction	44,648	73,088
Manufacturing	40,775	51,975
Wholesale trade	21,073	22,981
Retail trade	74,893	106,729
Transportation and warehousing, and utilities	29,114	42,189
Information	20,900	15,563
Finance and insurance, and real estate and rental and leasing	54,432	82,437
Professional, scientific and management, and administrative and waste management services	58,793	101,849
Educational services, and health care and social assistance	127,659	208,751
Arts, entertainment, and recreation, and accommodation and food services	57,456	104,216
Other services, except public administration	30,044	42,183
Public administration	33,348	39,475

Source: USCB 2000 and 2017.

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.
- Approval or permits required from other governmental agencies.
- Brief description of the area traversed.
- Habitable structures within 300 feet of the centerline for transmission lines of 230 kV or less.
- 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, and assisted CPS Energy personnel in hosting a public open house meeting 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. Reconnaissance surveys were also conducted to identify any additional park or recreational areas.

3.3.1 National/State/County/Local Parks

No national or state parks were identified within the study area (National Parks Service [NPS] 2019a; TPWD 2019c). No county or local parks were identified within the study area (City of San Antonio 2019d). 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 *Great Texas Wildlife Trails Heart of Texas East* indicates that there is one wildlife viewing loop, Cibolo Loop, within the study area. There is one site of interest, Maverick Ranch Fromme Farm, located within the study area (TPWD 2019d).

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 suburban, with some rural areas. The predominant land use within the study area is residential. 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. Overall, the study area viewscape consists of medium and low intensity development.

The study area is located within the Texas Hill Country, which is known to be a scenic area of Texas. However, no known high-quality aesthetic resources, designated views, or designated scenic roads or highways were identified within the study area.

The study area is located within the 28-county Texas Independence Trail Region. There are no sites of interest along the trail within the study area (THC 2019a).

A review of the NPS website did not indicate any Wild and Scenic Rivers, National Monuments, National Memorials, National Historic Sites, National Historic Trails, or National Battlefields within the study area (NWSRS 2019; NPS 2019b and 2019c).

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 suburban area. 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 an alternative route be listed, mapped, and their distance from the centerline of the alternative 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 acquired in addition to GIS shapefiles acquired from TARL, to identify and map locations of previously recorded cultural (archeological and historical) resources within the study area. TxDOT's historic bridges database was also reviewed for bridges that are listed or determined eligible for listing on the NRHP. 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, and the presence of structures on historic maps in currently undeveloped areas.

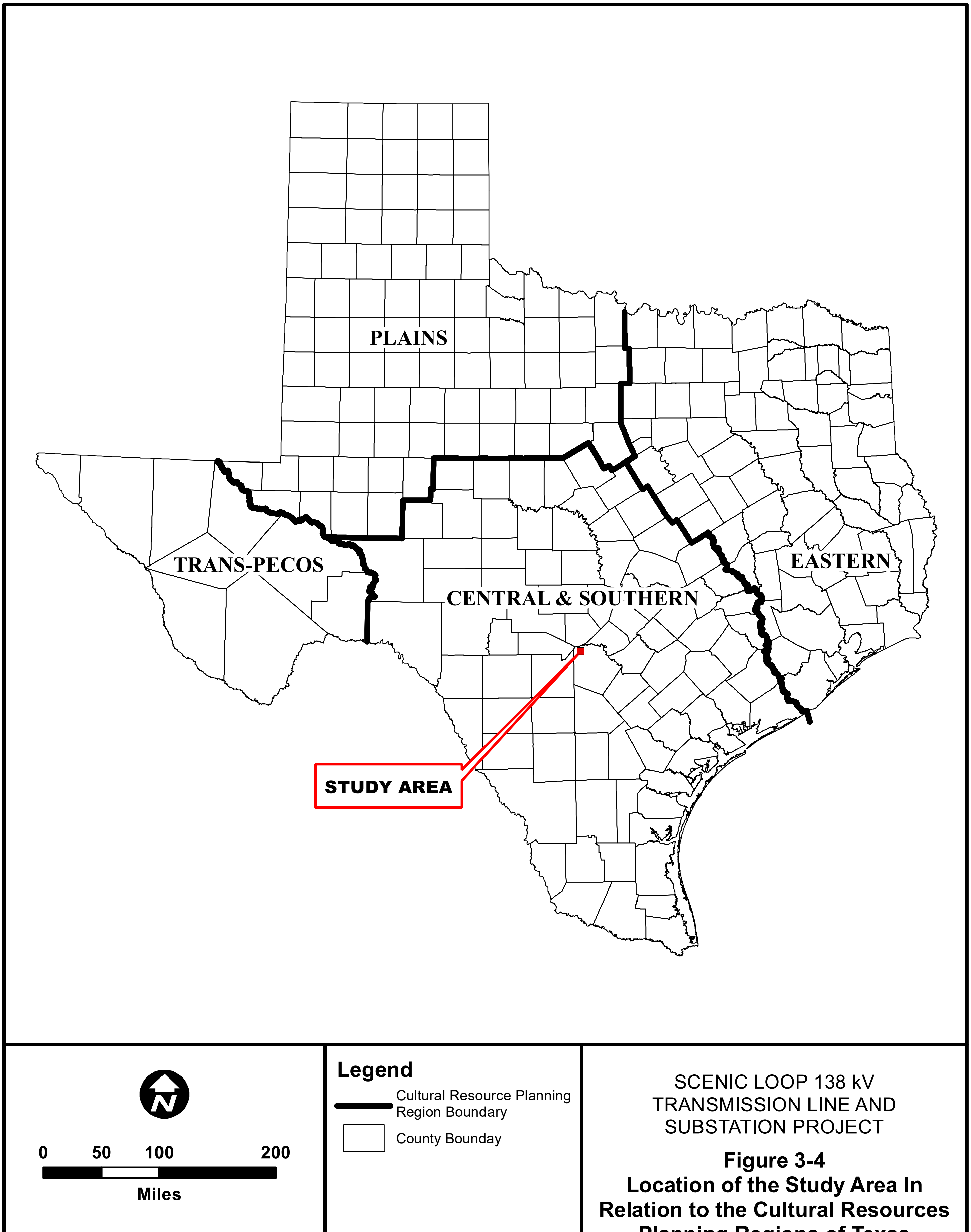
Historical resources include standing buildings or structures (e.g., houses, barns and out buildings), and may also include dams, canals, bridges, transportation routes, silos, etc., and districts that are non-archeological in nature and generally more than 50 years of age.

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 Historical Marker (OTHM). Cemeteries may also be documented as part of the THC Record-Investigate-Protect Program.

3.5.1 Cultural Background

Prehistory

The study area is located within the central and southern cultural resource planning region as shown on Figure 3-4 (Mercado-Allinger et al. 1996). Bexar County is near the border between the South Texas and Central Texas archeological regions, and the Central Texas and the Savannah and Prairie archeological regions as mapped by Pertulla (2004). Although the archeological record within and near the study area is likely to reflect influence and shared traits from all three of the archeological regions, the following discussion focuses on the cultural chronology of central Texas, as presented by (Collins 2004).



Source: Mercado - Allinger et. al., 1996

Date: 6/29/2020

SCENIC LOOP 138 kV TRANSMISSION LINE AND SUBSTATION PROJECT

Figure 3-4
Location of the Study Area In Relation to the Cultural Resources Planning Regions of Texas

The prehistory of the prehistoric occupation of central Texas is most often divided into three broad periods spanning at least the last 11,500 years. These periods include the Paleoindian period, beginning around 11,500 years before present (BP) and lasting approximately 2,700 years. Following the Paleoindian period is the long-lasting Archaic period, which subsumes almost two-thirds of the prehistoric occupation of central Texas from about 8,800 BP until 1,250 BP. The final period before Euroamerican contact is the Late Prehistoric period, which ended with the first Spanish expedition into the region in the late 1600s.

The Paleoindian period in central Texas is divided into the early and late sub-periods. The early Paleoindian period, also called the Clovis cultural horizon, began about 11,500 BP and is the earliest known cultural sequence in the region. Corresponding with the waning years of the Pleistocene era, the early period was characterized by a comparatively cooler, wetter environment. Despite the popular misconception that these early populations were primarily hunters, evidence from the Gault Site in central Texas suggests that their diet was more generalized (Collins 2002). Archeological evidence indicates that these early hunting and gathering populations subsisted on a well-diversified resource base that included not only the last of the mammoth, but also smaller animals, fish, and a variety of reptiles. Site types dating to this period are also varied and include kill, quarry/stone-working, cache, camp, ritual, and burial sites. Artifacts associated with early Paleoindian period sites include large, fluted Clovis spear points, bone and ivory points, and stone bolas. Many of the artifacts were made from exotic stone suggesting a wide-ranging hunting and gathering territory. When the Pleistocene era came to an end around 10,900 BP and the mammoth populations had all but disappeared, prehistoric populations began to focus their hunting efforts on bison, one of the hallmarks of the transition for the early to the late Paleoindian period (Collins 2004).

The late Paleoindian period in central Texas extended from about 10,900 to 8,800 BP. Although the subsistence base now emphasized large game over the more diversified resource base of the early period, small animals, fish, reptiles, and plants remained important food sources. Small groups continued to hunt, gather plants, and obtain raw material for stone tool manufacture over a broad territory. The hallmark Clovis spear points of the early Paleoindian period gave way to the shorter, fluted Folsom points. There was a greater variety of smaller dart points (Collins 2004) including the St. Mary’s Hall point, from the St Mary’s Hall site (41BX229) and the Brackenridge Park site (41BX1396) in Bexar County (City of San Antonio Office of Historic Preservation [OHP] 2019a).

Archaic Period (8,800 to 1,250 BP)

The Archaic period is subdivided into Early (ca. 8,800 to 6,000 BP), Middle (ca. 6,000 to 4,000 BP), and Late (4,000 to 1,250 BP) sub-periods. The transition from the late Paleoindian period to the Early Archaic is gradual and is generally characterized as a time when broad territorial hunting and gathering became more localized and artifact assemblages began to show greater diversity than during the late Paleoindian period (Collins 2004). The Brackenridge Park site is considered a transition site having both Paleoindian and Early Archaic tool types. The Higgins site (41BX184) and the Panther Springs site (41BX228), both in Bexar County, also have evidence of early Archaic occupations. Projectile points during this period were much more varied than in the Paleoindian and task-specific tools begin to appear, including Clear Fork tools and Guadalupe bifaces (OHP 2019b). Hallmarks of the Early Archaic include the greater use of groundstone tools and the widespread occurrence of heat-altered rocks, which may have functioned as hearths, ovens, or other features. Although there is a paucity of subsistence data for the Early Archaic in central Texas, there is some evidence that deer, various small animals, fish, and roasted plant bulbs were part of the diet, and bison is absent from the archeological assemblages dating to this sub-period (Collins 2004).

During the early portion of the Middle Archaic, bison hunting is evident in the archeological record. However, by around 5,000 BP, bison are once again absent from the archeological record in central Texas, concomitant with the onset of the driest conditions faced by humans in central Texas (Collins 2004). Near the study area, the Middle Archaic is subdivided further into Clear Fork (early) and Round Rock (late) intervals. In general, projectile points crafted during the Middle Archaic are large and straight-stemmed and sometimes found in large quantities at Middle Archaic sites. This greater density of tools may indicate an increase in population (OHP 2019b). Burned rock middens were prolific in central Texas during this time and in many instances appear to have been used for processing plants adapted to the drier climate such as sotol, a semi-succulent plant used for both food and fiber products (Collins 2004).

The onset of the Late Archaic occurred when central Texas was at its driest, around 4,000 BP. Burned rock middens continued to be a common site type in the earliest years of the sub-period, even increasing in frequency in the eastern region of central Texas. As the desert plants were replaced by plants adapted to a moister climate around 3,500 to 2,500 years ago the number of burned rock middens in east-central Texas decreased, but did not entirely disappear. West-central Texas remained dry and burned rock middens continued to be used to process the plant foods at the same intensity as during the Middle Archaic. There is also evidence of increasing population during the Late Archaic (Collins 2004). Cemeteries are commonly found in central Texas during the Late Archaic including several in Bexar County. Burial goods found with the human remains at these cemeteries, such as worked conch shells, indicate regional trade with coastal communities (OHP 2019b).

Late Prehistoric Period (1,250 to 300 BP)

The onset of the Late Prehistoric period has been arbitrarily set by some archaeologists around 1,250 BP, but may have started as recently as 800 BP. Little changed in subsistence patterns during the late Prehistoric; the hunting and gathering strategy continued as did the processing of plants in burned rock middens. The most notable shift from the Late Archaic to the Late Prehistoric was the introduction and subsequent prevalence of arrow points over dart and spear points in the archeological record. There also appears to be an increase in intergroup violence, possibly as a result of increasing population pressure, as evidenced by numerous skeletal remains exhibiting fatal arrow wounds. Pottery and evidence for small-scale agriculture begin to appear in the archeological assemblages dating to the latter part of the late Prehistoric period (Collins 2004).

Shortly before the arrival of Europeans to Central Texas, native groups were living in small band-sized encampments and large, diffuse camps comprised of people with multiple tribal affiliations. Hunting focused on bison, but also included deer and antelope. Group mobility patterns were governed by the seasonal movements of the native animals and availability of resources, and, later affected by the newly introduced horse. The presence of Caddoan ceramics at several central Texas sites indicates a long pattern of Hasinai Caddo interaction with groups indigenous to central Texas (Collins 2004).

Historic Period (ca. 500 to 50 BP)

Direct European contact in this region began with exploratory expeditions in the late seventeenth and early eighteenth centuries. The earliest contact came in 1691 when Domingo Terán de los Ríos and Damián Massanet travelled through on an expedition to East Texas (Jasinski 2019). During this expedition, the Spanish explorers encountered an indigenous population that came to be known as Payaya and established the name of San Antonio de Padua for an indigenous village and nearby river. In 1709, another expedition led by Antonio de san Buenaventura y Olivares and Isidro Félix de Espinosa came through the region (Chipman 2019a), after which the area was frequently revisited by exploratory expeditions (Chipman 2019b).

Beginning in 1718 and continuing through the 1720s, Spanish occupation intensified as population increased following the construction of the presidio of San Antonio de Bexar and multiple missions (Handbook of Texas Online 2019). Olivares founded the Mission San Antonio de Valero on May 1st at its original location west of San Pedro Springs. Days later, the presidio of San Antonio de Béxar was founded near the mission by Martín de Alcarón, governor of Coahuila y Texas (Jasinski 2019). Both the presidio and the mission were relocated to their latest locations in 1722 and 1724, respectively, with the presidio on the west bank of the San Antonio River directly across from the mission on the east bank. Additional missions were established as the population of the area steadily rose (Schoelwer 2019).

Development of the area continued to intensify as construction projects grew to support the population and the responsibilities of the newly established government. The San Fernando de Béxar settlement was founded in 1731, the first civil government in Texas. By 1773, San Fernando became the capital of Spanish Texas (de la Teja 2019).

San Fernando de Béxar initially consisted of military personnel and civilians including Mexican frontiersman, resident families, and Native Americans living at the missions. Later, it evolved into a castas, or an organization of social hierarchy based on racial divisions. This society was typical in North American Spanish colonies and consisted of Europeans and European descendants, Native Americans, African descendants, and mixed-race groups (Jasinski 2019).

During the late eighteenth and early nineteenth centuries San Fernando suffered a hostile period. Surrounding Native American communities such as the Apache and Comanche put pressure on communication networks and the surrounding farmland, and there were military upheavals in the city as well (de la Teja 2019). In 1811, Captain Juan Bautista de las Casas assumed governorship of Texas in what was known as the Casas Revolt. The revolt was short-lived, however, and ended with the incumbent governor, Manuel María de Salcedo re-instated, and the city was recaptured in 1813 (Caldwell 2019). This tumultuous period eventually led to the re-organization of the provinces of Texas and Coahuila into one state governed out of Saltillo (de la Teja 2019). During the initial stages of the Texas Revolution, San Fernando de Béxar was besieged and occupied by rebel forces. By 1837, it had been renamed San Antonio and was county seat of Bexar County (de la Teja 2019).

The impetus for the Texas Revolution began when several Mexican states rebelled against President Antonio Lopez de Santa Anna’s reformation that replaced the constitution of 1824 with a new government. Coahuila y Tejas were among the rebelling states, and on February 23, 1836, the Mexican army under Santa Anna retaliated against the Texian rebels by laying siege to San Antonio. The resulting became known as the Battle of the Alamo. This rebellion ultimately ended on April 21, 1836 with the independence of Texas and the subsequent removal of Mexican forces from San Antonio (Barker and Pohl 2019).

Following the war for independence, San Antonio became the seat of Bexar County within the Republic of Texas, hostilities with Comanches persisted, such as the Council House Fight in 1840 (Dickson Schilz 2019), and San Antonio was seized twice by Mexico in 1842 (Jasinski 2019). Hostilities with Mexico only intensified after Texas was annexed by the US in 1845 and the Mexican-American War began in 1846. The US military established a headquarters in San Antonio in 1848 but was forced to surrender it to militia forces in 1861 when Texas seceded from the Union at the outset of the American Civil War (Jasinski 2019).

North of the city limits, in the Texas Hill Country area, many Western European immigrants, particularly Germans, settled near the study area beginning in the 1840s (Cooper 2008). Nearby Helotes was settled in the 1850s by German and Mexican immigrants (Massey 2019). The Maverick Ranch was established in 1869, by German immigrants Ernst Hermann and Emma, in the northern portion of the Study Area (Fenstermaker 2019). By the 1890s, one third of San Antonio's population was German (Ezell et al. 2011).

After the Civil War, San Antonio became a prosperous hub supporting multiple industries and growing in population. Cattle trail drives were an integral part of the San Antonio economy, as well as the wool from the nearby hill country. In 1877, the Galveston, Harrisburg and San Antonio Railway reached San Antonio. A second railroad, the International-Great Northern, reached San Antonio in 1881. The railroads fueled local industries, and five additional railroads connected San Antonio to distant markets by 1900 (Jasinski 2019).

3.5.2 Literature and Records Review

Historical and archeological data for the study area were reviewed online through the THSA and TARL. GIS shapefiles identifying the locations of previously recorded archeological sites were obtained from TARL on March 28, 2019 and used to map archeological site locations within the study area. Previously recorded cultural resource site data available online from the THSA were obtained to identify locations of designated historical sites, State Antiquities Landmarks (SALs), cemeteries, HTCs, and OTHMs within the study area, as well as previously conducted cultural resource investigations. The TxDOT historic bridges database was also reviewed for bridges that are listed or determined eligible for listing on the NRHP (TxDOT 2019c.) The NPS databases and websites pertaining to NRHP, National Historic Trails, and National Historic Landmark properties were also reviewed to locate and define boundaries for historic properties recorded at the national level (NPS 2019d). The results of the review are summarized in Table 3-11.

TABLE 3-11 RECORDED CULTURAL RESOURCES WITHIN THE STUDY AREA

ARCHEOLOGICAL SITES	NRHP-LISTED RESOURCES	NRHP DETERMINED - ELIGIBLE RESOURCE	STATE ANTIQUITIES LANDMARKS	CEMETERIES	OTHM
36	3	1	0	11	1

Source: THC 2019b.

Review of the THC and NPS data indicated that three NRHP-listed resources, are recorded in the study area: two NRHP Districts known as the R. L. White Ranch Historic District and the Heidemann Ranch Historic District, and the address-restricted Maverick-Altgelt Ranch and Fenstermaker-Fromme Farm Historic District. The R. L. White Ranch includes thirty buildings, structures, and sites on its 3,500 acres, 28 of which are contributing resources due to their unaltered state, continued historic integrity, and construction during the ranch's period of significance (1926-1958) (Cooper 2008). The ranch was developed by Ryall Luther White beginning in the mid-1920s. Site 41BX1609, a segment of dry-stone masonry that has been determined ineligible for listing on the NRHP, is recorded within this District.

The Heidemann Ranch Historic District contains 12 contributing resources, including a dogtrot plan log house with an infilled stone central bay, a stone barn with frame addition, a stone smokehouse, a capped well and the Heidemann family cemetery, important for their association with German immigration into the area (Ezell et al. 2011). A 1937 stone ranch house and a postwar workshop with asbestos siding built using salvaged ammunition crates are also contributing resources. Overall, the preservation of rural vernacular structures within the Heidemann Ranch dating from the mid-nineteenth to mid-twentieth centuries represent a high degree of historical integrity.

The Maverick-Altgelt Ranch and Fenstermaker-Fromme Farm Historic District contains prehistoric and historic archeological sites. Archeological sites 41BX493 and 41BX494 prehistoric sites with burned rock middens and debitage, and snails. Site 41BX495 contains scattered burned rock, debitage, and a biface fragment. Site 41BX496 is the remains of the Maverick-Altgelt Ranch, a historic complex with a possible root cellar lined with tabular limestone slabs, a stone school building, a log structure, stone kitchen, gazebo, stone main house, and a wooden barn dating to the nineteenth century. An addition to the house was constructed in the 1930s. The earliest historic portion of the Maverick-Altgelt Ranch District, the residential complex was established in 1869 by Ernst Hermann and Emma Altgelt. The original house, built by Ernst and Emma, follows the *Fachwerk* style of German Vernacular Architecture which consists of half-timbering and, in this case, limestone. Other contemporary structures within the historic district are associated with George and Maria Obert (Fenstermaker 2019).

The Obert homestead (41BX497), southeast of the Maverick-Altgelt residential complex, consists of a stone foundation with partly standing walls, high stone pens for cattle, and a well. The George and Maria Obert homestead was an overnight stop for cattle drives. In 1883, the Obert land was sold to Emma Altgelt (Fenstermaker 2019). In 1907, George Madison and Mary Vance Maverick bought the ranch and constructed several barns, a cottage, and additional pens for livestock. The ranch continued to be operated by the Maverick family as late as 1985 when they started raising longhorn cattle (Fenstermaker 2019).

The review of the TASA (THC 2019b), and TARL data indicates that 36 archeological sites have been previously recorded in the study area (see Table 3-12). Of these, 24 are prehistoric in age, 11 are historic, and one contains historic and prehistoric components. Seven sites have been determined ineligible for listing in the NRHP. One archeological site, 41BX496, has been determined eligible for listing in the NRHP. Site 41BX496, discussed above, is the Maverick-Altgelt Ranch within the Maverick-Altgelt Ranch and Fenstermaker-Fromme Farm Historic District. The prehistoric sites in the study area largely consist of burned rock scatters or middens and debitage.

Ten cemeteries are recorded in the study area (Table 3-13), none of which are designated HTCs. An additional cemetery, the Huntress Lane Cemetery was reported in the study area by a landowner. Two cemeteries are located within the Maverick-Altgelt Ranch and Fenstermaker-Fromme Farm Historic District. These are the Altgelt Cemetery (also known as BX-C314 and 41BX99) and the La Cerca Cemetery (also known as BX-C106 or 41BX98). These cemeteries are associated with the residents of the nearby sites, the Altgelts and Oberts.

The single OTHM recorded in the study area commemorates the Scenic Loop, Boerne Stage, and Toutant Historic Corridor. The Scenic Loop, Boerne Stage and Toutant Beauregard roads intersect near the marker. According to the marker, area treasures such as “the exceptional and historic rural atmosphere, vistas, waterways, wildlife, and natural features” prompted the Texas legislature to bestow historic designation to the roads (THC 2019b). Paleoindian groups lived in the area more than 10,000 years ago, and early Spanish explorers found Jumano and Coahuiltecan in the area. Lipan Apache and Comanche tribes controlled the area by the late eighteenth century, deterring Spanish, Mexican and Anglo settlement into the mid-nineteenth century.

In 1851, the von Plehwe family from Prussia settled at Leon Springs near a leg of the Boerne Stage Road, which ran from San Antonio to San Diego, California (THC 2019b). Stagecoach stops, ranch complexes dating from the mid-19th to early 20th century, homesteads of various cultural groups, and historic cemeteries abut the road. In the 1860s, drovers created the Great Western Cattle Trail next to the Boerne Stage Road and during the 1920s, the transcontinental Old Spanish Trail Automobile Highway followed the Boerne Stage Road west from San Antonio. In the late 1920s, a 46-mile scenic driving loop from downtown San Antonio was created, and 13 miles of that original scenic driving loop still exist through Helotes, Grey Forest, and Leon Springs (THC 2019b). The OTHM is located within TXDOT ROW and is not proposed within any of the alternative routes ROW; therefore, not significant impacts are anticipated to the OTHM.

TABLE 3-12 RECORDED ARCHEOLOGICAL SITES WITHIN THE STUDY AREA

TRINOMIAL	NRHP STATUS	SITE DESCRIPTION	AGE
41BX75	Undetermined	campsite with burned rock, debitage, and several bifaces	Prehistoric, possibly Archaic
41BX76	Undetermined	campsite with burned rock, debitage, and one formal tool made from cortex	Prehistoric, possibly Archaic

TABLE 3-12 RECORDED ARCHEOLOGICAL SITES WITHIN THE STUDY AREA

TRINOMIAL	NRHP STATUS	SITE DESCRIPTION	AGE
41BX77	Undetermined	campsite with burned rock midden, cores, projectile points	Prehistoric, Archaic
41BX78	Undetermined	campsite with burned rock midden with one projectile point and debitage	Prehistoric, Archaic
41BX79	Undetermined	campsite with burned rock, debitage, and biface	Prehistoric, Archaic
41BX80	Undetermined	campsite with burned rock, debitage, and bifaces	Prehistoric, possibly Archaic
41BX81	Undetermined	campsite with burned rock, debitage, two bifaces, and one core	Prehistoric, possibly Archaic
41BX82	Undetermined	campsite with burned rock, debitage, and one biface	Prehistoric, possibly Archaic
41BX83	Undetermined	campsite with burned rock, debitage, and three bifaces including the base of a Frio projectile point	Prehistoric, Archaic
41BX84	Undetermined	lithic scatter of debitage, two projectile points (Perdiz and Fairland), and one biface	Prehistoric, Late-Transitional Archaic
41BX85	Undetermined	campsite with burned rock, debitage, utilized flakes, and one Middle Archaic square base point reshaped into drill	Middle Archaic
41BX86	Undetermined	campsite with burned rock, bifaces, scrapers, debitage and projectile points including Frio, Pedernales, and Castroville	Late Archaic
41BX87	Undetermined	lithic scatter with debitage, utilized flakes, bifaces, and two projectile points	Prehistoric,
41BX88	Undetermined	lithic scatter with debitage and unifaces	Prehistoric
41BX89	Undetermined	campsite with burned rock, debitage, one Montell projectile point	Late Archaic
41BX493	Undetermined	campsite with burned rock, debitage and terrestrial snail shells near a small spring	Prehistoric
41BX494	Undetermined	campsite with burned rock midden, debitage, and terrestrial snail shells	Prehistoric
41BX495	Ineligible	campsite with burned rock, debitage, and biface fragment	Prehistoric
41BX496	Eligible	historic complex with possible root cellar lined with tabular L. S. slabs, a stone school building, a log structure, stone kitchen, gazebo, main house of stone, and a wooden barn dating to 19th century with a 1930s addition to the house	Historic
41BX497	Undetermined	complex with house foundation with partly erect walls, well, and scatter of square nails, cans, glass, earthenware, stoneware, bucket, and whiteware	Historic
41BX498	Undetermined	cemetery (Obert Can) with limestone fence and limestone blocks moved to nearby barn	Historic
41BX499	Undetermined	cemetery (Altgelt Cemetery) with concrete wall, granite, and modern stones	Historic
41BX561	Undetermined	campsite with burned rock midden, debitage, and projectile point fragments	Prehistoric
41BX962	Undetermined	campsite with burned rock midden with debitage and some bone-tempered sherds	Prehistoric
41BX1590	Ineligible	homestead consisting of concrete foundations, collapsed outbuilding, semi-subterranean lean-to structure, fill-in well, cellar,	Historic

TABLE 3-12 RECORDED ARCHEOLOGICAL SITES WITHIN THE STUDY AREA

TRINOMIAL	NRHP STATUS	SITE DESCRIPTION	AGE
		stacked rock wall, pinewood fencing, and scattered historic and modern trash	
41BX1609	Ineligible	segment of historic dry-stone masonry wall	Historic
41BX1721	Undetermined	campsite with burned rock midden with debitage	Prehistoric
41BX1755	Undetermined	campsite with burned rock midden	Prehistoric
41BX1761	Undetermined	mid-19th century stacked stone fence	Historic
41BX1923	Undetermined	campsite with burned rock scatter	Prehistoric
41BX1924	Undetermined	campsite with burned rock midden/farmstead consisting of a house, barn, long barn, an animal pen and six additional outbuilding foundations	Prehistoric/historic
41BX2000	Undetermined	campsite with burned rock midden	Prehistoric, possibly Archaic
41BX2001	Undetermined	windmill, cistern and associated goat sheds, corrals and concrete lined dipping vat	Historic
41BX2176	Undetermined	farmstead with collapsed stone structure, stone walls, garage, and historic trash scatter	Historic
41BX2177	Undetermined	scatter of bottles, glass, metal fragments, square nails and ceramics	Historic
41BX2178	Undetermined	homestead with house, water silo, windmill foundation, well, corral, pump house, stock tanks and trash dump	Historic

Source: THC 2019b.

TABLE 3-13 CEMETERIES RECORDED WITHIN THE STUDY AREA

CEMETERY NUMBER	CEMETERY NAME	COUNTY	COMMENTS
BX-C065	Menchaca-Robles	Bexar	none
BX-C067	Funari	Bexar	none
BX-C068	Heidemann Family Cemetery	Bexar	none
BX-C101	unknown name	Bexar	none
BX-C103	Cheney	Bexar	none
BX-C105	Fromme Cemetery	Bexar	none
BX-C106	La Cerca	Bexar	none
BX-C113	unknown grave	Bexar	none
BX-C314	Altgelt Cemetery	Bexar	41BX99
41BX498	Obert Cemetery	Bexar	none
--	Huntress Lane	Bexar	reported by landowner

Source: THC 2019b.

The majority of the prehistoric archeological sites that have been recorded in the study area appear to be campsites with burned rock middens, and/or lithic scatters in close proximity to springs, streams and river channels (e.g., Leon Creek, Pecan Creek, and their unnamed tributaries); or uplands adjacent to these channels. For the few prehistoric sites in the study area that have produced diagnostic artifacts, most date to the Archaic period, perhaps not unexpected given the preponderance of sites with burned rock middens, which appear in this region beginning in the early Archaic Period and continue to be used into the Late Prehistoric period. Historic sites include cemeteries and the remains of farmsteads and ranches.

3.5.3 Previous Investigations

According to the TASA (THC 2019b), there have been at least seven previously conducted cultural resource investigations within the study area boundaries (see Table 3-14).

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

INVESTIGATING AGENCY NAME	SURVEY/PROJECT NAME	SITE(S) RECORDED/VISITED
PBS&J	A Cultural Resources Survey of a Proposed Electrical Distribution Line on the Maverick Ranch Bexar County, Texas (Nash et al. 2003)	none
PBS&J	No additional information	none
Raba Kistner Environmental, Inc.	Intensive Cultural Resources Survey of a 1.827 Acre Tract of Land for the Proposed Cross Mountain Elevated Storage Tank Project, Bexar County (Held 2010)	none
Raba Kistner Environmental, Inc.	An Intensive Cultural Resources Survey for 24-Inch Water Main Along Cross Mountain Trail (SAWS Job #10-7003), Bexar County (Held and Murray 2010)	none
SWCA	Cultural Resources Survey of the Boerne Stage Road Pipeline Project, Bexar and Kendall Counties, Texas (Peyton 2010)	none
SWCA	Intensive Archaeological Survey of the Boerne Stage Road Improvement Project, Bexar County, Texas (Galindo 2011)	none
Raba Kistner Environmental, Inc.	Cielo Vista Elementary and Middle School Hausman Road Improvements Project	41BX1924

Source: THC 2019b.

3.5.4 High Probability Areas

Review of the previously recorded cultural resource sites 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 resources sites within the study area. To further assess and avoid potential impacts to cultural resources, HPAs for prehistoric 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, and topographic variables. Within the study area, the prehistoric HPAs typically occur near and along streams, at the heads of major draws, near springs and at 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 for containing prehistoric archeological sites.

Historic age resources are likely to be found near water sources. However, they will also be located in proximity to primary and secondary transportation routes (e.g., trails, roads, and railroads) which provided access to the sites. Buildings and cemeteries are also more likely to be located within or near historic communities.

This page left blank intentionally.

4.0 ENVIRONMENTAL IMPACTS OF THE ALTERNATIVE ROUTES

Potential impacts of the project that could occur from, and are unique to, the construction and operation of a transmission line are discussed separately in this section of the EA. Evaluation of the potential impacts of the alternative routes identified in Section 3.0 was conducted by tabulating the data for each of the 48 evaluation criteria in Table 2-2 for each alternative routing segment and each primary alternative route. The data tabulation for land use and environmental criteria for each alternative route are presented in Table 4-1 and for each segment in Table 4-2.

4.1 Impacts on Natural Resources/Environmental Integrity

4.1.1 Impacts on Physiography and Geology

Construction of the proposed transmission line is not anticipated to have any significant adverse effects on the physiographic or geologic features and resources of the area. Erection of the 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 any of the alternative routes.

None of the alternative routes occur near the locations of the three documented caves within the study area, with the closest cave (Some Monk Chanted Evening Cave) being approximately 0.73 mile away from Segment 56 in Alternative Routes O, S, and W. No impacts to these features are anticipated to occur from the project. Due to the potential of karst occurrence generally within the study area a site-specific karst survey will be conducted for the PUC approved route in accordance with the USFWS, Section 10(a)(1)(A) Scientific Permit Requirements for Conducting Presence/Absence Surveys for Endangered Karst Invertebrates in Central Texas. Surveys will include a review of available existing information on regional caves, soils, historical land use practices, topography, and geology of the project area and vicinity, a pedestrian survey to identify karst features, and the description and assessment of identified features. The pedestrian survey will be conducted by walking transects, no more than 50 feet apart. The scope of this survey will not include an evaluation of the structural development or subgrade extent of the biological content (i.e., presence/absence of endangered cave invertebrate species) of potential karst features. Surface karst features may indicate the potential presence of suitable habitat for federally listed, endangered cave invertebrates, and a Section 10(a)(1)(A) permit would be required to further investigate a feature to determine the presence of suitable habitat.

This page left blank intentionally.

Table 4-1

Environmental and Land Use Data For Route Evaluation

Scenic Loop

Evaluation Criteria

	Land Use	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Length of alternative route (miles)	6.66	6.24	5.71	5.27	6.62	5.66	6.08	6.32	5.15	5.33	5.29	6.91	5.90	5.33	6.83
2	Number of habitable structures[1] within 300 feet of the route centerline	69	62	48	43	60	9	52	61	42	40	34	34	43	8	29
3	Length of ROW using existing transmission line ROW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Length of ROW parallel and adjacent to existing transmission line ROW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Length of ROW parallel to other existing ROW (roadways, railways, canals, etc.)	1.79	1.00	2.43	2.13	2.45	1.48	1.35	1.89	2.01	2.26	1.86	2.21	2.76	1.15	2.91
6	Length of ROW parallel and adjacent to apparent property lines[2]	3.71	3.28	1.48	1.58	2.54	2.50	1.52	3.20	1.58	0.34	1.85	2.18	1.58	2.50	1.30
7	Sum of evaluation criteria 4, 5, and 6	5.50	4.28	3.92	3.71	4.99	3.98	2.87	5.09	3.59	2.60	3.71	4.38	4.34	3.65	4.21
8	Percent of evaluation criteria 4, 5, and 6	83%	69%	69%	70%	75%	70%	47%	80%	70%	49%	70%	63%	74%	69%	62%
9	Length of ROW across parks/recreational areas[3]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Number of additional parks/recreational areas[3] within 1,000 feet of ROW centerline and substation site	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Length of ROW across cropland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Length of ROW across pasture/rangeland	0.61	0.82	1.69	0.83	0.69	0.89	0.71	0.50	0.73	0.73	0.51	0.38	1.15	0.71	0.42
13	Length of ROW across land irrigated by traveling systems (rolling or pivot type)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Length of route across conservation easements and/or mitigation banks (Special Management Area)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Length of route across gravel pits, mines, or quarries	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Length of ROW parallel and adjacent to pipelines[4]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Number of pipeline crossings[4]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Number of transmission line crossings	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Number of IH, US and state highway crossings	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Number of FM or RM road crossings	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Number of cemeteries within 1,000 feet of the ROW centerline and substation site	0	1	1	1	0	1	1	0	1	1	0	0	1	1	0
22	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 and substation site	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
23	Number of FAA registered airports[5] having no runway more than 3,200 feet in length located within 10,000 feet of ROW centerline and substation site	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	Number of private airstrips within 10,000 feet of the ROW centerline and substation site	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Number of heliports within 5,000 feet of the ROW centerline and substation site	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	Number of commercial AM radio transmitters within 10,000 feet of the ROW centerline and substation site	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	Number of FM radio transmitters, microwave towers, and other electronic installations within 2,000 feet of ROW centerline and substation site	0	0	1	1	0	0	0	0	1	1	0	0	1	0	1
28	Number of identifiable existing water wells within 200 feet of the ROW centerline and substation site	6	5	3	3	3	1	4	5	3	3	3	3	4	1	2
29	Number of oil and gas wells within 200 feet of the ROW centerline (including dry or plugged wells) and substation site	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aesthetics																
30	Estimated length of ROW within foreground visual zone[6] of IH, US and state highways	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Estimated length of ROW within foreground visual zone[6] of FM/RM roads	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	Estimated length of ROW within foreground visual zone[6][7] of parks/recreational areas[3]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ecology																
33	Length of ROW across upland woodlands/brushlands	5.27	5.05	3.41	3.93	5.24	4.70	5.00	5.03	3.91	4.10	4.40	6.14	4.23	4.55	6.24
34	Length of ROW across bottomland/riparian woodlands	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Length of ROW across NWI mapped wetlands	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	Length of ROW across critical habitat of federally listed endangered or threatened species	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	Area of ROW across golden-cheeked warbler modeled habitat designated as 3-Moderate High and 4-High Quality (acres)[8]	13.88	12.03	8.54	9.47	12.29	19.03	8.36	12.29	9.47	7.39	25.08	14.38	9.47	19.03	2.95
38	Area of ROW across golden-cheeked warbler modeled habitat designated as 1-Low and 2-Moderate Low Quality (acres)[8]	18.21	18.86	12.84	13.47	15.74	14.37	17.30	16.46	13.47	13.66	11.65	21.28	13.47	12.67	16.59
39	Length of ROW across open water (lakes, ponds)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
40	Number of stream and river crossings	3	6	6	8	3	10	7	3	8	9	4	8	10	9	10
41	Length of ROW parallel (within 100 feet) to streams or rivers	0.07	0.10	0.00	0.10	0.07	0.15	0.17	0.07	0.10	0.17	0.26	0.20	0.10	0.15	0.24
42	Length of ROW across Edwards Aquifer Contributing Zone	6.66	6.24	5.71	5.27	6.62	5.66	6.08	6.32	5.15	5.33	5.29	6.91	5.90	5.33	6.83
43	Length of ROW across FEMA mapped 100-year floodplain	0.13	0.69	0.55	0.94	0.13	0.25	0.66	0.13	0.94	0.91	0.17	0.42	1.40	0.23	0.07
Cultural Resources																
44	Number of recorded cultural resource sites crossed by ROW	0	0	0	0	0	2	0	0	0	0	0	0	0	2	1
45	Number of additional recorded cultural resource sites within 1,000 feet of ROW centerline	0	2	2	2	2	12	2	0	2	2	0	0	2	12	1
46	Number of NRHP listed properties crossed by ROW	0	0	0	0	0	1	0	0	0	0	1	1	0	1	1
47	Number of additional NRHP listed properties within 1,000 feet of ROW centerline	1	2	1	1	1	0	2	1	1	1	0	0	1	0	0
48	Length of ROW across areas of high archeological site potential	1.73	3.22	3.04	3.41	1.49	3.05	3.10	1.44	3.36	3.53	2.40	4.55	4.04	2.79	2.94

[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 300 feet of the centerline of a transmission project of 230-kV or less.

[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 hydrocarbons were quantified in the pipeline crossing and paralleling calculations.

[5] As listed in the Chart Supplement South Central US (FAA 2019b formerly known as the Airport/Facility Directory South Central US) and FAA 2019a.

[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.

[8] From Model C by Diamond et al. 2010

All length measurements are shown in miles unless noted otherwise.

Table 4-1
Environmental and Land Use Data For Route Evaluation
Scenic Loop

Evaluation Criteria

	Land Use	P	Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC
1	Length of alternative route (miles)	4.89	5.55	4.75	6.73	5.98	6.37	6.60	6.25	5.27	5.23	4.58	4.77	4.73	5.23
2	Number of habitable structures[1] within 300 feet of the route centerline	10	4	4	25	34	4	31	25	41	38	30	28	22	52
3	Length of ROW using existing transmission line ROW	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Length of ROW parallel and adjacent to existing transmission line ROW	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Length of ROW parallel to other existing ROW (roadways, railways, canals, etc.)	0.85	1.39	0.85	2.57	0.51	1.20	2.60	2.60	0.79	3.01	1.60	1.85	1.45	1.94
6	Length of ROW parallel and adjacent to apparent property lines[2]	2.62	2.45	2.22	0.74	4.05	2.55	2.21	1.03	2.76	1.26	1.58	0.34	1.85	1.90
7	Sum of evaluation criteria 4, 5, and 6	3.47	3.84	3.07	3.31	4.56	3.75	4.82	3.63	3.55	4.27	3.18	2.19	3.30	3.84
8	Percent of evaluation criteria 4, 5, and 6	71%	69%	65%	49%	76%	59%	73%	58%	67%	82%	69%	46%	70%	73%
9	Length of ROW across parks/recreational areas[3]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Number of additional parks/recreational areas[3] within 1,000 feet of ROW centerline and substation site	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Length of ROW across cropland	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Length of ROW across pasture/rangeland	0.36	0.24	0.36	0.08	0.34	0.24	0.00	0.08	0.59	0.93	0.60	0.60	0.37	0.62
13	Length of ROW across land irrigated by traveling systems (rolling or pivot type)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Length of route across conservation easements and/or mitigation banks (Special Management Area)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Length of route across gravel pits, mines, or quarries	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Length of ROW parallel and adjacent to pipelines[4]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Number of pipeline crossings[4]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Number of transmission line crossings	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Number of IH, US and state highway crossings	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Number of FM or RM road crossings	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Number of cemeteries within 1,000 feet of the ROW centerline and substation site	1	1	1	0	2	1	0	0	0	1	1	1	0	0
22	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 and substation site	1	1	1	1	1	1	1	1	1	1	1	1	1	1
23	Number of FAA registered airports[5] having no runway more than 3,200 feet in length located within 10,000 feet of ROW centerline and substation site	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	Number of private airstrips within 10,000 feet of the ROW centerline and substation site	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Number of heliports within 5,000 feet of the ROW centerline and substation site	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	Number of commercial AM radio transmitters within 10,000 feet of the ROW centerline and substation site	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	Number of FM radio transmitters, microwave towers, and other electronic installations within 2,000 feet of ROW centerline and substation site	0	0	0	1	1	0	1	1	0	1	1	1	0	1
28	Number of identifiable existing water wells within 200 feet of the ROW centerline and substation site	1	1	1	2	3	1		2	2	1	2	2	2	2
29	Number of oil and gas wells within 200 feet of the ROW centerline (including dry or plugged wells) and substation site	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aesthetics															
30	Estimated length of ROW within foreground visual zone[6] of IH, US and state highways	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Estimated length of ROW within foreground visual zone[6] of FM/RM roads	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	Estimated length of ROW within foreground visual zone[6][7] of parks/recreational areas[3]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ecology															
33	Length of ROW across upland woodlands/brushlands	4.42	5.27	4.34	6.51	5.44	6.08	6.52	6.03	4.18	3.76	3.59	3.77	4.08	4.27
34	Length of ROW across bottomland/riparian woodlands	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Length of ROW across NWI mapped wetlands	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	Length of ROW across critical habitat of federally listed endangered or threatened species	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	Area of ROW across golden-cheeked warbler modeled habitat designated as 3-Moderate High and 4-High Quality (acres)[8]	25.11	5.52	19.03	4.77	18.74	8.33	4.28	2.95	9.71	11.12	9.47	7.39	25.08	23.82
38	Area of ROW across golden-cheeked warbler modeled habitat designated as 1-Low and 2-Moderate Low Quality (acres)[8]	12.04	16.92	12.67	18.57	17.18	22.29	18.34	16.59	13.94	12.34	12.32	12.51	10.50	11.35
39	Length of ROW across open water (lakes, ponds)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
40	Number of stream and river crossings	4	11	8	10	8	12	9	9	3	6	8	9	4	4
41	Length of ROW parallel (within 100 feet) to streams or rivers	0.15	0.21	0.15	0.11	0.10	0.08	0.24	0.24	0.00	0.07	0.10	0.17	0.26	0.15
42	Length of ROW across Edwards Aquifer Contributing Zone	4.89	5.55	4.75	6.73	5.98	6.37	6.60	6.25	5.27	5.23	4.58	4.77	4.73	5.23
43	Length of ROW across FEMA mapped 100-year floodplain	0.09	0.16	0.16	0.24	0.88	0.40	0.00	0.00	0.03	0.38	0.94	0.91	0.17	0.15
Cultural Resources															
44	Number of recorded cultural resource sites crossed by ROW	1	2	2	1	1	2	1	1	0	0	0	0	0	0
45	Number of additional recorded cultural resource sites within 1,000 feet of ROW centerline	10	12	12	1	12	12	0	1	2	2	2	2	0	0
46	Number of NRHP listed properties crossed by ROW	1	1	1	1	0	1	1	1	0	0	0	0	1	1
47	Number of additional NRHP listed properties within 1,000 feet of ROW centerline	0	0	0	0	1	0	0	0	1	2	1	1	0	0
48	Length of ROW across areas of high archeological site potential	2.49	3.08	2.60	4.07	3.99	4.74	2.85	2.75	1.59	2.26	3.28	3.45	2.33	2.80

[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 300 feet of the centerline of a transmission project of 230-kV or less.

[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 hydrocarbons were quantified in the pipeline crossing and paralleling calculations.

[5] As listed in the Chart Supplement South Central US (FAA 2019b formerly known as the Airport/Facility Directory South Central US) and FAA 2019a.

[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.

[8] From Model C by Diamond et al. 2010

All length measurements are shown in miles unless noted otherwise.

Table 4-2
Environmental and Land Use Data For Segment Evaluation
Scenic Loop

Evaluation Criteria

	Land Use	**1**	**2**	**3**	**4**	**5**	**7**	**8**	**13**	**14**	**15**	**16**	**17**	**20**	**21**	**22**	**25**	**26**	**27**
1	Length of alternative route (miles)	0.60	0.43	0.03	0.12	0.25	0.33	0.58	0.60	0.31	0.87	0.69	1.22	0.59	0.46	0.41	0.50	1.37	1.51
2	Number of habitable structures[1] within 300 feet of the route centerline		3	0	2	1	1	4	12	12	3	6	20	10	0	4	2	0	0
3	Length of ROW using existing transmission line ROW		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Length of ROW parallel and adjacent to existing transmission line ROW		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Length of ROW parallel to other existing ROW (roadways, railways, canals, etc.)	0.60	0	0.03	0.12	0.18	0.33	0.30	0.08	0.23	0	0.51	0	0.49	0	0	0	0	0.40
6	Length of ROW parallel and adjacent to apparent property lines[2]		0	0	0	0	0	0.27	0.52	0	0.65	0.18	0.92	0	0.33	0.41	0.49	0.89	0.21
7	Sum of evaluation criteria 4, 5, and 6	0.60	0.00	0.03	0.12	0.18	0.33	0.58	0.60	0.23	0.65	0.69	0.92	0.49	0.33	0.41	0.49	0.89	0.60
8	Percent of evaluation criteria 4, 5, and 6	100%	0%	100%	100%	70%	100%	100%	100%	74%	75%	100%	75%	82%	72%	100%	97%	65%	40%
9	Length of ROW across parks/recreational areas[3]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Number of additional parks/recreational areas[3] within 1,000 feet of ROW centerline and substation site	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Length of ROW across cropland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Length of ROW across pasture/rangeland	0.29	0.39	0.03	0.09	0	0.18	0.35	0.11	0.13	0.24	0.00	0.07	0.25	0.00	0.00	0.00	0.00	0.00
13	Length of ROW across land irrigated by traveling systems (rolling or pivot type)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Length of route across conservation easements and/or mitigation banks (Special Management Area)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Length of route across gravel pits, mines, or quarries	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Length of ROW parallel and adjacent to pipelines[4]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Number of pipeline crossings[4]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Number of transmission line crossings	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Number of IH, US and state highway crossings	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Number of FM or RM road crossings	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Number of cemeteries within 1,000 feet of the ROW centerline and substation site	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
22	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 and substation site	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
23	Number of FAA registered airports[5] having no runway more than 3,200 feet in length located within 10,000 feet of ROW centerline and substation site	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	Number of private airstrips within 10,000 feet of the ROW centerline and substation site	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Number of heliports within 5,000 feet of the ROW centerline and substation site	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	Number of commercial AM radio transmitters within 10,000 feet of the ROW centerline and substation site	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	Number of FM radio transmitters, microwave towers, and other electronic installations within 2,000 feet of ROW centerline and substation site	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
28	Number of identifiable existing water wells within 200 feet of the ROW centerline and substation site	2	0	0	0	1	0	0	2	1	0	0	1	0	0	0	1	1	0
29	Number of oil and gas wells within 200 feet of the ROW centerline (including dry or plugged wells) and substation site	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Aesthetics																		
30	Estimated length of ROW within foreground visual zone[6] of IH, US and state highways	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Estimated length of ROW within foreground visual zone[6] of FM/RM roads	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	Estimated length of ROW within foreground visual zone[6][7] of parks/recreational areas[3]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Ecology																		
33	Length of ROW across upland woodlands/brushlands	0.30	0.01	0.00	0.02	0.23	0.14	0.21	0.47	0.10	0.60	0.62	1.13	0.30	0.46	0.39	0.50	1.36	1.51
34	Length of ROW across bottomland/riparian woodlands	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Length of ROW across NWI mapped wetlands	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	Length of ROW across critical habitat of federally listed endangered or threatened species	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	Area of ROW across golden-cheeked warbler modeled habitat designated as 3 Moderate High and 4-High Quality (acres)[8]	0	0	0	0	0	0	0	1.59	0	0.71	0	0.45	0	1.90	1.22	3.54	2.17	1.08
38	Area of ROW across golden-cheeked warbler modeled habitat designated as 1-Low and 2-Moderate Low Quality (acres)[8]	0	0	0	0	0.62	1.71	0	2.36	0.54	3.62	2.00	5.55	2.56	3.04	1.22	0.72	3.86	1.36
39	Length of ROW across open water (lakes, ponds)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Number of stream and river crossings	2	0	0	0	0	1	1	0	0	1	0	0	1	1	0	0	5	4
41	Length of ROW parallel (within 100 feet) to streams or rivers	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.07
42	Length of ROW across Edwards Aquifer Contributing Zone	0.60	0.43	0.03	0.12	0.25	0.33	0.58	0.60	0.31	0.87	0.69	1.22	0.59	0.46	0.41	0.50	1.37	1.51
43	Length of ROW across FEMA mapped 100-year floodplain	0.46	0.27	0.00	0.00	0.00	0.02	0.07	0.00	0.00	0.04	0.00	0.00	0.10	0.13	0.00	0.00	0.11	0.00
	Cultural Resources																		
44	Number of recorded cultural resource sites crossed by ROW	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0
45	Number of additional recorded cultural resource sites within 1,000 feet of ROW centerline	0	0	0	0	0	0	0	0	0	10	0	0	0	0	3	0	5	0
46	Number of NRHP listed properties crossed by ROW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	Number of additional NRHP listed properties within 1,000 feet of ROW centerline	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
48	Length of ROW across areas of high archeological site potential	0.60	0.39	0.03	0.05	0	0.26	0.20	0.29	0.08	0.65	0	0.17	0.59	0.46	0.26	0.18	0.99	1.07

[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 300 feet of the centerline of a transmission project of 230-kV or less.

[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 hydrocarbons were quantified in the pipeline crossing and paralleling calculations.

[5] As listed in the Chart Supplement South Central US (FAA 2019b formerly known as the Airport/Facility Directory South Central US) and FAA 2019a.

[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.

[8] From Model C by Diamond et al. 2010

All length measurements are shown in miles unless noted otherwise.

Table 4-2
Environmental and Land Use Data For Segment Evaluation
Scenic Loop

	Evaluation Criteria																		
Land Use		**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**	**41**	**42**	**43**	**44**	**45**
1	Length of alternative route (miles)	0.56	0.70	0.49	0.59	0.87	0.35	0.04	0.52	0.47	0.59	0.42	0.87	2.57	0.46	0.87	2.05	1.98	2.59
2	Number of habitable structures[1] within 300 feet of the route centerline	0	3	1	2	24	0	0	2	0	1	1	1	7	0	0	1	0	0
3	Length of ROW using existing transmission line ROW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Length of ROW parallel and adjacent to existing transmission line ROW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Length of ROW parallel to other existing ROW (roadways, railways, canals, etc.)	0	0	0.09	0	0	0.35	0	0.28	0.42	0	0	0	0.88	0	0	0.85	1.39	1.20
6	Length of ROW parallel and adjacent to apparent property lines[2]	0.36	0.66	0	0.26	0.87	0	0	0	0	0.38	0	0.87	1.26	0.24	0.34	0.65	0	0
7	Sum of evaluation criteria 4, 5, and 6	0.36	0.66	0.09	0.26	0.87	0.35	0.00	0.28	0.42	0.38	0	0.87	2.13	0.24	0.34	1.50	1.39	1.20
8	Percent of evaluation criteria 4, 5, and 6	64%	94%	19%	43%	100%	100%	0%	54%	89%	65%	0%	100%	83%	52%	39%	73%	70%	46%
9	Length of ROW across parks/recreational areas[3]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Number of additional parks/recreational areas[3] within 1,000 feet of ROW centerline and substation site	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Length of ROW across cropland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Length of ROW across pasture/rangeland	0.00	0.03	0.12	0.16	0.00	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.02	0.14	0.10	0.12	0.00	0.00
13	Length of ROW across land irrigated by traveling systems (rolling or pivot type)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Length of route across conservation easements and/or mitigation banks (Special Management Area)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Length of route across gravel pits, mines, or quarries	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Length of ROW parallel and adjacent to pipelines[4]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Number of pipeline crossings[4]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Number of transmission line crossings	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Number of IH, US and state highway crossings	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Number of FM or RM road crossings	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Number of cemeteries within 1,000 feet of the ROW centerline and substation site	0	0	0	1	0	0	0	1	1	0	0	0	0	0	1	0	0	0
22	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 and substation site	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0
23	Number of FAA registered airports[5] having no runway more than 3,200 feet in length located within 10,000 feet of ROW centerline and substation site	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	Number of private airstrips within 10,000 feet of the ROW centerline and substation site	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Number of heliports within 5,000 feet of the ROW centerline and substation site	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	Number of commercial AM radio transmitters within 10,000 feet of the ROW centerline and substation site	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	Number of FM radio transmitters, microwave towers, and other electronic installations within 2,000 feet of ROW centerline and substation site	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
28	Number of identifiable existing water wells within 200 feet of the ROW centerline and substation site	0	2	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0
29	Number of oil and gas wells within 200 feet of the ROW centerline (including dry or plugged wells) and substation site	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aesthetics																			
30	Estimated length of ROW within foreground visual zone[6] of IH, US and state highways	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Estimated length of ROW within foreground visual zone[6] of FM/RM roads	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	Estimated length of ROW within foreground visual zone[6][7] of parks/recreational areas[3]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ecology																			
33	Length of ROW across upland woodlands/brushlands	0.35	0.54	0.37	0.42	0.86	0.35	0.02	0.06	0.36	0.55	0.42	0.87	2.46	0.31	0.77	1.93	1.98	2.59
34	Length of ROW across bottomland/riparian woodlands	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Length of ROW across NWI mapped wetlands	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	Length of ROW across critical habitat of federally listed endangered or threatened species	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	Area of ROW across golden-cheeked warbler modeled habitat designated as 3 Moderate High and 4-High Quality (acres)[8]	0.72	0	0	0.52	3.99	0	0	0	0	3.69	1.26	0	11.12	1.27	0.96	14.89	1.38	3.58
38	Area of ROW across golden-cheeked warbler modeled habitat designated as 1-Low and 2-Moderate Low Quality (acres)[8]	2.04	0.80	0.08	3.38	2.21	0	0	0.16	2.71	1.40	1.03	2.82	6.90	0.90	1.34	4.12	5.66	9.25
39	Length of ROW across open water (lakes, ponds)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.003
40	Number of stream and river crossings	0	0	0	1	0	0	0	0	2	1	0	2	3	1	3	2	3	4
41	Length of ROW parallel (within 100 feet) to streams or rivers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.07	0.00	0.10	0.11	0.17	0.04
42	Length of ROW across Edwards Aquifer Contributing Zone	0.56	0.70	0.49	0.59	0.87	0.35	0.04	0.52	0.47	0.59	0.42	0.87	2.57	0.46	0.87	2.05	1.98	2.59
43	Length of ROW across FEMA mapped 100-year floodplain	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.05	0.00	0.00	0.13	0.00	0.66	0.00	0.00	0.24
Cultural Resources																			
44	Number of recorded cultural resource sites crossed by ROW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	Number of additional recorded cultural resource sites within 1,000 feet of ROW centerline	0	0	2	0	0	2	2	2	0	0	0	0	0	2	2	0	0	0
46	Number of NRHP listed properties crossed by ROW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
47	Number of additional NRHP listed properties within 1,000 feet of ROW centerline	1	1	1	2	0	1	0	1	1	0	0	0	1	0	1	0	0	0
48	Length of ROW across areas of high archeological site potential	0.18	0.00	0.00	0.47	0.51	0.00	0.00	0.19	0.47	0.45	0.42	0.31	0.72	0.05	0.87	0.54	0.71	2.17

[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 300 feet of the centerline of a transmission project of 230-kV or less.

[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 hydrocarbons were quantified in the pipeline crossing and paralleling calculations.

[5] As listed in the Chart Supplement South Central US (FAA 2019b formerly known as the Airport/Facility Directory South Central US) and FAA 2019a.

[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.

[8] From Model C by Diamond et al. 2010

All length measurements are shown in miles unless noted otherwise.

Table 4-2
Environmental and Land Use Data For Segment Evaluation
Scenic Loop

Evaluation Criteria

	Land Use	**46**	**47**	**48**	**49**	**50**	**51**	**52**	**53**	**54**	**55**	**56**	**57**
1	Length of alternative route (miles)	1.79	0.19	0.16	2.13	0.04	0.15	0.10	0.10	0.70	1.47	1.13	0.62
2	Number of habitable structures[1] within 300 feet of the route centerline	2	0	0	0	0	0	0	0	18	19	13	9
3	Length of ROW using existing transmission line ROW	0	0	0	0	0	0	0	0	0	0	0	0
4	Length of ROW parallel and adjacent to existing transmission line ROW	0	0	0	0	0	0	0	0	0	0	0	0
5	Length of ROW parallel to other existing ROW (roadways, railways, canals, etc.)	0.09	0	0	0.34	0	0.15	0	0	0.60	0.00	0.00	0.31
6	Length of ROW parallel and adjacent to apparent property lines[2]	1.25	0.19	0	0	0.04	0	0	0.10	0.00	1.19	0.00	0.31
7	Sum of evaluation criteria 4, 5, and 6	1.34	0.19	0.00	0.34	0.04	0.15	0.00	0.10	0.60	1.19	0.00	0.62
8	Percent of evaluation criteria 4, 5, and 6	75%	100%	0%	16%	100%	100%	0%	100%	86%	81%	0%	100%
9	Length of ROW across parks/recreational areas[3]	0	0	0	0	0	0	0	0	0	0	0	0
10	Number of additional parks/recreational areas[3] within 1,000 feet of ROW centerline and substation site	0	0	0	0	0	0	0	0	0	0	0	0
11	Length of ROW across cropland	0	0	0	0	0	0	0	0	0	0	0	0
12	Length of ROW across pasture/rangeland	0	0	0	0	0	0	0	0	0.25	0.00	0.08	0.00
13	Length of ROW across land irrigated by traveling systems (rolling or pivot type)	0	0	0	0	0	0	0	0	0	0	0	0
14	Length of route across conservation easements and/or mitigation banks (Special Management Area)	0	0	0	0	0	0	0	0	0	0	0	0
15	Length of route across gravel pits, mines, or quarries	0	0	0	0	0	0	0	0	0	0	0	0
16	Length of ROW parallel and adjacent to pipelines[4]	0	0	0	0	0	0	0	0	0	0	0	0
17	Number of pipeline crossings[4]	0	0	0	0	0	0	0	0	0	0	0	0
18	Number of transmission line crossings	0	0	0	0	0	0	0	0	0	0	0	0
19	Number of IH, US and state highway crossings	0	0	0	0	0	0	0	0	0	0	0	0
20	Number of FM or RM road crossings	0	0	0	0	0	0	0	0	0	0	0	0
21	Number of cemeteries within 1,000 feet of the ROW centerline and substation site	0	0	0	0	0	0	0	0	0	0	0	0
22	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 and substation site	1	0	1	1	1	0	0	0	1	0	0	0
23	Number of FAA registered airports[5] having no runway more than 3,200 feet in length located within 10,000 feet of ROW centerline and substation site	0	0	0	0	0	0	0	0	0	0	0	0
24	Number of private airstrips within 10,000 feet of the ROW centerline and substation site	0	0	0	0	0	0	0	0	0	0	0	0
25	Number of heliports within 5,000 feet of the ROW centerline and substation site	0	0	0	0	0	0	0	0	0	0	0	0
26	Number of commercial AM radio transmitters within 10,000 feet of the ROW centerline and substation site	0	0	0	0	0	0	0	0	0	0	0	0
27	Number of FM radio transmitters, microwave towers, and other electronic installations within 2,000 feet of ROW centerline and substation site	0	0	0	0	0	0	0	0	0	1	1	0
28	Number of identifiable existing water wells within 200 feet of the ROW centerline and substation site	0	0	0	0	0	0	0	0	1	0	2	0
29	Number of oil and gas wells within 200 feet of the ROW centerline (including dry or plugged wells) and substation site	0	0	0	0	0	0	0	0	0	0	0	0
	Aesthetics												
30	Estimated length of ROW within foreground visual zone[6] of IH, US and state highways	0	0	0	0	0	0	0	0	0	0	0	0
31	Estimated length of ROW within foreground visual zone[6] of FM/RM roads	0	0	0	0	0	0	0	0	0	0	0	0
32	Estimated length of ROW within foreground visual zone[6][7] of parks/recreational areas[3]	0	0	0	0	0	0	0	0	0	0	0	0
	Ecology												
33	Length of ROW across upland woodlands/brushlands	1.78	0.19	0.16	2.13	0.04	0.15	0.10	0.10	0.22	1.47	0.98	0.61
34	Length of ROW across bottomland/riparian woodlands	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00
35	Length of ROW across NWI mapped wetlands	0	0	0	0	0	0	0	0	0	0	0	0
36	Length of ROW across critical habitat of federally listed endangered or threatened species	0	0	0	0	0	0	0	0	0	0	0	0
37	Area of ROW across golden-cheeked warbler modeled habitat designated as 3 Moderate High and 4-High Quality (acres)[8]	7.27	0.08	1.44	6.61	0	0	0.31	0.38	0	1.40	0.06	0.05
38	Area of ROW across golden-cheeked warbler modeled habitat designated as 1-Low and 2-Moderate Low Quality (acres)[8]	5.40	0.89	0.37	5.90	0.23	0.10	1.02	0.95	0.29	4.90	3.15	2.91
39	Length of ROW across open water (lakes, ponds)	0	0	0	0	0	0	0	0	0	0	0	0
40	Number of stream and river crossings	2	0	0	3	0	0	0	0	0	2	2	0
41	Length of ROW parallel (within 100 feet) to streams or rivers	0.00	0.00	0.00	0.08	0	0	0	0	0	0	0	0
42	Length of ROW across Edwards Aquifer Contributing Zone	1.79	0.19	0.16	2.13	0.04	0.15	0.10	0.10	0	0	0	0
43	Length of ROW across FEMA mapped 100-year floodplain	0.03	0.00	0.00	0.00	0	0	0	0	0	0	0	0
	Cultural Resources												
44	Number of recorded cultural resource sites crossed by ROW	0	0	0	0	0	0	0	0	0	1	1	0
45	Number of additional recorded cultural resource sites within 1,000 feet of ROW centerline	0	0	0	0	0	0	0	0	0	0	1	0
46	Number of NRHP listed properties crossed by ROW	0	0	0	0	0	0	0	0	0	0	0	0
47	Number of additional NRHP listed properties within 1,000 feet of ROW centerline	0	0	0	0	0	0	0	0	0	0	0	0
48	Length of ROW across areas of high archeological site potential	0.90	0.19	0.16	1.23	0.00	0.15	0.10	0.10	0.28	0.58	0.48	0.20

[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 300 feet of the centerline of a transmission project of 230-kV or less.

[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 hydrocarbons were quantified in the pipeline crossing and paralleling calculations.

[5] As listed in the Chart Supplement South Central US (FAA 2019b formerly known as the Airport/Facility Directory South Central US) and FAA 2019a.

[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.

[8] From Model C by Diamond et al. 2010

All length measurements are shown in miles unless noted otherwise.

This page left blank intentionally.

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 best management practices 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 best management practices 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. The magnitude of potential soil impacts is considered equivalent for all of the alternative routes.

4.1.3 Impacts on Surface Water

All of the alternative routes cross surface waters within the study area. CPS Energy proposes to span all surface waters crossed by any of the alternative routes 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 best management practices 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 plan will be implemented during construction, no significant impacts to surface waters are anticipated for any of the alternative routes. The lengths of each alternative route crossing open water (lakes, ponds), number of streams and rivers crossed by each of the alternative routes, and lengths paralleling (within 100 feet) streams or rivers are provided in Table 4-1.

None of the alternative routes cross open water. The number of stream and river crossings for the alternative routes range from three for Alternative Routes A, E, H, and X, to 12 for Alternative Route U. The length of each alternative route parallel (within 100 feet) to streams or rivers ranges from zero (0) mile for Alternative Routes C and X, to approximately 0.26 mile for Alternative Routes K and BB. These calculations 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.

4.1.4 Impacts on Ground Water

All alternative routes occur entirely within the Edwards Aquifer Contributing Zone. Due to the project's location within the Edwards Aquifer Contributing Zone, CPS Energy will consult with the TCEQ Edwards Aquifer Protection Program 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 for 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 EAA notification requirements.

4.1.5 Impacts on Floodplains

The construction of any of the alternative routes is not anticipated to impact the overall function of a floodplain 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 length of each alternative route ROW across mapped 100-year floodplains ranges from approximately zero (0) mile for Alternative Routes V and W, to approximately 1.40 miles for Alternative Route M. CPS Energy will coordinate with the Bexar County floodplain administrator as necessary to acquire any necessary permits.

4.1.6 Impacts on Wetlands

None of the alternative routes cross NWI mapped wetlands. No NWI mapped wetlands were identified within the study area; however, 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 best management practices, 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 best management practices 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, none of the alternative routes are 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 prior to clearing and construction to ensure compliance with Section 404 of the CWA.

4.1.7 Impacts on Coastal Natural Resources Areas

The study area is not located within the CMZ boundary as defined by 31 TAC § 503.1, which excludes the Project from CMP conditions.

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 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 habitat fragmentation was minimized to the extent possible during the routing process by paralleling existing linear features such as roadways. During the route development process, consideration was given to avoid wooded areas and/or to maximize the length of the routes parallel to existing linear features. Vegetation clearing will occur only where necessary to provide access, workspace, and future maintenance access to the ROW.

The lengths of each alternative route crossing upland woodlands/brushlands and bottomland/riparian woodlands are provided in Table 4-1. None of the alternative routes cross bottomland/riparian woodlands. The length of each alternative route ROW across upland woodlands/brushlands ranges from approximately 3.41 miles for Alternative Route C, to approximately 6.52 miles for Alternative Route V.

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. All the alternative routes cross 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 paralleling existing linear features and avoiding paralleling streams to the extent feasible.

Construction activities might impact small, immobile, or fossorial (living underground) animal species through incidental impacts or from the alteration of local habitats. Incidental impacts of 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 (Texas Parks and Wildlife Code Chapter 64) and federal (MBTA) regulations regarding avian species by having a qualified biologist conduct surveys for active nests prior to vegetation clearing.

Transmission lines can also present additional hazards to birds due to electrocutions and/or collisions. Measures will be implemented to minimize this risk with transmission line engineering designs. The electrocution risk to birds will 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 any bird typically 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 best management practices will minimize these potential impacts. No significant adverse impacts are anticipated to any aquatic habitats crossed or located adjacent to the ROW for any of the alternative routes.

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 all the alternative routes within woodland areas by paralleling existing linear features to the extent feasible. 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 best management practices will minimize potential impacts to aquatic habitats.

4.1.11 Impacts to Threatened and Endangered Species

In order to determine 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. A USFWS IPaC consultation, TPWD county listings, and USFWS designated critical habitat locations were included in the review.

The TXNDD data provides a data record of state-listed, rare, and federally threatened/endangered species and rare 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. Prior to construction, a field survey will be completed of the PUC approved route to determine if suitable habitat for threatened and endangered species is present. Additional consultation with USFWS and TPWD might be required if suitable habitat is observed during field surveys.

Threatened and Endangered Plant Species

Texas wild-rice is not anticipated to occur within the study area due to lack of potential suitable habitat. The Bracted twistflower is a candidate species that may occur within the study area if suitable habitat is available. Federally-listed and candidate 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 will coordinate with the USFWS regarding the Bracted twistflower. Construction of the proposed transmission line is not anticipated to have any adverse effects on federally-listed threatened or endangered plant species.

Threatened and Endangered Animal Species

Review of the TPWD (2019b) and USFWS (2020) data identified 40 animal species that are federally- and/or state-listed or have candidate status, for Bexar County (see Table 3-6 in Section 3.1.10). None of the alternative routes cross critical habitat for the Madla Cave meshweaver or Karst Zone 1. Of the 29 alternative routes, Alternative Routes A, B, C, D, E, H, I, M, T, X, Y, and Z are entirely located within Karst Zone 5. Alternative Routes AA, G, and J are primarily located within Karst Zone 5, except for approximately 650 feet of the west end of each route, which occurs in Karst Zone 3. Approximately 30 to 50 percent of Alternative Routes BB, CC, F, K, N, P, Q, and R occur within Karst Zone 5, with their remaining portions occurring within a matrix of Karst Zones 2, 3, and 4. Approximately 25 to 35 percent of Alternate Routes L and U occur within Karst Zone 5, with their remaining portions occurring within a matrix of Karst Zones 2, 3, and 4. Alternative Routes S, V, and W are mostly located within a matrix of Karst Zones 2, 3, and 4, except for approximately 0.25 mile of the east end of each route, which occurs in Karst Zone 5. Alternative Route O is mostly located within a matrix of Karst Zones 2, 3, and 4, except for approximately 0.80 mile of the east end of the route, which occurs in Karst Zone 5 (refer to page 3-21 for a description of each karst zone). A field survey for potential suitable habitat for federally protected species will be completed after PUC approval of an alternative route.

Federally-Listed and Candidate Species

As indicated in Table 4-1, none of the alternative route lengths cross critical habitat of federally-listed endangered or threatened species.

The study area is located outside of the recognized/known distributions of the San Marcos salamander, Texas blind salamander, Braken Bat Cave meshweaver, Cokendolpher Cave harvestman, Government Canyon Bat Cave meshweaver, Government Canyon Bat Cave spider, Robber Baron Cave meshweaver, Peck's Cave amphipod, fountain darter, sharpnose shiner, smalleye shiner, Comal Springs dryopid beetle, Comal Springs riffle beetle, golden orb, Guadalupe orb, Texas fatmucket, and Texas pimpleback. The interior least tern and piping plover are not anticipated to occur within the study area due to the lack of potential suitable habitat. No impacts to these species are anticipated to occur from the project.

The Madla Cave meshweaver, the two unnamed beetles (*Rhadine exilis* and *Rhadine infernalis*), and the Helotes mold beetle may occur within the study area if suitable cave/karst habitat is present and available. CPS Energy will conduct a site-specific karst survey pursuant to USFWS protocols prior to construction to avoid potential impacts to cave-obligate species.

The whooping crane may pass through and potentially occur temporarily within the study area as a rare transient during migration if suitable foraging habitat is available. The project is not anticipated to have any adverse impacts to whooping crane nesting habitat.

The golden-cheeked warbler may occur within the study area if potential suitable habitat is available. Using the Model C habitat model developed by Diamond et al. (2010), the approximate area of proposed ROW across potential golden-cheeked warbler habitat for each alternative route was tabulated in Table 4-1. This modeled habitat indicates only the probability of suitable golden-cheeked warbler habitat and does not indicate the presence of golden-cheeked warblers. For the data tabulation, mapped areas designated with a value of **3** and **4** were combined, as these represent the highest quality of potential suitable habitat. Mapped areas designated with a value of **1** and **2** were combined, as these represent the lowest quality of potential suitable habitat. As described in Section 3.1.11, during the data analysis POWER biologists further evaluated habitat alteration using 2019 aerial imagery and modified the Diamond Model C habitat data.

The area of ROW across golden-cheeked warbler modeled habitat designated as **3**-Moderate High Quality and **4**-High Quality ranges from 2.95 acres for Alternative Routes O and W, to 25.11 acres for Alternative Route P. The area of ROW across golden-cheeked warbler modeled habitat designated as **1**-Low Quality and **2**-Moderate Low Quality ranges from 10.50 acres for Alternative Route BB, to 22.29 acres for Alternative Route U.

A field survey for potential suitable habitat for federally protected species will be completed after PUC approval of an alternative route. CPS Energy will consult with the USFWS regarding avoidance measures and mitigation if suitable habitat for the Madla Cave meshweaver, two unnamed beetles (*Rhadine exilis* and *Rhadine infernalis*), Helotes mold beetle, whooping crane, or golden-cheeked warbler is observed during the survey of the PUC approved route. If suitable habitat for the golden-cheeked warbler is identified during field surveys of the PUC approved route, CPS Energy may contact the City of San Antonio to enroll in the Southern Edwards Plateau Habitat Conservation Plan in order to achieve compliance with the ESA.

State-Listed Species

The wood stork and Cagle's map turtle are not anticipated to occur within the study area due to the lack of potential suitable habitat. The project is not anticipated to have adverse impacts to these species.

The bald eagle may occur within the study area if 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 the field survey of the PUC approved route, CPS Energy will further coordinate with the TPWD and USFWS to determine avoidance or mitigation measures.

The reddish egret, tropical parula, white-faced ibis, and zone-tailed hawk may occur within the study area if suitable habitat is available. CPS Energy proposes to conduct ROW clearing activities in compliance with state (Texas Parks and Wildlife Code Chapter 64) and federal (MBTA) regulations regarding avian species and appoint a qualified biologist to conduct surveys for active nests prior to vegetation clearing.

The Cascade Caverns salamander, Texas salamander, toothless blindcat, and widemouth blindcat may occur within the study area if suitable aquatic habitat is available. CPS Energy proposes to span all surface waters crossed by the PUC approved route and implement a SWPPP to prevent sedimentation into surface waters.

The Mexican treefrog, Texas horned lizard, and Texas tortoise, as well as the American black bear and white-nosed coati may occur within the study area if suitable habitat is available. If present, species may be susceptible to minor temporary disturbance during construction efforts, but the project is not anticipated to result in significant adverse impacts to these species' populations.

CPS Energy proposes to conduct a site-specific karst survey prior to construction to avoid potential impacts to cave-obligate species and implement best management practices within their SWPPP to minimize impacts to aquatic species. A field survey for potential suitable habitat for state and federal protected species will be completed after PUC approval of a route for the project. Additional consultation with TPWD and the USFWS for avoidance and mitigation measures may be required if suitable habitat is observed during the field survey of the PUC approved route.

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 alternative route length, route length 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.

Alternative Route Length

The length of an alternative 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 lengths of the alternative routes vary from approximately 4.58 miles for Alternative Route Z, to approximately 6.91 miles for Alternative Route L. The differences in route lengths reflect the direct or indirect pathway of each alternative route between the project endpoints. The length of the alternative routes may also reflect the effort to parallel existing transmission lines, other existing linear features and apparent property boundaries, and the geographic diversity of the alternative routes. The approximate lengths for each of the alternative routes are presented in 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. It should also be noted that if a segment parallels more than one existing linear corridor it was only tabulated once (e.g., a segment that parallels both an apparent property line and a roadway, will only be tabulated as paralleling the roadway).

None of the alternative routes utilize or parallel existing transmission line ROW. The two existing transmission lines within the study area run perpendicular to the direction of the project and is the tap point for the project.

The alternative routes with lengths parallel to other existing ROW (roadways, railways, canals, etc.) range from approximately 0.51 mile for Alternative Route T, to approximately 3.01 miles for Alternative Route Y. The lengths of ROW parallel to other existing ROW for each of the alternative routes are presented in Table 4-1.

All of the alternative routes have lengths of ROW parallel and adjacent to apparent property lines to the extent feasible in the absence of other existing linear features. The length of alternative routes parallel and adjacent to apparent property lines ranges from approximately 0.34 mile for Alternative Routes J and AA, to approximately 4.05 miles for Alternative Route T. The lengths paralleling apparent property boundaries for each of the alternative routes are presented in Table 4-1.

Typically, a more representative account for the consideration of whether new transmission line routes are parallel to existing compatible ROWs, apparent property lines, or other natural or cultural features is demonstrated with the percentage of each total route length parallel to any of these existing linear features. These percentages can be calculated for each alternative route by adding up the total length parallel to existing transmission lines, other existing ROW, and apparent property lines and then dividing the result by the total length of the alternative route. All of the alternative routes parallel existing linear features for some portion of their lengths. The percentage of the alternative routes paralleling existing linear features ranges from 46 percent for Alternative Route AA, to 83 percent for Alternative Route A.

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 each alternative 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 300 feet of the centerline of each alternative route and the distance from the centerline through the use of GIS software, interpretation of aerial photography, and verification during reconnaissance surveys.

Due to the nature of the study area, all 29 of the alternative routes have habitable structures located within 300 feet of their centerlines. Alternative Routes Q, R, and U have the least number of habitable structures located within 300 feet of their centerline at four each. Alternative Route A has the most habitable structures located within 300 feet of its centerline at 69.

Tables 4-6 through 4-34 present detailed information on habitable structures. The number of habitable structures located within 300 feet of each of the alternative route centerlines are presented in Table 4-1. All known habitable structure locations are shown on Figure 4-1 located in Appendix E (map pocket).

Lands with Conservation Easements

As discussed in Section 3.2.1, there are four known conservation easements within the study area collectively known as the Bandera Pass Easement. POWER initially identified an alternative route segment across the southern boundary of the Bandera Pass Easement. As noted in Section 3.0, the Army has a third party interest in the Bandera Pass Easement. The correspondence from the Army included in Appendix A clearly states that the Army will oppose CPS Energy obtaining an easement across the Bandera Pass Easements. Because CPS Energy will not be able to obtain an easement across the conservation easements where the Army holds an interest, alternative route segments across that property have been removed. Thus, none of the alternative routes cross the Bandera Pass Easement. The project will have no significant impact on the Bandera Pass Easement or any other lands with conservation easements that may be designated during the pendency of the project. Further, CPS Energy will coordinate with landowners during transmission line construction and operation for continued operation of any ongoing or existing land management activities.

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.

None of the alternative routes cross any length of cropland. The project will have no significant impact on cropland.

Twenty-eight of the 29 alternative routes cross some length of 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 farming or grazing activities. Alternative route lengths crossing pastureland areas range from approximately zero (0) mile for Alternative Route V, to approximately 1.69 miles for Alternative Route C.

None of the alternative routes cross lands with known mobile irrigation systems (rolling or pivot type). The lengths of each of the alternative routes crossing cropland, pastureland/rangeland, and land with known mobile irrigation systems are presented in 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 portions of the study area, these impacts are typically considered minor, temporary, and short-term. In the urban portions of the study area, the temporary impacts to traffic flow can be significant during construction; however, none of the alternative routes are located in areas that are considered as urban. 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 no state roadway projects within the study area.

None of the alternative routes cross US Hwys or SHs. Additionally, none of the alternative routes cross any FM roads.

Aviation Facilities

According to FAA regulations, Title 14 CFR Part 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.

There is one public FAA registered airport with at least one runway longer than 3,200 feet located within 20,000 feet of the ROW centerline for all 29 of the alternative routes (the Boerne Stage Field Airport). The nearest segment to Boerne Stage Field Airport (Figure 4-1 Map ID 301) is Segment 29, at approximately 7,210 feet from the airport. The estimated runway length at Boerne Stage Field Airport is 5,000 feet and the 50:1 slope is not expected to be exceeded by the proposed poles heights for the project. There are no FAA registered airports having no runway longer than 3,200 feet located within 10,000 feet of any of the alternative routes. Although there may be PELAs designated within the study area, there are no known heliports within 5,000 feet of the ROW centerline for any of the alternative routes.

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 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 are also no known private airstrips located within 10,000 feet of the ROW centerline of any of the alternative routes.

Tables 4-6 through 4-34 present detailed information on airports, airstrips, and heliports. The number of airports, airstrips, and heliports for each of the alternative routes are presented in Table 4-1. The distance for each airport/airstrip from the nearest route was measured using GIS software and aerial photography interpretation. All known airport/airstrip locations are shown on Figures 2-4 and 4-1 located in Appendix D and E (map pockets). None of the alternative routes are anticipated to have a significant impact on aviation activities within the study area.

4.2.4 Impacts on Communication Towers

None of the alternative routes are anticipated to have a significant impact on electronic communication facilities or operations in the study area. All known facilities, including fifth generation (5G), licensed with the FCC have been identified. No commercial AM radio transmitters were identified within 10,000 feet of the ROW centerline for any of the alternative routes. However, there is one other electronic communication facility located within 2,000 feet of each of the ROW centerlines for Alternative Routes C, D, I, J, M, O, S, T, V, W, Y, Z, AA, and CC.

Tables 4-3 and 4-34 present detailed information on the electronic communication facilities. The number of other communication facilities located within 2,000 feet of the alternative routes is presented in Table 4-1. The distance to the electronic communication facilities from the closest segment was measured using GIS software and aerial photograph interpretation (see Table 4-3). The communication facilities' locations are shown on Figures 2-4 and 4-1 located in Appendix D and E (map pockets).

TABLE 4-3 ELECTRONIC COMMUNICATION FACILITIES

FIGURE 4-1 MAP ID	TOWER TYPE	NEAREST SEGMENT	DISTANCE FROM NEAREST SEGMENTS (FEET)*
501	CellTex Site Services, Ltd.	32	279
502	Global Tower, LLC	16	521

*POWER aerial photo and USGS interpretation; FCC 2019.

4.2.5 Impacts on Utility Features

Utility features include existing electrical transmission lines, distribution lines, water wells, pipelines, and oil and gas wells. Numerous water wells were identified within the study area and were mapped and avoided to the extent practicable. The number of identifiable existing water wells within 200 feet of the ROW centerline and substation sites range from zero (0) for Alternative Route V, to six for Alternative Route A. None of the water wells located within 200 feet of the alternative routes are public supply water wells. If these utility features are crossed by or are in close vicinity to the alternative route centerline approved by the PUC, CPS Energy will coordinate with the appropriate entities to obtain necessary permits or permission as required. The number of known water wells within 200 feet of each of the alternative route is presented in Table 4-1.

Two existing electric transmission lines were identified within the study area, the Ranchtown to Menger Creek 138 kV transmission line and the Kendall to Cagnon Road 345 kV transmission line. All of the alternative routes connect into but do not cross the Ranchtown to Menger Creek 138 kV transmission line.

No oil and gas wells and associated treatment facilities or pipelines were identified within the study area. Thus, the project will have no impacts on oil and gas wells and associated treatment facilities or pipelines. Further, if any unknown oil and gas wells and associated treatment facilities or pipelines are discovered during construction, CPS Energy will notify and coordinate with pipeline companies as necessary during transmission line construction and operation.

None of the alternative routes cross or parallel known oil or gas pipelines or are within 200 feet of any oil and gas wells. Additionally, none of the alternative routes cross gravel pits, mines, or quarries.

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 each entity’s respective 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 stations 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. No parks or recreational areas meeting the definition set forth in the PUC application were identified within the study area.

Thus, no significant impacts to the use of parks and recreation facilities are anticipated from any of the alternative routes. Also, no adverse impacts are anticipated for any of the fishing or hunting areas from any of the alternative routes.

None of the alternative routes cross or are located within 1,000 feet of any parks and recreation facilities.

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.

The study area is located with the Texas Hill Country; however, no designated landscapes protected from legislation or most forms of development exist within the study area. Potential visibility impacts were evaluated by estimating the length of each alternative 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 alternative route lengths within the foreground visual zone of US highways, state highways, FM roads, and parks or recreational areas were tabulated and are discussed below.

None of the alternative routes have any portion of the routes located within the foreground visual zone of IHs, US Hwys, and SHs. None of the alternative routes have any portion of the routes located within the foreground visual zone of FM roads. Also, none of the alternative routes have any portion of the routes located within the foreground visual zone of parks or recreational areas.

Overall, the character of the study area maintains a suburban feel characteristic of the Texas Hill Country region. The residential and commercial developments within the study area have already impacted the aesthetic quality within the region from public viewpoints. The construction of any of the alternative routes 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 (NHPA). 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 the 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 affects caused by the 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 best management practices, 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 from the nearest routing segment and alternative route was measured using GIS software and aerial photography interpretation (see Tables 4-6 through 4-34). A review of the THSA and TASA (THC 2019b) records and NPS data (NPS 2019d) described in Section 3.5, indicated that 17 archeological sites and three NRHP-listed resources are recorded within 1,000 feet of the alternative routes (Tables 4-4 and 4-5). These resources are discussed below. The Heiden Cemetery is recorded 593 feet from

Alternative Routes B, C, D, G, I, J, M, T, Y, A, and AA. The cemetery is a contributing element of the NRHP-listed Heidemann Ranch Historic District. The Huntress Lane Cemetery, a cemetery reported by a landowner, is 128 feet from Alternative Routes F, N, P, Q, R, T, and U.

TABLE 4-4 ARCHEOLOGICAL SITES RECORDED WITHIN 1,000 FEET OF THE ALTERNATIVE ROUTE CENTERLINES

SITE TRINOMIAL	DISTANCE IN FEET FROM CENTERLINE	PRIMARY ALTERNATIVE ROUTE(S)
41BX75	**0**	**F, N, Q, R, U**
	352	P, T
41BX76	163	F, N, Q, R, U
	582	P, T
41BX77	172	F, N, Q, R, U
41BX78	**50**	**F, N, Q, R, U**
41BX80	627	F, N, Q, R, U
41BX81	323	P, T
	414	F, N, Q, R, U
41BX82	241	P, T
	340	F, N, Q, R, U
41BX83	115	P, T
	226	F, N, Q, R, U
41BX84	836	F, N, Q, R, U
	955	P, T
41BX85	798	F, N, Q, R, U
	895	P, T
41BX86	**12**	**P, T**
	106	F, N, Q, R, U
41BX87	259	F, N, P, Q, R, T, U
41BX88	444	F, N, P, Q, R, T, U
41BX89	675	F, N, P, Q, R, T, U
41BX1923	266	Y, C
	329	B, D, G, I, J, M, T, Z, AA
	814	E, X
41BX1924	86	B, D, G, I, J, M, Z, T, AA
	150	C, X
	817	E, Y
41BX2176	**0**	**V**
41BX2177	**44**	**O, S, W**
41BX2178	**72**	**O, S, W**

Note: Bold entries will be crossed by 100-foot-wide ROW.

TABLE 4-5 NRHP-LISTED RESOURCES RECORDED WITHIN 1,000 FEET OF THE ALTERNATIVE ROUTE CENTERLINES

RESOURCES NAME	NRHP NUMBER	DISTANCE IN FEET FROM CENTERLINE	PRIMARY ALTERNATIVE ROUTE(S)
Heidemann Ranch	11000423	50	B, G
R.L. White Ranch	**08000474**	**0**	**F, K, L, N, O, P, Q, R, S, U, V, W, BB, CC**
Maverick-Altgelt Ranch and Fenstermaker-Fromme Farm	79002915	50	A, B, E, G, H, X

Note: Bold entries will be crossed by 100-foot-wide ROW.

Of the 17 archeological sites recorded within 1,000 feet of the alternative routes, four are crossed by the routes. Alternative Routes F, N, Q, R, and U cross archeological Sites 41BX75 and 41BX78. Sites 41BX75 and 41BX78 are campsites with burned rock, bifaces and debitage. Site 41BX78 is mapped as a point 50 feet from the alternative route centerlines but is described as a large site. The sites have not been formally assessed for listing on the NRHP, although the site recorders recommended additional work at the sites. Alternative Routes P and T cross site 41BX86, a campsite with Pedernales, Frio, and Castroville projectile points, bifaces, burned rock, and debitage that has not been formally assessed for listing on the NRHP. Alternate Route V crosses archeological Site 41BX2176. Site 41BX2176 is the remains of the Sebastien Chapa farmstead, a multicomponent historic site with the remains of a small, collapsed dry-stacked limestone structure dating to the 1800s, a mid-1900s house and garage, and stone walls, a pool, dams on a nearby stream, and multiple pile and scatters of domestic and agricultural implements. The collapsed stone structure is approximately 70 feet from the alternative route centerlines. The site has not been formally assessed for listing on the NRHP, but the recorders of the site recommend that is ineligible for listing on the NRHP. Alternative Routes O, S, and W cross site 41BX2177, and are 72 feet from site 41BX2178. Sites 41BX2177 and 41BX2178 are scatters of historic artifacts deemed by the recorders to be ineligible e for listing on the NRHP. Historic structures were observed near 41BX2178. Neither site has been evaluated for listing on the NRHP.

Alternative Routes B, D, G, I, J, M, T, Z, and AA are 329 feet and 86 feet from archeological sites 41BX1923 and 41BX1924, respectfully. Site 41BX1923 is a prehistoric campsite with a widely dispersed scatter of burned rocks. The site has not formally evaluated for listing on the NRHP, but the recorders recommend that the shallowly buried and surficial scatter of burned rock is not eligible for listing on the NRHP. Site 41BX1924 is multicomponent site with the remains of ten structures, including a house, barn, long barn and animal pen, , a cistern and associated artifact scatters, all dating to as early as the early to mid-1900s. A concentration of burned rock and ash, potentially a prehistoric hearth, was also observed at the site. The site has not been formally assessed for listing on the NRHP. Additionally. Alternative Routes Y and C are 266 feet from site 41BX1923, and Alterative Routes E and X are 814 feet from the site. Alternative Routes C and X are 150 feet and Alternative Routes E and Y are 817 feet from site 41BX1924.

Alternative Routes F, N, P, Q, R, T, and U are within 1,000 feet of, but do not cross, sites 41BX76, 41BX81, 41BX82, 41BX83, 41BX84, 41BX85, 41BX86, 41BX87, 41BX88, and 41BX89. Additionally, Alternative Routes P and T are within 1,000 feet of site 41BX75 and Alternate Routes F, N, Q, R, and U are within 1,000 feet of 41BX77 and 41BX80. Sites 41BX87 and 41BX88 are lithic scatters and the remaining sites are campsites. None of these prehistoric sites within 1,000 feet of the alternate routes have been formally assessed for listing on the NRHP. However, as mentioned above, additional work has been recommended for site 41BX75.

Portions of Alternative Routes F, K, L, N, O, P, Q, R, S, U, V, W, BB, and CC cross the NRHP-listed R.L. White Ranch. These routes extend less than 105 feet into the eastern boundary of the 3,500-acre NRHP boundary, connecting into an existing transmission line running generally north to south along the NRHP border. The ranch was developed by Ryall Luther White beginning in 1926 and used for entertainment purposes. Twenty-five contributing resources and five noncontributing resources are listed in the NRHP (2008) nomination form, divided into three groups: the principal guest and residential compound; agricultural features including barns fields, and sheds; and engineering/water retention features. All three concentrations of the resources are over one mile from the alternative routes. No adverse impacts to known elements of the district are anticipated due to the distance between contributing elements and the alternative route centerlines.

The centerlines for Alternative Routes B and G are 50 feet from the NRHP-listed Heidemann Ranch District, approximately nine acres of a larger ranch purchased in 1856 by William Heidemann (NRHP 2011). Twelve contributing elements, including the Heidemann Cemetery, and one non-contributing element are listed in the district nomination form. Of these, the Well house, Garage, and Outhouse are nearest to the alternative route centerlines, at approximately 86 feet, 188 feet, and 216 feet, respectively. The 1937 house is approximately 280 feet from the centerlines. The log house and three surrounding structures, all dating to the 1860s, are over 500 feet from the proposed centerlines. No adverse impacts to known elements of the district are anticipated due to the distance between contributing elements and the alternative centerlines.

Alternative Routes A, B, E, G, H, and X are 50 feet from the over 1,100-acre Maverick-Altgelt Ranch and Fenstermaker-Fromme Farm Historic District. The district consists of two separate but adjoining areas: the Maverick-Altgelt Ranch headquarters, outbuildings and lands, including the George Obert site; and the Fenstermaker-Fromme Farm structures and lands, plus three prehistoric and four historic archeological sites. The nearest component, archeological site 41BX498, the mapped location of the Obert Cemetery, is over 2,000 feet from the alternative route centerlines. No adverse impacts to known elements of the district are anticipated due to the distance between contributing elements and the alternative centerlines.

No systematic cultural resource surveys have been conducted along the alternative routes. Thus, the potential for undiscovered cultural resources does exist along all alternative routes. To assess this potential, a review of geological, soils, and topographical maps was undertaken by a professional archeologist to identify areas along the alternative routes where unrecorded prehistoric archeological resources have a higher probability to occur. These HPAs for prehistoric archeological sites were identified near unnamed streams in the study area and adjacent to closed depressions that may have held fresh water. To facilitate the data evaluation and alternative route comparison, each HPA was mapped using GIS and the length of each alternative route crossing these areas was tabulated. Historic HPA were mapped near previously recorded historic sites and NRHP properties, and near structures depicted on historic topographic maps.

All of the alternative routes cross HPAs for cultural resources. Alternative Routes H, E, X, and A cross the least amount of HPA, with 1.44, 1.49, 1.59, and 1.73 miles, respectively. Alternative Routes L and U cross the most HPA, with 4.55 and 4.75 miles of HPA crossed, respectively. Table 4-1 shows the amount of HPA crossed by each route.

This page left blank intentionally.

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 Department of the Air Force
- United States Army Corps of Engineers (USACE) – Fort Worth District
- United States Department of the Army
- United States Department of Defense 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, and San Antonio District Engineer
- 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 Development
- Bexar County Floodplain Administrator

- Bexar County Historical Commission
- Bexar County Manager
- 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
- Northside Independent School District (ISD)
- City of Fair Oaks Ranch Officials
- City of Grey Forest Officials
- The Nature Conservancy (TNC) – Texas
- Texas Land Trust Council
- Texas Land Conservancy
- 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 2019). 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.

The FAA responded with a letter dated August 13, 2019, stating that if CPS Energy is planning to sponsor any construction or alterations that may affect navigable airspace, they must file FAA Form 7460-1.

The NRCS responded with a letter dated July 3, 2019, providing a Custom Soil Resources Report and encouraged the use of acceptable erosion control method during the construction of the project.

The USACE submitted a response email letter dated June 26, 2019, stating that they had assigned a regulatory project manager and assigned Project Number SWF-2019-00231.

The USACE submitted an additional email dated July 17, 2019, recommending an environmental and wetland delineation survey. Once they have reviewed the wetland delineation survey, the USACE can determine the permit type required for the project. If no work occurs within the waters of the US, then in most cases no permit would be required.

The DoD Siting Clearinghouse responded with a letter dated September 11, 2019, stating that the proposed project located in Bexar County, Texas, will have minimal impact on military operations conducted in this area.

The Army and US Air Force (Air Force) provided a letter dated March 26, 2020, to counsel for CPS Energy in response to an inquiry regarding the potential for the project to cross the Bandera Pass Easement in which the Army holds a third party beneficiary interest. In the letter, the Army and Air Force stated that they were opposed to the granting of an easement for the project across the Bandera Pass Easement.

The TCEQ responded with an email dated June 25, 2019, stating that the project will be located in the Edwards Aquifer Protection Program Contributing Zone. They also stated that a Contributing Zone Plan or an Exception Request will be the two permit options that might apply to the proposed project, but that additional information is needed to make a final determination.

TxDOT responded with an email dated June 26, 2019, stating that they do not have any proposed projects or specific concerns within the study area.

TXDOT Aviation responded with an email dated July 10, 2019, stating that once a route is selected the coordinates should be ran through the FAA’s Obstruction Evaluation/Airport Airspace Analysis website. The website will indicate whether the airport approaches or navigational aids will be affected.

The THC responded with a letter dated July 1, 2019, stating that a NRHP District is located within the area. They also said that that much of the area had not previously undergone archeological surveys and may contain additional historic and archeological resources. The THC recommended that the area be surveyed by a professional archeologist prior to any ground disturbance.

The TPWD responded with a letter dated August 1, 2019, providing several recommendations. In summary, TPWD recommended avoiding or minimizing potential impacts to water bodies, nesting migratory birds, listed or rare species, and native vegetation.

Bexar County responded with an email dated July 3, 2019, providing aerial and shape file data that showed planned development, platted areas, floodplain areas, wetland areas, Karst Zones, and the City of San Antonio Land Use Control Areas.

The City of San Antonio Edwards Aquifer Protection Program responded with an email dated July 2, 2019, providing shapefiles for properties that are either owned by the City of San Antonio or held under a conservation easement.

The City of San Antonio OHP responded with an email dated July 8, 2019, stating that prehistoric and historic archeological resources had been identified within the study area.

6.0 PUBLIC INVOLVEMENT

CPS Energy hosted a public meeting within the study area to solicit comments, concerns and input from residents, landowners, public officials, and other interested parties. The purpose of this 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 routing 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 October 3, 2019 from 5:30 p.m. to 7:30 p.m. at Cross Mountain Church, 24891 Boerne Stage Road in San Antonio, Texas. Invitation letters were sent to landowners who owned property within 300 feet from a preliminary alternative route segment. CPS Energy mailed 592 invitation letters to landowners. Each landowner that received an invitation letter also received a map of the study area depicting the preliminary alternative route segments as well as a map showing the location of the public meeting. An advertisement for the open house was also published in the *San Antonio Express News* on September 22 and 29, 2019.

At the meeting, engineers, GIS analysts, biologists, project managers, and regulatory professionals were available from CPS Energy and POWER to answer questions regarding the project. Manned information stations were set up that provided typical 138 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. POWER also provided four GIS interactive stations operated by GIS analysts. These computer stations allowed attendees to view more-detailed digital maps of preliminary alternative route segments and submit comments digitally and spatially. The information station format is advantageous because it facilitates one-on-one discussions and encourages personalized landowner interactions. Several digital comments were received in addition to questionnaires. Respondent digital comments assisted in identifying structures and other land use concerns.

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 172 individuals signed in as attendees at the public meeting and 146 submitted questionnaire responses at or after the public meeting. In addition to the questionnaires received at or shortly after the open house meeting, 40 additional questionnaires, as well as letters and e-mails, were received from individuals after the meeting, some of whom did not attend the open house meeting. CPS Energy received numerous emails and letters from citizens expressing their concerns about the potential project, a significant number of which addressed potential impacts on the area near Huntress Lane. A total of 186 questionnaires were received by CPS Energy as of April 1, 2020. Results from the questionnaires were reviewed and analyzed. Table 6-1 summarizes general response information from the questionnaires. CPS Energy also received an additional six questionnaires providing similar responses as those summarized below.

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	37%
Neutral	22%
Disagree	12%
Strongly Disagree	16%
The project team responded to and answered questions about the project.	
Strongly Agree	10%
Agree	32%
Neutral	24%
Disagree	11%
Strongly Disagree	16%
The exhibits at the open house were helpful.	
Strongly Agree	10%
Agree	36%
Neutral	22%
Disagree	4%
Strongly Disagree	10%

Respondents were then presented with a list of 15 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: 108 (58%)
- Visibility of structures: 11 (6%)
- Proximity to schools, places of worship, cemeteries: 4 (2%)

- Impact to endangered species and their habitat: 4 (2%)

Respondents were asked if there are other factors that should be considered when identifying and evaluating the preliminary alternative route segments and substation sites. Written responses included:

- Concerns about the impact to the community.
- Concerns about view.
- Concerns about health impacts.
- Concerns about distance to homes.
- Concerns about property values.
- Suggestion to situate the site in a more rural area.
- Concerns about ranching operations.
- Suggestion to use solar panels.
- Suggestion to conceal the substation site.

Respondents were asked if they had a preference for the type of finish on the transmission line structure that is being proposed for the project, the following responses were received:

- 17% (31 responses) prefer option A (galvanized finish)
- 31% (58 response) prefer option B (rust finish)
- 24% (45 responses) had no preference

Respondents were then asked if there are other features that should be added to the Land Use and Environmental Constraints map. Written responses included:

- Concerns about health effects.
- Suggest installing the lines underground.
- Concerns about flooding and runoff.
- Concerns about wildlife, trees, streams, and wetlands.
- Suggest adding population density to the maps.

Respondents were asked to identify the preliminary alternative route segments and substation sites that they most preferred and least preferred. Segments 12 and 23 received the most positive comments (28 each), followed by Segment 40 (27). Segment 15 received the most negative comments (50), followed by Segments 26 (41) and 16 (34). Substation Site 1 received the most positive comments (47) and Substation Site 5 received the most negative comments (22). Table 6-2 summarizes the preliminary alternative route segments and substation site that received the most responses to this question, both positive and negative.

TABLE 6-2 SCENIC LOOP SEGMENT/SUBSTATION SITE COMMENTS

SEGMENT/SUBSTATION	12	23	40	15	26	16	SUB 1	SUB 2	SUB 3	SUB 4	SUB 5
Positive Comments	28	28	27	3	3	4	47	6	7	5	10
Negative Concerns	0	0	17	50	41	34	7	17	13	15	22

When asked which of four situations applied to them, written responses were as follows:

- 147 indicated that a potential segment is near their home/business
- 55 indicated that a potential segment crosses their property
- 63 indicated that a potential substation site is near to their property
- 17 answered “Other”

Respondents were also asked if there any other concerns they have with the preliminary alternative route segments or if there were any other information they would like the project team to know or take into consideration when evaluating the preliminary alternative route segments for the new line, responses included:

- Concerns about the distance to homes.
- Suggest situating the site in a more commercial area.
- Concerns about health impacts.
- Concerns about property values.
- Concerns about the view.
- Suggest installing the lines underground.
- Concern about the history of the area.
- Suggest allowing blackouts.

6.1 Modifications to the Preliminary Alternative Route Segments

Information received by CPS Energy and POWER from the public, officials, and agencies resulted in modifications and deletions to some of the preliminary alternative route segments as well as the identification of new route segments, which are described in detail below. The preliminary alternative segments shown at the Scenic Loop open house meeting are presented in Figure 2-2. The primary alternative route segments resulting from the segment revisions described below are shown in Figure 2-3.

6.1.1 Segment Additions

Segment 48 was added west of Toutant Beauregard Road as an option that would connect Segments 41 and 42. As a result of adding Segment 48, a node was added near the middle of Segment 42 relabeling the western portion of the segment as Segment 49. Adding Segment 48 also resulted in adding a node along Segment 41, relabeling the western portion of that segment as Segment 46. The eastern portion of Segment 42 was modified by shifting it to the north to address landowner comment that they would donate the ROW for this portion of the segment if the modification was made. Segment 49 was modified by shifting it to the north in three separate locations due to engineering constraints (Figure 6-1).

Substation Site 6 was added as a substation site option due to the landowner's willingness to sell the property to CPS Energy. As a result of adding Substation Site 6, a node was added near the end of Segment 8 relabeling the southern portion of that segment as Segment 50 (Figure 6-2).

Substation Site 7 was added as a substation site option due to the landowner's willingness to sell the property to CPS Energy. As a result of adding Substation Site 7, a node was added near the middle of Segment 14 relabeling the western portion of that segment as Segment 54 (Figure 6-3).

Segment 56 was added primarily along the west side of Scenic Loop Road. As a result of adding Segment 56, a node was added near the middle of Segment 16 relabeling the central portion of that segment as Segment 55. The central portion of Segment 55 was modified by shifting it to the southeast to increase the distance away from a habitable structure and an identified constraint. Also, as a result of adding Segment 56, a node was added near the end of Segment 16 relabeling the southern portion of that segment as Segment 57 (Figure 6-4).

6.1.2 Segment Modifications

The central portion of Segment 15 was modified by shifting it to the southeast to avoid a previously unknown cemetery (Figure 6-5).

The eastern portion of Segment 25 was modified by slightly shifting it to the south to better parallel a property line. As a result of shifting Segment 25, the node between Segments 21 and 22 was moved to the south, increasing the length of Segment 21 and decreasing the length of Segment 22 (Figure 6-6).

The central portion of Segment 26 was modified by shifting it to the north due to engineering constraints (Figure 6-7).

The western portion of Segment 27 was modified by shifting it to the north and the central portion was modified by shifting it to the northeast. Both modifications were due to engineering constraints (Figure 6-8).

The northern portion of Segment 28 was modified by shifting it to the west to better parallel a property boundary due to information from the landowner that the property was proposed to become part of the adjacent conservation easement (Figure 6-9).

The southern portion of Segment 29 was modified by shifting it to the west to better parallel a property boundary due to information from the landowner that the property was proposed to become part of the adjacent conservation easement. As a result of shifting Segments 28 and 29, the node between Segments 28, 29, and 30 was moved to the west, decreasing the length of Segment 30 (Figure 6-10).

Segment 37 was modified by shifting it to the south and the eastern portion was further modified by adding an angle and shifting it to the southeast due to engineering constraints. As a result of shifting Segment 37, the node between Segments 38 and 43 was moved to the south, decreasing the length of Segment 38 and increasing the length of Segment 43 (Figure 6-11).

Segment 39 was modified by shifting it the west to better parallel a property boundary. As a result of shifting Segment 39, the node between Segments 26, 38, and 39 was removed, increasing the length of Segment 26. Also, as a resulting of shifting Segment 39, a node was added to the eastern portion of Segment 43, decreasing the length of Segment 43. The label for Segment 38 was moved to the new portion of the segment between the nodes for Segments 26, 37, and 43. Shifting Segment 39 also shifts the node with Segment 44 to the west side, decreasing the length of Segment 44 (Figure 6-12).

The central portion of Segment 40 was modified by shifting it to the north side of Toutant Beauregard Road to address landowner comment. The two locations in the eastern portion of the segment were modified by shifting it to the west and then to the north. Both modifications were due to engineering constraints (Figure 6-13).

The central portion of Segment 43 was modified by shifting it to the south due to engineering constraints (Figure 6-14).

Segment 44 was modified by shifting it to the north due to engineering constraints. As a resulting of shifting Segment 44, a node was added to the southern portion of Segment 39, decreasing the length of Segment 39 and relabeling the southern portion of that segment as Segment 53 (Figure 6-14).

The eastern portion of Segment 45 was modified by shifting it to the west due to engineering constraints. As a result of shifting Segment 45, a node was added near the western end of Segment 27, reducing the length of Segment 27 and relabeling that portion of the segment as Segment 47. A node was also added near the northern end of Segment 45 relabeling that portion of the segment as Segment 51. At the node for Segment 51, another segment was added to the west and labeled as Segment 52. This segment was added due to engineering constraints (Figure 6-15).

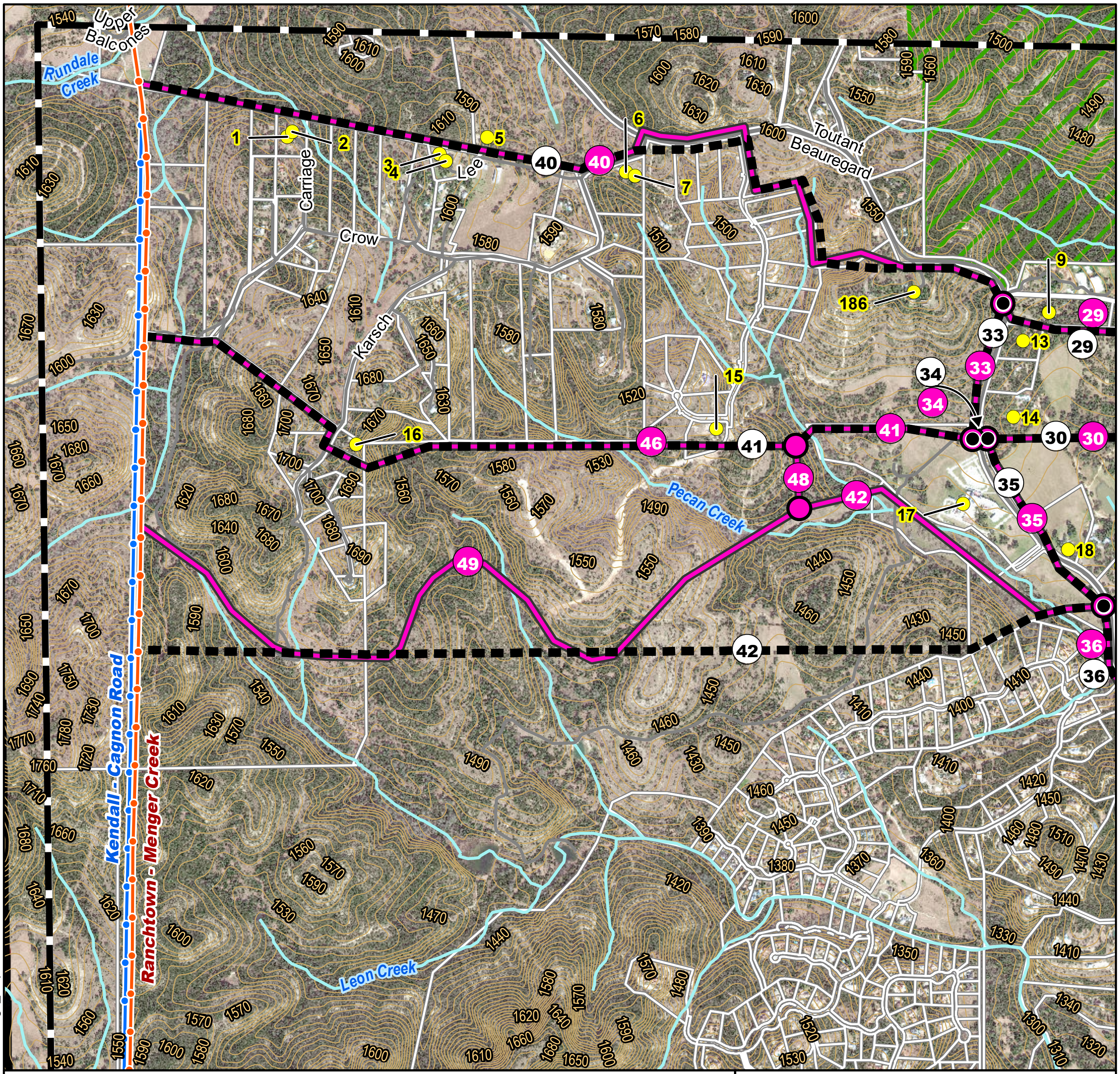
6.1.3 Segment Deletions

Segment 6 was originally proposed to cross Scenic Loop Road between Substation Sites 2 and 3. However, the segment was not utilized in any of the alternative routes; therefore, it was deleted from further consideration. As a result of deleting Segment 6, the node between Segments 4, 6, and 7 was moved to just inside the property boundary of Substation Site 3; decreasing the length of Segment 5 and relabeling the eastern portion of the segment as Segment 4, while the previous location of Segment 4 was deleted from further consideration (Figure 6-16).

Segment 12 was originally proposed to cross the Bandera Pass Easement in which the Army holds a third party beneficiary interest. However, based on official comment received from both the Army and Air Force following the open house meeting, it was deleted from further consideration. As a result of deleting Segment 12, Segments 9 and 11 were also deleted and Substation Site 1 was relocated further south due to the landowner’s willingness to sell the property to CPS Energy. As a result of deleting Segment 9 and relocating Substation Site 1, the node between Segments 9 and 2 was removed and Segment 2 was expended into the new location of Substation Site 1 and shifted to the north side of the property line. Also, as a result of deleting Segment 11 and relocating Substation Site 1, the node between Segments 10, 11, and 13 was removed and Segment 10 became part of Segment 13. Segment 13 was also shifted to the north side of the property line (Figure 6-17).

Deleting Segment 12 also resulted in the removal of the node between Segments 17 and 23, relabeling the entire segment as Segment 17 (Figure 6-18).

Segment 18 was originally proposed to parallel a property boundary north of Toutant Beauregard Road. However, due to engineering constraints it was deleted from further consideration. As a result of deleting Segment 18, the node between Segments 17, 18, and 19 was removed, relabeling the entire segment as Segment 17. The southern portion of Segment 17 was also shifted to the southeast due to engineering constraints. Also, as a result of deleting Segment 18, the node between Segments 18, 20, and 24 was removed, relabeling the entire segment as Segment 20. The southern portion of Segment 20 was also shifted to the north to avoid pipeline infrastructure (Figure 6-19).



Legend

- Revised or New Alternative Route Segment
- Unchanged Portion of Preliminary Alternative Route Segment Shown at Open House Meeting
- Removed Portion of Preliminary Alternative Route Segment Shown at Open House Meeting
- Revised or New Alternative Route Segment Node
- Unchanged Alternative Route Segment Node Shown at Open House Meeting
- Preliminary Alternative Route Segment Node Shown at Open House Meeting
- A Resulting Alternative Route Segment Label
- A Preliminary Alternative Route Segment Label Shown at Open House Meeting
- Habitable Structure within 300 Feet of a Primary Segment
- 138 kV Transmission Line
- 345 kV Transmission Line
- Parcel Boundary
- Local Road
- River or Stream
- 10 foot Contour
- Conservation Easement

6/15/2020

Scenic Loop 138 kV Transmission Line And Substation Project

Figure 6-1

Addition of 48; Relabel of Western Portion of 42 as 49; Relabel of Western Portion of 41 as 46; Realignment of 42; Realignment of 49 Following the Open House Meeting

Feet
0 2,000 4,000

6/15/2020 C:\PowerENG\156816_CPS_Scenic_Loop\DD\GIS\apps\Change Sheets\Change_Maps.mxd

(This page left blank intentionally.)

Legend

- Revised or New Alternative Route Segment
- Unchanged Portion of Preliminary Alternative Route Segment Shown at Open House Meeting
- Removed Portion of Preliminary Alternative Route Segment Shown at Open House Meeting
- Revised or New Alternative Route Segment Node
- Unchanged Alternative Route Segment Node Shown at Open House Meeting
- Preliminary Alternative Route Segment Node Shown at Open House Meeting
- A Resulting Alternative Route Segment Label
- A Preliminary Alternative Route Segment Label Shown at Open House Meeting
- Habitable Structure within 300 Feet of a Primary Segment
- Parcel Boundary
- Local Road
- 10 foot Contour
- Revised Substation Location

6/15/2020

Scenic Loop 138 kV Transmission Line And Substation Project

Figure 6-2

Addition of Substation 6; Relabel of Southern Portion of 8 as 50 Following the Open House Meeting

CPS ENERGY

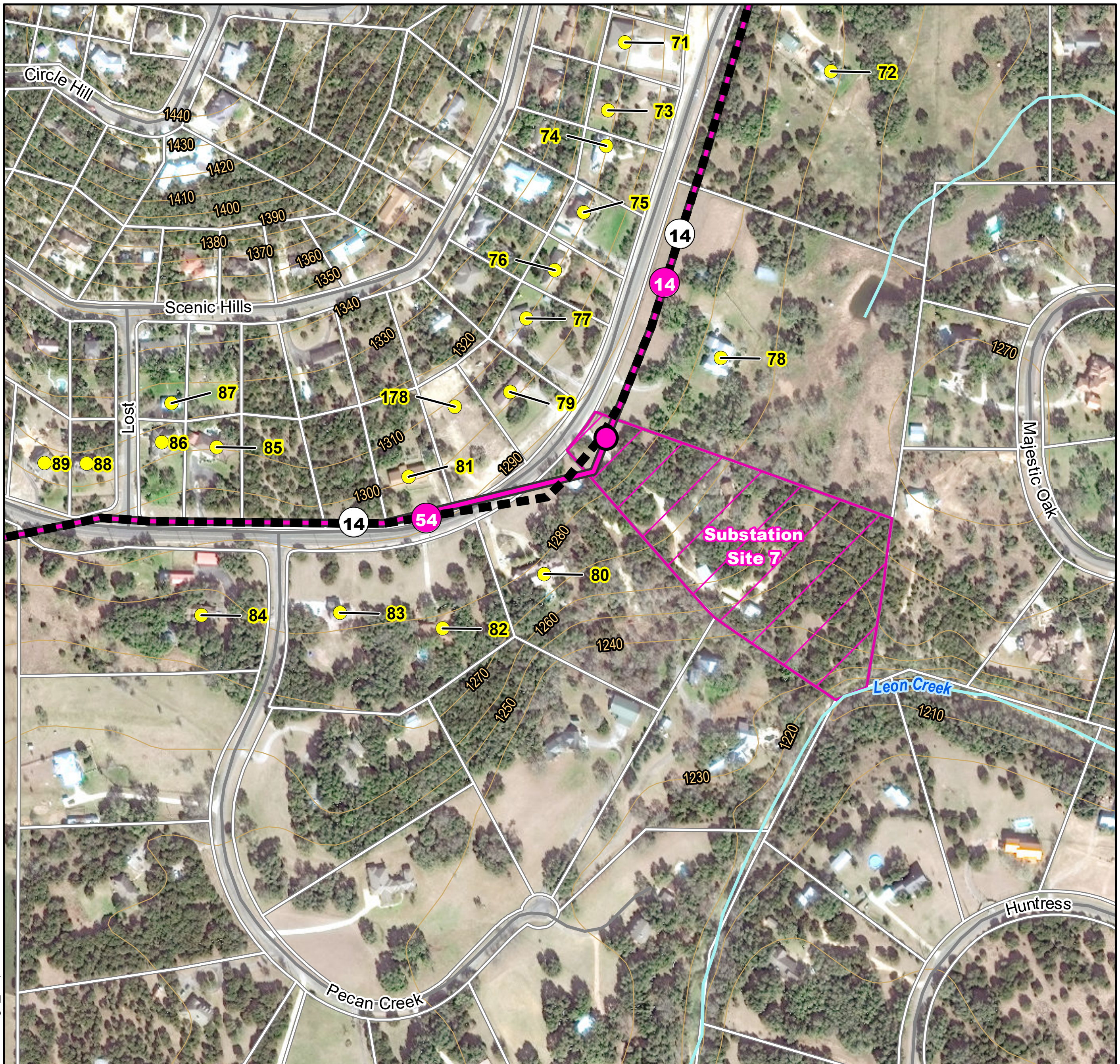
POWER ENGINEERS

Feet

0 200 400

6/15/2020 C:\PowerENG\156816_CPS_Scenic_Loop\DD\GIS\apps\Change Sheets\Change_Maps.mxd

(This page left blank intentionally.)



Legend

Revised or New Alternative Route Segment

Unchanged Portion of Preliminary Alternative Route Segment Shown at Open House Meeting

Removed Portion of Preliminary Alternative Route Segment Shown at Open House Meeting

Revised or New Alternative Route Segment Node

Unchanged Alternative Route Segment Node Shown at Open House Meeting

Preliminary Alternative Route Segment Node Shown at Open House Meeting

A Resulting Alternative Route Segment Label

A Preliminary Alternative Route Segment Label Shown at Open House Meeting

Habitable Structure within 300 Feet of a Primary Segment

Parcel Boundary

Local Road

River or Stream

10 foot Contour

Revised Substation Location

N

6/15/2020

Scenic Loop 138 kV Transmission Line And Substation Project

Figure 6-3

Addition of Substation 7; Relabel of Southern Portion of 14 as 54 Following the Open House Meeting

cps ENERGY

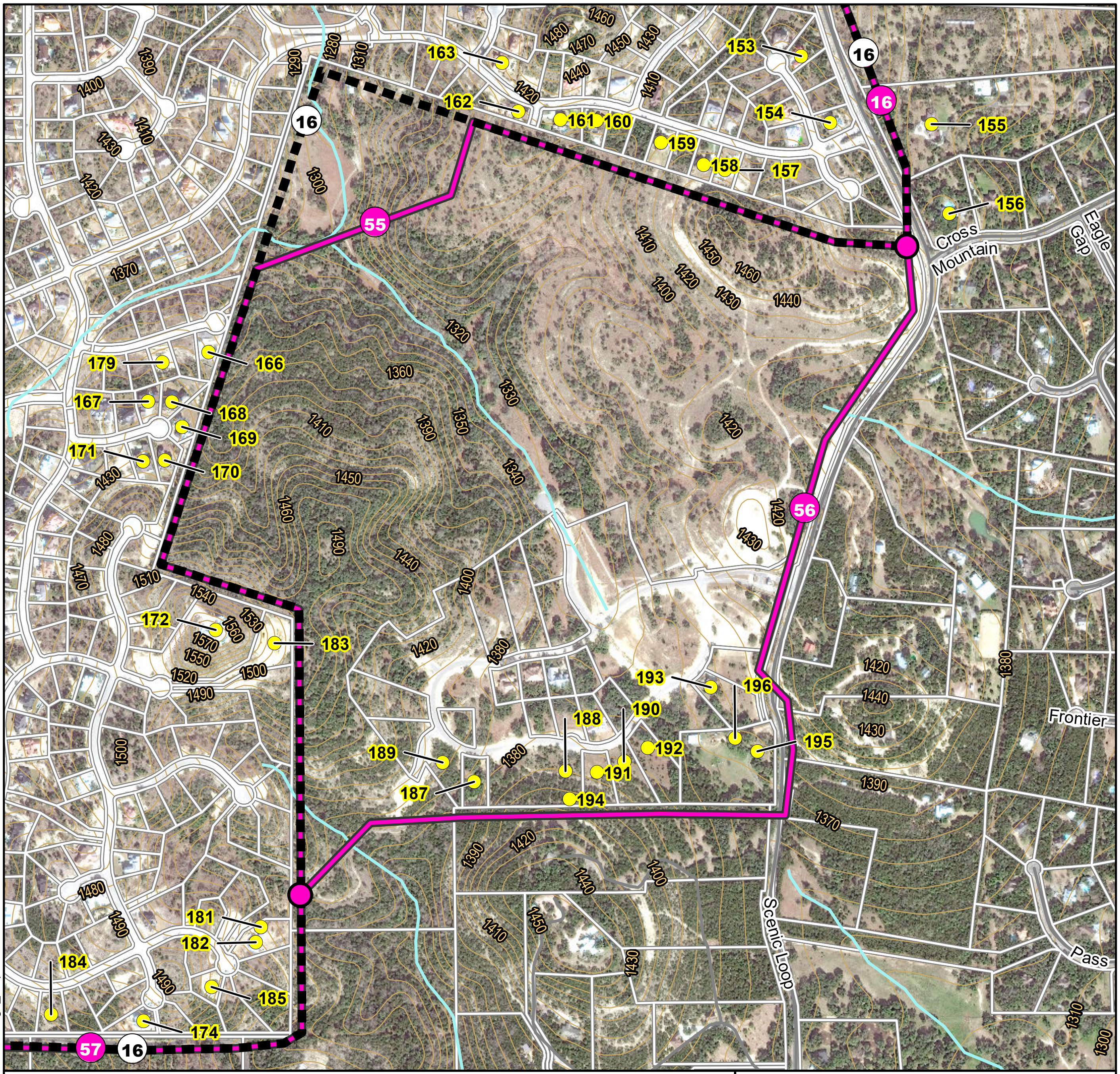
POWER ENGINEERS

Feet

0 410 820

6/15/2020 C:\PowerENG\156816_CPS_Scenic_Loop\DD\GIS\apps\Change Sheets\Change_Maps.mxd

(This page left blank intentionally.)



6/15/2020 C:\PowerENG\156816_CPS_Scenic_Loop\DD\GIS\apps\Change Sheets\Change_Maps.mxd

Legend

- Revised or New Alternative Route Segment
- Unchanged Portion of Preliminary Alternative Route Segment Shown at Open House Meeting
- Removed Portion of Preliminary Alternative Route Segment Shown at Open House Meeting
- Revised or New Alternative Route Segment Node
- Unchanged Alternative Route Segment Node Shown at Open House Meeting
- Preliminary Alternative Route Segment Node Shown at Open House Meeting
- A — Resulting Alternative Route Segment Label
- A — Preliminary Alternative Route Segment Label Shown at Open House Meeting
- Habitable Structure within 300 Feet of a Primary Segment
- Parcel Boundary
- Local Road
- River or Stream
- 10 foot Contour

N

6/15/2020

Scenic Loop 138 kV Transmission Line And Substation Project

Figure 6-4

Addition of Segment 56; Relabel of Middle Portion of 16 as 55 and Realignment of 55; Relabel Southern Portion of 16 as 57 Following Open House Meeting

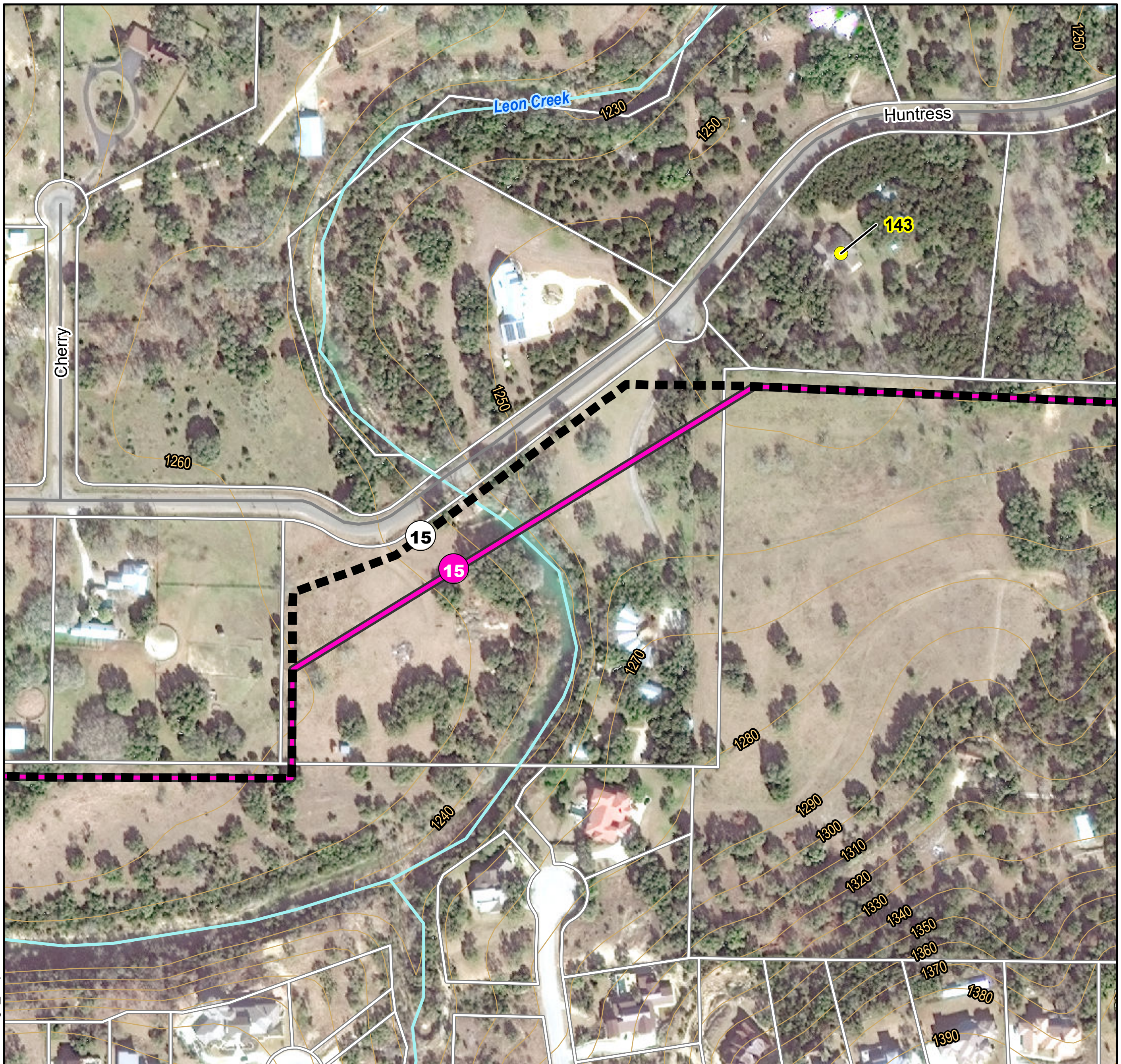
cps ENERGY

POWER ENGINEERS

Feet

0 800 1,600

(This page left blank intentionally.)



6/15/2020 C:\PowerENG\156816_CPS_Scenic_Loop\DD\GIS\apps\Change Sheets\Change_Maps.mxd

Legend

- Revised or New Alternative Route Segment
- Unchanged Portion of Preliminary Alternative Route Segment Shown at Open House Meeting
- Removed Portion of Preliminary Alternative Route Segment Shown at Open House Meeting
- Revised or New Alternative Route Segment Node
- Unchanged Alternative Route Segment Node Shown at Open House Meeting
- Preliminary Alternative Route Segment Node Shown at Open House Meeting
- A Resulting Alternative Route Segment Label
- A Preliminary Alternative Route Segment Label Shown at Open House Meeting
- Habitable Structure within 300 Feet of a Primary Segment
- Parcel Boundary
- Local Road
- River or Stream
- 10 foot Contour

6/15/2020

Scenic Loop 138 kV Transmission Line And Substation Project

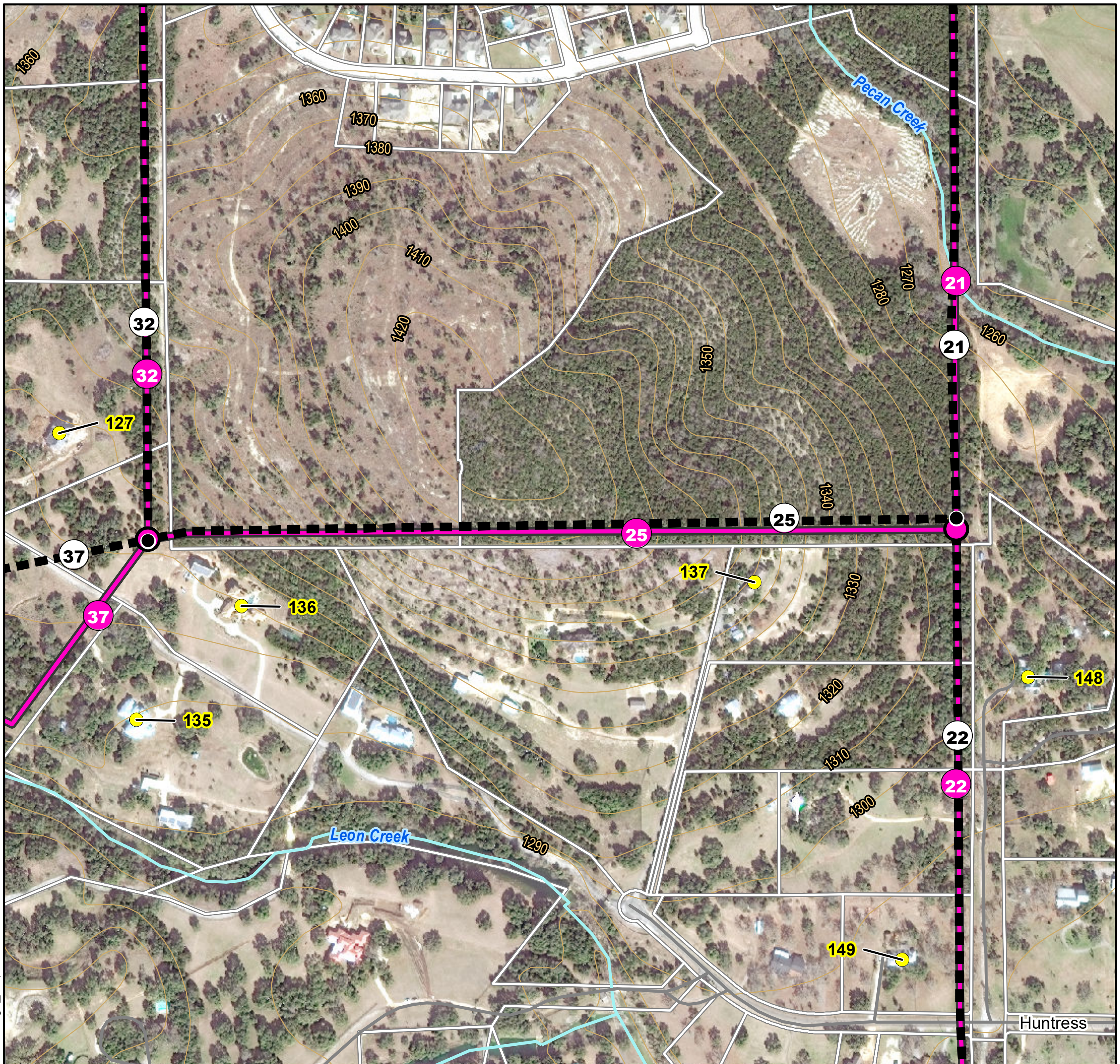
Figure 6-5

Realignment of 15 Following the Open House Meeting

Feet

0 300 600

(This page left blank intentionally.)



Legend

- Revised or New Alternative Route Segment
- Unchanged Portion of Preliminary Alternative Route Segment Shown at Open House Meeting
- Removed Portion of Preliminary Alternative Route Segment Shown at Open House Meeting
- Revised or New Alternative Route Segment Node
- Unchanged Alternative Route Segment Node Shown at Open House Meeting
- Preliminary Alternative Route Segment Node Shown at Open House Meeting
- A Resulting Alternative Route Segment Label
- A Preliminary Alternative Route Segment Label Shown at Open House Meeting
- Habitable Structure within 300 Feet of a Primary Segment
- Parcel Boundary
- Local Road
- River or Stream
- 10 foot Contour

6/15/2020

Scenic Loop 138 kV Transmission Line And Substation Project

Figure 6-6

Realignment of 25; Extension of 21 and Reduction of 22 Following the Open House Meeting

CPS ENERGY

POWER ENGINEERS

Feet

0 500 1,000

6/15/2020 C:\PowerENG\156816_CPS_Scenic_Loop\DD\GIS\apps\Change Sheets\Change_Maps.mxd

(This page left blank intentionally.)

Legend

Revised or New Alternative Route Segment

Unchanged Portion of Preliminary Alternative Route Segment Shown at Open House Meeting

Removed Portion of Preliminary Alternative Route Segment Shown at Open House Meeting

Revised or New Alternative Route Segment Node

Unchanged Alternative Route Segment Node Shown at Open House Meeting

Preliminary Alternative Route Segment Node Shown at Open House Meeting

A Resulting Alternative Route Segment Label

A Preliminary Alternative Route Segment Label Shown at Open House Meeting

Parcel Boundary

Local Road

River or Stream

10 foot Contour

6/15/2020

Scenic Loop 138 kV Transmission Line And Substation Project

Figure 6-7

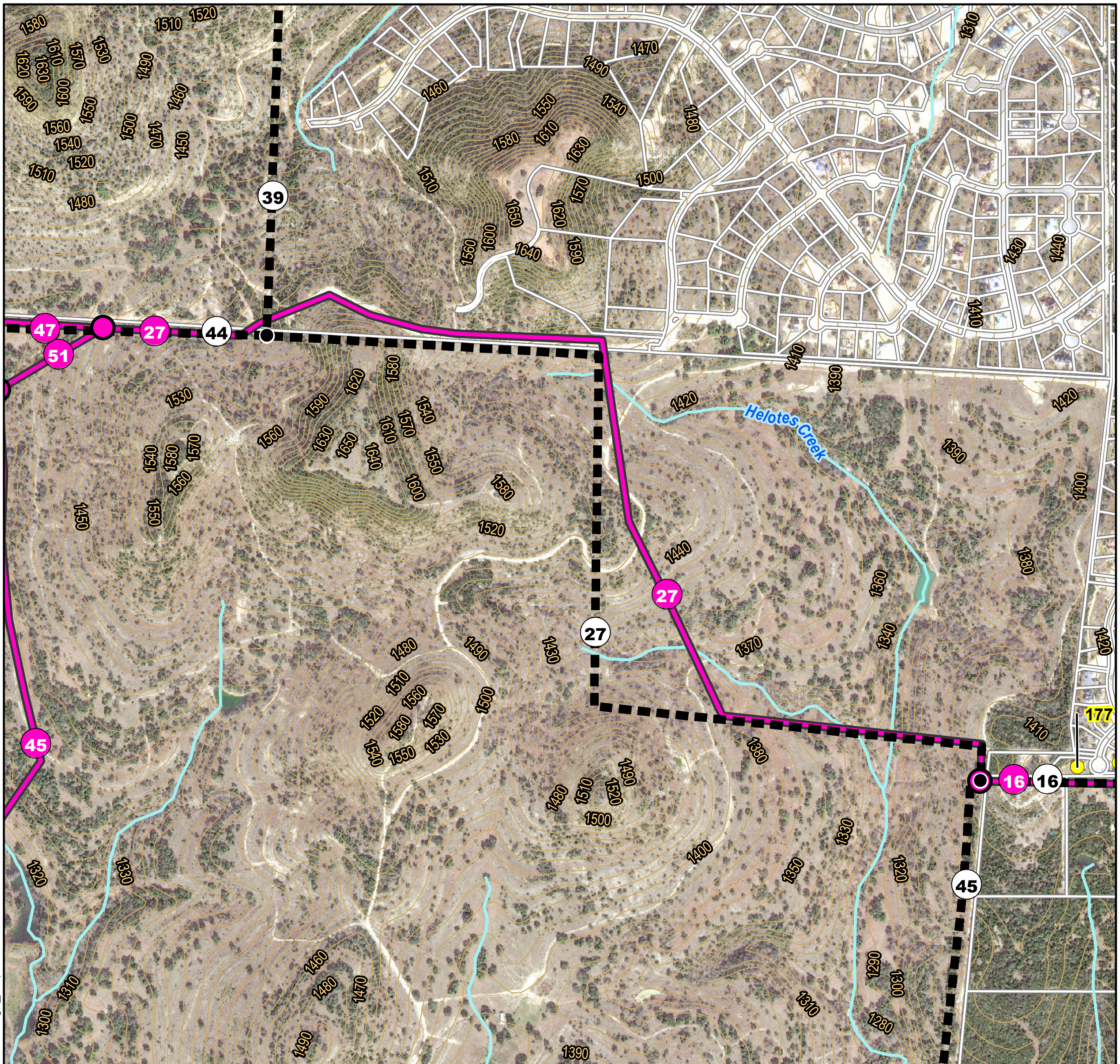
Realignment of 26 Following the Open House Meeting

Feet

0 410 820

6/15/2020 C:\PowerENG\156816_CPS_Scenic_Loop\DD\GIS\apps\Change Sheets\Change_Maps.mxd

(This page left blank intentionally.)



Legend

- Revised or New Alternative Route Segment
- Unchanged Portion of Preliminary Alternative Route Segment Shown at Open House Meeting
- Removed Portion of Preliminary Alternative Route Segment Shown at Open House Meeting
- Revised or New Alternative Route Segment Node
- Unchanged Alternative Route Segment Node Shown at Open House Meeting
- Preliminary Alternative Route Segment Node Shown at Open House Meeting
- A Resulting Alternative Route Segment Label
- A Preliminary Alternative Route Segment Label Shown at Open House Meeting
- Habitable Structure within 300 Feet of a Primary Segment
- Parcel Boundary
- River or Stream
- 10 foot Contour

6/15/2020

Scenic Loop 138 kV Transmission Line And Substation Project

Figure 6-8

Realignment of 27 Following the Open House Meeting

CPS ENERGY

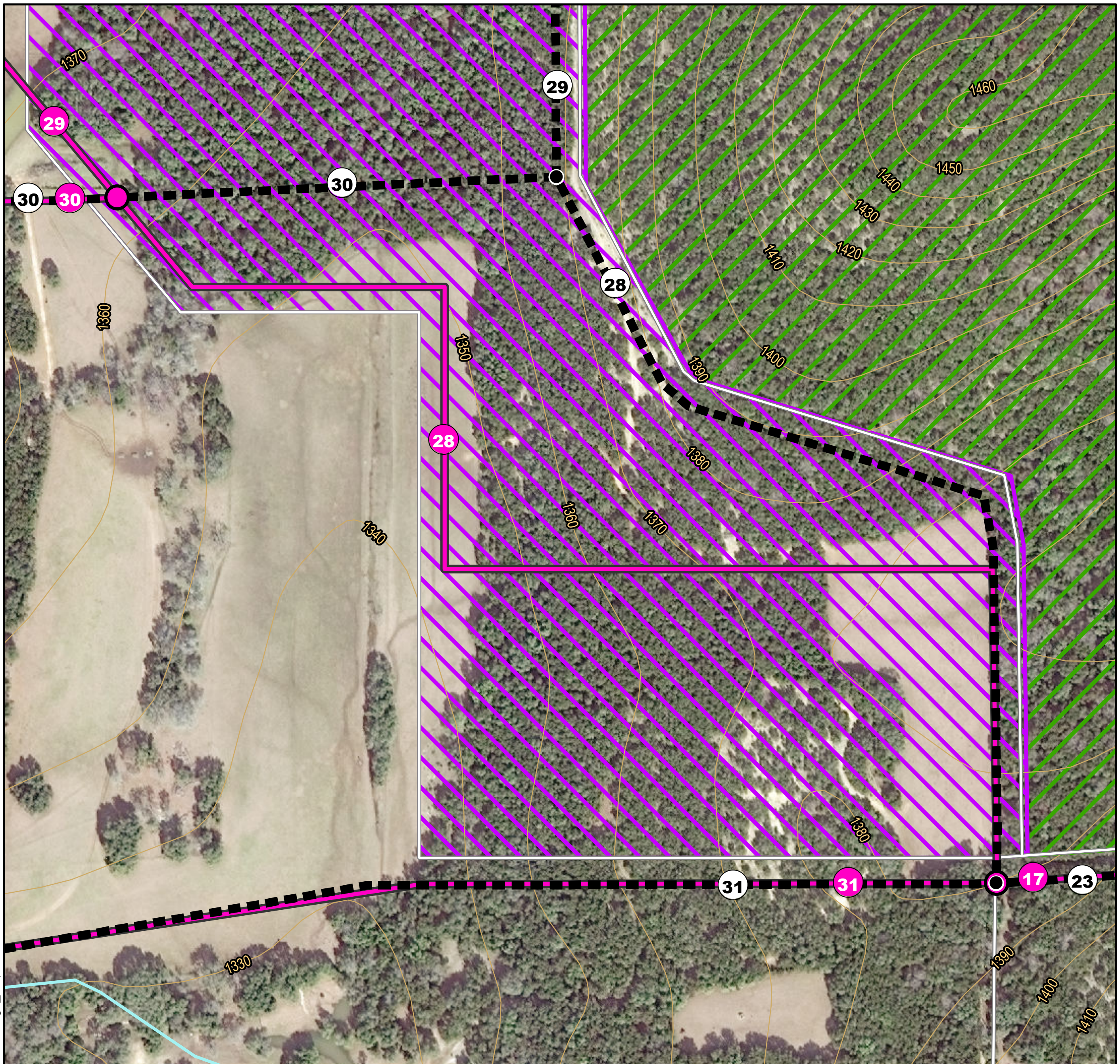
POWER ENGINEERS

Feet

0 1,000 2,000

6/15/2020 C:\PowerENG\156816_CPS_Scenic_Loop\DD\GIS\apps\Change Sheets\Change Sheets\Change_Maps.mxd

(This page left blank intentionally.)



Legend

- Revised or New Alternative Route Segment
- Unchanged Portion of Preliminary Alternative Route Segment Shown at Open House Meeting
- Removed Portion of Preliminary Alternative Route Segment Shown at Open House Meeting
- Revised or New Alternative Route Segment Node
- Unchanged Alternative Route Segment Node Shown at Open House Meeting
- Preliminary Alternative Route Segment Node Shown at Open House Meeting
- A Resulting Alternative Route Segment Label
- A Preliminary Alternative Route Segment Label Shown at Open House Meeting
- Parcel Boundary
- River or Stream
- 10 foot Contour
- Conservation Easement
- Proposed Conservation Easement

6/15/2020

Scenic Loop 138 kV Transmission Line And Substation Project

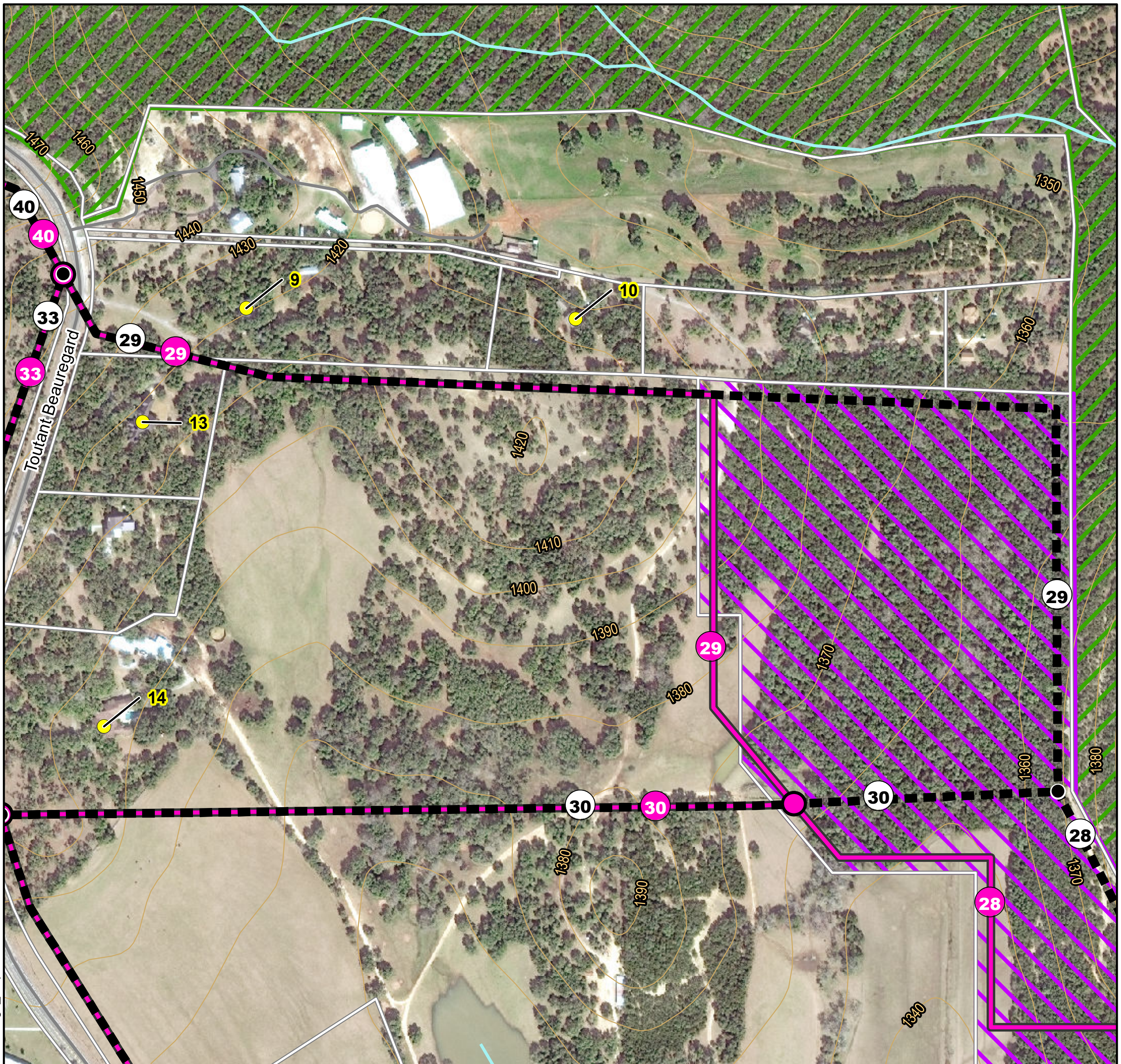
Figure 6-9

Realignment of 28 Following the Open House Meeting

Feet 0 300 600

6/15/2020 C:\PowerENG\GIS\156816_CPS_Scenic_Loop\DD\GIS\apps\Change Sheets\Change_Maps.mxd

(This page left blank intentionally.)



Legend

- Revised or New Alternative Route Segment
- Unchanged Portion of Preliminary Alternative Route Segment Shown at Open House Meeting
- Removed Portion of Preliminary Alternative Route Segment Shown at Open House Meeting
- Revised or New Alternative Route Segment Node
- Unchanged Alternative Route Segment Node Shown at Open House Meeting
- Preliminary Alternative Route Segment Node Shown at Open House Meeting
- A Resulting Alternative Route Segment Label
- A Preliminary Alternative Route Segment Label Shown at Open House Meeting
- Habitable Structure within 300 Feet of a Primary Segment
- Parcel Boundary
- Local Road
- River or Stream
- 10 foot Contour
- Conservation Easement
- Proposed Conservation Easement

Scenic Loop 138 kV Transmission Line And Substation Project

Figure 6-10

Realignment of 29 and Reduction of 30 Following the Open House Meeting

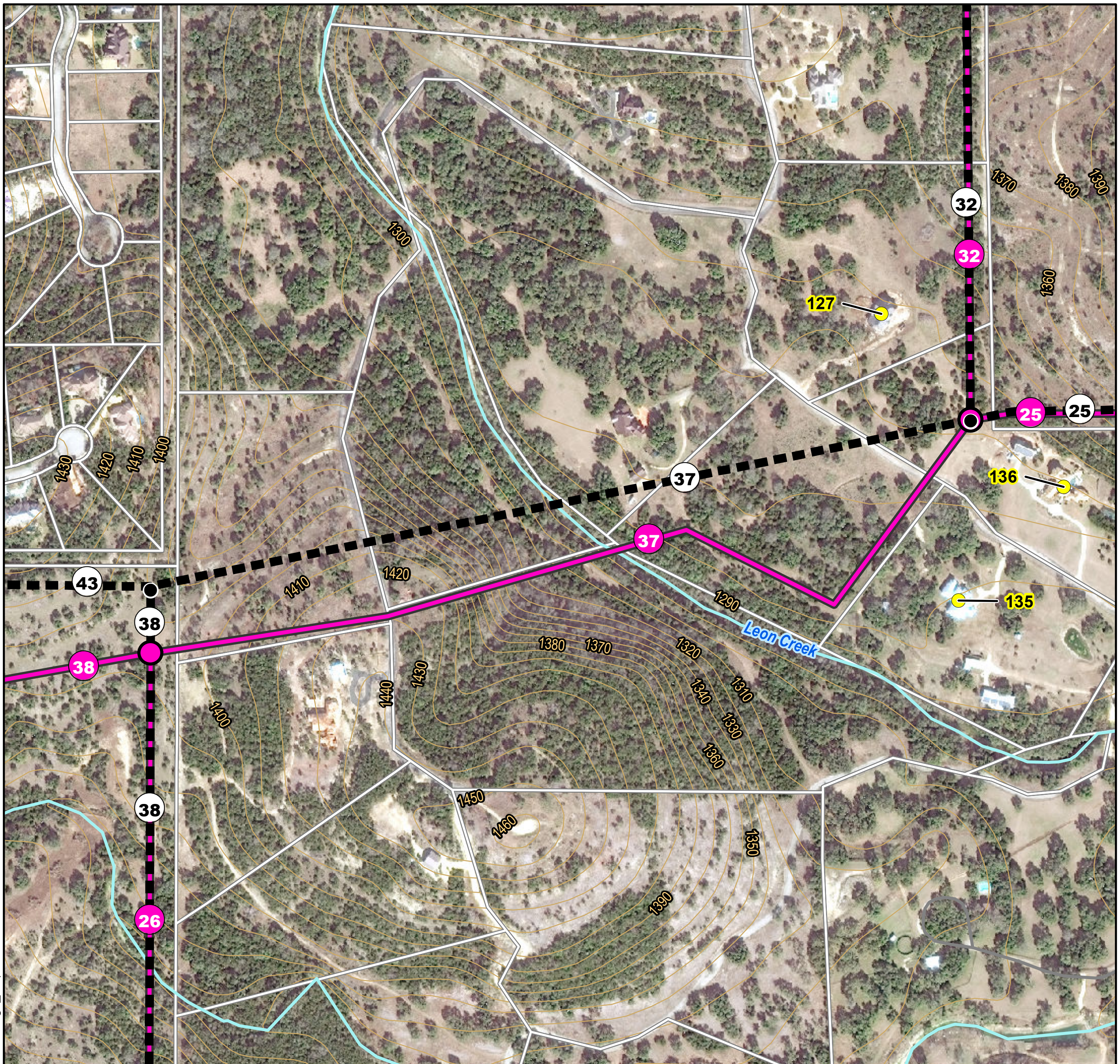
Feet

0 500 1,000

6/15/2020

6/15/2020 C:\PowerENG\156816_CPS_Scenic_Loop\DD\GIS\apps\Change Sheets\Change_Maps.mxd

(This page left blank intentionally.)



Legend

- Revised or New Alternative Route Segment
- Unchanged Portion of Preliminary Alternative Route Segment Shown at Open House Meeting
- Removed Portion of Preliminary Alternative Route Segment Shown at Open House Meeting
- Revised or New Alternative Route Segment Node
- Unchanged Alternative Route Segment Node Shown at Open House Meeting
- Preliminary Alternative Route Segment Node Shown at Open House Meeting
- A Resulting Alternative Route Segment Label
- A Preliminary Alternative Route Segment Label Shown at Open House Meeting
- Habitable Structure within 300 Feet of a Primary Segment
- Parcel Boundary
- Local Road
- River or Stream
- 10 foot Contour

N

6/15/2020

Scenic Loop 138 kV Transmission Line And Substation Project

Figure 6-11

Realignment of 37; Reduction of 38 and Extension of 43 Following the Open House Meeting

CPS ENERGY

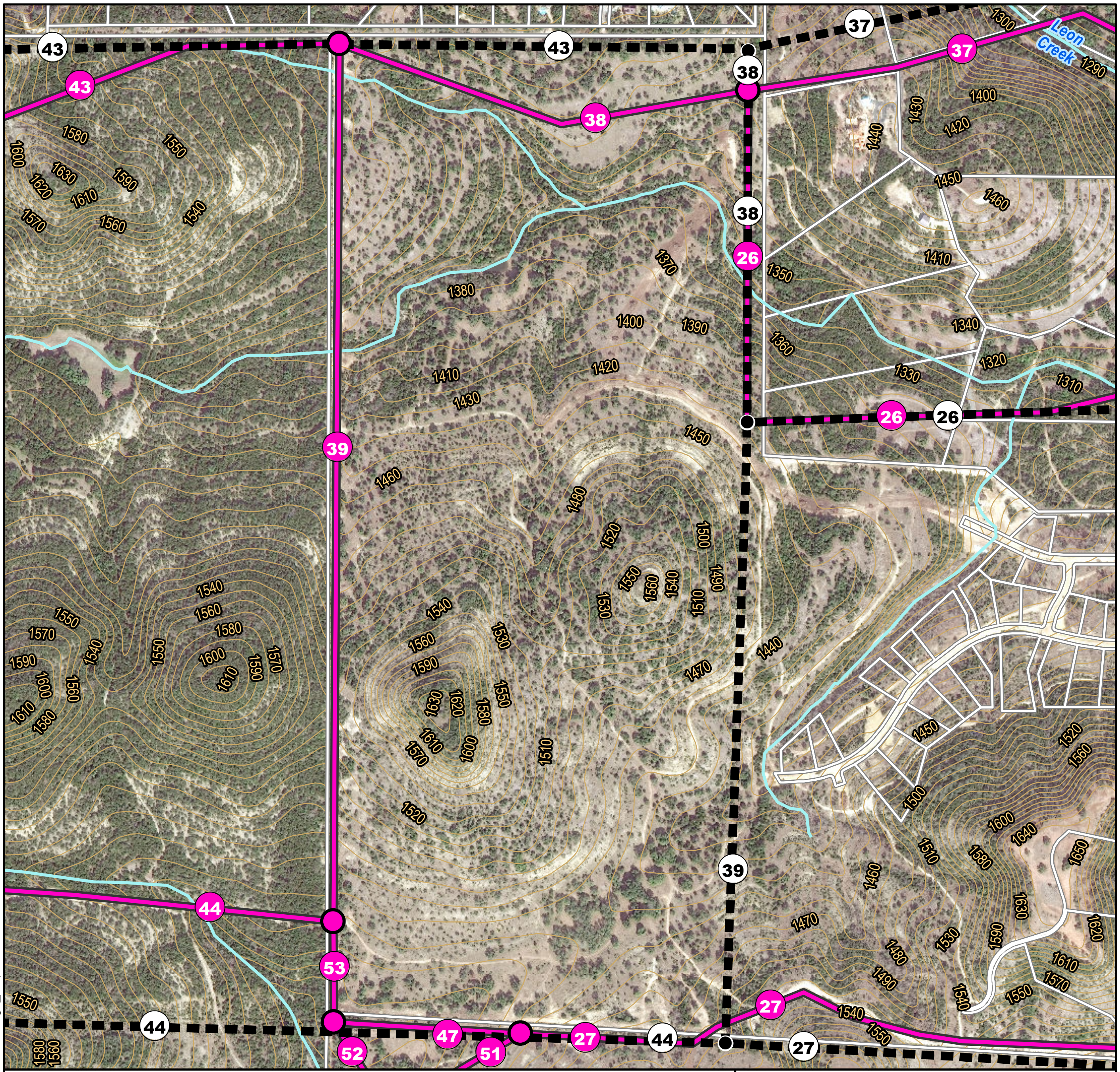
POWER ENGINEERS

Feet

0 500 1,000

6/15/2020 C:\PowerENG\156816_CPS_Scenic_Loop\DD\GIS\apps\Change Sheets\Change_Maps.mxd

(This page left blank intentionally.)



Legend

- Revised or New Alternative Route Segment
- Unchanged Portion of Preliminary Alternative Route Segment Shown at Open House Meeting
- Removed Portion of Preliminary Alternative Route Segment Shown at Open House Meeting
- Revised or New Alternative Route Segment Node
- Unchanged Alternative Route Segment Node Shown at Open House Meeting
- Preliminary Alternative Route Segment Node Shown at Open House Meeting
- A Resulting Alternative Route Segment Label
- A Preliminary Alternative Route Segment Label Shown at Open House Meeting
- Parcel Boundary
- River or Stream
- 10 foot Contour

N

6/15/2020

Scenic Loop 138 kV Transmission Line And Substation Project

Figure 6-12

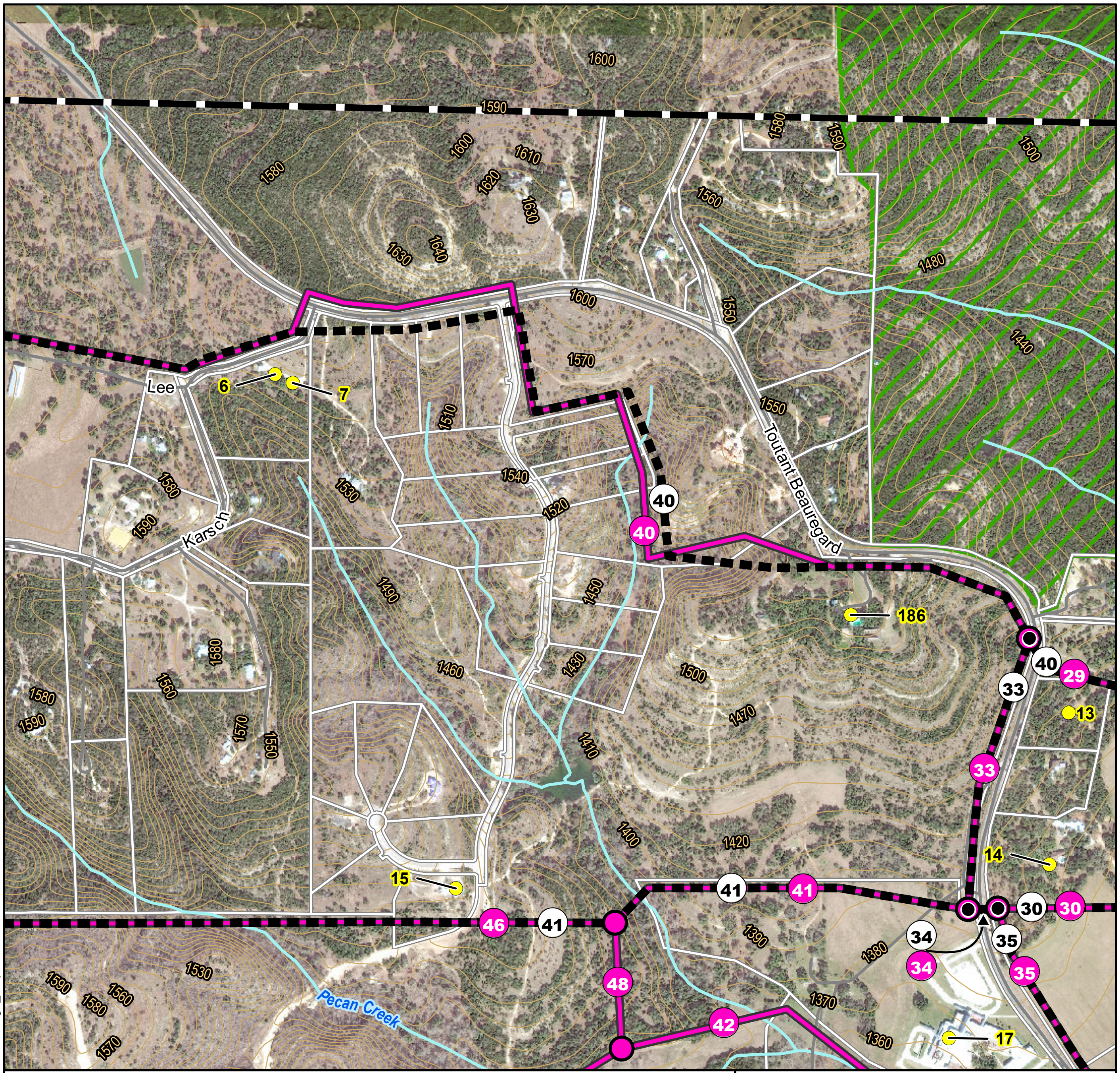
Realignment of 39; Extension of 26; Reduction of 43; Reduction of 44 Following the Open House Meeting

Feet

0 800 1,600

6/15/2020 C:\PowerENG\156816_CPS_Scenic_Loop\DD\GIS\apps\Change Sheets\Change_Maps.mxd

(This page left blank intentionally.)



Legend

Revised or New Alternative Route Segment

Unchanged Portion of Preliminary Alternative Route Segment Shown at Open House Meeting

Removed Portion of Preliminary Alternative Route Segment Shown at Open House Meeting

Revised or New Alternative Route Segment Node

Unchanged Alternative Route Segment Node Shown at Open House Meeting

Preliminary Alternative Route Segment Node Shown at Open House Meeting

A Resulting Alternative Route Segment Label

A Preliminary Alternative Route Segment Label Shown at Open House Meeting

Habitable Structure within 300 Feet of a Primary Segment

Parcel Boundary

Local Road

River or Stream

10 foot Contour

Conservation Easement

N

6/15/2020

Scenic Loop 138 kV Transmission Line And Substation Project

Figure 6-13

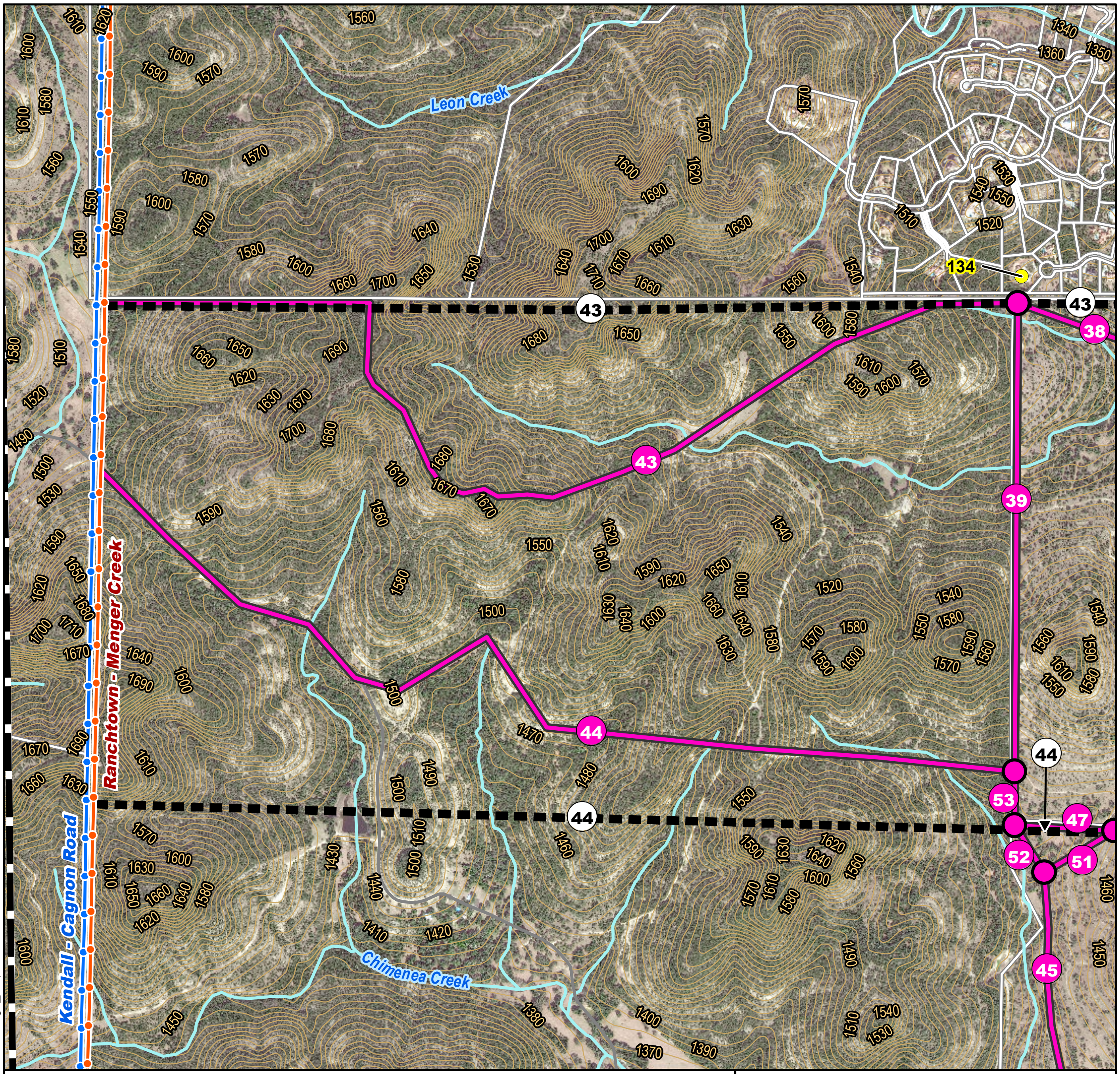
Realignment of 40 Following the Open House Meeting

Feet

0 1,000 2,000

6/15/2020 C:\PowerENG\156816_CPS_Scenic_Loop\DD\GIS\apps\Change Sheets\Change_Maps.mxd

(This page left blank intentionally.)



Legend

- Revised or New Alternative Route Segment
- Unchanged Portion of Preliminary Alternative Route Segment Shown at Open House Meeting
- Removed Portion of Preliminary Alternative Route Segment Shown at Open House Meeting
- Revised or New Alternative Route Segment Node
- Unchanged Alternative Route Segment Node Shown at Open House Meeting
- Preliminary Alternative Route Segment Node Shown at Open House Meeting
- A Resulting Alternative Route Segment Label
- A Preliminary Alternative Route Segment Label Shown at Open House Meeting
- Habitable Structure within 300 Feet of a Primary Segment
- 138 kV Transmission Line
- 345 kV Transmission Line
- Parcel Boundary
- Local Road
- River or Stream
- 10 foot Contour

6/15/2020

Scenic Loop 138 kV Transmission Line And Substation Project

Figure 6-14

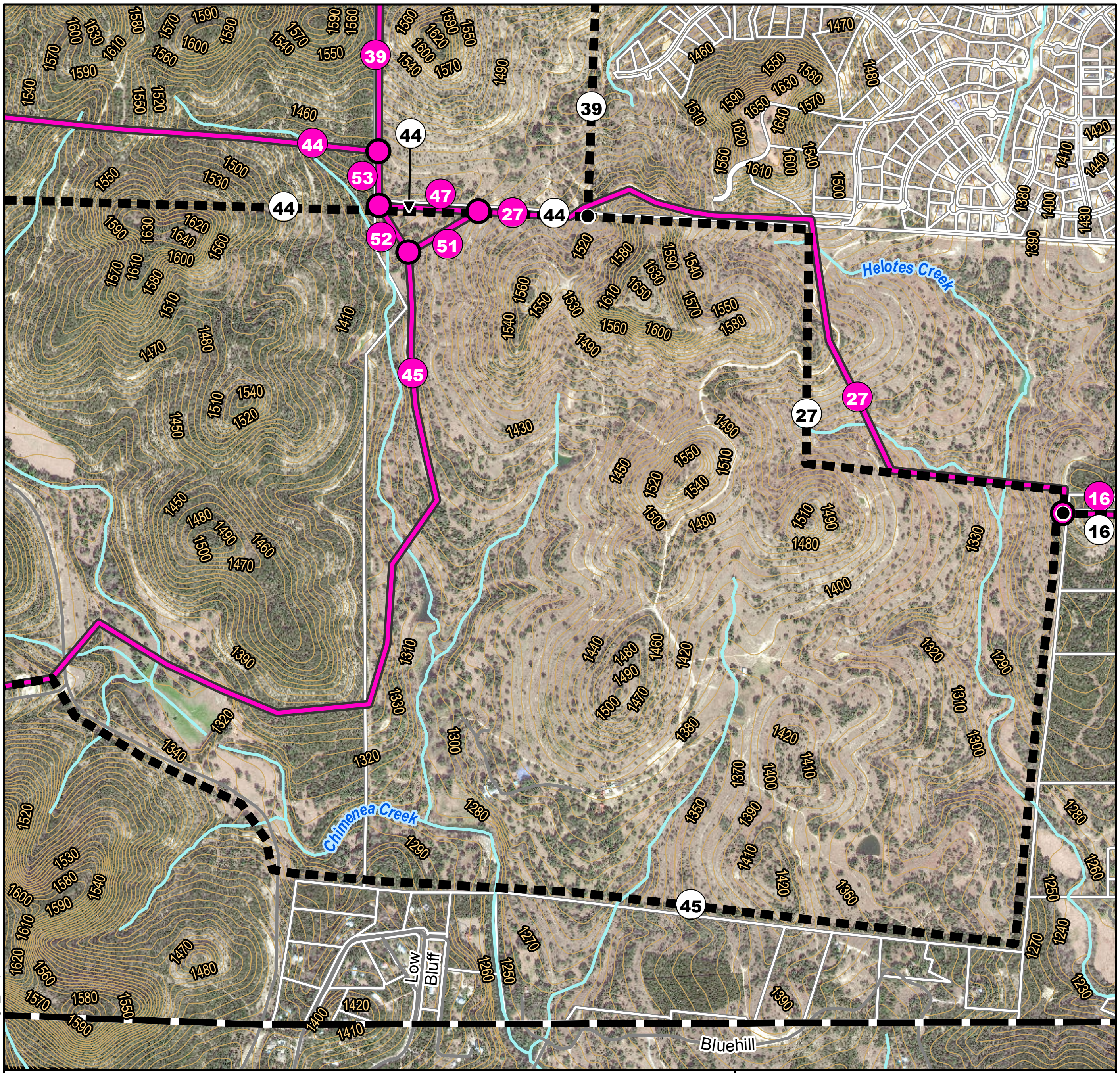
Realignment of 43; Realignment of 44; Reduction of 39 and Relabel Southern Portion of 39 as 53 Following the Open House Meeting

CPS ENERGY POWER ENGINEERS

Feet
0 1,500 3,000

6/15/2020 C:\PowerENG\156816_CPS_Scenic_Loop\DD\GIS\apps\Change Sheets\Change_Maps.mxd

(This page left blank intentionally.)



Legend

- Revised or New Alternative Route Segment
- Unchanged Portion of Preliminary Alternative Route Segment Shown at Open House Meeting
- Removed Portion of Preliminary Alternative Route Segment Shown at Open House Meeting
- Revised or New Alternative Route Segment Node
- Unchanged Alternative Route Segment Node Shown at Open House Meeting
- Preliminary Alternative Route Segment Node Shown at Open House Meeting
- A Resulting Alternative Route Segment Label
- A Preliminary Alternative Route Segment Label Shown at Open House Meeting
- Parcel Boundary
- Local Road
- River or Stream
- 10 foot Contour

6/15/2020

Scenic Loop 138 kV Transmission Line And Substation Project

Figure 6-15

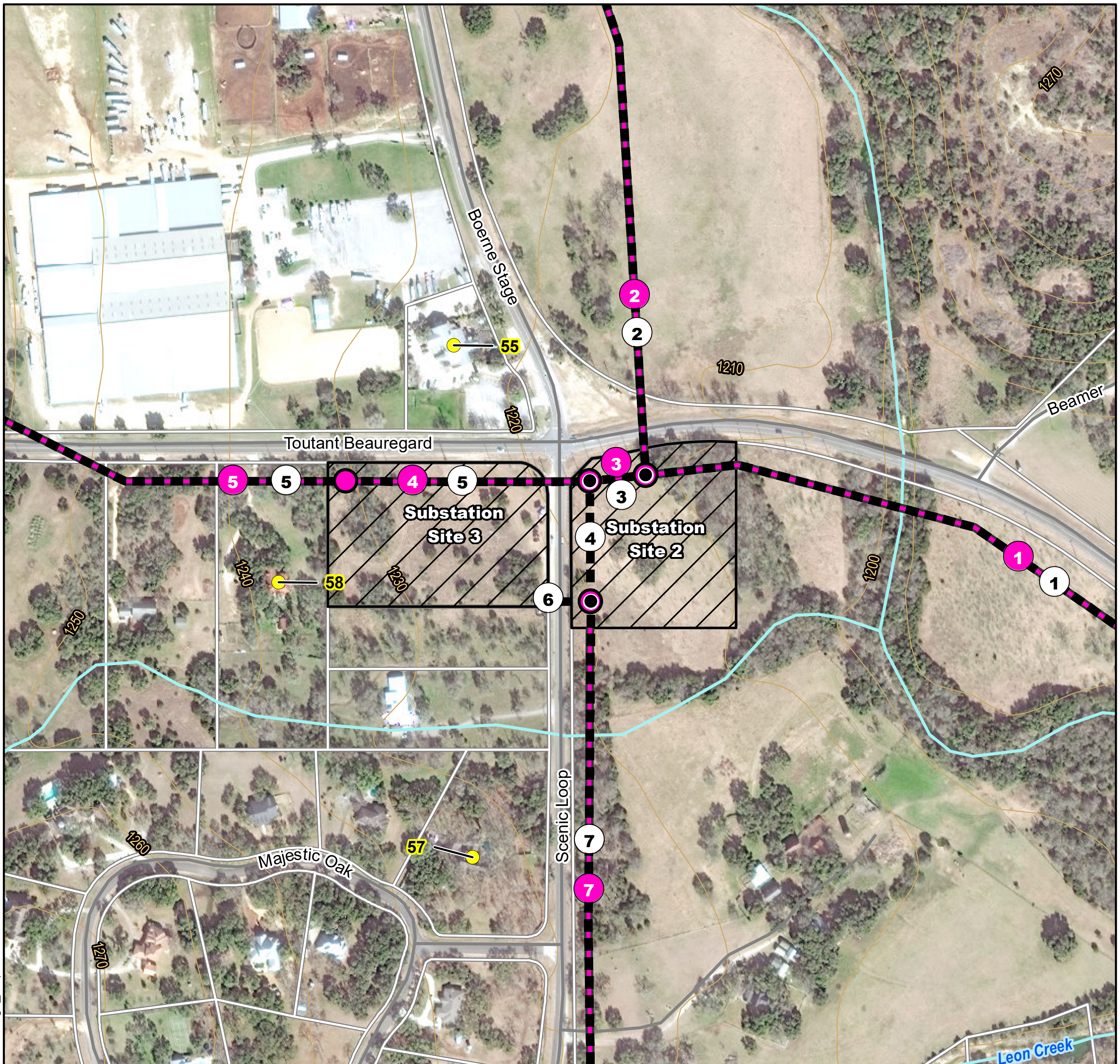
Realignment of 45; Reduction of 27 and Relabel Western Portion of 27 as 47; Reduction of 45 and Relabel Northern Portion of 45 as 51; Addition of 52 Following the Open House Meeting

CPS ENERGY POWER ENGINEERS

Feet
0 1,500 3,000

6/15/2020 C:\PowerENG\156816_CPS_Scenic_Loop\DD\GIS\apps\Change Sheets\Change_Maps.mxd

(This page left blank intentionally.)



Legend

- Revised or New Alternative Route Segment
- Unchanged Portion of Preliminary Alternative Route Segment Shown at Open House Meeting
- Removed Portion of Preliminary Alternative Route Segment Shown at Open House Meeting
- Revised or New Alternative Route Segment Node
- Unchanged Alternative Route Segment Node Shown at Open House Meeting
- Preliminary Alternative Route Segment Node Shown at Open House Meeting
- A Resulting Alternative Route Segment Label
- A Preliminary Alternative Route Segment Label Shown at Open House Meeting
- Habitable Structure within 300 Feet of a Primary Segment
- Parcel Boundary
- Local Road
- River or Stream
- 10 foot Contour
- Preliminary Substation Location

6/15/2020

Scenic Loop 138 kV Transmission Line And Substation Project

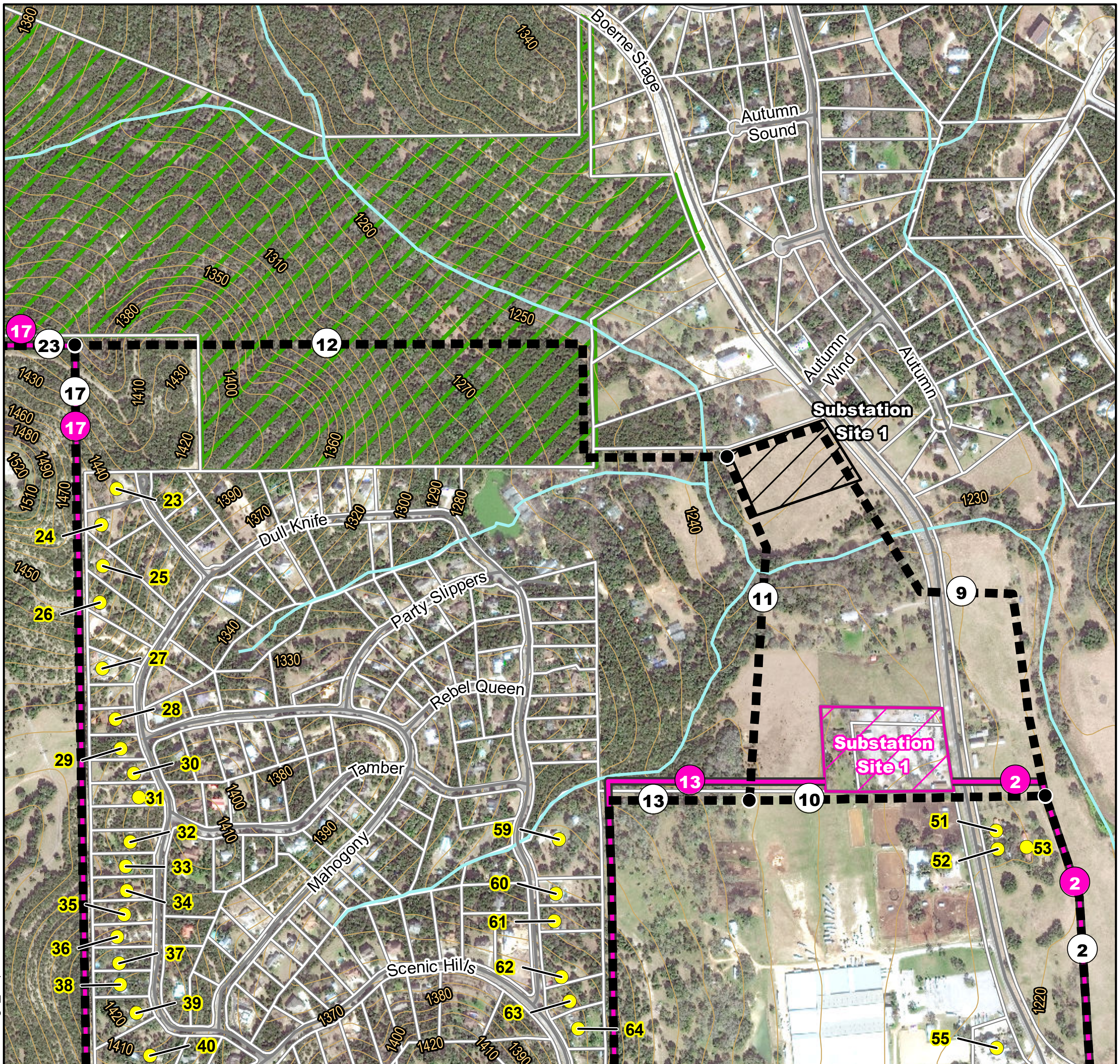
Figure 6-16

Removal of 6; Reduction of 5; Realignment of 4 Following the Open House Meeting

Feet
0 410 820

6/15/2020 C:\PowerENG\156816_CPS_Scenic_Loop\DD\GIS\apps\Change Sheets\Change_Maps.mxd

(This page left blank intentionally.)



Legend

- Revised or New Alternative Route Segment
- Unchanged Portion of Preliminary Alternative Route Segment Shown at Open House Meeting
- Removed Portion of Preliminary Alternative Route Segment Shown at Open House Meeting
- Revised or New Alternative Route Segment Node
- Unchanged Alternative Route Segment Node Shown at Open House Meeting
- Preliminary Alternative Route Segment Node Shown at Open House Meeting
- A Resulting Alternative Route Segment Label
- A Preliminary Alternative Route Segment Label Shown at Open House Meeting
- Habitable Structure within 300 Feet of a Primary Segment
- Parcel Boundary
- Local Road
- River or Stream
- 10 foot Contour
- Preliminary Substation Location
- Revised Substation Location
- Conservation Easement

6/15/2020

Scenic Loop 138 kV Transmission Line And Substation Project

Figure 6-17

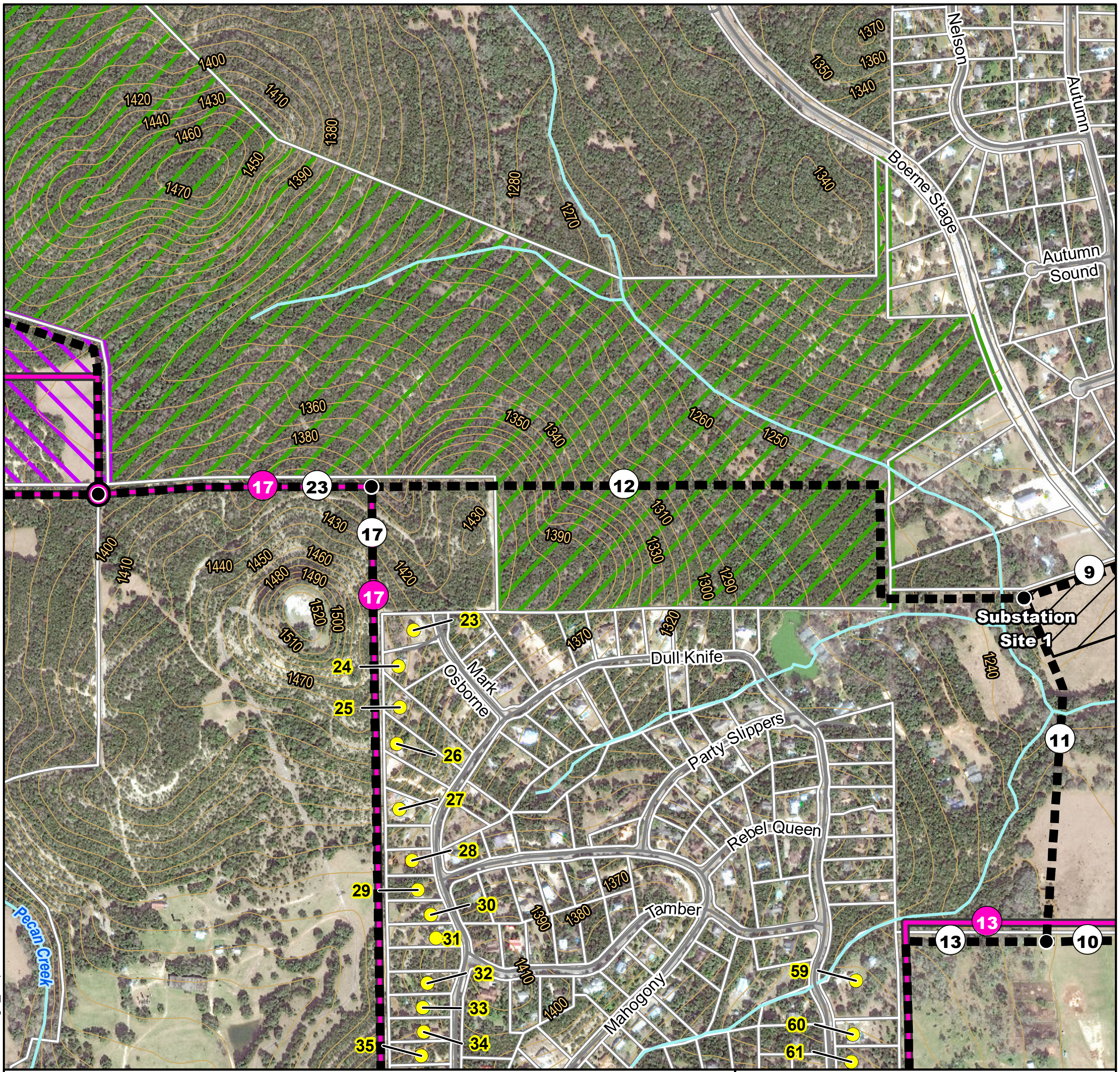
Removal of 12, 9, and 11; Shifting of Substation 1; Extension and Realignment of 2; Extension and Realignment of 13 Following the Open House Meeting

Feet

0 800 1,600

6/15/2020 C:\PowerENG\156816_CPS_Scenic_Loop\DD\GIS\apps\Change Sheets\Change_Maps.mxd

(This page left blank intentionally.)



Legend

- Revised or New Alternative Route Segment
- Unchanged Portion of Preliminary Alternative Route Segment Shown at Open House Meeting
- Removed Portion of Preliminary Alternative Route Segment Shown at Open House Meeting
- Revised or New Alternative Route Segment Node
- Unchanged Alternative Route Segment Node Shown at Open House Meeting
- Preliminary Alternative Route Segment Node Shown at Open House Meeting
- A — Resulting Alternative Route Segment Label
- A — Preliminary Alternative Route Segment Label Shown at Open House Meeting
- Habitable Structure within 300 Feet of a Primary Segment
- Parcel Boundary
- Local Road
- River or Stream
- 10 foot Contour
- Preliminary Substation Location
- Conservation Easement
- Proposed Conservation Easement

N

6/15/2020

Scenic Loop 138 kV Transmission Line And Substation Project

Figure 6-18

Extension of 17 Following the Open House Meeting

cps ENERGY

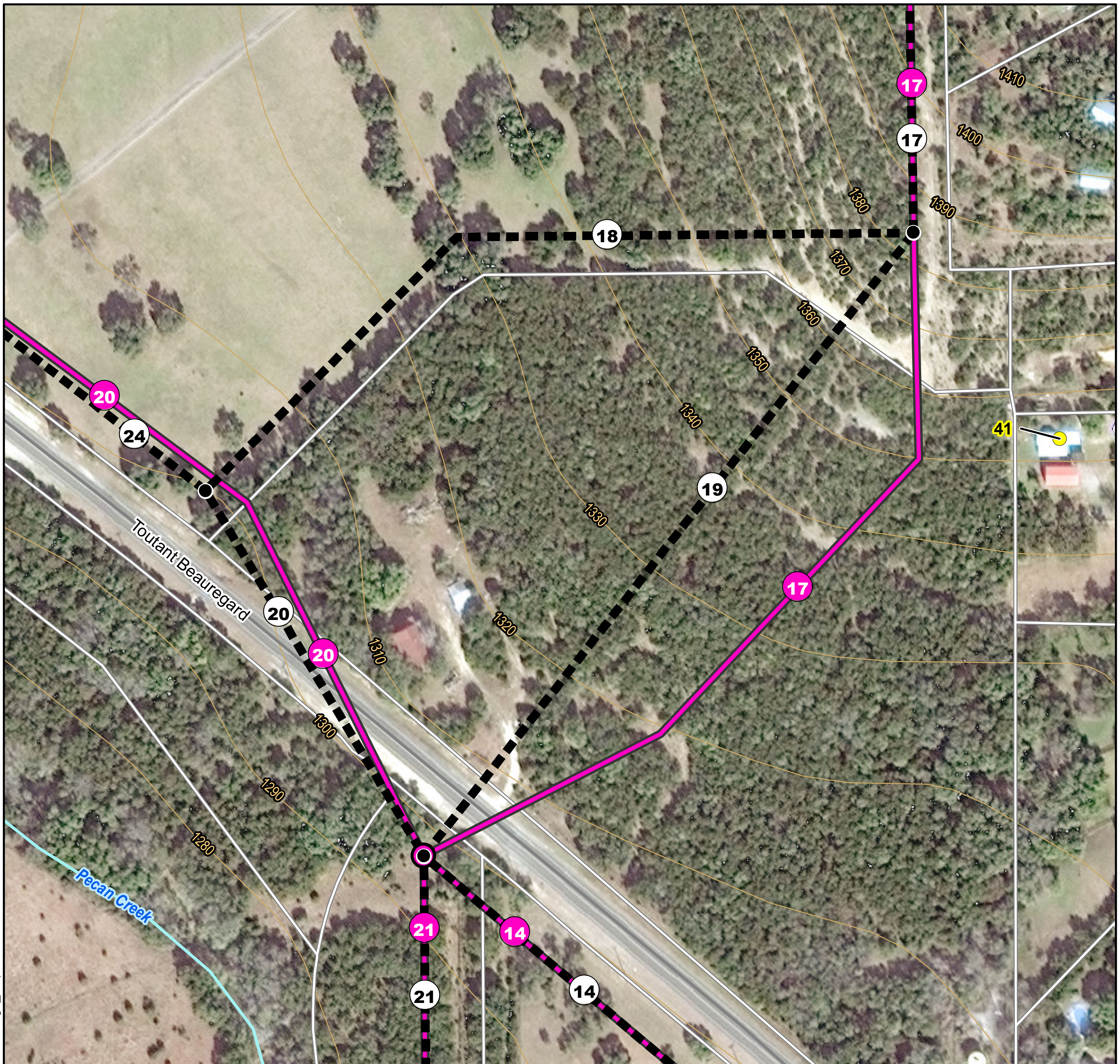
POWER ENGINEERS

Feet

0 800 1,600

6/15/2020 C:\PowerENG\156816_CPS_Scenic_Loop\DD\GIS\apps\Change Sheets\Change_Maps.mxd

(This page left blank intentionally.)



Legend

- Revised or New Alternative Route Segment
- Unchanged Portion of Preliminary Alternative Route Segment Shown at Open House Meeting
- Removed Portion of Preliminary Alternative Route Segment Shown at Open House Meeting
- Revised or New Alternative Route Segment Node
- Unchanged Alternative Route Segment Node Shown at Open House Meeting
- Preliminary Alternative Route Segment Node Shown at Open House Meeting
- A Resulting Alternative Route Segment Label
- A Preliminary Alternative Route Segment Label Shown at Open House Meeting
- Habitable Structure within 300 Feet of a Primary Segment
- Parcel Boundary
- Local Road
- River or Stream
- 10 foot Contour

6/15/2020

Scenic Loop 138 kV Transmission Line And Substation Project

Figure 6-19

Removal of 18; Extension and Realignment of 17; Extension and Realignment of 20 Following the Open House Meeting

Feet
0 200 400

6/15/2020 C:\PowerENG\156816_CPS_Scenic_Loop\DD\GIS\apps\Change Sheets\Change_Maps.mxd

(This page left blank intentionally.)

7.0 LIST OF PREPARERS

This EA and Alternative 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
Project Manager	Lisa Barko Meaux	Project Manager III
Hydrology	Steve Hicks Aaron Hoefer Sairah Teta	Senior Biologist I Environmental Specialist III Biologist I
Ecology	Steve Hicks Aaron Hoefer Sairah Teta	Senior Biologist I Environmental Specialist III Biologist I
Land Use	Denise Williams Emily Innes	Project Lead I Environmental Specialist I
Aesthetics	Denise Williams Emily Innes	Project Lead I Environmental Specialist I
Public Involvement	Lisa Barko Meaux Denise Williams	Project Manager III Project Lead I
Cultural Resources	Darren Schubert Sam Dillon	Cultural Resource Specialist II Cultural Resource Field Rep II
Maps/Figures/Graphics	Gray Rackley Evan Doss	Senior GIS Analyst I GIS Analyst II

This page left blank intentionally.

8.0 REFERENCES CITED

Alsop, Fred J. 2002. Birds of Texas. DK Publishing, Inc. New York, New York. 575pp.

Arvin, J.C. 2007. Birds of the South Texas Brushlands. A Field Checklist. Texas Parks and Wildlife Department. Austin Texas. 20pp.

Barker, Eugene C. and James W. Pohl. 2019. *Handbook of Texas Online.* "TEXAS REVOLUTION," accessed October 11, 2019, http://www.tshaonline.org/handbook/online/articles/qdt01. Published by the Texas State Historical Association.

Bexar County. 2019. Bexar County - Infrastructure Services Department. Available on the internet: https://www.bexar.org/ (accessed March 2019).

Blair, W.F. 1950. The Biotic Provinces of Texas. *Texas Journal of Science* 2:93-117.

Bureau of Economic Geology (BEG). 1981. Geologic atlas of Texas, Austin Sheet. Bureau of Economic Geology, University of Texas at Austin. Austin, Texas.

_____. 1996. Physiographic Map of Texas. Bureau of Economic Geology, University of Texas at Austin. Austin, Texas.

_____. 2019. Texas Mineral Resources Map. Available on the internet: http://igor.beg.utexas.edu/txmineralresources/ (accessed May 2019).

Caldwell, Laura. 2019. *Handbook of Texas Online, "CASAS REVOLT."* http://www.tshaonline.org/handbook/online/articles/jcc02. Published by the Texas State Historical Association (accessed May 30, 2019).

Campbell, Linda. 2003. *The Endangered and Threatened Animals of Texas*. Texas Parks and Wildlife Department. 129 pp.

Chadde, S.W. 2012a. Wetland Plants of Texas, Volume One Monocots. A Bogman Guide. 360pp.

_____. 2012b. Wetland Plants of Texas, Volume Two Dicots. A Bogman Guide. 506pp.

Chipman, Donald E. 2019a. *Handbook of Texas Online*, "OLIVARES, ANTONIO DE SAN BUENAVENTURA Y." http://www.tshaonline.org/handbook/online/articles/fol04 (accessed October 18, 2019).

_____. 2019b. *Handbook of Texas Online*, "ESPINOSA, ISIDRO FELIX DE." http://www.tshaonline.org/handbook/online/articles/fes04 (accessed October 18, 2019).

City of San Antonio. 2019a. Development Services, Zoning. Available on the internet: https://www.sanantonio.gov/DSD/Constructing/Residential#145101219-zoning (accessed March 2019).

_____. 2019b. Planning Department. Available on the internet: https://www.sanantonio.gov/Planning (accessed March 2019).

_____. 2019c. Transportation and Capital Improvements, Bond Projects Map. Available on the internet: https://www.sanantonio.gov/TCI/Projects (accessed March 2019).

_____. 2019d. Parks and Recreation, Find a Park. Available on the internet: https://www.sanantonio.gov/ParksAndRec/Home (accessed March 2019).

City of San Antonio Office of Historic Preservation (OHP). 2019a. Paleoindian Period. Available on the internet at https://www.sanantonio.gov/Mission-Trails/Prehistory-History/Prehistory-of-SA/Paleoindian-Period (accessed May 2019).

_____. 2019b. Archaic Period. Available on the internet at: https://www.sanantonio.gov/Mission-Trails/Prehistory-History/Prehistory-of-SA/Archaic-Period (accessed May 2019).

_____. 2019c. OHP Address Search. Available on the internet at https://qagis.sanantonio.gov/ohpsearch/viewer/view.html (accessed May 2019).

Collins, Michael B. 2002. The Gault Site, Texas and Clovis Research. *Athena Review* 3(2):24-36.

_____. 2004. *Archaeology in Central Texas*. In The Prehistory of Central Texas. Ed. Timothy Perttula. Texas A&M University Press. College Station.

Conant, R. and J.T. Collins. 1991. A Field Guide to Reptiles and Amphibians: Eastern and Central North America. Third edition. Houghton Mifflin Co., Boston.

Cooper, Imogen. 2008. R. L. White Ranch, Helotes, Bexar County, Texas, National Register of Historic Places #8000474.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service, Office of Biological Services, Washington, D.C.

de la Teja, Jesús F. 2019. *Handbook of Texas Online.* “SAN FERNANDO DE BEXAR,” accessed October 11, 2019, http://www.tshaonline.org/handbook/online/articles/hvs16. Published by the Texas State Historical Association.

Diamond, D.D., L.F. Elliot, and R. Lea. 2010. Golden-cheeked Warbler Habitat Up-date. Final Report to Texas Parks & Wildlife, Austin, Texas, USA.

Dickson Schilz, Jodye Lynn. 2019. *Handbook of Texas Online.* “COUNCIL HOUSE FIGHT,” accessed October 11, 2019, http://www.tshaonline.org/handbook/online/articles/btc01. Published by the Texas State Historical Association.

DigitalGlobe. 2019. Esri (accessed January 2020).

Dixon, J.R. 2013. Amphibians and Reptiles of Texas, 3rd ed. Texas A&M University Press, College Station, Texas. 447 pp.

Edwards Aquifer Authority (EAA). 2020a. EAA Subchapter 713 Regulated Zones. Available on the internet: https://www.arcgis.com/home/webmap/viewer.html?webmap=aed0e4eddc794ec49d740a267d42560a&extent=-101.1491,28.3085,-96.6364,30.6845 (accessed February 2020).

_____. 2020b. What EAA District Am I In. Available on the internet: http://eaa.maps.arcgis.com/apps/InformationLookup/index.html?appid=67afe114de4e4c2d89e3fcf7c074d2b4 (accessed February 2020).

_____. 2019. Edwards Aquifer Authority Rules. Available on the internet: https://www.edwardsaquifer.org/wp-content/uploads/2020/01/EAA-Rules_December-20-2019.pdf (accessed February 2020).

Ezell, Patricia, Ron Bauml, and Joanna Parrish. 2011. Heidemann Ranch, Helotes, Bexar County, Texas, National Register of Historic Places #11000423.

Federal Aviation Administration (FAA). 2019a. National Aeronautical Charting Office. San Antonio Sectional Aeronautical Chart, 102nd Edition, Effective November 08, 2018.

_____. 2019b. Chart Supplement South Central U.S. (Formerly known as the Airport/Facility Directory South Central U.S.). Available on the internet: http://www.faa.gov/air_traffic/flight_info/aeronav/digital_products/dafd/ (accessed March 2019).

_____. 2019c. Airport Data and Contact Information. Available on the internet: http://www.faa.gov/airports/airport_safety/airportdata_5010/ (accessed March 2019).

Federal Communication Commission (FCC). 2019. Geographic Information Systems – Licensing Database Extracts. Available on the internet: http://wireless.fcc.gov (accessed January 2020).

Federal Emergency Management Agency (FEMA). 2019. FEMA NHHL v2.4.kml. National Flood Hazard Layer Web Map Service (WMS) in Google Earth. FEMA, Washington D.C. Available Online: https://hazards.fema.gov/femaportal/wps/portal/NFHLWMSkmzdownload (accessed June 2019).

Fenstermaker, Leslie Anne. 2019. *Handbook of Texas Online,* "MAVERICK RANCH." http://www.tshaonline.org/handbook/online/articles/apm07 (accessed May 30, 2019).

Galindo, Mary Jo. 2011. Intensive Archaeological Survey of the Boerne Stage Road Improvement Project, Bexar County, Texas. SWCA Environmental Consultants, San Antonio.

Gould, F.W., G.O. Hoffman, and C.A. Rechenthin. 1960. Vegetational areas of Texas. Texas Agricultural Extension Service. L-492.

Graber, J.W. 1961. Distribution, Habitat Requirements, and Life History of the Black-Capped Vireo (*Vireo atricapilla*). Ecological Society of America. Ecological Monographs 31:4 pp.313-336.

Griffith, G., S. Bryce, J. Omernik, and A. Rogers. 2007. Ecoregions of Texas. Project Report to Texas Commission on Environmental Quality. Austin, Texas. 125 pp.

Handbook of Texas Online. 2019, "SAN ANTONIO DE BEXAR PRESIDIO." http://www.tshaonline.org/handbook/online/articles/uqs02. Published by the Texas State Historical Association (accessed October 11, 2019).

Held, Pollyanna. 2010. Intensive Cultural Resources Survey of a 1.827 Acre Tract of Land for the Proposed Cross Mountain Elevated Storage Tank Project, Bexar County, Raba-Kistner Consultants, Inc. San Antonio.

Held, Pollyanna and Chris Murray. 2010. An Intensive Cultural Resources Survey for 24-Inch Water Main Along Cross Mountain Trail (SAWS Job #10-7003), Bexar County. Raba-Kistner Consultants, Inc. San Antonio.

Henke S.E. and W.S. Fair. 1998. Management of Texas Horned Lizards. Wildlife Management Bulletin of the Caesar Kleberg Wildlife Research Institute. Texas A&M University-Kingsville. No.2.

Howells, R. G. 2014. Field Guide to Texas Freshwater Mussels. Biostudies. Kerrville, Texas. 141 pp.

Hubbs, C. 1957. Distributional patters of Texas freshwater fishes. Southwest Naturalist 2:89-104.

Jasinski, Laurie E. 2019. *Handbook of Texas Online*. “SAN ANTONIO, TX,” accessed October 11, 2019, http://www.tshaonline.org/handbook/online/articles/hds02. Published by the Texas State Historical Association.

Johnson, N.A., P.J. Schofield, J.D. Williams, and J.D. Austin. 2018. Salinity tolerance among three freshwater mussels (Bivalvia: Unionidae) from Gulf Coastal Plain drainages. Florida Scientist 81: 61–69.

Lockwood. M.W. 2008. Birds of the Edwards Plateau, A Field Checklist, 3rd edition. Texas Parks and Wildlife Department, Austin Texas.

Lockwood, M.W. and B. Freeman. 2014. The TOS handbook of Texas birds, Second edition, Revised. Texas A&M University Press. College Station, Texas. 403pp.

Massey, Cynthia Leal. 2019. *Handbook of Texas Online*. “HELOTES, TX,” accessed October 11, 2019, https://tshaonline.org/handbook/online/articles/hlh38. Published by the Texas State Historical Association.

Mercado-Allinger, P.A., N.A. Kenmotsu, and T.K. Perttula. 1996. Archeology in the central and southern planning region, Texas: a planning document. Division of Antiquities Protection, Cultural Resource Management Report 7. Texas Historical Commission, Austin.

Nash, Michael, Boyd Dixon and Mike Smith. 2003. A Cultural Resources Survey of a Proposed Electrical Distribution Line on the Maverick Ranch Bexar County, Texas. PBS&J, Austin.

National Conservation Easement Database (NCED). 2019. NCED Easements. Available on the internet: http://nced.conservationregistry.org/browse/map (accessed March 2019).

National Park Service (NPS). 2019a. Texas. Available on the internet: http://www.nps.gov/state/tx/index.htm?program=all (accessed March 2019).

_____. 2019b. National Historic Landmarks Program – Lists of National Historic Landmarks - Texas. Available on the internet: https://www.nps.gov/subjects/nationalhistoriclandmarks/list-of-nhls-by-state.htm (accessed March 2019).

_____. 2019c. National Trial System. Available on the internet: https://www.nps.gov/state/tx/index.htm?program=all (accessed March 2019).

_____. 2019d. National Historic Landmarks Program – Lists of National Historic Landmarks - Texas. Available on the internet: http://www.nps.gov/history/nhl/designations/listsofNHLs.htm (accessed April 30, 2019).

National Register of Historic Places. (NRHP). 2008. R.L. White Ranch, Helotes, Bexar County, Texas, National Register #8000474.

_____. 2011. Heidemann Ranch, San Antonio, Bexar County, Texas, National Register # 11000423.

National Wild and Scenic Rivers System (NWSRS). 2019. National Wild and Scenic Rivers System Wild and Scenic Rivers by State. Available on the internet: http://rivers.gov/map.php (accessed March 2019).

Nature Conservancy. 2019. Texas. Places We Protect. Available on the internet: http://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/texas/placesweprotect/index.htm (accessed March 2019).

Natural Resources Conservation Service (NRCS). 2019. NRCS Soil Web Survey. Available on the internet: http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm (accessed May 2019).

NatureServe. 2019. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available on the internet: http://explorer.natureserve.org (accessed June 2019).

Neck, R.W. 1982. Significant Texas naiad records. Texas Conchologist 19: 1–3.

Paquin, P., and M. Hedin. 2004. The power and perils of “molecular taxonomy”: A case study of eyeless and endangered Cicurina (Araneae: Dictynidae) from Texas caves. Molecular Ecology 13: 3239-3255.

Perttula, Timothy K. 2004. An Introduction to Texas Prehistoric Archeology. In The Prehistory Of Texas, Perttula, T.K., ed. Texas University A&M Press, College Station.

Peyton, Abigail. 2010. Cultural Resources Survey of the Boerne Stage Road Pipeline Project, Bexar and Kendall Counties, Texas. SWCA Environmental Consultants Austin.

Poole, Jackie M., William R. Carr, Dana M. Price and Jason R. Singhurst. 2007. Rare Plants of Texas. Texas A&M University Press, College Station, Texas 640 pp.

Powell, Robert, Roger Conant, and Joseph T. Collins. 2016. Peterson Field Guide to Reptiles and Amphibians of Eastern and Central North America. Fourth Edition. Houghton Mifflin Harcourt Publishing Company, New York, New York 493pp.

Pulich, W.M. 1976. The Golden-Cheeked Warbler – A Bioecological Study. Texas Parks and Wildlife Department, Austin, Texas. 172pp.

Railroad Commission of Texas (RRC). 2016. Historical Coal Mining. Available on the internet: https://www.rrc.state.tx.us/mining-exploration/historical-coal-mining/mining-regionsfields-and-sites/ (accessed May 2019).

_____. 2019a. Texas Uranium Exploration Program. Available on the internet: http://www.rrc.state.tx.us/mining-exploration/programs/uranium-exploration-program/ (accessed May 2019).

_____. 2019b. Public GIS Viewer. Available on the internet: http://wwwgisp.rrc.texas.gov/GISViewer2/ (accessed May 2019).

_____. 2019c. Public GIS Map Viewer for Oil, Gas, and Pipeline Data. Available on the internet: http://www.rrc.state.tx.us/about-us/resource-center/research/gis-viewers/ (accessed January 2020).

Randklev, C.R., K. Inoue, M. Hart, and A. Pieri. 2017a. Assessing the conservation status of native freshwater mussels (Family: Unionidae) in the Trinity River basin. Report submitted to Texas Parks and Wildlife. 14 pages.

Reddell, J.R., and James C. Cokendolpher. 2004. New species and records of cavernicole Rhadine (Coleoptera: Carabidae) from Camp Bullis, Texas. Texas Memorial Museum, Speleological Monographs, 6:153-162. Available on the internet: https://www.researchgate.net/publication/267788723_NEW_SPECIES_AND_RECORDS_OF_CAVERNICOLE_RHADINE_COLEOPTERA_CARABIDAE_FROM_CAMP_BULLIS_TEXAS (accessed May 2019).

Schmidly, D.J. and R.D. Bradley. 2016. The Mammals of Texas, seventh edition. University of Texas Press, Austin, Texas. 694pp.

Schoelwer, Susan Prendergast. 2019. *Handbook of Texas Online*. "SAN ANTONIO DE VALERO MISSION." http://www.tshaonline.org/handbook/online/articles/uqs08. Published by the Texas State Historical Association (accessed October 11, 2019).

South Central Texas Regional Water Planning Group. 2015. 2016 South Central Texas Regional Water Plan (Region L). Available on the internet: http://www.twdb.texas.gov/waterplanning/rwp/plans/2016/L/Region_L_2016_RWPV1.pdf?d=4773.429999942891 (accessed May 2019).

Sweet, S.S. 1977. Eurycea tridentifera. Catalogue of American Amphibians and Reptiles (CAAR). Available on the internet: https://repositories.lib.utexas.edu/handle/2152/44116 (accessed May 2019).

Texas Commission on Environmental Quality (TCEQ). 2016. Texas Integrated Report of Surface Water Quality – Texas 303(d) List (Category 5). Available on the internet: https://www.tceq.texas.gov/assets/public/waterquality/swqm/assess/16txir/2016_303d.pdf (accessed May 2019).

_____. 2019a. Index to Superfund Sites by County. Available on the internet: http://www.tceq.texas.gov/remediation/superfund/sites/county (accessed May 2019).

_____. 2019b. First Quality Cylinders. Available on the internet: https://www.tceq.texas.gov/remediation/superfund/state/firstqual.html (accessed May 2019).

_____. 2019c. Data on Municipal Solid Waste Facilities in Texas. Available on the internet: https://www.tceq.texas.gov/permitting/waste_permits/msw_permits/msw-data (accessed May 2019).

_____. 2020. Edwards Aquifer Protection Program. Available on the internet: https://www.tceq.texas.gov/permitting/eapp (accessed March 2020).

Texas Department of Transportation (TxDOT). 2019a. County Grid Map Search. Available on the internet: http://www.dot.state.tx.us/apps-cg/grid_search/county_grid_search.htm (accessed March 2019).

_____. 2019b. Project Tracker. Available on the internet: http://www.txdot.gov/project_information/project_tracker.htm (accessed March 2019).

_____. 2019c. NRHP Listed and Eligible Bridges. Available on the internet: https://www.arcgis.com/apps/webappviewer/index.html?id=cc9cf3452a324d0bb961a0c8b4edd898&extent=-10762501.5445%2C3867264.4665%2C-10759444.0634%2C3869297.2137%2C102100 (accessed March 2019).

Texas Education Agency. 2019. School District Locator. Available on the internet: http://tea.texas.gov/Texas_Schools/General_Information/School_District_Locator/School_District_Locator/ (accessed March 2019).

Texas Historical Commission (THC). 2019a. Texas Heritage Trails Program – Texas Independence Trail Region. Available on the internet: http://texasindependencetrail.com/ (accessed March 2019).

_____. 2019b. Texas Archeological Sites Atlas (TASA). Available on the internet (Restricted Access): http://nueces.thc.state.tx.us/ (accessed May 2019).

Texas Land Conservancy (TLC). 2019. Lands. Available on the internet: https://texaslandconservancy.org/protected-lands/ (accessed March 2019).

Texas Natural Diversity Data Base (TXNDD). 2019. Texas Natural Diversity Database, Texas Parks and Wildlife Department. Texas Biological and Conservation Data System. Austin, Texas. (Report Received: April 04, 2019).

Texas Parks and Wildlife Department (TPWD). 2014. Interior Least Tern (*Sterna antillarum athalassos*). Texas Parks and Wildlife Department. Available online: http://www.tpwd.state.tx.us/huntwild/wild/species/leasttern/ (accessed May 2019).

_____. 2019a. Ecologically Significant Stream Segments – Region K. Available on the internet: https://tpwd.texas.gov/landwater/water/conservation/water_resources/water_quantity/sigsegs/regionk.phtml (accessed May 2019).

_____. 2019b. Rare, Threatened and Endangered Species of Texas – Query By County. Available on the internet: http://tpwd.texas.gov/gis/rtest/ (accessed June 2020).

_____. 2019c. Texas Parks and Wildlife - Find a Park. Available on the internet: http://www.tpwd.state.tx.us/spdest/findadest/ (accessed March 2019).

_____. 2019d. Texas Parks and Wildlife. Great Texas Wildlife Trails. Heart of Texas East. Available on the internet: https://tpwd.texas.gov/huntwild/wildlife/wildlife-trails/hote (accessed March 2019).

Texas Speleological Society (TSS). 1962. The Caves of Bexar County. Texas Speleological Association. Vol. 1, No. 4. 42 pp.

_____. 2007. Karst Regions of Texas. Texas Speleological Society. Available online: http://www.texasspeleologicalsurvey.org/karst_caving/images/TKR2.jpg (accessed May 2019).

Texas State Data Center (TXSDC). 2018. TX Population Estimates & Projections. Population Projections. 2018 Population Projections Data Downloads. Available on the internet: http://osd.texas.gov/Data/TPEPP/Projections/ (accessed March 2019).

Texas Water Development Board (TWDB). 1975. Major and Historical Springs of Texas. Texas Water Development Board, Report 189. Austin, Texas. Available on the internet: https://www.twdb.texas.gov/publications/reports/numbered_reports/doc/R189/R189.pdf (accessed February 2020).

_____. 2011. Aquifers of Texas Report 380. Texas Water Development Board. Austin, TX.

_____. 2016. Water for Texas. Austin, Texas. Available on the internet: https://www.twdb.texas.gov/waterplanning/swp/ (accessed May 2019).

_____. 2019. Groundwater Data Viewer. Water Data Interactive. Available on the internet: https://www2.twdb.texas.gov/apps/waterdatainteractive/groundwaterdataviewer (accessed May 2019).

_____. 2020. Maps and GIS data layers. Available on the internet: http://www.twdb.texas.gov/mapping/gisdata.asp (accessed January 2020).

Thomas, C., Bonner T.H., and B.G. Whiteside. 2007. Freshwater Fishes of Texas a field guide. Texas A&M University Press. College Station, Texas, 202pp.

Tipton, B.L., T.L. Hibbits, T.D. Hibbits, T.J. Hibbits, and T.J. Laduc. 2012. Texas Amphibians – A Field Guide. University of Texas Press, Austin, Texas. 309 pp.

United States Census Bureau (USCB). 2000. Census 2000. State and County Quick Facts. Available on the internet: https://www.census.gov/quickfacts/fact/table/tx,bexarcountytexas/POP010210 (accessed March 2019).

_____. 2010. Census 2010. State and County Quick Facts. Available on the internet: https://www.census.gov/quickfacts/fact/table/tx,bexarcountytexas/POP010210 (accessed March 2019).

_____. 2017. American Fact Finder. Available on the internet: http://factfinder2.census.gov/main.html (accessed March 2019).

United States Department of Agriculture (USDA). 2012. 2012 Census of Agriculture – Texas – State and County Profiles. Available on the internet: https://www.nass.usda.gov/Publications/AgCensus/2012/Online_Resources/County_Profiles/ (accessed March 2019).

United States Department of Transportation (USDOT). 2019. Federal Railroad Administration, Maps and Data. Available on the internet: https://railroads.dot.gov/ (accessed March 2019).

United States Environmental Protection Agency (USEPA). 2019a. Superfund Sites Where You Live. Available on the internet: http://www.epa.gov/superfund/sites/ (accessed May 2019).

_____. 2019b. My Waters Mapper. Available online: https://watersgeo.epa.gov/mwm/ (accessed May 2019).

United States Fish and Wildlife Service (USFWS). 2007. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Peck's Cave Amphipod, Comal Springs Dryopid Beetle, and Comal Springs Riffle Beetle; Final Rule, 72 Fed. Reg. § 39248. (final rule Jul. 17, 2007) (to be codified at 50 C.F.R. pts. 17). Available on the internet: https://www.govinfo.gov/content/pkg/FR-2007-07-17/pdf/07-3267.pdf#page=2 (accessed May 2019).

_____. 2009. Whooping Cranes and Wind Development, An issue Paper. USFWS Region 2 and Region 6, April 2009.

_____. 2012. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for Nine Bexar County, TX Invertebrates; Final Rule, 77 Fed. Reg. § 8450. (final rule Feb. 14, 2012) (to be codified at 50 C.F.R. pts. 17). Available on the internet: https://www.govinfo.gov/content/pkg/FR-2012-02-14/pdf/2012-2195.pdf#page=2 (accessed May 2019).

_____. 2019a. National Wetland Inventory (NWI) Mapper. Available on the internet: http://www.fws.gov/wetlands/Data/Mapper.html (accessed May 2019).

_____. 2019b. Ecological Services. Glossary. Available on the internet: https://www.fws.gov/ecological-services/about/glossary.html (accessed July 2019).

_____. 2020a. Karst Invertebrates. USFWS Ecological Services Southwest Region. Available on the internet: https://www.fws.gov/southwest/es/AustinTexas/ESA_Sp_KarstInverts.html (accessed March 2020).

_____. 2020b. Information for Planning and Consultation (IPaC). Report requested and received on March 18, 2020. Consultation Code: 02ETAU00-2020-SLI-1016.

United States Geological Survey (USGS). 2019a. 7.5 minute quadrangle maps. The quadrangle maps were accessed through The National Map Download Client. Available for download on the internet: https://viewer.nationalmap.gov/basic/ (accessed May 2019).

_____. 2019b. Texas Water Science Center. Texas Geology Web Map Viewer. Available on the internet: https://txpub.usgs.gov/txgeology/ (accessed May 2019).

Veni, G. 2002. Delineation of Hydrogeologic Areas and Zones for the Management and Recovery of Endangered Karst Invertebrate Species in Bexar County, Texas. Prepared for the U.S. Fish and Wildlife Service. San Antonio, TX. 75. pp.

Werler. J.E. and J.R. Dixon. 2006. Texas Snakes: identification, distribution, and natural history. University of Texas Press, Austin, Texas. 437 pp.

This page left blank intentionally.

Appendix A

Agency and Other Correspondence

(This page left blank intentionally.)

Scenic Loop 138-kV Transmission and Substation Project
Federal, State, and Local Agencies/Officials Contact List

FEDERAL

Mr. Terry L. Biggio
Southwest Regional Administrator
Federal Aviation Administration
10101 Hillwood Parkway
Fort Worth, TX 76177

Mr. Tony Robinson
Region 6 Regional Administrator
Federal Emergency Management Agency
FRC 800 N. Loop 288
Denton, TX 76209-3698

Ms. Kate Hammond
Intermountain Regional Acting Director
National Parks Service
12795 Alameda Parkway
Denver, CO 80225
IMRextrev@nps.gov

Mr. Salvador Salinas
State Conservationist
NRCS Texas State Office
101 South Main Street
Temple, TX 76501

Colonel Kenneth N. Reed
Commander
USACE - Fort Worth District
P.O. Box 17300
Fort Worth, TX 76102-0300

Mr. Ron Tickle
Executive Director
U. S. Department of Defense Siting Clearinghouse
3400 Defense Pentagon, Room 5C646
Washington, DC 20301-3400

Ms. Anne Idsal
Region 6 Administrator
U.S. Environmental Protection Agency
1445 Ross Avenue, Suite 1200
Dallas, TX 75202

Mr. Adam Zerrenner
Field Supervisor
U.S. Fish Wildlife Service
10711 Burnet Rd., Ste. 200
Austin, TX 78758-4455

STATE

The Honorable Philip Cortez
2600 S.W. Military Dr., Ste. 211
San Antonio, TX 78224

The Honorable Lyle Larson
16607 Blanco Road, Ste. 1405
San Antonio, TX 78232

The Honorable Pete Flores
Texas A&M San Antonio
One University Way
Patriots Casa Room 205
San Antonio, TX 78224

The Honorable Donna Campbell
229 Hunters Village, Ste. 105
New Braunfels, TX 78132

The Honorable Joaquin Castro
727 E. Cesar E. Chavez Blvd, Ste. B-128
San Antonio, TX 78206

The Honorable Will Hurd
727 E. Cesar E. Chavez Blvd
San Antonio, TX 78206

Mr. Wei Wang
Executive Director
Railroad Commission of Texas
P.O. Box 12967
Austin, TX 78711-2967

Mr. Joel Anderson
Regional Director
Texas Commission on Environmental Quality
14250 Judson Rd.
San Antonio, TX 78233-4480

Scenic Loop 138-kV Transmission and Substation Project
Federal, State, and Local Agencies/Officials Contact List

Mr. David Fulton
Director, Department of Aviation
Texas Department of Transportation
125 E. 11th Street
Austin, TX 78701-2483

Mr. Carlos Swonke, P.E.
Director, Environmental Affairs Division
Texas Department of Transportation
125 E. 11th Street
Austin, TX 78701-2483

Mr. Peter Smith, P.E.
Director, Planning & Programming
Texas Department of Transportation
125 E. 11th Street
Austin, TX 78701-2483

Mr. Mario R. Jorge, P.E.
San Antonio District Engineer
Texas Department of Transportation
4615 NW Loop 410
San Antonio, TX 78229-0928

Mr. Mark Havens
Chief Clerk & Deputy Land Commissioner
Texas General Land Office
1700 N. Congress Ave.
Austin, TX 78711

Mr. Mark Wolfe
Executive Director
Texas Historical Commission
P.O. Box 12276
Austin, TX 78711

Ms. Laura Zebehazy
Wildlife Habitat Assessment Program
Texas Parks and Wildlife Department
4200 Smith School Road
Austin, TX 78744
WHAB@tpwd.texas.gov

Mr. Jeff Walker
Executive Administrator
Texas Water Development Board
P.O. Box 13231
Austin, TX 78711-3231

LOCAL

Mr. Rene Dominguez
Director Economic Development Department
City of San Antonio
Frost Bank Tower
100 West Houston Street, 19th Floor
San Antonio, TX 78205

Ms. Bridgett White
Director
Department of Planning
City of San Antonio
1400 South Flores Street
San Antonio, TX 78204

Mr. Razzi Hosseini
Interim Director
Transportation & Capital Improvements
City of San Antonio
114 West Commerce
San Antonio, TX 78205

Ms. Shanon Shea Miller, AICP
Director
City of San Antonio Office of Historic
Preservation Development and Business
Services Center
1901 S. Alamo
San Antonio, TX 78204

Mr. Ron Nirenberg
Mayor – City of San Antonio
P.O. Box 839966
San Antonio, TX 78283

Mr. Roberto C. Trevino
Councilman, District 1
City of San Antonio
P.O. Box 839666
San Antonio, TX 78283

Ms. Jada Andrews-Sullivan
Councilwoman, District 2
City of San Antonio
P.O. Box 839666
San Antonio, TX 78283

Scenic Loop 138-kV Transmission and Substation Project
Federal, State, and Local Agencies/Officials Contact List

Ms. Rebecca J. Viagran
Councilwoman, District 3
City of San Antonio
P.O. Box 839666
San Antonio, TX 78283

Ms. Adriana Rocha Garcia
Councilwoman, District 4
City of San Antonio
P.O. Box 839666
San Antonio, TX 78283

Ms. Shirley Gonzales
Councilwoman, District 5
City of San Antonio
P.O. Box 839666
San Antonio, TX 78283

Ms. Melissa Cabello Havdra
Councilwoman, District 6
City of San Antonio
P.O. Box 839666
San Antonio, TX 78283

Ms. Ana Sandoval
Councilwoman, District 7
City of San Antonio
P.O. Box 839666
San Antonio, TX 78283

Mr. Manny Peláez
Councilman, District 8
City of San Antonio
P.O. Box 839666
San Antonio, TX 78283

Mr. John Courage
Councilman, District 9
City of San Antonio
P.O. Box 839666
San Antonio, TX 78283

Mr. Clayton Perry
Councilman, District 10
City of San Antonio
P.O. Box 839666
San Antonio, TX 78283

Ms. Diane Rath
Executive Director
Alamo Area Council of Governments
8700 Tesoro Drive, Suite 160
San Antonio, TX 78217-6208

Mr. José Dodier, Jr.
Chairman
Alamo Soil and Water Conservation District
727 E Cesar E Chavez Blvd RM A507
San Antonio, TX 78206-1216

Mr. Roland Ruiz
General Manager
Edwards Aquifer Authority Chairman
900 E. Quincy
San Antonio, TX 78215

Ms. Suzanne B. Scott
General Manager
San Antonio River Authority
100 East Guenther St.
San Antonio, TX 78204

Ms. Colleen Swain
Director
San Antonio World Heritage Office
P.O. Box 839966
San Antonio, TX 78283

Mr. Nelson W. Wolff
Bexar County Judge
101 West Nueva, 10th Floor
San Antonio, TX 78205-3482

Mr. Sergio "Chico" Rodriguez
Bexar County Commissioner, Precinct 1
101 W. Nueva, Suite 1009, 10th Floor
San Antonio, TX 78205

Mr. Justin Rodriguez
Bexar County Commissioner, Precinct 2
101 W. Nueva, Suite 1007, 10th Floor
San Antonio, TX 78205

Mr. Kevin Wolff
Bexar County Commissioner, Precinct 3
101 W. Nueva, Suite 1007, 10th Floor
San Antonio, TX 78205

Mr. Tommy Calvert
Bexar County Commissioner, Precinct 4
101 W. Nueva, Suite 1029, 10th Floor
San Antonio, TX 78205

Mr. David E. Marquez
Executive Director
Bexar County Economic Development
101 West Nueva, Suite 944
San Antonio, TX 78205

Mr. Todd Putnam, PE, CFM
Bexar County Flood Control
1948 Probandt Street
San Antonio, TX 78214

Mr. Felix Almaraz
Chair
Bexar County Historical Commission
323 Inspiration Drive
San Antonio, TX 78228

Mr. David L. Smith
Bexar County Manager
101 W. Nueva, 10th Floor
San Antonio, TX 78205

Dr. Brian T. Woods
Superintendent
Northside ISD
5900 Evers Road
San Antonio, TX 78238

SUBURBAN CITIES

Mr. Garry Manitzas
Mayor
City of Fair Oaks Ranch
7286 Dietz Elkhorn
Fair Oaks Ranch, TX 78015

Mr. Tobin Maples
City Manager
City of Fair Oaks Ranch
7286 Dietz Elkhorn
Fair Oaks Ranch, TX 78015

Mr. Phil Howard
Mayor
City of Grey Forest
18502 Scenic Loop Road
Grey Forest, TX 78023

Ms. Shannan Kinsley
City Secretary
City of Grey Forest
18502 Scenic Loop Road
Grey Forest, TX 78023

NON-GOVERNMENTAL ORGANIZATION

Ms. Laura Huffman
Regional State Director, Texas
The Nature Conservancy
318 Congress Avenue
Austin, TX 78701

Ms. Lori Olson
Texas Land Trust Council
Executive Director
P.O. Box 2677
Wimberley, TX 78676

Mr. Mark Steinbach
Executive Director
Texas Land Conservancy
P. O. Box 162481
Austin, TX 78716

Ms. Blair Calvert Fitzsimons
Chief Executive Officer
Texas Agricultural Land Trust
P.O. Box 6152
San Antonio, TX 78209

Mr. Joe Ranzau
President
Texas Cave Management Association
2186 Jackson Keller Street, #533
San Antonio, TX 78214

POWER ENGINEERS

POWER ENGINEERS, INC.

16825 NORTHCHASE DRIVE
SUITE 1200
HOUSTON, TX 77060 USA

PHONE 281-765-5500
FAX 281-765-5599

June 19, 2019
(Via Mail)

Mr. Roberto C. Trevino
Councilman, District 1
City of San Antonio
P.O. Box 839666

San Antonio, TX 78283

Re: Proposed Scenic Loop 138-kV Transmission Line and Substation Project
Bexar County, Texas
POWER Engineers, Inc. Project No. 156816

Dear Mr. Trevino:

CPS Energy is evaluating the construction of a new double circuit 138-kV transmission line in Bexar County, Texas. The proposed 138-kV line will extend approximately five miles from the proposed Scenic Loop Substation to be located in the vicinity of the intersection of Toutant Beauregard Road and Scenic Loop Road, to the existing CPS Energy Ranchtown to LCRA Menger Creek transmission line located north of State Highway 16. The purpose of this project is to support growth and enhance reliability. The preliminary study area is shown on the enclosed map.

POWER Engineers, Inc. (POWER) is preparing an Environmental Assessment (EA) to support CPS Energy's internal and external regulatory activities associated with the project. POWER is gathering data on the existing environment and identifying environmental, cultural, and land use constraints within the study area. POWER will identify potential alternative route segments between the end points that consider these environmental, cultural and land use constraints and the need to serve electrical load in the area.

We are requesting that your agency/office provide information concerning environmental and land use constraints or other issues of interest to your agency/office within the study area. Your input will be an important consideration in the evaluation of alternative routes and in the assessment of potential impacts of those routes. In addition, we would appreciate receiving information about any permits, easements, or other approvals by your agency/office that you believe could affect this project, or if you are aware of any major proposed development or construction in the study area. Upon certification of a final route for the proposed project, CPS Energy will identify and obtain necessary permits, if required, from your agency/office.

June 19, 2019

Thank you for your assistance with this proposed electric transmission line project. Please contact me by phone at 281-765-5507, or by e-mail at lisa.barko@powereng.com if you have any questions or require additional information. We would appreciate receiving your reply by July 2, 2019.

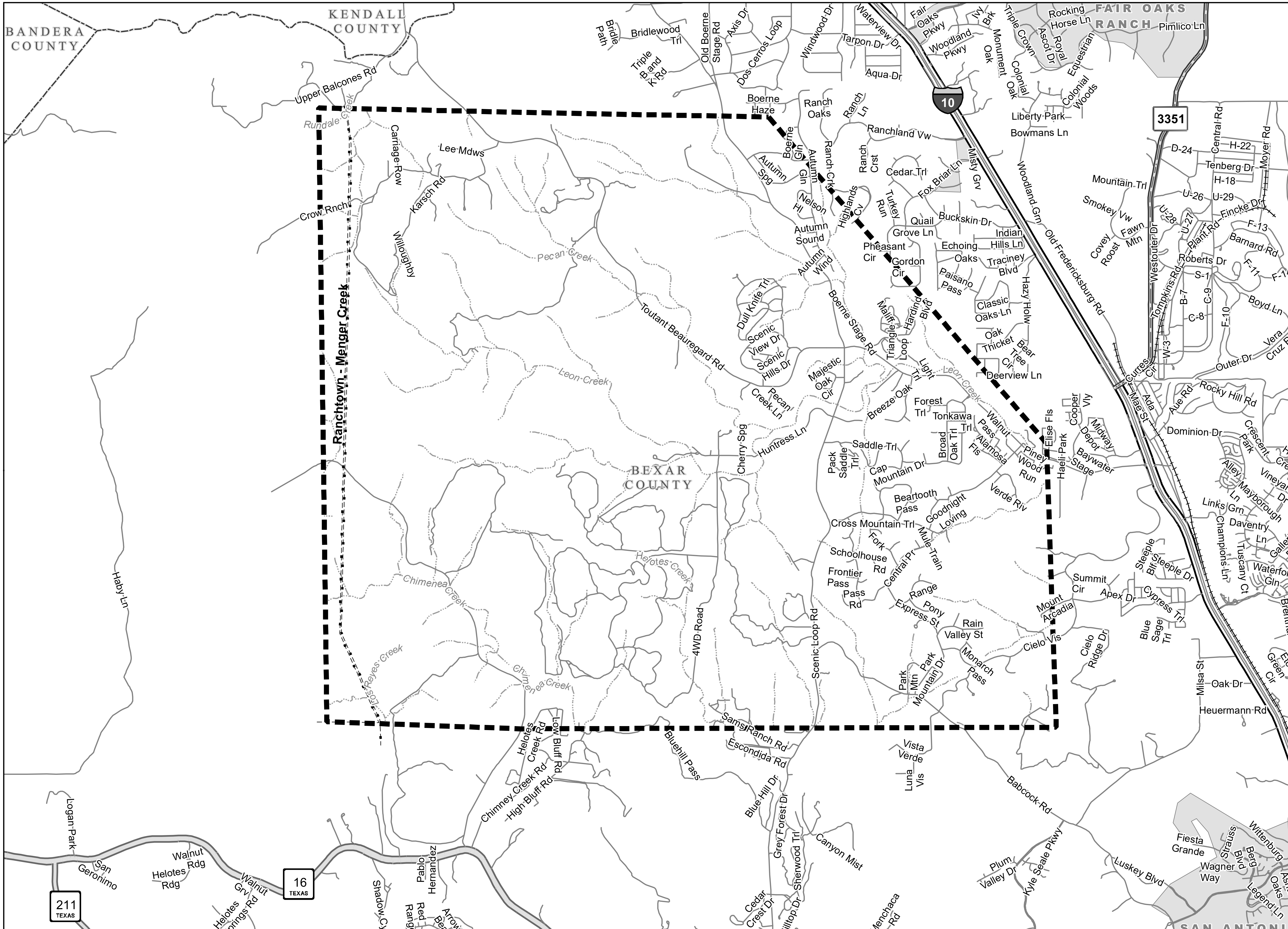
Sincerely,

Lisa Barko Meaux

Lisa Barko Meaux
Project Manager

Enclosure(s):
Preliminary Study Area Map

Sent Via Mail
ProjectWise 156816



SCENIC LOOP 138 - kV TRANSMISSION LINE AND SUBSTATION PROJECT

STUDY AREA MAP

Legend

- Study Area Boundary
- Existing Transmisson Line
- 10 Interstate Highway
- 345 State Highway
- 3351 FM Road
- Local Road
- Railroad
- City Limits
- County Boundary
- River / Stream

Project Location

N

0 2,000 4,000

Feet

POWER ENGINEERS

Date: 6/18/2019

cps energy

(This page left blank intentionally.)

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, FORT WORTH DISTRICT
P.O. BOX 17300
FORT WORTH, TX 76102-0300

June 26, 2019

Regulatory Division

SUBJECT: Project Number SWF-2019-00231, Scenic Loop 138 kV Transmission Line and Substation Project

Ms. Lisa Barko Meaux
Power Engineers, Inc.
16825 Northchase Drive, Suite 1200
Houston, Texas 77060

Dear Ms. Barko Meaux:

Thank you for your letter received June 25, 2019, concerning a proposal by CPS Energy to construct a double circuit 138kV transmission line located in Bexar County, Texas. Mr. John Derinzy has been assigned as the regulatory project manager. The project has been assigned Project Number SWF-2019-00231, please include this number in all future correspondence concerning this project.

Mr. John Derinzy has been assigned as the regulatory project manager for your request and will be evaluating it as expeditiously as possible.

You may be contacted for additional information about your request. For your information, please reference the Fort Worth District Regulatory Division homepage at www.swf.usace.army.mil/Missions/Regulatory and particularly guidance on submittals at www.media.swf.usace.army.mil/pubdata/environ/regulatory/introduction/submital.pdf and mitigation at www.usace.army.mil/Missions/Regulatory/Permitting/Mitigation that may help you supplement your current request or prepare future requests.

If you have any questions about the evaluation of your submittal or would like to request a copy of one of the documents referenced above, please refer to our website at http://www.swf.usace.army.mil/Missions/Regulatory or contact Mr. John Derinzy at the address above or telephone (817) 886-1742 and refer to your assigned project number. Please note that it is unlawful to start work without a Department of the Army permit if one is required.

Please help the regulatory program improve its service by completing the survey on the following website: http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey

Stephen L Brooks
Chief, Regulatory Division

Meaux, Lisa

From:	Derinzy, John W CIV USARMY CESWF (US) <John.W.Derinzy@usace.army.mil>
Sent:	Wednesday, July 17, 2019 7:00 AM
To:	Meaux, Lisa
Subject:	Request for pre-application meeting (SWF-2019-00231) (UNCLASSIFIED)

CLASSIFICATION: UNCLASSIFIED

Good day Lisa,

This email is in response to a letter dated June 19, 2019, from Power Engineers, informing the Corps of a proposed 138-kV Transmission Line and Substation Project in Bexar County, Texas, known as project Number 156816. I am writing to provide technical guidance as it pertains whether your proposed project would have any affect under the Clean Water Act, Section 404, and Section 10 of the Rivers and Harbors Act of 1899.

Under Section 404 of the Clean Water Act the U.S. Army Corps of Engineers (USACE) regulates the discharge of dredged and fill material into waters of the United States, including wetlands. USACE responsibility under Section 10 of the Rivers and Harbors Act of 1899 is to regulate any work in, or affecting, navigable waters of the United States. Based on the limited information you provided to us, here are the Corps comments:

a) It is recommend that the site have a base ground environmental survey to determine if there are any potential environmental concerns or issues.

b) Wetlands and/or other waters of the U.S. might be present on site and within the project area. In order for the Corps to make a definitive call on whether waters of the U.S. are present, we recommend conducting a wetland delineation and submitting the report to our office for concurrence and making a jurisdictional determination.

c) Once we have received a submitted wetland delineation report and proposed project plans to review, we can make a determination if a permit from this office is required. The Corps has a variety of permit types to authorize projects occurring in waters of the U.S. After reviewing project plans we can make a determination of which permit type is the most appropriate to issue, if required. If no work is to occur within waters of the U.S., than in most circumstances no permit would be required.

Please keep in mind that work in waters of the U.S. without previous authorization under Section 404 or Section 10 may constitute a violation. You are more than welcome to request a pre-application meeting with this office if you would like to present your proposed project to the Corps for our input regarding the permit process.

Thank you,

Thank you,

John Derinzy
Project Manager, Evaluation Branch
Regulatory Division, Fort Worth District U.S. Army Corps of Engineers

819 Taylor Street
Fort Worth, Texas 76102-00300

Phone - 817-886-1742

In the Fort Worth District Regulatory Branch we continue to seek ways to improve our Program. We would greatly appreciate your help in improving our service by completing our Customer Service Survey.

We review these results on a monthly basis and truly welcome all feedback.

https://urldefense.proofpoint.com/v2/url?u=http-3A__corpsmapu.usace.army.mil_cm-5Fapex_f-3Fp-3Dregulatory-5Fsurvey&d=DwIFAg&c=H8S5wzIwo-7G_Ou9dg8E0MfTp0Xd5uFLOwdyvjB0JwY&r=dDz39i6BHZmttaPRVy4KQSu70QaLUOyoEGHXJDO4HlU&m=fbj562J4mRvJI3awxIifXX87CSNaqOvXK8f8Sj5MfBA&s=quiPfe6GSxvpigplxF86kqWKAcFSdot6J-O6iVMVmJA&e=

Fort Worth Regulatory Home Page

https://urldefense.proofpoint.com/v2/url?u=http-3A__www.swf.usace.army.mil_Missions_Regulatory.aspx&d=DwIFAg&c=H8S5wzIwo-7G_Ou9dg8E0MfTp0Xd5uFLOwdyvjB0JwY&r=dDz39i6BHZmttaPRVy4KQSu70QaLUOyoEGHXJDO4HlU&m=fbj562J4mRvJI3awxIifXX87CSNaqOvXK8f8Sj5MfBA&s=XpKP9mIultm4U03TBbrgV2i_RfDvi2Ov-vN_U_QFDks&e=

CLASSIFICATION: UNCLASSIFIED

U.S. Department
of Transportation
**Federal Aviation
Administration**

Southwest Region

10101 Hillwood Parkway
Fort Worth, TX 76177

AUG 1 3 2019

Lisa Barko Meaux
Power Engineers, Inc.
16825 Northchase Drive
Suite 1200
Houston, TX 77060

Dear Ms. Meaux:

This is in response to your June 19, 2019, correspondence concerning a proposed new double-circuit 138-kilovolt transmission line in Bexar County, Texas. You requested information concerning environmental and land use constraints or other issues within the study area. You also requested information regarding any permits, easements, or other approvals by the agency that may affect the project.

As set forth in Title 14 of the Code of Federal Regulations Part 77, Objects that Affect the Navigable Airspace, the prime concern of the Federal Aviation Administration is the effect of certain proposed construction on the safe and efficient use of the navigable airspace.

To accomplish this mission, aeronautical studies are conducted based on information provided by the proponents on FAA Form 7460-1, Notice of Proposed Construction or Alteration. If your organization is planning to sponsor any construction or alterations that may affect navigable airspace, you must file FAA Form 7460-1 electronically via https://oeaaa.faa.gov/oeaaa/external/portal.jsp.

For additional information and assistance, please feel free to contact the Obstruction Evaluation Group at 10101 Hillwood Parkway, Fort Worth, Texas 76177 or (817) 222-5934.

Sincerely,

Rob Lowe
Acting Regional Administrator,
Southwest Region

CC: Obstruction Evaluation Group, AJV-15

United States Department of Agriculture

Natural Resources
Conservation Service

State Office

101 S. Main Street
Temple, TX 76501
Voice 254.742.9800
Fax 254.742.9819

July 3, 2019

POWER Engineers
Lisa.Barko@powereng.com

Attention: Lisa Barko Meaux, Project Manager

Subject: LNU-Farmland Protection
Proposed Scenic Loop 138-kV Transmission Line Project
Project No. 156816
Environmental Assessment of Natural Resources
Bexar County, Texas

We have reviewed the information provided in your correspondence dated June 19, 2019 concerning the proposed transmission line project located in Bexar County, Texas. We have evaluated the proposed site and provided technical resources as supporting documentation for an Environmental Assessment (EA).

Please find the attached Custom Soil Resources Report. The soil physical and chemical properties are presented, along with additional restrictions or interpretations for the project area.

The major concerns within the study area are soil depth and slope. Most of the very shallow and shallow soils (less than 100 cm) are also on steep to very steep slopes. These limitations may require additional consideration in equipment required for construction as well as site selection. We strongly encourage the use of acceptable erosion control methods during the construction of this project.

If you have further questions, please contact me at 254.742.9836 or by email at Carlos.Villarreal@usda.gov (Preferred).

Sincerely,

Carlos J. Villarreal
NRCS Soil Scientist

Attachment: **Custom Soil Resource Report for Bexar County Texas**

OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE
3500 DEFENSE PENTAGON
WASHINGTON, DC 20301-3500

SUSTAINMENT

September 11, 2019

Lisa Barko Meaux
Project Manager
Power Engineers
16825 Northchase Dr Ste 1200
Houston, TX 77060

Dear Ms. Barko Meaux,

As requested, the Military Aviation and Installation Assurance Siting Clearinghouse coordinated within DoD an informal review of the Scenic Loop to Ranchtown-Menger Creek 138 kV Transmission Line Project. The results of our review indicated that the transmission line project located in Bexar County, Texas, as proposed, will have minimal impact on military operations conducted in the area.

Please note that this informal review by the DoD Military Aviation and Installation Assurance Siting Clearinghouse does not constitute an action under 49 United States Code Section 44718 and that the DoD is not bound by the conclusion arrived at under this informal review. To expedite our review in the Obstruction Evaluation Airport Airspace Analysis (OE/AAA) process, please add the project number 2019-07-T-ERC-05 in the comments section of the filing. If you have any questions, please contact me at steven.j.sample4.civ@mail.mil or at 703-571-0076.

Sincerely,

Steven J. Sample
Deputy Director
Military Aviation and Installation
Assurance Siting Clearinghouse

From: Meaux, Lisa
To: Williams, Denise
Subject: Fwd: Scenic Loop 138-kV Transmission Line and Substation Project
Date: Tuesday, June 25, 2019 10:15:36 AM

Hi here is some more correspondence.

Sent from my iPhone Lisa Barko Meaux

Begin forwarded message:

From: Neri De La Garza <Neri.DeLaGarza@Tceq.Texas.Gov>
Date: June 25, 2019 at 8:50:36 AM MDT
To: "lisa.barko@powereng.com" <lisa.barko@powereng.com>
Cc: Lillian Butler <Lillian.Butler@tceq.texas.gov>
Subject: Scenic Loop 138-kV Transmission Line and Substation Project

Ms. Barko Meaux,

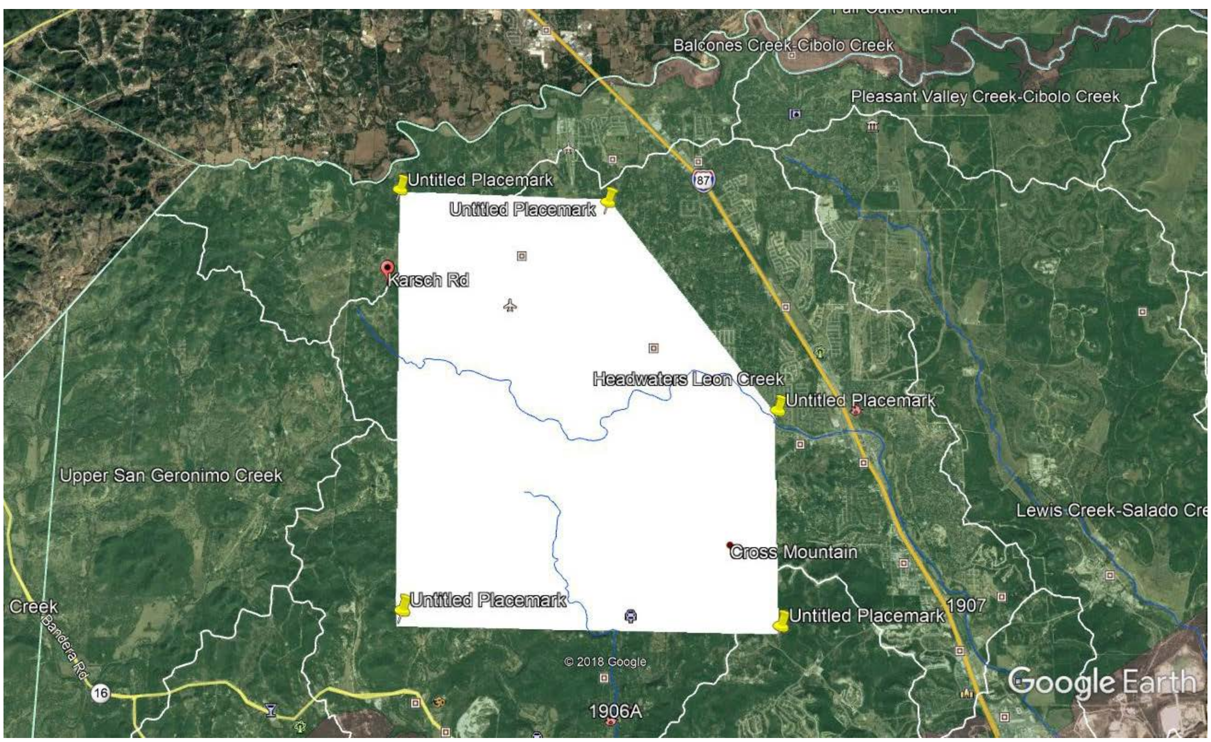
I recently received a copy of the proposed Scenic Loop 138-kV Transmission Line and Substation Project in Bexar County. After reviewing the information provided to our office, it was determined the project will be located in the Edwards Aquifer Protection Program Contributing Zone (*see picture 1*). It is my understanding that a transmission line and substations consist of the installation of electrical towers and step down transformers which will create soil disturbance and the addition of some impervious cover. A Contributing Zone Plan or an Exception Request will be the two permit options that might apply to the proposed project; however, additional information is needed to make a final determination.

You can find more information about our program in our website: https://www.tceq.texas.gov/permitting/eapp

Please let me now if you have any questions.

Thank you,

Neri B. De La Garza
Environmental Investigator, Edwards Aquifer Protection Program
TCEQ Region 13
14250 Judson Road
San Antonio, Texas 78233
210-403-4087



July 1, 2019

Lisa Barko Meaux
POWER Engineers, Inc.
16825 Northchase Drive, Ste. 1200
Houston, TX 77060

Re: Project review under the National Historic Preservation Act: *Proposed Scenic Loop 138-kV Transmission Line and Substation Project, Bexar County, Texas* (THC #201910119, POWER #156816)

Dear Ms. Barko,

Thank you for your correspondence describing the above referenced project. This letter serves as comment on the proposed undertaking from the State Historic Preservation Officer, the Executive Director of the Texas Historical Commission.

The review staff, led by Emily Dylla, has examined our records. There is a sizeable National Register of Historic Places District in this area, and much of the project area has not previously undergone archeological survey. As such, the area is likely to contain additional historic and archeological resources.

Once the transmission line route has been selected, the project area will need to be surveyed by a professional archeologist prior to initiating any ground disturbance to demonstrate a good faith effort to identify historic properties that may be adversely affected by these activities, as defined in 36 CFR 800. We recommend consulting with a professional archeologist early in the project process to perform a records search and to identify high probability areas for archeological survey. By consulting with a professional archeologist, previously recorded archeological resources may be avoided. Please submit these results, recommended survey areas, and a scope of work for our concurrence.

If the survey is being performed on public land or within a public easement, your contract archeologist must obtain an Antiquities Permit from our office before any investigations are undertaken. An Antiquities Permit can be issued as soon as we have a completed permit application. A report of the investigations should be produced in conformance with the Secretary of the Interior's Guidelines for Archaeology and Historic Preservation and submitted to this office for review.

Thank you for your cooperation in this federal review process, and for your efforts to preserve the irreplaceable heritage of Texas. **If you have any questions concerning our review or if we can be of further assistance, please contact Emily Dylla at (512) 463-5711 or Emily.Dylla@thc.texas.gov.**

Sincerely,

for
Mark Wolfe, State Historic Preservation Officer

MW/ed

TEXAS PARKS & WILDLIFE

Life's better outside.®

August 1, 2019

Lisa Barko Meaux
POWER Engineers, Incorporated
16825 Northchase Drive, Suite 1200
Houston, TX 77060

RE: Proposed Scenic Loop 138-kV transmission line and Substation Project, Bexar County, Texas
POWER Engineers Project No. 156816

Dear Ms. Barko Meaux:

Texas Parks and Wildlife Department (TPWD) received the preliminary request regarding the project referenced above. On behalf of CPS Energy, POWER Engineers, Incorporated (POWER) is preparing an Environmental Assessment (EA) to support CPS Energy's internal and external regulatory activities associated with the project.

Project Description

CPS Energy is proposing to construct a new double circuit 138-kV transmission line in Bexar County, Texas. The proposed line would extend approximately five miles from the proposed Scenic Loop Substation to be located in the vicinity of the intersection of Toutant Beauregard Road and Scenic Loop Road, to the existing CPS Energy Ranchtown to LCRA Menger Creek transmission line located north of State Highway (SH) 16. POWER is collecting and evaluating environmental data for the study area and will identify potential alternative route segments between the end points.

TPWD staff reviewed the information provided and offer the following comments and recommendations.

> **Recommendation:** When new construction is the only feasible option, TPWD recommends routing new transmission lines along existing road, pipeline, transmission line or other utility right-of-way (ROW) or easements to reduce habitat fragmentation. By utilizing previously disturbed areas, existing utility corridors, county roads, railroads, and highway ROW, adverse impacts to fish and wildlife resources would be mitigated by avoiding and/or minimizing impacts to undisturbed habitats. A copy of *TPWD Recommendations for Electrical Transmission/Distribution Line Design and Construction*, which include general recommendations for transmission line construction are available online at TPWD's Wildlife Habitat Assessment Program website.

Federal Regulations

Clean Water Act

Section 404 of the Clean Water Act (CWA) establishes a federal program to regulate the discharge of dredged and fill material into waters of the U.S., including wetlands. The U.S. Army Corps of Engineers (USACE) and the Environmental Protection Agency (EPA) are responsible for making jurisdictional determinations and regulating wetlands and other waters under Section 404 of the CWA.

TPWD identified several aquatic resources in the project study area. These include:

- Leon Creek
- Pecan Creek
- Helotes Creek
- Chimenea Creek
- Los Reyes Creek
- Rundale Spring
- Morales Spring

as well as named and unnamed springs and ponds, potential wetlands and other features, which may be natural or manmade.

Recommendation: TPWD recommends developing a route for the proposed transmission line that avoids or minimizes the number of water body crossings. All waterways and associated floodplains, riparian corridors (including those established along manmade water features) and wetlands, regardless of their jurisdictional status, provide valuable wildlife habitat and should be preserved to the maximum extent possible. Natural buffers contiguous to any wetland or aquatic system should remain undisturbed to preserve wildlife cover, food sources, and travel corridors. Transmission line support structures should be located as far from waterbodies as possible to preserve riparian vegetation.

Waterways in the study area, including those that have been manipulated or are completely manmade, provide habitat for wildlife. The destruction of inert microhabitats in waterways such as snags, brush piles, fallen logs, creek banks, pools and gravel stream bottoms should be avoided, as these provide habitat for a variety of fish and wildlife species and their food sources. Necessary waterway crossings should be made perpendicular to channels to minimize disturbance of riparian habitat.

Best management practices (BMPs) for erosion control and sediment runoff should be installed prior to construction and maintained until disturbed areas are permanently revegetated using site-specific native vegetation. BMPs should be properly installed in order to effectively minimize the amount of sediment and other debris entering the waterways. During construction, trucks and equipment should use existing bridge or culvert structures to cross waterways, ponds or depressional wetlands, and equipment staging areas should be located in previously disturbed areas away from aquatic areas and outside of riparian corridors.

If the proposed project would impact waterways or associated wetlands, TPWD recommends consulting with the USACE for potential impacts to waters of the U.S. including jurisdictional determinations, delineations, and mitigation.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) prohibits direct and affirmative purposeful actions that reduce migratory birds, their eggs, or their nests, by killing or capturing, to human control, except when specifically authorized by the Department of the Interior. This protection applies to most native bird species, including ground nesting species. Additional information regarding the MBTA is available from the U.S. Fish and Wildlife Service (USFWS)-Southwest Regional Office (Region 2) at (505) 248-7882.

Review of aerial photography and the Ecological Mapping Systems of Texas (EMST), indicate that, overall, the study area consists primarily of Edwards Plateau: Live Oak Motte and Woodland, Ashe Juniper Motte and Woodland, and Ashe Juniper-Live Oak Shrubland. Habitats within the proposed project area are diverse, including woodlands, shrublands, and grasslands that provide suitable habitat for wildlife species. Available habitats may provide cover, feeding, nesting and loafing habitat for many species of birds. Additionally, the project area is in the middle of the Central Migratory Flyway through which millions of birds pass during spring and fall migration.

Recommendation: TPWD recommends identifying existing utility corridors or other previously disturbed areas (e.g., existing roads, utility corridors or easements) to parallel the proposed transmission line. The location of the transmission line should avoid bisecting bird roosting and feeding areas that are identified during pre-construction avian surveys which TPWD recommend be conducted. Additionally, TPWD recommends scheduling any vegetation clearing or trampling to occur outside of the March 15 - September 15 migratory bird nesting season in order to comply with the MBTA.

If vegetation clearing must be scheduled to occur during the nesting season, TPWD recommends the vegetation to be impacted should be surveyed for active nests by a qualified biologist. Nest surveys should be conducted no more than five days prior to the scheduled clearing to ensure recently constructed nests are identified. If active nests are observed during surveys, TPWD recommends a 150-foot buffer of vegetation remain around the nests until the young have fledged or the nest is abandoned.

The potential exists for birds to collide with transmission lines and associated guy wires and static lines. Bird fatalities can also occur due to electrocution if perching birds simultaneously make contact with energized and grounded structures.

Recommendation: TPWD strongly recommends that transmission lines should be marked with line markers or bird flight diverters to reduce the potential of birds flying into the lines. Line alterations to prevent bird electrocutions should not necessarily be implemented *after* such events occur as all electrocutions may not be known or documented. Incorporation of preventative measures along portions of the routes that are most attractive to birds (as indicated by frequent sightings) prior to any electrocutions is a much preferred alternative.

TPWD recommends the transmission line design should utilize avian safety features described in the revised:

Avian Power Line Interaction Committee (APLIC). 2012. *Reducing Avian Collisions with Power Lines: The State of the Art in 2012*. Edison Electric Institute and APLIC. Washington, D.C.

In particular, the overhead ground wire should be marked with line markers to increase its visibility. Additional recommendations are available in the document entitled, "*TPWD Recommendations for Electrical Transmission/Distribution Line Design and Construction*" available on TPWD's website.

Endangered Species Act

Federally-listed animal species and their habitat are protected from take on any property by the Endangered Species Act (ESA). Take of a federally-listed species can be allowed if it is incidental to an otherwise lawful activity and must be permitted in accordance with Section 7 or 10 of the ESA. Federally-listed plants are not protected from take except on lands under federal/state jurisdiction or for which a federal/state nexus (i.e., permits or funding) exists. Any take of a federally-listed species or its habitat without the required take permit (or allowance) from the USFWS is a violation of the ESA.

Recommendation: TPWD recommends that the EA identify federally-listed and candidate species with potential to occur within the study area. TPWD recommends POWER conduct site surveys of the route alternatives to identify suitable habitat for federally-listed species, to assess potential impacts to federally-listed species and their habitat, and to determine route adjustments that would assist in avoiding or minimizing adverse impacts to federally-listed or candidate species and their habitats.

If impact to a federally-listed species or its habitat is anticipated, TPWD recommends POWER consult with the USFWS-Ecological Services office in Austin pursuant to the ESA. The USFWS should be contacted for additional species occurrence data, guidance, permitting, survey protocols, and mitigation for federally-listed species.

Karst invertebrates

The southern half of the project study area is located in karst habitat. Portions are located in Karst Zones 1 and 2, defined as areas known to contain endangered karst invertebrate species and areas having a high probability of containing suitable habitat for endangered karst invertebrate species, respectively. Additionally, a portion of the project study area overlaps a karst invertebrate critical habitat unit (Unit #22). Approximately one-third of the proposed project study area is located in Karst Zones 3 and 4. Karst invertebrates are troglobites, spending their entire lives underground, inhabiting caves and mesocavernous voids in karst limestone. Surface activities that may fill voids, cap or seal cave entrances, alter surface vegetation or alter drainage patterns can affect karst invertebrates. Excavations on the surface to construct foundations for transmission line poles could inadvertently alter subsurface cave habitat.

Recommendation: The USFWS has developed a five-step approach for determining if karst invertebrates may be present in a project area. More information and the karst survey protocol are available online at the USFWS, Ecological Services Southwest Region-Austin website. TPWD recommends contacting the USFWS-Ecological Services Office in Austin (512-490-0057) regarding appropriate measures to take to ensure potential impacts to karst invertebrates are avoided and/or minimized. At a minimum, a survey should be conducted by a qualified karst geologist or karst biologist with demonstrated experience identifying karst features.

Golden-cheeked warbler

There are several Texas Natural Diversity Database (TXNDD) records for the golden-cheeked warbler located in the areas surrounding the project area. Golden-cheeked warbler's nest only in Central Texas in mixed ashe juniper and oak woodlands on slopes and in ravines and canyons. They eat insects and spiders found on the leaves and bark of oaks and other trees and use long strips of ashe juniper bark and spider webs to build their nests. They come to Texas in March to nest and raise their young and leave in July to spend the winter in Mexico and Central America.

> **Recommendation:** Prior to any vegetation clearing, TPWD recommends surveying for suitable golden-cheeked warbler habitat within the project area according to USFWS guidelines, including a 300-foot buffer of the project site boundary. Even if habitat for these species would not be directly impacted by vegetation removal, if nesting pairs are present in the surrounding vegetation, they could be disrupted by noise and activity during construction. Because the definition of take in the ESA includes harming or harassing a listed species, this disturbance could constitute a violation of the ESA. If suitable habitat for this species is present within the project area, TPWD recommends assuming presence for the species and conducting project activities outside of the breeding and nesting season in any area where suitable habitat may occur (with the appropriate authorization from the USFWS). TPWD recommends coordinating this project with the USFWS for species occurrence data, guidance, permitting, survey protocols, and mitigation for this federally-listed species. If the USFWS determines that suitable habitat is present and that there is a possibility for "take", TPWD recommends enrolling in the Southern Edwards Plateau Habitat Conservation Plan (SEP-HCP).

State Regulations

Parks and Wildlife Code

Nongame Birds

State law prohibits any take or possession of nongame birds, including their eggs and nests. Laws and regulations pertaining to state-protection of nongame birds are contained in Chapter 64 of the Texas Parks and Wildlife (TPW) Code; specifically, Section 64.002 provides that no person may catch, kill, injure, pursue, or possess a bird that is not a game bird. TPW Code Section 64.003, regarding destroying nests or eggs, provides that, no person may destroy or take the nests, eggs, or young and any wild game bird, wild bird, or wild fowl. TPW Code Chapter 64 does not allow for incidental take and therefore is more restrictive than the MBTA.

Although not documented in the TXNDD, many bird species which are not listed as *threatened* or *endangered* are protected by Chapter 64 of the TPW Code and are known to be year-round or seasonal residents or seasonal migrants through the proposed project area.

> **Recommendation:** Please review the *Federal Regulations: Migratory Bird Treaty Act* section above for recommendations as they are applicable for Chapter 64 of the Parks and Wildlife Code compliance.

<u>State-listed Species</u>

State law prohibits the capture, trap, take or kill (incidental or otherwise) of state-listed species. Laws and regulations pertaining to state-listed endangered or threatened animals are contained in Chapters 67 and 68 of the Texas Parks and Wildlife (TPW) Code; laws pertaining to endangered or threatened plants are contained in Chapter 88 of the TPW Code. There are penalties, which may include fines and/or jail time in addition to payment of restitution values, associated with take of state-listed species. Please see "Laws and Regulations Applicable to TPWD Review" that are available online at TPWD's Wildlife Habitat Assessment Program website.

For purposes of relocation, surveys, monitoring, and research, terrestrial state-listed species may only be handled by persons permitted through the TPWD Wildlife Permits Program. For more information regarding Wildlife Permits, please visit TPWD's Wildlife Permits website. For the above-listed activities that involve aquatic species please contact the TPWD Kills and spills Team (KAST) for the appropriate authorization.

The potential occurrence of state-listed species in the project area is primarily dependent upon the availability of suitable habitat. Direct impacts to high quality or suitable habitat therefore are directly proportional to the magnitude and potential to directly impact state-listed species. State-listed reptiles that are typically slow moving or unable to move due to cool temperatures are especially susceptible to being directly impacted during ROW clearing and construction of the transmission line.

> **Recommendation:** TPWD recommends reviewing the most current TPWD annotated county lists of rare species for Bexar County, as state-listed species could be present depending upon habitat availability. These lists are available

online at the TPWD Wildlife Diversity website. Environmental documents prepared for the project should include an inventory of existing natural resources within the alternative transmission line routes. As with federally-listed species, specific evaluations should be designed to predict project impacts upon these natural resources including potential impacts to state-listed species.

The following General Construction Recommendations are provided to assist in project planning and to avoid and/or minimize potential impacts to wildlife, including state-listed species.

Recommendation: In general, TPWD recommends the judicious use and placement of sediment control fence to exclude wildlife from areas to be disturbed. In many cases, sediment control fence placement for the purposes of controlling erosion and protecting water quality can be modified minimally to also provide the benefit of excluding wildlife access to construction areas. The exclusion fence should be buried at least six inches and be at least 24 inches high. The exclusion fence should be maintained for the life of the project and only be removed after the project activities are completed and the disturbed sites have been revegetated or otherwise stabilized. Construction personnel should be encouraged to examine the inside of the exclusion area daily to determine if any wildlife species have been trapped inside the area of impact and provide safe egress opportunities prior to initiation of construction activities. Regarding trenches or excavations for support structure foundations, etc., TPWD recommends that any open trenches or deep excavation areas be covered overnight and/or inspected every morning to ensure no wildlife species have been trapped. For open trenches and excavated areas, escape ramps should be installed at an angle of less than 45 degrees (1:1) in excavated areas that will allow trapped wildlife to climb out on their own. If any state-listed species are trapped in trenches or excavated areas, they should be removed by personnel permitted by TPWD to handle state-listed species.

Recommendation: For soil stabilization and/or revegetation of disturbed areas within the proposed project area, TPWD recommends erosion and seed /mulch stabilization materials that avoid entanglement hazards to snakes and other wildlife species. Because the mesh found in many erosion control blankets or mats pose an entanglement hazard to wildlife, TPWD recommends the use of no-till drilling, hydromulching and/or hydroseeding due to a reduced risk to wildlife. If erosion control blankets or mats would be used, the product should contain no netting or contain loosely woven, natural fiber netting in which the mesh design allows the threads to move, therefore allowing expansion of the mesh openings. Plastic mesh matting should be avoided.

The following state-listed species have the potential to occur within the study area if suitable habitat is available:

Cascade Caverns salamander (*Eurycea latitans*)
Black-capped vireo (*Vireo atricapilla*)
Black bear (*Ursus americanus*)
Texas horned lizard (*Phrynosoma cornutum*)

Cascade Caverns salamander

The TXNDD identified an occurrence of the Cascade Caverns salamander within or near the proposed project's study area. This species is subaquatic, occurring in springs and caves within the Edwards Aquifer area.

Recommendation: Please review the *Federal Regulations: Clean Water Act* section above for recommendations as they are applicable as BMPs that would minimize potential negative impacts to amphibians including the Cascade Caverns salamander.

Black-capped vireo

Black-capped vireos occur in oak-juniper woodlands in central Texas. The TXNDD identified multiple occurrences of the black-capped vireo in the proposed project's study area. Although removed from federal listing, the black-capped vireo remains state-listed endangered.

Recommendation: Please review the *Federal Regulations: Migratory Bird Treaty Act* section above for recommendations as they are applicable for Chapter 64 of the Parks and Wildlife Code compliance.

Black bear

Historically, black bears occurred in the mountainous Trans-Pecos region of west Texas. However, over the past 15 years, black bear populations have increased and expanded into the western portions of the Edwards Plateau and South Texas Plains. There has been an increase in black bear observations reported between the Big Bend area and Maverick County in recent years. A black bear occurrence within the project study area has been documented in the TXNDD.

Recommendation: Black bears are typically shy and elusive. They use travel corridors to move between feeding areas and bedding areas. In order to avoid attracting black bears to work areas, garbage containers, particularly if they contain food waste, should have lids that can be secured. If a black bear is observed within the study area, TPWD requests that the observation be reported to TPWD mammologist Jonah Evans at (830) 331-8739. For more information, please see the black bear fact sheet available on the TPWD website.

Texas horned lizard

Suitable habitat for the Texas horned lizard may occur within the project area. The Texas horned lizard can be found in open, arid, and semi-arid regions with sparse vegetation, including grass, scattered brush or scrubby trees.

If present in the project area, the Texas horned lizard could be impacted by ground disturbing activities, including ROW clearing. A useful indication that the Texas horned lizard may occupy the area is the presence of Harvester ant (*Pogonomyrmex* sp.) nests as they are the primary food source of horned lizards. Texas horned lizards may hibernate on-site in loose soils a few inches below ground during the cooler months from September/October to March /April. Construction in these areas could harm hibernating lizards. Horned lizards are active above ground when temperatures exceed 75 degrees Fahrenheit. If horned lizards (nesting, gravid females, newborn young, lethargic from cool temperatures or hibernation) cannot move away from noise and approaching construction equipment, they could be negatively affected by construction activities.

Recommendation: TPWD recommends developing routes that avoid high quality or suitable habitat for state-listed species, if possible. TPWD recommends that a pre-construction survey be conducted to determine if horned lizards are present within the preferred transmission line corridor. As stated above, a useful indicator of potential occupancy is the presence of Harvester ants. Surveys should be conducted during warmer months of the year when horned lizards are active.

TPWD recommends avoiding disturbance of the Texas horned lizard and colonies of the Harvester ant during clearing and construction. TPWD recommends a permitted biological monitor be present during construction to attempt to capture and relocate Texas horned lizards if found. If the presence of a biological monitor is not feasible, state-listed species observed during construction should be allowed to safely leave the site on their own.

Species of Concern

In addition to state- and federally-protected species, TPWD tracks special features, natural communities, species of concern (SOC), and species of greatest conservation need (SGCN) in the TXNDD and actively promotes their conservation. TPWD considers it important to evaluate and, if necessary, minimize impacts to rare species and their habitat to reduce the likelihood of endangerment.

Based on a review of TXNDD information and aerial photographs of the area, the following SOCs and vegetation communities have potential to occur within the study area if suitable habitat is available:

Strecker's chorus frog (*Pseudacris streckeri*)
Texas salamander (*Eurycea neotenes*)
Western hog-nosed skunk (*Conepatus leuconotus*)
Tricolored bat (*Perimyotis subflavus*)
Common garter snake (*Thamnophis sirtalis*)
Bracted twistflower (*Streptanthus bracteatus*)
Glass Mountains coral-root (*Hexalectris nitida*)
Heller's marbleseed (*Onosmodium helleri*)

Rookery

The TXNDD is intended to assist users in avoiding harm to rare species or significant ecological features. Given the small proportion of public versus private land in Texas, the TXNDD does not include a representative inventory of rare resources in the state. Absence of information in an area does not imply that a species is absent from that area. Although it is based on the best data available to TPWD regarding rare species, the data from the TXNDD do not provide a definitive statement as to the presences, absence or condition of special species, natural communities, or other significant features within your project area. These data are not inclusive and **cannot be used as presence/absence data**. They represent species that could potentially be in your project area. This information cannot be substituted for on-the-ground surveys. The TXNDD date is updated continuously based on new, updated and undigitized records; therefore, TPWD recommends requesting the most recent TXNDD data on a regular basis. TXNDD data can be requested through the TXNDD website.

Please be aware that determining the actual presence of a species in a given area depends on many variables including daily and seasonal activity cycles, environmental activity cues, preferred habitat, transiency and population density (both wildlife and human). The absence of a species can be demonstrated only with great difficulty and then only with repeated negative observations, taking into account all the variable factors contributing to the lack of detectable presence.

Numerous plant species designated "SGCN" or "SOC" are included on the Annotated County List of Rare Species for Bexar County.

Recommendation: Please review the TPWD county list for Bexar County as rare species, including plant species, in addition to those listed above could be present, depending on the availability of suitable habitat. TPWD recommends that surveys for the presence of rare plant species should be conducted along the alternative routes that are developed or selected for the project. Plant surveys should be conducted by qualified botanists familiar with the rare plant species of Texas.

Vegetation

Based on data from TPWD's high resolution land classification map, the EMST (attached), the project area consists of the following vegetation types:

- Barren
- Edwards Plateau: Ashe Juniper-Live Oak Shrubland
- Edwards Plateau: Ashe Juniper Motte and Woodland
- Edwards Plateau: Ashe Juniper-Live Oak Slope Shrubland
- Edwards Plateau: Ashe Juniper Slope Forest
- Edwards Plateau: Deciduous Oak-Evergreen Motte and Woodland
- Edwards Plateau: Floodplain Ashe Juniper Forest
- Edwards Plateau: Floodplain Hardwood-Ashe Juniper Forest
- Edwards Plateau: Floodplain Hardwood Forest
- Edwards Plateau: Floodplain Herbaceous Vegetation
- Edwards Plateau: Floodplain Live Oak Forest
- Edwards Plateau: Live Oak Motte and Woodland
- Edwards Plateau: Live Oak Slope Forest
- Edwards Plateau: Oak-Ashe Juniper Slope Forest
- Edwards Plateau: Oak-Hardwood Motte and Woodland
- Edwards Plateau: Oak-Hardwood Slope Forest
- Edwards Plateau: Post Oak Motte and Woodland
- Edwards Plateau: Riparian Ashe Juniper Forest
- Edwards Plateau: Riparian Ashe Juniper Shrubland
- Edwards Plateau: Riparian Deciduous Shrubland
- Edwards Plateau: Riparian Hardwood-Ashe Juniper Forest
- Edwards Plateau: Riparian Hardwood Forest
- Edwards Plateau: Riparian Herbaceous Vegetation
- Edwards Plateau: Riparian Live Oak Forest
- Edwards Plateau: Savanna Grassland

- Edwards Plateau: Shin Oak Shrubland
- Edwards Plateau: Shin Oak Slope Shrubland
- Native Invasive: Deciduous Woodland
- Native Invasive: Juniper Shrubland
- Native Invasive: Juniper Woodland
- Native Invasive: Mesquite Shrubland
- Row Crops
- Urban High Intensity
- Urban Low Intensity

Additional information about the EMST, including a link to download shapefiles of the vegetation types, and an interactive mapping tool are available at the TPWD website.

Habitat fragmentation is defined as the separation of a block of habitat for a species into segments, such that the genetic or demographic viability of the populations surviving in the remaining habitat segments is reduced. In many cases, site clearing, access roads, and transmission line ROW remove habitat and displace some species of wildlife, and may fragment continuous habitat into smaller, isolated tracts. Habitat fragmentation is of particular concern for species that require large expanses of habitat for activities such as breeding and foraging.

Consequences of isolating local populations of some species include decreased reproductive success, reduced genetic diversity, and increased susceptibility to chance events (e.g., disease and natural disasters), which may lead to extirpation or local extinctions. In addition to displacement, development of cleared transmission line corridors may result in the additional loss of habitat for some species due to edge effects. Edge effects occur when there is a break-up of continuous stands of similar vegetation. This results in an interface (edge) between two or more types of vegetation. The extent of edge effects will vary by species and may result in adverse impacts from such effects as a greater susceptibility to colonization by invasive species, increased risk of predation, and competing species that favor landscapes with a mosaic of vegetation.

Much of the proposed project area consists of large areas of minimally developed woodlands and shrublands representing suitable habitat for many species of wildlife.

Recommendation: TPWD recommends developing links that avoid minimally fragmented tracts of land within the study area. If any links for any proposed routes must occur in dense shrubland or woodland habitat, they should parallel existing transmission lines and/or share a portion of existing infrastructure ROW.

Unavoidable removal of vegetation should be mitigated by revegetating disturbed areas with site specific native plant species where feasible. The replacement of native plants will help control erosion, provide habitat for wildlife, and provide native species an opportunity to compete with undesirable, non-native, invasive plant species.

Lists of suitable plants and seed sources can be obtained by contacting the U.S. Department of Agriculture-Natural Resource Conservation Service (USDA-NRCS) Plant Materials Center in Kingsville, Texas through their website or 361-595-1313, or the Lady Bird Johnson Wildflower Center. Information regarding the importance of native vegetation in revegetation or restoration activities, suitable seed mixes for South Texas, and seed availability are available from South Texas Natives, a part of the Caesar Kleberg Wildlife Research Institute at Texas A&M University-Kingsville.

As previously stated, the proposed project area consists primarily of woodlands and shrublands.

Recommendation: TPWD recommends developing routes consisting of segments that do not require extensive woody vegetation removal. If routes do require clearing vegetation, TPWD recommends that when preparing any ROW or easements for construction of the transmission line, vegetation should be removed with a flail mower instead of a bulldozer to preserve cover crops of grass and low growing brush or understory shrubs. Cleared vegetation should be mulched and spread out over the ROW or given to the landowner. With landowner consent, any large trees or shrubs removed from the ROW should be used to construct brush piles outside of the cleared ROW. Created brush piles can provide cover and nesting habitat for wildlife and replace habitat lost due to clearing trees in the ROW.

As stated above, for herbaceous revegetation efforts in the ROW, TPWD recommends the exclusive use of a mixture of native grasses and forbs. While some of the introduced grasses that may be presently growing in or adjacent to the ROW and some pastures that may be traversed by the proposed transmission line can provide suitable forage for livestock and some species of wildlife with proper management, they are introduced species that typically develop into monotypic stands of vegetation that do not provide high quality grassland habitat able to support a diversity of wildlife species. TPWD recommends that native grasses having the same desirable characteristics as introduced grasses commonly use in revegetation plans be incorporated into project planning and implemented following construction.

Lists of suitable plants and seed sources were listed above.

Monarch Conservation Plan

Significant declines in the population of migrating monarch butterflies (*Danaus plexippus*) have led to widespread concern about this species and the long-term persistence of the North American monarch migration. As part of an international conservation effort, TPWD has developed a Texas Monarch and Native Pollinator Conservation Plan. One of the broad categories of action in the plan is to augment larval feeding and adult nectaring opportunities. The plan is available on TPWD's website.

Recommendation: For disturbed sites within the monarch migration corridor and for landscaping opportunities in urban settings, TPWD recommends revegetation efforts include planting or seeding native milkweed (*Asclepias* spp.) and nectar plants as funding and seed availability allow. Where appropriate and sustainable, TPWD recommends landscaping plans incorporate monarch-friendly plants. Information about monarch biology, migration, and butterfly gardening can be found on the Monarch Watch website.

TPWD advises review and implementation of these recommendations in the preparation of the environmental document for the project. Please contact me at (361) 825-3240 or **russell.hooten@tpwd.texas.gov** if you have any questions or we may be of further assistance.

Sincerely,

Russell Hooten

Russell Hooten
Wildlife Habitat Assessment Program
Wildlife Division

/rh 42121

cc: Karen Hubbard, Public Utilities Commission of Texas

From:	Jonathan Bean
To:	Williams, Denise
Cc:	Clayton Ripps; Meaux, Lisa
Subject:	RE: Scenic Loop Agency Map
Date:	Wednesday, June 26, 2019 11:25:53 AM

Thank you for sending. TxDOT does not have any proposed projects or specific concerns within the study area.

Jonathan Bean, P.E.
Director of Transportation Planning & Development
Texas Department of Transportation
San Antonio District

4615 NW Loop 410
San Antonio, TX 78229

(210) 615-5825

From: denise.williams@powereng.com [mailto:denise.williams@powereng.com]
Sent: Tuesday, June 25, 2019 10:35 AM
To: Jonathan Bean
Cc: Clayton Ripps; lisa.barko@powereng.com
Subject: Scenic Loop Agency Map

Jonathan,
Attached is a pdf map of the study area for the Scenic Loop 138-kV transmission line and substation project. The map is sized at 11x17 and appears to have been scanned without fully opening the map. Please let us know if you need anything else.
Sincerely,

Denise M. Williams
Project Lead I
16825 Northchase Drive
Suite 1200
Houston, TX 77060
281-765-5511 Office
281-794-6885 Cell

POWER Engineers, Inc.
www.powereng.com

From:	Michael Van Vliet
To:	Meaux, Lisa
Cc:	Williams, Denise
Subject:	RE: Bexar County Project No. 156816
Date:	Wednesday, July 10, 2019 2:57:37 PM
Attachments:	image001.png

Lisa,

Thank you for looping us in. I picked a point from the project route and measured it to the runway end and it was within a few miles. Once you get coordinates of the proposed or alternative location then you should run them through the FAA's OE/AAA website. It will tell you if you if the location(s) effect airport approaches or navigational aids. If the FAA deems the location to have no objections then the location would be okay with us. I'm sure you know but you may want to discuss with the surrounding counties because they have local ordinances with height hazard restrictions and when you get close to the airport there are compatible and incompatible land uses.

https://oeaaa.faa.gov/oeaaa/external/portal.jsp

Thank you,

Michael E. Van Vliet
Airport Planner
TxDOT Aviation Division
150 E. Riverside Drive, Austin, TX 78704
512.416.4534 (ph)
512.803.5318 (c)
512.416.4510 (fax)
michael.vanvliet@txdot.gov
Texas Department of Transportation

From: lisa.barko@powereng.com [mailto:lisa.barko@powereng.com]
Sent: Wednesday, July 10, 2019 2:00 PM
To: Michael Van Vliet
Cc: denise.williams@powereng.com
Subject: RE: Bexar County Project No. 156816

Good afternoon Mr. Van Vliet,
No we have not filed an off airport notice of construction or alteration (7460-1) for the project. We are in the beginning stages of the project and are collecting data. We do not know where the approved electric transmission line route will be located within the study area at this time. We are requesting your input for consideration in the development of the project segments and alternative routes. We look forward to any information you may have. If you have additional questions please

give me a call at my office, 281-765-5507.
Thank you,
Lisa

LISA BARKO MEAUX
PROJECT MANAGER
ENVIRONMENTAL DEPARTMENT MANAGER
16825 Northchase Drive, Suite 1200
Houston, Texas 77060

281-765-5507 direct
713-962-8476 cell
lisa.barko@powereng.com

POWER Engineers, Inc.
www.powereng.com

From: Michael Van Vliet <Michael.VanVliet@txdot.gov>
Sent: Wednesday, July 10, 2019 1:47 PM
To: Meaux, Lisa <lisa.barko@powereng.com>
Subject: Bexar County Project No. 156816

Lisa,

Good afternoon, I work for TxDOT Aviation. I have your proposal for the substation project and I wanted to ask. Have you filed an off airport notice of construction or alteration (7460-1) for the project?

Thank you,

Michael E. Van Vliet
Airport Planner
TxDOT Aviation Division
150 E. Riverside Drive, Austin, TX 78704
512.416.4534 (ph)
512.803.5318 (c)
512.416.4510 (fax)
michael.vanvliet@txdot.gov
Texas Department of Transportation

From: Meaux, Lisa
To: Williams, Denise
Cc: Doss, Evan
Subject: FW: Scenic loop Map
Date: Wednesday, July 03, 2019 5:11:55 PM
Attachments: Cities.cpg
Cities.dbf
Cities.prj
Cities.sbn
Cities.sbx
Cities.shp
Cities.shp.xml
Cities.shx
Cities_Clip.cpg
Cities_Clip.dbf
Cities_Clip.prj
Cities_Clip.sbn
Cities_Clip.sbx
Cities_Clip.shp
Cities_Clip.shp.xml
Cities_Clip.shx
Floodplain_Clip.cpg
Floodplain_Clip.dbf
Floodplain_Clip.prj
Floodplain_Clip.sbn
Floodplain_Clip.sbx
Floodplain_Clip.shp
Floodplain_Clip.shp.xml
Floodplain_Clip.shx
Karst_Export_Output.cpg
Karst_Export_Output.dbf
Karst_Export_Output.prj
Karst_Export_Output.sbn
Karst_Export_Output.sbx
Karst_Export_Output.shp
Karst_Export_Output.shp.xml
Karst_Export_Output.shx
MDP_Clip.cpg
MDP_Clip.dbf
MDP_Clip.prj
MDP_Clip.sbn
MDP_Clip.sbx
MDP_Clip.shp
MDP_Clip.shp.xml
MDP_Clip.shx
Plats_Clip.cpg
Plats_Clip.dbf
Plats_Clip.prj
Plats_Clip.sbn
Plats_Clip.sbx
Plats_Clip.shp
Plats_Clip.shp.xml
Plats_Clip.shx
Power.cpg
Power.dbf
Power.sbn
Power.sbx
Power.shp
Power.shx
Wetlands_Clip.cpg
Wetlands_Clip.dbf
Wetlands_Clip.prj
Wetlands_Clip.sbn
Wetlands_Clip.sbx
Wetlands_Clip.shp
Wetlands_Clip.shp.xml
Wetlands_Clip.shx
COSA_LU.cpg
COSA_LU.dbf
COSA_LU.prj
COSA_LU.sbn
COSA_LU.sbx
COSA_LU.shp
COSA_LU.shp.xml

COSA_LU.shx
Power Study Area Aerial.pdf

Denise and Evan,
Please review and consider for the Scenic Loop Project.
Thanks,
Lisa

LISA BARKO MEAUX
PROJECT MANAGER
ENVIRONMENTAL DEPARTMENT MANAGER
16825 Northchase Drive, Suite 1200
Houston, Texas 77060

281-765-5507 direct
713-962-8476 cell
lisa.barko@powereng.com

POWER Engineers, Inc.
www.powereng.com

From: Brach, Robert <RBrach@bexar.org>
Sent: Wednesday, July 03, 2019 5:10 PM
To: Meaux, Lisa <lisa.barko@powereng.com>
Cc: Williams, Denise <denise.williams@powereng.com>; Gruenburg, Cate <cate.gruenburg@bexar.org>
Subject: RE: Scenic loop Map

Hi Lisa,

Please find attached an aerial and shape file data that shows: planned development (MDP_Clip files), platted areas (Plats_Clip files), floodplain area (Floodplain_Clip files), wetland areas (Wetlands_Clip files), Karst Zones (Karst_Export_Output files), and City of San Antonio Land Use Control Areas (COSA_LU files) within the area shown on the map you provided me.

If you would like to view the MDP files, please submit an open records request through the following website: https://county-bexarcountytx.govqa.us/WEBAPP/_rs/(S(1tgdbosrih3dvu0zg2cbrnlr))/supporthome.aspx?lp=2. The files are too large to send by e-mail.

For permit information for Bexar County, please refer to the following webpage: https://www.bexar.org/1462/Permits

For information regarding the City of San Antonio Land Use Control Areas, please contact Tony Felts(Tony.Felts@sanantonio.gov, (210) 207-0153) or John Osten (John.Osten@sanantonio.gov, (210) 207-2187) with the City of San Antonio. The Land Use Controls in this area are schedule to be presented to City Council in September 2019.

Let me know if you have any questions.

Have a safe and happy 4th of July,

Bob

From: Brach, Robert
Sent: Wednesday, July 3, 2019 12:03 PM
To: 'lisa.barko@powereng.com'
Cc: denise.williams@powereng.com
Subject: RE: Scenic loop Map

Hi Lisa,

I received the map.

Thanks,

Bob

From: lisa.barko@powereng.com [mailto:lisa.barko@powereng.com]
Sent: Wednesday, July 3, 2019 9:56 AM
To: Brach, Robert
Cc: denise.williams@powereng.com
Subject: Scenic loop Map

Good morning,
Attached is the agency contact map for the Scenic Loop Project per your request.
Please confirm receipt of this email at your earliest convenience.
Thank you,
Lisa

LISA BARKO MEAUX
PROJECT MANAGER
ENVIRONMENTAL DEPARTMENT MANAGER
16825 Northchase Drive, Suite 1200
Houston, Texas 77060

281-765-5507 direct
713-962-8476 cell
lisa.barko@powereng.com

POWER Engineers, Inc.
www.powereng.com

From:	Bexar County Open Records Request Portal
To:	Meaux, Lisa
Subject:	County Records Request :: R001632-071719
Date:	Wednesday, July 17, 2019 3:22:31 PM

Dear Lisa Meaux:

Thank you for your interest in public information of Bexar County. Your request has been received and is being processed in accordance with Chapter 552 of Texas Government Code, the Public Information Act. Your request was received in this office on **7/17/2019** and given the reference number **R001632-071719** for tracking purposes.

Records Requested: ***Scenic Hills Estates Master Development Plan***

Your request will be forwarded to the appropriate County departments for processing. You will be contacted about the availability of the records in question.

PLEASE NOTE: The Texas Public Information Act does not require a governmental body to create new information, to do legal research, or to answer questions.

You can monitor the progress of your request at the link below, and you'll receive an email when your request has been completed.

Thank you,

Bexar County

From: Bexar County Open Records Request Portal
To: Meaux, Lisa
Subject: County Records Request :: R001633-071719
Date: Wednesday, July 17, 2019 3:26:46 PM

Dear Lisa Meaux:

Thank you for your interest in public information of Bexar County. Your request has been received and is being processed in accordance with Chapter 552 of Texas Government Code, the Public Information Act. Your request was received in this office on **7/17/2019** and given the reference number **R001633-071719** for tracking purposes.

Records Requested: ***We would like to request copies of the Master Development Plans for the following development to better understand the stages of funding and development: Palm Springs Ranch MDP Pecan Creek Ranch MDP Pecan Springs Estates MDP Anaqua Springs Ranch MDP Anderson Tract at Anaqua Springs Ranch MDP Clearwater Ranch MDP Sundance Ranch MDP Mallory Tract MDP West Brook MDP Rivendell Estates MDP Blackbuck Ranch MDP Chimney Creek MDP Country Bend MDP Leon Creek Estates MDP Highlands Ranch MDP***

Your request will be forwarded to the appropriate County departments for processing. You will be contacted about the availability of the records in question.

PLEASE NOTE: The Texas Public Information Act does not require a governmental body to create new information, to do legal research, or to answer questions.

You can monitor the progress of your request at the link below, and you'll receive an email when your request has been completed.

Thank you,

Bexar County

From: Bexar County Open Records Request Portal
To: Meaux, Lisa
Subject: County Records Request :: R001634-071719
Date: Wednesday, July 17, 2019 3:28:53 PM

Dear Lisa Meaux:

Thank you for your interest in public information of Bexar County. Your request has been received and is being processed in accordance with Chapter 552 of Texas Government Code, the Public Information Act. Your request was received in this office on **7/17/2019** and given the reference number **R001634-071719** for tracking purposes.

Records Requested: ***We are requesting copies of the Master Development Plans for the following Developments to better understand the stage of funding and development for each: Secnic Hills MDP Trailwood MDP Concept Theraphy Institute MDP River Rock Ranch MDP Scenic Oaks MDP Two Creeks MDP Big Oaks Estates MDP Stage Coach Hills MDP The Canyons at Scenic Loop MDP Cantera Hills MDP Cross Mountain Ranch MDP Altair MDP J&J MDP Estancia MDP Park Mountain MDP Stagecoach Hill Estates MDP Cielo Villas MDP Bloomfield Hills MDP Bloomfield Heights MDP Cielo Ridge MDP Stonewall Estates MDP Arcadia MDP Hills at Boerne MDP Greywalls MDP Springs at Boerne MDP Walnut Pass Boerne Stage MDP***

Your request will be forwarded to the appropriate County departments for processing. You will be contacted about the availability of the records in question.

PLEASE NOTE: The Texas Public Information Act does not require a governmental body to create new information, to do legal research, or to answer questions.

You can monitor the progress of your request at the link below, and you'll receive an email when your request has been completed.

Thank you,

Bexar County

From:	Meaux, Lisa
To:	Williams, Denise
Subject:	FW: Proposed Scenic Loop 138-kV Transmission Line and Substation Project
Date:	Monday, July 08, 2019 1:42:28 PM
Attachments:	image001.png image002.png image003.png image004.png image005.png Study Area.pdf

---

Please consider in the EA.
Thanks,
Lisa

LISA BARKO MEAUX
PROJECT MANAGER
ENVIRONMENTAL DEPARTMENT MANAGER
16825 Northchase Drive, Suite 1200
Houston, Texas 77060

281-765-5507 direct
713-962-8476 cell
lisa.barko@powereng.com

POWER Engineers, Inc.
www.powereng.com

From: Matthew Elverson (OHP) <Matthew.Elverson@sanantonio.gov>
Sent: Monday, July 08, 2019 10:50 AM
To: Meaux, Lisa <lisa.barko@powereng.com>
Cc: jbentley@cpsenergy.com
Subject: Proposed Scenic Loop 138-kV Transmission Line and Substation Project

Hi Lisa,

This email is in response to a letter, dated 6/19/2019, submitted to the Office of Historic Preservation regarding a request for information on cultural resources compliance for the above referenced project. A review of cultural resources within the proposed study area (attached) has identified significant prehistoric and historic archaeological resources. This includes, but isn't limited to, National Register of Historic Places Districts, previously recorded archaeological sites, cemeteries, and 19th century vernacular structures. Please coordinate the cultural resources compliance with Heath Bentley, CPS Archaeologist (copied). The project shall comply with all applicable federal, state, and local laws, rules, and regulations regarding archaeology.

Best,

Matthew

Matthew T. Elverson, M.A., R.P.A.
City Archaeologist

City of San Antonio · Office of Historic Preservation
1901 South Alamo
San Antonio, Texas 78283
matthew.elverson@sanantonio.gov
Direct: 210-207-5421 • Office: 210-207-0035

How are we doing? Please take our short customer service survey.

CITY OF SAN ANTONIO
OFFICE OF HISTORIC PRESERVATION

Archaeology supports the CORE VALUES
Teamwork - Integrity - Innovation - Professionalism

From:	Meaux, Lisa
To:	Williams, Denise
Cc:	Doss, Evan
Subject:	FW: Proposed Scenic Loop Power Line - Bexar County
Date:	Wednesday, July 03, 2019 11:02:35 AM
Attachments:	image001.png City of San Antonio Conservation Easement - Rancho Blanco GIS Boundary.zip City of San Antonio Natural Area - Woodland Hills (Friedrich Natural Area) - GIS Boundary.zip Nature Conservancy Conservation Easements.zip

Denise and Evan,

Please review and consider this information on the Scenic Loop Project.

Thanks,

Lisa

LISA BARKO MEAUX
PROJECT MANAGER
ENVIRONMENTAL DEPARTMENT MANAGER
16825 Northchase Drive, Suite 1200
Houston, Texas 77060

281-765-5507 direct
713-962-8476 cell
lisa.barko@powereng.com

POWER Engineers, Inc.
www.powereng.com

From: Susan Courage (Parks) <Susan.Courage@sanantonio.gov>
Sent: Wednesday, July 03, 2019 10:56 AM
To: Meaux, Lisa <lisa.barko@powereng.com>
Cc: Grant Ellis (Parks) <Grant.Ellis@sanantonio.gov>; David Bernal (Parks) <David.Bernal@sanantonio.gov>; Phillip Covington (Parks) <Phillip.Covington@sanantonio.gov>
Subject: RE: Proposed Scenic Loop Power Line - Bexar County

Thanks Lisa. I've attached the shapefiles of the properties potentially impacted. Here is some information on the properties:

Rancho Blanco Property – We hold a Conservation Easement of this property. We don't own this property, but we hold the Conservation Easement for water protection of the Edwards Aquifer.

Woodland Hills – The City of San Antonio owns this tract as a natural area. It's part of a larger tract known as Friedrich Park Natural Area. We purchased the Woodland Hills for water protection. It also has known federally listed endangered species.

Nature Conservancy Conservation Easements – We don't own these properties or hold the Conservation Easements, however, they are held by the Nature Conservancy. We work closely with them so I wanted to forward these along in case you were unaware of these easements. I will have the Nature Conservancy contact you for more information and to be put on the distribution list.

Thanks again and don't hesitate to let me know if you need additional information.

Thanks!
Susan

From: lisa.barko@powereng.com [mailto:lisa.barko@powereng.com]
Sent: Wednesday, July 03, 2019 9:48 AM
To: Susan Courage (Parks)
Subject: [EXTERNAL] RE: Proposed Scenic Loop Power Line - Bexar County

Good morning,
Attached is the agency contact letter and map that was sent to the Land Conservancy. We look forward to receiving your input.
Thanks you,
Lisa

LISA BARKO MEAUX
PROJECT MANAGER
ENVIRONMENTAL DEPARTMENT MANAGER
16825 Northchase Drive, Suite 1200
Houston, Texas 77060

281-765-5507 direct
713-962-8476 cell
lisa.barko@powereng.com

POWER Engineers, Inc.
www.powereng.com

From: Susan Courage (Parks) <Susan.Courage@sanantonio.gov>
Sent: Tuesday, July 02, 2019 4:11 PM
To: Meaux, Lisa <lisa.barko@powereng.com>
Subject: Proposed Scenic Loop Power Line - Bexar County

Hi Lisa,

Thanks so much for speaking with me! Here is my contact information. I'll get you a map and shapefiles of our protected properties first thing in the morning.

Thanks again!

Susan Courage
City of San Antonio
Edwards Aquifer Protection Program
114 W. Commerce, 10th Floor
San Antonio, TX 78205
Ph: 210-207-2162 / Fax: 210-207-8444

26 March 2020

Mr. Richard Trevino, USAF
Base Civil Engineer
502d Civil Engineer Group
2428 Stanley Rd
JBSA-Fort Sam Houston TX 78234

COL Isaac C. Manigault
Commander, Army Environmental Command
2455 Reynolds Road
Fort Sam Houston, Texas 78234-7664

Kirk D. Rasmussen
Jackson Walker LLP
100 Congress Ave #1100
Austin, Texas 78701

Re: Request for Right of Way to CPS for a transmission line through Maverick Ranch

Dear Mr. Rasmussen,

We write jointly regarding your client's, City Public Service (CPS), request for a Right of Way (ROW) for an electric transmission line and substation through a tract on Maverick Ranch located in northwest Bexar County. For the reasons set forth below, it is the Air Force's and Army's position that the proposed ROW would be inconsistent with the conservation easement over the Maverick Ranch that the Army's conservation partner, The Nature Conservancy (TNC), acquired in 2010 (see enclosed conservation easement). In addition, a ROW for an electric transmission line would negatively impact the ongoing military missions at Camp Bullis.

By way of background, the Maverick Ranch perpetual conservation easement was one of six endangered species habitat exchanges executed during 2009 – 2013 between Camp Bullis and TNC with assistance from the City of San Antonio, Bexar County, and Texas Parks and Wildlife Department (TPWD). The specific tract at issue is made up of very dense old growth cedar and oak and contains a high percentage of Golden-cheeked Warbler (GCW) habitat (see enclosed 2019 Endangered Species Presence-Absence Survey of the subject property). This effort was vital to relieving endangered species habitat restrictions on more than 2,500 acres of GCW habitat on Camp Bullis.

In return for conserving land off of the installation in perpetuity, US Fish and Wildlife Service (USFWS) authorized Camp Bullis to clear most of the cedar on 2,500 acres on Camp Bullis. This exchange made it much more feasible to accommodate the growth related to the

Base Realignment and Closure (BRAC) recommendations of 2005, wherein Joint Base San Antonio stood up, and 12,000 additional personnel were added to Fort Sam Houston and Camp Bullis. This made Fort Sam Houston the home of all Department of Defense medic training, including 5,000 additional medical trainees. The field training at Camp Bullis is essential to the long-term viability of Fort Sam Houston and is home to a multitude of critical training, including security forces trainees from Joint Base San Antonio-Lackland.

If the TNC in perpetuity conservation easements were to be disturbed, USFWS would require another consultation under Section 7 of the Endangered Species Act and Camp Bullis would need to obtain replacement GCW mitigation credits. Finally, regardless of any willingness of Camp Bullis (US Air Force or Army) to entertain additional endangered species replacement habitat, Section 4 of the conservation easement only allows utilities to be installed for existing houses already on the tracts.

We have also been communication with the owners of the underlying fee title of the Maverick Ranch as well as TNC, and both are resistant to a utility ROW over the Maverick Ranch.

Sincerely

RICHARD TREVINO JR., GS-15
Director, 502d Civil Engineer Group

Sincerely

ISAAC C. MANIGAULT
COL, CM
Commanding

Enclosures

cc: The Nature Conservancy
The Pond Foundation

(This page left blank intentionally.)

Appendix B

Public Involvement

(This page left blank intentionally.)

September 19, 2019

Dear CPS Energy Customer:

Thank you for being our customer. We invite you to attend an open house to learn about a proposed project intended to improve electric service reliability in your area. The Scenic Loop Substation & Transmission Project involves the proposed construction of a new substation, a new transmission line, and associated distribution lines in the northwest area of Bexar County.

The proposed substation will require approximately 5 acres of property and a transmission line connection to the existing Ranchtown to (LCRA) Menger Creek transmission line.

At the open house you can learn more about the project need and the substation site alternatives and transmission line routing options that we are currently evaluating. We welcome your questions, comments, and input regarding this project. CPS Energy team members directly involved with the project will be present to answer your questions and receive feedback you provide. The open house will have an informal "come and go" format with information stations addressing specific areas of the proposed project.

CPS Energy Open House
Scenic Loop Substation & Transmission Project
October 3, 2019
5:30pm-7:30pm

Cross Mountain Church Student Center
24891 Boerne Stage Rd.
San Antonio, TX 78255

A brochure describing the proposed project and a map of the study area is included in this packet. Additional information is also available at www.cpsenergy.com search: **Scenic Loop**

We look forward to meeting you, receiving feedback you provide, and answering your questions. Thank you in advance for taking the time to join us.

Sincerely,

Daniel Otto

Daniel Otto
Project Manager

19 de septiembre de 2019

Estimado cliente de CPS Energy:

Gracias por ser nuestro cliente. Lo invitamos a una jornada de puertas abiertas para conocer el próximo proyecto de subestación y transmisión que mejorará la confiabilidad del servicio eléctrico en su área. El Proyecto de Subestación y Transmisión de Subestacion construye una nueva subestación, línea de transmisión y líneas de distribución asociadas en el área noroeste del condado de Bexar.

La nueva subestación requerirá aproximadamente 5 acres de propiedad y una línea de transmisión que se conectará a la línea de transmisión existente de Ranchtown a (LCRA) Menger Creek.

Puede obtener más información sobre los planes para la subestación y la ruta de transmisión en la jornada de puertas abiertas. Agradecemos sus preguntas, comentarios y preocupaciones con respecto a este proyecto. Los miembros del equipo de CPS Energy directamente involucrados con el proyecto estarán presentes para responder a sus preguntas. El evento tendrá un formato informal de “ir y venir” con estaciones de información específicas del proyecto.

Jornada de Puertas Abiertas de CPS Energy
Proyecto de transmisión y subestación Scenic Loop
3 de octubre de 2019
5:30pm-7:30pm

Cross Mountain Church Student Center
24891 Boerne Stage Rd.
San Antonio, TX 78255

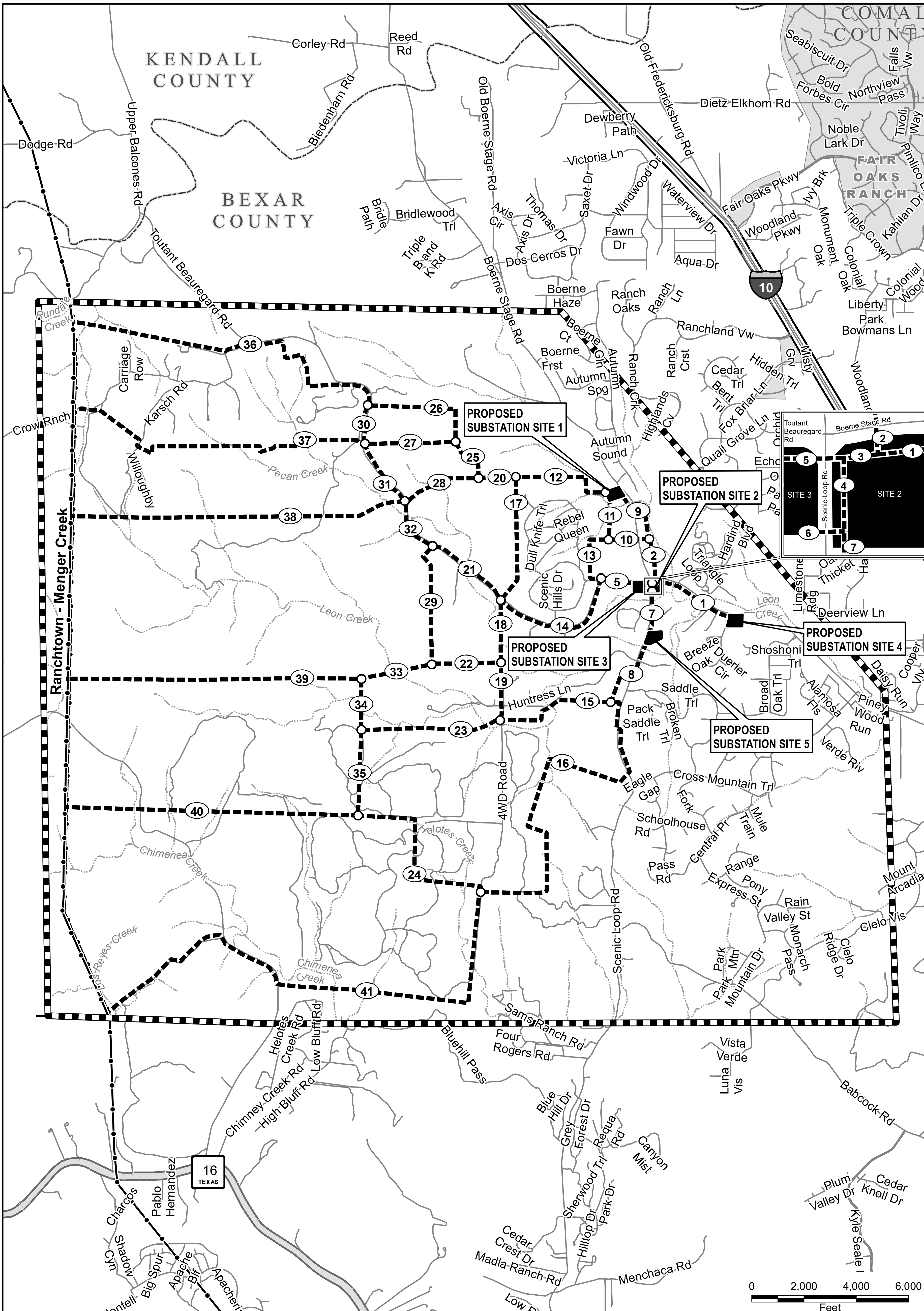
En este paquete se incluye un folleto que describe el proyecto y un mapa del área de estudio. Información adicional también está disponible en www.cpsenergy.com Buscar: Scenic Loop.

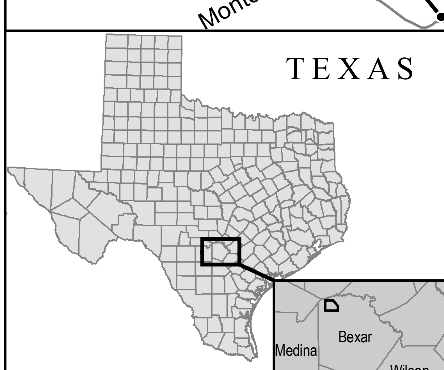
Esperamos conocerte y responder sus preguntas. Gracias de antemano por tomarse el tiempo para unirse a nosotros.

Sinceramente,

Daniel Otto

Daniel Otto
Gerente de proyecto





Project Components

- Study Area Boundary
- Preliminary Substation Site
- Preliminary Segment and Node

Existing Utilities

- Existing Transmisson Line

Transportation

- Interstate Highway
- State Highway
- Local Road

Administrative Boundaries

- City Limits
- County Boundary

Surface Waters

- River / Stream

1 inch = 3,700 feet

SCENIC LOOP 138 kV TRANSMISSION LINE AND SUBSTATION PROJECT

PRELIMINARY ALTERNATIVE SEGMENTS & SUBSTATION SITES

POWER ENGINEERS

Date: 8/29/2019

cps energy

(This page left blank intentionally.)

Scenic Loop Substation & Transmission Line Project

Questionnaire

Your feedback is important to us.

Please take a moment to respond to the following questions so we may evaluate public comments.

1. Did you attend the Scenic Loop Substation and Transmission Line Project Open House on Thursday, October 3, 2019?

   Yes **No**

2. Do you understand the need for the project?

   Strongly Agree **Agree** **Neutral** **Disagree** **Strongly Disagree**

3. The project team has responded to and answered your questions about the Scenic Loop Substation & Transmission Line Project.

   Strongly Agree **Agree** **Neutral** **Disagree** **Strongly Disagree**

4. If you answered "Disagree" or "Strongly Disagree" to Question 3, would you like someone from the project team to contact you and discuss the project with you?

   Yes **No**

5. The exhibits at the Open House were helpful.

   Strongly Agree **Agree** **Neutral** **Disagree** **Strongly Disagree**

   Suggestions for improvements:

   ____

   ____

6. Below is a list of factors that CPS Energy and its consultants consider when identifying and evaluating alternative transmission line route segments and substation sites. Please rank your top five factors below from most important (1) to least important (5).

   _____ Impact to residences
   _____ Impact to businesses
   _____ Proximity to schools, churches, cemeteries
   _____ Impact to streams/floodplains
   _____ Proximity to parks/recreational areas
   _____ Impact to trees and other vegetation
   _____ Proximity to archaeological/historical site
   _____ Visibility of structures
   _____ Impact to woodland, grasslands/wetlands
   _____ Parallel property lines
   _____ Impact to endangered species and their habitat
   _____ Total line length
   _____ Total line cost
   _____ Parallel existing roadways/highways
   _____ Parallel existing transmission lines

7. What other factors do you feel should be considered when identifying and evaluating alternative transmission line segments and substation sites?

   ____

   ____

Continued

Option A  Option B 

8. Of the two pole finishes shown in the above pictures, which do you prefer?

   Option A **Option B** **No preference**

9. After your review at the open house or the project website, please indicate any features that should be added that were not identified or included on the Land Use and Environmental Constraints map.

   ____

   ____

10. Please identify any alternative transmission line segments or substation sites that are the most preferable to you. Please describe why.

    ____

    ____

11. Please identify any alternative transmission line segments or substation sites that are the least preferable to you. Please describe why.

    ____

    ____

12. **Please check all that apply:**

    ☐ A potential transmission segment or segments are near my home/business.

    List segment(s): ______________________

    ☐ A potential transmission segment or segments cross my property.

    List segment(s): ______________________

    ☐ A potential substation site is on or near my property.

    List site: ______________________

    ☐ Other. Please specify ______________________

13. Do you own a 4-6-acre property near the current alternative substation sites that you would be willing to sell to CPS Energy for construction and operation of an electric substation?

    Yes No

14. Is there any other information you would like the project team to know, or take into consideration, when evaluating the project?

    ____

    ____

You may submit this form to the welcome table at the Open House, via mail or email to the following address:

CPS Energy
Daniel Otto
Mail Drop 100311
P.O. Box 1771
San Antonio, TX 78296

Email:
ScenicLoopProject@cpsenergy.com

Please provide your name and contact information below. (Optional)

Name: ______________________

Address: ______________________

City ______________ State ________ Zip ________

Telephone: ______________________

Email: ______________________

CPS ENERGY

Proyecto de subestación y línea de transmisión de Scenic Loop

Cuestionario

Su opinión es importante para nosotros.

Tómese un momento para responder a las siguientes preguntas para que podamos evaluar los comentarios públicos.

1. ¿Asistió a la Casa Abierta del Proyecto de Subestación y Línea de Transmisión de Scenic Loop el jueves 3 de octubre de 2019?

   Si **No**

2. Me explicaron claramente la necesidad del nuevo Proyecto de Subestación y Línea de Transmisión de Scenic Loop.

   Completamente de acuerdo, **de acuerdo,** **Neutral,** **en desacuerdo,** **totalmente en desacuerdo**

3. El equipo del proyecto respondió a sus preguntas sobre el Proyecto de la Subestación y la Línea de Transmisión de Scenic Loop.

   Completamente de acuerdo, **de acuerdo,** **Neutral,** **en desacuerdo,** **totalmente en desacuerdo**

4. Si respondió "En desacuerdo" o "Totalmente en desacuerdo" a la Pregunta 3, ¿le gustaría que alguien del equipo del proyecto se contacte con usted y le comente el proyecto?

   Si **No**

5. Las exhibiciones en la Casa Abierta fueron útiles.

   Completamente de acuerdo, **de acuerdo,** **Neutral,** **en desacuerdo,** **totalmente en desacuerdo**

   Si no está de acuerdo o muy en desacuerdo, comparta sugerencias para mejorar:

   ____

   ____

6. A continuación hay una lista de factores que CPS Energy y sus consultores consideran al identificar y evaluar segmentos alternativos de rutas de líneas de transmisión y sitios de subestaciones. Clasifique sus cinco factores principales a continuación, desde el más importante (1) hasta el menos importante (5).

   _____ Impacto en las residencias
   _____ Proximidad a escuelas, iglesias, cementerios
   _____ Proximidad a parques/áreas recreativas
   _____ Impacto a árboles y otra vegetación
   _____ Proximidad al sitio arqueológico/histórico
   _____ Impacto en bosques/pastizales/humedales
   _____ Carreteras/autopistas paralelas existentes
   _____ Líneas de transmisión existentes paralelas
   _____ Impacto a las empresas
   _____ Impacto a arroyos/llanuras aluviales
   _____ Impacto en especias en peligro de extinción y su hábitat
   _____ Longitud total de la línea
   _____ Costo total de la línea
   _____ Visibilidad de estructuras
   _____ Líneas de propiedad paralelas

7. ¿Qué otros factores considera que deben considerarse al identificar y evaluar segmentos alternativos de líneas de transmisión y sitios de subestaciones?

   ____

   ____

Continuado →

Opción A

Opción B

8. De los dos acabados de postes que se muestran en las imágenes de arribe, ¿cual prefiere?

   Opción A **Opción B** **Sin preferencias**

9. Después de su revisión en la jornada de puertas abiertas o en el sitio web del proyecto, indique cualquier característica que deba agregarse que no haya sido identificada o incluida en el mapa de Uso del Suelo y Restricciones ambientales.

   ____

   ____

10. Identifique cualquier segmento de línea de transmisión o sitio de subestación que sea más preferible para usted. Por favor describa por qué.

   ____

   ____

11. Identifique cualquier segmento alternativo de línea de transmisión o sitio de subestación que le resulte menos preferible. Por favor describa por qué.

   ____

   ____

12. **Por favor marque todo lo que corresponda:**

   ☐ Hay un segmento o segmentos potenciales de transmisión cerca de mi hogar/negocio.

   Lista de segmento (s): ______________________________

   ☐ Un segmento o segmentos de transmisión potenciales cruzan mi propiedad.

   Lista de segmento (s): ______________________________

   ☐ Un sitio potencial de subestación está en o cerca de mi propiedad.

   Sitio de la lista: ______________________________

   ☐ Otro. Por favor especifica ______________________________

13. ¿Eres propietario de una propiedad de 4 – 6 acres cerca de los sitios de subestaciones alternativas actuales que estaría dispuesto a vender a CPS Energy para la construcción y operación de una subestación eléctrica?

   Si **No**

14. ¿Hay alguna otra información que le gustaría que el equipo del proyecto conozca, o tenga en cuenta, al evaluar el proyecto?

   ____

   ____

Puede entregar este formulario a la mesa de bienvenida en esta Casa Abrierta, por correo o correo electrónico a la siguiente dirección:

CPS Energy
Daniel Otto
Mail Drop 100311
P.O. Box 1771
San Antonio, TX 78296

Correo electrónico:
ScenicLoopProject@cpsenergy.com

Proporcione su nombre e información de contacto a continuación. (Opcional)

Nombre: ______________________________

Dirección: ______________________________

Cuidad ______________ Estado ______ Código postal __________

Teléfono: ______________________________

Correo electrónico: ______________________________

Scenic Loop Substation & Transmission Line Project
Frequently Asked Questions

Project Overview

What is the Scenic Loop Substation & Transmission project?
CPS Energy is planning to construct and operate a new electric substation and high-voltage transmission line in the area. A substation is necessary to reduce the high voltage of electricity coming in from a transmission line to a lower voltage that can be distributed directly to end-users in the surrounding area. New transmission lines will be built to connect the new substation to the existing transmission line network.

Why is the substation needed in this area?
The new substation is necessary to support growth in the area and will improve reliability by shortening existing distribution lines serving homes and businesses, which reduces the potential for overloading and outages.

How much land is needed for this new substation?
The new substation will utilize approximately 5 acres.

What is a transmission line?
A transmission line consists of specially-designed steel structures and wires that move electricity long distances at high voltages.

How does electricity get delivered to homes and businesses?
Typically, electricity is generated from remotely located electric power plants (including wind and solar farms) and then travels from those remote generating sources to substations closer to population centers through a system of high-voltage transmission lines. Once at a substation, the electricity is reduced to a voltage level that is appropriate for distribution to customers. Electricity then travels from the substation through the network of distribution lines, supplying electricity to homes and businesses.

When does construction begin?
Construction of the Scenic Loop Substation and Transmission project is anticipated to begin mid 2022 and will last approximately 2 years.

When will crews be working on this project?
Under normal circumstances, work will be performed Monday through Friday, from 8 A.M. – 5 P.M. Weekend work will be performed as needed.

Transmission Line Routes and Substation Sites

Where will the new substation be located?
Several possible substation sites have been identified, as well as multiple transmission routes offering different options for bringing electricity to the substation. In determining the various transmission line route options, CPS Energy and its consultants gather input from the community and federal, state, and local officials and agencies. This input is compiled into an Environmental Assessment Report, which is used to compare and evaluate transmission route and substation site options.

Who selects the final transmission line route and substation site?
The CPS Energy project team evaluates all of the information that has been gathered and compiled regarding the transmission line route and substation site options and presents that data to the PUC, which ultimately approves the transmission line route and associated substation site. In CPS Energy's presentation of the route and substation data to the PUC, it will identify the transmission line route and associated substation site that it believes best addresses the PUC's routing requirements.

Will landowners receive notice of the PUC proceeding?
Yes. All landowners who are crossed by a potential transmission line route or who own a habitable structure within at least 300 feet of the centerline of a potential transmission line route will be mailed a notice from CPS Energy that an application has been filed at the PUC requesting approval to construct and operate the project. CPS Energy will also publish notice of the application filing in the newspaper and update the project website (see the end of this FAQ sheet for the website address for this project) announcing the filing of the application. The notice will include forms for interested persons to provide public comment on the project or to participate in the PUC proceeding.

Can landowners or other interested persons participate in the PUC proceeding?
Yes. Landowners or other persons impacted by a potential transmission line route or substation site may file a public comment regarding the project or request to participate in the PUC proceeding. A person participating in the PUC proceeding is generally referred to as an "intervenor" during the proceeding.

Will the PUC simply approve the route that CPS Energy identifies as best addressing the PUC's routing requirements?
The PUC will independently evaluate CPS Energy's application and consider input from landowners and other interested parties, including the recommendation of the PUC's own staff of experts, and independently determine if the project is needed and, if so, which transmission line route and associated substation site best addresses its routing requirements.

Continued →

Environmental

Will it be necessary to remove trees and other vegetation to construct the project?

Yes, some removal of trees and other vegetation is often required to safely and reliably construct and operate transmission lines and substation sites. CPS Energy works with landowners and communities to responsibly comply with tree preservation requirements and minimize the impact to trees and other vegetation, clearing trees and other vegetation only where necessary to safely and reliably operate the transmission line and substation facilities.

Will the project impact endangered species in the area?

CPS Energy will conduct studies to identify endangered wildlife and plant species in the vicinity of the project and is committed to taking the required efforts to ensure endangered wildlife and plant species are not adversely affected as a result of the construction and operation of the project facilities.

Infrastructure

What will the transmission line pole look like?

CPS Energy prefers to use self-supporting galvanized steel monopoles, however, self-weathering (rustic appearance) steel monopoles will also be considered.

What will the substation look like?

Although substations vary in their appearance, a typical substation may consist of a paved site with electrical equipment mounted on concrete foundations. Most substation sites are open, in that the equipment is not enclosed in a building, but rather is simply mounted on concrete foundations. The substation will be encircled by a chain link fence and other appropriate security measures designed to maintain safe separation between the equipment and the public.

Will the substation or transmission lines create electric and magnetic fields (EMF) for people living nearby?

Substations and transmission lines are designed to operate safely for people living and working nearby and are not anticipated to result in any adverse EMF effects for people near them. For more information on EMF, please visit https://www.niehs.nih.gov/health/topics/agents/emf/index.cfm

Real Property

Will this new substation affect my property value?

Appraisal studies tend to show that the presence of substations do not substantially affect property values in an adverse way.

What rights do landowners have when a utility acquires an approved substation site or the necessary transmission line right of way?

Landowners whose property will be crossed by the approved transmission line route or from whom the land for the substation site will be acquired have very specific rights, which are generally set out in The Texas Landowner Bill of Rights published by the Attorney General of Texas, a copy of which may currently be found at https://www.texasattorneygeneral.gov/sites/default/files/files/divisions/general-oag/LandownersBillofRights.pdf. Interested landowners are encouraged to review that document to become more familiar with their rights under the law.

What is "eminent domain?"

It is the right of a government, or its agent, to acquire private property for public use, with payment of compensation for property acquired.

How will landowners along the chosen transmission route be affected?

CPS Energy will purchase a property right known as an easement for the length of the transmission line from existing property owners. In accordance with the terms of the easement, vegetation growing under the transmission line will be trimmed, and in some cases cleared to allow for the line construction. The easement document will also address issues such as roadways, fencing, access and notice rights, and other matters regarding CPS Energy's construction, operation, and maintenance of the transmission line facilities.

How much does CPS Energy pay for acquiring property rights from landowners?

CPS Energy evaluates property value using industry standard practices and offers land owner fair market value for property rights to be acquired.

Next Steps

What happens after the Open House?

CPS Energy's project team will evaluate all project information, including public input received. The project team will then meet to identify an adequate number of alternative transmission routes and substation sites, including identification of which route and substation site best meet all applicable regulatory criteria. The project team will identify potential transmission line routes and substation sites based on consideration of community values, recreational and park areas, historical and aesthetic values, and environmental integrity.

When will CPS Energy file the CCN Application?

The anticipated date to file the CCN application is April 2020. Updates will be posted on the project webpage. Affected landowners will be notified when the application is filed.

Preguntas frecuentes

Descripción del proyecto

¿Qué es el proyecto Proyecto de Subestación y Línea de Transmisión de Scenic Loop?

CPS Energy planea construir y operar una nueva subestación eléctrica y conectarse a una línea de transmisión de alto voltaje existente en el área. Es necesaria una subestación para reducir el alto voltaje de la electricidad que entra desde una línea de transmisión a un voltaje más bajo que puede distribuirse directamente a los usuarios finales en el área circundante. Se construirán nuevas estructuras de transmisión para conectar la nueva subestación a una línea de transmisión existente.

¿Por qué se necesita la subestación en esta área?

La nueva subestación es necesaria para apoyar el crecimiento en el área y mejorará la confiabilidad al acortar las líneas de distribución existentes que sirven a hogares y negocios, lo que reduce el potencial de sobrecarga y cortes.

¿Cuánta tierra se necesita para esta nueva subestación?

La nueva subestación utilizará aproximadamente de 5 acres.

¿Qué es una línea de transmisión?

Una línea de transmisión consiste en estructuras de acero especialmente diseñadas y cables que transportan electricidad a largas distancias a altos voltajes.

¿Cómo se entrega la electricidad a hogares y empresas?

Por lo general, la electricidad se genera a partir de plantas de energía eléctrica ubicadas de forma remota (incluidos los parques eólicos y solares) y luego viaja desde esas fuentes de generación remotas a subestaciones más cercanas a los centros de población a través de un sistema de líneas de transmisión de alto voltaje. Una vez en una subestación, la electricidad se reduce a un nivel de voltaje apropiado para su distribución a los clientes. Luego, la electricidad viaja desde la subestación a través de la red de líneas de distribución, suministrando electricidad a hogares y empresas.

¿Cuándo comienza la construcción?

Se prevé que la construcción del proyecto de Subestación y Transmisión Scenic Loop comience a mediados de 2022 y durará aproximadamente 2 años.

¿Cuándo trabajarán los equipos en este proyecto?

En circunstancias normales, el trabajo se realizará de lunes a viernes a partir de las 8 a.m. - 5 p.m. El trabajo de fin de semana se realizará según sea necesario.

Rutas de línea de transmisión y sitios de subestaciones

¿Dónde se ubicará la nueva subestación?

Se han identificado varios sitios posibles de subestaciones, así como múltiples rutas de transmisión. Que ofrecen diferentes opciones para llevar electricidad a la subestación. Al determinar las diversas opciones de ruta de la línea de transmisión, CPS Energy y sus consultores recopilan información de la comunidad y los funcionarios y agencias federales, estatales y locales. Esta entrada se compila en un Informe de Evaluación Ambiental, que se utiliza para comparar y evaluar las opciones de ruta de transmisión y sitio de subestación.

¿Quién selecciona la ruta final de la línea de transmisión y el sitio de la subestación?

El equipo del proyecto CPS Energy evalúa toda la información que se ha recopilado y compilado con respecto a la ruta de línea de transmisión y las opciones del sitio de la subestación y presenta esos datos a la Public Utility Commission (PUC, Comisión de Servicios Públicos), que finalmente aprueba la ruta de la línea de transmisión y el sitio de la subestación asociada. En la presentación de CPS Energy de la ruta y los datos de la subestación a la PUC, identificaran la ruta de la línea de transmisión y el sitio de la subestación asociada que creen que mejor responde a los requisitos de ruta de la PUC.

¿Recibirán los propietarios un aviso del proceso de la PUC?

Si. Todos los propietarios que estén cruzados por una ruta potencial de línea de transmisión o que posean una estructura habitable dentro de al menos 300 pies de la linea central de una ruta potencial de línea de transmisión recibirán un aviso de CPS Energy de que se ha presentado una solicitud en la PUC solicitando aprobación para construir y operar el proyecto. CPS Energy también publicará un aviso de presentación de la solicitud en el periódico y actualizará el sitio web del proyecto (consulte el final de esta hoja de preguntas frecuentes para obtener la dirección del sitio web de este proyecto) anunciando la presentación de la solicitud. El aviso incluirá formularios para que las personas interesadas proporcionen comentarios públicos sobre el proyecto o participen en el procedimiento de la PUC.

¿Pueden los propietarios de tierras u otras personas interesadas participar en el proceso de la PUC?

Si. Los propietarios de tierras u otras personas afectadas por una posible ruta de línea de transmisión o sitio de subestación pueden presentar un comentario público sobre el proyecto o solicitar participar en el procedimiento de la PUC. Una persona que participa en el procedimiento de la PUC generalmente se conoce como un "interventor" durante el procedimiento.

¿La PUC simplemente aprobará la ruta que CPS Energy identifica como la mejor para abordar los requisitos de ruta de la PUC?

La PUC evaluará de manera independiente la aplicación de CPS Energy y considerará los aportes de los propietarios de tierras y otras partes interesadas, incluida la recomendación del propio personal de expertos de la PUC, y determinará independientemente si el proyecto es necesario y, de ser así, qué ruta de línea de transmisión y sitio de subestación asociado aborda mejor sus requisitos de enrutamiento.

Ambiental

¿Será necesario eliminar árboles y otra vegetación para construir el proyecto?

Sí, a veces se requiere la eliminación de árboles y otra vegetación para construir y operar líneas de transmisión y sitios de subestación de manera segura y confiable. CPS Energy trabaja con propietarios y comunidades para cumplir de manera responsable con los requisitos de preservación de árboles y minimizar el impacto en los árboles y otra vegetación, limpiando árboles y otra vegetación solo cuando sea necesario para operar de manera segura y confiable la línea de transmisión y las instalaciones de subestación.

Continuado

¿El proyecto afectará a especies en peligro de extinción en el área?
CPS Energy llevará a cabo estudios para identificar especies de plantas y vida silvestre en peligro en las cercanías del proyecto y se compromete a realizar los esfuerzos necesarios para garantizar que las especies de plantas y vida silvestre en peligro no se vean afectadas negativamente como resultado de la construcción y operación de las instalaciones del proyecto.

Infraestructura

¿Cómo será el poste de la línea de transmisión?
CPS Energy prefiere usar monopolos de acero galvanizado autoportantes, sin embargo, también se considerarán los monopolos de acero auto perforados (aspecto rústico).

¿Cómo será la subestación?
Aunque las subestaciones varían en su apariencia, una subestación típica puede consistir en un sitio pavimentado con equipos eléctricos montados sobre cimientos de concreto. La mayoría de los sitios de subestaciones están abiertos, ya que el equipo no está encerrado en un edificio, sino que simplemente está montado sobre cimientos de hormigón. La subestación estará rodeada por una cerca de alambre y otras medidas de seguridad apropiadas diseñadas para mantener una separación segura entre el equipo y el público.

¿Las líneas de subestación o transmisión crearán campos eléctricos y magnéticos (EMF) para las personas que viven cerca?
Las subestaciones y las líneas de transmisión están diseñadas para operar de manera segura para las personas que viven y trabajan cerca y no se anticipa que produzcan ningún efecto EMF adverso para las personas cercanas a ellas. Para obtener más información sobre EMF, visite https://www.niehs.nih.gov/health/topics/agents/emf/index.cfm

Propiedad real

¿Esta nueva subestación afectará el valor de mi propiedad?
Los estudios de evaluación tienden a mostrar que la presencia de subestación no afecta sustancialmente los valores de las propiedades de manera adversa.

¿Qué derechos tienen los propietarios cuando una empresa de servicios públicos adquiere un sitio de subestación aprobado o el derecho de paso de la línea de transmisión necesaria?
Los propietarios de tierras cuya propiedad se cruzará por la ruta aprobada de la línea de transmisión o de quienes se adquirirán los terrenos para el sitio de la subestación tienen derechos muy específicos, que generalmente se establecen en la Declaración de Derechos del Propietario de Tierras de Texas publicada por el Fiscal General de Texas, un copia de la cual se puede encontrar actualmente en https://www.texasattorneygeneral.gov/sites/default/files/files/divisions/general-oag/LandownersBillofRights.pdf. Se alienta a los propietarios interesados a revisar ese documento para familiarizarse con sus derechos bajo la ley.

¿Qué es "dominio eminente"?
Es el derecho de un gobierno, o su agente, adquirir propiedad privada para uso público, con el pago de una compensación por la propiedad adquirida.

¿Cómo serán afectados los propietarios a lo largo de la ruta de transmisión elegida?
CPS Energy comprará un derecho de propiedad conocido como servidumbre por la longitud de la línea de transmisión de los propietarios existentes. De acuerdo con los términos de la servidumbre, la vegetación que crece debajo de la línea de transmisión se cortará y, en algunos casos, se despejará para permitir la construcción de la línea. El documento de servidumbre también abordará cuestiones tales como carreteras, cercas, derechos de acceso y notificación, y otros asuntos relacionados con la construcción, operación y mantenimiento de las instalaciones de la línea de transmisión de CPS Energy.

¿Cuánto paga CPS Energy por adquirir los derechos de propiedad de los propietarios?
CPS Energy evalúa el valor de la propiedad utilizando prácticas estándar de la industria y ofrece al propietario del terreno un valor justo de mercado para los derechos de propiedad que se adquirirán.

Próximos pasos

¿Qué pasa después de la jornada de puertas abiertas?
El equipo del proyecto se reunirá para identificar un número adecuado de rutas de transmisión alternativas y sitios de subestación, incluida la identificación de qué ruta y sitio de subestación cumplen mejor con todos los criterios reglamentarios aplicables. El equipo del proyecto identificará posibles rutas de líneas de transmisión y sitios de subestaciones basándose en la consideración de los valores de la comunidad, las áreas recreativas y de parques, los valores históricos y estéticos y la integridad ambiental.

¿Cuándo CPS Energy presentará la solicitud CCN?
La fecha prevista para presentar la solicitud CCN es abril de 2020. Las actualizaciones se publicarán en la página web del proyecto. Los propietarios afectados serán notificados cuando se presente la solicitud.

Puede seguir el progreso del proyecto en www.cpsenergy.com, busque "Scenic Loop".

Who is CPS Energy?

Established in 1860, we are the nation's largest public power, natural gas and electric company, providing safe, reliable, and competitively-priced service to **840,750** electric and **352,585** natural gas customers in San Antonio and portions of seven adjoining counties. Our customers' combined energy bills rank among the lowest of the nation's 20 largest cities – while generating **$7 billion** in revenue for the City of San Antonio for more than seven decades.

As a trusted and strong Community partner, we continuously focus on job creation, economic development and educational investment. True to our ***People First*** philosophy, we are powered by our skilled workforce, whose commitment to the community is demonstrated through our employees' volunteerism in giving back to our city and programs aimed at bringing value to our customers.

We are among the top public power wind energy buyers in the nation and number one in Texas for solar generation. For more information, visit **cpsenergy.com.**

How can you follow the progress of this project?

The CPS Energy project team will post project information on the CPS Energy website at www.cpsenergy.com. (search: Scenic Loop)

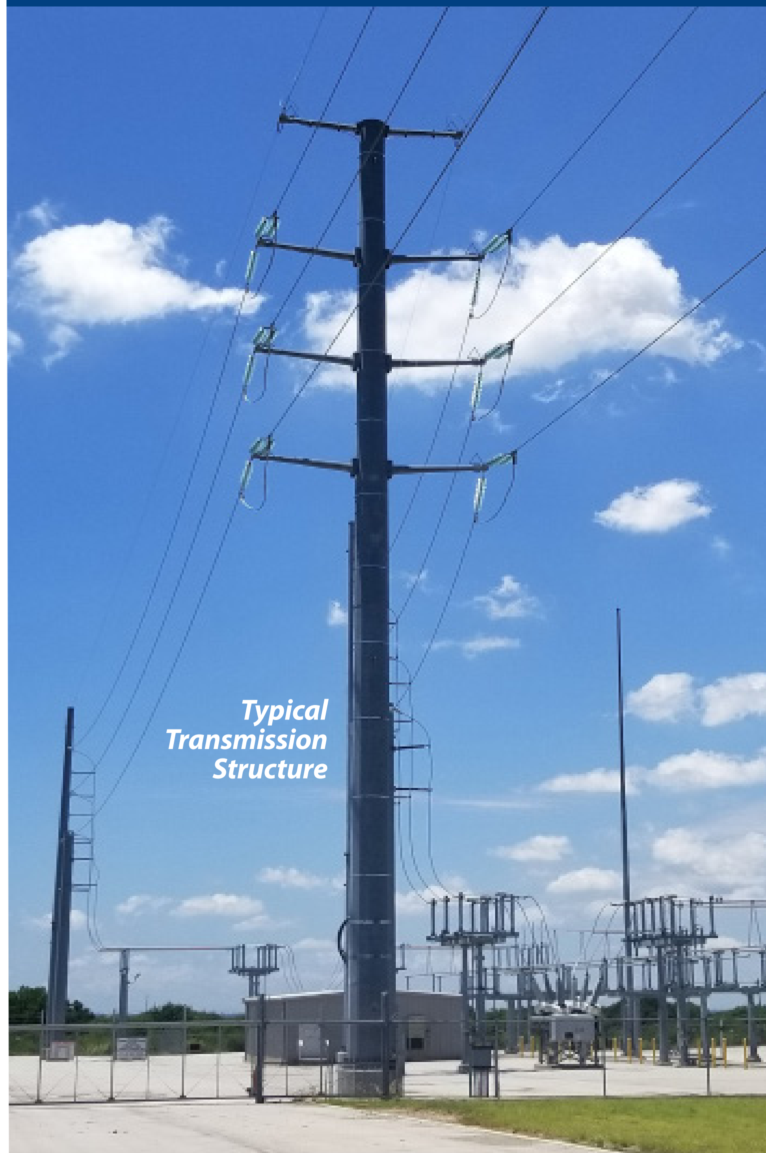
Who can answer your questions?

The website will include regular updates on the project as steps are completed.
Also, you may call, write or e-mail to:

CPS Energy
Daniel Otto, Project Manager
Scenic Loop Substation &
Transmission Line Project

Mail Code 100311
P.O. Box 1771
San Antonio, Texas 78296-1771
(210) 353-4882
scenicloopproject@cpsenergy.com

SCENIC LOOP
SUBSTATION AND TRANSMISSION LINE PROJECT



INFORMATION ABOUT THE SCENIC LOOP SUBSTATION & TRANSMISSION LINE PROJECT

What is the Scenic Loop Substation & Transmission Line Project?

CPS Energy is proposing to construct a new electric substation and high-voltage transmission line in the northwest area of Bexar County.

A substation is a local power hub or distribution point for electricity. This substation will improve reliability and provide additional electric capacity to homes and businesses in the area. The substation will be supplied from a new extension of an existing high-voltage transmission line within the ****Study Area*** map shown.

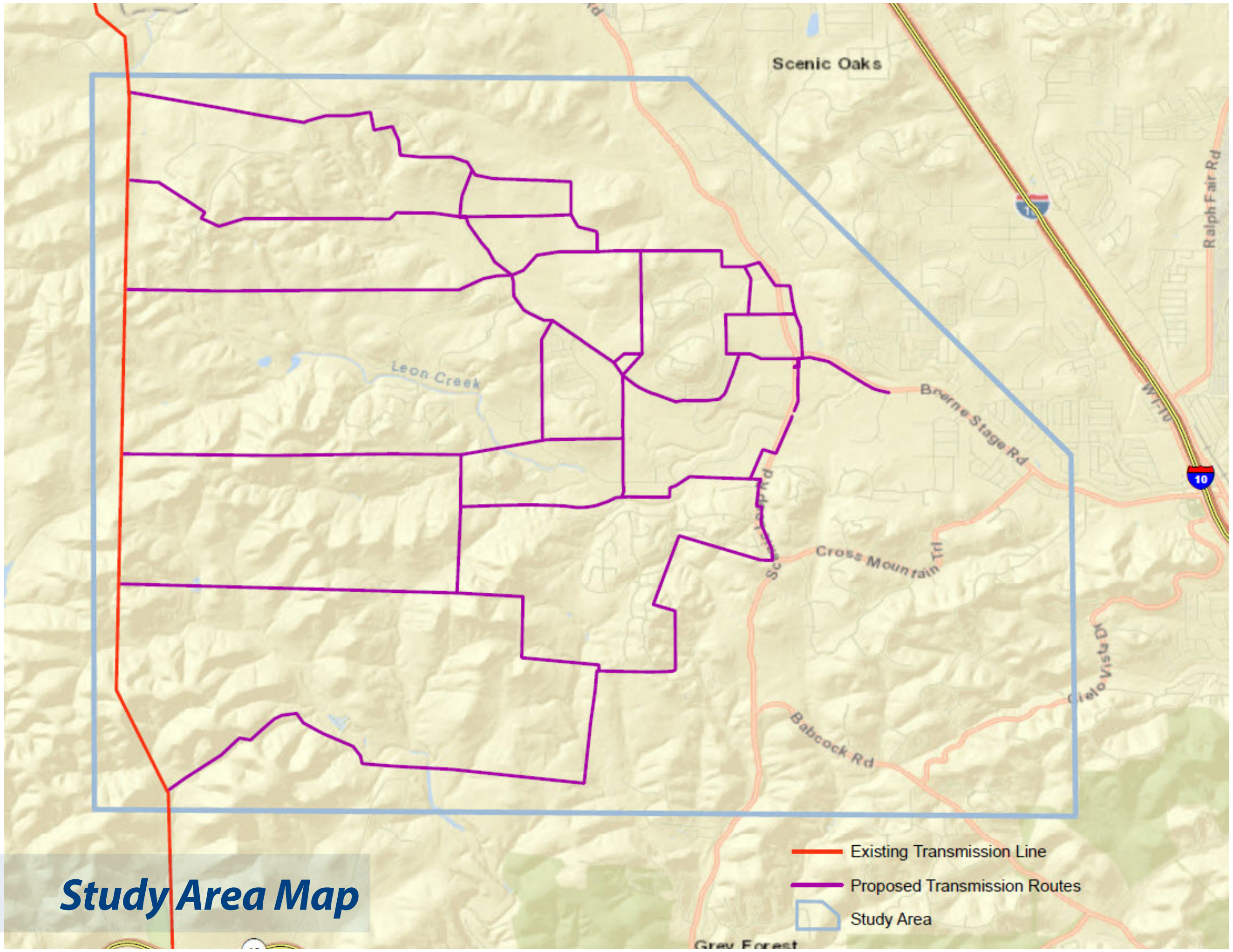
The substation requires approximately 5 acres; the transmission right of way will be approximately 100 feet wide.

How might this project affect you?

CPS Energy is evaluating multiple substation site alternatives and geographically diverse transmission line options for the project. Your input and feedback is important to CPS Energy's evaluation of alternatives.

Why is this project needed?

The new substation will increase reliability of electric service by moving the electricity through additional distribution circuits to meet the increased need for power in your area. It will reduce the likelihood of extended outages and restore power faster, as it will be a strong electric support system for your community.



Study Area Map

**The area identified, based on project need, is known as the "Study Area."*

Typical Substation

¿Quién es CPS Energy?

Establecido en 1860, somos la empresa pública de energía, gas natural y electricidad más grande del país, que brinda servicios seguros, confiables y de precio competitivo a **840,750** clientes de electricidad y **352,585** de gas natural en San Antonio y partes de siete condados contiguos. Las facturas de energía combinadas de nuestros clientes se encuentran entre las más bajas de las 20 ciudades más grandes del país, mientras que generan **$7 mil millones** en ingresos para la Ciudad de San Antonio durante más de siete décadas.

Como un socio de la comunidad de confianza y fuerte, nos centramos continuamente en la creación de empleo, el desarrollo económico y la inversión en educación. Fieles a nuestra filosofía ***People First*** (Gente Primero), somos impulsados por nuestra fuerza laboral calificada. cuyo compromiso con la comunidad se demuestra a través del voluntariado de nuestros empleados al devolver a nuestra ciudad y los programas destinados a brindar valor a nuestros clientes.

Estamos entre los principales compradores de energía eólica de energía pública en la nación y el número uno en Texas para la generación solar. Para obtener más información, visite **cpsenergy.com.**

¿Cómo se puede seguir el progreso de este proyecto?

El equipo del proyecto de CPS Energy publicará la información del proyecto en el sitio web de CPS Energy en www.cpsenergy.com. (buscar: Scenic Loop)

¿Quién puede responder a sus preguntas?

El sitio web incluirá actualizaciones periódicas del proyecto a medida que se completen los pasos. Además, puede llamar, escribir o enviar un correo electrónico a:

CPS Energy

Daniel Otto, Gerente de Proyecto
Proyecto de línea de transmisión de Scenic Loop

Mail Code 100311
P.O. Box 1771
San Antonio, Texas 78296-1771
(210) 353-4882
scenicloopproject@cpsenergy.com

CPS ENERGY

CPS ENERGY

PROYECTO DE SUBESTACÍON Y LÍNEA DE TRANSMISIÓN

SCENIC LOOP

Típica Estructura de línea de Transmisión

INFORMACIÓN SOBRE EL PROYECTO DE SUBESTACIÓN Y LÍNEA DE TRANSMISIÓN SCENIC LOOP

¿Qué es el proyecto de subestación y línea de transmision Scenic Loop?

CPS Energy está proponiendo construir una nueva subestación eléctrica y una línea de transmisión de alto voltaje en el área noroeste del condado de Bexar.

Una subestación es un centro de energía o punto de distribución local de electricidad. Esta subestación mejorará la fiabilidad y proporcionará capacidad eléctrica adicional a los hogares y negocios de la zona.

La subestación se suministrará desde una nueva extensión de una línea de transmisión de alto voltaje existente en el ***mapa del área de estudio** que se muestra

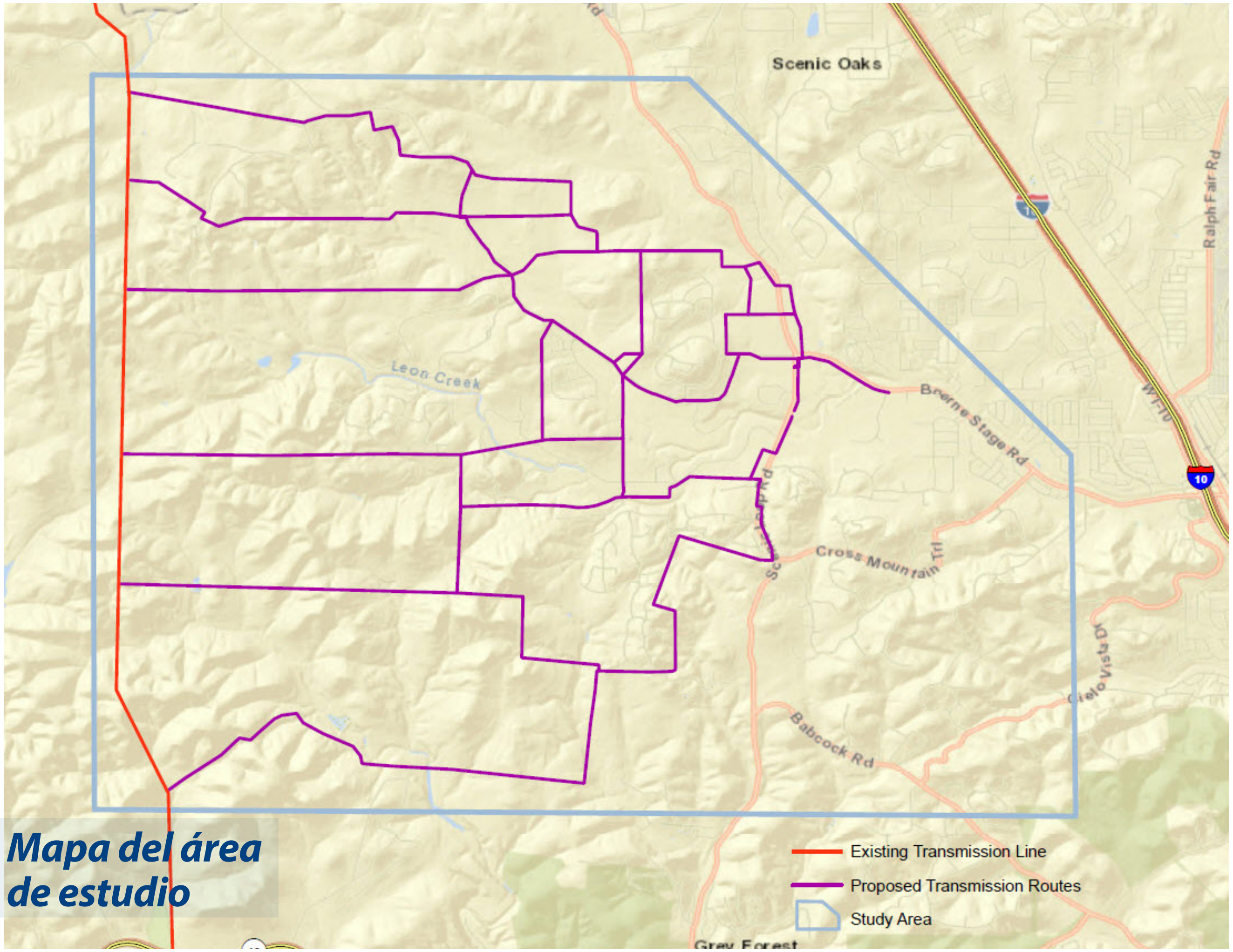
La subestación requiere aproximadamente 5 acres; el derecho de via de la línea de transmisión será de aproximadamente 100 pies de ancho.

¿Cómo podría afectarle este proyecto?

CPS Energy está evaluando múltiple alternativas de sitio para la subestación y opciones de líneas de transmisión geográficamente diversas para el proyecto. Su aporte y comentarios son importantes para la evaluación de alternativas.

¿Por qué se necesita este proyecto?

La nueva subestación aumentará la confiabilidad del servicio eléctrico al mover la electricidad a través de circuitos adicionales para satisfacer la demanda creciente de energía en su área.
Reducirá la probabilidad de interrupciones prolongadas y restablecerá la energía más rápido, ya que será un fuerte sistema de soporte eléctrico para su comunidad.



**El área identificada, según la necesidad del proyecto, se conoce como el "Área de estudio."*

Una Subestación típica

SYSTEM PLANNING GROWTH & RELIABILITY

Neighborhood & Multi-Family

Electric Vehicles

Single-Family Residential

Small Commercial

cps ENERGY

SCOPE, PURPOSE & NEED

SCOPE:

The scope of the proposed project involves constructing a new substation in the northwest part of Bexar County in the area west of IH10 and outside Loop 1604 along Scenic Loop. In order to connect the new substation to the existing electric grid, CPS Energy proposes to install a new transmission line that will connect the new substation to the existing Ranchtown to LCRA Menger Creek transmission line located to the west of the potential substation sites.

PURPOSE & NEED:

The new substation is needed to meet an increasing demand for electricity in the area from residential and commercial customers. The new substation will allow CPS Energy to maintain and improve the area's electrical reliability in order to reduce potential customer electric outages now and into the future.

cps ENERGY®

SYSTEM PLANNING INFRASTRUCTURE SOLUTIONS

Distribution Lines

Transmission Lines

Smart Devices

Substations

CPS ENERGY®

ROUTING AND SITING PROCESS HIGHLIGHTS

DETERMINE A NEED FOR THE PROJECT

- By utility planners and engineers

DEFINE THE STUDY AREA

GATHER DATA, IDENTIFY CONSTRAINTS, PROPOSE PRELIMINARY ALTERNATIVE ROUTE SEGMENTS

- Obtain aerial photos of the study area
- Gather property boundary information
- Identify environmental/land-use constraints and opportunities
- Send letters to federal, state and local agencies requesting information about the study area
- Gather information regarding natural, cultural and human resources
- Assess easement/right-of-way features/concerns
- Evaluate alternative transmission structures

INVITE PUBLIC INVOLVEMENT

- Notify landowners and interested parties
- Advertise open house in newspapers
- Hold open house to explain the project and solicit input on preliminary alternative segments
- Respond to inquiries
- Modify or add segments, substation locations, or other transmission facilities, if appropriate, based upon public input received

PREPARE ENVIRONMENTAL ASSESSMENT REPORT INCLUDING EVALUATION OF PUBLIC AND AGENCY INPUT

SUBMIT CCN APPLICATION FOR PUC APPROVAL

- Project is outside the San Antonio city limits and will need to follow PUC process

CPS ENERGY®

CCN APPLICATION PROCESS HIGHLIGHTS

APPLICATION & NOTIFICATION

- Submit Application to the Public Utility Commission of Texas (PUC) to Amend CPS Energy's Certificate of Convenience and Necessity (CCN)
- Send notice to:
  - Landowners whose property may be crossed
  - Landowners who own habitable structures within 300' of the centerline of a segment of the proposed transmission line
  - Texas Parks & Wildlife Department
  - Department of Defense
  - Municipalities within 5 miles
  - Electric Utilities within 5 miles

PUC PUBLIC PARTICIPATION

- People potentially impacted have 45 days from the date of the application to amend the CCN to file a request to participate (intervene)
- If no parties intervene, the PUC staff conduct a review and issue a recommendation.
- If parties intervene, testimony may be filed, and an administrative hearing is held. After the hearings, an administrative law judge will prepare a recommendation to the PUC. The judge will consider the following when making a ruling:
  - Environmental, land use, engineering, cost and feasibility

PUC DECISION

- The PUC will consider the administrative law judge's recommendation and, within 12 months of the application filing, either approve the application, deny the application, or approve the application with modifications
- CPS Energy is allowed only approved to build the substation and transmission line using the site and route chosen by the PUC, with minor modifications/deviations allowed under some circumstances

CPS ENERGY®

ANTICIPATED SCENIC LOOP TIMELINE

Gather information and land use data
In progress

Hold Open House
October 3, 2019

Complete Environmental Analysis
February 2020

Present project update to CPS Energy Board of Trustees
March 2020

Submit CCN application to The Public Utility Commission (PUC) of Texas Notify landowners and interested parties
April 2020

Receive Ruling from the PUC of selected route
April 2021

Receive approval to proceed from CPS Energy Board of Trustees
May 2021

Anticipated construction start date
June 2022

Anticipated construction completion date
January 2024

CPS ENERGY®

TYPICAL SUBSTATIONS

SUBSTATION FACTS

EXISTING SUBSTATIONS

- As of 2019, there are approximately 100 existing substations in the CPS Energy service area.
- Substations operate on either 345 kilovolts (kV) or 138 kV transmission voltages and either 34.5 kV or 13.2 kV distribution voltages.

NEW SUBSTATIONS

- The general location for a substation is determined by the demand for electricity in that area.
- A substation site must have access to public roadway.
- A substation site must have access to transmission and distribution lines.
- Site conditions for a substation are:
  - Location –not located in a floodplain
  - Size –approx. 5 acres
  - Terrain –relatively flat
  - Soil –natural soil, void of fill and waste

CPS ENERGY®

TYPICAL TRANSMISSION TOWERS

Galvanized Steel Pole

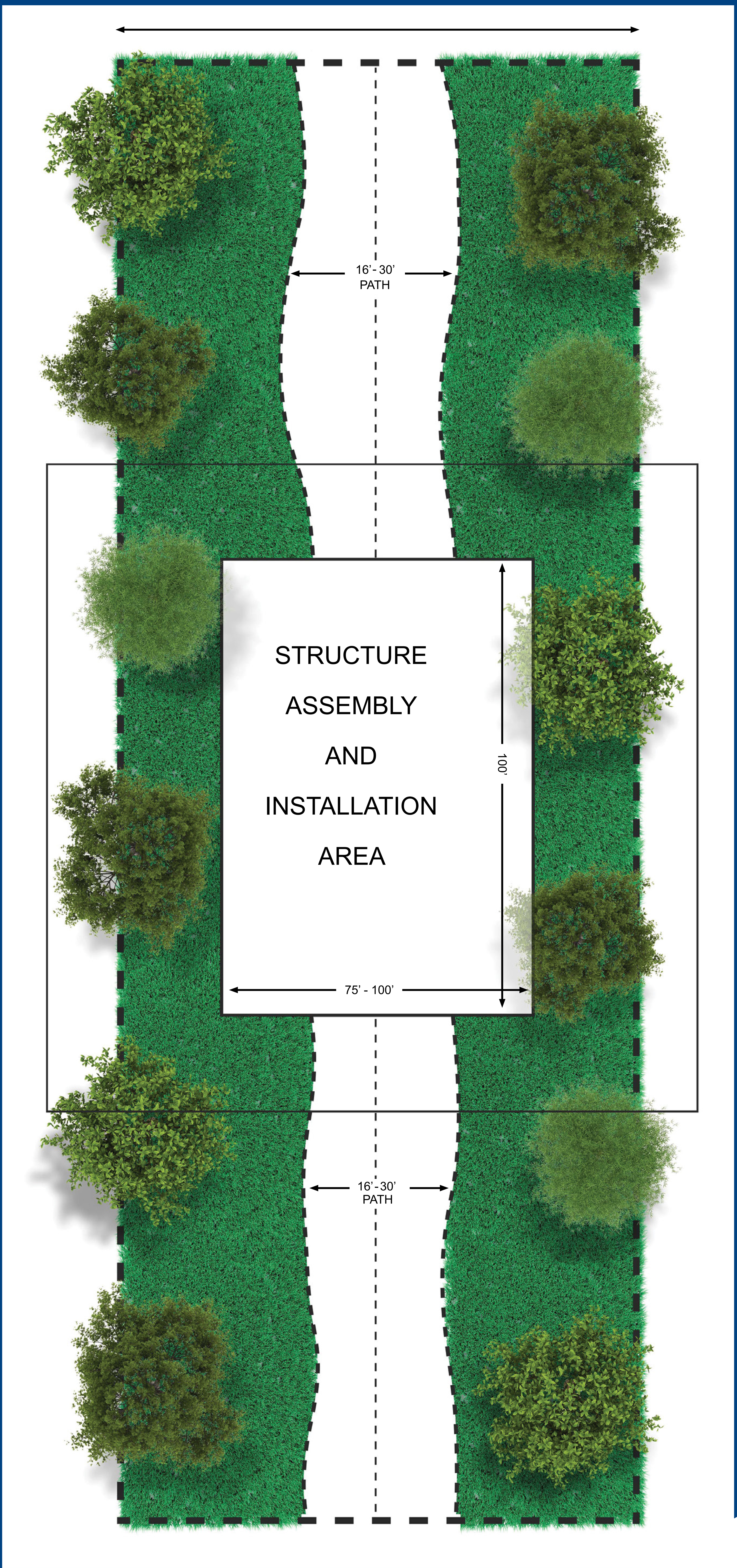
Self-Weatherizing Steel Pole

TYPICAL TRANSMISSION EASEMENTS

100 ft. clearing around transmission poles

16-30 ft. clearing along route

SAMPLE EASEMENT CLEARING



ACQUISITION

MAIL "BILL OF RIGHTS" LETTER TO AFFECTED LANDOWNERS

CONTACT PROPERTY OWNER

OBTAIN PERMISSION TO CONDUCT SURVEY(S)

SURVEY ESTABLISHES BOUNDARIES OF SUBSTATION/EASEMENT

(Simultaneously perform environmental / cultural surveys)

SUBSTATION/EASEMENT AREA IS DEFINED/DESCRIBED BY REGISTERED PROFESSIONAL LAND SURVEYOR

VALUE OF SUBSTATION/EASEMENT ESTABLISHED BY AN INDEPENDENT APPRAISER

NEGOTIATE WITH PROPERTY OWNER FOR SUBSTATION SITE/EASEMENT OR RIGHT-OF-WAY FOR UTILITY USE

CPS ENERGY®

LAND USE CRITERIA

LAND USE

Length of primary alternative route (miles)
Number of habitable structures[1] within 300 feet of the right-of-way (ROW) centerline
Length of ROW using existing transmission line ROW[2]
Length of ROW parallel and adjacent to existing transmission line ROW
Length of ROW parallel and adjacent to other existing ROW (roads, highways, utilities, etc.)
Length of ROW parallel and adjacent to apparent property lines[3]
Length of ROW across parks/recreational areas[4]
Number of additional parks/recreational areas[4] within 1,000 feet of the ROW centerline
Length of ROW across cropland
Length of ROW across pasture/rangeland
Length of ROW across land irrigated by traveling systems (rolling or pivot type)
Length of ROW across conservation easements and/or mitigation banks
Length of ROW across gravel pits, mines, or quarries
Length of ROW parallel and adjacent to pipelines
Number of pipeline crossings
Number of transmission line crossings
Number of IH, US, and state highway crossings
Number of farm-to-market (FM) or ranch-to-market (RM) road crossings
Number of cemeteries within 1,000 feet of the ROW centerline
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 the ROW centerline
Number of FAA registered public/military airports[5] having no runway more than 3,200 feet in length located within 10,000 feet of the ROW centerline
Number of private airstrips within 10,000 feet of the ROW centerline
Number of heliports within 5,000 feet of the ROW centerline
Number of commercial AM radio transmitters within 10,000 feet of the ROW centerline
Number of FM radio transmitters, microwave towers, and other electronic installations within 2,000 feet of the ROW centerline
Number of existing water wells within 200 feet of the ROW centerline
Number of oil and gas wells within 200 feet of the ROW centerline (including dry or plugged wells)

AESTHETICS

Estimated length of ROW within foreground visual zone[6] of IH, US and state highways
Estimated length of ROW within foreground visual zone[6] of FM/RM roads
Estimated length of ROW within foreground visual zone[6,7] of park/recreational areas[4]

ECOLOGY

Length of ROW across upland woodlands/brushland
Length of ROW across bottomland/riparian woodlands
Length of ROW across National Wetlands Inventory (NWI) mapped forested or scrub/shrub wetlands
Length of ROW across NWI mapped emergent wetlands
Length of ROW across known habitat of federally listed endangered or threatened species
Length of ROW across open water (lakes, ponds)
Number of stream and river crossings
Length of ROW parallel (within 100 feet) to streams or rivers
Length of ROW across Edwards Aquifer Recharge Zone
Length of ROW across FEMA mapped 100-year floodplain

CULTURAL RESOURCES

Number of recorded historic or prehistoric sites crossed by ROW
Number of additional recorded historic or prehistoric sites within 1,000 feet of ROW centerline
Number of National Register listed or determined eligible sites crossed by ROW
Number of additional National Register listed or determined eligible sites within 1,000 feet of ROW centerline
Length of ROW through areas of high archaeological/historic site potential

[1] Single-family and multi-family dwelling, 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 300 feet of the centerline of a transmission project of 230kV or less.[2] Includes instances of proposed double-circuiting or overbuilding existing transmission or distribution lines.[3] 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.[4] 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.[5] As listed in the Chart Supplement South Central US (FAA 2019b formerly known as the Airport/Facility Directory South Central US), FAA 2019a.[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.

CPS ENERGY®

LOCAL, STATE & FEDERAL AGENCIES CONTACTED/NOTIFIED

LOCAL

- Alamo Area Council of Governments
- Alamo Soil and Water Conservation District
- Bexar County Economic Development
- Bexar County Flood Control
- Bexar County Judge, Manager, and Commissioners
- Bexar County Historical Commission
- City of Fair Oaks Ranch
- City of Grey Forest
- City of San Antonio Officials
- Edwards Aquifer Authority
- San Antonio River Authority
- San Antonio World Heritage Office
- Northside ISD
- Texas Agricultural Land Trust
- Texas Cave Management Association
- Texas Land Conservancy
- Texas Land Trust Council
- The Nature Conservancy

STATE

- Railroad Commission of Texas
- Texas Commission on Environmental Quality
- Texas Department of Transportation
    - Aviation Division
    - Environmental Affairs Division
    - Planning and Programming
    - San Antonio District Engineer
- Texas General Land Office
- Texas Historical Commission
- Texas House of Representatives
- Texas Parks & Wildlife Department
- Texas State Senate
- Texas Water Development Board

FEDERAL

- Federal Aviation Administration
- Federal Emergency Management Agency
- Natural Resources Conservation Service
- U.S. Army Corps of Engineers
- U.S. Department of Defense Siting Clearinghouse
- U.S. House of Representatives
- U.S. Environmental Protection Agency
- U.S. Fish & Wildlife Service
- U.S. National Parks Service

CPS ENERGY®

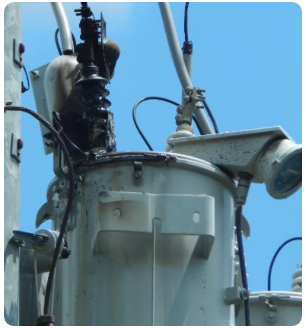
ENDANGERED SPECIES & HISTORIC FEATURES

Archaeological and Historical Resources -
The Von Plehwe Homestead in Leon Springs

Golden-cheeked warbler

Karst invertebrates

SYSTEM RELIABILITY



Failed equipment

Trees & Animals

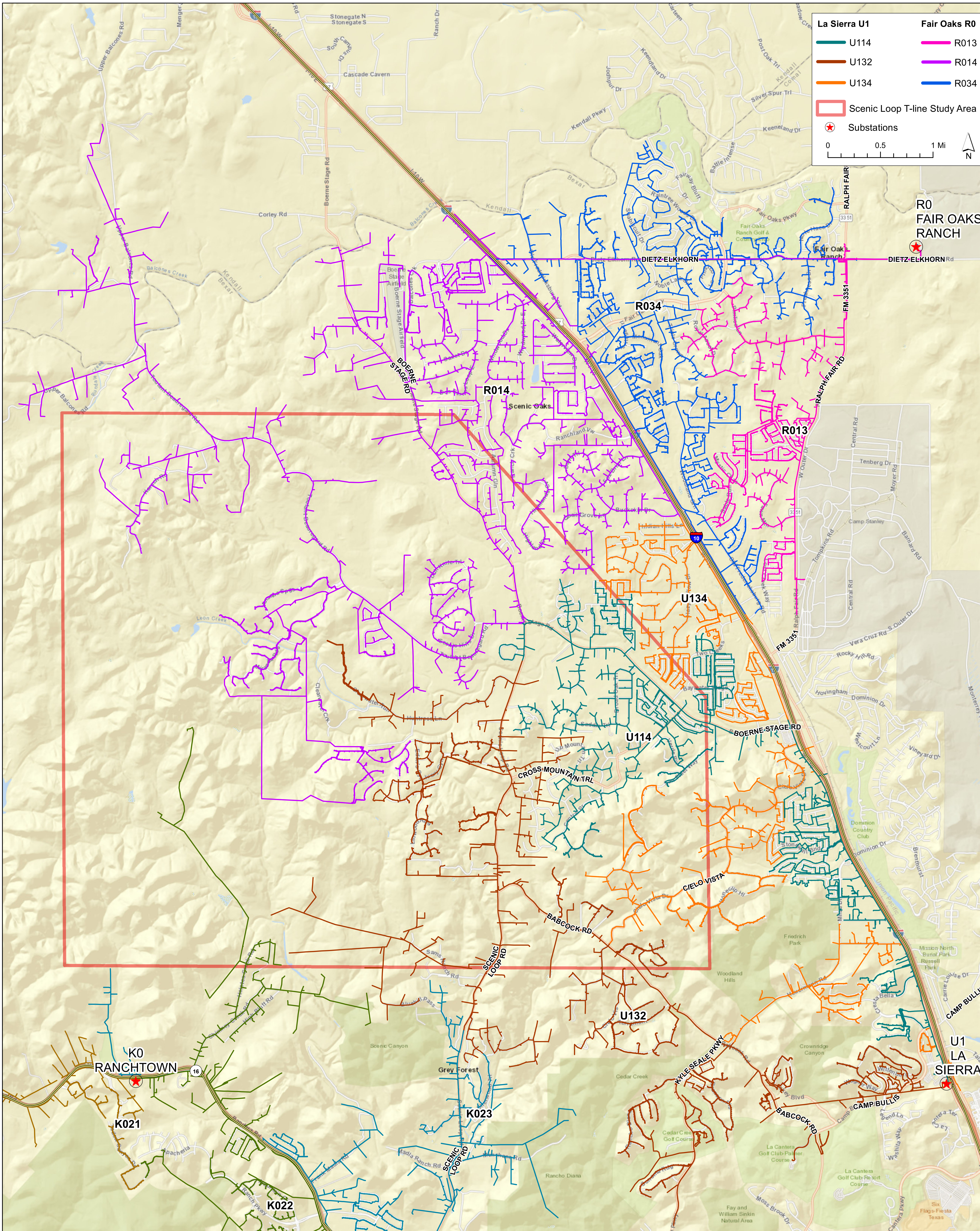
Lightning Storms

Car hit pole

PROPOSED VEGETATIVE SCREENING OR WALL

CPS ENERGY

Distribution Circuit



Produced by Ellyn Bowers | GIS Services | August 2019

Appendix C

Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Routes

This page left blank intentionally.

Table 4-6 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route A

Segment Combinations: Sub 1 – 13-14-54-17-28-29-40

Map Number	Structure or Feature	Approximate Distance from Route Centerline[1] (feet)	Nearest Alternative Route Segment[2]
1	Single Family Residence	267	40
2	Single Family Residence	220	40
3	Single Family Residence	141	40
4	Single Family Residence	194	40
5	Single Family Residence	128	40
6	Single Family Residence	187	40
7	Single Family Residence	290	40
9	Single Family Residence	167	29
10	Single Family Residence	197	29
13	Single Family Residence	164	29
23	Single Family Residence	191	17
24	Single Family Residence	94	17
25	Single Family Residence	97	17
26	Single Family Residence	84	17
27	Single Family Residence	70	17
28	Single Family Residence	147	17
29	Single Family Residence	170	17
30	Single Family Residence	238	17
31	Single Family Residence	273	17
32	Single Family Residence	233	17
33	Single Family Residence	195	17
34	Single Family Residence	189	17
35	Single Family Residence	189	17
36	Single Family Residence	142	17
37	Single Family Residence	146	17
38	Single Family Residence	152	17
39	Single Family Residence	235	17
40	Single Family Residence	297	17
41	Single Family Residence	158	17
42	Single Family Residence	305	17
59	Single Family Residence	227	13
60	Single Family Residence	263	13
61	Single Family Residence	285	13
62	Single Family Residence	241	13
63	Single Family Residence	190	13
64	Single Family Residence	144	13
65	Single Family Residence	104	13
66	Single Family Residence	187	13
67	Single Family Residence	148	13

Table 4-6 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route A

Segment Combinations: Sub 1 – 13-14-54-17-28-29-40			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline[1] (feet)**	**Nearest Alternative Route Segment[2]**
68	Single Family Residence	304	13
69	Single Family Residence	208	14
70	Single Family Residence	206	14
71	Single Family Residence	251	14
72	Single Family Residence	204	14
73	Single Family Residence	244	14
74	Single Family Residence	228	14
75	Single Family Residence	230	14
76	Single Family Residence	260	14
77	Single Family Residence	267	14
78	Single Family Residence	169	14
79	Single Family Residence	215	54
80	Single Family Residence	202	54
81	Single Family Residence	82	54
82	Single Family Residence	251	54
83	Single Family Residence	207	54
84	Single Family Residence	214	54
85	Single Family Residence	158	54
86	Single Family Residence	162	54
87	Single Family Residence	300	54
88	Single Family Residence	122	54
89	Single Family Residence	134	54
90	Single Family Residence	284	54
91	Single Family Residence	223	54
92	Single Family Residence	264	54
93	Single Family Residence	200	54
94	Single Family Residence	224	54
95	Single Family Residence	279	54
178	Single Family Residence	213	54
186	Single Family Residence	288	40
301	Boerne Stage Field	7,210	29
--	Boerne Stage Maverick-Altgelt Ranch and Fenstermaker-Fromme Farm National Register Historic District	50	28

[1] Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

[2] Nearest Alternate Route Segment to sensitive cultural resource sites are not provided for protection of the sites.

Table 4-7 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route B

Segment Combinations: Sub 1 – 13-14-54-17-31-42-48-46			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline[1] (feet)**	**Nearest Alternative Route Segment[2]**
15	Single Family Residence	174	46
16	Single Family Residence	162	46
19	Single Family Residence	274	31
20	Single Family Residence	296	31
23	Single Family Residence	191	17
24	Single Family Residence	94	17
25	Single Family Residence	97	17
26	Single Family Residence	84	17
27	Single Family Residence	70	17
28	Single Family Residence	147	17
29	Single Family Residence	170	17
30	Single Family Residence	238	17
31	Single Family Residence	273	17
32	Single Family Residence	233	17
33	Single Family Residence	195	17
34	Single Family Residence	189	17
35	Single Family Residence	189	17
36	Single Family Residence	142	17
37	Single Family Residence	146	17
38	Single Family Residence	152	17
39	Single Family Residence	235	17
40	Single Family Residence	297	17
41	Single Family Residence	158	17
42	Single Family Residence	305	17
59	Single Family Residence	227	13
60	Single Family Residence	263	13
61	Single Family Residence	285	13
62	Single Family Residence	241	13
63	Single Family Residence	190	13
64	Single Family Residence	144	13
65	Single Family Residence	104	13
66	Single Family Residence	187	13
67	Single Family Residence	148	13
68	Single Family Residence	304	13
69	Single Family Residence	208	14
70	Single Family Residence	206	14
71	Single Family Residence	251	14
72	Single Family Residence	204	14
73	Single Family Residence	244	14

Table 4-7 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route B

Segment Combinations: Sub 1 – 13-14-54-17-31-42-48-46			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline¹ (feet)**	**Nearest Alternative Route Segment²**
74	Single Family Residence	228	14
75	Single Family Residence	230	14
76	Single Family Residence	260	14
77	Single Family Residence	267	14
78	Single Family Residence	169	14
79	Single Family Residence	215	54
80	Single Family Residence	202	54
81	Single Family Residence	82	54
82	Single Family Residence	251	54
83	Single Family Residence	207	54
84	Single Family Residence	214	54
85	Single Family Residence	158	54
86	Single Family Residence	162	54
87	Single Family Residence	300	54
88	Single Family Residence	122	54
89	Single Family Residence	134	54
90	Single Family Residence	284	54
91	Single Family Residence	223	54
92	Single Family Residence	264	54
93	Single Family Residence	200	54
94	Single Family Residence	224	54
95	Single Family Residence	279	54
178	Single Family Residence	213	54
301	Boerne Stage Field	9,494	17
701	Heidemann Cemetery	593	36
901	Heidemann Ranch Historic District	50	31
--	Boerne Stage Maverick-Altgelt Ranch and Fenstermaker-Fromme Farm National Register Historic District	50	17
--	41BX1923	329	--
--	41BX1924	86	--

[1] Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

[2] Nearest Alternate Route Segment to sensitive cultural resource sites are not provided for protection of the sites.

Table 4-8 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route C

Segment Combinations: Sub 1 – 2-3-4-5-14-54-20-36-35-34-41-46			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline[1] (feet)**	**Nearest Alternative Route Segment[2]**
15	Single Family Residence	174	46
16	Single Family Residence	162	46
17	Commercial	214	35
18	Single Family Residence	162	35
51	Single Family Residence	194	2
52	Single Family Residence	307	2
53	Single Family Residence	137	2
55	Commercial	304	4
58	Single Family Residence	229	5
67	Single Family Residence	148	13
69	Single Family Residence	208	14
70	Single Family Residence	206	14
71	Single Family Residence	251	14
72	Single Family Residence	204	14
73	Single Family Residence	244	14
74	Single Family Residence	228	14
75	Single Family Residence	230	14
76	Single Family Residence	260	14
77	Single Family Residence	267	14
78	Single Family Residence	169	14
79	Single Family Residence	215	54
80	Single Family Residence	202	54
81	Single Family Residence	82	54
82	Single Family Residence	251	54
83	Single Family Residence	207	54
84	Single Family Residence	214	54
85	Single Family Residence	158	54
86	Single Family Residence	162	54
87	Single Family Residence	300	54
88	Single Family Residence	122	54
89	Single Family Residence	134	54
90	Single Family Residence	284	54
91	Single Family Residence	223	54
92	Single Family Residence	264	54
93	Single Family Residence	200	54
94	Single Family Residence	224	54
95	Single Family Residence	279	54
96	Single Family Residence	280	20
97	Single Family Residence	195	20

Table 4-8 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route C

Segment Combinations: Sub 1 – 2-3-4-5-14-54-20-36-35-34-41-46			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline[1] (feet)**	**Nearest Alternative Route Segment[2]**
98	Single Family Residence	241	20
99	Single Family Residence	241	20
100	Single Family Residence	244	20
101	Single Family Residence	265	20
102	Single Family Residence	266	20
103	Single Family Residence	263	20
104	Single Family Residence	211	20
105	Single Family Residence	134	32
178	Single Family Residence	213	54
301	Boerne Stage Field	9,429	34
501	CellTex Site Services, Ltd.	279	32
701	Heidemann Cemetery	593	36
901	Heidemann Ranch Historic District	50	35
--	41BX1923	266	--
--	41BX1924	150	--

[1] Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

[2] Nearest Alternate Route Segment to sensitive cultural resource sites are not provided for protection of the sites.

Table 4-9 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route D

Segment Combinations: Sub 2 – 4-5-14-54-20-36-42-48-46			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline[1] (feet)**	**Nearest Alternative Route Segment[2]**
15	Single Family Residence	174	46
16	Single Family Residence	162	46
55	Commercial	304	4
58	Single Family Residence	229	5
67	Single Family Residence	148	13
69	Single Family Residence	208	14
70	Single Family Residence	206	14
71	Single Family Residence	251	14
72	Single Family Residence	204	14
73	Single Family Residence	244	14
74	Single Family Residence	228	14
75	Single Family Residence	230	14
76	Single Family Residence	260	14
77	Single Family Residence	267	14
78	Single Family Residence	169	14
79	Single Family Residence	215	54
80	Single Family Residence	202	54
81	Single Family Residence	82	54
82	Single Family Residence	251	54
83	Single Family Residence	207	54
84	Single Family Residence	214	54
85	Single Family Residence	158	54
86	Single Family Residence	162	54
87	Single Family Residence	300	54
88	Single Family Residence	122	54
89	Single Family Residence	134	54
90	Single Family Residence	284	54
91	Single Family Residence	223	54
92	Single Family Residence	264	54
93	Single Family Residence	200	54
94	Single Family Residence	224	54
95	Single Family Residence	279	54
96	Single Family Residence	280	20
97	Single Family Residence	195	20
98	Single Family Residence	241	20
99	Single Family Residence	241	20
100	Single Family Residence	244	20
101	Single Family Residence	265	20
102	Single Family Residence	266	20

Table 4-9 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route D

Segment Combinations: Sub 2 – 4-5-14-54-20-36-42-48-46			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline¹ (feet)**	**Nearest Alternative Route Segment²**
103	Single Family Residence	263	20
104	Single Family Residence	211	20
105	Single Family Residence	134	32
178	Single Family Residence	213	54
301	Boerne Stage Field	10,720	42
501	CellTex Site Services, Ltd.	279	32
701	Heidemann Cemetery	593	36
901	Heidemann Ranch Historic District	50	35
--	41BX1923	329	--
--	41BX1924	86	--

[1] Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

[2] Nearest Alternate Route Segment to sensitive cultural resource sites are not provided for protection of the sites.

Table 4-10 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route E

Segment Combinations: Sub 2 – 4-5-14-54-17-28-30-34-33-40			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline[1] (feet)**	**Nearest Alternative Route Segment[2]**
1	Single Family Residence	267	40
2	Single Family Residence	220	40
3	Single Family Residence	141	40
4	Single Family Residence	194	40
5	Single Family Residence	128	40
6	Single Family Residence	187	40
7	Single Family Residence	290	40
14	Single Family Residence	238	30
23	Single Family Residence	191	17
24	Single Family Residence	94	17
25	Single Family Residence	97	17
26	Single Family Residence	84	17
27	Single Family Residence	70	17
28	Single Family Residence	147	17
29	Single Family Residence	170	17
30	Single Family Residence	238	17
31	Single Family Residence	273	17
32	Single Family Residence	233	17
33	Single Family Residence	195	17
34	Single Family Residence	189	17
35	Single Family Residence	189	17
36	Single Family Residence	142	17
37	Single Family Residence	146	17
38	Single Family Residence	152	17
39	Single Family Residence	235	17
40	Single Family Residence	297	17
41	Single Family Residence	158	17
42	Single Family Residence	305	17
55	Commercial	304	4
58	Single Family Residence	229	5
67	Single Family Residence	148	13
69	Single Family Residence	208	14
70	Single Family Residence	206	14
71	Single Family Residence	251	14
72	Single Family Residence	204	14
73	Single Family Residence	244	14
74	Single Family Residence	228	14
75	Single Family Residence	230	14
76	Single Family Residence	260	14

Table 4-10 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route E

Segment Combinations: Sub 2 – 4-5-14-54-17-28-30-34-33-40			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline[1] (feet)**	**Nearest Alternative Route Segment[2]**
77	Single Family Residence	267	14
78	Single Family Residence	169	14
79	Single Family Residence	215	54
80	Single Family Residence	202	54
81	Single Family Residence	82	54
82	Single Family Residence	251	54
83	Single Family Residence	207	54
84	Single Family Residence	214	54
85	Single Family Residence	158	54
86	Single Family Residence	162	54
87	Single Family Residence	300	54
88	Single Family Residence	122	54
89	Single Family Residence	134	54
90	Single Family Residence	284	54
91	Single Family Residence	223	54
92	Single Family Residence	264	54
93	Single Family Residence	200	54
94	Single Family Residence	224	54
95	Single Family Residence	279	54
178	Single Family Residence	213	54
186	Single Family Residence	288	40
301	Boerne Stage Field	7,677	40
--	Boerne Stage Maverick-Altgelt Ranch and Fenstermaker-Fromme Farm National Register Historic District	50	28
--	41BX1923	814	--
--	41BX1924	817	--

[1] Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

[2] Nearest Alternate Route Segment to sensitive cultural resource sites are not provided for protection of the sites.

Table 4-11 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route F

Segment Combinations: Sub 2 – 7-8-50-15-26-38-43			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline[1] (feet)**	**Nearest Alternative Route Segment[2]**
57	Single Family Residence	267	7
134	Single Family Residence	218	43
139	Single Family Residence	283	8
140	Single Family Residence	171	8
141	Single Family Residence	193	8
142	Single Family Residence	304	8
143	Single Family Residence	222	15
146	Single Family Residence	155	15
147	Single Family Residence	208	15
301	Boerne Stage Field	15,279	7
702	Huntress Lane Cemetery	128	15
902	R.L. White Ranch Historic District	0	43
--	41BX75	0	--
--	41BX76	163	--
--	41BX77	172	--
--	41BX78	50	--
--	41BX80	627	--
--	41BX81	414	--
--	41BX82	340	--
--	41BX83	226	--
--	41BX84	836	--
--	41BX85	798	--
--	41BX86	106	--
--	41BX87	259	--
--	41BX88	444	--
--	41BX89	675	--

[1] Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

[2] Nearest Alternate Route Segment to sensitive cultural resource sites are not provided for protection of the sites.

Table 4-12 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route G

Segment Combinations: Sub 3 – 5-14-54-17-31-42-49			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline[1] (feet)**	**Nearest Alternative Route Segment[2]**
19	Single Family Residence	274	31
20	Single Family Residence	296	31
23	Single Family Residence	191	17
24	Single Family Residence	94	17
25	Single Family Residence	97	17
26	Single Family Residence	84	17
27	Single Family Residence	70	17
28	Single Family Residence	147	17
29	Single Family Residence	170	17
30	Single Family Residence	238	17
31	Single Family Residence	273	17
32	Single Family Residence	233	17
33	Single Family Residence	195	17
34	Single Family Residence	189	17
35	Single Family Residence	189	17
36	Single Family Residence	142	17
37	Single Family Residence	146	17
38	Single Family Residence	152	17
39	Single Family Residence	235	17
40	Single Family Residence	297	17
41	Single Family Residence	158	17
42	Single Family Residence	305	17
58	Single Family Residence	229	5
67	Single Family Residence	148	13
69	Single Family Residence	208	14
70	Single Family Residence	206	14
71	Single Family Residence	251	14
72	Single Family Residence	204	14
73	Single Family Residence	244	14
74	Single Family Residence	228	14
75	Single Family Residence	230	14
76	Single Family Residence	260	14
77	Single Family Residence	267	14
78	Single Family Residence	169	14
79	Single Family Residence	215	54
80	Single Family Residence	202	54
81	Single Family Residence	82	54
82	Single Family Residence	251	54
83	Single Family Residence	207	54

Table 4-12 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route G

Segment Combinations: Sub 3 – 5-14-54-17-31-42-49			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline[1] (feet)**	**Nearest Alternative Route Segment[2]**
84	Single Family Residence	214	54
85	Single Family Residence	158	54
86	Single Family Residence	162	54
87	Single Family Residence	300	54
88	Single Family Residence	122	54
89	Single Family Residence	134	54
90	Single Family Residence	284	54
91	Single Family Residence	223	54
92	Single Family Residence	264	54
93	Single Family Residence	200	54
94	Single Family Residence	224	54
95	Single Family Residence	279	54
178	Single Family Residence	213	54
301	Boerne Stage Field	9,494	17
701	Heidemann Cemetery	593	36
901	Heidemann Ranch Historic District	50	31
--	Boerne Stage Maverick-Altgelt Ranch and Fenstermaker-Fromme Farm National Register Historic District	50	17
--	41BX1923	329	--
--	41BX1924	86	--

[1] Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

[2] Nearest Alternate Route Segment to sensitive cultural resource sites are not provided for protection of the sites.

Table 4-13 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route H

Segment Combinations: Sub 3 – 5-14-54-17-28-29-40			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline[1] (feet)**	**Nearest Alternative Route Segment[2]**
1	Single Family Residence	267	40
2	Single Family Residence	220	40
3	Single Family Residence	141	40
4	Single Family Residence	194	40
5	Single Family Residence	128	40
6	Single Family Residence	187	40
7	Single Family Residence	290	40
9	Single Family Residence	167	29
10	Single Family Residence	197	29
13	Single Family Residence	164	29
23	Single Family Residence	191	17
24	Single Family Residence	94	17
25	Single Family Residence	97	17
26	Single Family Residence	84	17
27	Single Family Residence	70	17
28	Single Family Residence	147	17
29	Single Family Residence	170	17
30	Single Family Residence	238	17
31	Single Family Residence	273	17
32	Single Family Residence	233	17
33	Single Family Residence	195	17
34	Single Family Residence	189	17
35	Single Family Residence	189	17
36	Single Family Residence	142	17
37	Single Family Residence	146	17
38	Single Family Residence	152	17
39	Single Family Residence	235	17
40	Single Family Residence	297	17
41	Single Family Residence	158	17
42	Single Family Residence	305	17
58	Single Family Residence	229	5
67	Single Family Residence	148	13
69	Single Family Residence	208	14
70	Single Family Residence	206	14
71	Single Family Residence	251	14
72	Single Family Residence	204	14
73	Single Family Residence	244	14
74	Single Family Residence	228	14
75	Single Family Residence	230	14

Table 4-13 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route H

Segment Combinations: Sub 3 – 5-14-54-17-28-29-40			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline[1] (feet)**	**Nearest Alternative Route Segment[2]**
76	Single Family Residence	260	14
77	Single Family Residence	267	14
78	Single Family Residence	169	14
79	Single Family Residence	215	54
80	Single Family Residence	202	54
81	Single Family Residence	82	54
82	Single Family Residence	251	54
83	Single Family Residence	207	54
84	Single Family Residence	214	54
85	Single Family Residence	158	54
86	Single Family Residence	162	54
87	Single Family Residence	300	54
88	Single Family Residence	122	54
89	Single Family Residence	134	54
90	Single Family Residence	284	54
91	Single Family Residence	223	54
92	Single Family Residence	264	54
93	Single Family Residence	200	54
94	Single Family Residence	224	54
95	Single Family Residence	279	54
178	Single Family Residence	213	54
186	Single Family Residence	288	40
301	Boerne Stage Field	7,210	29
--	Boerne Stage Maverick-Altgelt Ranch and Fenstermaker-Fromme Farm National Register Historic District	50	28

[1] Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

[2] Nearest Alternate Route Segment to sensitive cultural resource sites are not provided for protection of the sites.

Table 4-14 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route I

Segment Combinations: Sub 3 – 5-14-54-20-36-42-48-46			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline¹ (feet)**	**Nearest Alternative Route Segment²**
15	Single Family Residence	174	46
16	Single Family Residence	162	46
58	Single Family Residence	229	5
67	Single Family Residence	148	13
69	Single Family Residence	208	14
70	Single Family Residence	206	14
71	Single Family Residence	251	14
72	Single Family Residence	204	14
73	Single Family Residence	244	14
74	Single Family Residence	228	14
75	Single Family Residence	230	14
76	Single Family Residence	260	14
77	Single Family Residence	267	14
78	Single Family Residence	169	14
79	Single Family Residence	215	54
80	Single Family Residence	202	54
81	Single Family Residence	82	54
82	Single Family Residence	251	54
83	Single Family Residence	207	54
84	Single Family Residence	214	54
85	Single Family Residence	158	54
86	Single Family Residence	162	54
87	Single Family Residence	300	54
88	Single Family Residence	122	54
89	Single Family Residence	134	54
90	Single Family Residence	284	54
91	Single Family Residence	223	54
92	Single Family Residence	264	54
93	Single Family Residence	200	54
94	Single Family Residence	224	54
95	Single Family Residence	279	54
96	Single Family Residence	280	20
97	Single Family Residence	195	20
98	Single Family Residence	241	20
99	Single Family Residence	241	20
100	Single Family Residence	244	20
101	Single Family Residence	265	20
102	Single Family Residence	266	20
103	Single Family Residence	263	20

Table 4-14 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route I

Segment Combinations: Sub 3 – 5-14-54-20-36-42-48-46			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline[1] (feet)**	**Nearest Alternative Route Segment[2]**
104	Single Family Residence	211	20
105	Single Family Residence	134	32
178	Single Family Residence	213	54
301	Boerne Stage Field	10,720	42
501	CellTex Site Services, Ltd.	279	32
701	Heidemann Cemetery	593	36
901	Heidemann Ranch Historic District	50	35
--	41BX1923	329	42
--	41BX1924	86	42

[1] Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

[2] Nearest Alternate Route Segment to sensitive cultural resource sites are not provided for protection of the sites.

Table 4-15 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route J

Segment Combinations: Sub 3 – 5-14-54-20-36-42-49			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline[1] (feet)**	**Nearest Alternative Route Segment[2]**
58	Single Family Residence	229	5
67	Single Family Residence	148	13
69	Single Family Residence	208	14
70	Single Family Residence	206	14
71	Single Family Residence	251	14
72	Single Family Residence	204	14
73	Single Family Residence	244	14
74	Single Family Residence	228	14
75	Single Family Residence	230	14
76	Single Family Residence	260	14
77	Single Family Residence	267	14
78	Single Family Residence	169	14
79	Single Family Residence	215	54
80	Single Family Residence	202	54
81	Single Family Residence	82	54
82	Single Family Residence	251	54
83	Single Family Residence	207	54
84	Single Family Residence	214	54
85	Single Family Residence	158	54
86	Single Family Residence	162	54
87	Single Family Residence	300	54
88	Single Family Residence	122	54
89	Single Family Residence	134	54
90	Single Family Residence	284	54
91	Single Family Residence	223	54
92	Single Family Residence	264	54
93	Single Family Residence	200	54
94	Single Family Residence	224	54
95	Single Family Residence	279	54
96	Single Family Residence	280	20
97	Single Family Residence	195	20
98	Single Family Residence	241	20
99	Single Family Residence	241	20
100	Single Family Residence	244	20
101	Single Family Residence	265	20
102	Single Family Residence	266	20
103	Single Family Residence	263	20
104	Single Family Residence	211	20
105	Single Family Residence	134	32

Table 4-15 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route J

Segment Combinations: Sub 3 – 5-14-54-20-36-42-49			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline[1] (feet)**	**Nearest Alternative Route Segment[2]**
178	Single Family Residence	213	54
301	Boerne Stage Field	10,720	42
501	CellTex Site Services, Ltd.	279	32
701	Heidemann Cemetery	593	36
901	Heidemann Ranch Historic District	50	35
--	41BX1923	329	42
--	41BX1924	86	42

[1] Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

[2] Nearest Alternate Route Segment to sensitive cultural resource sites are not provided for protection of the sites.

Table 4-16 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route K

Segment Combinations: Sub 3 – 5-14-54-21-25-37-38-43			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline[1] (feet)**	**Nearest Alternative Route Segment[2]**
58	Single Family Residence	229	5
67	Single Family Residence	148	13
69	Single Family Residence	208	14
70	Single Family Residence	206	14
71	Single Family Residence	251	14
72	Single Family Residence	204	14
73	Single Family Residence	244	14
74	Single Family Residence	228	14
75	Single Family Residence	230	14
76	Single Family Residence	260	14
77	Single Family Residence	267	14
78	Single Family Residence	169	14
79	Single Family Residence	215	54
80	Single Family Residence	202	54
81	Single Family Residence	82	54
82	Single Family Residence	251	54
83	Single Family Residence	207	54
84	Single Family Residence	214	54
85	Single Family Residence	158	54
86	Single Family Residence	162	54
87	Single Family Residence	300	54
88	Single Family Residence	122	54
89	Single Family Residence	134	54
90	Single Family Residence	284	54
91	Single Family Residence	223	54
92	Single Family Residence	264	54
93	Single Family Residence	200	54
94	Single Family Residence	224	54
95	Single Family Residence	279	54
134	Single Family Residence	218	43
135	Single Family Residence	260	37
136	Single Family Residence	171	25
137	Single Family Residence	111	25
178	Single Family Residence	213	54
301	Boerne Stage Field	14,050	5
902	R.L. White Ranch Historic District	0	43

[1] Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

[2] Nearest Alternate Route Segment to sensitive cultural resource sites are not provided for protection of the sites.

Table 4-17 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route L

Segment Combinations: Sub 3 – 5-14-54-21-25-37-38-39-53-52-45			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline[1] (feet)**	**Nearest Alternative Route Segment[2]**
58	Single Family Residence	229	5
67	Single Family Residence	148	13
69	Single Family Residence	208	14
70	Single Family Residence	206	14
71	Single Family Residence	251	14
72	Single Family Residence	204	14
73	Single Family Residence	244	14
74	Single Family Residence	228	14
75	Single Family Residence	230	14
76	Single Family Residence	260	14
77	Single Family Residence	267	14
78	Single Family Residence	169	14
79	Single Family Residence	215	54
80	Single Family Residence	202	54
81	Single Family Residence	82	54
82	Single Family Residence	251	54
83	Single Family Residence	207	54
84	Single Family Residence	214	54
85	Single Family Residence	158	54
86	Single Family Residence	162	54
87	Single Family Residence	300	54
88	Single Family Residence	122	54
89	Single Family Residence	134	54
90	Single Family Residence	284	54
91	Single Family Residence	223	54
92	Single Family Residence	264	54
93	Single Family Residence	200	54
94	Single Family Residence	224	54
95	Single Family Residence	279	54
134	Single Family Residence	218	43
135	Single Family Residence	260	37
136	Single Family Residence	171	25
137	Single Family Residence	111	25
178	Single Family Residence	213	54
301	Boerne Stage Field	14,050	5
902	R.L. White Ranch Historic District	0	45

[1] Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

[2] Nearest Alternate Route Segment to sensitive cultural resource sites are not provided for protection of the sites.

Table 4-18 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route M

Segment Combinations: Sub 4 – 1-3-4-5-14-54-20-36-42-48-46			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline[1] (feet)**	**Nearest Alternative Route Segment[2]**
15	Single Family Residence	174	46
16	Single Family Residence	162	46
55	Commercial	304	4
58	Single Family Residence	229	5
67	Single Family Residence	148	13
69	Single Family Residence	208	14
70	Single Family Residence	206	14
71	Single Family Residence	251	14
72	Single Family Residence	204	14
73	Single Family Residence	244	14
74	Single Family Residence	228	14
75	Single Family Residence	230	14
76	Single Family Residence	260	14
77	Single Family Residence	267	14
78	Single Family Residence	169	14
79	Single Family Residence	215	54
80	Single Family Residence	202	54
81	Single Family Residence	82	54
82	Single Family Residence	251	54
83	Single Family Residence	207	54
84	Single Family Residence	214	54
85	Single Family Residence	158	54
86	Single Family Residence	162	54
87	Single Family Residence	300	54
88	Single Family Residence	122	54
89	Single Family Residence	134	54
90	Single Family Residence	284	54
91	Single Family Residence	223	54
92	Single Family Residence	264	54
93	Single Family Residence	200	54
94	Single Family Residence	224	54
95	Single Family Residence	279	54
96	Single Family Residence	280	20
97	Single Family Residence	195	20
98	Single Family Residence	241	20
99	Single Family Residence	241	20
100	Single Family Residence	244	20
101	Single Family Residence	265	20
102	Single Family Residence	266	20

Table 4-18 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route M

Segment Combinations: Sub 4 – 1-3-4-5-14-54-20-36-42-48-46			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline[1] (feet)**	**Nearest Alternative Route Segment[2]**
103	Single Family Residence	263	20
104	Single Family Residence	211	20
105	Single Family Residence	134	32
178	Single Family Residence	213	54
301	Boerne Stage Field	10,720	42
501	CellTex Site Services, Ltd.	279	32
701	Heidemann Cemetery	593	36
901	Heidemann Ranch Historic District	50	35
--	41BX1923	329	--
--	41BX1924	86	--

[1] Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

[2] Nearest Alternate Route Segment to sensitive cultural resource sites are not provided for protection of the sites.

Table 4-19 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route N

Segment Combinations: Sub 5 – 8-50-15-26-38-43			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline[1] (feet)**	**Nearest Alternative Route Segment[2]**
134	Single Family Residence	218	43
139	Single Family Residence	283	8
140	Single Family Residence	171	8
141	Single Family Residence	193	8
142	Single Family Residence	304	8
143	Single Family Residence	222	15
146	Single Family Residence	155	15
147	Single Family Residence	208	15
301	Boerne Stage Field	16,789	8
702	Huntress Lane Cemetery	128	15
902	R.L. White Ranch Historic District	0	43
--	41BX75	0	--
--	41BX76	163	--
--	41BX77	172	--
--	41BX78	50	--
--	41BX80	627	--
--	41BX81	414	--
--	41BX82	340	--
--	41BX83	226	--
--	41BX84	836	--
--	41BX85	798	--
--	41BX86	106	--
--	41BX87	259	--
--	41BX88	444	--
--	41BX89	675	--

[1] Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

[2] Nearest Alternate Route Segment to sensitive cultural resource sites are not provided for protection of the sites.

Table 4-20 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route O

Segment Combinations: Sub 5 – 8-50-16-56-57-27-47-53-44

Map Number	Structure or Feature	Approximate Distance from Route Centerline[1] (feet)	Nearest Alternative Route Segment[2]
139	Single Family Residence	283	8
140	Single Family Residence	171	8
141	Single Family Residence	193	8
142	Single Family Residence	304	8
151	Single Family Residence	299	16
152	Single Family Residence	172	16
153	Single Family Residence	270	16
154	Single Family Residence	257	16
155	Single Family Residence	162	16
156	Single Family Residence	174	16
173	Single Family Residence	217	57
174	Single Family Residence	122	57
175	Single Family Residence	94	57
176	Single Family Residence	272	57
177	Single Family Residence	78	57
181	Single Family Residence	191	57
182	Single Family Residence	192	57
184	Single Family Residence	153	57
185	Single Family Residence	307	57
187	Single Family Residence	151	56
188	Single Family Residence	197	56
189	Single Family Residence	251	56
190	Single Family Residence	227	56
191	Single Family Residence	183	56
192	Single Family Residence	287	56
193	Single Family Residence	208	56
194	Single Family Residence	70	56
195	Single Family Residence	157	56
196	Single Family Residence	278	56
301	Boerne Stage Field	16,789	8
502	Global Tower, LLC	521	16
902	R.L. White Ranch Historic District	0	44
--	41BX2178	72	--
--	41BX2177	44	--

[1] Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

[2] Nearest Alternate Route Segment to sensitive cultural resource sites are not provided for protection of the sites.

Table 4-21 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route P

Segment Combinations: Sub 6 – 50-15-22-25-37-38-43			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline[1] (feet)**	**Nearest Alternative Route Segment[2]**
134	Single Family Residence	218	43
135	Single Family Residence	260	37
136	Single Family Residence	171	25
137	Single Family Residence	111	25
143	Single Family Residence	222	15
146	Single Family Residence	155	15
147	Single Family Residence	208	15
148	Single Family Residence	198	22
149	Single Family Residence	141	22
150	Single Family Residence	89	22
301	Boerne Stage Field	16,614	25
702	Huntress Lane Cemetery	128	15
902	R.L. White Ranch Historic District	0	43
--	41BX75	352	--
--	41BX76	582	--
--	41BX81	323	--
--	41BX82	241	--
--	41BX83	115	--
--	41BX84	955	--
--	41BX85	896	--
--	41BX86	12	--
--	41BX87	259	--
--	41BX88	444	--
--	41BX89	675	--

[1] Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

[2] Nearest Alternate Route Segment to sensitive cultural resource sites are not provided for protection of the sites.

Table 4-22 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route Q

Segment Combinations: Sub 6 – 50-15-26-38-39-44			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline[1] (feet)**	**Nearest Alternative Route Segment[2]**
134	Single Family Residence	218	43
143	Single Family Residence	222	15
146	Single Family Residence	155	15
147	Single Family Residence	208	15
301	Boerne Stage Field	18,052	26
702	Huntress Lane Cemetery	128	15
902	R.L. White Ranch Historic District	0	44
--	41BX75	0	--
--	41BX76	163	--
--	41BX77	172	--
--	41BX78	50	--
--	41BX80	627	--
--	41BX81	414	--
--	41BX82	340	--
--	41BX83	226	--
--	41BX84	836	--
--	41BX85	798	--
--	41BX86	106	--
--	41BX87	259	--
--	41BX88	444	--
--	41BX89	675	--

[1] Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

[2] Nearest Alternate Route Segment to sensitive cultural resource sites are not provided for protection of the sites.

Table 4-23 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route R

Segment Combinations: Sub 6 – 50-15-26-38-43			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline[1] (feet)**	**Nearest Alternative Route Segment[2]**
134	Single Family Residence	218	43
143	Single Family Residence	222	15
146	Single Family Residence	155	15
147	Single Family Residence	208	15
301	Boerne Stage Field	18,052	26
702	Huntress Lane Cemetery	128	15
902	R.L. White Ranch Historic District	0	43
--	41BX75	0	--
--	41BX76	163	--
--	41BX77	172	--
--	41BX78	50	--
--	41BX80	627	--
--	41BX81	414	--
--	41BX82	340	--
--	41BX83	226	--
--	41BX84	836	--
--	41BX85	798	--
--	41BX86	106	--
--	41BX87	259	--
--	41BX88	444	--
--	41BX89	675	--

[1] Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

[2] Nearest Alternate Route Segment to sensitive cultural resource sites are not provided for protection of the sites.

Table 4-24 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route S

Segment Combinations: Sub 6 – 50-16-56-57-27-51-45			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline[1] (feet)**	**Nearest Alternative Route Segment[2]**
151	Single Family Residence	299	16
152	Single Family Residence	172	16
153	Single Family Residence	270	16
154	Single Family Residence	257	16
155	Single Family Residence	162	16
156	Single Family Residence	174	16
173	Single Family Residence	217	57
174	Single Family Residence	122	57
175	Single Family Residence	94	57
176	Single Family Residence	272	57
177	Single Family Residence	78	57
181	Single Family Residence	191	57
182	Single Family Residence	192	57
184	Single Family Residence	153	57
185	Single Family Residence	307	57
187	Single Family Residence	151	56
188	Single Family Residence	197	56
189	Single Family Residence	251	56
190	Single Family Residence	227	56
191	Single Family Residence	183	56
192	Single Family Residence	287	56
193	Single Family Residence	208	56
194	Single Family Residence	70	56
195	Single Family Residence	157	56
196	Single Family Residence	278	56
301	Boerne Stage Field	18,537	50
502	Global Tower, LLC	521	16
902	R.L. White Ranch Historic District	0	45
--	41BX2178	72	--
--	41BX2177	44	--

[1] Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

[2] Nearest Alternate Route Segment to sensitive cultural resource sites are not provided for protection of the sites.

Table 4-25 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route T

Segment Combinations: Sub 6 – 50-15-22-25-32-36-42-48-46			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline[1] (feet)**	**Nearest Alternative Route Segment[2]**
15	Single Family Residence	174	46
16	Single Family Residence	162	46
104	Single Family Residence	211	20
105	Single Family Residence	134	32
106	Single Family Residence	100	32
107	Single Family Residence	125	32
108	Single Family Residence	140	32
109	Single Family Residence	198	32
110	Single Family Residence	169	32
111	Single Family Residence	176	32
112	Single Family Residence	194	32
113	Single Family Residence	120	32
114	Single Family Residence	110	32
115	Single Family Residence	296	32
116	Single Family Residence	298	32
117	Single Family Residence	225	32
118	Single Family Residence	185	32
119	Single Family Residence	194	32
120	Single Family Residence	186	32
121	Single Family Residence	184	32
122	Single Family Residence	201	32
123	Single Family Residence	208	32
124	Single Family Residence	199	32
125	Single Family Residence	195	32
126	Single Family Residence	212	32
127	Single Family Residence	240	32
136	Single Family Residence	171	25
137	Single Family Residence	111	25
143	Single Family Residence	222	15
146	Single Family Residence	155	15
147	Single Family Residence	208	15
148	Single Family Residence	198	22
149	Single Family Residence	141	22
150	Single Family Residence	89	22
301	Boerne Stage Field	10,720	42
501	CellTex Site Services, Ltd.	279	32
701	Heidemann Cemetery	593	36
702	Huntress Lane Cemetery	128	15
901	Heidemann Ranch Historic District	50	35

Table 4-25 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route T

Segment Combinations: Sub 6 – 50-15-22-25-32-36-42-48-46			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline[1] (feet)**	**Nearest Alternative Route Segment[2]**
--	41BX1923	329	--
--	41BX1924	86	--
--	41BX75	352	--
--	41BX76	582	--
--	41BX81	323	--
--	41BX82	241	--
--	41BX83	115	--
--	41BX84	955	--
--	41BX85	896	--
--	41BX86	12	--
--	41BX87	259	--
--	41BX88	444	--
--	41BX89	675	--

[1] Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

[2] Nearest Alternate Route Segment to sensitive cultural resource sites are not provided for protection of the sites.

Table 4-26 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route U

Segment Combinations: Sub 6 – 50-15-26-38-39-53-52-45			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline[1] (feet)**	**Nearest Alternative Route Segment[2]**
134	Single Family Residence	218	43
143	Single Family Residence	222	15
146	Single Family Residence	155	15
147	Single Family Residence	208	15
301	Boerne Stage Field	18,052	26
702	Huntress Lane Cemetery	128	15
902	R.L. White Ranch Historic District	0	45
--	41BX75	0	--
--	41BX76	163	--
--	41BX77	172	--
--	41BX78	50	--
--	41BX80	627	--
--	41BX81	414	--
--	41BX82	340	--
--	41BX83	226	--
--	41BX84	836	--
--	41BX85	798	--
--	41BX86	106	--
--	41BX87	259	--
--	41BX88	444	--
--	41BX89	675	--

[1] Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

[2] Nearest Alternate Route Segment to sensitive cultural resource sites are not provided for protection of the sites.

Table 4-27 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route V

Segment Combinations: Sub 6 – 50-16-55-57-27-47-53-44			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline[1] (feet)**	**Nearest Alternative Route Segment[2]**
151	Single Family Residence	299	16
152	Single Family Residence	172	16
153	Single Family Residence	270	16
154	Single Family Residence	257	16
155	Single Family Residence	162	16
156	Single Family Residence	174	16
157	Single Family Residence	146	55
158	Single Family Residence	141	55
159	Single Family Residence	174	55
160	Single Family Residence	184	55
161	Single Family Residence	115	55
162	Single Family Residence	97	55
163	Single Family Residence	300	55
166	Single Family Residence	55	55
167	Single Family Residence	270	55
168	Single Family Residence	169	55
169	Single Family Residence	58	55
170	Single Family Residence	103	55
171	Single Family Residence	190	55
172	Single Family Residence	158	55
173	Single Family Residence	217	57
174	Single Family Residence	122	57
175	Single Family Residence	94	57
176	Single Family Residence	272	57
177	Single Family Residence	78	57
179	Single Family Residence	272	55
181	Single Family Residence	191	57
182	Single Family Residence	192	57
183	Single Family Residence	91	55
184	Single Family Residence	153	57
185	Single Family Residence	307	57
301	Boerne Stage Field	18,537	50
502	Global Tower, LLC	521	16
902	R.L. White Ranch Historic District	0	44
--	41BX2176	0	--

[1] Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

[2] Nearest Alternate Route Segment to sensitive cultural resource sites are not provided for protection of the sites.

Table 4-28 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route W

Segment Combinations: Sub 6 – 50-16-56-57-27-47-53-44			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline[1] (feet)**	**Nearest Alternative Route Segment[2]**
151	Single Family Residence	299	16
152	Single Family Residence	172	16
153	Single Family Residence	270	16
154	Single Family Residence	257	16
155	Single Family Residence	162	16
156	Single Family Residence	174	16
173	Single Family Residence	217	57
174	Single Family Residence	122	57
175	Single Family Residence	94	57
176	Single Family Residence	272	57
177	Single Family Residence	78	57
181	Single Family Residence	191	57
182	Single Family Residence	192	57
184	Single Family Residence	153	57
185	Single Family Residence	307	57
187	Single Family Residence	151	56
188	Single Family Residence	197	56
189	Single Family Residence	251	56
190	Single Family Residence	227	56
191	Single Family Residence	183	56
192	Single Family Residence	287	56
193	Single Family Residence	208	56
194	Single Family Residence	70	56
195	Single Family Residence	157	56
196	Single Family Residence	278	56
301	Boerne Stage Field	18,537	50
502	Global Tower, LLC	521	16
902	R.L. White Ranch Historic District	0	--
--	41BX2178	72	--
--	41BX2177	44	--

[1] Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

[2] Nearest Alternate Route Segment to sensitive cultural resource sites are not provided for protection of the sites.

Table 4-29 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route X

Segment Combinations: Sub 7 – 54-17-28-30-34-41-46			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline[1] (feet)**	**Nearest Alternative Route Segment[2]**
14	Single Family Residence	238	30
15	Single Family Residence	174	46
16	Single Family Residence	162	46
23	Single Family Residence	191	17
24	Single Family Residence	94	17
25	Single Family Residence	97	17
26	Single Family Residence	84	17
27	Single Family Residence	70	17
28	Single Family Residence	147	17
29	Single Family Residence	170	17
30	Single Family Residence	238	17
31	Single Family Residence	273	17
32	Single Family Residence	233	17
33	Single Family Residence	195	17
34	Single Family Residence	189	17
35	Single Family Residence	189	17
36	Single Family Residence	142	17
37	Single Family Residence	146	17
38	Single Family Residence	152	17
39	Single Family Residence	235	17
40	Single Family Residence	297	17
41	Single Family Residence	158	17
42	Single Family Residence	305	17
79	Single Family Residence	215	54
80	Single Family Residence	202	54
81	Single Family Residence	82	54
82	Single Family Residence	251	54
83	Single Family Residence	207	54
84	Single Family Residence	214	54
85	Single Family Residence	158	54
86	Single Family Residence	162	54
87	Single Family Residence	300	54
88	Single Family Residence	122	54
89	Single Family Residence	134	54
90	Single Family Residence	284	54
91	Single Family Residence	223	54
92	Single Family Residence	264	54
93	Single Family Residence	200	54
94	Single Family Residence	224	54

Table 4-29 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route X

Segment Combinations: Sub 7 – 54-17-28-30-34-41-46			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline[1] (feet)**	**Nearest Alternative Route Segment[2]**
95	Single Family Residence	279	54
178	Single Family Residence	213	54
301	Boerne Stage Field	8,425	28
--	Boerne Stage Maverick-Altgelt Ranch and Fenstermaker-Fromme Farm National Register Historic District	50	28
--	41BX1923	814	--
--	41BX1924	150	--

[1] Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

[2] Nearest Alternate Route Segment to sensitive cultural resource sites are not provided for protection of the sites.

Table 4-30 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route Y

Segment Combinations: Sub 7 – 54-20-36-35-34-33-40

Map Number	Structure or Feature	Approximate Distance from Route Centerline[1] (feet)	Nearest Alternative Route Segment[2]
1	Single Family Residence	267	40
2	Single Family Residence	220	40
3	Single Family Residence	141	40
4	Single Family Residence	194	40
5	Single Family Residence	128	40
6	Single Family Residence	187	40
7	Single Family Residence	290	40
17	Commercial	214	35
18	Single Family Residence	162	35
79	Single Family Residence	215	54
80	Single Family Residence	202	54
81	Single Family Residence	82	54
82	Single Family Residence	251	54
83	Single Family Residence	207	54
84	Single Family Residence	214	54
85	Single Family Residence	158	54
86	Single Family Residence	162	54
87	Single Family Residence	300	54
88	Single Family Residence	122	54
89	Single Family Residence	134	54
90	Single Family Residence	284	54
91	Single Family Residence	223	54
92	Single Family Residence	264	54
93	Single Family Residence	200	54
94	Single Family Residence	224	54
95	Single Family Residence	279	54
96	Single Family Residence	280	20
97	Single Family Residence	195	20
98	Single Family Residence	241	20
99	Single Family Residence	241	20
100	Single Family Residence	244	20
101	Single Family Residence	265	20
102	Single Family Residence	266	20
103	Single Family Residence	263	20
104	Single Family Residence	211	20
105	Single Family Residence	134	32
178	Single Family Residence	213	54
186	Single Family Residence	288	40
301	Boerne Stage Field	7,677	40

Table 4-30 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route Y

Segment Combinations: Sub 7 – 54-20-36-35-34-33-40			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline[1] (feet)**	**Nearest Alternative Route Segment[2]**
501	CellTex Site Services, Ltd.	279	32
701	Heidemann Cemetery	593	36
901	Heidemann Ranch Historic District	50	35
--	Boerne Stage Maverick-Altgelt Ranch and Fenstermaker-Fromme Farm National Register Historic District	50	40
--	41BX1923	266	--
--	41BX1924	817	--

[1] Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

[2] Nearest Alternate Route Segment to sensitive cultural resource sites are not provided for protection of the sites.

Table 4-31 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route Z

Segment Combinations: Sub 7 – 54-20-36-42-48-46			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline[1] (feet)**	**Nearest Alternative Route Segment[2]**
15	Single Family Residence	174	46
16	Single Family Residence	162	46
79	Single Family Residence	215	54
80	Single Family Residence	202	54
81	Single Family Residence	82	54
82	Single Family Residence	251	54
83	Single Family Residence	207	54
84	Single Family Residence	214	54
85	Single Family Residence	158	54
86	Single Family Residence	162	54
87	Single Family Residence	300	54
88	Single Family Residence	122	54
89	Single Family Residence	134	54
90	Single Family Residence	284	54
91	Single Family Residence	223	54
92	Single Family Residence	264	54
93	Single Family Residence	200	54
94	Single Family Residence	224	54
95	Single Family Residence	279	54
96	Single Family Residence	280	20
97	Single Family Residence	195	20
98	Single Family Residence	241	20
99	Single Family Residence	241	20
100	Single Family Residence	244	20
101	Single Family Residence	265	20
102	Single Family Residence	266	20
103	Single Family Residence	263	20
104	Single Family Residence	211	20
105	Single Family Residence	134	32
178	Single Family Residence	213	54
301	Boerne Stage Field	10,720	42
501	CellTex Site Services, Ltd.	279	32
701	Heidemann Cemetery	593	36
901	Heidemann Ranch Historic District	50	35
--	41BX1923	329	--
--	41BX1924	86	--

[1] Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

[2] Nearest Alternate Route Segment to sensitive cultural resource sites are not provided for protection of the sites.

Table 4-32 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route AA

Segment Combinations: Sub 7 – 54-20-36-42-49			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline[1] (feet)**	**Nearest Alternative Route Segment[2]**
79	Single Family Residence	215	54
80	Single Family Residence	202	54
81	Single Family Residence	82	54
82	Single Family Residence	251	54
83	Single Family Residence	207	54
84	Single Family Residence	214	54
85	Single Family Residence	158	54
86	Single Family Residence	162	54
87	Single Family Residence	300	54
88	Single Family Residence	122	54
89	Single Family Residence	134	54
90	Single Family Residence	284	54
91	Single Family Residence	223	54
92	Single Family Residence	264	54
93	Single Family Residence	200	54
94	Single Family Residence	224	54
95	Single Family Residence	279	54
96	Single Family Residence	280	20
97	Single Family Residence	195	20
98	Single Family Residence	241	20
99	Single Family Residence	241	20
100	Single Family Residence	244	20
101	Single Family Residence	265	20
102	Single Family Residence	266	20
103	Single Family Residence	263	20
104	Single Family Residence	211	20
105	Single Family Residence	134	32
178	Single Family Residence	213	54
301	Boerne Stage Field	10,720	42
501	CellTex Site Services, Ltd.	279	32
701	Heidemann Cemetery	593	36
901	Heidemann Ranch Historic District	50	35
--	41BX1923	329	--
--	41BX1924	86	--

[1] Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

[2] Nearest Alternate Route Segment to sensitive cultural resource sites are not provided for protection of the sites.

Table 4-33 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route BB

Segment Combinations: Sub 7 – 54-21-25-37-38-43			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline[1] (feet)**	**Nearest Alternative Route Segment[2]**
79	Single Family Residence	215	54
80	Single Family Residence	202	54
81	Single Family Residence	82	54
82	Single Family Residence	251	54
83	Single Family Residence	207	54
84	Single Family Residence	214	54
85	Single Family Residence	158	54
86	Single Family Residence	162	54
87	Single Family Residence	300	54
88	Single Family Residence	122	54
89	Single Family Residence	134	54
90	Single Family Residence	284	54
91	Single Family Residence	223	54
92	Single Family Residence	264	54
93	Single Family Residence	200	54
94	Single Family Residence	224	54
95	Single Family Residence	279	54
134	Single Family Residence	218	43
135	Single Family Residence	260	37
136	Single Family Residence	171	25
137	Single Family Residence	111	25
178	Single Family Residence	213	54
301	Boerne Stage Field	14,201	54
902	R.L. White Ranch Historic District	0	43

[1] Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

[2] Nearest Alternate Route Segment to sensitive cultural resource sites are not provided for protection of the sites.

Table 4-34 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route CC

Segment Combinations: Sub 7 – 54-20-32-37-38-43			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline[1] (feet)**	**Nearest Alternative Route Segment[2]**
79	Single Family Residence	215	54
80	Single Family Residence	202	54
81	Single Family Residence	82	54
82	Single Family Residence	251	54
83	Single Family Residence	207	54
84	Single Family Residence	214	54
85	Single Family Residence	158	54
86	Single Family Residence	162	54
87	Single Family Residence	300	54
88	Single Family Residence	122	54
89	Single Family Residence	134	54
90	Single Family Residence	284	54
91	Single Family Residence	223	54
92	Single Family Residence	264	54
93	Single Family Residence	200	54
94	Single Family Residence	224	54
95	Single Family Residence	279	54
96	Single Family Residence	280	20
97	Single Family Residence	195	20
98	Single Family Residence	241	20
99	Single Family Residence	241	20
100	Single Family Residence	244	20
101	Single Family Residence	265	20
102	Single Family Residence	266	20
103	Single Family Residence	263	20
104	Single Family Residence	211	20
105	Single Family Residence	134	32
106	Single Family Residence	100	32
107	Single Family Residence	125	32
108	Single Family Residence	140	32
109	Single Family Residence	198	32
110	Single Family Residence	169	32
111	Single Family Residence	176	32
112	Single Family Residence	194	32
113	Single Family Residence	120	32
114	Single Family Residence	110	32
115	Single Family Residence	296	32
116	Single Family Residence	298	32
117	Single Family Residence	225	32

Table 4-34 Habitable Structures and Other Land Use Features in the Vicinity of the Primary Alternative Route CC

Segment Combinations: Sub 7 – 54-20-32-37-38-43			
Map Number	**Structure or Feature**	**Approximate Distance from Route Centerline[1] (feet)**	**Nearest Alternative Route Segment[2]**
118	Single Family Residence	185	32
119	Single Family Residence	194	32
120	Single Family Residence	186	32
121	Single Family Residence	184	32
122	Single Family Residence	201	32
123	Single Family Residence	208	32
124	Single Family Residence	199	32
125	Single Family Residence	195	32
126	Single Family Residence	212	32
127	Single Family Residence	240	32
134	Single Family Residence	260	37
135	Single Family Residence	171	25
178	Single Family Residence	213	54
301	Boerne Stage Field	12,252	20
501	CellTex Site Services, Ltd.	279	32
902	R.L. White Ranch Historic District	0	43

[1] Due to the potential horizontal inaccuracies of the aerial photography and data utilized, all habitable structures within 310' have been identified.

[2] Nearest Alternate Route Segment to sensitive cultural resource sites are not provided for protection of the sites.

Appendix D

Figure 2-4
Primary Alternative Segments with Environmental and Land Use Constraints (Topographic Base Map)

This page left blank intentionally.

Appendix E

Figure 4-1
Habitable Structures and Other Land Use Features In the Vicinity of the Primary Alternative Routes (Aerial Base Map)

This page left blank intentionally.