ENVIRONMENTAL ASSESSMENT
AND ALTERNATIVE ROUTE ANALYSIS

for the proposed

BELL COUNTY EAST SWITCH – BIG HILL SUBSTATION 765 kV TRANSMISSION LINE PROJECT
IN BELL, BURNET, CONCHO, CORYELL, LAMPASAS, LLANO, MASON, MCCULLOCH, MENARD, MILAM, MILLS, SAN SABA, SCHLEICHER, TOM GREEN, AND WILLIAMSON COUNTIES, TEXAS

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MARCH 2026

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ACRONYMS AND ABBREVIATIONS

AM	Amplitude Modulation
APLIC	Avian Powerline Interaction Committee
BEG	Bureau of Economic Geology

BGEPA	Bald and Golden Eagle Protection Act
BMP	Best Management Practice
BRACS	Brackish Resources Aquifer Characterization System
CCC	Civilian Conservation Corps
CCN	Certificate of Convenience and Necessity
CFR	Code of Federal Regulations
CHU	Critical Habitat Unit
CR	County Road
DoD	United States Department of Defense
DPS	Distinct Population Segment
e.g.	*Exempli Gratia* (for Example)
EA	Environmental Assessment
EMST	Ecological Mapping Systems of Texas
EOID	Element Occurrence Identification
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ESRI	Environmental Systems Research Institute
ESSS	Ecologically Significant Stream Segment
et al.	*Et Alia* (and Others)
etc.	*Et Cetera* (and the Rest or and so Forth)
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FEMA	Federal Emergency Management Agency
FM	Farm-to-Market Road (e.g., FM 1216)
FM	Frequency Modulation (e.g., FM tower)
GCD	Groundwater Conservation District
GIS	Geographic Information System
GLO	Texas General Land Office
Halff	Halff Associates, Inc.
HCP	Habitat Conservation Plan
HPA	High Probability Area
HTC	Historic Texas Cemeteries
HUC	Hydrologic Unit Code
i.e.	*Id est* (That is)
IPaC	Information for Planning and Consultation
Integra	Integra Realty Resources, Inc.
ISD	Independent School District
KFR	Karst Fauna Regions
Kimley-Horn	Kimley-Horn and Associates, Inc.

kV	Kilovolt
LCRA TSC	LCRA Transmission Services Corporation
LWCF	Land and Water Conservation Fund Act
MBTA	Migratory Bird Treaty Act
MLRA	Major Land Resource Area
NAIP	National Agriculture Imagery Program
NASS	National Agricultural Statistics Service
NCED	National Conservation Easement Database
NHD	National Hydrography Dataset
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
NWP	Nationwide Permit
Oncor	Oncor Electric Delivery Company LLC
OTHM	Official Texas Historical Marker
PCN	Pre-Construction Notification
Pro Tem	*Pro Tempore* (Temporarily)
PUCT	Public Utility Commission of Texas
ROW	Right-of-Way
RRC	Railroad Commission of Texas
RTEST	Rare, Threatened, and Endangered Species of Texas
SAL	State Antiquities Landmark
SDR	Submitted Drillers Reports
Section 404	Section 404 of the Clean Water Act
SGCN	Species of Greatest Conservation Need
sp.	Species
spp.	Multiple Species
ssp.	Subspecies
SWCD	Soil and Water Conservation District
SWPPP	Stormwater Pollution Prevention Plan
TARL	Texas Archeological Research Laboratory
TASA	Texas Archeological Sites Atlas
TCAP	Texas Conservation Action Plan
TCEQ	Texas Commission on Environmental Quality
THC	Texas Historical Commission
TPWD	Texas Parks and Wildlife Department
TSSWCB	Texas State Soil and Water Conservation Board
TWDB	Texas Water Development Board

TxDOT	Texas Department of Transportation
TXNDD	Texas Natural Diversity Database
U.S.	United States
USACE	United States Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
USWTDB	United States Wind Turbine Database
var.	Variety
WHAB	Wildlife Habitat Assessment Program

1.0 PROJECT DESCRIPTION

1.1 Scope of the Project

Oncor Electric Delivery Company LLC (Oncor) and LCRA Transmission Services Corporation (LCRA TSC) propose to construct a single-circuit 765 kilovolt (kV) transmission line between the expansion of Oncor's existing Bell County East Switch and a new LCRA TSC 765 kV Big Hill Substation that will be located in close proximity to LCRA TSC's existing Big Hill 345 kV Substation. Bell County East Switch is located approximately 5.5 miles southeast of the City of Temple in Bell County, Texas. LCRA TSC's Big Hill Substation is located approximately 13 miles northeast of the City of Eldorado in Schleicher County, Texas. The proposed transmission line project will be approximately 214 to 248 miles in length depending on the route selected by the Public Utility Commission of Texas (PUCT). Each of these project endpoints is shown relative to the major road network and county boundaries on **Figure 1-1**.

Oncor and LCRA TSC retained Kimley-Horn and Associates, Inc. (Kimley-Horn) and Halff Associates, Inc. (Halff) to identify and evaluate alternative routes and to prepare an Environmental Assessment (EA) and Alternative Route Analysis report to support Oncor's and LCRA TSC's joint application to amend their Certificates of Convenience and Necessity (CCNs) to construct, own, and operate the proposed project. This report has been prepared to provide information and address the requirements of Section 37.056(c)(4)(A)-(D) of the Texas Utilities Code, PUCT Procedural Rules Section 22.52(a)(4), PUCT Substantive Rules Section 25.101, the PUCT CCN application form for a proposed transmission line, and others commonly required of CCN amendment applicants before the PUCT. This report may also be used in support of local, state, or federal permitting activities that may be required for the proposed project.

To assist Kimley-Horn and Halff in the evaluation of the proposed project, Oncor and LCRA TSC provided Kimley-Horn and Halff with information regarding the project need, construction practices, and right-of-way (ROW) requirements for the proposed project. Oncor and LCRA TSC also provided information regarding the engineering and design requirements for the routing study.

The following sections include descriptions of the proposed project (**Section 1.0**), the methodology used to select alternative routes (**Section 2.0**), the existing environmental and social conditions in the study area (**Section 3.0**), and the preliminary alternative routes that were developed by this process (**Section 4.0**). This document includes a description of the public involvement program (**Section 5.0**), a discussion of changes to and finalization of the proposed route links following the public involvement program (**Section 6.0**), an evaluation of expected environmental impacts (**Section 7.0**), followed by a list of report preparers (**Section 8.0**), and bibliographical references to resources used in preparing this report (**Section 9.0**). The appendices include copies of agency correspondence (**Appendix A**), public participation meeting information (**Appendix B**), changes to links made after the public participation meetings (**Appendix C**), link composition of proposed alternative routes (**Appendix D**), proposed alternative route and link environmental data (**Appendix E**), tables listing certain constraints within range of the proposed project (**Appendix F**), and environmental and land use constraints maps (**Appendix G**).

1.2 Need for the Project

Oncor and LCRA TSC will provide support for the purpose and need for the proposed project as part of the CCN application.

1.3 Description of Proposed Construction

1.3.1 Transmission Line Design

For the proposed project, Oncor and LCRA TSC anticipate the use of self-supporting, single-circuit, steel lattice towers (**Figure 1-2**). Design criteria will comply with applicable statutes, the appropriate edition of the National Electrical Safety Code, and both Oncor's and LCRA TSC's standard design practices. The typical structure height for Oncor's structures is anticipated to be 155-160 feet with a maximum anticipated height of 198 feet. The typical structure height for LCRA TSC's structures is anticipated to be 140-170 feet with a maximum anticipated height of 198 feet. However, tower height will vary depending on terrain and other engineering constraints. The results of site-specific geotechnical and engineering studies will be used to determine the appropriate design and placement of the structures.

1.3.2 Right-of-Way Requirements

The ROW width for the proposed project will be approximately 200 feet in most circumstances. The ROW normally extends an equal distance on both sides of the transmission line centerline. Additional ROW may be required to accommodate engineering or terrain-related constraints.

1.3.3 Clearing Requirements

Trees, brush and undergrowth within the ROW will be removed and maintained as necessary for access within the ROW and for clearances required for the safe and reliable operation of the proposed project facilities. In areas that contain federally protected species or have the potential for federally protected species, brush or other low growing vegetation may be allowed to remain so long as such vegetation does not interfere with the safe and reliable operation of the transmission line. For areas requiring hand-clearing, vegetation that needs to be removed will generally be cut level with the ground. Trees located in a fence line and having a diameter greater than four inches will generally be cut even with the top of the fence. Stumps located on hillsides or uneven ground will be cut so that a mowing machine can pass over the ROW without striking any stumps, roots, or snags.

1.3.4 Support Structure Assembly and Erection

Foundations for the steel lattice towers will be completed before erecting the structures. Four holes (i.e., one hole per tower footing) will be augered to the required depth into the ground at each tower location. The holes will be filled with steel-reinforced concrete to form piers to hold the structure securely in place. Stub angles for anchoring the tower will be embedded at the center of the concrete foundations. Depth and diameter of the foundation will vary depending on the design of the structure specific to that location.

Each steel lattice tower will be assembled on the ground near its designed location. Tower assemblies will then be lifted by crane and aligned with and attached to foundation stub angles with structure arms oriented perpendicular to the transmission line centerline. For angle structures, towers will be set with structure arms oriented on the angle bisector.

1.3.5 Conductor Stringing

Once a series of structures has been erected along the transmission line centerline, the conductor stringing phase can begin. Specialized equipment, including helicopters, will be used to properly support and protect the conductor during the pulling, tensioning, and sagging operations. Once conductors and shield wires are in place and tension and sag have been verified, conductor and shield wire hardware will be installed at each suspension point to maintain conductor position. Conductor stringing will continue until the transmission line construction is complete. All construction equipment, temporary water crossings, and construction-related environmental controls previously installed will be removed after construction is complete.

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Figure 1-1: Project Location Map

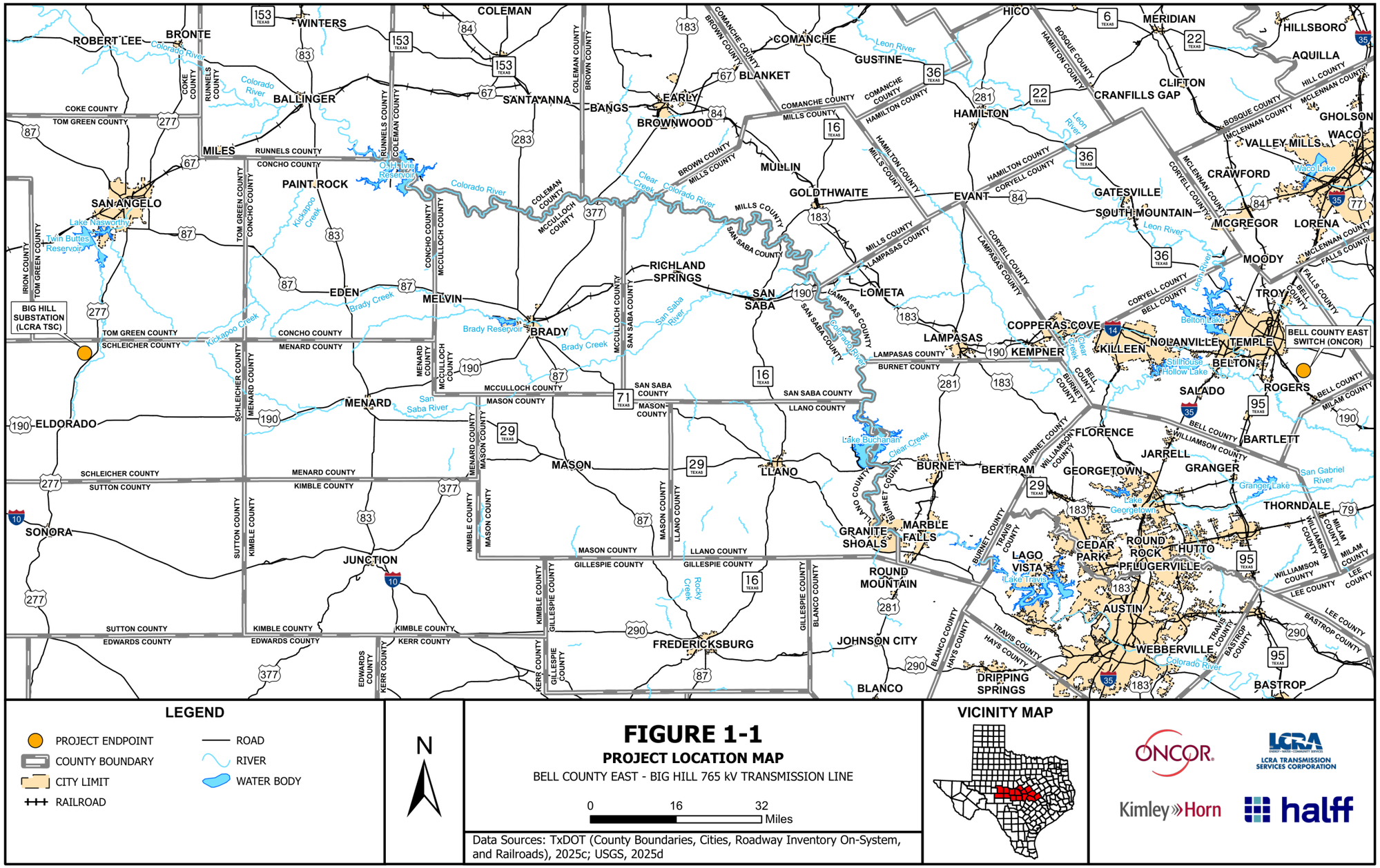

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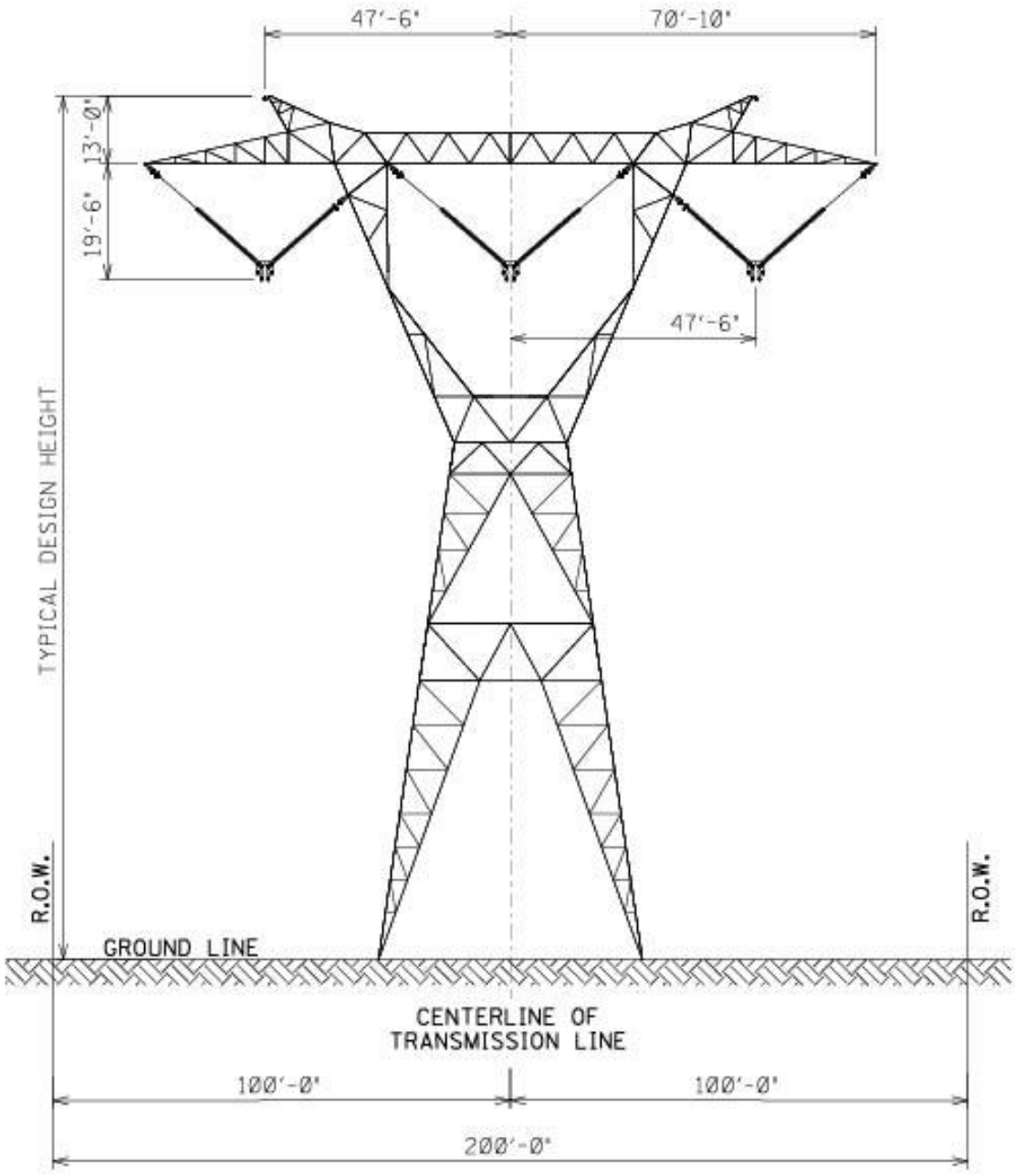
Figure 1-2: Typical 765 kV Steel Lattice Tangent Tower



TYPICAL 765 KV TANGENT TOWER

NOT TO SCALE

ONCOR

LCRA TRANSMISSION SERVICES CORPORATION

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2.0 ROUTE ASSESSMENT METHODOLOGY

The objective of this study is to identify and evaluate alternate transmission line routes for the proposed project. Throughout this EA and Alternative Route Analysis, the terms “environment” or “environmental” are intended to include the human environment and the natural environment. Kimley-Horn and Halff utilized a comprehensive transmission line routing methodology to identify and evaluate alternative transmission line routes. Potential routes were identified and evaluated in accordance with Section 37.056(c)(4)(A)-(D) of the Texas Utilities Code, PUCT Procedural Rule Section 22.52(a)(4), PUCT Substantive Rule Section 25.101, the PUCT CCN application form for a proposed transmission line, and other requirements commonly required of CCN amendment applicants before the PUCT.

The following subsections describe the route selection methodology, including study area delineation, data collection, reconnaissance surveys, constraints mapping, identification of preliminary alternative route links, public involvement program, adjustment of preliminary alternative route links following input from the public involvement program and reconnaissance surveys, and evaluation of the alternative routes.

2.1 Study Area Delineation

The first step in the identification of the alternative route links was to select a study area. The area needed to encompass the proposed project endpoints, Bell County East Switch and Big Hill Substation, and be large enough that a reasonable number of forward-progressing, geographically diverse alternative routes could be investigated and identified in support of Oncor and LCRA TSC’s joint CCN application. Delineating the study area establishes boundaries and limits for the information gathering process (i.e., identifying environmental and land use constraints) and allows Kimley-Horn and Halff to focus their evaluation within a specific area.

Kimley-Horn and Halff reviewed recent aerial photography (Environmental Systems Research Institute [ESRI] World Imagery Basemap, 2025; National Agriculture Imagery Program [NAIP], 2024) and the counties’ appraisal districts’ land parcel boundary maps (Texas Geographic Information Office, 2024) to develop and refine the study area boundary for the proposed project. Kimley-Horn and Halff located and depicted the project endpoints on the various maps and identified significant features in the study area, such as United States (U.S.) Highway 190, U.S. Highway 87, U.S. Highway 83, U.S. Highway 183, U.S. Highway 281, Interstate Highway 14, Interstate Highway 35; Lake Buchanan, Stillhouse Hollow Lake, Belton Lake; Fort Hood; the cities of Temple, Killeen, Brady, and Menard; and various other towns, cities, highways, and county roads (CRs). **Figure 2-1** shows the study area boundary Kimley-Horn and Halff delineated and general constraints resulting from the above-described process overlaid on aerial photography. The study area traverses approximately 35 miles, north to south, and approximately 200 miles, west to east.

Figure 2-2 provides a map that details the study area more clearly in relation to the road network. The study area’s northern boundary is approximately 200 miles wide and runs north of the cities of Eden, Killeen, and Temple, among others. The western boundary is approximately 30 miles and

generally runs west of U.S. Highway 277. The southern boundary is approximately 200 miles beginning near the City of Eldorado and runs east, crossing Lake Buchanan and the City of Burnet, runs southeast of the City of Troy to where Pecan Creek intersects the Milam – Williamson County line, just north of the City of Thorndale. The eastern boundary is approximately 30 miles and runs south of the Bell County – Falls County line to east of the Milam County – Williamson County line.

As shown in **Figure 2-2**, the public road network within the study area consists of Interstate Highways, U.S. highways, Texas state highways, state-maintained roads, and county/local roads (not labeled).

Figure 2-1: Project Area Map

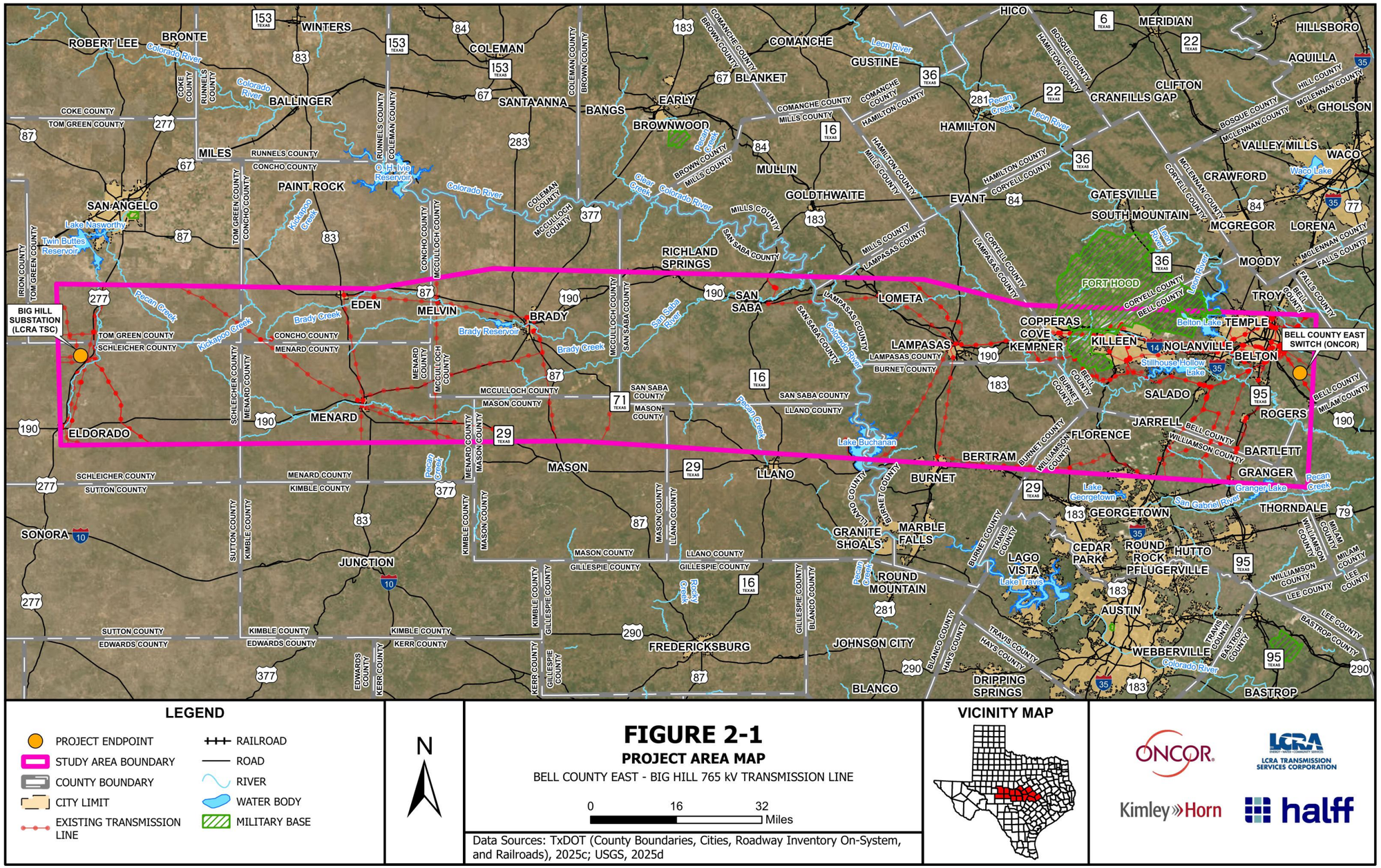
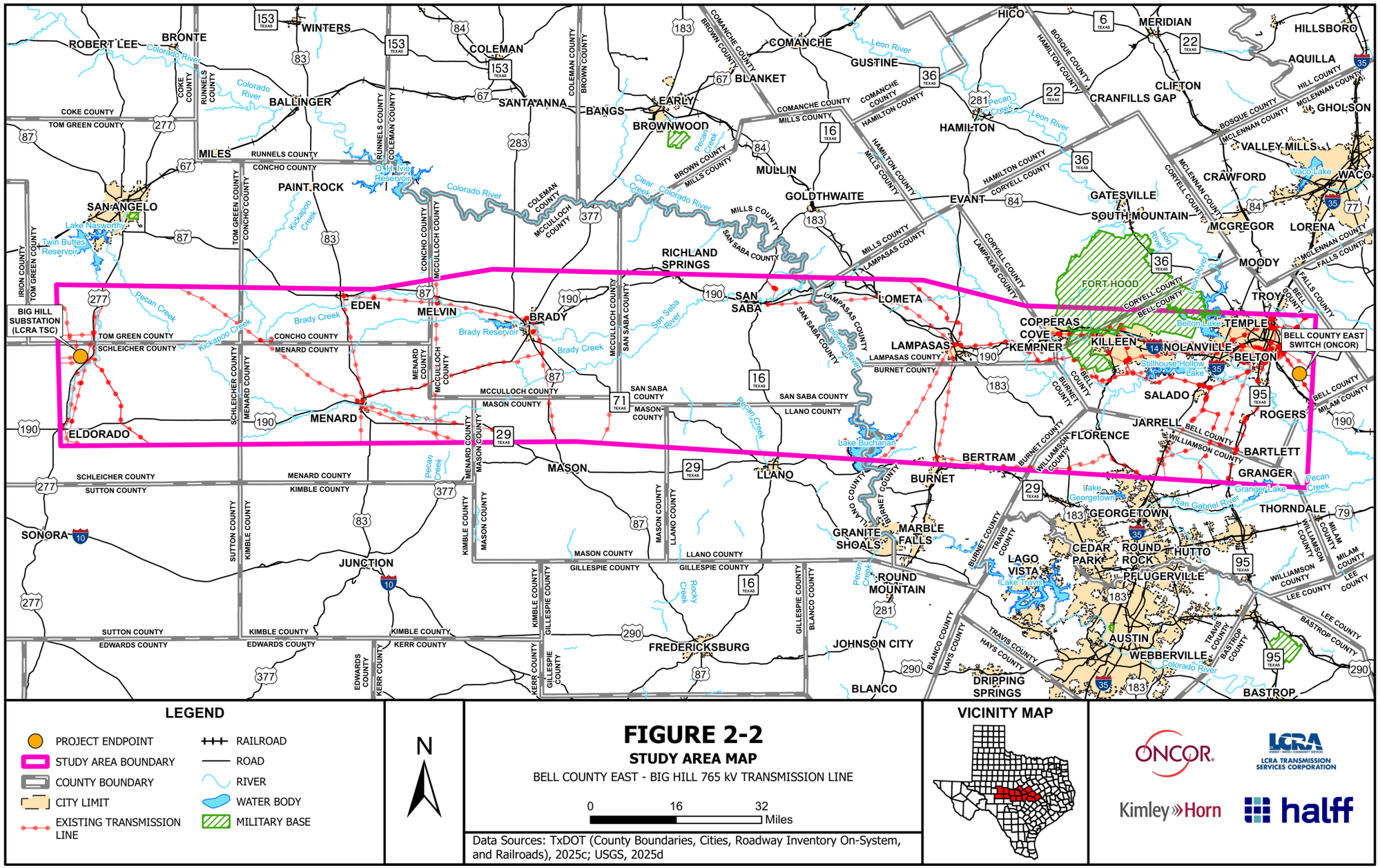


Figure 2-2: Study Area Map



2.2 Data Collection

2.2.1 Solicitation of Information from Local, State, and Federal Officials and Agencies

Once the study area boundary was identified, Kimley-Horn and Halff initiated various data collection activities for the area of the proposed project, including developing a list of officials to whom a consultation letter regarding the proposed project would be mailed. The purpose of the consultation letter was to inform various local, state, and federal officials and agencies of the proposed project and allow them to provide information relevant to the study area. Kimley-Horn and Halff utilized the Texas Municipal League and other regional planning websites, as well as confirmation via telephone calls, to identify local officials and state or federal agencies with potential permitting requirements or other interests in the proposed project (Texas Municipal League, 2025). Correspondence was sent to local, state, and federal agencies and officials listed below. Copies of all correspondence with these agencies and officials are included in **Appendix A**.

Federal Agencies

- Federal Aviation Administration (FAA) – Southwest Regional Administrator
- Federal Emergency Management Agency (FEMA) – Region VI Administrator
- U.S. Army Corps of Engineers (USACE) – Fort Worth District Regulatory Division Chief
- U.S. Department of Agriculture (USDA) – Natural Resources Conservation Service (NRCS) Texas State Conservationist and Belton, Burnet, Cameron, Gatesville, Georgetown, Hamilton, Lampasas, Llano, and San Saba Natural Resource Managers
- U.S. Department of Defense (DoD) – Military Aviation and Installation Assurance Siting Clearinghouse – Resources and Programs Integration Chief
- U.S. Fish and Wildlife Service (USFWS) – Austin and Texas Coastal and Central Plains Ecological Services Field Offices

State Agencies

- Railroad Commission of Texas (RRC)
- Texas Archeological Research Laboratory (TARL) – University of Texas at Austin – Head of Records
- Texas Commission on Environmental Quality (TCEQ) – Central Texas Area Director and Region 3 (Abilene), Region 4 (Dallas/Fort Worth), Region 9 (Waco), and Region 11 (Austin) Regional Directors
- Texas Department of Transportation (TxDOT) – Aviation and Environmental Affairs Division Directors and Austin, Brownwood, Fort Worth, and Waco District Engineers
- Texas General Land Office (GLO) – Commissioner
- Texas Historical Commission (THC) – Executive Director
- Texas Parks and Wildlife Department (TPWD) – Habitat Assessment Program, Habitat Assessment Biologist
- Texas State Soil and Water Conservation Board (TSSWCB) – Central Texas, Brazos Valley, Cross Timbers, Hamilton-Coryell, Hill Country, Llano County, San Saba, Taylor, and Upper Leon Soil and Water Conservation District (SWCD) Field Representatives
- Texas Water Development Board (TWDB) - Regions 5K (Central) and 2G (Brazos) Field Representatives

County Agencies

- Bell County Officials – County Judge, County Commissioners (Precincts 1-4)
- Burnet County Officials – County Judge, County Commissioners (Precincts 1-4)
- Concho County Officials – County Judge, County Commissioners (Precincts 1-4)
- Coryell County Officials – County Judge, County Commissioners (Precincts 1-4)
- Lampasas County Officials – County Judge, County Commissioners (Precincts 1-4)
- Llano County Officials – County Judge, County Commissioners (Precincts 1-4)
- Mason County Officials – County Judge, County Commissioners (Precincts 1-4)
- McCulloch County Officials – County Judge, County Commissioners (Precincts 1-4)
- Menard County Officials – County Judge, County Commissioners (Precincts 1-4)
- Milam County Officials – County Judge, County Commissioners (Precincts 1-4)
- San Saba County Officials – County Judge, County Commissioners (Precincts 1-4)
- Schleicher County Officials – County Judge, County Commissioners (Precincts 1-4)
- Tom Green County Officials – County Judge, County Commissioners (Precincts 1-4)
- Williamson County Officials – County Judge, County Commissioners (Precincts 1-4)

City Agencies

- City of Bartlett – Mayor, Mayor Pro Tempore (Pro Tem), City Council Members, City Administrator
- City of Belton – Mayor, Mayor Pro Tem, City Council Members, City Manager, Assistant City Manager
- City of Bertram – Mayor, Mayor Pro Tem, City Council Members, City Administrator
- City of Brady – Mayor, Mayor Pro Tem, City Council Members, City Manager
- City of Burnet – Mayor, Mayor Pro Tem, City Council Members, City Manager, Assistant City Manager
- City of Copperas Cove – Mayor, Mayor Pro Tem, City Council Members, City Manager
- City of Eden – Mayor, City Council Members, City Administrator
- City of Eldorado – Mayor, City Council Members, City Secretary
- City of Florence – Mayor, Mayor Pro Tem, Alderpersons, City Secretary
- City of Georgetown – Mayor, Mayor Pro Tem, City Council Members, City Manager, Assistant City Managers
- City of Granger – Mayor, Mayor Pro Tem, City Council Members, City Administrator
- City of Harker Heights – Mayor, Mayor Pro Tem, City Council Members, City Manager, Assistant City Manager
- City of Holland – Mayor, Mayor Pro Tem, City Council Members, City Administrator
- City of Jarrell – Mayor, Mayor Pro Tem, Alderpersons, City Secretary
- City of Kempner – Mayor, Mayor Pro Tem, City Council Members, City Manager
- City of Killeen – Mayor, Mayor Pro Tem, City Council Members, City Manager, Assistant City Manager
- City of Lampasas – Mayor, Mayor Pro Tem, City Council Members, City Manager
- City of Little River Academy – Mayor, City Council Members, City Secretary
- City of Llano – Mayor, Mayor Pro Tem, Alderpersons, City Manager
- City of Melvin – Mayor, City Council Members, City Secretary

- City of Menard – Mayor, City Council Members, City Administrator
- City of Morgan's Point Resort – Mayor, Mayor Pro Tem, City Council Members, City Manager
- City of Nolanville – Mayor, Mayor Pro Tem, City Council Members, City Manager, Assistant City Manager
- City of Rogers – Mayor, Mayor Pro Tem, City Council Members, City Administrator
- Village of Salado – Mayor, Mayor Pro Tem, Alderpersons, Assistant City Manager
- City of San Saba – Mayor, Mayor Pro Tem, Alderpersons, City Manager
- City of Temple – Mayor, Mayor Pro Tem, City Council Members, City Manager, Assistant City Managers

School Districts

- Bartlett Independent School District (ISD) – Superintendent
- Belton ISD – Superintendent
- Brady ISD – Superintendent
- Burnet Consolidated ISD – Superintendent
- Copperas Cove ISD – Superintendent
- Eden ISD – Superintendent
- Florence ISD – Superintendent
- Fort Bend ISD – Superintendent
- Georgetown ISD – Superintendent
- Granger ISD – Superintendent
- Holland ISD – Superintendent
- Jarrell ISD – Superintendent
- Killeen ISD – Superintendent
- Lampasas ISD – Superintendent
- Little River Academy ISD – Superintendent
- Llano ISD – Superintendent
- Menard ISD – Superintendent
- Rogers ISD – Superintendent
- Salado ISD – Superintendent
- San Saba ISD – Superintendent
- Schleicher County ISD – Superintendent
- Temple ISD – Superintendent

In addition to soliciting comments from agencies and officials, Kimley-Horn and Halff reviewed available local, state, and federal records, published literature, and a variety of publicly available Geographic Information System (GIS) data, including recent aerial photography (ESRI World Imagery Basemap, 2025; NAIP, 2024), U.S. Geological Survey (USGS) topographic maps (USGS, 2025a), and various spatial datasets identifying ecological, cultural, and infrastructure features within the study area. The findings of these data collection activities are detailed in **Section 3.0**.

2.2.2 Reconnaissance Surveys

Kimley-Horn and Halff performed initial field reconnaissance surveys within the study area on March 3-6, 2025, June 16-18, 2025, and March 11, 2026. The field reconnaissance surveys were conducted by visual observation of the study area characteristics from public roads located within the study area. Reconnaissance survey information was noted in the field and geographically referenced against digital aerial photography base maps, as necessary. Toward the latter stages of the routing study, Oncor and LCRA TSC commissioned an independent aerial reconnaissance survey, which occurred on October 6-8, 2025. The aerial reconnaissance survey allowed Kimley-Horn and Halff to confirm the findings of the above-mentioned research and data collection activities and to identify existing conditions or constraints that may not have been previously noted.

The data collection for the EA and Alternative Route Analysis report started with gathering information from public sources and continued until all alternative routes were finalized. Results of the various data collection activities are included in **Section 3.0** and **Section 7.0** of this report.

2.3 Constraints Mapping

The data and information collected from the activities outlined above were used to develop environmental and land use constraints maps. The constraints maps, public maps, aerial photography, reconnaissance surveys, and other research were used to identify and select potential preliminary alternative route links within the study area. In this context, constraints are land use or landscape features that may affect the location of a transmission line. The goal of this approach is to identify areas where constraints are absent or fewer, and those areas with a lower likelihood of containing existing natural or human resources that could be affected by a transmission line. The geographic locations of different constraints within and adjacent to the study area were identified and considered during the impact analysis. For linear projects such as these, crossing over or near certain constraints is often unavoidable. In these instances, special consideration or mitigation measures may be used, even though there is no law or regulation that would otherwise prohibit the proximity of the transmission line. The recent aerial photography (ESRI World Imagery Basemap, 2025; NAIP, 2024) used during this analysis has an accuracy of approximately 15-20 feet.

2.4 Identification of Preliminary Alternative Route Links

After completion of the data collection and constraints mapping process previously outlined, preliminary alternative route links to connect the project endpoints were identified. Kimley-Horn and Halff utilized the following sources of information to identify the preliminary alternative routes:

- Input received from correspondence with agencies and officials, as described in **Section 2.2.1**;
- Results from the visual reconnaissance surveys of the study area;
- Review of recent aerial photography;
- Findings of publicly available data collection activities;

- Environmental and land use constraints maps;
- Apparent property boundaries;
- Existing compatible corridors;
- Locations of existing developments; and
- Other information.

Preliminary alternative route links were identified in accordance with Section 37.056(c)(4)(A)-(D) of the Texas Utilities Code and PUCT Substantive Rules Section 25.101, including the PUCT policy of prudent avoidance, and other requirements commonly required of CCN amendment applicants before the PUCT. The intent was to identify an adequate number of geographically diverse alternative routes, which were environmentally acceptable considering factors such as: community values; park and recreational areas; historical and aesthetic values; vegetation, wildlife, and water resources; environmental quality, length of route parallel to existing compatible corridors; length of route parallel to apparent property boundaries; and the PUCT policy of prudent avoidance. A more detailed discussion of the development of alternative route links is presented in **Section 4.0**.

2.5 Public Involvement Program

Once the preliminary alternative route links were identified, three public participation meetings were held in accordance with PUCT Procedural Rule Section 22.52(a)(4). Three meetings were held in municipalities that provide geographic meeting options across the study area. The first public participation meeting was held on June 16, 2025 from 5:00 p.m. to 7:00 p.m. at Salado ISD Meadows Room in Salado, Texas. The second public participation meeting was held on June 17, 2025 from 5:00 p.m. to 7:00 p.m. at Lampasas ISD Old Cafeteria in Lampasas, Texas. The third public participation meeting was held on June 18, 2025 from 5:00 p.m. to 7:00 p.m. at Menard County Community Center in Menard, Texas.

The purpose of the public participation meetings was to:

- Solicit comments and input from residents, landowners, public officials, and other interested parties concerning the proposed project, preliminary alternative route links, and the overall transmission line routing process;
- Promote a better understanding of the proposed project, including the need, purpose, potential benefits, potential impacts, and the CCN certification process;
- Inform the public regarding the anticipated project schedule and the decision-making process; and
- Identify the values and concerns of the public and community leaders.

Oncor and LCRA TSC directed written notice of the public participation meetings to be mailed to owners of property crossed by or within 500 feet of the centerline of the preliminary alternative route links in accordance with PUCT criteria. In consideration of the horizontal accuracy limitations

of the appraisal district data and aerial photography interpretation used to develop the preliminary alternative route links, notification to property owners was expanded to include properties crossed by or within 520 feet of the preliminary alternative route link centerlines. Oncor and LCRA TSC also directed notices to be provided to select federal, state, and local agencies. The DoD Military Aviation and Installation Assurance Siting Clearinghouse and certain oil and gas pipeline operators and associations were also included in the notification process of the public meetings. In addition, notices were published in local newspapers detailing the time, location, and purpose of the public participation meetings. A summary of newspapers that published the public meeting notices and the dates of publication is shown in **Table 2-1**, and a copy of the notices can be found in **Appendix B**. Coryell, Llano, and Milam counties were not within 520 feet of a preliminary alternative route link and notice was not provided in local newspapers for those counties.

Table 2-1: Newspapers and Publication Dates for Notices of Public Participation Meetings

Newspaper	County	Publication Date
Temple Daily Telegram	Bell	Tuesday, June 10, 2025
Burnet Bulletin	Burnet	Wednesday, June 11, 2025
Eden Echo	Concho	Thursday, June 12, 2025
Lampasas Dispatch Record	Lampasas	Tuesday, June 10, 2025
Mason County News	Mason	Wednesday, June 11, 2025
Brady-Standard Herald	McCulloch	Wednesday, June 11, 2025
Menard News and Messenger	Menard	Thursday, June 12, 2025
San Saba News & Star	San Saba	Thursday, June 12, 2025
Eldorado Success	Schleicher	Thursday, June 12, 2025
San Angelo Standard-Times	Tom Green	Thursday, June 12, 2025
Georgetown-Williamson County Sun	Williamson	Wednesday, June 11, 2025

At each public participation meeting, Oncor, LCRA TSC, Kimley-Horn, and Halff set up information stations in the meeting room. Each station was devoted to a particular aspect of the proposed project and was staffed by representatives from Oncor, LCRA TSC, Kimley-Horn, Halff, and Integra Realty Resources, Inc. (Integra) – the property abstractor Oncor and LCRA TSC engaged for this project. Each station displayed maps, illustrations, photographs, and/or text explaining a specific topic. Attendees were encouraged to visit each station so that the entire process could be explained in the general sequence of project development. The information station format is advantageous because it allows attendees to receive the information in a relaxed manner; to focus on their particular area of interest; and to ask specific questions. Furthermore, the one-on-one discussions with the utility representatives encouraged more interaction from attendees who might be hesitant to speak in a speaker/audience forum. Utility representatives were available at the public meetings to assist attendees with locating their property of interest on constraints maps or at GIS workstations.

Visitors were invited to sign in upon arrival and were given an information packet including an explanation of the proposed project, a map of the preliminary alternative route links, and a

questionnaire. The information packet included answers to frequently asked questions, a drawing of the proposed typical transmission structure, a flow chart of the CCN certification process for new transmission lines, and the State of Texas Landowners' Bill of Rights. The questionnaire solicited comments on the proposed project and invited attendees to evaluate the information presented at the public participation meetings. Copies of the information packet and questionnaire can be found in **Appendix B**.

Concurrent with holding the public meetings, Oncor and LCRA TSC activated public facing project websites to describe the project and the CCN process. Oncor and LCRA TSC also set up project email addresses and dedicated phone numbers to continue gathering input and answering questions about the project following the public meetings. Oncor and LCRA TSC representatives met with individual landowners or their representatives to better understand their specific concerns and continue gathering input for evaluation of potential adjustments to the preliminary alternative route links.

2.6 Adjustments to the Alternative Route Links following the Public Meetings

Following the public participation meetings, and based upon the public input received, modifications were made to several of the preliminary alternative route links presented at the public meetings. The addition, removal, and modification of links were the result of (1) Kimley-Horn's, Halff's, Oncor's, and LCRA TSC's further evaluation of the preliminary alternative route links in consideration of comments received during and after the public meetings and (2) changes within the study area observed during field and aerial reconnaissance. The modified route links are located throughout the study area and are further described and discussed in **Section 6.0**.

In consideration of comments from the public meetings received from throughout the study area as it relates to community values (e.g. proximity to residences, environmental setting, aesthetics, land use), Oncor and LCRA TSC asked Halff and Kimley-Horn to expand the breadth of alternative route links to include alternatives further north in Lampasas, San Saba, and McCulloch counties. This evaluation of additional routes warranted an expansion of the study area to characterize the constraints and show the new alternative route links in proper context. Therefore, this EA and Alternative Route Analysis and environmental constraints maps reflect this expansion of the study area, presenting a larger study area than what was depicted in the agency coordination letters (**Appendix A**) and in the figures presented at the public participation meetings (**Appendix B**).

2.7 Evaluation of the Proposed Project

Through a proprietary Kimley-Horn/Halff route generating software tool, possible alternative route combinations were generated after making the route link adjustments noted previously and then evaluated in detail by Kimley-Horn and Halff. In evaluating the alternative routes, Kimley-Horn and Halff considered various environmental and land use factors. The analysis of the alternative routes involved tabulating data related to multiple environmental and land use evaluation factors. Factors included the length of an alternative route that parallels existing compatible corridors,

such as apparent property boundaries, and the distance of the alternative route from certain features. Other factors require counting the number of certain types of features that are within a specified distance of the proposed alternative route centerlines. The number, quantity, or value for each factor was determined by reviewing recent aerial photography (ESRI World Imagery Basemap, 2025; NAIP, 2024) and USGS topographic maps (USGS, 2025a), data collected from the aerial reconnaissance, analyzing GIS constraints data, and, where possible, verifying with visual observations during field reconnaissance. The proposed alternative routes' potential environmental and land use impacts are addressed in **Section 7.0**.

3.0 ENVIRONMENTAL ASSESSMENT OF THE STUDY AREA

3.1 Constraints Mapping

Kimley-Horn and Halff initiated the information-gathering process to identify the locations of environmentally sensitive areas and other land use constraints within the study area, which are mapped on recent aerial photography (ESRI World Imagery Basemap, 2025; NAIP, 2024) in **Figures 3-1A** through **3-1I** and **Map Insets** (**Appendix G**). The information obtained and reviewed to complete this EA and Alternative Route Analysis, and the environmental and land use constraints depicted in these figures, is described in detail in the following sections.

3.2 Physiography and Geology

3.2.1 Major Land Resource Area Descriptions

The study area lies within the North Central Plains, Principal Edwards Plateau, Central Texas Uplift, and the Gulf Coastal Prairies Blackland Prairies physiographic regions of Texas (Bureau of Economic Geology [BEG], 1996). The North Central Plains region is characterized by a topography of low north-south ridges, called cuestas, with bedrock primarily composed of limestones, sandstones, and shales. The elevation within the North Central Plains region ranges from 900 to 3,000 feet above mean sea level. The Principal Edwards Plateau region ranges from 450 to 3,000 feet above mean sea level. The topography of the Edwards Plateau region is typically associated with a flat upper surface with box canyons composed of limestone and dolomite. The Central Texas Uplift region ranges in elevation from 800 to 2,000 feet above mean sea level and the typical components of bedrock are granites, metamorphic rock types, or shales. The Gulf Coastal Prairies Blackland Prairies region is characterized by a topography of low rolling terrain with bedrock primarily composed of chalks and marls. The elevation of the Gulf Coastal Prairies Blackland Prairies region ranges from 450 to 1,250 feet above mean sea level (BEG, 1996).

The USDA has grouped the U.S. into areas called Major Land Resource Areas (MLRAs). The MLRA is the second largest hierarchal segmentation of land areas and combines these regions based on physiography, geology, climate, water resources, soils, biological resources, and land use (USDA, 2022a). The study area encompasses eight MLRAs: Edwards Plateau, Western Part (81A); Edwards Plateau, Central Part (81B); Edwards Plateau, Eastern Part (81C); Grand Prairie (85A); Texas Blackland Prairie, Northern Part (86A); Texas Central Basin (82A); Texas North-Central Prairies (80B); and Rolling Limestone Prairie (78A). MLRAs will be utilized to facilitate the geology discussion below and are depicted in **Figures 3-2A**, **3-2B**, and **3-2C**.

The Edwards Plateau, Western Part MLRA (81A) is underlain primarily by limestones of the Austin Chalk, Boquillas Flags, Devil's River, Edwards, Buda, and Del Rio Clay Formations of Cretaceous Age. Quaternary alluvium is common within river valleys. The average annual precipitation is 15 to 26 inches in most of this area. Water is scarce throughout this area because of limited and erratic precipitation and few perennial streams. Most of the soils are well drained and generally shallow and rock outcrop makes up a significant portion of the area. Ranches managed for grazing and wildlife habitat make up nearly all of this area. Livestock grazing is the principal land use but some of the cropland is irrigated (USDA, 2022a). As shown on the map inset in **Figure 3-2C**, this

MLRA composes the smallest fraction of the study area compared to the remaining MLRAs, just barely overlapped by the northern reaches of the study area on the Concho County side of the Tom Green – Concho County line.

The Edwards Plateau, Central Part MLRA (81B) is characterized by rolling to steep topography with shallow soils over limestone bedrock and a plant community of trees, shrubs, and short or mid grasses. This MLRA receives an average annual precipitation of 19 to 32 inches, with most of the rainfall occurring in spring and fall. The amount of water is limited throughout most of the area but is abundant along the spring-fed perennial streams. This area is underlain primarily by limestones of the Cretaceous age. The soils in the area are well drained and are generally shallow with rock outcrop making up a significant portion of the area. Nearly all of the MLRA is used for livestock grazing and wildlife habitat (USDA, 2022a).

The Edwards Plateau, Eastern Part MLRA (81C) is also characterized by rolling to steep topography with shallow soils over limestone bedrock and a plant community of trees, shrubs, and mid or tall grasses. This area is underlain primarily by limestones of the Cretaceous age. The average annual precipitation in most of this area is 24 to 30 inches, with most of the rainfall occurring in spring and fall. The amount of water is limited throughout most of the area but is abundant along spring-fed, perennial streams. Ground water is generally deep and three of the principal aquifers in Texas are beneath this MLRA. Most of the MLRA is used for grazing and wildlife habitat while a few areas are used as cropland (USDA, 2022a).

The Grand Prairie MLRA (85A) is characterized by soils that formed in parent material from Early Cretaceous limestone and interbedded calcareous mudstone under a subhumid climate. This MLRA has soils that are generally shallow to moderately deep and are well drained to moderately well drained. Surface horizons are loamy to clayey. The average annual precipitation in this area is 27 to 41 inches, with most of the rainfall occurring in spring and fall. The moderate and often erratic rainfall is adequate for crops, pasture, and rangeland; however, summer droughts commonly reduce crop yields. Large rivers in this MLRA flow all year, and large reservoirs provide municipal water and opportunities for recreation. The dominant land use in this area is livestock grazing on rangeland (USDA, 2022a).

The Texas Blackland Prairie, Northern Part MLRA (86A) is underlain by chalk, claystone, marl, and shale of the Cretaceous age. These Cretaceous rocks are incised by several major stream systems and drainage patterns are controlled by the more resistant Cretaceous bedrock. The term “blackland” refers to the dark clay soils with a high shrink-swell capacity that occur in much of the area. The generally flat to gently rolling land is fertile and has a high potential for crop production. The average annual precipitation is 30 to 46 inches in most of this area with most of the rainfall occurring in spring and fall. In most years the moderate rainfall is adequate for crops and pasture, but summer droughts commonly reduce crop yields. Large reservoirs on the major streams in this area provide municipal water as well as opportunities for recreation. The water from the reservoirs is supplemented by some ground water. Shallow ground water is scarce throughout this MLRA, but several areas obtain small quantities of ground water from wells. The

soils in this area are well drained or moderately well drained and fine or medium textured. This area supports mixed tall and mid prairie grasses, and nearly all of this area is improved pasture, cropland, or rangeland but urban development is rapidly increasing (USDA, 2022a).

The Texas Central Basin MLRA (82A) is characterized by soils that formed over igneous and metamorphic rocks with some sedimentary sandstones and a plant community of mixed oak savanna and mid and tall grasses. The landscape is composed of rolling to steep hills and ridges dissected by drainage systems. Soils are shallow on hills and ridges and deeper along drainageways. This area is underlain primarily by igneous, metamorphic, and sedimentary rocks. The average annual precipitation in this MLRA is 24 to 31 inches, with most of the rainfall occurring in the spring and fall. The amount of water is limited throughout most of the MLRA but is abundant along perennial streams and in the three major reservoirs along the Colorado River. Ground water is found in valley fill deposits along the perennial streams and is generally shallow. These deposits provide water for livestock, domestic use, and some limited irrigation. Almost all of this area is used for grazing and wildlife habitat, and a few areas are used as cropland (USDA, 2022a).

The Texas North-Central Prairies MLRA (80B) primarily consists of eroded cuesta-like hills and strike valleys. This area is underlain primarily by limestone, sandstone, conglomerate, and shale of Pennsylvanian-age. The average annual precipitation is 28 to 34 inches, with most of the rainfall occurring during high-intensity, convective thunderstorms in spring and fall. The moderate, somewhat erratic rainfall is the primary source of water for crops and range. Large rivers in the area, such as the Brazos and Colorado rivers, flow most of the year, but local streams flow intermittently. The area has several large lakes and flood-detention reservoirs, but ground water is scarce. The soils are very shallow to very deep, well drained or moderately well drained, and generally loamy or clayey. This area supports oak savanna vegetation with an understory of tall grasses. Farms and ranches make up nearly all of this area. Many ranches are managed not only for livestock but also for wildlife (USDA, 2022a).

The Rolling Limestone Prairie MLRA (78A) is characterized by generally strongly sloping to moderately steep Permian-age limestone uplands and nearly level to gently sloping alluvial plains. The rolling landscape of this MLRA developed over interbedded limestones and shales. Very deep, clayey soils are common in the valleys, most of which are underlain by shale. The average annual precipitation is 23 to 29 inches, with most of the rainfall occurring from convective thunderstorms during the growing season. The moderate, somewhat erratic precipitation provides water for range and crops. The soils are very shallow to very deep, well drained, and generally loamy or clayey. Farms and ranches make up nearly all of this area, with land use dominated by livestock production, cropland on terraces and floodplains, and widespread use of rangeland for grazing and wildlife habitat (USDA, 2022a).

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Figure 3-2A: Major Land Resource Areas Map

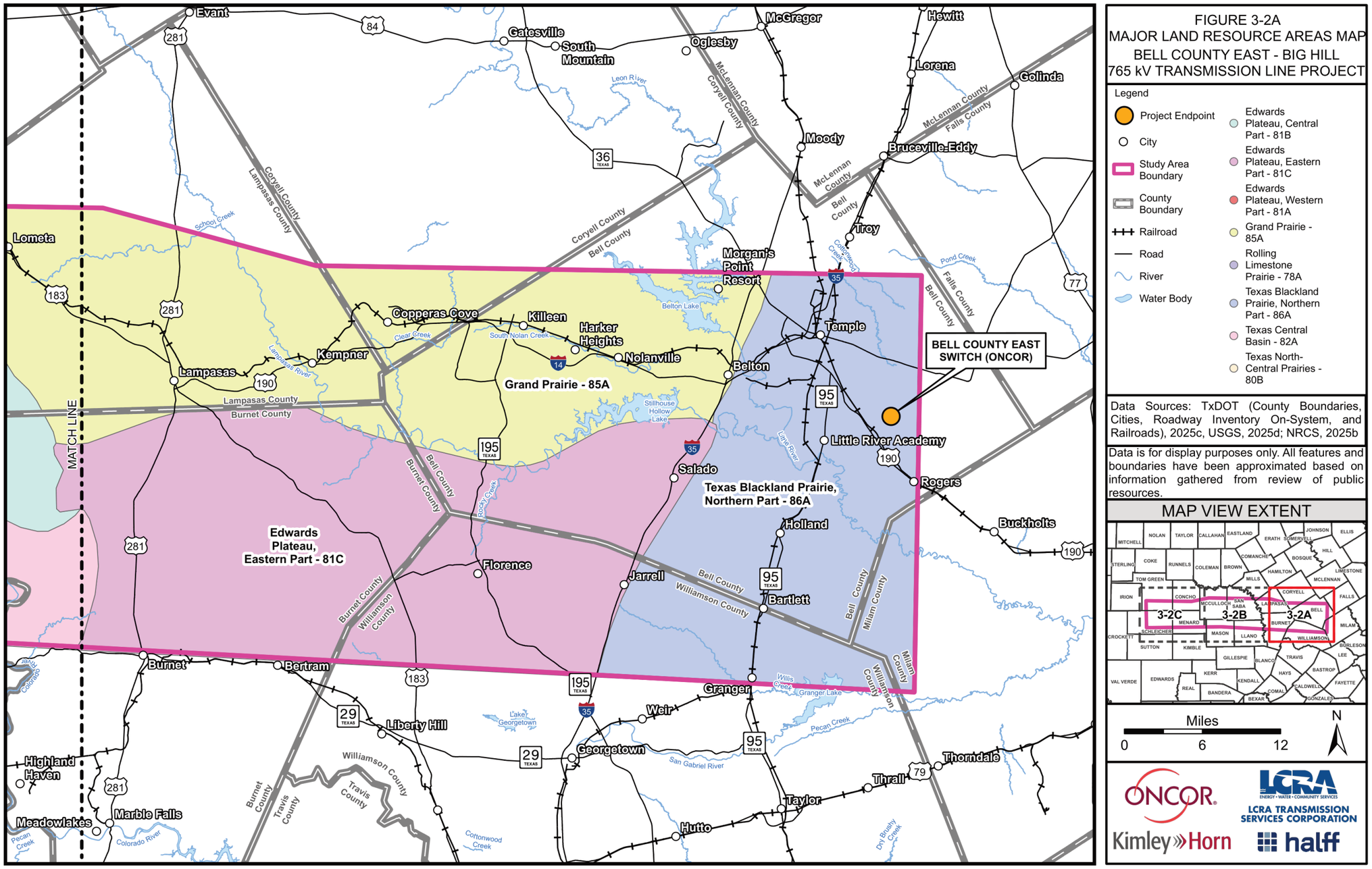

FIGURE 3-2A
MAJOR LAND RESOURCE AREAS MAP
BELL COUNTY EAST - BIG HILL
765 kV TRANSMISSION LINE PROJECT

Legend

- Project Endpoint
- City
- Study Area Boundary
- County Boundary
- Railroad
- Road
- River
- Water Body
- Edwards Plateau, Central Part - 81B
- Edwards Plateau, Eastern Part - 81C
- Edwards Plateau, Western Part - 81A
- Grand Prairie - 85A
- Rolling Limestone Prairie - 78A
- Texas Blackland Prairie, Northern Part - 86A
- Texas Central Basin - 82A
- Texas North-Central Prairies - 80B

Data Sources: TxDOT (County Boundaries, Cities, Roadway Inventory On-System, and Railroads), 2025c, USGS, 2025d; NRCS, 2025b

Data is for display purposes only. All features and boundaries have been approximated based on information gathered from review of public resources.

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Figure 3-2B: Major Land Resource Areas Map

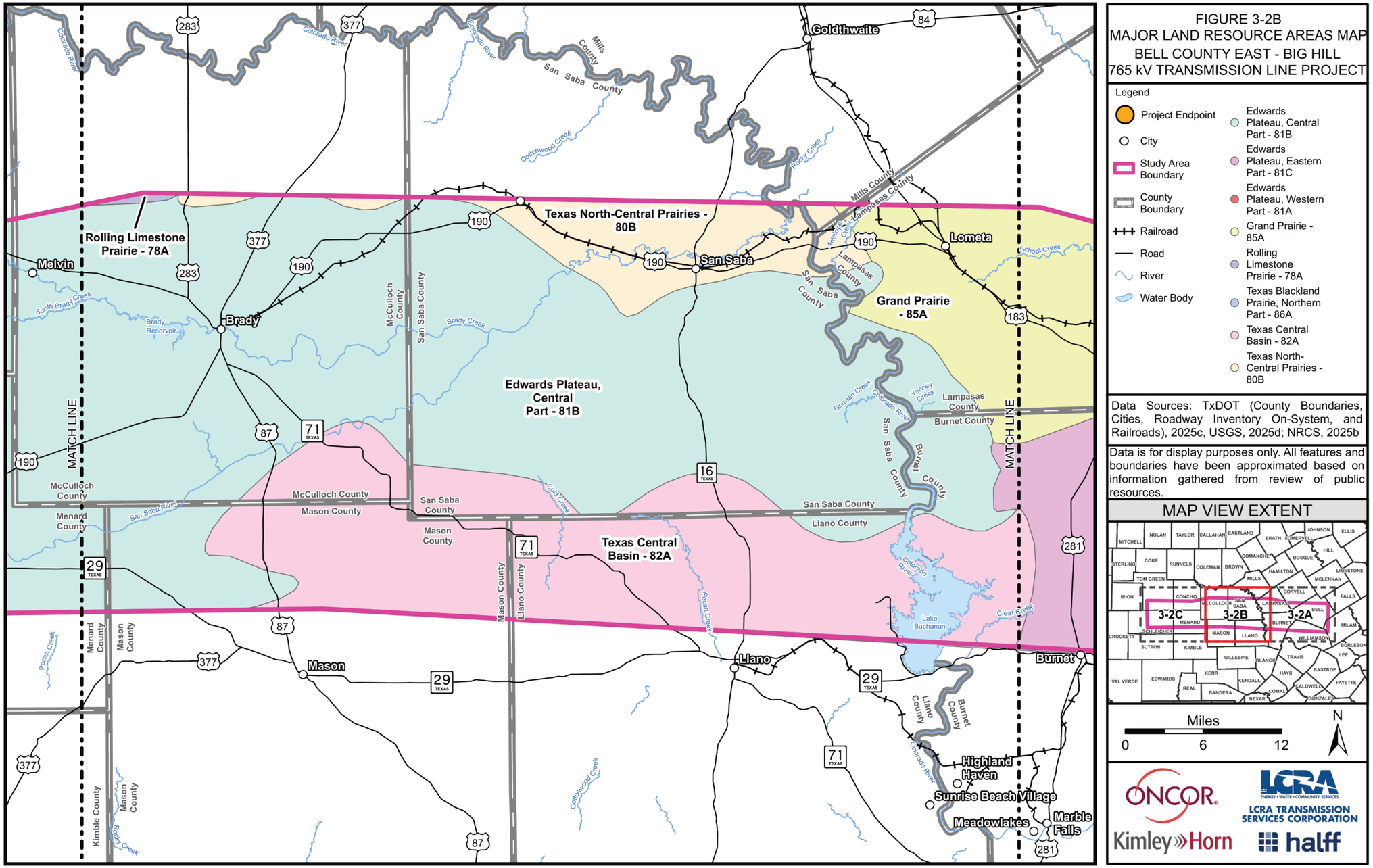

FIGURE 3-2B
MAJOR LAND RESOURCE AREAS MAP
BELL COUNTY EAST - BIG HILL
765 kV TRANSMISSION LINE PROJECT

Legend

- Project Endpoint
- City
- Study Area Boundary
- County Boundary
- Railroad
- Road
- River
- Water Body
- Edwards Plateau, Central Part - 81B
- Edwards Plateau, Eastern Part - 81C
- Edwards Plateau, Western Part - 81A
- Grand Prairie - 85A
- Rolling Limestone Prairie - 78A
- Texas Blackland Prairie, Northern Part - 86A
- Texas Central Basin - 82A
- Texas North-Central Prairies - 80B

Data Sources: TxDOT (County Boundaries, Cities, Roadway Inventory On-System, and Railroads), 2025c, USGS, 2025d; NRCS, 2025b

Data is for display purposes only. All features and boundaries have been approximated based on information gathered from review of public resources.

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LCRA TRANSMISSION SERVICES CORPORATION
Kimley»Horn
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Figure 3-2C: Major Land Resource Areas Map

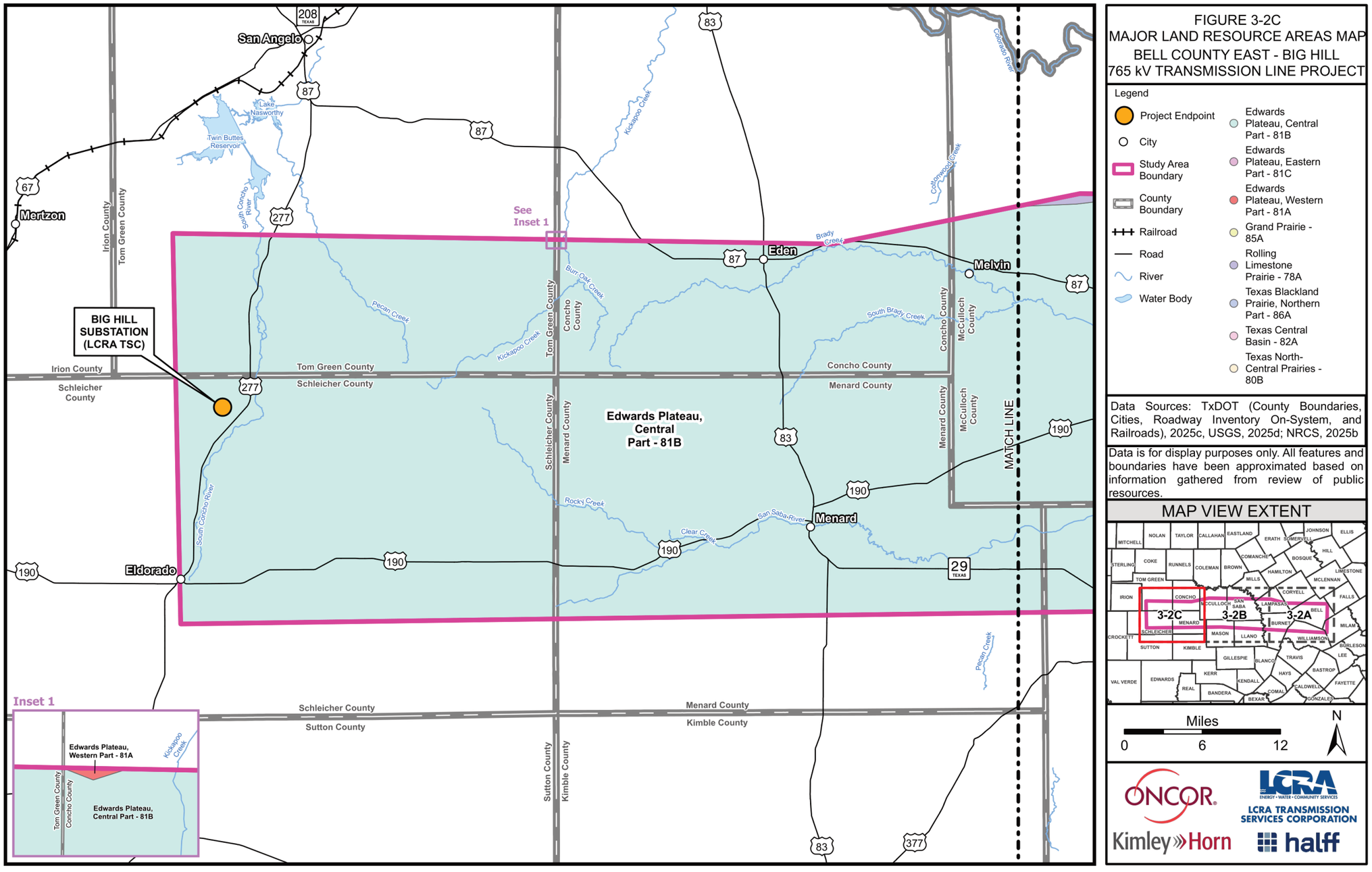

FIGURE 3-2C
MAJOR LAND RESOURCE AREAS MAP
BELL COUNTY EAST - BIG HILL
765 kV TRANSMISSION LINE PROJECT

Legend

- Project Endpoint
- City
- Study Area Boundary
- County Boundary
- Railroad
- Road
- River
- Water Body
- Edwards Plateau, Central Part - 81B
- Edwards Plateau, Eastern Part - 81C
- Edwards Plateau, Western Part - 81A
- Grand Prairie - 85A
- Rolling Limestone Prairie - 78A
- Texas Blackland Prairie, Northern Part - 86A
- Texas Central Basin - 82A
- Texas North-Central Prairies - 80B

Data Sources: TxDOT (County Boundaries, Cities, Roadway Inventory On-System, and Railroads), 2025c, USGS, 2025d; NRCS, 2025b

Data is for display purposes only. All features and boundaries have been approximated based on information gathered from review of public resources.

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3.2.2 Geologic Unit Descriptions

The Geologic Atlas of Texas is a database that depicts surface geology for the entire state of Texas (USGS, 2025b). The Atlas was completed in 1987 and has been updated to a web map viewer and a digital dataset containing more than 145,000 geologic features (USGS, 2014). According to the Geologic Atlas of Texas, there are 73 geologic units present within the study area. The geologic units within the study area are depicted in **Figures 3-3A**, **3-3B**, and **3-3C,** and listed, with descriptions, in **Table 3-1**.

Table 3-1: Geologic Units within the Study Area

Symbol	Name	Description	Figure Number
Crc	Lion Mountain Sandstone and Cap Mountain Limestone Members, undivided	Geologic age dating to the Middle Cambrian Epoch and consists of quartzose greensand, glauconitic quartz sandstone, impure limestone beds containing phosphatic brachiopods, and minor shale and siltstone.	**3-3B**
Crh	Hickory Sandstone Member	Geologic age dating to the Middle Cambrian Epoch and consists of medium to coarse-grained sandstone, mostly to fine medium-grained sandstone, and mostly fine to coarse-grained depending on the location in the formation.	**3-3B**
Cwm	Morgan Creek, Welge	Geologic age dating to the Upper Cambrian Epoch and consists of thickly to thinly bedded, granular, glauconitic, pink to reddish brown in basal portion, upward grey to greenish-gray and brownish-gray.	**3-3B**
Cwp	Point Peak Member	Geologic age dating to the Upper Cambrian Epoch and consists of siltstone, limestone, and shale. Predominately siltstone containing abundant authigenic feldspar, mostly laminated.	**3-3A, 3-3B**
Cws	San Saba Member	Geologic age dating to the Upper Cambrian Epoch and consists of dolomite and limestone, thickly to thinly bedded; dolomite mostly sparsely cherty; limestone moderately glauconitic.	**3-3B**
IPab	Adams Branch Limestone	Geologic age dating to the Missouri Epoch and consists of sandstone, shale, mudstone, conglomerate, siltstone, limestone, and sandstones.	**3-3B**
IPcc	Colony Creek Shale	Geologic age dating to the Missouri Epoch and consists of sandstone, shale, mudstone, conglomerate, siltstone, and limestone.	**3-3B**
IPcd	Cedarton Shale	Geologic age dating to the Missouri Epoch and consists of shale, mudstone, limestone, and sandstone.	**3-3B**
IPcn	Canyon Group, undivided	Geologic age dating to the Missouri Epoch and consists of limestone, shale, and sandstone.	**3-3B, 3-3C**
IPhc	Home Creek Limestone	Geologic age dating to the Missouri Epoch and consists of limestone and shale.	**3-3B**
IPmf	Marble Falls Formation	Geologic age dating to the Atoka Epoch and consists of limestone and shale; mostly limestone, very fine to coarse grained.	**3-3A, 3-3B**
IPPh	Harpersville Formation	Geologic age dating to the Virgil Epoch and consists of mudstone, sandstone, and limestone.	**3-3B**
IPpl	Placid Shale	Geologic age dating to the Missouri Epoch and consists of shale, limestone, and sandstone.	**3-3B**

Table 3-1: Geologic Units within the Study Area

Symbol	Name	Description	Figure Number
IPst	Strawn Group, undivided	Geologic age dating to the Des Moines Epoch and consists of sandstone, shale, mudstone, conglomerate, siltstone, and limestone.	**3-3B**
IPsw	Smithwick Shale	Geologic age dating to the Atoka Epoch and consists of shale and sandstone; mostly shale.	**3-3B**
IPtg	Thrifty and Graham Formations, undivided	Geologic age dating to the Virgil Epoch and consists of mudstone, shale, sandstone, and limestone.	**3-3B**
IPw	Winchell Limestone	Geologic age dating to the Missouri Epoch and consists of limestone, mudstone, shale, and sandstone.	**3-3B**
Ka	Antlers Sand	Geologic age dating to the Comanchean Epoch and consists of sandstone, sand, conglomerate, siltstone, and quartzite.	**3-3B, 3-3C**
Kau	Austin Chalk	Geologic age dating to the Gulfian Epoch and consists of chalk and marl.	**3-3A**
Kbc	Bee Cave Marl	Geologic age dating to the Comanchean Epoch and is lithologically and faunally similar to Keys Valley Marl.	**3-3A**
Kbu	Buda Limestone	Geologic age dating to the Comanchean Epoch and consists of limestone.	**3-3A, 3-3C**
Kc	Comanche Peak Limestone	Geologic age dating to the Comanchean Epoch and consists of limestone, fairly hard, numerous shale partings and filled burrows.	**3-3A, 3-3B**
Kcp	Cedar Park	Geologic age dating to the Comanchean Epoch and is lithologically and faunally similar to Comanche Peak Limestone.	**3-3A**
Kdfdce	Denton Clay, Fort Worth Limestone, Duck Creek Limestone, and Edwards Limestone, undivided	Geologic age dating to the Comanchean Epoch and consists of calcareous argillaceous limestone, marl, and massive rudistid limestone.	**3-3A**
Kdr	Del Rio Clay	Geologic age dating to the Comanchean Epoch and consists of calcareous and gypsiferous.	**3-3A**
Ked	Edwards Limestone	Geologic age dating to the Comanchean Epoch and consists of limestone, dolomite, and chert.	**3-3A, 3-3B**
Kef	Eagle Ford Group	Geologic age dating to the Gulfian Epoch and consists of shale and limestone; contains fossil fish teeth and bones.	**3-3A**
Kft	Fort Terrett Formation	Geologic age dating to the Comanchean Epoch and consists of limestone and dolomite.	**3-3B, 3-3C**
Kgr	Glen Rose Formation	Geologic age dating to the Comanchean Epoch and consists of limestone, clay, marl, and sand.	**3-3A, 3-3B**
Kgru	Upper Glen Rose Formation	Geologic age dating to the Comanchean Epoch and consists of limestone, dolomite, and marl.	**3-3A**
Kgt	Georgetown Formation	Geologic age dating to the Comanchean Epoch and consists of limestone and marl. Mostly limestone, fine grained.	**3-3A**
Kgy	Grayson Marl	Geologic age dating to the Comanchean Epoch and consists mostly of clay, some thin lenticular beds of highly calcareous siltstone.	**3-3A**
Kh	Hensell Sand	Geologic age dating to the Comanchean Epoch and consists of sand, silt, clay, and conglomerate.	**3-3A, 3-3B, 3-3C**

Table 3-1: Geologic Units within the Study Area

Symbol	Name	Description	Figure Number
Kknm	Kemp Clay, Corsicana Marl, Neylandville Formation, and Marlbrook Marl	Geologic age dating to the Gulfian Epoch and consists of upper part clay, calcareous, locally silty, massive, thinly laminated.	**3-3A**
Kkv	Keys Valley Marl	Geologic age dating to the Comanchean epoch and consists of soft, white marine megafossils.	**3-3A**
Klw	Lake Flow Formation	Geologic age dating to the Gulfian Epoch and consists of limestone and shale; limestone forms top and bottom units of formation.	**3-3A**
Kms	Main Street Limestone	Geologic age dating to the Comanchean Epoch and consists of medium grained, chalky, some six to eight foot interbeds of calcareous shale.	**3-3A**
Knt	Navarro and Taylor Groups, undivided	Geologic age dating to the Gulfian Epoch and is in areas where Pecan Gap Chalk is not present because of gradation to marl similar to that of the Marlbrook and Ozan Formations.	**3-3A**
Ko	Ozan Formation	Geologic age dating to the Gulfian Epoch and consists of clay, calcareous contents decrease upward.	**3-3A**
Kpa	Paluxy Formation	Geologic age dating to the Comanchean Epoch and consists of sandstone with interbedded claystone and siltstone; mostly quartz sandstone, very fine to fine grained.	**3-3A, 3-3B**
Kpe	Pepper Shale	Geologic age dating to the Gulfian Epoch and consists of shale, pyritic, massive, breaks with blocky fracture, thin to very thinly laminated; upon weathering develops fissility, selenite, and jarosite.	**3-3A**
Kpg	Pecan Gap Chalk	Geologic age dating to the Gulfian Epoch and consists of chalk in lower part grading upward to chalky marl with microgranular calcite in clay matrix, microfossils and megafossil fragments.	**3-3A**
Kpw	Pawpaw Formation Weno Limestone, undivided	Geologic age dating to the Comanchean Epoch and consists of calcareous marl, near middle soft ledge-forming limestone bed.	**3-3A**
Ks	Segovia Formation	Geologic age dating to the Comanchean Epoch and consists of limestone and dolomite.	**3-3B, 3-3C**
Ksb	South Bosque Formation	Geologic age dating to the Gulfian Epoch and consists of shale and limestone; mostly shale, bentonitic in lower part, soft, blocky, homogeneous.	**3-3A**
Ksf	Segovia and Fort Terrett Members of Edwards Limestone, undivided	Geologic age dating to the Comanchean Epoch and is locally lower part of Segovia Member and upper part of Fort Terrett undivided. Gypsum may be present locally.	**3-3C**
Ktp	Travis Peak Formation	Geologic age dating to the Comanchean Epoch and consists of conglomerate, sandstone, and limestone.	**3-3A, 3-3B**
Kwa	Walnut Formation	Geologic age dating to the Comanchean Epoch and consists of clay, limestone, and shale.	**3-3A, 3-3B**
Mbch	Barnett Formation, Chappel Limestone, and Houy Formation, undivided	Geologic age dating to the Mississippian undivided Epoch and consists of shale, scattered pelmatozoan, and an upper thin phosphatic member locally in the eastern area.	**3-3A, 3-3B**

Table 3-1: Geologic Units within the Study Area

Symbol	Name	Description	Figure Number
MD	Mississippian and Devonian rocks, undivided	Geologic age dating to the Mississippian undivided Epoch and consists of shale, petroliferous limestone, siliceous limestone, leached silica rock, chert, and dolomite.	**3-3B**
Og	Gorman Foundation	Geologic age dating to the Lower Ordovician Epoch and consists of limestone and dolomite, thick to thin bedded, cherty.	**3-3A, 3-3B**
Oh	Honeycut Formation	Geologic age dating to the Lower Ordovician Epoch and consists of limestone and dolomite, thin to thick bedded, cherty.	**3-3A, 3-3B**
Ot	Tanyard Formation	Geologic age dating to the Lower Ordovician Epoch and consists of limestone and dolomite.	**3-3A, 3-3B, 3-3C**
P	Permian rocks, undivided	Geologic age dating to the Permian undivided Epoch and consists of limestone and dolomite.	**3-3C**
Pad	Admiral Formation, restricted	Geologic age dating to the Wolfcamp Epoch and consists of limestone, shale, and sandstone.	**3-3C**
Pcj	Coleman Junction Formation, expanded	Geologic age dating to the Wolfcamp Epoch and consists of limestone and shale.	**3-3C**
pCl	Llanite	Geologic age dating to the Precambrian undivided Epoch and consists of porphyry characterized by phenocrysts of fed feldspar and blue chatoyant quartz in dark aphanitic groundmass.	**3-3B**
pClc	Lost Creek Gneiss	Geologic age dating to the Precambrian undivided Epoch and consists of metasedimentary augen gneiss, distinct from the Valley Spring Gneiss below, grades upward through a sequence of alternating beds of augen gneiss and schist to Packsaddle Schist.	**3-3B**
pCm	Mafic igneous rocks	Geologic age dating to the Precambrian undivided Epoch and consists of chiefly diorite, hornblendite, metagabbro, and metadiorite; occurs as linear to equidimensional bodies chiefly in the southeastern part of the Llano region.	**3-3B**
pCps	Packsaddle Schist, undivided	Geologic age dating to the Precambrian undivided Epoch and mostly consists of schist.	**3-3B**
pCtm	Town Mountain Granite	Geologic age dating to the Precambrian undivided Epoch and consists of coarse grained, pink, quartz-plagioclase-microcline rock.	**3-3B**
pCvs	Valley Spring Gneiss	Geologic age dating to the Precambrian undivided Epoch and consists of pink quartz-feldspar gneiss, well-foliated, augen gneiss.	**3-3B**
pCy	Younger granitic intrusive rocks	Geologic age dating to the Precambrian undivided and consists of Oatman Creek Granite, Sixmile Granite, aplogranite bodies and aplite dikes.	**3-3B**
Ppb	Pueblo Formation	Geologic age dating to the Holocene Epoch and consists of gravel, sand, silt, clay, and organic matter.	**3-3B**
Pssm	Santa Anna Branch, Sedwick, and Moran Formations, undivided except in northernmost area	Geologic age dating to the Wolfcamp Epoch and consists of mudstone, siltstone, sandstone, and limestone.	**3-3C**

Table 3-1: Geologic Units within the Study Area

Symbol	Name	Description	Figure Number
Qal	Alluvium	Geologic age dating to the Holocene Epoch and consists of floodplain deposits, including low terrace deposits near floodplain level.	**3-3A, 3-3B, 3-3C**
Qau	Quaternary deposits, undivided	Geologic age dating to the Holocene and Pleistocene Epochs and consists of alluvium and includes caliche locally covered by silt in gently sloping areas.	**3-3C**
Qc	Colluvium	Geologic age dating to the Holocene and Pleistocene Epochs and consists of evaporite.	**3-3B, 3-3C**
Qhg	High gravel deposits	Geologic age dating to the Pleistocene Epoch and consists of caliche-cemented gravel, pebbles, and cobbles of chert and limestone up to four inches long.	**3-3A, 3-3B**
Qp	Playa deposits	Geologic age dating to the Pleistocene Epoch and consists of clay and silt, sandy, light grey, in shallow depressions, usually covered by a thin deposit of recent sediment.	**3-3C**
Qt	Terrace deposits	Geologic age dating to the Pleistocene Epoch and consists of gravel, sand, and silt.	**3-3A, 3-3B, 3-3C**
Qtr	Fluviatile terrace deposits	Geologic age dating to the Holocene Epoch and consists of spring-deposited calcium carbonate, mostly in western Burnet and eastern Llano and Gillespie counties.	**3-3B**
Qu	Quaternary deposit, undivided	Geologic age dating to the Holocene and Pleistocene Epochs and consists of sand, silt, clay, gravel, and caliche.	**3-3B, 3-3C**

Source: USGS, 2014; USGS, 2025b

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Figure 3-3A: Geologic Atlas of Texas Map

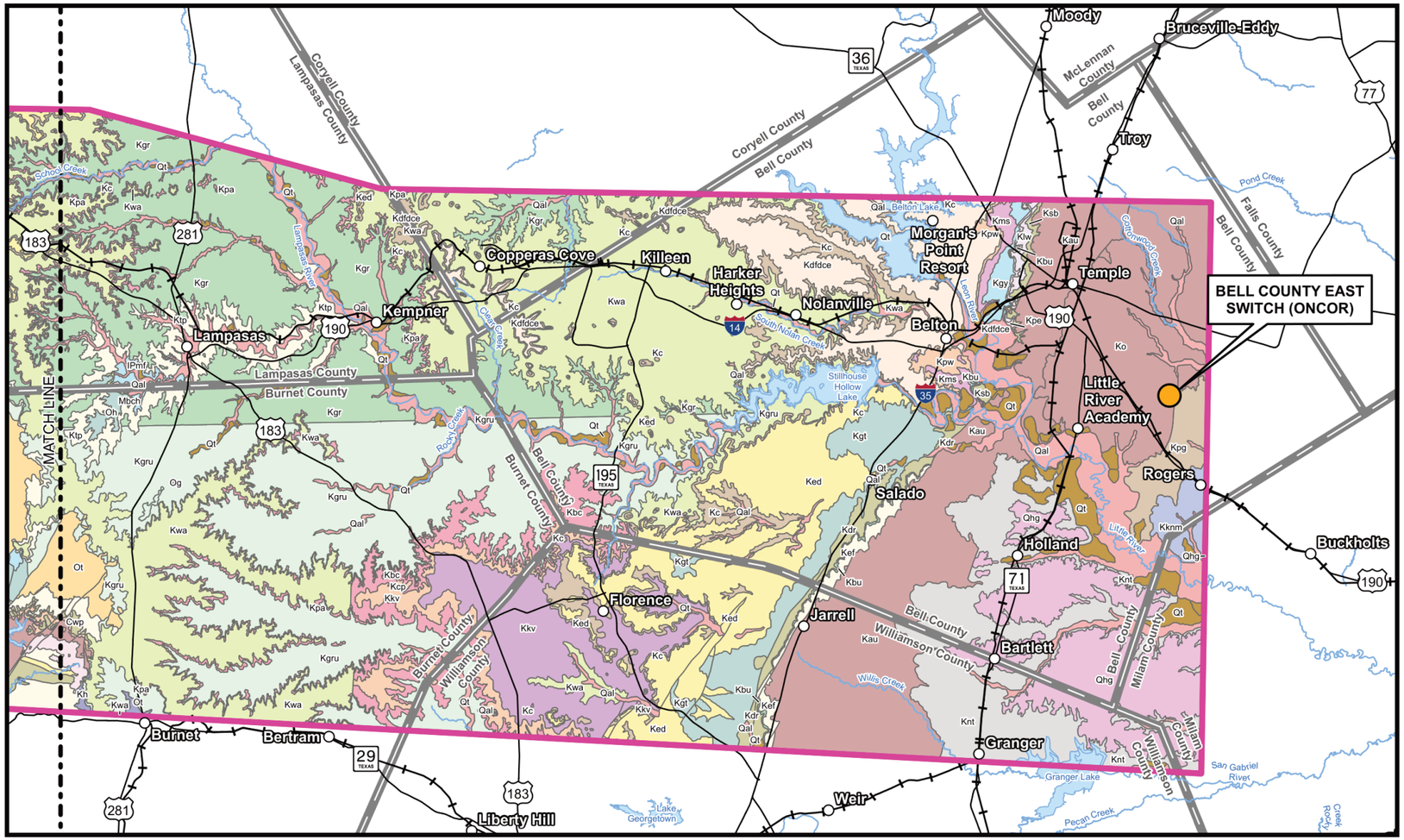

FIGURE 3-3A
GEOLOGIC ATLAS OF TEXAS MAP
BELL COUNTY EAST - BIG HILL
765 kV TRANSMISSION LINE PROJECT

Legend

- Project Endpoint
- City
- Study Area Boundary
- County Boundary
- Road
- Railroad
- River
- Water Body

Data Sources: TxDOT (County Boundaries, Cities, Roadway Inventory On-System, and Railroads), 2025c, USGS, 2025d; NRCS, 2025b

Data is for display purposes only. All features and boundaries have been approximated based on information gathered from review of public resources.

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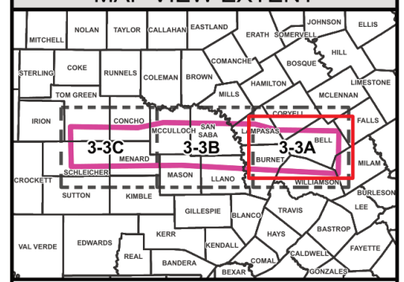

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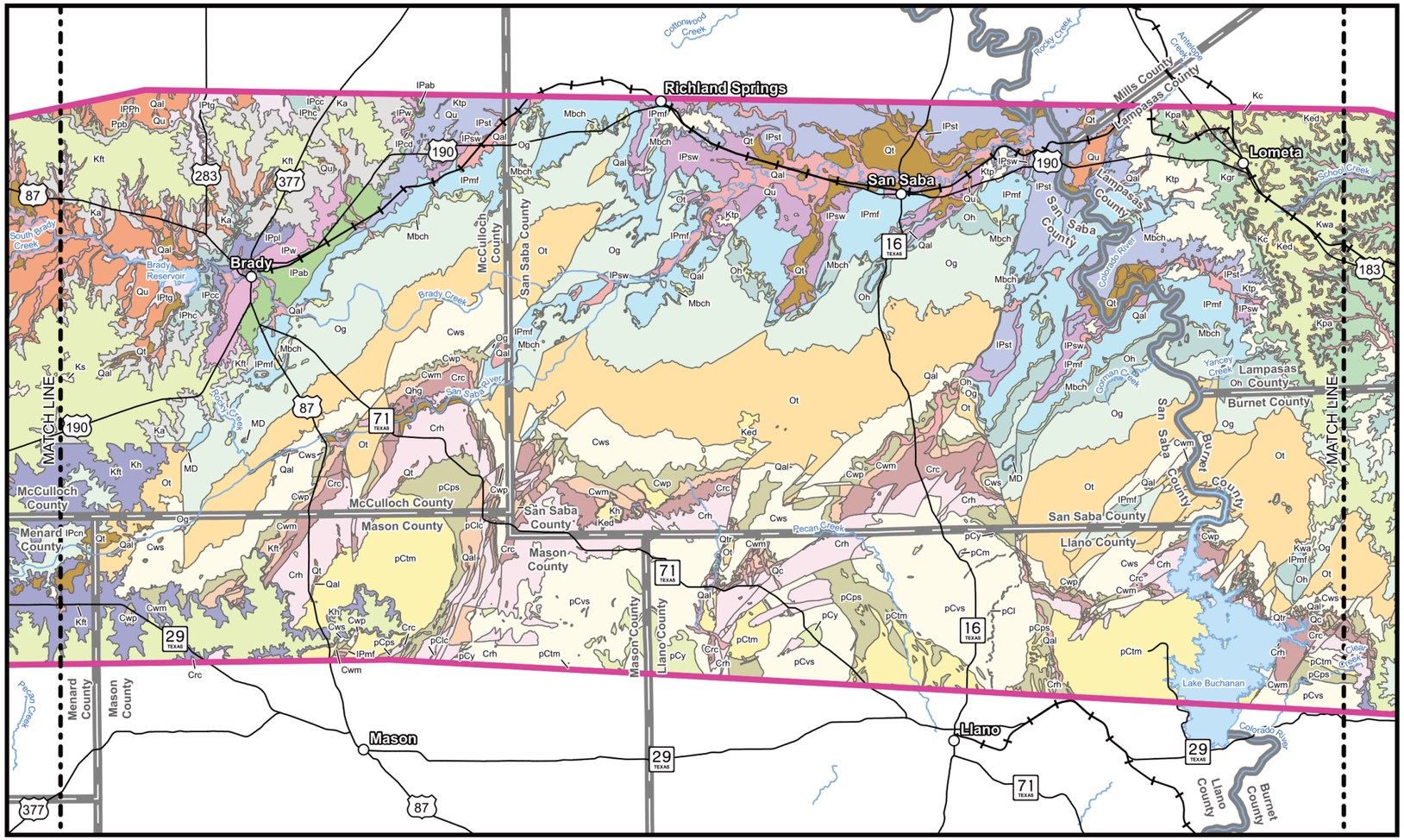
Geologic Rock Unit Legend

- Crc - Lion Mountain Sandstone and Cap Mountain Limestone Members, undivided
- Crh - Hickory Sandstone Member
- Cwm - Morgan Creek, Welge
- Cwp - Point Peak Member
- Cws - San Saba Member
- IPab - Adams Branch Limestone
- IPcc - Colony Creek Shale
- IPcd - Cedarton Shale
- IPcn - Canyon Group, undivided
- IPhc - Home Creek Limestone
- IPmf - Marble Falls Formation
- IPPh - Harpersville Formation
- IPpl - Placid Shale
- IPst - Strawn Group, undivided
- IPsw - Smithwick Shale
- IPtg - Thrifty and Graham Formations, undivided
- IPw - Winchell Limestone
- Ka - Antlers Sand
- Kau - Austin Chalk
- Kbc - Bee Cave Marl
- Kbu - Buda Limestone
- Kc - Comanche Peak Limestone
- Kcp - Cedar Park
- Kdfdce - Denton Clay, Fort Worth Limestone, Duck Creek Limestone, and Edwards Limestone, undivided
- Kdr - Del Rio Clay
- Ked - Edwards Limestone
- Kef - Eagle Ford Group
- Kft - Fort Terrett Formation
- Kgr - Glen Rose Formation
- Kgru - Upper Glen Rose Formation
- Kgt - Georgetown Formation
- Kgy - Grayson Marl ("Del Rio Clay")
- Kh - Hensell Sand
- Kknm - Kemp Clay, Corsicana Marl, Neylandville Formation, and Marlbrook Marl
- Kkv - Keys Valley Marl
- Klw - Lake Flow Formation
- Kms - Main Street Limestone
- Knt - Navarro and Taylor Groups, undivided
- Ko - Ozan Formation
- Kpa - Paluxy Formation
- Kpe - Pepper Shale
- Kpg - Pecan Gap Chalk
- Kpw - Pawpaw Formation Weno Limestone, undivided
- Ks - Segovia Formation
- Ksb - South Bosque Formation
- Ksf - Segovia and Fort Terrett Members of Edwards Limestone, undivided
- Ktp - Travis Peak Formation
- Kwa - Walnut Formation
- Mbch - Barnett Formation, Chappel Limestone, and Houy Formation, undivided
- MD - Mississippian and Devonian rocks, undivided
- Og - Gorman Formation
- Oh - Honeycut Formation
- Ot - Tanyard Formation
- P - Permian rocks, undivided
- Pad - Admiral Formation, restricted
- Pcj - Coleman Junction Formation, expanded
- pCl - Llanite
- pClc - Lost Creek Gneiss
- pCm - Mafic igneous rocks
- pCps - Packsaddle Schist, undivided
- pCtm - Town Mountain Granite
- pCvs - Valley Spring Gneiss
- pCy - Younger granitic intrusive rocks
- Ppb - Pueblo Formation
- Pssm - Santa Anna Branch, Sedwick, and Moran Formations, undivided except in northernmost area
- Qal - Alluvium
- Qau - Quaternary deposits, undivided
- Qc - Colluvium
- Qhg - High gravel deposits
- Qp - Playa deposits
- Qt - Terrace deposits
- Qtr - Fluviatile terrace deposits
- Qu - Quaternary deposit, undivided

Figure 3-3B: Geologic Atlas of Texas Map



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- IPcn - Canyon Group, undivided
- IPhc - Home Creek Limestone
- IPmf - Marble Falls Formation
- IPPh - Harpersville Formation
- IPpl - Placid Shale
- IPst - Strawn Group, undivided
- IPsw - Smithwick Shale
- IPtg - Thrifty and Graham Formations, undivided
- IPw - Winchell Limestone
- Ka - Antlers Sand
- Kau - Austin Chalk
- Kbc - Bee Cave Marl
- Kbu - Buda Limestone
- Kc - Comanche Peak Limestone
- Kcp - Cedar Park
- Kdfdce - Denton Clay, Fort Worth Limestone, Duck Creek Limestone, and Edwards Limestone, undivided
- Kdr - Del Rio Clay
- Ked - Edwards Limestone
- Kef - Eagle Ford Group
- Kft - Fort Terrett Formation
- Kgr - Glen Rose Formation
- Kgru - Upper Glen Rose Formation
- Kgt - Georgetown Formation
- Kgy - Grayson Marl ("Del Rio Clay")
- Kh - Hensell Sand
- Kkmn - Kemp Clay, Corsicana Marl, Neylandville Formation, and Marlbrook Marl
- Kkv - Keys Valley Marl
- Klw - Lake Flow Formation
- Kms - Main Street Limestone
- Knt - Navarro and Taylor Groups, undivided
- Ko - Ozan Formation
- Kpa - Paluxy Formation
- Kpe - Pepper Shale
- Kpg - Pecan Gap Chalk
- Kpw - Pawpaw Formation Weno Limestone, undivided
- Ks - Segovia Formation
- Ksb - South Bosque Formation
- Ksf - Segovia and Fort Terrett Members of Edwards Limestone, undivided
- Ktp - Travis Peak Formation
- Kwa - Walnut Formation
- Mbch - Barnett Formation, Chappel Limestone, and Houy Formation, undivided
- MD - Mississippian and Devonian rocks, undivided
- Og - Gorman Formation
- Oh - Honeycut Formation
- Ot - Tanyard Formation
- P - Permian rocks, undivided
- Pad - Admiral Formation, restricted
- Pcj - Coleman Junction Formation, expanded
- pCl - Llanite
- pClc - Lost Creek Gneiss
- pCm - Mafic igneous rocks
- pCps - Packsaddle Schist, undivided
- pCtm - Town Mountain Granite
- pCvs - Valley Spring Gneiss
- pCy - Younger granitic intrusive rocks
- Ppb - Pueblo Formation
- Pssm - Santa Anna Branch, Sedwick, and Moran Formations, undivided except in northernmost area
- Qal - Alluvium
- Qau - Quaternary deposits, undivided
- Qc - Colluvium
- Qhg - High gravel deposits
- Qp - Playa deposits
- Qt - Terrace deposits
- Qtr - Fluviatile terrace deposits
- Qu - Quaternary deposit, undivided

FIGURE 3-3B
GEOLOGIC ATLAS OF TEXAS MAP
BELL COUNTY EAST - BIG HILL
765 kV TRANSMISSION LINE PROJECT

Legend

- Project Endpoint
- City
- Study Area Boundary
- County Boundary
- Road
- Railroad
- River
- Water Body

Data Sources: TxDOT (County Boundaries, Cities, Roadway Inventory On-System, and Railroads), 2025c, USGS, 2025d; NRCS, 2025b

Data is for display purposes only. All features and boundaries have been approximated based on information gathered from review of public resources.

MAP VIEW EXTENT

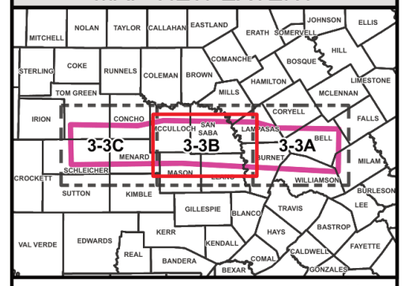

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Figure 3-3C: Geologic Atlas of Texas Map

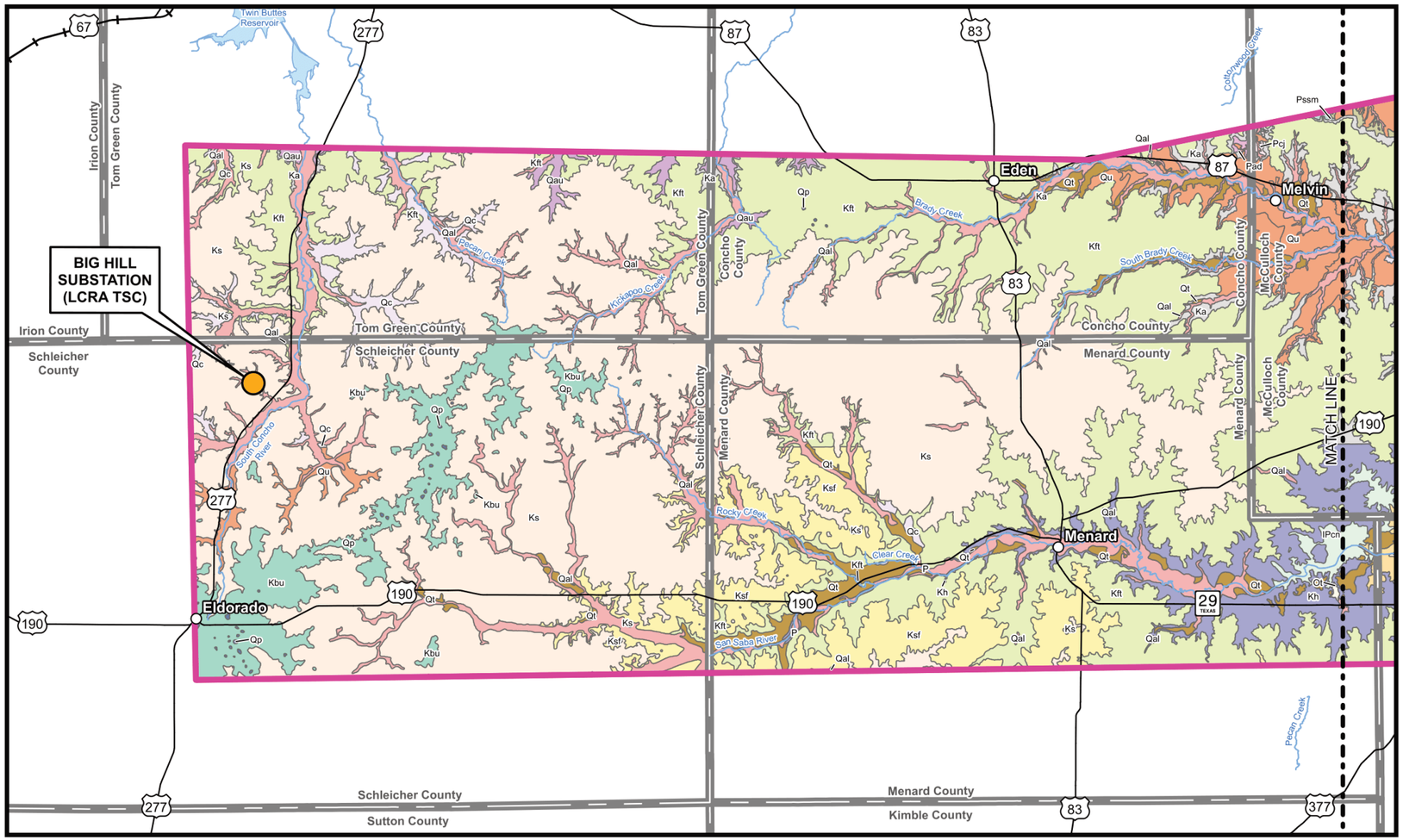

FIGURE 3-3C
GEOLOGIC ATLAS OF TEXAS MAP
BELL COUNTY EAST - BIG HILL
765 kV TRANSMISSION LINE PROJECT

Legend

- Project Endpoint
- City
- Study Area Boundary
- County Boundary
- Road
- Railroad
- River
- Water Body

Data Sources: TxDOT (County Boundaries, Cities, Roadway Inventory On-System, and Railroads), 2025c, USGS, 2025d; NRCS, 2025b

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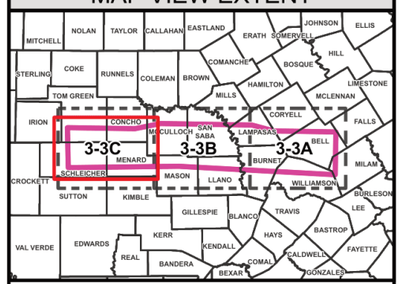

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- Qhg - High gravel deposits
- Qp - Playa deposits
- Qt - Terrace deposits
- Qtr - Fluviatile terrace deposits
- Qu - Quaternary deposit, undivided

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3.2.3 Karst Zone Descriptions

The study area overlaps karst landscapes (TPWD, 2014a) which are characterized by the formation of geologic features such as caves, subterranean voids, solution cavities, sinkholes, fractures, and other mesocavernous spaces that form via the dissolution of karst landscapes (USFWS, 2024a). These features often lack surface expression or are too small for humans to physically access. Karst landscapes are unique environments for water resources, discussed further in **Section 3.4.2**. USFWS-regulated karst zones are located within the eastern portion of the study area and karst zones are shown on **Figure 3-4**. The general descriptions of the USFWS-regulated karst zones are listed below (USFWS, 2024a).

- Karst Zone 1: Areas known to contain endangered karst invertebrate species.
- Karst Zone 2: Areas having a high probability of suitable habitat for endangered or other endemic karst invertebrate species.
- Karst Zone 3a: Areas suitable for endangered karst invertebrate species but have a low probability of containing endangered karst species because the habitat is occupied by other karst invertebrate species.
- Karst Zone 3b: Areas that have a low probability of containing endangered karst invertebrate species because they are poorly suited for karst invertebrate species.
- Karst Zone 4a: Areas suitable for karst invertebrate species but do not contain endangered karst species because the habitat is occupied by other karst invertebrate species.
- Karst Zone 4b: Areas that do not contain karst invertebrate species.

These karst zones represent unique habitats for species which are discussed in further detail in **Section 3.5.2.4**.

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Figure 3-4: Karst Map

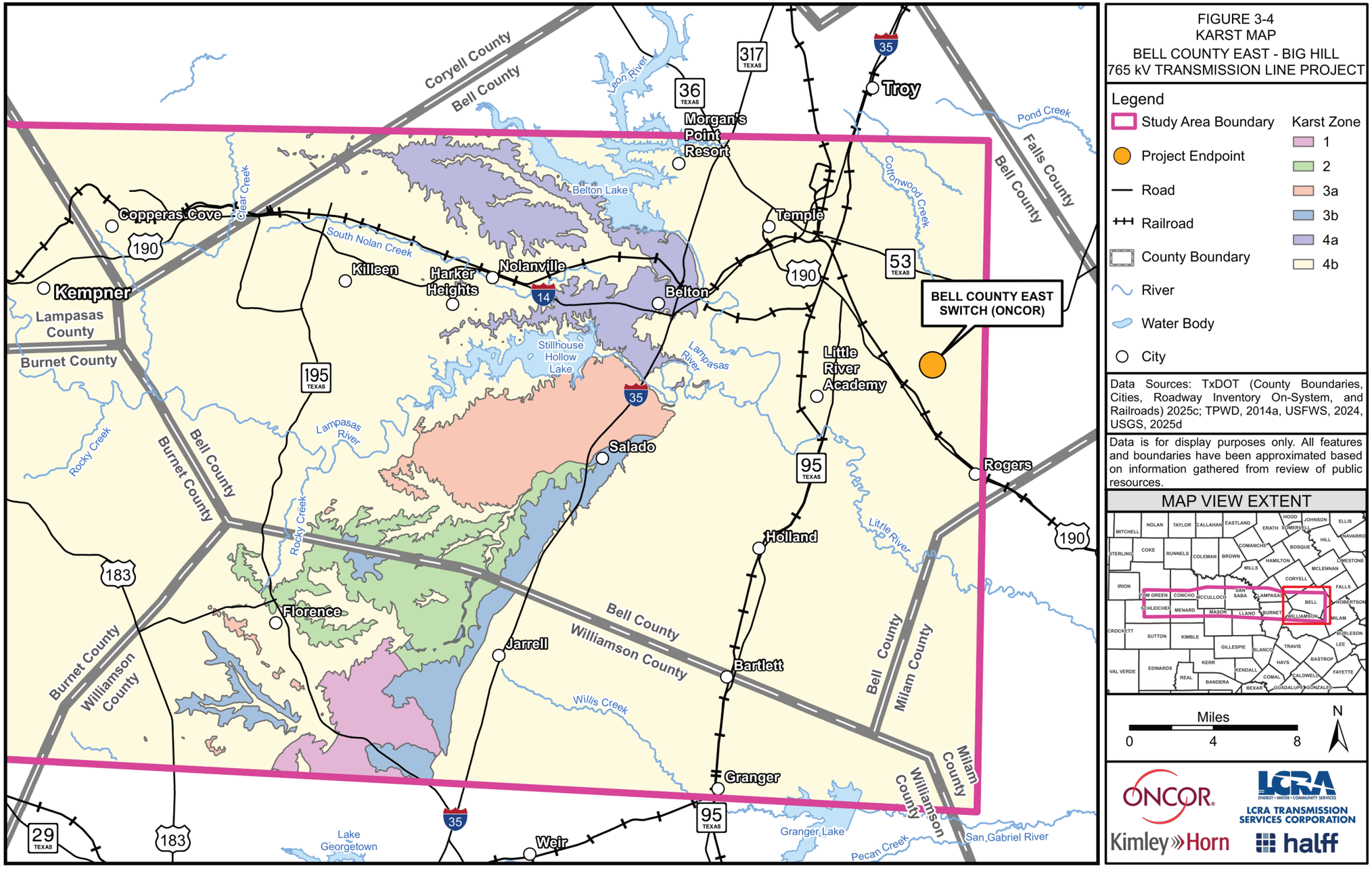

FIGURE 3-4
KARST MAP
BELL COUNTY EAST - BIG HILL
765 kV TRANSMISSION LINE PROJECT

Legend

- Study Area Boundary
- Project Endpoint
- Road
- Railroad
- County Boundary
- River
- Water Body
- City

Karst Zone

- 1
- 2
- 3a
- 3b
- 4a
- 4b

Data Sources: TxDOT (County Boundaries, Cities, Roadway Inventory On-System, and Railroads) 2025c; TPWD, 2014a, USFWS, 2024, USGS, 2025d

Data is for display purposes only. All features and boundaries have been approximated based on information gathered from review of public resources.

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3.3 Soils

3.3.1 Soil Associations

Data from the NRCS were utilized to characterize the soils within the study area. The NRCS published digital soil maps in 2005 and refreshes its publicly available soil survey database once per year (NRCS, 2022). Soils are classified based on their physical and chemical properties (NRCS, 2025a). Soil maps display a general overview of soil types within a specific area (NRCS, 2025b). An association is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the NRCS soil maps. According to the NRCS Web Soil Survey (NRCS, 2025b), 48 soil associations are mapped within the study area (**Figures 3-5A**, **3-5B**, and **3-5C**). Soil associations documented within the study area are listed in **Table 3-2**.

Table 3-2: Soil Associations within the Study Area

Soil Association Map Unit: Name	Description of Soil Unit	Figure Number
s7167: Cho-Angelo	The Cho series consists of very shallow or shallow, well drained soils formed in loamy calcareous gravelly alluvium. The Angelo series consists of deep or very deep, well drained, moderately slowly permeable soils formed in calcareous loamy and clayey alluvium derived from limestone.	**3-5C**
s7171: Mereta-Angelo	The Mereta series consists of well drained, moderately slowly permeable soils that are shallow. The Angelo series consists of deep or very deep, well drained, moderately slowly permeable soils formed in calcareous loamy and clayey alluvium derived from limestone.	**3-5C**
s7185: Stephen-Houston Black-Heiden-Eddy-Austin	The Stephen series consists of shallow, well drained, moderately slowly permeable soils formed from weathered chalk. The Houston Black series consists of very deep, moderately well drained, very slowly permeable soils formed in clayey residuum derived from calcareous mudstone. The Heiden series consists of deep and very slowly permeable soils that formed in clayey residuum weathered from mudstone. The Eddy series consists of shallow to very shallow, well drained, moderately permeable soils that formed in residuum from chalky limestone. The Austin series consists of moderately deep, well drained, moderately slowly permeable soils that formed in residuum weathered from chalk.	**3-5A**
s7211: Winters-Callahan-Bonti	The Winters series consists of very deep, well drained, moderately slowly permeable soils formed in loamy or clayey alluvium. The Callahan series consists of moderately deep, well drained, slowly permeable soils that formed in claystone interbedded with thin sandstone strata. The Bonti series consists of moderately deep to sandstone, well drained, moderately slowly permeable soils that formed in residuum derived from interbedded sandstone and claystone.	**3-5B**
s7215: Frio-Bosque	The Frio series consists of very deep, well drained, moderately slowly permeable soils that formed in calcareous loamy and clayey alluvium. The Bosque series consists of very deep loamy alluvium, well drained soils that formed in loamy, calcareous alluvium derived from limestone and shale.	**3-5A**
s7218: Brackett-Bolar	The Brackett series consists of shallow to paralithic bedrock, well drained soils formed in limestone. The Bolar series consists of moderately deep, well drained, moderately permeable soils formed in interbedded limestones and calcareous marls formed in residuum.	**3-5A, 3-5B**
s7219: Lampasas-Brackett	The Lampasas series consists of shallow to fragmental limestone that is well drained, moderately slowly permeable soils on uplands. The Brackett series consists of shallow to paralithic bedrock, well drained soils formed in limestone.	**3-5A, 3-5B**

Table 3-2: Soil Associations within the Study Area

Soil Association Map Unit: Name	Description of Soil Unit	Figure Number
s7220: Real-Purves-Brackett	The Real series consists of very shallow or shallow to paralithic limestone bedrock interbedded with marl and chalk. The Purves series consists of shallow, well drained, moderately slowly permeable soils that formed in interbedded limestone and marl. The Brackett series consists of shallow to paralithic bedrock, well drained soils formed in limestone.	**3-5A**
s7238: Rock outcrop-Keese-Castell	The Rock outcrop series consists of miscellaneous components. The Keese series consists of well drained shallow soils to bedrock that formed from weathered granite. The Castell series consists of well drained, and moderately deep to gneiss bedrock.	**3-5A, 3-5B**
s7244: Rowena-Nuvalde-Mereta-Cho	The Rowena series consists of very deep, well drained, moderately slowly permeable soils that formed in calcareous loamy and clayey alluvium. The Nuvalde series consists of very deep, well drained, moderately slowly permeable soils that formed in calcareous silty and clayey alluvium derived from limestone. The Mereta series consists of well drained, moderately slowly permeable soils that are shallow. The Cho series consists of very shallow or shallow, well drained soils formed in loamy calcareous gravelly alluvium.	**3-5B, 3-5C**
s7290: Real-Krum-Doss-Cisco	The Real series consists of very shallow or shallow to paralithic limestone bedrock interbedded with marl and chalk. The Krum series consists of very deep to clayey alluvium, well drained soils that formed in calcareous clayey alluvium derived from interbedded chalk and marl. The Doss series consists of shallow to weakly cemented limestone, well drained, moderately slow permeable soils that formed in calcareous loamy and clayey residuum derived from marls and limestone. The Cisco series consists of very deep, well drained, moderately permeable soils that formed in loamy and sandy materials derived from sandstone of Cretaceous age.	**3-5A**
s7291: Real-Doudle	The Real series consists of very shallow or shallow to paralithic limestone bedrock interbedded with marl and chalk. The Doudle series consists of moderately deep, well drained, moderately rapidly permeable soils.	**3-5B**
s7296: Yates-Oplin-Eckert	The Yates series consists of very shallow and shallow, well drained, stony soils formed in residuum derived from Cambrian age limestone. The Oplin series consists of very shallow and shallow, well drained, moderately permeable soils formed in residuum from indurated limestone. The Eckert series consists of soils that are shallow to indurated limestone bedrock.	**3-5B**
s7298: Georgetown-Eckrant	The Georgetown series consists of moderately deep, well drained, very slowly permeable soils that formed from limestones. The Eckrant series consists of well drained, moderately slowly permeable soils that are very shallow to shallow over indurated limestone bedrock.	**3-5A**
s7299: Slidell-Real-Eckrant-Doss-Denton-Bolar	The Slidell series consists of very deep, moderately well drained, very slowly permeable soils that formed in calcareous clayey sediments. The Real series consists of very shallow or shallow to paralithic limestone bedrock interbedded with marl and chalk. The Eckrant series consists of well drained, moderately slowly permeable soils that are very shallow to shallow over indurated limestone bedrock. The Doss series consists of shallow to weakly cemented limestone, well drained, moderately slow permeable soils that formed in calcareous loamy and clayey residuum derived from marls and limestone. The Denton series consist of deep, well drained, slowly permeable soils that formed in clayey materials over residuum weathered from limestone bedrock. The Bolar series consists of moderately deep, well drained, moderately permeable soils formed in interbedded limestones and calcareous marls formed in residuum.	**3-5A**

Table 3-2: Soil Associations within the Study Area

Soil Association Map Unit: Name	Description of Soil Unit	Figure Number
s7300: Rock outcrop-Eckrant	The Rock outcrop series consists of miscellaneous components. The Eckrant series consists of well drained, moderately slowly permeable soils that are very shallow to shallow over indurated limestone bedrock.	**3-5A, 3-5B**
s7314: Kavett-Eola-Cho	The Kavett series consists of shallow, well drained, moderately slowly permeable soils that formed in calcareous, clayey residuum derived from limestone or limestone interbedded with chalk or marl. The Eola series consists of very shallow and shallow, well drained, moderately permeable soils that formed in loamy residuum over marl and soft limestone bedrock. The Cho series consists of very shallow or shallow, well drained soils formed in loamy calcareous gravelly alluvium.	**3-5C**
s7334: Gageby-Frio	The Gageby series consists of very deep, well drained, moderately permeable soils that formed in calcareous, loamy alluvium. The Frio series consists of very deep, well drained, moderately slowly permeable soils that formed in calcareous loamy and clayey alluvium.	**3-5C**
s7336: Nuvalde-Frio	The Nuvalde series consists of very deep, well drained, moderately slowly permeable soils that formed in calcareous silty and clayey alluvium derived from limestone. The Frio series consists of very deep, well drained, moderately slowly permeable soils that formed in calcareous loamy and clayey alluvium.	**3-5B**
s7370: Tarpley-Hensley	The Tarpley series consists of shallow, well drained, slowly permeable soils that formed in calcareous clayey residuum over limestone bedrock. The Hensley series consists of soils that are shallow to indurated limestone bedrock.	**3-5A, 3-5B**
s7377: Houston Black-Heiden-Altoga	The Houston Black series consists of very deep, moderately well drained, very slowly permeable soils formed in clayey residuum derived from calcareous mudstone. The Heiden series consists of deep and very deep to mudstone, well drained, very slowly permeable soils that formed in clayey residuum weathered from mudstone. The Altoga series consists of very deep, well drained, moderately permeable soils that formed in calcareous clayey alluvium derived from mudstone.	**3-5A**
s7427: Sagerton-Rowena-Leeray	The Sagerton series consists of very deep, well drained, moderately slowly permeable soils that formed in calcareous loamy alluvium. The Rowena series consists of very deep, well drained, moderately slowly permeable soils that formed in calcareous loamy and clayey alluvium. The Leeray series consists of very deep, well drained, very slowly permeable soils that formed in calcareous, clayey slope alluvium.	**3-5B**
s7433: Ligon-Katemcy	The Ligon series consists of well drained moderately deep soils to schist bedrock that formed in residuum weathered from schist. The Katemcy series consists of moderately deep, well drained soils that formed in slope alluvium over schist.	**3-5B**
s7440: Real-Lometa-Cho	The Real series consists of very shallow or shallow to paralithic limestone bedrock interbedded with marl and chalk. The Lometa series consists of moderately deep, well drained, slowly permeable soils on uplands. The Cho series consists of very shallow or shallow, well drained soils formed in loamy calcareous gravelly alluvium.	**3-5B**
s7463: Menard-Hext	The Menard series consists of deep, well drained, moderately permeable soils developed in loamy calcareous slope alluvium over residuum. The Hext series consists of moderately deep, well drained, moderately permeable soils that formed in alkaline loamy earths and weakly cemented calcareous sandstones.	**3-5B, 3-5C**
s7465: Mereta-Cho	The Mereta series consists of well drained, moderately slowly permeable soils that are shallow. The Cho series consists of very shallow or shallow, well drained soils formed in loamy calcareous gravelly alluvium.	**3-5B, 3-5C**

Table 3-2: Soil Associations within the Study Area

Soil Association Map Unit: Name	Description of Soil Unit	Figure Number
s7495: Pontotoc-Nebgen-Hye-Campair	The Pontotoc series consists of very deep, well drained soils that formed in thick beds of red Cambrian age sandstone bedrock. The Nebgen series consists of very shallow or shallow, well drained soils formed in residuum from Cambrian age sandstone bedrock. The Hye series consists of moderately deep to sandstone bedrock, well drained soils that formed in residuum from red colored Cambrian age sandstone bedrock. The Campair series consists of soils that are moderately deep to sandstone bedrock.	**3-5A, 3-5B**
s7496: Throck-Nocken-Callahan-Bonti	The Throck series consists of soils that are moderately deep and deep over claystone bedrock or dense clay. The Nocken series consists of moderately deep, well drained, moderately slowly permeable soils that formed in residuum from weathered sandstone. The Callahan series consists of moderately deep, well drained, slowly permeable soils that formed in claystone interbedded with thin sandstone strata. The Bonti series consists of moderately deep to sandstone, well drained, moderately slowly permeable soils that formed in residuum derived from interbedded sandstone and claystone.	**3-5B**
s7502: Nuff-Cho	The Nuff series consists of well drained, moderately slowly permeable soils formed in interbedded marl, limestone, and shale. The Cho series consists of very shallow or shallow, well drained soils formed in loamy calcareous gravelly alluvium.	**3-5A**
s7504: Nuvalde-Frio-Dev	The Nuvalde series consists of very deep, well drained, moderately slowly permeable soils that formed in calcareous silty and clayey alluvium derived from limestone. The Frio series consists of very deep, well drained, moderately slowly permeable soils that formed in calcareous loamy and clayey alluvium. The Dev series consists of very deep, well drained, moderately rapidly permeable soils that formed in gravelly loamy alluvium derived from limestone.	**3-5C**
s7603: Rioconcho-Dev-Broome-Angelo	The Rioconcho series consists of very deep, moderately well drained, slowly permeable soils that formed in clayey or silty alluvium derived from limestone. The Dev series consists of very deep, well drained, moderately rapidly permeable soils that formed in gravelly loamy alluvium derived from limestone. The Broome series consists of deep, well drained, moderately permeable soils formed in loamy calcareous sediments. The Angelo series consists of deep or very deep, well drained, moderately slowly permeable soils formed in calcareous loamy and clayey alluvium derived from limestone.	**3-5C**
s7611: Roughcreek-Eckrant	The Roughcreek series consists of soils that are shallow to indurated limestone bedrock. The Eckrant series consists of well drained, moderately slowly permeable soils that are very shallow to shallow over indurated limestone bedrock.	**3-5B**
s7613: Rowena-Nuvalde-Mereta-Leeray	The Rowena series consists of very deep, well drained, moderately slowly permeable soils that formed in calcareous loamy and clayey alluvium. The Nuvalde series consists of very deep, well drained, moderately slowly permeable soils that formed in calcareous silty and clayey alluvium derived from limestone. The Mereta series consists of well drained, moderately slowly permeable soils that are shallow to a petrocalcic horizon. The Leeray series consists of very deep, well drained, very slowly permeable soils that formed in calcareous, clayey slope alluvium.	**3-5B, 3-5C**

Table 3-2: Soil Associations within the Study Area

Soil Association Map Unit: Name	Description of Soil Unit	Figure Number
s7614: Rowena-Nuvalde-Mereta	The Rowena series consists of very deep, well drained, moderately slowly permeable soils that formed in calcareous loamy and clayey alluvium. The Nuvalde series consists of very deep, well drained, moderately slowly permeable soils that formed in calcareous silty and clayey alluvium derived from limestone. The Mereta series consists of well drained, moderately slowly permeable soils that are shallow to a petrocalcic horizon.	**3-5B, 3-5C**
s7618: Rumple-Roughcreek	The Rumple series consists of moderately deep, well drained, moderately slowly permeable soils formed in residuum and colluvium derived from limestone. The Roughcreek series consists of soils that are shallow to indurated limestone bedrock.	**3-5B**
s7628: San Saba-Crawford	The San Saba series consists of moderately deep, moderately well drained, very slowly permeable soils that formed in calcareous clayey slope alluvium and/or residuum over hard limestone. The Crawford series consists of moderately deep, well drained, very slowly permeable soils that formed in clayey sediments that are underlain by indurated limestone bedrock.	**3-5A**
s7648: Topsey-Slidell-Brackett	The Topsey series consists of moderately deep over densic bedrock, well drained, moderately slowly permeable soils that formed from marly claystone and siltstone. The Slidell series consists of very deep, moderately well drained, very slowly permeable soils that formed in calcareous, clayey sediments. The Brackett series consists of shallow to paralithic bedrock, well drained soils formed in residuum weathered from limestone.	**3-5A, 3-5B**
s7653: Throck-Tarrant-Speck-Palopinto-Kavett	The Throck series consists of soils that are moderately deep and deep over claystone bedrock or dense clay. The Tarrant series consists of soils that are very shallow and shallow to indurated limestone bedrock, interbedded with marl and chalk. The Speck series consists of shallow, well drained, slowly permeable soils formed in residuum and colluvium derived from indurated limestone. The Palopinto series consists of well drained, moderately permeable, shallow and very shallow soils over limestone bedrock that formed in residuum. The Kavett series consists of shallow, well drained, moderately slowly permeable soils that formed in calcareous, clayey residuum derived from limestone or limestone interbedded with chalk or marl.	**3-5B**
s7668: Tarrant-Tarpley-Real-Evant-Eckrant	The Tarrant series consists of soils that are very shallow and shallow to indurated limestone bedrock, interbedded with marl and chalk. The Tarpley series consists of shallow, well drained, slowly permeable soils that formed in calcareous clayey residuum over limestone bedrock. The Real series consists of very shallow or shallow to paralithic limestone bedrock interbedded with marl and chalk. The Evant series consists of shallow to petrocalcic, well drained, slowly permeable soils that formed in clayey marine sediments. The Eckrant series consists of well drained, moderately slowly permeable soils that are very shallow to shallow over indurated limestone bedrock.	**3-5A, 3-5B**
s7669: Tarrant	The Tarrant series consists of soils that are very shallow and shallow to indurated limestone bedrock, interbedded with marl and chalk.	**3-5B, 3-5C**

Table 3-2: Soil Associations within the Study Area

Soil Association Map Unit: Name	Description of Soil Unit	Figure Number
s7678: Throck-Palopinto-Owens-Lueders-Kavett	The Throck series consists of soils that are moderately deep and deep over claystone bedrock or dense clay. The Palopinto series consists of well drained, moderately permeable, shallow and very shallow soils over limestone bedrock that formed in residuum. The Owens series consists of shallow to moderately deep over claystone bedrock or dense clay well drained, very slowly permeable soils that formed in residuum from claystone bedrock. The Lueders series consists of very shallow and shallow, well drained, moderately permeable soils formed in residuum from indurated limestone. The Kavett series consists of shallow, well drained, moderately slowly permeable soils that formed in calcareous, clayey residuum derived from limestone or limestone interbedded with chalk or marl.	**3-5C**
s7683: Tinn-Pursley	The Tinn series consists of very deep, moderately well drained, very slowly permeable soils that formed in calcareous clayey alluvium. The Pursley series consists of very deep, well drained, moderately permeable soils that formed in loamy calcareous sediments.	**3-5A**
s7688: Valera-Tobosa-Mereta-Kavett	The Valera series consists of soils that are moderately deep to a petrocalcic horizon underlain by indurated limestone bedrock. The Tobosa series consists of very deep, well drained, very slowly permeable soils formed in calcareous clayey alluvium derived from limestone. The Mereta series consists of well drained, moderately slowly permeable soils that are shallow to a petrocalcic horizon. The Kavett series consists of shallow, well drained, moderately slowly permeable soils that formed in calcareous, clayey residuum derived from limestone or limestone interbedded with chalk or marl.	**3-5C**
s7714: Voca-Lou-Keese-Click-Bauman	The Voca series consists of very deep, well drained soils formed in slope alluvium and residuum from grus and granite. The Lou series consists of very deep, well drained soils that formed in residuum from granite grus. The Keese series consists of well drained shallow soils to bedrock that formed in residuum weathered from granite, granite grus, or gneiss. The Click series consists of deep, well drained soils formed in residuum weathered from granite. The Bauman series consists of deep, moderately well drained, slowly permeable soils that formed in colluvium and residuum from granite and gneiss.	**3-5B**
s7720: Yahola-Weswood-Clairemont	The Yahola series consists of very deep, well drained, moderately rapidly permeable soils formed in calcareous loamy alluvium. The Weswood series consists of very deep, well drained, moderately permeable soils that formed in calcareous loamy alluvium. The Clairemont series consists of very deep, well drained, moderately permeable soils that formed in calcareous silty alluvium derived from sandstone and siltstone.	**3-5B**
s7733: Wilson-Venus-Riesel-Payne-Minwells-Crockett-Branyon	The Wilson series consists of very deep, moderately well drained, very slowly permeable soils that formed in calcareous clayey alluvium of Pleistocene age derived from mudstone. The Venus series consists of very deep, well drained, moderately permeable soils that formed in loamy calcareous alluvial sediments. The Riesel series consists of very deep to gravelly alluvium, well drained soils that formed in clayey over gravelly alluvium derived from sandstone, shale, or siltstone. The Payne series consists of very deep, well drained, very slowly permeable soils that formed in clayey sediments. The Minwells series consists of very deep to gravelly loamy alluvium, well drained soils formed in ancient alluvium derived from sandstone and shale. The Crockett series consists of soils that are deep to weathered shale, moderately well drained, and very slowly permeable. The Branyon series consists of very deep, moderately well drained, very slowly permeable soils that formed in calcareous clayey alluvium derived from mudstone.	**3-5A**

Table 3-2: Soil Associations within the Study Area

Soil Association Map Unit: Name	Description of Soil Unit	Figure Number
s7737: Winters-Sagerton-Desan-Bastrop	The Winters series consists of very deep, well drained, moderately slowly permeable soils formed in loamy or clayey alluvium. The Sagerton series consists of very deep, well drained, moderately slowly permeable soils that formed in calcareous loamy alluvium. The Desan series consists of very deep, somewhat excessively drained, moderately permeable soils that formed in sandy and loamy alluvium. The Bastrop series consists of very deep, well drained, moderately permeable soils formed in loamy alluvium.	**3-5B**
s7739: Winters-Sagerton-Frio-Callahan	The Winters series consists of very deep, well drained, moderately slowly permeable soils formed in loamy or clayey alluvium. The Sagerton series consists of very deep, well drained, moderately slowly permeable soils that formed in calcareous loamy alluvium. The Frio series consists of very deep, well drained, moderately slowly permeable soils that formed in calcareous loamy and clayey alluvium. The Callahan series consists of moderately deep, well drained, slowly permeable soils that formed in claystone interbedded with thin sandstone strata.	**3-5B**

Source: NRCS, 2014; NRCS, 2025b

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Figure 3-5A: Soil Associations Map

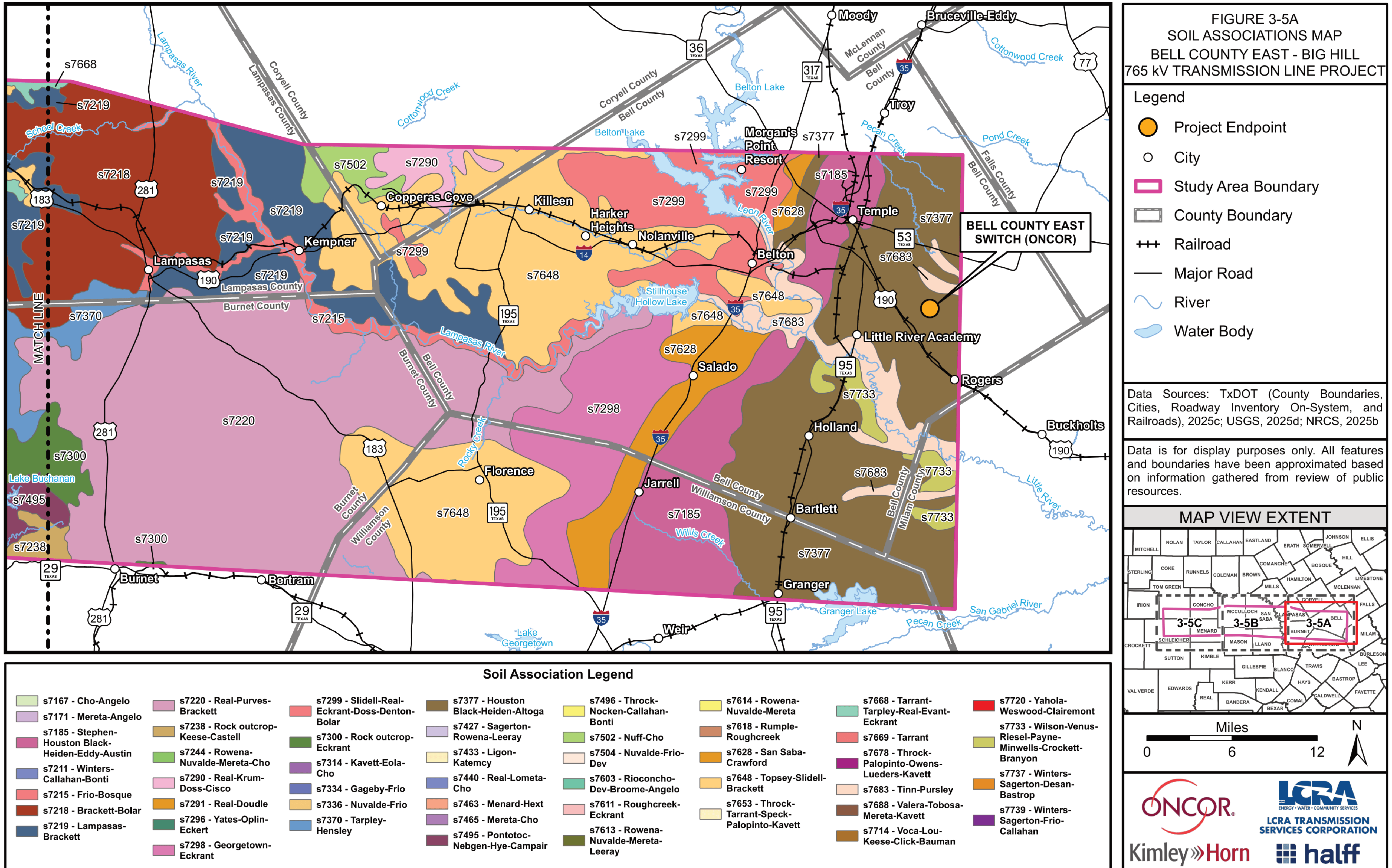


Figure 3-5B: Soil Associations Map

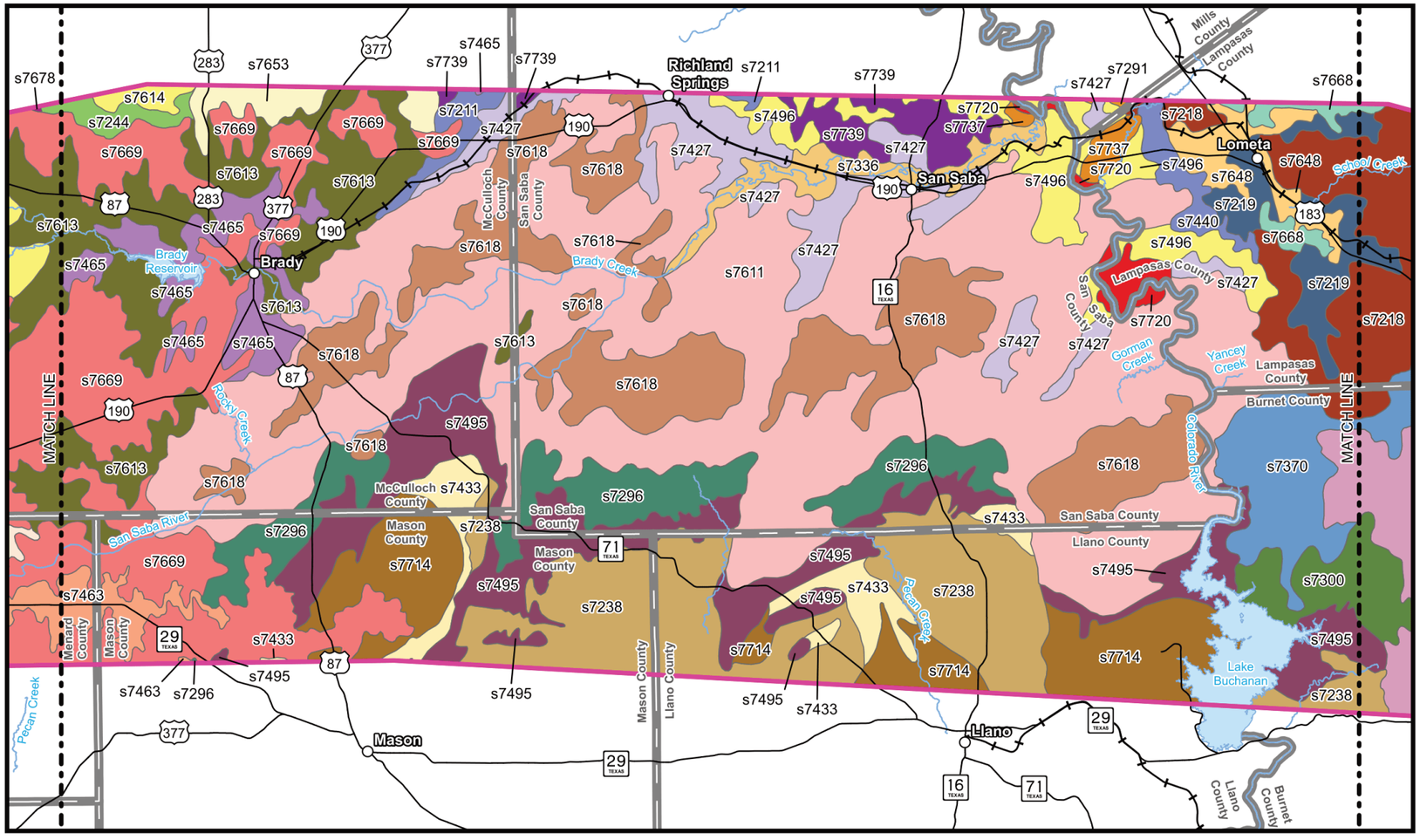


FIGURE 3-5B
SOIL ASSOCIATIONS MAP
BELL COUNTY EAST - BIG HILL
765 kV TRANSMISSION LINE PROJECT

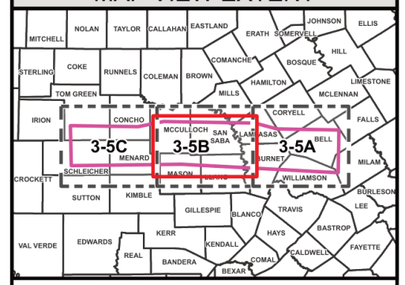
Legend

- Project Endpoint
- City
- Study Area Boundary
- County Boundary
- Railroad
- Major Road
- River
- Water Body

Data Sources: TxDOT (County Boundaries, Cities, Roadway Inventory On-System, and Railroads), 2025c; USGS, 2025d; NRCS, 2025b

Data is for display purposes only. All features and boundaries have been approximated based on information gathered from review of public resources.

MAP VIEW EXTENT



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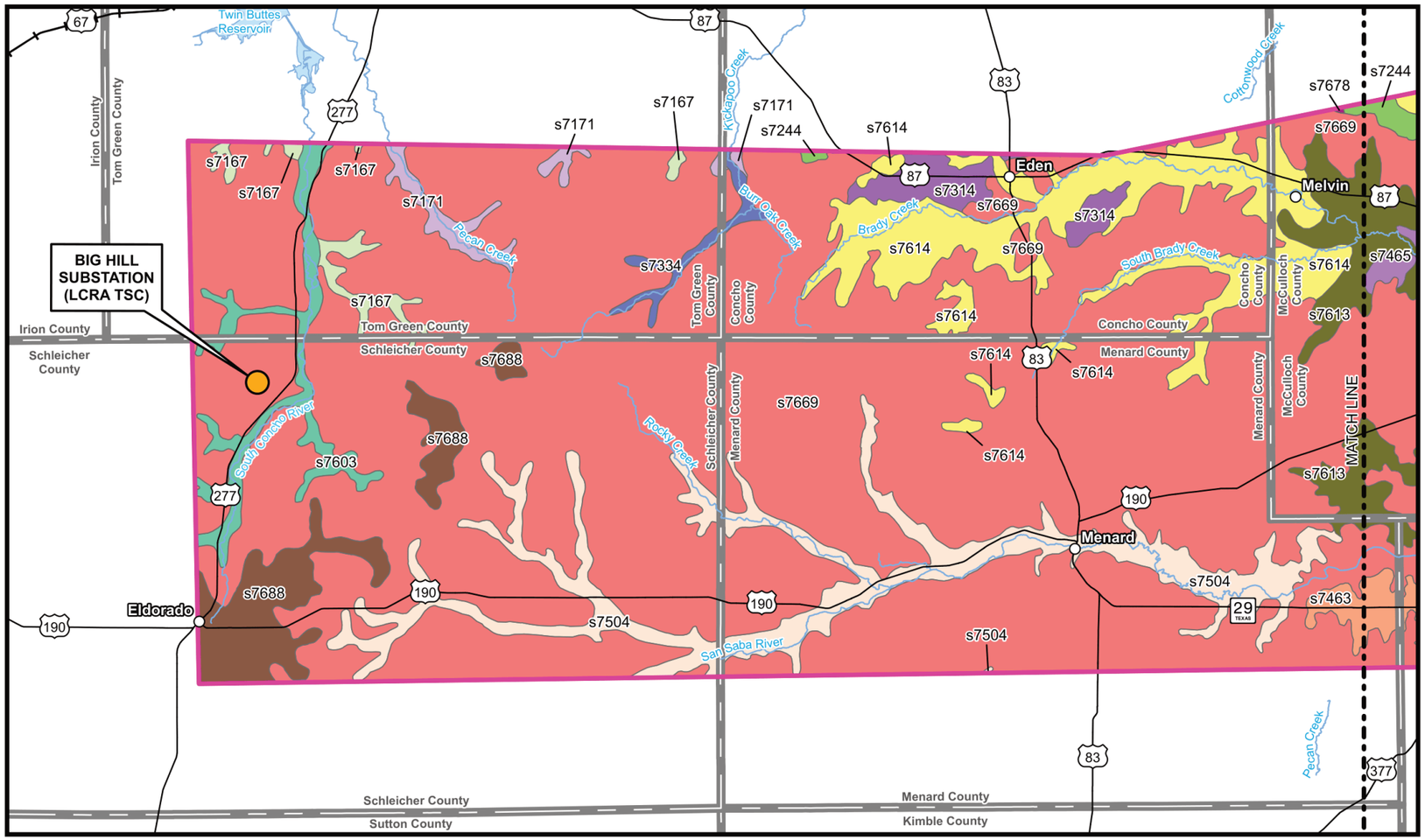
Soil Association Legend

- s7167 - Cho-Angelo
- s7171 - Mereta-Angelo
- s7185 - Stephen-Houston Black-Heiden-Eddy-Austin
- s7211 - Winters-Callahan-Bonti
- s7215 - Frio-Bosque
- s7218 - Brackett-Bolar
- s7219 - Lampasas-Brackett
- s7220 - Real-Purves-Brackett
- s7238 - Rock outcrop-Keese-Castell
- s7244 - Rowena-Nuvalde-Mereta-Cho
- s7290 - Real-Krum-Doss-Cisco
- s7291 - Real-Doudle
- s7296 - Yates-Oplin-Eckert
- s7298 - Georgetown-Eckrant
- s7299 - Slidell-Real-Eckrant-Doss-Denton-Bolar
- s7300 - Rock outcrop-Eckrant
- s7314 - Kavett-Eola-Cho
- s7334 - Gageby-Frio
- s7336 - Nuvalde-Frio
- s7370 - Tarpley-Hensley
- s7377 - Houston Black-Heiden-Altoga
- s7427 - Sagerton-Rowena-Leeray
- s7433 - Ligon-Katemcy
- s7440 - Real-Lometa-Cho
- s7463 - Menard-Hext
- s7465 - Mereta-Cho
- s7495 - Pontotoc-Nebgen-Hye-Campair
- s7496 - Throck-Nocken-Callahan-Bonti
- s7502 - Nuff-Cho
- s7504 - Nuvalde-Frio-Dev
- s7603 - Rioconcho-Dev-Broome-Angelo
- s7611 - Roughcreek-Eckrant
- s7613 - Rowena-Nuvalde-Mereta-Leeray
- s7614 - Rowena-Nuvalde-Mereta
- s7618 - Rumple-Roughcreek
- s7628 - San Saba-Crawford
- s7648 - Topsey-Slidell-Brackett
- s7653 - Throck-Tarrant-Speck-Palopinto-Kavett
- s7668 - Tarrant-Tarpley-Real-Evant-Eckrant
- s7669 - Tarrant
- s7678 - Throck-Palopinto-Owens-Lueders-Kavett
- s7683 - Tinn-Pursley
- s7688 - Valera-Tobosa-Mereta-Kavett
- s7714 - Voca-Lou-Keese-Click-Bauman
- s7720 - Yahola-Weswood-Clairemont
- s7733 - Wilson-Venus-Riesel-Payne-Minwells-Crockett-Branyon
- s7737 - Winters-Sagerton-Desan-Bastrop
- s7739 - Winters-Sagerton-Frio-Callahan

Figure 3-5C: Soil Associations Map



Soil Association Legend

- s7167 - Cho-Angelo
- s7171 - Mereta-Angelo
- s7185 - Stephen-Houston Black-Heiden-Eddy-Austin
- s7211 - Winters-Callahan-Bonti
- s7215 - Frio-Bosque
- s7218 - Brackett-Bolar
- s7219 - Lampasas-Brackett
- s7220 - Real-Purves-Brackett
- s7238 - Rock outcrop-Keese-Castell
- s7244 - Rowena-Nuvalde-Mereta-Cho
- s7290 - Real-Krum-Doss-Cisco
- s7291 - Real-Doudle
- s7296 - Yates-Oplin-Eckert
- s7298 - Georgetown-Eckrant
- s7299 - Slidell-Real-Eckrant-Doss-Denton-Bolar
- s7300 - Rock outcrop-Eckrant
- s7314 - Kavett-Eola-Cho
- s7334 - Gageby-Frio
- s7336 - Nuvalde-Frio
- s7370 - Tarpley-Hensley
- s7377 - Houston Black-Heiden-Altoga
- s7427 - Sagerton-Rowena-Leeray
- s7433 - Ligon-Katemcy
- s7440 - Real-Lometa-Cho
- s7463 - Menard-Hext
- s7465 - Mereta-Cho
- s7495 - Pontotoc-Nebgen-Hye-Campair
- s7496 - Throck-Nocken-Callahan-Bonti
- s7502 - Nuff-Cho
- s7504 - Nuvalde-Frio-Dev
- s7603 - Rioconcho-Dev-Broome-Angelo
- s7611 - Roughcreek-Eckrant
- s7613 - Rowena-Nuvalde-Mereta-Leeray
- s7614 - Rowena-Nuvalde-Mereta
- s7618 - Rumple-Roughcreek
- s7628 - San Saba-Crawford
- s7648 - Topsey-Slidell-Brackett
- s7653 - Throck-Tarrant-Speck-Palopinto-Kavett
- s7668 - Tarrant-Tarpley-Real-Evant-Eckrant
- s7669 - Tarrant
- s7678 - Throck-Palopinto-Owens-Lueders-Kavett
- s7683 - Tinn-Pursley
- s7688 - Valera-Tobosa-Mereta-Kavett
- s7714 - Voca-Lou-Keese-Click-Bauman
- s7720 - Yahola-Weswood-Clairemont
- s7733 - Wilson-Venus-Riesel-Payne-Minwells-Crockett-Branyon
- s7737 - Winters-Sagerton-Desan-Bastrop
- s7739 - Winters-Sagerton-Frio-Callahan

FIGURE 3-5C
SOIL ASSOCIATIONS MAP
BELL COUNTY EAST - BIG HILL
765 kV TRANSMISSION LINE PROJECT

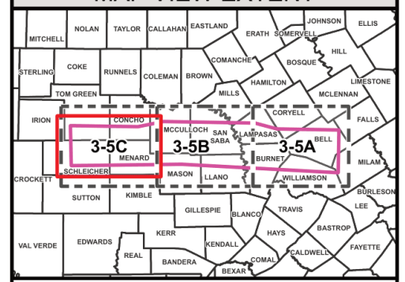
Legend

- Project Endpoint
- City
- Study Area Boundary
- County Boundary
- Railroad
- Major Road
- River
- Water Body

Data Sources: TxDOT (County Boundaries, Cities, Roadway Inventory On-System, and Railroads), 2025c; USGS, 2025d; NRCS, 2025b

Data is for display purposes only. All features and boundaries have been approximated based on information gathered from review of public resources.

MAP VIEW EXTENT



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3.3.2 Prime Farmland

Section 4201(c)(1)(A) of Title 7 of the U.S. Code (USC) defines prime farmland soils as those soils that have the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion (U.S., 1981). Prime farmland designations are applied to individual soil units. According to the NRCS (NRCS, 2025b), most soil associations mapped within the study area are considered prime farmland, predominantly near the eastern boundary of the study area.

3.4 Water Resources

3.4.1 Surface Water and Floodplains

A review of USGS data indicates the study area is located within four water basins (USGS, 2025c). Water basins are defined by the USGS as an area of land that drains all streams and rainfall to a common outlet such as a river, lake, or ocean (USGS, 2018). The western portion of the study area is located within the Middle Colorado-Concho basin (Hydrologic Unit Code [HUC]: 120901). The central portion of the study area is located within the Middle Colorado-Llano basin (HUC: 120902). Most of the eastern portion of the study area is located within the Little basin (HUC: 120702), with just the northeastern corner falling within the Lower Brazos basin (HUC: 120701) (USGS, 2025c). There are eight Ecologically Significant Stream Segments (ESSS) within the study area: Little River (Segment ID: 1213), Rocky Creek (No Segment ID), Clear Creek (No Segment ID), Gorman Creek (No Segment ID), Willis Creek (Segment ID: 1274A), San Saba River (Segment ID: 1416), Colorado River (Segment IDs: 1409 and 1410), and San Gabriel River (Segment ID: 1214) (TPWD, 2025a). These designations are based on one or more of the following attributes: high water quality, exceptional aquatic life, diverse macroinvertebrate communities, riparian conservation, and habitat for threatened and endangered species or other unique communities.

Prominent water features are common throughout the study area. Belton Lake, Stillhouse Hollow Lake, Granger Lake, and Lake Buchanan are some of the larger open water environments in the eastern portion of the study area. The Leon River, the Colorado River, and the Lampasas River represent larger riverine environments that traverse the same region (USGS, 2025d). Brady Reservoir, the San Saba River, and the South Concho River represent some of the larger open water and riverine features in the central and western portions of the study area (USGS, 2025d). Numerous smaller water features, including named and unnamed streams and lakes, stock ponds, and impoundments are also present throughout the study area.

According to the USGS National Hydrography Dataset (NHD), surface waters in the study area include over 18,800 mapped stream features and over 18,300 mapped waterbodies (USGS, 2025d). According to the USFWS National Wetlands Inventory (NWI) data, there are over 45,500 mapped features within the study area (USFWS, 2025a). **Table 3-3** details the NWI features within the study area and their descriptions (Cowardin et al., 1979).

Table 3-3: NWI Features within the Study Area

NWI Feature	Description
Riverine	A system contained within a channel bounded on both sides by upland habitat.
Freshwater Emergent Wetland	In this wetland class, emergent plants are the tallest lifeform with at least 30% coverage. This vegetation is present for the growing season and is usually dominated by perennial plants.
Freshwater Forested/Shrub Wetland	In forested wetlands, trees are the dominant life form with at least 30% aerial composition. Scrub/shrub wetlands are dominated by woody plants.
Freshwater Pond	Small, shallow, permanent, or intermittent water bodies.
Lake	Extensive areas of deep water with considerable wave action.
Other	Features that do not satisfy the criteria above.

Source: Cowardin et al., 1979; USFWS, 2025a

According to FEMA Flood Map Service Center (FEMA, 2025), studies to determine flood hazards for the portions of the study area within Concho, Mason, McCulloch, Milam, Mills, and Schleicher counties have not been completed. Although FEMA Flood Hazard Maps may not be available, flood hazard areas may be present in these counties within the study area (ESRI World Imagery Basemap, 2025; NAIP, 2024). According to the FEMA Flood Hazard data for Bell, Burnet, Coryell, Llano, Tom Green, and Williamson counties, as well as 1987-1991 Flood Insurance Rate Maps for unincorporated places in Lampasas, Menard, and San Saba County, most of the study area is located within unshaded Zone X: Area of Minimal Flood Hazard. However, some areas adjacent to mapped riverine features are within areas of hatched Zone A: 100-Year Floodplain, shaded Zone AE: 100-Year Floodplain, Zone X: 500-Year Floodplain, and Zone AE: Floodway (FEMA, 1987-1991; FEMA, 2025).

The USACE manages three lakes that are located within the study area: Stillhouse Hollow Lake, Belton Lake, and Granger Lake. Stillhouse Hollow Lake is located in the northeastern portion of the study area in Bell County, Belton Lake is located near the northern boundary of the study area in Bell County, and Granger Lake is located near the southern boundary of the study area in Williamson County. The primary USACE mission regarding these lakes is to provide flood risk management, water supply, and recreational opportunities (USACE, 2025a; USACE, 2025b; USACE, 2025c).

The TCEQ's Texas Integrated Report - Texas 303(d) List (Category 5) identifies the waterbodies in Texas for which stream segments exhibit a total maximum daily load impairment or for which other water quality management measures may be required (TCEQ, 2024). Based on this report and visual data from TCEQ Surface Water Quality Segment Viewer, there are impaired water features within the study area (TCEQ, 2025). **Table 3-4** lists the segments listed on the 2024 Texas Integrated Report that are located within the study area.

Table 3-4: Impaired Segments within the Study Area on the Texas Integrated Report

Segment Name	Segment ID	Total Maximum Daily Load	County(ies)
Nolan Creek/South Nolan Creek	1218	No	Bell
Little Nolan Creek	1218C	No	Bell
Long Branch	1218D	No	Bell
Unnamed Tributary of Trimmier Creek	1216D	No	Bell
Big Elm Creek	1213A	No	Bell
Willis Creek	1247A	No	Williamson
Lampasas River above Stillhouse Hollow Lake	1217	No	Lampasas, Burnet, Bell
Clear Creek	1407A	No	Burnet
San Saba River	1416	No	Mason, McCulloch, Menard, San Saba
Brady Creek	1416A	No	McCulloch, San Saba

Source: TCEQ, 2024; TCEQ, 2025

3.4.2 Groundwater/Aquifer

There are three major aquifers within the study area: the Edwards-Trinity, Edwards, and Trinity aquifers (TWDB, 2011). The Edwards-Trinity Aquifer is located within the western portion of the study area. The Edwards-Trinity Aquifer extends across the southwestern part of Texas and ranges in depth from less than 100 feet in the north to greater than 800 feet to the south. It is primarily composed of limestone and dolomite of the Edwards Group and sands of the Trinity Group. Springs occur along the margins of the aquifer (TWDB, 2021). The Trinity and Edwards aquifers are located within the eastern portion of the study area. The Trinity Aquifer extends across much of the central and northeastern part of Texas. The combined saturated freshwater thickness averages about 600 feet in North Texas and about 1,900 feet in Central Texas. The Edwards Aquifer is in the southcentral part of Texas, and the aquifer thickness ranges from 200 to 600 feet. This aquifer feeds many springs, including the two largest springs in the state. Rapid recharge through the karstic outcrops of the Edwards Aquifer reduces residence time in the aquifer and increases the aquifer's vulnerability to contamination (TWDB, 2021).

In addition, there are five minor aquifers within the study area: the Cross Timbers, Ellenburger-San Saba, Hickory, Lipan, and Marble Falls aquifers (TWBD, 2011; TWDB, 2019a). **Table 3-5** lists the major and minor aquifers within the study area, their primary use, and general coverage by county.

Table 3-5: Major and Minor Aquifers within the Study Area

Aquifer Name	Primary Use	Counties
Major Aquifers		
Edwards-Trinity	Irrigation, municipal, and livestock supplies	Concho, Mason, McCulloch, Menard, Schleicher, Tom Green
Edwards	Municipal, irrigation, and recreation	Bell, Williamson
Trinity	Municipal, irrigation, livestock, and other domestic purposes	Bell, Burnet, Coryell, Lampasas, Mills, Williamson
Minor Aquifers		
Cross Timbers	Domestic wells, stock wells, public supply	Concho, Lampasas, Mills, McCulloch, San Saba
Ellenburger-San Saba	Municipal, irrigation, and livestock	Burnet, Concho, Lampasas, Llano, Mason, McCulloch, Menard, Mills, San Saba
Hickory	Irrigation and municipal use	Burnet, Concho, Lampasas, Llano, Mason, McCulloch, Menard, Mills, San Saba, Williamson
Lipan	Irrigation, livestock, municipal, domestic, and manufacturing use	Concho, Schleicher, Tom Green
Marble Falls	Municipal, agricultural, and industrial use	Burnet, Lampasas, Llano, Mason, McCulloch, San Saba

Source: TWDB, 2011; TWDB, 2019a

The study area is located within two TWDB groundwater management areas: #7 and #8 (TWDB, 2025a). Groundwater management areas were established to provide for conservation, protection, preservation, recharging, and prevention of waste of groundwater or groundwater reservoirs (TWDB, 2025a). The study area is located within nine Groundwater Conservation Districts (GCDs) (TWDB, 2019b). GCDs are required to develop and implement a management plan for the effective management of groundwater resources. **Table 3-6** below lists the GCDs within the study area and where they are located. Additionally, the study area is located within the Edwards Aquifer, which is regulated by TCEQ and subject to compliance through the TCEQ Edwards Aquifer Protection Program.

Table 3-6: Groundwater Conservation Districts within the Study Area

GCD Name	Counties
TWDB Management Area #7	
Hickory Underground Water Conservation District	Concho, Mason, McCulloch, Menard, San Saba
Menard County Underground Water District	Menard
Plateau Underground Water Conservation and Supply District	Schleicher
Lipan-Kickapoo Water Conservation District	Concho, Tom Green
TWDB Management Area #8	
Saratoga Underground Water Conservation District	Lampasas
Central Texas GCD	Burnet
Middle Trinity GCD	Coryell
Clearwater Underground Water Conservation District	Bell
Post Oak Savannah GCD	Milam

Source: TWDB, 2019b

The TWDB Groundwater Database, Submitted Drillers Reports (SDR) Database, and Brackish Resources Aquifer Characterization System (BRACS) Program Points Dataset, identify over 16,600 groundwater wells within the study area (TWDB, 2025b). The SDR database identified wells utilized for closed-loop geothermal use, de-watering, domestic use, monitoring, industrial use, environmental soil boring, irrigation, public supply, rig supply, stock use, testing, unknown use, and other uses (TWDB, 2025c). The Groundwater Database detailed wells that are used for commercial use, dewatering, domestic use, industrial use, irrigation, public supply, or stock use (TWDB, 2025d).

3.5 Ecology

3.5.1 Vegetation

The study area includes portions of eight MLRAs as mentioned in **Section 3.2**: Texas North-Central Prairies (80B); Edwards Plateau, Western Part (81A); Edwards Plateau, Central Part (81B); Edwards Plateau, Eastern Part (81C); Texas Central Basin (82A); Grand Prairie (85A); Texas Blackland Prairie, Northern Part (86A); and Rolling Limestone Prairie (78A) (**Figures 3-2A**, **3-2B**, and **3-2C**) (USDA, 2022a).

Within the Texas North-Central Prairies MLRA (80B), the average annual rainfall ranges from 28 to 34 inches and provides water for crops and range vegetation. This area supports oak savannah vegetation with an understory of tall grasses. Little bluestem (*Schizachyrium scoparium*), big bluestem (*Andropogon gerardii*), silver bluestem (*Bothriochloa laguroides*), buffalograss (*Bouteloua dactyloides*), and sideoats grama (*Bouteloua curtipendula*) are dominant on shallow soils. Post oak (*Quercus stellata*), blackjack oak (*Quercus marilandica*), sumac (*Rhus spp.*), gum bumelia (*Sideroxylon sp.*), honey mesquite (*Prosopis glandulosa*), juniper (*Juniperus spp.*), and elm (*Ulmus spp.*) are the dominant woody species. The area supports numerous perennial forbs, including Maximillian sunflower (*Helianthus maximiliani*), heath aster (*Symphyotrichum ericoides*), bush sunflower (*Simsia calva*), and Englemann's daisy (*Engelmannia peristenia*) (USDA, 2022a).

Rainfall in the Edwards Plateau, Western Part MLRA (81A) ranges from 15 to 26 inches per year on average. Water is scarce throughout the area because of limited precipitation and few perennial streams. This area supports a vegetative community of shrubs and short or mid grasses including juniper, honey mesquite, lotebush (*Ziziphus obtusifolia*), shin oak (*Quercus grisea*), sumac, Texas prickly pear (*Opuntia engelmannii*), tasajillo (*Cylindropuntia leptocaulis*), Texas kidneywood (*Eysenhardtia texana*), agarito (*Berberis trifoliolata*), yucca (*Yucca spp.*), Lindheimer's silktassel (*Garrya ovata*), sotol (*Dasylirion wheeleri*), catclaw sensitive briar (*Mimosa nuttallii*), Mexican persimmon (*Diospyros texana*), sideoats grama, threeawns (*Aristida spp.*), Texas grama (*Bouteloua rigidiseta*), hairy grama (*Bouteloua hirsuta*), curly-mesquite (*Hilaria belangeri*), buffalograss, and hairy tridens (*Erioneuron pilosum*) (USDA, 2022a).

The Edwards Plateau, Central Part MLRA (81B) receives an average of 19 to 32 inches of precipitation per year. This area supports a community of trees, shrubs, and short or mid grasses.

The vegetation includes coastal live oak (*Quercus virginiana*), juniper, Texas red oak (*Quercus buckleyi*), shin oak, cedar elm (*Ulmus crassifolia*), netleaf hackberry (*Celtis reticulata*), flameleaf sumac (*Rhus lanceolata*), agarito, Mexican persimmon, Texas prickly pear, Texas kidneywood, common greenbrier (*Smilax rotundifolia*), Texas wintergrass (*Nassella leucotricha*), little bluestem, curly-mesquite, Texas grama, Hall's panicum (*Panicum hallii*), purple threeawn (*Aristida purpurea*), hairy tridens, cedar sedge (*Carex planostachys*), two-leaved senna (*Senna roemeriana*), mat euphorbia (*Euphorbia serpens*), and rabbit-tobacco (*Pseudognaphalium obtusifolium*) (USDA, 2022a).

The Edwards Plateau, Eastern Part MLRA (81C) receives an average of 24 to 30 inches of precipitation annually. The amount of water is limited throughout most of the area. This area supports a plant community of trees, shrubs, and mid to tall grasses. Vegetation includes live oak, juniper, Texas red oak, shin oak, cedar elm, evergreen sumac (*Rhus virens*), escarpment cherry (*Prunus serotina*), saw greenbrier (*Smilax bona-nox*), Texas mountain-laurel (*Dermatophyllum secindiflorum*), poison oak (*Toxicodendron pubescens*), twistleaf yucca (*Yucca rupicola*), elbowbush (*Forestiera pubescens*), Nealley grama (*Bouteloua uniflora*), Texas grama, meadow dropseed (*Sporobolus compositus*), Texas wintergrass, curly-mesquite, pellitory (*Parietaria sp.*), noseburn (*Tragia ramosa*), spreading sida (*Sida abutifolia*), woodsorrel (*Oxalis drummondii*), and mat euphorbia (USDA, 2022a).

The Texas Central Basin MLRA (82A) receives between 24 to 31 inches of rainfall each year on average and water is scarce within most of the MLRA but is abundant along perennial streams and within lakes. Vegetation within this area consists of a mixed oak savannah community of live oak, post oak, and blackjack oak. In addition, vegetation in this area includes mid to tall grasses such as little bluestem, sideoats grama, Indiangrass (*Sorghastrum nutans*), switchgrass (*Panicum virgatum*), sand lovegrass (*Eragrostis trichodes*), plains lovegrass (*Eragrostis intermedia*), green sprangletop (*Leptochloa dubia*), purpletop tridens (*Tridens flavus*), pinhole bluestem (*Bothriochloa barbinodis*), and plains bristlegrass (*Setaria leucopila*) (USDA, 2022a).

Within the Grand Prairie MLRA (85A) the average annual rainfall ranges from 27 to 41 inches. In most years, the erratic rainfall is enough to support crops, pasture, and rangeland vegetation. The vegetation throughout this area consists of tall grass prairie, mid to tall grasses, scattered oak, and oak savannah. Little bluestem, Indiangrass, big bluestem, and switchgrass are typical in deeper soils. Texas wintergrass, little bluestem, silver bluestem, sideoats grama, Texas red oak, plateau live oak (*Quercus fusiformis*), elm, ash (*Fraxinus sp.*), and juniper are characteristic species on shallow soils and on soils below escarpments. Areas of rangeland have deteriorated and commonly exhibit cool-season grasses, short grasses, annuals, prickly pear (*Opuntia sp.*), elm, honey mesquite, or juniper (USDA, 2022a).

The Texas Blackland Prairie, Northern Part MLRA (86A) receives an average annual rainfall of 30 to 46 inches. Most years, the rainfall supports crops and pasture vegetation. This MLRA supports mixed tall and mid grass prairie grasses such as little bluestem, Indiangrass, big bluestem, switchgrass, tall dropseed, silver bluestem, sideoats grama, eastern gamagrass

(*Tripsacum dactyloides*), and vine mesquite (*Panicum obtusum*). The plant community has many forbs, such as prairie clover (*Dalea purpurea*), western ragweed (*Ambrosia psilostachya*), Maximilian sunflower, gayfeather (*Liatris spicata*), rattlesnake master (*Eryngium yuccifolium*), and Indian plantain (*Arnoglossum plantagineum*). Areas along the major rivers and streams in this area support savanna vegetation. Oak, elm, cottonwood (*Populus sp.*), hackberry (*Celtis spp.*), and pecan (*Carya spp.*) trees make up a canopy cover of about 30 percent of the area (USDA, 2022a).

The Rolling Limestone Prairie MLRA (78A) receives an average annual precipitation of 23 to 29 inches. Most of the rainfall comes from convective thunderstorms during the growing season. This area is in the central part of the mixed grass prairie with big bluestem, little bluestem, Indiangrass, sideoats grama, Texas cupgrass (*Eriochloa sericea*), vine mesquite, buffalograss, and Texas wintergrass being the dominant species. Abundant forbs include catclaw sensitive briar, heath aster, Engelmann's daisy, gaura (*Guara sp.*), prairie clover, plains blackfoot (*Melampodium leucanthum*), and verbena (*Verbena officinalis*). Scattered mottes of live oak, elm, gum bumelia, and hackberry are common. Honey mesquite has invaded areas throughout the MLRA, except for areas of shallow soils (USDA, 2022a).

The TPWD Ecological Mapping Systems of Texas (EMST) was developed from 10-meter resolution image objects generated from aerial imagery (Elliott, 2014). The EMST is a vegetative database and is based off of ground data samples, landform modeling efforts, and aerial photography. The vegetation database has an accuracy of 74% to 90% (TPWD, 2014b). Based on the TPWD EMST and the Descriptions of Systems, Mapping Subsystems, and Vegetation Types for Texas (Elliott, 2014), 92 vegetation types occur in the study area (TPWD, 2014b). **Table 3-7** details the EMST vegetation types and their descriptions for terrestrial vegetation (**Section 3.5.1.1**) and aquatic/hydric vegetation (**Section 3.5.1.2**). For clarity, Kimley-Horn and Halff synthesized these 92 vegetation types into eight land cover types, which are depicted on **Figures 3-6A**, **3-6B**, and **3-6C**. Of these eight land cover types, the most prevalent vegetation types in the study area by percentage of coverage are: Shrubland (32%), Woodland (29%), and Grassland (26%).

3.5.1.1 Terrestrial Vegetation

The Shrubland, Woodland, and Grassland land cover types are most common in the study area and typically occur over alluvial and sand sheet deposits. All of these classes support upland species, with the Shrubland class featuring a more prominent shrub component, the Woodland class featuring woody plants such as trees and shrubs, and the Grassland class featuring a sparse or absent shrub component and a prominent herbaceous layer. Common terrestrial vegetation species in the Shrubland class include Ashe juniper (*Juniperus ashei*), honey mesquite, plateau live oak, sideoats grama, and Torrey's yucca (*Yucca torreyi*). Common terrestrial vegetation species in the Woodland class include cedar elm, Texas red oak, sugar hackberry *(Celtis laevigata*), American sycamore *(Platanus occidentalis*), and baldcypress (*Taxodium distichum*). Common terrestrial vegetation species in the Grassland class include bermudagrass (*Cynodon*

dactylon), Johnsongrass (*Sorghum halepense*), kleingrass (*Panicum coloratum*), little bluestem, and purple threeawn.

3.5.1.2 Aquatic/Hydric Vegetation

Hydric habitats have potential to occur within the riverine, lake, pond, and wetland habitats within the study area. NWI data was utilized to identify areas where jurisdictional wetlands may occur. According to the NWI data, wetlands are located within the study area (USFWS, 2025a). Common hydric vegetative species include rushes (*Juncus spp.*), sedges (*Carex spp*.), cattails (*Typha spp*.), smartweeds (*Polygonum spp*.), and spikerushes (*Eleocharis spp*.).

Aquatic and hydric vegetation communities occur within the study area, particularly along riparian corridors and low-lying areas associated with the Colorado River, Little River, San Gabriel River, San Saba River, and their tributary networks. These habitats were identified from aerial imagery (ESRI World Imagery Basemap, 2025; NAIP, 2024) and mapped resources such as the NWI (USFWS, 2025a). Not all riparian areas and wetlands meet the criteria of jurisdictional waters of the U.S. under USACE guidance, and site-specific surveys are required to confirm the jurisdictional status of these resources.

Figure 3-6A: Land Cover Map

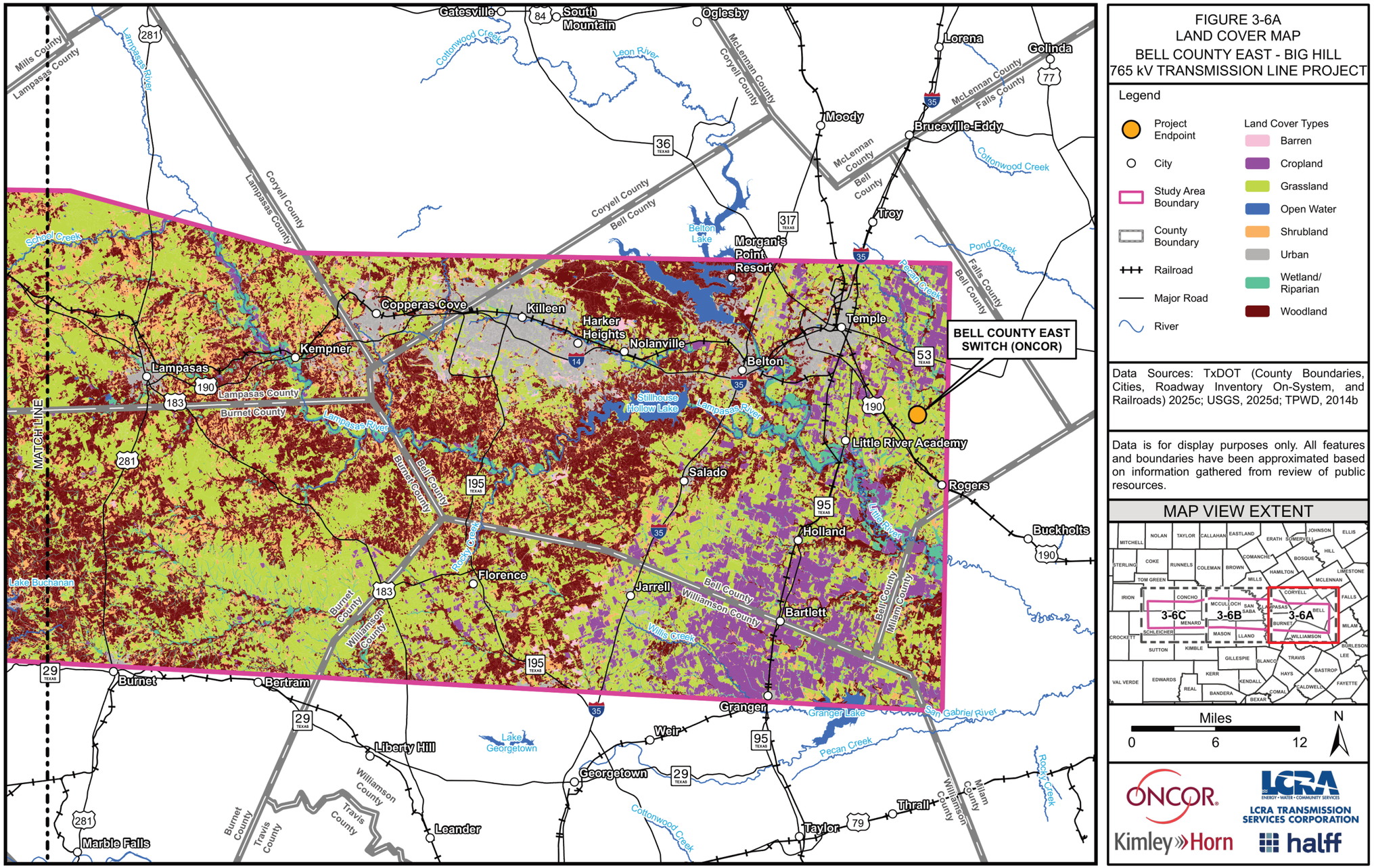

FIGURE 3-6A
LAND COVER MAP
BELL COUNTY EAST - BIG HILL
765 kV TRANSMISSION LINE PROJECT

Legend

- Project Endpoint
- City
- Study Area Boundary
- County Boundary
- Railroad
- Major Road
- River

Land Cover Types

- Barren
- Cropland
- Grassland
- Open Water
- Shrubland
- Urban
- Wetland/ Riparian
- Woodland

Data Sources: TxDOT (County Boundaries, Cities, Roadway Inventory On-System, and Railroads) 2025c; USGS, 2025d; TPWD, 2014b

Data is for display purposes only. All features and boundaries have been approximated based on information gathered from review of public resources.

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Figure 3-6B: Land Cover Map

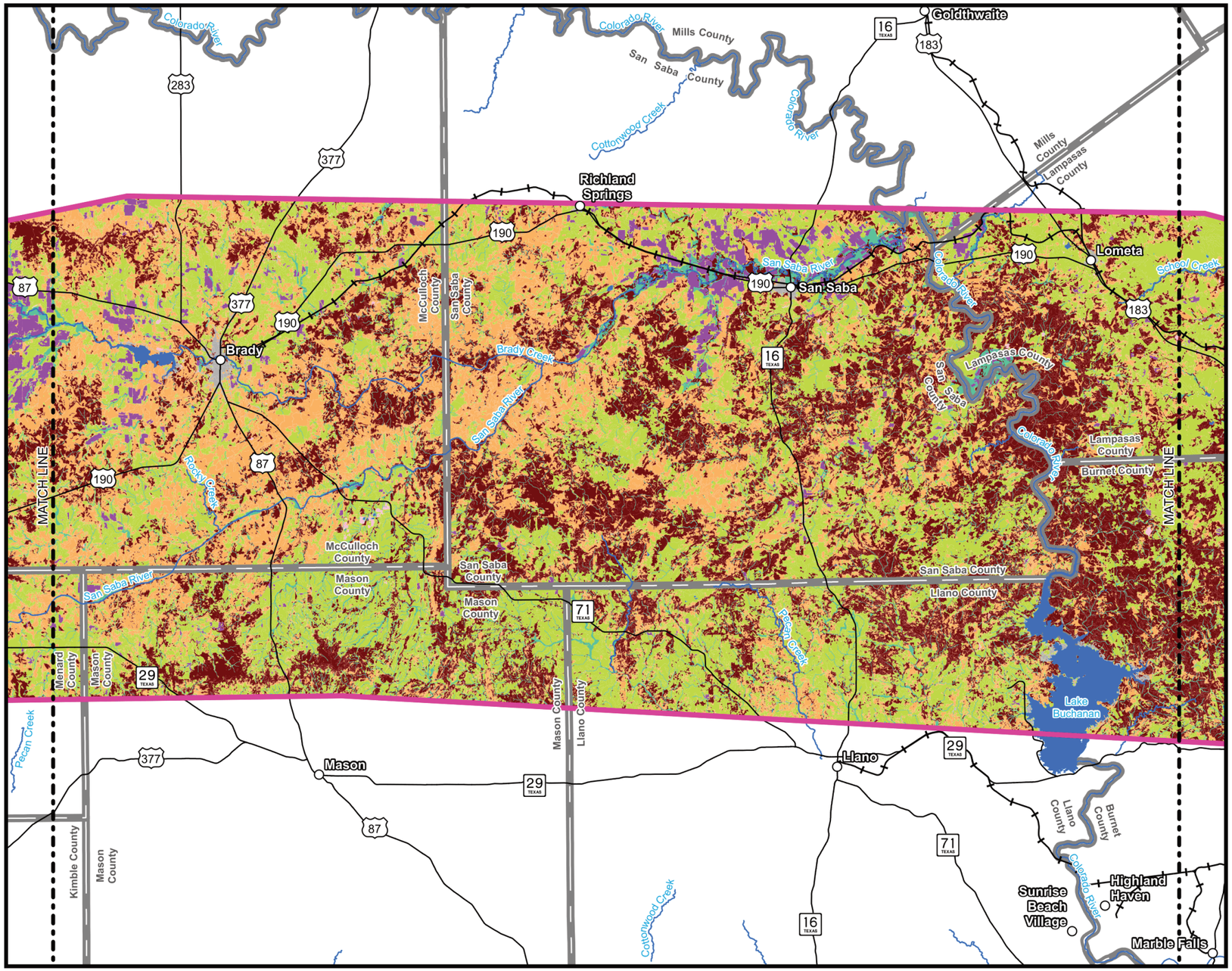

FIGURE 3-6B
LAND COVER MAP
BELL COUNTY EAST - BIG HILL
765 kV TRANSMISSION LINE PROJECT

Legend

- Project Endpoint
- City
- Study Area Boundary
- County Boundary
- Railroad
- Major Road
- River

Land Cover Types

- Barren
- Cropland
- Grassland
- Open Water
- Shrubland
- Urban
- Wetland/ Riparian
- Woodland

Data Sources: TxDOT (County Boundaries, Cities, Roadway Inventory On-System, and Railroads) 2025c; USGS, 2025d; TPWD, 2014b

Data is for display purposes only. All features and boundaries have been approximated based on information gathered from review of public resources.

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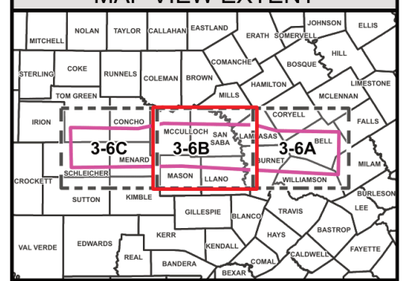

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Figure 3-6C: Land Cover Map

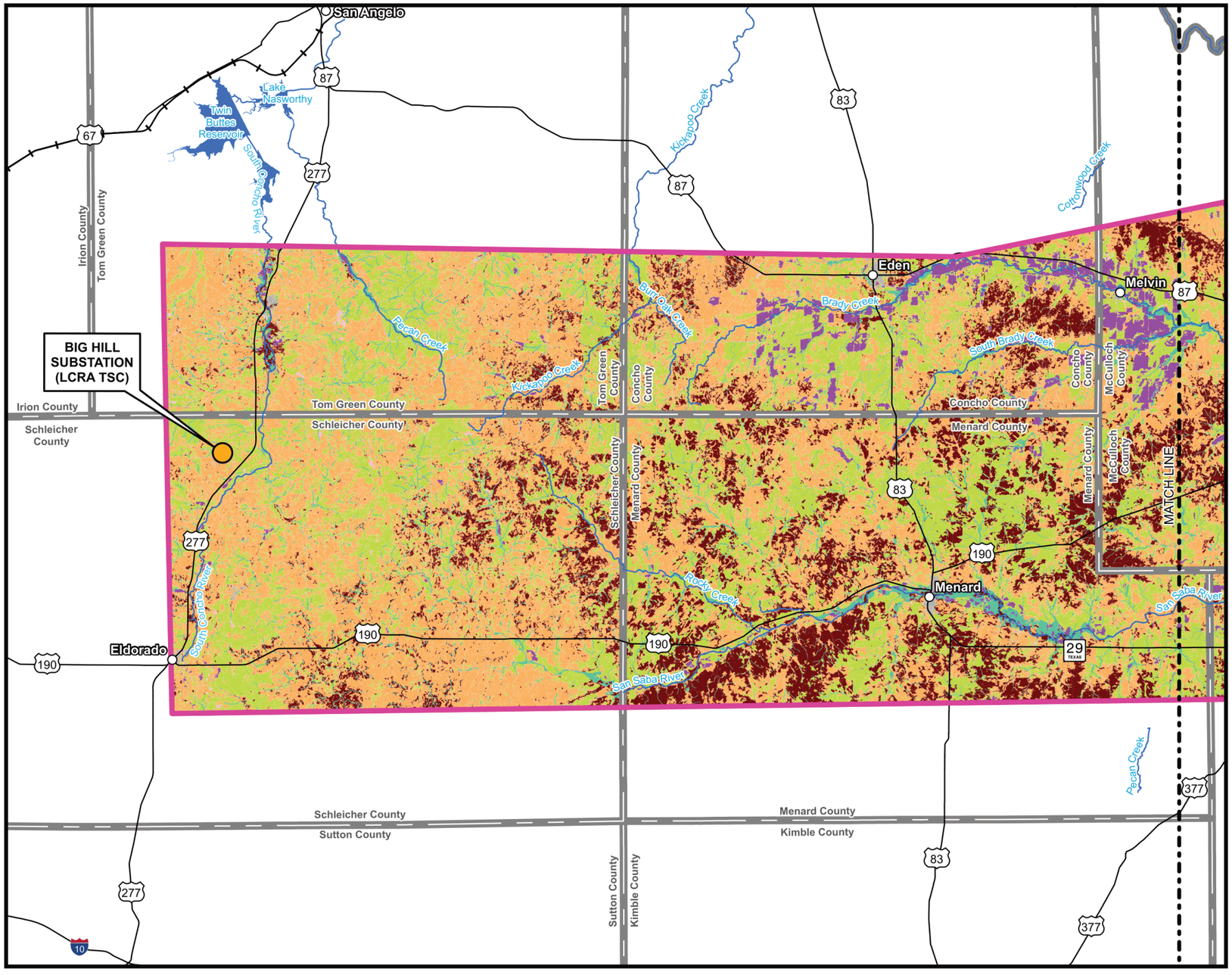

FIGURE 3-6C
LAND COVER MAP
BELL COUNTY EAST - BIG HILL
765 kV TRANSMISSION LINE PROJECT

Legend

- Project Endpoint
- City
- Study Area Boundary
- County Boundary
- Railroad
- Major Road
- River

Land Cover Types

- Barren
- Cropland
- Grassland
- Open Water
- Shrubland
- Urban
- Wetland/ Riparian
- Woodland

Data Sources: TxDOT (County Boundaries, Cities, Roadway Inventory On-System, and Railroads) 2025c; USGS, 2025d; TPWD, 2014b

Data is for display purposes only. All features and boundaries have been approximated based on information gathered from review of public resources.

MAP VIEW EXTENT

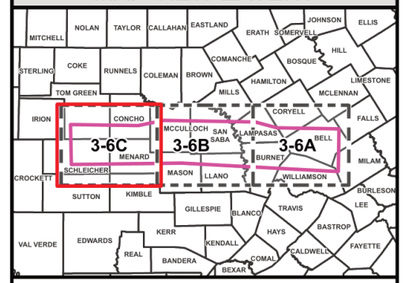

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Table 3-7: Description of Vegetation Types within the Study Area

Vegetation Type	Description
Land Cover: Barren	
Barren	Areas where little or no vegetative cover existed at the time of image data collection. Large areas cleared for development are included, as well as rural roads and buildings and associated clearings in primarily rural areas. Stream beds with exposed gravel or bedrock, rock outcrops, quarries, and mines may be mapped as this type. Fallow fields or areas within cropland blocks that remain barren throughout one growing season or heavily grazed pastures where bare soils are dominant may also be mapped as barren.
Edwards Plateau: Barren or Grassy Cliff/Bluff	Lacks significant vegetative cover due to the limited potential for soil development on such steep surfaces. These cliffs or bluffs may have development of some lichen and patchy grass clumps in limited areas where soil can remain stable. Sparse shrubs and herbaceous cover may be present.
Edwards Plateau: Floodplain Barrens	Sparsely vegetated gravel bars, sand bars, or bare rock with scattered individuals or small areas of little walnut (*Juglans microcarpa*), desert willow (*Chilopsis linearis*), baccharis (*Baccharis sp.*), brickellbush (*Brickellia sp.*), or other species.
Edwards Plateau: Riparian Barrens	Sparsely vegetated gravel bars, sand bars, or bare rock with scattered individuals or small areas of little walnut, desert willow, baccharis, brickellbush, or other species.
Land Cover: Cropland	
Grass Farm	Dominated by bermudagrass and consist of golf course fairways and greens that are fertilized and irrigated. This type also includes areas of moist soil and fast-growing, highly productive grassland.
Row Crops	All cropland where fields are fallow for some portion of the year. Some fields may rotate in and out of cultivation frequently, and year-round cover crops are generally mapped as grassland.
Land Cover: Grassland	
Blackland Prairie: Disturbance or Tame Grassland	Non-native grasses such as bermudagrass, kleingrass, King Ranch bluestem (*Bothriochloa ischaemum variety* (*var.*) *songarica*), and Johnsongrass are frequently encountered. Weedy forbs such as western ragweed and common broomweed (*Amphiachyris dracunculoides*) are often present. Honey mesquite or huisache (*Acacia farnesiana*) are often present and may be fairly dense. Important native grasses may include little bluestem, silver bluestem, Indiangrass, Texas wintergrass, hairy grama, and threeawns.
Crosstimbers: Savanna Grassland	Primarily herbaceous vegetation type, representing the graminoid dominated component of the savanna as it occurs within this vegetation type. Occurrences tend to occur on tighter soils but are often dependent on appropriate land management that ensures reduced woody cover. In the east, where precipitation is greater, tallgrass species such as big bluestem and Indiangrass may be important components. In the drier west, shortgrass species such as buffalograss become more conspicuous. Non-native species such as bermudagrass, Japanese brome (*Bromus arvensis*), cheatgrass (*Bromus tectorum*), and King Ranch bluestem are often significant components.
Conservation Reserve Program / Other Improved Grassland	Grasslands of highly managed areas, sometimes dominated by non-native grasses such as bermudagrass, Johnsongrass, and kleingrass.
Edwards Plateau: Floodplain Herbaceous Vegetation	Grasslands on floodplains, often dominated by bermudagrass and/or King Ranch bluestem. Native species that may be present, common, or dominant include switchgrass, bushy bluestem (*Andropogon glomeratus*), Virginia wildrye (*Elymus virginicus*), Texas wintergrass, little barley (*Hordeum pusillum*), eastern gamagrass, Lindheimer muhly (*Muhlenbergia lindheimeri*), and creekoats (*Chasmanthium latifolium*).

Table 3-7: Description of Vegetation Types within the Study Area

Vegetation Type	Description
Edwards Plateau: Savanna Grassland	Uplands of the Edwards Plateau are frequently described as a mosaic of woodlands, shrublands, and grasslands. Little bluestem, purple threeawn, Texas wintergrass, and sideoats grama are common dominants on these sites, but King Ranch bluestem and/or bermudagrass frequently dominate or are significant components.
Edwards Plateau: Semi-arid Grassland	These grasslands form the interstices of the shrubland matrix of the western portion of the Edwards Plateau, sometimes occurring as extensive areas with reduced cover of woody and succulent species (though scattered individuals of woody species of the vegetation type may be present). Grasses such as purple threeawn, red grama (*Bouteloua trifida*), sideoats grama, curly-mesquite, hairy tridens, slim tridens (*Tridens muticus*), Texas wintergrass, and/or silver bluestem are common dominants.
Grand Prairie: Tallgrass Prairie	Little bluestem tends to dominate sites of this vegetation type, with sideoats grama as another significant component. Other grasses that are frequently present include Texas wintergrass, silver bluestem, threeawns, big bluestem, buffalograss, tall dropseed, hairy grama, Indiangrass, seep muhly (*Muhlenbergia reverchonii*), tumble windmillgrass (*Chloris verticillata*), and hairy tridens.
High Plains: Shortgrass Prairie	On level to gently rolling uplands, with buffalograss and blue grama (*Bouteloua gracilis*) as common dominants. Other species that may be present include purple threeawn, sideoats grama, hairy grama, Texas grama, fluffgrass (*Erioneuron pilosum*), curly-mesquite, and western wheatgrass (*Pascopyrum smithii*).
Llano Uplift: Grassland	These relatively small patch grasslands may be dominated by native species such as little bluestem, sideoats grama, silver bluestem, hairy gramma, threeawn species, and/or Texas wintergrass.
Post Oak Savanna: Savanna Grassland	Dominated by mid and tallgrass species often present in the understory of woody expressions of the vegetation type. Dominant species include little bluestem, Indiangrass, and switchgrass.
Rolling Plains: Mixedgrass Prairie	Grassland dominated by species such as little bluestem, Texas wintergrass, sideoats grama, and silver bluestem.
Southwest: Tobosa / Mesquite Grassland	Swales and low basins with tight soils where honey mesquite forms a significant canopy over a grassland often dominated by tobosa (*Pleuraphi mutica*).
Southwest: Tobosa Grassland	Grass dominated swales and basins with tight soils. This type is often dominated by tobosa.
Land Cover: Open Water	
Open Water	In addition to large lakes, rivers, and marine water, ephemeral ponds may be mapped as open water. Some mapped areas may support vegetation with pioneering species such as black willow (*Salix nigra*), eastern cottonwood (*Populus deltoides*), Chinese tallow (*Triadica sebifera*), seepweeds (*Suaeda spp.*), sea ox-eye daisy (*Borrichia frutescens*), saltwort (*Batis maritima*), rushes, sedges, cattails, and spikerushes.
Land Cover: Shrubland	
Central Texas: Floodplain Deciduous Shrubland	Shrublands of the floodplains of the region that are dominated by deciduous shrubs such as possumhaw (*Ilex decidua*), honey mesquite, black willow, roughleaf dogwood (*Cornus drummondii*), and/or common buttonbush (*Cephalanthus occidentalis*).
Central Texas: Floodplain Evergreen Shrubland	Shrublands of the floodplains of the region that are dominated by juniper occurring as shrubs, or other evergreen shrubs, such as yaupon (*Ilex vomitoria*) or the non-native Macartney rose (*Rosa bracteata*).

Table 3-7: Description of Vegetation Types within the Study Area

Vegetation Type	Description
Central Texas: Riparian Deciduous Shrubland	Shrublands in riparian sites that may be dominated by deciduous shrubs such as possumhaw, honey mesquite, black willow, roughleaf dogwood, swamp privet (*Forestiera acuminata*), and/or common buttonbush. This mapped type may also represent relatively sparse woodlands dominated by overstory species typical of the vegetation type.
Central Texas: Riparian Evergreen Shrubland	Shrublands in riparian sites that are dominated by eastern redcedar (*Juniperus virginiana*), young pines (*Pinus spp.*) or, sometimes, broadleaf evergreen shrubs such as yaupon.
Edwards Plateau: Ashe Juniper - Live Oak Shrubland	This is a commonly encountered type of shrub cover on the Edwards Plateau. It is usually dominated by Ashe juniper, often to the almost total exclusion of other species.
Edwards Plateau: Ashe Juniper - Live Oak Slope Shrubland	Shrubland that resembles the Edwards Plateau: Ashe Juniper / Live Oak Shrubland, but occurs on slopes of greater than 20% and often occupies Steep Rocky and Steep Adobe ecoclasses. Evergreen sumac, and/or Lindheimer's silktassel may be more commonly encountered in this vegetation type.
Edwards Plateau: Deciduous Semi-arid Shrubland	Shrubland occurs within the more arid regions of the western portions of the Edwards Plateau. Dominant shrub species within this type include Mexican persimmon, honey mesquite, Vasey shin oak (*Quercus vaseyana*), white shin oak (*Quercus sinuata var. breviloba*), shrubby blue sage (*Salvia ballotiflora*), agarito, condalia (*Condalia sp.*), Texas mountain-laurel, and guajillo (*Acacia berlandieri*). Succulents, including Texas sotol (*Dasylirion texanum*), Texas sacahuista (*Nolina texana*), Lindheimer prickly pear (*Opuntia engelmannii var. lindheimeri*), and Lechuguilla (*Agave lechuguilla*), are commonly encountered in the driest, rockiest situations.
Edwards Plateau: Floodplain Ashe Juniper Shrubland	Ashe juniper dominated shrublands on floodplains.
Edwards Plateau: Floodplain Deciduous Shrubland	Shrublands on floodplains dominated by species in the shrub layer of the surrounding woodlands or other species such as honey mesquite, huisache, little walnut, western soapberry (*Sapindus saponaria var. drummondii*), agarito, black willow, and common buttonbush.
Edwards Plateau: Juniper Semi-arid Shrubland	Shrubland commonly encountered on the western portions of the Edwards Plateau and is dominated by redberry juniper (*Juniperus pinchotii*) or Ashe juniper shrubs. Other shrub species commonly encountered include honey mesquite, agarito, Texas persimmon, cenizo (*Leucophyllum frutescens*), and guajillo. Lindheimer prickly pear and Texas sotol are commonly encountered succulents.
Edwards Plateau: Juniper Semi-arid Slope Shrubland	Shrubland that occurs on slopes greater than 20% in the western portions of the Edwards Plateau. They are dominated by redberry juniper and/or Ashe juniper, but often have other deciduous shrub components, including honey mesquite, Texas persimmon, and guajillo.
Edwards Plateau: Riparian Ashe Juniper Shrubland	Shrublands on riparian sites dominated by Ashe juniper.
Edwards Plateau: Riparian Deciduous Shrubland	A variety of small trees or shrubs such as black willow, sugar hackberry, honey mesquite, desert willow, baccharis, Texas persimmon, little walnut, or whitebrush (*Aloysia gratissima*) may dominate this broadly circumscribed type which is mapped mainly along first-order drainages.
Edwards Plateau: Shin Oak Shrubland	White shin oak may be the significant dominant in these shrublands, sometimes forming nearly monotypic stands. Plateau live oak, Ashe juniper, and other broad-leaved evergreen shrub species may be common components but are not dominant.

Table 3-7: Description of Vegetation Types within the Study Area

Vegetation Type	Description
Edwards Plateau: Shin Oak Slope Shrubland	Shrubland that resembles Edwards Plateau: Shin Oak Shrubland, but occurs on slopes greater than 20%. As with the occurrences off of slopes, white shin oak may not be dominant. Texas sacahuista, Roemer's acacia (*Acacia roemeriana*), mejorana (*Salvia ballotiflora*), Mexican buckeye (*Ungnadia speciosa*), and Texas kidneywood may be more commonly encountered on slopes than in non-slope deciduous shrublands.
High Plains: Mesquite Shrubland	Honey mesquite is the characteristic dominant of this vegetation type, with shrub dominated occurrences with a scattered overstory component, if any.
Llano Uplift: Mesquite - Whitebrush Shrubland	On disturbed sites honey mesquite may dominate the canopy, forming a woodland overstory or, more commonly, representing a shrub layer. Plateau live oak may be present.
Native Invasive: Juniper Shrubland	Various species of juniper dominate these shrublands. Eastern redcedar is the primary dominant of these shrublands or low woodlands in the Blackland Prairie, Post Oak Savanna, and far northern Cross Timbers ecoregions. To the west, on the Rolling Plains, redberry juniper may be the dominant. In other areas, Ashe juniper may dominate these shrublands.
Native Invasive: Mesquite Shrubland	Honey mesquite is often the dominant species of this broadly defined type, but species such as huisache, sugar hackberry, Ashe juniper, cedar elm, lotebush, agarito, winged elm (*Ulmus alata*), sumacs, brasil (*Condalia hookeri*), common persimmon (*Diospyros virginiana*), Texas persimmon, granjeno (*Celtis ehrenbergiana*), and Lindheimer prickly pear may also be important.
Rolling Plains: Breaks Deciduous Shrubland	The physiognomic character of occurrences ranges from sparsely vegetated to shrubland, to sparse woodland. Bare ground is often conspicuous, and herbaceous cover is usually dominated by mid to short grasses such as purple threeawn, sideoats grama, silver bluestem, blue grama, hairy grama, and little bluestem.
Rolling Plains: Breaks Evergreen Shrubland	Herbaceous cover is usually dominated by mid to short grasses such as purple threeawn, sideoats grama, silver bluestem, blue grama, hairy grama, and little bluestem. Also includes shrub cover with significant amounts of evergreen species such as redberry juniper or, to a lesser extent, Ashe juniper.
Trans-Pecos: Succulent Desert Scrub	Occupies dry slopes with significant exposed rock (typically limestone) or gravel. Shrub species such as creosotebush (*Larrea tridentata*), mariola (*Parthenium incanum*), skeleton-leaf golden eye (*Viguiera stenoloba*), agarito, and desert olive (*Forestiera angustifolia*) may be present, but succulents such as Torrey's yucca, Texas sotol, lechuguilla, ocotillo (*Fouquieria splendens*), smooth sotol (*Dasylirion leiophyllum*), candelilla (*Euphorbia antisyphilitica*), and prickly pear are conspicuous and are the aspect dominants.
Land Cover: Urban	
Urban High Intensity	Consists of built-up areas and wide transportation corridors that are dominated by impervious cover.
Urban Low Intensity	Includes areas that are built-up but not entirely covered by impervious cover, including most of the area within cities and towns.
Land Cover: Wetland/Riparian	
Central Texas: Floodplain Herbaceous Vegetation	Floodplains of the region that lack a significant overstory or shrub canopy but retain cover in the herbaceous layer. Non-native grass species such as bermudagrass, King Ranch bluestem, and Johnsongrass may frequently dominate this vegetation type. Eastern gamagrass and switchgrass dominated prairies on lowlands, like those that occur at Knight Prairie and Mill Creek Bottom, may also be mapped as this vegetation type.
Central Texas: Riparian Hardwood - Evergreen Forest	Occupies buffer zones of headwater streams, with a mix of evergreen species, including eastern redcedar, pines (to the east), plateau live oak and/or coastal live oak and deciduous species in the canopy.

Table 3-7: Description of Vegetation Types within the Study Area

Vegetation Type	Description
Central Texas: Riparian Hardwood Forest	Occupies buffer zones of headwater streams, with deciduous species such as sugar hackberry, cedar elm, American sycamore, eastern cottonwood, plateau live oak, water oak (*Quercus nigra*), willow oak (*Quercus phellos*), western soapberry, black willow, white ash (*Fraxinus americana*), green ash (*Fraxinus pennsylvanica*), common honeylocust (*Gleditsia triacanthos*), honey mesquite, and pecan dominating the canopy.
Central Texas: Riparian Herbaceous Vegetation	Small areas dominated by wetland species such as flatsedges (*Cyperus spp.*), spikerushes, switchgrass, and smartweeds (*Polygonum spp.*) may occur on these more upland drainages.
Central Texas: Riparian Juniper Forest	Occupies buffer zones of headwater streams, dominated by eastern redcedar, pines or, sometimes broadleaf evergreen shrubs such as yaupon.
Central Texas: Riparian Live Oak Forest	Occupies buffer zones of headwater streams, with plateau live oak or coastal live oak dominating the canopy. Deciduous species can be, and frequently are, common in the canopy, but plateau live oak or coastal live oak clearly dominates. Eastern redcedar may also be present.
Edwards Plateau: Playa	Shallow wetlands formed over limestone on the Edwards Plateau of Texas. Dominant species may include tobosa, buffalograss, white tridens (*Tridens albescens*), widowscross (*Sedum pulchellum*), yellow stonecrop (*Sedum nuttallianum*), poverty dropseed (*Sporobolus vaginiflorus*), hairy leastdaisy (*Chaetopappa bellidifolia*), western ragweed, whitlow-wort (*Paronychia spp.*), and blue-green algae (*Nostoc commune*).
Edwards Plateau: Riparian Herbaceous Vegetation	Riparian sites dominated by upland herbaceous vegetation, often including species such as bushy bluestem, switchgrass, sawgrass (*Cladium mariscus var. jamaicense*), eastern gamagrass, southwestern bristlegrass (*Setaria scheelei*), Texas wintergrass, spikerush, brickellbush, American water-willow (*Justicia americana*), water penny (*Hydrocotyle spp.*), and/or Lindheimer muhly.
Marsh	Areas mapped as marsh are small and consist of wet or alternately wet and dry soils with herbaceous vegetation. These are often near tanks or ponds, and may contain cattails, spikerushes, bulrushes, other sedges, smartweeds and grasses such as Johnsongrass or bermudagrass as important species. Some shrubs such as common buttonbush and black willow may be important in this mapped type.
Swamp	Typically forested, wet or alternately wet and dry soils at the upper ends of reservoirs, or on stock tanks or ponds. A variety of species, including baldcypress, American elm (*Ulmus americana*), cedar elm, black willow, bur oak (*Quercus macrocarpa*), and water oak, sweetgum (*Liquidambar styraciflua*), or common buttonbush may be present.
Land Cover: Woodland	
Central Texas: Floodplain Evergreen Forest	Dominant communities within this vegetation type range from floodplain forests to wet meadows to gravel/sand flats; however, they are linked by underlying soils and the flooding regime. Canopy is dominated by eastern redcedar or loblolly pine (*Pinus taeda*).
Central Texas: Floodplain Hardwood - Evergreen Forest	Dominant communities within this vegetation type range from floodplain forests to wet meadows to gravel/sand flats; however, they are linked by underlying soils and the flooding regime. Canopy contains a mix of evergreen and deciduous species in the canopy, with plateau live oak representing the most common evergreen component.
Central Texas: Floodplain Hardwood Forest	Dominant communities within this vegetation type range from floodplain forests to wet meadows to gravel/sand flats; however, they are linked by underlying soils and the flooding regime. Canopy dominated by deciduous species such as pecan, white ash, water oak, cedar elm, sugar hackberry, American elm, plateau or coastal live oak, American sycamore, boxelder (*Acer negundo*), common honeylocust, bur oak, red mulberry (*Morus rubra*), green ash, and western soapberry.

Table 3-7: Description of Vegetation Types within the Study Area

Vegetation Type	Description
Central Texas: Floodplain Live Oak Forest	Floodplain forest that occupies relatively broad flats at low topographic positions, along large streams within alluvial deposition, dominated by plateau live oak or coastal live oak. Deciduous species can be, and frequently are, common in the canopy, but plateau live oak or coastal live oak clearly dominates. Eastern redcedar may also be present.
Crosstimbers: Hardwood / Juniper Slope Forest	Forests occupying slopes greater than 20% with canopies co-dominated by deciduous hardwood species (such as post oak, Texas red oak, blackjack oak, cedar elm and juniper species (including redberry juniper, eastern redcedar, or Ashe juniper, depending on the site).
Crosstimbers: Juniper Slope Forest	A component occupying slopes greater than 20% and dominated by Ashe juniper, eastern redcedar, or less commonly, redberry juniper.
Crosstimbers: Live Oak Forest and Woodland	Overstory is dominated by plateau live oak, with post oak, cedar elm, honey mesquite, and Ashe juniper also present as minor components of the canopy.
Crosstimbers: Oak - Hardwood Slope Forest	Relatively closed canopy forests on slopes (greater than 20%) that are dominated in the overstory by deciduous species, primarily oaks such as post oak, chinkapin oak (*Quercus muehlenbergii*), blackjack oak, and Texas oak. Cedar elm, gum bumelia, sugar hackberry, and/or netleaf hackberry (*Celtis reticulata*) may also be common in the canopy.
Crosstimbers: Post Oak - Juniper Woodland	Sites co-dominated by Juniper species, eastern redcedar to the north and east, and redberry juniper and Ashe juniper elsewhere are frequently encountered. Such sites, thought to result from disruption in the fire regime, may have post oak and blackjack oak as co-dominants in the canopy.
Crosstimbers: Post Oak Woodland	Represents the typical occurrence dominated by the usual post oak and blackjack oak, with other canopy species such as black hickory (*Carya texana*), cedar elm, plateau live oak, eastern redcedar, and sugar hackberry present.
Crosstimbers: Sandyland Oak Woodland	Represents vegetation type occurrences that occupy particularly sandy sites, often associated with Paluxy and Antlers Sand or alluvial or eolian deposits. These sites are likely dominated by post oak and blackjack oak. Black hickory, cedar elm, and sugar hackberry may be well-represented in the overstory.
Edwards Plateau: Ashe Juniper Motte and Woodland	Relatively closed woodlands that are very common on uplands of limestone in the Edwards Plateau and adjacent ecoregions. Ashe juniper is the clear dominant in the canopy and a conspicuous component of the shrub layer as well. Eastern redcedar may be present in the canopy to the northeast, while redberry juniper may be present to the west. Occurrences containing thick stands of juniper are sometimes referred to as “cedar breaks”.
Edwards Plateau: Ashe Juniper Slope Forest	Forest or woodland of slopes generally greater than 20% on steep rocky sites with coniferous evergreen canopy cover. The canopy of these sites is dominated by Ashe juniper, but usually with plateau live oak and a deciduous component present (often Texas oak, white shin oak, or Lacey oak [*Quercus laceyi*] at least). The canopy is usually relatively closed, and the sites are rocky, resulting in a sparse and depauperate shrub and herbaceous layer.
Edwards Plateau: Deciduous Oak - Evergreen Motte and Woodland	Woodlands that are intermediate between those strongly dominated by the evergreen components, Ashe juniper and plateau live oak and those dominated by deciduous components, particularly oaks such as Texas Oak, white shin oak, and Lacey oak.
Edwards Plateau: Floodplain Ashe Juniper Forest	Forests and woodlands with a canopy dominated by Ashe juniper. Woody species in the subcanopy may include gum bumelia, wafer-ash (*Ptelea trifoliat*), roughleaf dogwood, red mulberry, Texas persimmon, Virginia creeper (*Parthenocissus quinquefolia*), grape (*Vitis spp.*), saw greenbrier, Roosevelt-weed (*Baccharis neglecta*), Turk’s cap (*Malvaviscus arboreus var. drummondii*), Ashe juniper, and possumhaw.

Table 3-7: Description of Vegetation Types within the Study Area

Vegetation Type	Description
Edwards Plateau: Floodplain Hardwood - Ashe Juniper Forest	Forests and woodlands with a canopy dominated or co-dominated by evergreen and deciduous species such as pecan, cedar elm, American elm, sugar hackberry, netleaf hackberry, and/or plateau live oak.
Edwards Plateau: Floodplain Hardwood Forest	Forests and woodlands with a canopy dominated or co-dominated by evergreen and deciduous species such as pecan, cedar elm, American elm, sugar hackberry, netleaf hackberry, and/or plateau live oak.
Edwards Plateau: Floodplain Live Oak Forest	Forests and woodlands with a canopy dominated or co-dominated by plateau live oak. Deciduous species can be, and frequently are, common in the canopy, but plateau live oak clearly dominates. Ashe juniper may also be present.
Edwards Plateau: Live Oak Motte and Woodland	Relatively closed woodlands that are common throughout the Edwards Plateau and adjacent ecoregions on limestone. Plateau live oak dominates the overstory, however other species such as white shin oak, cedar elm, Texas oak, hackberries (*Celtis spp.*), Lacey oak, post oak, and Vasey shin oak may also be present to common.
Edwards Plateau: Live Oak Slope Forest	Forest or woodland dominated by plateau live oak and occupying generally rocky sites on slopes greater than 20%. Ashe juniper is typically present and may be particularly conspicuous as an understory component. Deciduous species such as Texas oak, white shin oak, Lacey oak, cedar elm, and others may also be present in the canopy.
Edwards Plateau: Oak - Ashe Juniper Slope Forest	Forests or woodlands on steep rocky slopes, co-dominated by Ashe juniper and deciduous species such as Texas oak, Lacey oak, chinkapin oak, and white shin oak. Plateau live oak is also frequently conspicuous in the canopy. These sites are intermediate in dryness between juniper dominated slopes and those dominated by deciduous hardwood species. Ashe juniper may reach large sizes on such slopes.
Edwards Plateau: Oak - Hardwood Motte and Woodland	While Texas oak, hackberries, and cedar elm are significant elements of the canopy of nearby slope forests and woodlands, they may also dominate upland sites.
Edwards Plateau: Oak - Hardwood Slope Forest	Forest or woodland on slopes generally greater than 20% on steep rocky sites with significant deciduous canopy cover. These sites tend to be somewhat more mesic than similar sites dominated by evergreen canopy. The overstory may be diverse, with species such as Texas oak, Lacey oak, white shin oak, chinkapin oak, cedar elm, netleaf hackberry, Texas ash (*Fraxinus texensis*), escarpment black cherry (*Prunus serotina var. eximia*), Arizona walnut (*Juglans major*), and others.
Edwards Plateau: Post Oak Motte and Woodland	Woodlands and mottes that tend to occur on Redland Ecological Sites but may also be found on sandy benches. The overstory tends to be open and dominated by post oak, though blackjack oak, plateau live oak, cedar elm, Ashe juniper, and Texas oak may also be present. The herbaceous layer is often dominated by little bluestem, Texas wintergrass, sideoats grama, and other species, but may be dominated by the non-native King Ranch bluestem.
Edwards Plateau: Riparian Ashe Juniper Forest	Forest or woodland on riparian sites dominated by Ashe juniper. Otherwise, generally fitting the description of forest or woodland occurrences of the vegetation type, with some deciduous species and plateau live oak present in the canopy.
Edwards Plateau: Riparian Hardwood / Ashe Juniper Forest	Ashe juniper, redberry juniper, and plateau live oak are frequent dominant trees of this broadly defined mixed forest mapped along narrow upland drainages. American sycamore, sugar hackberry, cedar elm, and honey mesquite may be components.
Edwards Plateau: Riparian Hardwood Forest	Woodlands with a canopy dominated by deciduous species such as plateau live oak, American sycamore, baldcypress, Texas ash, green ash, cedar elm, sugar hackberry, boxelder, honey mesquite, Texas oak, Ashe juniper, black willow, and/or western soapberry.
Edwards Plateau: Riparian Live Oak Forest	Forest or woodland on riparian sites dominated by plateau live oak. Otherwise, this vegetation type generally fits the description of forest or woodland occurrences of the vegetation type, with some deciduous species and Ashe juniper present in the canopy.

Table 3-7: Description of Vegetation Types within the Study Area

Vegetation Type	Description
Edwards Plateau: Wooded Cliff/Bluff	Some of these sites may be mesic, accumulating moisture from nearby slopes in crevices within the limestone substrate, and seeps may be present. They often occur as long narrow bands. Seeps and mesic sites may have fairly dense cover of maiden-hair fern (*Adiantum capillus-veneris*) with patches of Lindheimer's maidenfern (*Thelypteris ovata var. lindheimeri*) present. More xeric sites often have significant shrub cover, with species such as Texas butterfly bush (*Buddleja racemosa*), Mexican buckeye, Texas persimmon, shrubby boneset (*Ageratina havanensis*), Lindheimer's silktassel, southwest bernardia (*Bernardia myricifolia*), mock oranges (*Philadelphus spp.*), snowbells (*Styrax spp.*), and poison ivy (*Toxicodendron radicans subspecies* (*ssp.*) *eximium*).
High Plains: Mesquite Woodland	Areas where honey mesquite has invaded and grown to tree stature to dominate the canopy.
Llano Uplift: Live Oak Woodland	Canopy conspicuously dominated by plateau live oak, this vegetation type forms the common forest and woodland cover in the uplift area. Ashe juniper may be present but generally occurs at lower cover than is typical of the surrounding limestones.
Llano Uplift: Post Oak Woodland	Forests and woodlands not dominated by plateau live oak (though it is often present), are generally dominated by post oak, with blackjack oak and black hickory also present to co-dominant.
Native Invasive: Deciduous - Juniper Woodland	Woodlands, typically of disturbed sites, sharing dominance between junipers and deciduous species such as netleaf hackberry, western soapberry, honey mesquite, and the non-native Siberian elm (*Ulmus pumila*).
Native Invasive: Deciduous Woodland	Broadly defined type that may have sugar hackberry, water oak, cedar elm, sweetgum, winged elm, yaupon, huisache, ashes (*Fraxinus spp.*), or honey mesquite among the dominants.
Native Invasive: Juniper Woodland	May be dominated either by Ashe juniper in the northwest, over Edwards Plateau limestones, or by eastern redcedar in the northeast and east, or redberry juniper to the northwest. Plateau live oak is a common component, and species such as sugar hackberry and cedar elm occur throughout.
Post Oak Savanna: Live Oak Motte and Woodland	Plateau live oak or coastal live oak may dominate sites within the Post Oak Savanna. Post oak may be present in these woodlands, but typically only as a minor component of the canopy, or it may be completely absent.
Post Oak Savanna: Post Oak - Yaupon Motte and Woodland	Many occurrences of this common vegetation type may have an exceedingly dense shrub layer dominated by yaupon. Such occurrences are conspicuous and widespread where lack of fire and heavy continuous grazing have allowed this woody species to dominate. The overstory is dominated by post oak.
Post Oak Savanna: Post Oak Motte and Woodland	This vegetation type is categorized by deciduous woodland. The typical occurrence is dominated by post oak, with blackjack oak, and/or plateau live oak (particularly in the south) also present.

Source: TPWD, 2014b; Elliott, 2014

3.5.1.3 Commercially or Recreationally Important Vegetation

Traditional agriculture was observed within the study area during field reconnaissance. Based on field reconnaissance, and a review of the MLRAs, agriculturally important species within the study area include wheat, oats, grain sorghum, corn, forage sorghum, small grains, soybeans, and hay (USDA, 2022b). During the reconnaissance surveys, active agricultural fields and center-pivot irrigation systems were observed. In addition, two concentrated agricultural feeding operations are located in the western portion of the study area (National Agricultural Statistics Service [NASS], 2017).

Appropriate habitats, rather than specific vegetative species, are important for recreational hunting in the study area. Birds and mammals generally prefer open habitats and make use of the shrublands within the study area. Aquatic species and waterfowl may make use of the abundant lakes, ponds, wetlands, and other wetland features within the study area.

3.5.1.4 Endangered and Threatened Plant Species

The USFWS has the authority under the ESA to list and monitor species considered imperiled. The regulations implementing the ESA are codified and updated in 50 Code of Federal Regulations (CFR) Part 17 (U.S., 1975). The federal process identifies potential candidates based on their biological vulnerability, considering many factors within the species' range and using the best available scientific data. Data from the USFWS Information for Planning and Consultation (IPaC) tool was reviewed on February 17, 2026, and was used to identify federally listed species that may be expected to occur within the study area (USFWS, 2025b).

Species listed as threatened or endangered by the USFWS receive full protection under the ESA, including a prohibition on take, such as the destruction of critical habitat (i.e., areas formally designated such as by USFWS in the Federal Register) or suitable habitat. Under Section 9 of ESA, listed plants species have no take prohibition on private lands, unless in violation of state laws.

In Texas, endangered species legislation established in 1973 and subsequent amendments (TPWD, 1975) created a state regulatory program for managing and protecting endangered (in danger of extinction) and threatened (likely to become endangered in the foreseeable future) species. Chapters 67 and 68 of the Texas Parks and Wildlife Code authorize the TPWD to create lists of threatened and endangered species and regulate their taking or possession. Under this authority, TPWD controls the taking, possession, transport, export, processing, selling, offering for sale, or shipping of state-listed threatened or endangered species *(*TPWD, 1975*)*.

The TPWD maintains the Texas Natural Diversity Database (TXNDD) to track known occurrences of threatened, endangered, and otherwise rare plant and animal species throughout Texas. Typically, information obtained from the TXNDD includes a descriptive record with Element Occurrence Identification (EOID) numbers corresponding with mapped locations of recorded rare habitats within the study area (TPWD, 2025b). The TXNDD data for the study area was provided by TPWD in March 2025 (TPWD, 2025c). **Figures 3-7A**, **3-7B**, and **3-7C** illustrate documented species occurrences from the TXNDD for both plant and wildlife species. Each EOID is represented as a circle or polygon, depending on the spatial information available. Circles indicate a generalized area of occurrence, with circle size based on location uncertainty, while polygons represent mapped boundaries where the species has been documented. Because the database depends on voluntary reporting and limited access to private lands, it may not represent a comprehensive inventory; therefore, data gaps may exist where survey coverage is limited.

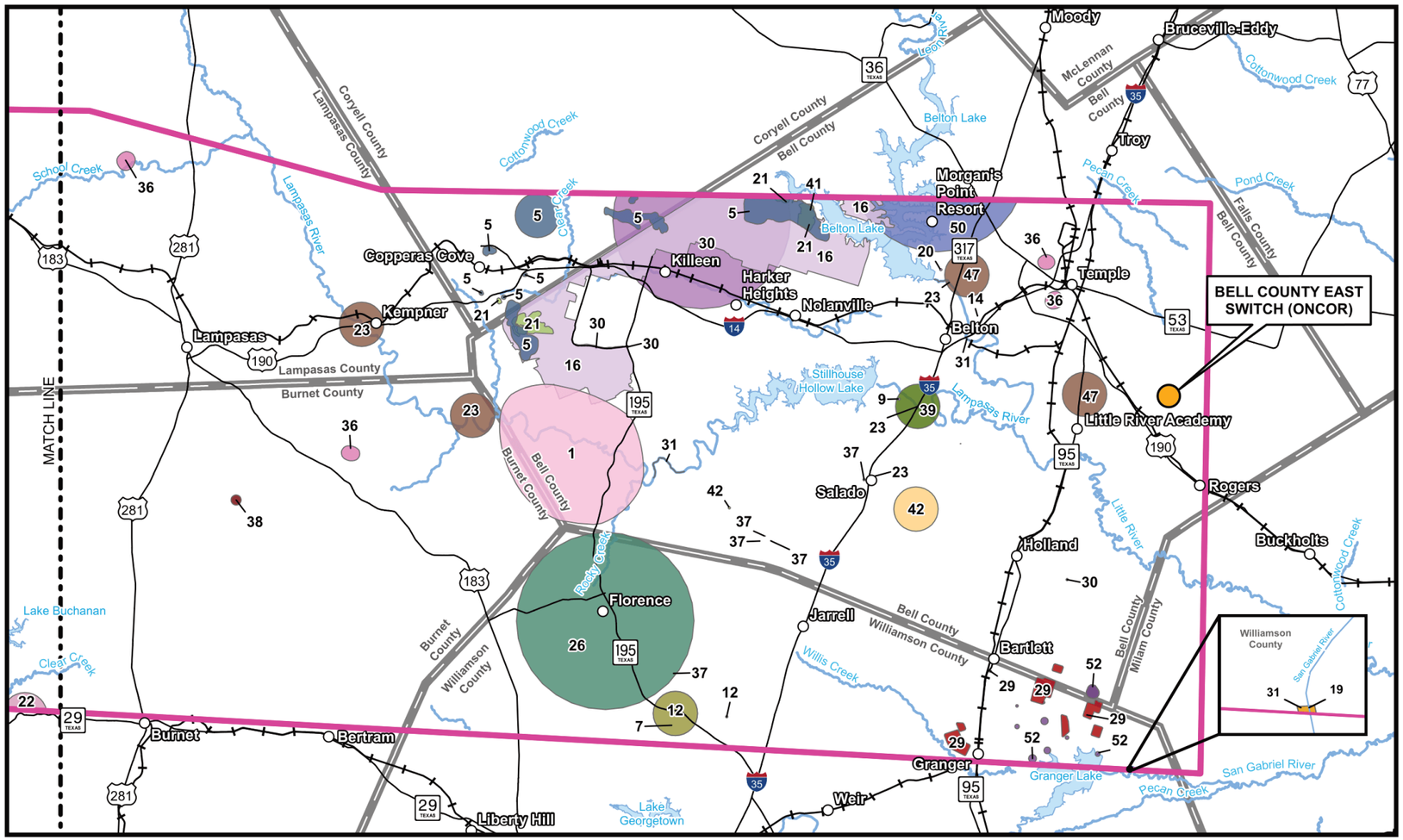
TPWD also maintains the Rare, Threatened and Endangered Species of Texas (RTEST) database for the state of Texas, which identifies federally listed, state-listed, or rare species based

on the county. The RTEST data, last reviewed by Kimley-Horn and Halff in November 2025 (TPWD, 2025d) for all counties within the study area, were used to identify plant species with potential to occur in the study area, as summarized in **Table 3-8** and **3-10**.

The species listed by USFWS (2025b) and TPWD RTEST (TPWD, 2025d) as threatened or endangered, proposed, or candidate species were evaluated for likelihood of occurrence within the study area with consideration of documented species range, vegetation cover types as identified previously, and TXNDD element occurrences for that species (TPWD 2025b). It is important to note that, because the TXNDD is based on the best data available to TPWD regarding rare species, these data cannot provide a definitive statement as to the current presence, absence, or condition of special species, natural communities, or other significant features in any area. EOIDs are based on at least one observation, and may represent multiple observations, of a species in a specific or general location. However, these records may not be representative of the species' current condition or distribution. The presence of EOIDs within or near the study area supports the potential for occurrence but does not necessarily confirm occupancy.

USFWS (2025b) and TPWD RTEST (2025d) identified four plant species listed as threatened or endangered with potential to occur in counties within the study area. **Table 3-8** summarizes all federally or state-listed plant species with respect to their regulatory status, habitat criteria, EOID records, and a determination of whether potentially suitable habitat occurs in the study area.

Figure 3-7A: Element Occurrence Map



Element Occurrence Legend

- 1 - Bald Eagle
- 2 - Basin Bellflower
- 3 - Basin Wild-Buckwheat
- 4 - Bat Roost
- 5 - Black-Capped Vireo
- 6 - Black-Tailed Prairie Dog
- 7 - Bone Cave Harvestman
- 8 - Buckley Tridens
- 9 - Caecidotea Bilineata
- 10 - Clear Creek Amphipod
- 11 - Clear Creek Gambusia
- 12 - Coffin Cave Mold Beetle
- 13 - Common Black-Hawk
- 14 - Common Garter Snake
- 15 - Concho Water Snake
- 16 - Eastern Spotted Skunk
- 17 - Edwards Plateau Cornsalad
- 18 - Enquist's Sandmint
- 19 - False Spike
- 20 - Glass Mountains Coral-Root
- 21 - Golden-Cheeked Warbler
- 22 - Granite Spiderwort
- 23 - Guadalupe Bass
- 24 - Headwater Catfish
- 25 - Hill Country Wild-Mercury
- 26 - Kretschmarr Cave Mold Beetle
- 27 - Lirceolus Bisetus
- 28 - Llano Pocket Gopher
- 29 - Mountain Plover
- 30 - Osage Plains False Foxglove
- 31 - Pimpleback
- 32 - Plateau Loosestrife
- 33 - Plateau Spot-Tailed Earless Lizard
- 34 - Rock Grape
- 35 - Rock Quillwort
- 36 - Rookery
- 37 - Salado Springs Salamander
- 38 - Slender Glass Lizard
- 39 - Smalleye Shiner
- 40 - Swift Fox
- 41 - Sycamore-Leaf Snowbell
- 42 - Texas Almond
- 43 - Texas Fatmucket
- 44 - Texas Fawnsfoot
- 45 - Texas Horned Lizard
- 46 - Texas Map Turtle
- 47 - Texas Milk Vetch
- 48 - Texas Pimpleback
- 49 - Texas Shiner
- 50 - Tree Dodder
- 51 - Turner's Hawthorn
- 52 - Whooping Crane

FIGURE 3-7A
ELEMENT OCCURRENCE MAP
BELL COUNTY EAST - BIG HILL
765 kV TRANSMISSION LINE PROJECT

Legend

- Project Endpoint
- City
- Study Area Boundary
- County Boundary
- Railroad
- Major Road
- River
- Water Body

Data Sources: TxDOT (County Boundaries, Cities, Roadway Inventory On-System, and Railroads) 2025c; TPWD, 2025b; TPWD, 2025c, USFWS, 2025b; USGS, 2025d

Data is for display purposes only. All features and boundaries have been approximated based on information gathered from review of public resources.

MAP VIEW EXTENT

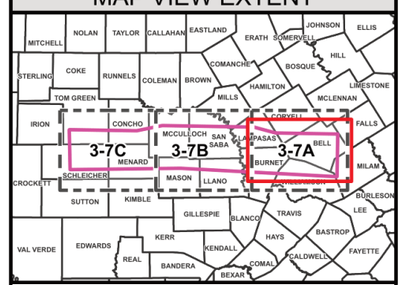


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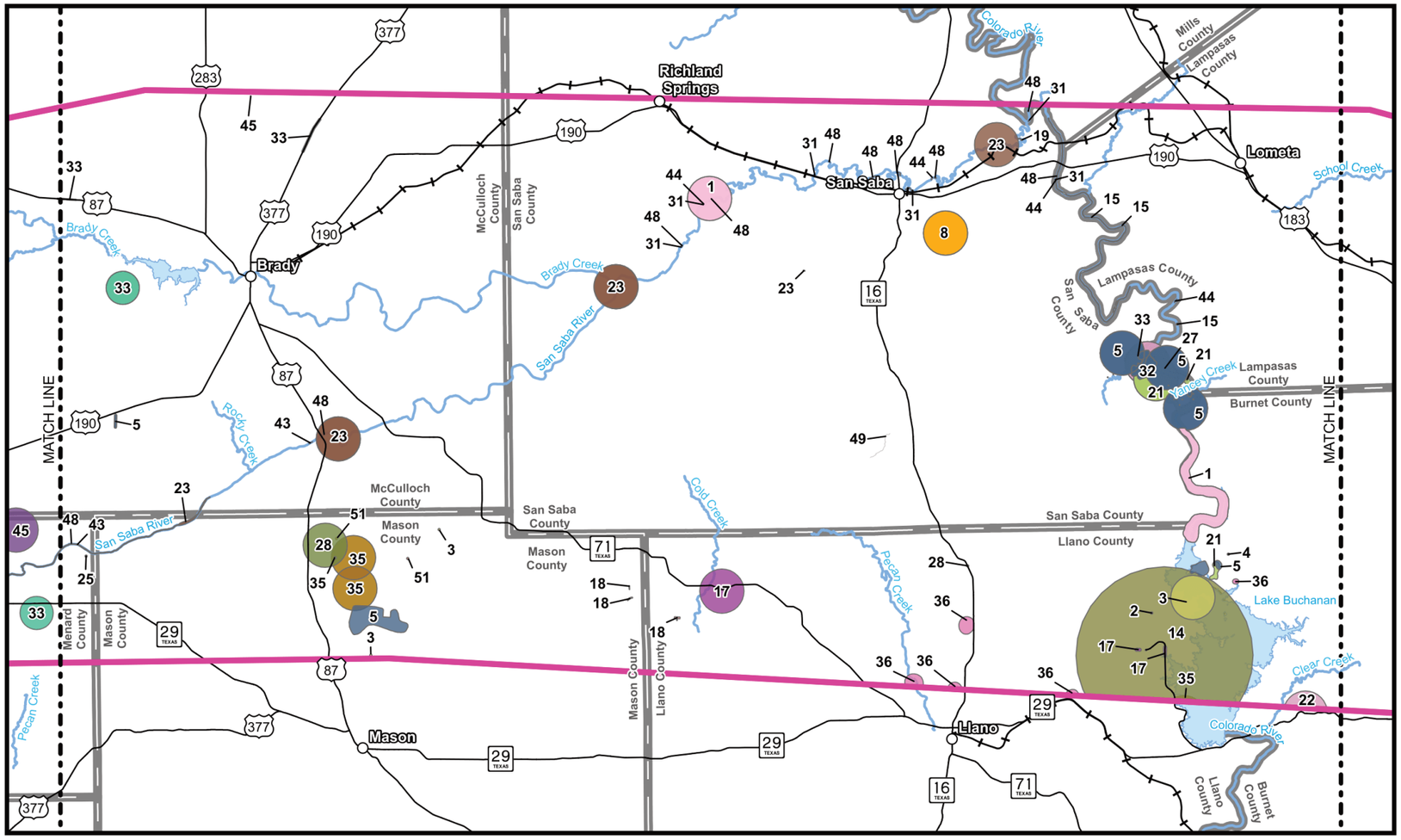
Figure 3-7B: Element Occurrence Map



Element Occurrence Legend

- 1 - Bald Eagle
- 2 - Basin Bellflower
- 3 - Basin Wild-Buckwheat
- 4 - Bat Roost
- 5 - Black-Capped Vireo
- 6 - Black-Tailed Prairie Dog
- 7 - Bone Cave Harvestman
- 8 - Buckley Tridens
- 9 - Caecidotea Bilineata
- 10 - Clear Creek Amphipod
- 11 - Clear Creek Gambusia
- 12 - Coffin Cave Mold Beetle
- 13 - Common Black-Hawk
- 14 - Common Garter Snake
- 15 - Concho Water Snake
- 16 - Eastern Spotted Skunk
- 17 - Edwards Plateau Cornsalad
- 18 - Enquist's Sandmint
- 19 - False Spike
- 20 - Glass Mountains Coral-Root
- 21 - Golden-Cheeked Warbler
- 22 - Granite Spiderwort
- 23 - Guadalupe Bass
- 24 - Headwater Catfish
- 25 - Hill Country Wild-Mercury
- 26 - Kretschmarr Cave Mold Beetle
- 27 - Lirceolus Bisetus
- 28 - Llano Pocket Gopher
- 29 - Mountain Plover
- 30 - Osage Plains False Foxglove
- 31 - Pimpleback
- 32 - Plateau Loosestrife
- 33 - Plateau Spot-Tailed Earless Lizard
- 34 - Rock Grape
- 35 - Rock Quillwort
- 36 - Rookery
- 37 - Salado Springs Salamander
- 38 - Slender Glass Lizard
- 39 - Smalleye Shiner
- 40 - Swift Fox
- 41 - Sycamore-Leaf Snowbell
- 42 - Texas Almond
- 43 - Texas Fatmucket
- 44 - Texas Fawnsfoot
- 45 - Texas Horned Lizard
- 46 - Texas Map Turtle
- 47 - Texas Milk Vetch
- 48 - Texas Pimpleback
- 49 - Texas Shiner
- 50 - Tree Dodder
- 51 - Turner's Hawthorn
- 52 - Whooping Crane

FIGURE 3-7B
ELEMENT OCCURRENCE MAP
BELL COUNTY EAST - BIG HILL
765 kV TRANSMISSION LINE PROJECT

Legend

- Project Endpoint
- City
- Study Area Boundary
- County Boundary
- Railroad
- Major Road
- River
- Water Body

Data Sources: TxDOT (County Boundaries, Cities, Roadway Inventory On-System, and Railroads) 2025c; TPWD, 2025b; TPWD, 2025c, USFWS, 2025b; USGS, 2025d

Data is for display purposes only. All features and boundaries have been approximated based on information gathered from review of public resources.

MAP VIEW EXTENT

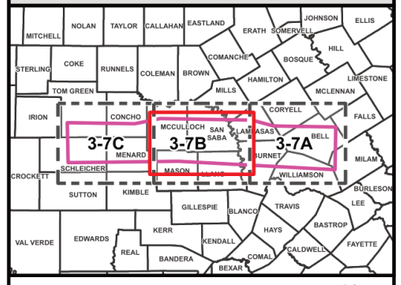


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Figure 3-7C: Element Occurrence Map

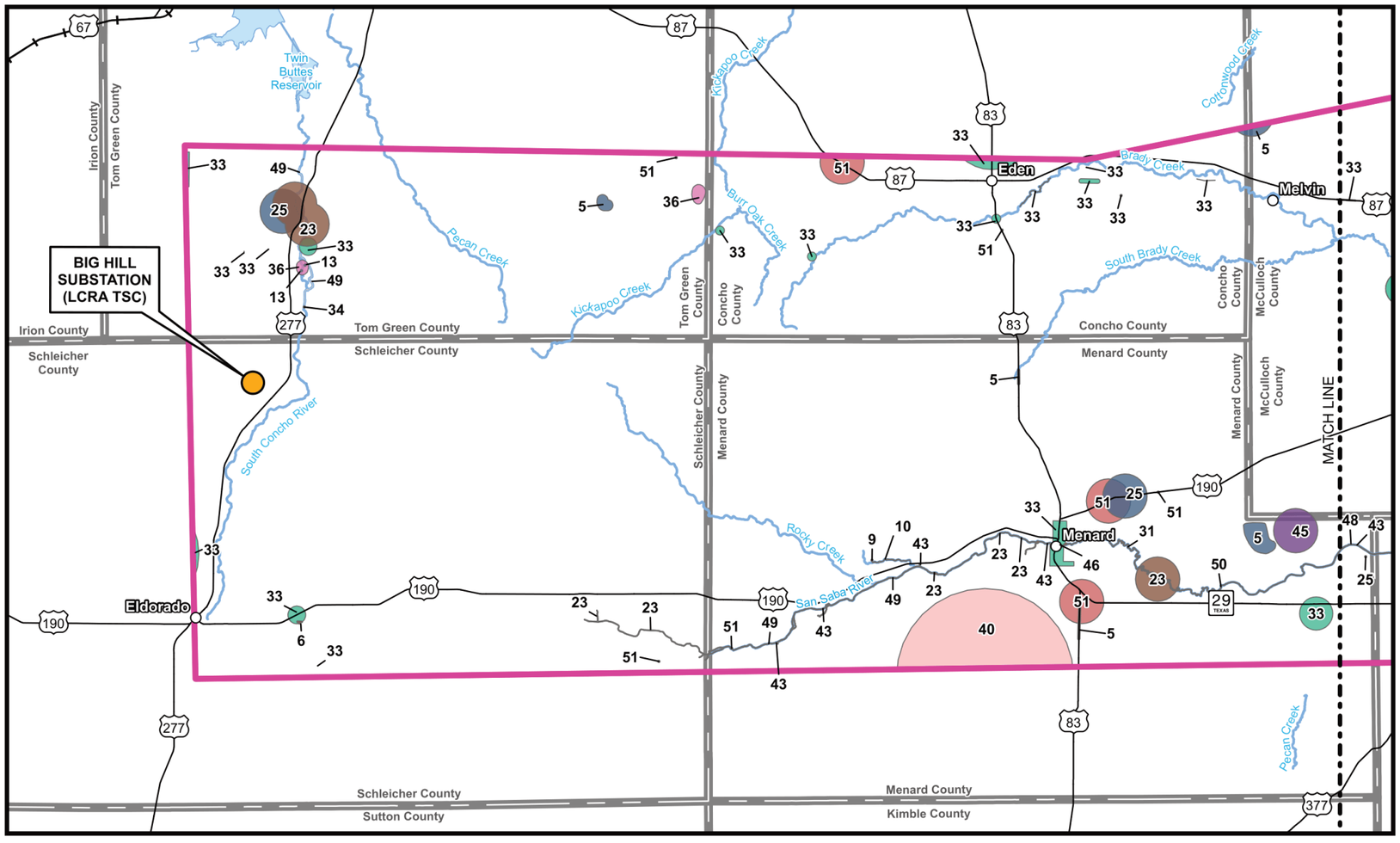


FIGURE 3-7C
ELEMENT OCCURRENCE MAP
BELL COUNTY EAST - BIG HILL
765 kV TRANSMISSION LINE PROJECT

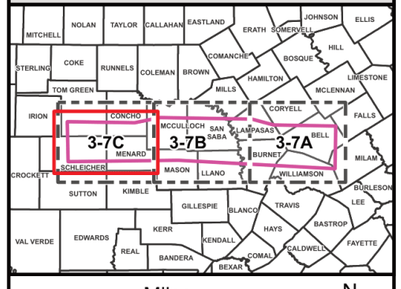
Legend

- Project Endpoint
- City
- Study Area Boundary
- County Boundary
- Railroad
- Major Road
- River
- Water Body

Data Sources: TxDOT (County Boundaries, Cities, Roadway Inventory On-System, and Railroads) 2025c; TPWD, 2025b; TPWD, 2025c, USFWS, 2025b; USGS, 2025d

Data is for display purposes only. All features and boundaries have been approximated based on information gathered from review of public resources.

MAP VIEW EXTENT



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Element Occurrence Legend

- 1 - Bald Eagle
- 2 - Basin Bellflower
- 3 - Basin Wild-Buckwheat
- 4 - Bat Roost
- 5 - Black-Capped Vireo
- 6 - Black-Tailed Prairie Dog
- 7 - Bone Cave Harvestman
- 8 - Buckley Tridens
- 9 - Caecidotea Bilineata
- 10 - Clear Creek Amphipod
- 11 - Clear Creek Gambusia
- 12 - Coffin Cave Mold Beetle
- 13 - Common Black-Hawk
- 14 - Common Garter Snake
- 15 - Concho Water Snake
- 16 - Eastern Spotted Skunk
- 17 - Edwards Plateau Cornsalad
- 18 - Enquist's Sandmint
- 19 - False Spike
- 20 - Glass Mountains Coral-Root
- 21 - Golden-Cheeked Warbler
- 22 - Granite Spiderwort
- 23 - Guadalupe Bass
- 24 - Headwater Catfish
- 25 - Hill Country Wild-Mercury
- 26 - Kretschmarr Cave Mold Beetle
- 27 - Lirceolus Bisetus
- 28 - Llano Pocket Gopher
- 29 - Mountain Plover
- 30 - Osage Plains False Foxglove
- 31 - Pimpleback
- 32 - Plateau Loosestrife
- 33 - Plateau Spot-Tailed Earless Lizard
- 34 - Rock Grape
- 35 - Rock Quillwort
- 36 - Rookery
- 37 - Salado Springs Salamander
- 38 - Slender Glass Lizard
- 39 - Smalleye Shiner
- 40 - Swift Fox
- 41 - Sycamore-Leaf Snowbell
- 42 - Texas Almond
- 43 - Texas Fatmucket
- 44 - Texas Fawnsfoot
- 45 - Texas Horned Lizard
- 46 - Texas Map Turtle
- 47 - Texas Milk Vetch
- 48 - Texas Pimpleback
- 49 - Texas Shiner
- 50 - Tree Dodder
- 51 - Turner's Hawthorn
- 52 - Whooping Crane

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Table 3-8: Federally and State Listed Plant Species

PLANTS							
Bracted Twistflower *Streptanthus bracteatus*				**EOID: --**			
USFWS Status	T	**TPWD Status**	-	**Suitable Habitat within Study Area**	Yes	**Figure Number**	-[1]
Habitat Description	Shallow, well-drained gravelly clays and clay loams over limestone in oak juniper woodlands and associated openings, on steep to moderate slopes and in canyon bottoms; several known soils include Tarrant, Brackett, or Speck over Edwards, Glen Rose, and Walnut geologic formations; populations fluctuate widely from year to year, depending on winter rainfall; flowering mid April-late May, fruit matures and foliage withers by early summer.						
Determination	The Bracted Twistflower is known to occur on shallow calcareous soils over limestone within open juniper-oak woodlands and shrublands along the Balcones Escarpment of central Texas. Portions of the study area within Williamson and Bell counties include suitable limestone slopes and ledges consistent with potential habitat for this species; therefore, suitable habitat may be present.						
Navasota Ladies-tresses *Spiranthes parksii*				**EOID: --**			
USFWS Status	E	**TPWD Status**	E	**Suitable Habitat within Study Area**	No	**Figure Number**	-
Habitat Description	Openings in post oak woodlands in sandy loams along upland drainages or intermittent streams, often in areas with suitable hydrologic factors, such as a perched water table associated with the underlying claypan; flowering populations fluctuate widely from year to year, an individual plant does not flower every year; flowering late October-early November (-early December).						
Determination	The southeast corner of the study area overlaps the westernmost extents of Milam County which is the lone county in the study area to include a listing for this species. Milam County represents the western extents for this species' known distribution, which is mapped east of the study area where post oak savannah communities are more common (USFWS, 2022). This species would not be expected to occur in the study area.						
Rock Quillwort *Isoetes lithophila*				**EOIDs:** 3531, 5130, 6651, 6148			
USFWS Status	-	**TPWD Status**	T	**Suitable Habitat within Study Area**	Yes	**Figure Number**	**3-7B**
Habitat Description	Rooted in sand and gravel under shallow water of seasonal pools (vernal pools) that develop during rainy seasons in small, shallow, unshaded basins on barren outcrops of granite and gneiss; sporulating in late winter and spring, and opportunistically in other seasons following heavy rainfall.						
Determination	The species is endemic to the Edwards Plateau and occurs in ephemeral pools on granite and igneous rock outcrops. Where the study area includes suitable rock outcrop depressions that retain water seasonally (e.g., granite outcrops or shallow rock-bottomed basins), potential habitat may be present for this species.						
Small-headed Pipewort *Eriocaulon koernickianum*				**EOID: --**			
USFWS Status	-	**TPWD Status**	T	**Suitable Habitat within Study Area**	No	**Figure Number**	-
Habitat Description	Rare throughout range, usually in oak-juniper woodlands on steep rocky banks and ledges along intermittent or perennial streams, rarely far from some reliable source of moisture.						
Determination	Although it is possible the study area may contain suitable habitat, this species is only known from Anderson, Henderson, Limestone, and Van Zandt counties which are east of the study area.						

Sources: USFWS, 2025b; TPWD, 2025b; TPWD, 2025d

E = Endangered; T = Threatened, severely depleted, or impacted; - = Not Listed

Notes:

1. Species for which there is no recorded EOID have no corresponding figure number reference.

3.5.2 Fish and Wildlife

3.5.2.1 Terrestrial Wildlife

The study area is located within the Balconian and Texan biotic provinces (Blair, 1950). The Texan Biotic Province is a broad ecotone that is characterized by the overlap of forest and grassland associations and species. The Balconian Biotic Province includes the Edwards Plateau, the Lampasas Cut Plain, and the Central Mineral Region. This is a region of intermediate ecological conditions between the eastern forest and the western deserts. Common vertebrate species (reptiles, amphibians, mammals, and avian species) are addressed below.

For the purposes of this discussion, "wildlife" refers to common animal species that are not protected by law, are not rare species, or are not species identified as Species of Greatest Conservation Need (SGCN). Terrestrial wildlife considered in this section includes reptiles, amphibians, mammals, and birds. The species lists provided are not exhaustive but represent common wildlife expected in the study area based on general ranges, vegetation types, and habitat associations. These examples are included to provide ecological context beyond those species afforded regulatory protections.

Reptiles

There are numerous reptiles with the potential to occur within the study area, which contains species predominately associated with grassland, shrubland, and riparian corridor habitats. Common lizards include the Texas spiny lizard (*Sceloporus olivaceus*), greater earless lizard (*Cophosaurus texanus*), common spotted whiptail (*Aspidoscelis gularis)*, and ornate tree lizard (*Urosaurus ornatus*), all of which are typically found in open scrub and rocky slopes. Non-venomous snakes likely to occur include coachwhip (*Masticophis flagellum*), western rat snake (*Pantherophis obsoletus*), plain-bellied water snake (*Nerodia erythrogaster*), and western ribbon snake (*Thamnophis proximus*). Additionally, several venomous snakes have the potential to occur including the western diamondback rattlesnake (*Crotalus atrox*), northern cottonmouth (*Agkistrodon piscivorus*), Texas coral snake (*Micrurus tener*), and broad-banded copperhead (*Agkistrodon laticinctus*) (Dixon, 2013).

Amphibians

Amphibians within the study area are generally associated with the available riparian corridors and the temporary pools and stock ponds that form following seasonal rainfall. Common species include the Gulf Coast toad (*Incilius nebulifer*), Blanchard's cricket frog *(Acris blanchardi*), Rio Grande leopard frog (*Lithobates berlandieri*), and green tree frog (*Hyla cinerea*). Numerous other amphibians have the potential to occur within the study area such as the small-mouthed salamander (*Ambystoma texanum*), western narrow-mouthed toad (G*astrophryne olivacea*), and Couch's spadefoot (*Scaphiopus couchii*) (Dixon, 2013).

Birds

Non-game bird species have potential to occur within the study area at various times of year and may be residents, breeding residents, winter residents, or migratory species. The study area is located within the Central Flyway and may provide migratory habitat for bird species (TPWD, 2025e). Representative groups that have potential to occur within the study area may include geese,

quail, turkeys, herons, egrets, kites, hawks, plovers, sandpipers, dove, owls, woodpeckers, falcons, flycatchers, crows, warblers, and sparrows (Lockwood and Freeman, 2014).

Most bird species native to the region, whether resident or migratory, are afforded the same level of protection under the Migratory Bird Treaty Act (MBTA). The bird species included in this section are not intended to represent an exhaustive list but rather highlight representative groups of bird species expected to utilize habitats within the study area, including those not afforded additional state or federal protections.

Mammals

Common mammalian species have potential to occur throughout the study area, which supports a mix of shrubland, grassland, woodland, riparian corridor, and human-modified habitats. Of the 202 mammal species that reside in Texas, the study area is likely to contain species including shrews, skunks, rabbits, moles, racoons, squirrels, bats, coyotes, rats, armadillos, deer, mice, gophers, foxes, beavers, porcupines, nutria, and opossums. Mammal species are common and have potential to occur within suitable habitat throughout the study area (Schmidly and Bradley, 2016). These species are generally habitat generalists and are not protected under state or federal law (beyond standard fish and game laws).

3.5.2.2 Fish and Aquatic Wildlife

Aquatic wildlife considered in this section includes fish and freshwater mussels. As with terrestrial wildlife, the lists provided in this section are not intended to be comprehensive inventories. Instead, they highlight representative aquatic species with potential to occur in the study area, based on distribution ranges and habitat conditions, to provide a greater understanding of ecological communities beyond protected species.

There are over 300 freshwater mussel species known to reside within North America, more than 50 of which are native to Texas waters. Freshwater mussels are highly susceptible to habitat degradation and loss. In addition to native species, several exotic invasive mussels are prevalent and widespread within Texas waters, including the Asian clam (*Corbicula fluminea*) and zebra mussel (*Dreissena polymorpha*) (Howells, 2014).

Based on a review of the USGS NHD, there are over 18,000 mapped stream features and mapped waterbodies within the study area (USGS, 2025d). This data is consistent with the numerous apparent streams, ponds, wetlands, and lakes identified from aerial photography review and site reconnaissance (ESRI World Imagery Basemap, 2025; NAIP, 2024). As stated in **Section 3.4.1**, the study area includes portions of eight ESSSs, associated with the Little River (Segment ID: 1213), Rocky Creek (No Segment ID), Clear Creek (No Segment ID), Gorman Creek (No Segment ID), San Saba River (Segment ID: 1416), Willis Creek (Segment ID: 1247A), San Gabriel River (Segment ID: 1214), and the Colorado River (Segment IDs: 1409 and 1410) (TPWD, 2025a). These designations are based on one or more of the following attributes: high water quality, exceptional aquatic life, diverse macroinvertebrate communities, riparian conservation, and habitat for threatened and endangered species or other unique communities. These aquatic

habitats support fish, mussels, and amphibian populations, including a variety of amphipods, bass, catfish, pupfish, slugs, toads, and turtles (TPWD, 2025d).

3.5.2.3 Commercially or Recreationally Important Wildlife Species

The study area contains the potential for commercially or recreationally important wildlife species. Some recreationally important species are utilized for sport hunting, while some are valuable for observation. Important recreational species with potential to occur within the study area are white-tailed deer (*Odocoileus virginianus*), wild turkey (*Meleagris gallopavo)*, scaled quail (*Callipepla squamata*), northern bobwhite (*Colinus virginianus*), dove (*Zenaida sp*.), and waterfowl (TPWD, 2025f).

The TPWD identifies ecological areas for land habitat management, and the study area is located within the Hill Country Wildlife Management District (TPWD, 2025f). Wildlife biologists work with landowners, land managers, hunters, sportsmen, educators, and the public to ensure proper management of wildlife and habitat resources. The Hill Country of Texas has been branded the "Deer Factory of Texas" as it supports the largest white-tailed deer population in the state. Deer hunting is a major industry in this region.

Numerous recreational fishing areas are scattered throughout the study area. According to TPWD resources, there are Texas community fishing lakes located within the study area (TPWD, 2025g). In addition, there are several public access fishing lakes supporting recreational fishing within the study area including: Brady Creek Reservoir, Stillhouse Hollow Lake, Belton Lake, Granger Lake, and Lake Buchanan (TPWD, 2025h). These water bodies support recreational fishing.

3.5.2.4 Endangered and Threatened Wildlife Species

Federally and State Listed Species

A review of the USFWS IPaC and the TPWD RTEST databases identified a total of 40 federally or state-listed threatened, endangered, and proposed endangered or threatened wildlife species of potential occurrence within the covered counties (TPWD, 2025c; TPWD, 2025d; USFWS, 2025b). Of these, 28 wildlife species have potentially suitable habitat conditions within the study area. Four of these species, the yellow-billed cuckoo, headwater catfish, smalleye shiner, and false spike, were evaluated further and, although suitable habitat conditions may be present, were determined unlikely to occur within the study area, as noted in the footnotes of **Table 3-9**.

In total, 24 wildlife species (15 federally listed, 9 state-listed) have the potential to occur within the study area based on current ranges and available habitat. **Table 3-9** lists these species, their habitat descriptions, and suitable habitat determinations within the study area. Each species is evaluated further in **Section 7.4.2.4** with respect to the proposed project. Unless otherwise specified, habitat descriptions are derived from TPWD's RTEST. It should be noted that inclusion in the table does not imply that a species is known to occur in the study area but only acknowledges the potential for occurrence. **Table 3-9** also denotes those species for which the USFWS has designated or proposed critical habitat that may require special management and protection. There are proposed designated critical habitat units (CHU) for five federally listed

species (the Balcones spike, Salado salamander, Texas fatmucket, Texas fawnsfoot, and Texas pimpleback) within the study area (USFWS, 2025b).

Subterranean habitat in karst landscapes utilize voids formed through the dissolution of bedrock. Karst Zones define areas of varying likelihood for the occurrence of federally listed karst invertebrate species (USFWS, 2024). Karst Zones are subsets of Karst Fauna Regions (KFRs), which are geographic areas delineated based on local area geology that may reduce or limit interactions between troglobite populations (USFWS 2024). While KFRs serve as Recovery Units for each listed karst invertebrate species, Karst Zones are delineated areas that inform the likelihood of rare or endangered species being present. As shown in **Figure 3-4**, the study area overlaps portions of Karst Zones 1, 2, 3a, 3b, 4a, and 4b and lies within the North Williamson County, South Fort Hood, and South Bell County KFRs (USFWS 2024a; **Appendix A**). Threatened and endangered karst species are detailed within **Table 3-9**.

Table 3-9: Federally and State Listed Wildlife Species

AMPHIBIANS							
Salado Springs Salamander *Eurycea chisholmensis*				**EOIDs:** 2989, 4827, 8953, 8965, 9289, 9359, 9360			
USFWS Status	T	**TPWD Status**	T	**Suitable Habitat within Study Area**	Yes	**Figure Number**	**3-7A**
Habitat Description	The known range is in Bell and Williamson counties, Texas. It inhabits wetted caves, groundwater-fed springs, seeps, and spring runs associated with the Northern Segment of the Edwards Aquifer with stable water chemistry, temperature, flow, and substrate.						
Determination	Species is endemic to Bell and Williamson counties, Texas. Multiple CHUs for the species are within the study area. Portions of the study area are underlain by the Northern Segment of the Edwards Aquifer that contain wetted caves or spring-fed features that may provide conditions consistent with potential suitable habitat for this species.						
Barton Springs Salamander *Eurycea sosorum*				**EOID:** --			
USFWS Status	E	**TPWD Status**	E	**Suitable Habitat within Study Area**	No	**Figure Number**	-
Habitat Description	The species occurs only in spring outlets and subsurface aquifer habitats associated with the Barton Springs segment of the Edwards Aquifer in Travis and Hays Counties, Texas.						
Determination	The study area does not overlap the USFWS-mapped range or the Barton Springs segment of the aquifer; therefore, suitable habitat is not present.						

TABLE CONTINUED ON NEXT PAGE

Table 3-9: Federally and State Listed Wildlife Species

Houston Toad *Anaxyrus houstonensis*				**EOID: --**			
USFWS Status	E	**TPWD Status**	E	**Suitable Habitat within Study Area**	No	**Figure Number**	-
Habitat Description	Species occurs in forests with deep sandy soils. Juveniles and adults are presumed to move through less suitable soils using riparian corridors. Aquatic habitats can include any water body from a small puddle to larger ponds and lakes.						
Determination	The entirety of Milam County is considered the westernmost extent for this species. However, soil conditions that transition to those of the post oak savannah habitats known to support the species are more prevalent in central to eastern Milam County beyond the limits of the study area. The species would not be expected to occur in the study area.						
Jollyville Plateau Salamander *Eurycea tonkawae*				**EOID: --**			
USFWS Status	T	**TPWD Status**	T	**Suitable Habitat within Study Area**	No	**Figure Number**	-
Habitat Description	The Jollyville Plateau Salamander is an aquatic species endemic to the Northern Segment of the Edwards Aquifer in Travis and Williamson counties, Texas, occurring in wetted caves, springs, seeps, and spring runs with stable water chemistry, temperature, flow, and substrate.						
Determination	While the species occurs in Williamson County, it is limited to the southern portion of the county. The study area does not overlap with the known species range; therefore, suitable habitat is not present.						
Georgetown Salamander *Eurycea naufragia*				**EOID: --**			
USFWS Status	T	**TPWD Status**	T	**Suitable Habitat within Study Area**	No	**Figure Number**	-
Habitat Description	The Georgetown Salamander is an aquatic species known from the Northern Segment of the Edwards Aquifer in Williamson County, Texas, occurring in wetted caves, springs, seeps, and spring runs with stable water chemistry, temperature, flow, and substrate.						
Determination	The species is only known from the Lake Georgetown, Middle Fork San Gabriel River-North Fork San Gabriel River, and Lower South Fork San Gabriel River watersheds. While the species occurs in Williamson County, the study area does not overlap with the known species range; therefore, suitable habitat is not present.						
ARACHNIDS							
Reddell's Harvestman *Texella reddelli*				**EOID: --**			
USFWS Status	E	**TPWD Status**	-	**Suitable Habitat within Study Area**	No	**Figure Number**	-
Habitat Description	This species is a troglobitic arachnid restricted to caves and karst features within karst areas in Travis County, Texas. Known occurrences are limited to the Rollingwood KFR.						
Determination	The study area lies north and northwest of the species' known range; therefore, suitable habitat for this species is not expected to occur.						

Table 3-9: Federally and State Listed Wildlife Species

Bone Cave Harvestman *Texella reyesi*				**EOID:** 8760			
USFWS Status	E	**TPWD Status**	-	**Suitable Habitat within Study Area**	Yes	**Figure Number**	**3-7A**
Habitat Description	This species is a troglobitic arachnid restricted to caves, voids, and interstitial spaces within karst areas in Travis and Williamson counties, Texas. It occupies moist, thermally stable subterranean environments with high humidity and little to no light, typically in karst features formed within Edwards Group limestone. The known range includes the Central Texas, McNeil-Round Rock, East Cedar Park, Jollyville Plateau, Georgetown, and North Willamson KFRs.						
Determination	The study area overlaps the North Williamson KFR, which is underlain by Edwards Group limestone, and overlaps Karst Zones 1 through 3a where there may be potential habitat for this species. Areas outside of that KFR and those Karst Zones are not expected to provide suitable habitat.						
Tooth Cave Spider *Tayshaneta myopica*				**EOID:** --			
USFWS Status	E	**TPWD Status**	-	**Suitable Habitat within Study Area**	No	**Figure Number**	-
Habitat Description	This species is a troglobitic spider endemic to central Texas, restricted to a handful of caves within Travis and Williamson Counties, in and around the Austin area. The caves are developed in the Edwards Plateau physiographic region—a terrain of soluble limestone rocks, caves, sinkholes, and subterranean conduits. It inhabits moist, thermally stable subterranean environments with high humidity and little to no light, typically within interconnected fissures and voids in limestone. The known range is limited to the Rollingwood, McNeil-Round Rock, and Jollyville Plateau KFRs.						
Determination	The study area lies north and northwest of the species' known range; therefore, suitable habitat for this species is not expected to occur.						
BIRDS							
Black Rail *Laterallus jamaicensis*				**EOID:** --			
USFWS Status	T	**TPWD Status**	T	**Suitable Habitat within Study Area**	Yes (Migratory Only)	**Figure Number**	-
Habitat Description	This species utilizes salt, brackish, and freshwater marshes, pond borders, wet meadows, and grassy swamps; nests in or along edge of marsh, sometimes on damp ground, but usually on mat of previous years dead grasses; nest usually hidden in marsh grass or at base of *Salicornia sp*.						
Determination	The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. Numerous wetland features occur within the study area, including seasonally and permanently flooded stream segments, ponded areas, and low-lying wetlands that may provide freshwater marsh or wet meadow conditions suitable for the black rail. However, any use of the study area during migration would be temporary and incidental.						

TABLE CONTINUED ON NEXT PAGE

Table 3-9: Federally and State Listed Wildlife Species

Golden-cheeked Warbler *Setophaga chrysoparia*				**EOIDs:** 831, 3914, 3459, 4559, 5332, 6864, 6542, 7014			
USFWS Status	E	**TPWD Status**	E	**Suitable Habitat within Study Area**	Yes	**Figure Number**	**3-7A, 3-7B**
Habitat Description	Species utilizes Ashe juniper in mixed stands with various oaks (*Quercus spp.*) and occurs along edges of cedar breaks. Ashe juniper (also known as cedar) provides long fine bark strips, only available from mature trees, that is used in nest construction. Nests are placed in various trees other than Ashe juniper; only a few mature junipers or nearby cedar breaks can provide the necessary nest material which occurs in late March-early summer. Species forages for insects in broad-leaved trees and shrubs.						
Determination	Species breeds exclusively in central Texas, occupying mature and mixed Ashe juniper–oak woodlands on steep slopes and canyon edges within the Edwards Plateau region. Mature Ashe juniper–oak woodlands with the appropriate structural diversity within the study area would provide potential suitable habitat for this species.						
Interior Least Tern *Sternula antillarum anthalassos*				**EOID:** --			
USFWS Status	-	**TPWD Status**	E	**Suitable Habitat within Study Area**	Yes (Migratory Only)	**Figure Number**	**-**
Habitat Description	Species utilizes sand beaches, flats, bays, inlets, lagoons, islands. Subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc.); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony.						
Determination	The study area contains major river corridors with areas of alluvial deposition that may include sparsely vegetated sand or gravel bars, man-made structures such as wastewater treatment plants, gravel pits, and shorelines of open-water features (e.g., reservoirs) that may be suitable for the species. Where sparsely vegetated sandbars, gravel bars, or similar open shoreline environments occur, conditions may be consistent with potential habitat for this species during migration or incidental breeding attempts; however, any occurrence within the study area would be temporary and incidental.						
Piping Plover *Charadrius melodus*				**EOID:** --			
USFWS Status	T	**TPWD Status**	T	**Suitable Habitat within Study Area**	Yes (Migratory Only)	**Figure Number**	-
Habitat Description	Species utilizes beaches, sandflats, and dunes along Gulf Coast beaches and adjacent offshore islands. Algal flats appear to be the highest quality habitat. Sand flats often appear to be preferred over algal flats when both are available, but large portions of sand flats along the Texas coast are available only during low-very low tides and are often completely unavailable during extreme high tides or strong north winds. Optimal site characteristics appear to be large in area, sparsely vegetated, continuously available or in close proximity to secondary habitat, and with limited human disturbance.						
Determination	The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. The study area contains open shoreline and reservoir margins that may provide sparsely vegetated sand or mudflat conditions suitable for species as stopover during migration. Although the species primarily occurs along the Gulf Coast, interior stopover use has been documented, and available open-water features within the study area could provide temporary foraging or resting habitat. Where sparsely vegetated sandflats, mudflats, or reservoir shorelines occur, conditions may be consistent with potential stopover habitat for this species. However, any occurrence within the study area during migration would be temporary and incidental.						

Table 3-9: Federally and State Listed Wildlife Species

Rufa Red Knot *Caladris canutus rufa*				**EOID:** --			
USFWS Status	T	**TPWD Status**	T	**Suitable Habitat within Study Area**	Yes (Migratory Only)	**Figure Number**	-
Habitat Description	Species is primarily coastal utilizing tidal flats and beaches, herbaceous wetland, and outer coastal and barrier beaches, tidal mudflats and salt marshes.						
Determination	The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. The species migrates through Texas, using coastal beaches, tidal flats, and sandflats as stopover habitats. Although primarily associated with coastal areas, the study area contains large reservoirs, herbaceous wetlands, and open-water features that could provide suitable shoreline or mudflat conditions during migration. Where large reservoirs, herbaceous wetlands, or sparsely vegetated mudflats occur, conditions may be consistent with potential migratory stopover habitat for this species. However, any occurrence within the study area would be temporary and incidental.						
White-Faced Ibis *Plegadis chihi*				**EOID:** --			
USFWS Status	-	**TPWD Status**	T	**Suitable Habitat within Study Area**	Yes (Migratory Only)	**Figure Number**	-
Habitat Description	Species prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; currently confined to near-coastal rookeries in so-called hog-wallow prairies. Nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats.						
Determination	The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. The species may occur in freshwater wetlands, shallow marshes, and flooded agricultural fields during migration. Where the study area contains seasonal wetlands or shallow open-water features, conditions may be consistent with potential migratory stopover habitat. However, any occurrence within the study area would be temporary and incidental.						
Whooping Crane *Grus americana*				**EOIDs:** 15129, 15138, 15143			
USFWS Status	E	**TPWD Status**	E	**Suitable Habitat within Study Area**	Yes (Migratory Only)	**Figure Number**	**3-7A**
Habitat Description	Habitat includes small ponds, marshes, and flooded grain fields for both roosting and foraging. Species is a potential migrant throughout most of state to the coast where it winters in coastal marshes of Aransas, Calhoun, and Refugio counties, Texas.						
Determination	The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. The species breeds in northern Canada and winters along the central Texas coast, migrating through a broad corridor that includes the study area. During migration, the species uses a variety of stopover habitats such as wetlands, marshes, stock ponds, and flooded agricultural fields that provide shallow water for roosting and nearby foraging opportunities. Where seasonal wetlands, shallow open-water features, or flooded agricultural areas occur, conditions may be consistent with potential migratory stopover habitat for this species. However, any occurrence within the study area would be temporary and incidental.						

Table 3-9: Federally and State Listed Wildlife Species

Yellow-billed Cuckoo *Coccyzus americanus*				**EOID: --**			
USFWS Status	T	**TPWD Status**	-	**Suitable Habitat within Study Area**	Yes[1]	**Figure Number**	-
Habitat Description	In Texas, the populations of concern (Western Distinct Population Segment [DPS]) are found breeding in riparian areas in the Trans-Pecos. The Trans-Pecos area includes the following Texas counties: Brewster, Culberson, El Paso, Hudspeth, Jeff Davis, and Presidio. Riparian woodlands below 6,000 feet in elevation consisting of cottonwoods and willows are prime habitat. This species is a long-distant migrant that summers in Texas, but winters mainly in South America. Breeding birds of the Trans-Pecos populations typically arrive on their breeding grounds possibly in late April, but the peak arrival time is in May. The Western DPS are the only populations USFWS includes for management considerations.						
Determination	The study area contains riparian woodlands with mature canopy and dense shrub cover consistent with habitat used by the yellow-billed cuckoo. Although these riparian corridors provide suitable structure and vegetation for migratory or breeding habitat, the federally listed Western DPS population occurs west and outside of the study area. While potential habitat may be present, federal management considerations apply only to the Western DPS, which occurs outside of the study area; therefore, this species will not be discussed further in this report.						
Wood Stork *Mycteria americana*				**EOID: --**			
USFWS Status	-	**TPWD Status**	T	**Suitable Habitat within Study Area**	Yes (Migratory Only)	**Figure Number**	-
Habitat Description	Species prefers to nest in large tracts of baldcypress (*Taxodium distichum*) or red mangrove (*Rhizophora mangle*), foraging in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas. Species formerly nested in Texas, but no breeding records since 1960.						
Determination	The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. The species occurs in Texas primarily as a post-breeding and migratory visitor, using shallow freshwater wetlands, flooded pastures, ponds, and riparian areas for foraging and roosting. Where shallow wetlands, stock ponds, or intermittently flooded areas occur, conditions may be consistent with potential stopover habitat for this species during post-breeding or migratory movements. However, any occurrence within the study area would be temporary and incidental.						

TABLE CONTINUED ON NEXT PAGE

Table 3-9: Federally and State Listed Wildlife Species

Zone-Tailed Hawk *Buteo albonotatus*				**EOID:** --			
USFWS Status	-	**TPWD Status**	T	**Suitable Habitat within Study Area**	Yes	**Figure Number**	-
Habitat Description	Species found in arid open country, including open deciduous or pine-oak woodland, mesa or mountain country, often near watercourses, and wooded canyons and tree-lined rivers along middle-slopes of desert mountains; nests in various habitats and sites, ranging from small trees in lower desert, giant cottonwoods in riparian areas, to mature conifers in high mountain regions.						
Determination	The species breeds in rugged canyonlands, riparian woodlands, and arid hill country with adjacent open areas used for foraging. It typically nests in tall trees along drainages or on cliffs within the Edwards Plateau and Trans-Pecos regions. Where the study area includes rugged terrain, canyon edges, or riparian woodlands with mature trees, conditions may be consistent with potential nesting or foraging habitat for this species.						
Common Black-Hawk *Buteogallus anthracinus*				**EOID:** 6667			
USFWS Status	-	**TPWD Status**	T	**Suitable Habitat within Study Area**	No	**Figure Number**	**3-7C**
Habitat Description	Species associated with larger cottonwood-lined rivers and streams; willow tree groves on the lower Rio Grande floodplain; formerly bred in south Texas.						
Determination	The species occurs primarily along perennial streams and rivers lined with mature cottonwood and willow in far western and southwestern Texas, including the Big Bend region and lower Rio Grande Valley. Although riparian habitats are present within the study area, it lies outside the species' typical breeding and migratory range. The occurrence TXNDD EOID 6667 was recorded in 2001 and is likely an incidental occurrence. Habitats may provide limited potential for transient or incidental use; however, any occurrence of the species in the study area is expected to be temporary and incidental.						
Swallow-Tailed Kite *Elanoides forficatus*				**EOID:** --			
USFWS Status	-	**TPWD Status**	T	**Suitable Habitat within Study Area**	No	**Figure Number**	-
Habitat Description	Species is associated with lowland forested regions, especially swampy areas, ranging into open woodland; marshes, along rivers, lakes, and ponds; nests high in tall trees in clearing or on forest woodland edge, usually in pine, cypress, or various deciduous trees.						
Determination	The species occurs primarily in east Texas within mature bottomland hardwood and pine forests near large river floodplains. While riparian woodland and forested habitats are present within the study area, the study area is located west of the species' known range and lacks the extensive wetland and floodplain forests typically used by this species. Habitat within the study area may offer limited potential for migratory or incidental use; however, any occurrence is expected to be temporary and incidental.						

Table 3-9: Federally and State Listed Wildlife Species

CRUSTACEANS							
Clear Creek Amphipod *Hyalella texana*				**EOID:** 918			
USFWS Status	-	**TPWD Status**	T	**Suitable Habitat within Study Area**	Yes	**Figure Number**	**3-7C**
Habitat Description	*Hyallela* spp. cling to vegetation and burrow in sediments of permanent freshwater impoundments; deposit-feeders, limited to uppermost layer of the sediment. The Clear Creek amphipod is a subterranean crustacean endemic to the Edwards (Balcones Fault Zone) Aquifer, occurring in saturated voids, fractures, and conduits within limestone formations.						
Determination	The species is known exclusively from the Clear Creek spring system in Menard County, where it occupies saturated voids and groundwater discharge zones associated with headwater springs. *Hyalella texana* represents a narrowly endemic lineage within a taxonomically complex genus in which many species exhibit extremely localized, spring-dependent distributions. Verified occurrences are restricted to the Clear Creek spring complex, and TPWD lists the species only for Menard County based on these confirmed records. Where the study area overlaps the Clear Creek headwater spring system or hydrologically connected discharge zones, conditions may be consistent with potential habitat for this species. Outside of this localized area, suitable habitat is not expected to occur.						
FISHES							
Chub Shiner *Notropis potteri*				**EOID: --**			
USFWS Status	-	**TPWD Status**	T	**Suitable Habitat within Study Area**	Yes	**Figure Number**	-
Habitat Description	There is little information on this species other than it is known to inhabit the Brazos, Colorado, San Jacinto, and Trinity river basins in larger streams with flowing water and silt or sand substrate.						
Determination	Given the known range of this species within the Colorado River basin and the general habitat conditions, several river and stream channels that have perennial or intermittent flow within the study area could provide habitat for this species.						
Headwater Catfish *Ictalurus lupus*				**EOID:** 2943			
USFWS Status	-	**TPWD Status**	T	**Suitable Habitat within Study Area**	Yes[2]	**Figure Number**	**3-7C**
Habitat Description	The species occurs in clear, moderate- to fast-flowing streams and small rivers with gravel, sand, or rocky substrates, primarily within the Rio Grande drainage of Texas and northern Mexico and was historically present in spring-influenced reaches of the Colorado, Guadalupe, and Nueces river systems in Texas. It is native to spring-fed systems and pools with permanent flow.						
Determination	Within the study area, some tributaries of the Colorado River exhibit clear, spring-influenced flow and coarse substrates similar to habitats historically occupied by this species. However, the headwater catfish is now considered extirpated from western Gulf-slope drainages north of the Rio Grande and has not been documented from these systems in recent decades. While potential habitat may be present, this species is no longer expected to occur within the study area. Therefore, this species will not be discussed further in this report.						

Table 3-9: Federally and State Listed Wildlife Species

Red River Pupfish *Cyprinodon rubrofluviatilis*				**EOID:** --			
USFWS Status	-	**TPWD Status**	T	**Suitable Habitat within Study Area**	No	**Figure Number**	-
Habitat Description	Native to the upper Red River and Brazos River basins where it is typically found in saline waters of main channels and in saline springs. Introduced populations also exist in the Canadian River and Colorado River basins. It inhabits shallow river edges, backwaters, and sandy shoals with little or no current, typically in high-salinity environments. Males establish spawning territories typically in shallowest waters up to 50 cm over sandy shoals and in small coves with little or no current.						
Determination	Streams within the study area are freshwater systems lacking the salinity, mineralization, and physiochemical conditions required by this species and are not connected to any natural or introduced populations. Therefore, suitable habitat is not present, and the species is not expected to occur within the study area.						
Clear Creek Gambusia *Gambusia heterochir*				**EOID:** 5288			
USFWS Status	E	**TPWD Status**	E	**Suitable Habitat within Study Area**	Yes	**Figure Number**	**3-7C**
Habitat Description	The Clear Creek Gambusia is restricted to impounded headwater springs of Clear Creek, a tributary of the San Saba River in Menard County, Texas. It inhabits clear, constant-temperature spring water with low pH and dense aquatic vegetation dominated by an endemic *Ceratophyllum*.						
Determination	The known range is limited to a single spring complex. Potential habitat within the study area would be limited to the Clear Creek spring system or directly connected spring runs and impoundments. Outside of this localized area, the species is not expected to occur.						
Smalleye Shiner *Notropis buccula*				**EOID:** 7778			
USFWS Status	E	**TPWD Status**	E	**Suitable Habitat within Study Area**	Yes[2]	**Figure Number**	**3-7A**
Habitat Description	Species is endemic to the Brazos River drainage; presumed to have been introduced into the Colorado River. Historically found in lower Brazos River as far south as Hempstead, Texas but appears to now be restricted to upper Brazos River system upstream of Possum Kingdom Lake. Typically found in turbid waters of broad, sandy channels of the main channel, over substrate consisting mostly of shifting sand.						
Determination	This species has not been documented downstream of Possum Kingdom Lake since the late 1980s. The study area does not intersect the Brazos River or any tributaries upstream of Possum Kingdom Lake, which comprise the species' only remaining occupied habitat. The occurrence TXNDD EOID 7778 is a historic occurrence (1951) and is not indicative of current species activity. While potential habitat is present, this species is no longer expected to occur in the study area; therefore, this species will not be discussed further in this report.						

TABLE CONTINUED ON NEXT PAGE

Table 3-9: Federally and State Listed Wildlife Species

INSECTS							
Monarch Butterfly *Danaus plexippus plexippus*				**EOID:** --			
USFWS Status	PT	**TPWD Status**	-	**Suitable Habitat within Study Area**	Yes	**Figure Number**	-
Habitat Description	The monarch butterfly depends on a mosaic of habitats across North America that provide host plants for reproduction and nectar resources for migration. In Texas, which serves as a critical migratory corridor and seasonal breeding area, monarchs occupy open grasslands, prairies, roadsides, agricultural field margins, and savannas where milkweed species (*Asclepias spp.*) are present for egg-laying and larval development. Adults rely on a variety of flowering nectar plants, such as goldenrods, blazing stars, sunflowers, and native milkweeds, to fuel migration. The spring generation migrates northward through Texas from overwintering sites in central Mexico, breeding as they move; the fall generation passes southward through Texas to reach overwintering colonies. Successful migration depends on the availability of milkweed for reproduction, nectar resources for energy, and favorable weather and wind conditions.							
Determination	The monarch butterfly occurs throughout Texas during its spring and fall migrations between overwintering sites in central Mexico and breeding grounds across the U.S. and southern Canada. Where the study area supports native grassland, savanna, and open woodland habitats containing milkweed and nectar-producing plants, conditions may be consistent with potential breeding and migratory stopover habitat for this species. Because the species moves widely across Texas during both migration periods, transient use of suitable habitats within the study area may occur.						
Kretschmarr Cave Mold Beetle *Texamaurops reddelli*				**EOID:** 10893			
USFWS Status	E	**TPWD Status**	-	**Suitable Habitat within Study Area**	No	**Figure Number**	**3-7A**
Habitat Description	Species is a small, cave-adapted beetle found under rocks buried in silt; small, Edwards Limestone caves in the Jollyville Plateau, a division of the Edwards Plateau. The current known range of the species is the Jollyville Plateau KFR.						
Determination	The Kretschmarr Cave Mold Beetle is a troglobitic ground beetle endemic to caves within karst areas in Travis and northern Hays counties. It inhabits moist, thermally stable cave environments associated with the Austin karst region. The occurrence TXNDD EOID 10893 is a historic occurrence (1963) and is not indicative of current species activity. The study area is outside of the known range of the species; therefore, suitable habitat is not present in the study area.						
Tooth Cave Ground Beetle *Rhadine persephone*				**EOID:** --			
USFWS Status	E	**TPWD Status**	-	**Suitable Habitat within Study Area**	No	**Figure Number**	-
Habitat Description	Species is a small, cave-adapted beetle found in small Edwards Limestone caves in Travis and Williamson counties, Texas. The current known range of the species is limited to the East Cedar Park, Jollyville Plateau and West Cedar Park KFRs.						
Determination	The species is restricted to karst caves and subterranean voids within the karst areas in Travis and Williamson counties, Texas. It occupies moist, thermally stable cave environments with high humidity and little or no light, typically within interconnected fissures and voids of Edwards Group limestone. The study area is outside of the known range of the species; therefore, suitable habitat is not present within the study area.						

Table 3-9: Federally and State Listed Wildlife Species

Coffin Cave Mold Beetle *Batrisodes texanus*				**EOIDs:** 1181, 8759			
USFWS Status	E	**TPWD Status**	-	**Suitable Habitat within Study Area**	Yes	**Figure Number**	**3-7A**
Habitat Description	Species is a small, cave-adapted beetle found in small Edwards Limestone caves in Travis and Williamson counties, Texas. The current known range of the species is the Georgetown KFR and the North Williamson KFRs.						
Determination	The species is endemic to caves and subterranean voids within karst areas in Williamson County, Texas. It inhabits moist, thermally stable cave environments with high humidity and little or no light, typically within voids, fissures, and interstitial spaces of Edwards Group limestone. The study area is located in the North Williamson KFR, is underlain by Edwards Group limestone, and is within Karst Zones 1 through 3a where there may be potential habitat for this species. Areas outside of that KFR and those Karst Zones are not expected to provide suitable habitat.						
MAMMALS							
Tricolored Bat *Perimyotis subflavus*				**EOID:** --			
USFWS Status	PE	**TPWD Status**	-	**Suitable Habitat within Study Area**	Yes	**Figure Number**	-
Habitat Description	The species occurs throughout much of Texas, roosting in trees, foliage, and structures during the summer and hibernating in caves, mines, and other subterranean habitats during winter. It favors forested areas near water and forages along wooded edges, riparian corridors, and over ponds and streams.						
Determination	Where the study area contains wooded riparian areas, scattered tree cover, structures, or natural or anthropogenic subterranean voids, conditions may be consistent with potential roosting and foraging habitat for this species. Because the species is wide-ranging and utilize a variety of roost types, transient use of suitable habitats within the study area may occur.						
Black Bear *Ursus americanus*				**EOID:** --			
USFWS Status	-	**TPWD Status**	T	**Suitable Habitat within Study Area**	Yes	**Figure Number**	-
Habitat Description	Historically, the species was found throughout Texas. In west Texas, it prefers higher elevations where pinyon-oaks predominate; also occasionally sighted in desert scrub of Trans-Pecos (Black Gap Wildlife Management Area) and Edwards Plateau in juniper-oak habitat. For other subspecies, bottomland hardwoods, floodplain forests, upland hardwoods with mixed pine are also suitable habitat.						
Determination	The species is primarily associated with remote canyons, riparian corridors, and wooded uplands of west and southwest Texas. Occasional transient individuals disperse eastward into the Edwards Plateau, particularly riparian corridors of the San Saba and Concho Rivers. Where the study area contains extensive woodland or riparian cover, these areas may provide transient movement habitat for dispersing individuals; however, resident populations are not known to occur within this region of Texas.						

Table 3-9: Federally and State Listed Wildlife Species

MOLLUSKS							
Balcones Spike *Fusconaia iheringi*				**EOID: --**			
USFWS Status	E	**TPWD Status**	E	**Suitable Habitat within Study Area**	Yes	**Figure Number**	-
Habitat Description	Species is endemic to central Texas river systems, most often found in riffles and runs of large creeks and rivers with substrates composed of sand, gravel, or cobble, and experiencing slow to moderate flows. It tends to avoid deep or pooled waters and requires flowing habitats that maintain sufficient water circulation to support feeding and respiration. Because mussels rely on a fish host for larval dispersal, the presence of suitable host fish (e.g. red shiner, blacktail shiner) is essential to successful reproduction and recruitment (USFWS, 2024b). The species' distribution is constrained by habitat fragmentation, dams, pollution, and sedimentation, which degrade the substrate and hydrology it depends on. Under the recent listing (June 2024), critical habitat has been designated in several river segments (e.g. San Saba and Llano Rivers) to protect habitat features essential for its survival (USFWS, 2024b).						
Determination	The Balcones spike is endemic to central Texas river systems and inhabits riffles and runs of large creeks and rivers with sand, gravel, or cobble substrates and slow-to-moderate flows. It requires flowing water with sufficient circulation for feeding and respiration and depends on host fishes such as red and blacktail shiners for larval dispersal. Where the study area intersects perennial segments of central Texas rivers or large creeks with stable riffle and run habitats, appropriate substrates, and host fish assemblages, conditions may be consistent with suitable habitat for this species.						
Brazos Heelsplitter *Potamilus streckersoni*				**EOID: --**			
USFWS Status	-	**TPWD Status**	T	**Suitable Habitat within Study Area**	Yes	**Figure Number**	-
Habitat Description	Species is reported from streams, but not far into the headwaters, to large rivers, and some reservoirs. In riverine systems, it occurs most often in nearshore habitats such as banks and backwater pools but occasionally in main channel habitats such as riffles. Typically found in standing to slow-flowing water in soft substrates consisting of silt, mud or sand but occasionally in moderate flows with gravel and cobble substrates (Randklev et al., 2014a, 2014b; Tsakiris and Randklev, 2016a; Smith et al., 2019; Mussels of Texas, 2020).						
Determination	The species occurs in low- to mid-basin reaches of the Brazos River and its tributaries, typically inhabiting nearshore and backwater habitats such as banks, pools, and point bars with standing to slow-moving water and soft substrates of silt, mud, or sand. Where the study area intersects segments of the Brazos River basin—including tributaries such as the Little, Leon, Lampasas, or San Gabriel rivers—nearshore habitats with soft substrates and low-velocity flow may be consistent with suitable habitat for this species.						

TABLE CONTINUED ON NEXT PAGE

Table 3-9: Federally and State Listed Wildlife Species

False Spike *Fusconaia mitchelli*				**EOIDs:** 9432, 14376			
USFWS Status	E	**TPWD Status**	E	**Suitable Habitat within Study Area**	Yes[2]	**Figure Number**	**3-7B**
Habitat Description	Species occurs in small streams to medium-size rivers in habitats such as riffles and runs with flowing water, in stable substrates of sand, gravel, and cobble (Howells, 2010a; Randklev et al., 2012; Sowards et al., 2013; Tsakiris and Randklev, 2016b) Mussels of Texas, 2025).						
Determination	The False Spike historically occurred throughout central Texas but experienced severe range contraction and was considered possibly extinct until recent rediscoveries. The species is now known only from limited reaches of the Guadalupe River basin, with no confirmed contemporary occurrences outside that system. Although TXNDD occurrence records (EOID 9432 and 14376) indicate potential presence within the study area, these data (collected in 2015 and 2016) likely reflect legacy information collected prior to the 2023 taxonomic revision separating false spike from the Balcones spike (*Fusconaia iheringi*) (USFWS, 2024b). While the study area may contain perennial or spring-influenced tributaries with physical characteristics similar to historically occupied habitat, the species is no longer expected to occur within the study area due to its extremely restricted current distribution. Therefore, this species will not be discussed further in this report.						
Texas Fatmucket *Lampsilis bracteata*				**EOIDs:** 9755, 9756, 9757, 9758, 10790, 14406			
USFWS Status	E	**TPWD Status**	T	**Suitable Habitat within Study Area**	Yes	**Figure Number**	**3-7B, 3-7C**
Habitat Description	The species occurs in slow- to moderate-flow reaches of central Texas rivers with sand, mud, and gravel substrates among cobble, boulders, or rooted vegetation. Past authorities have reported this species intolerant of reservoir conditions, but recent surveys suggest it may persist in some impoundment conditions (Howells, 2010b; Randklev et al., 2017a) [Mussel of Texas, 2025].						
Determination	The species is largely restricted to the upper Colorado River basin and associated tributaries. The study area intersects USFWS–designated CHUs for the Texas Fatmucket, and those river segments contain the physical and hydrologic features essential to the species' conservation. Additional portions of the study area within perennial, spring-fed reaches of the San Saba, Llano, and Concho River systems may also contain substrates and flow conditions consistent with suitable habitat.						
Texas Fawnsfoot *Truncilla macrodon*				**EOIDs:** 9642, 9634, 9644, 9646, 9647, 10863, 12573, 12649			
USFWS Status	T	**TPWD Status**	T	**Suitable Habitat within Study Area**	Yes	**Figure Number**	**3-7B**
Habitat Description	The species occurs in large rivers and medium-sized streams, typically in protected nearshore habitats such as banks, backwaters, riffles, and point bars with low to moderate flow velocities. The species occupies substrates of mud, sandy mud, gravel, or cobble and is generally intolerant of reservoirs. (Randklev et al., 2010; Howells, 2010c; Randklev et al., 2014b; Randklev et al., 2017a, 2017b) [Mussels of Texas, 2019].						
Determination	Where the study area intersects un-impounded reaches of large rivers or medium-sized streams within central Texas river basins, such as portions of the San Saba, Llano, or Concho River systems, physical habitat characteristics may be consistent with suitable habitat for this species.						

Table 3-9: Federally and State Listed Wildlife Species

Texas Pimpleback *Cyclonaias petrina*				**EOIDs:** 9675, 9676, 9677, 9678, 9679, 9680, 9681, 9682, 9683, 10848, 10849, 10850, 12583, 12571, 14328			
USFWS Status	E	**TPWD Status**	E	**Suitable Habitat within Study Area**	Yes	**Figure Number**	**3-7B**
Habitat Description	The Texas Pimpleback occurs in medium- to large-sized, spring-fed streams and rivers of the Edwards Plateau, typically in riffles and runs with sand, gravel, or cobble substrates and moderate currents. It is intolerant of reservoirs and prefers un-impounded reaches with stable baseflows (Howells, 2010d; Randklev et al., 2017b) [Mussels of Texas, 2019].						
Determination	The study area intersects USFWS–designated CHUs for the Texas Pimpleback, and those river segments contain the physical and hydrologic features essential to the species' conservation. Additional portions of the study area that intersect un-impounded reaches of rivers such as the San Saba, Llano, or Concho river systems may contain physical habitat characteristics consistent with suitable habitat.						
REPTILES							
Brazos Water Snake *Nerodia harteri*				**EOID:** --			
USFWS Status	-	**TPWD Status**	T	**Suitable Habitat within Study Area**	No	**Figure Number**	**-**
Habitat Description	Preferred habitat includes shallow, fast-flowing water with a rocky or gravelly substrate. Adults can be found in deep water with mud bottoms, such as large sections of rivers and reservoirs. Riffle habitat is particularly important for this species.						
Determination	The species is restricted to the upper Brazos River basin, with documented historical and current occurrences limited to areas north of Waco, Texas. Although TPWD includes several central Texas counties in broader planning units, there are no verified records from the study area, and the species is not expected to occur in the study area.						
Texas Horned Lizard *Phrynosoma cornutum*				**EOIDs:** 28, 15421			
USFWS Status	-	**TPWD Status**	T	**Suitable Habitat within Study Area**	Yes	**Figure Number**	**3-7B, 3-7C**
Habitat Description	Preferred habitat includes open habitats with sparse vegetation, including grass, prairie, cactus, scattered brush or scrubby trees. Soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive.						
Determination	The species occurs in open grasslands, savannas, and scrublands with loose, well-drained soils that support ant colonies. These conditions are present throughout much of the study area, including rangeland and open woodland habitats typical of the Edwards Plateau and Lampasas Cut Plain.						

Source: USFWS, 2025b; TPWD, 2025b; TPWD, 2025d

E = Endangered; T = Threatened, severely depleted, or impacted; PE = Proposed Endangered; PT = Proposed Threatened; "-" = Not Listed

Notes:

1. While potential habitat is present, management considerations are only applicable to the Western DPS populations, which are located outside of the study area; therefore, this species will not be discussed further in this report.
2. While potential habitat is present, this species is no longer expected to occur in the study area; therefore, this species will not be discussed further in this report.

Species of Greatest Conservation Need

The TXNDD provides information about the locations and descriptions of rare habitats and areas that managed to achieve high species diversity, as well as areas that provide quality habitat for common and rare wildlife species. For the purposes of this discussion, "wildlife" refers to common animal species that are not protected by law, are not rare species, or are not species identified as SGCN. Species designated as SGCN by TPWD whose geographic range includes Bell, Burnet, Concho, Coryell, Lampasas, Llano, Mason, McCulloch, Menard, Milam, Mills, San Saba, Schleicher, Tom Green, or Williamson counites were reviewed. As referenced in TPWD's March 21, 2025, response letter (**Appendix A**), SGCN are not species listed as threatened or endangered; however, TPWD stated the importance of "minimize[ing] impacts to such resources to reduce the likelihood of endangerment and preclude the need to list SGCN as threatened or endangered in the future." Numerous state-listed SGCN and rare species were identified by TPWD as having the potential to occur in the study area. These species are listed in **Table 3-10** along with any associated EOIDs in the study area (TPWD, 2025c; TPWD, 2025d). **Figure 3-7** includes mapped locations of bat roosts and rookeries. Because these locations are not species specific, they are not included in **Table 3-10**.

An EOID record is often a sufficient demonstration that the SGCN species has potential to occur within the study area. Species for which there is no recorded observation in any of the listed counties (indicated by a "-" in **Table 3-10**) may still be present within the study area. Many SGCN have broad, overinclusive habitat requirements or descriptions that are common to the study area. The likelihood that these species could occur in the study area may be summarily concluded without the need for a detailed habitat description for each species. Terrestrial habitat descriptions for listed species may include forested uplands, grassland uplands, wooded floodplains, riparian zones, herbaceous vegetation, and native prairie vegetation, the latter of which provides essential resources for species dependent on a mix of open spaces and cover. Aquatic habitats include perennial and ephemeral stream, springs, and wetlands with varying substrates, such as rocky or sandy beds, which are crucial for species requiring both terrestrial and aquatic elements for their life cycles. The study area includes a variety of these terrestrial and aquatic habitat types which would be suitable for listed SGCN for which an EOID has not been recorded. These habitats can support species adapted to fragmented or modified landscapes, offering shelter, foraging opportunities, and breeding sites despite an urban context.

Table 3-10: SGCN Species with Potential Habitat in the Study Area

Common Name	Scientific Name	TXNDD EOID(s)[1]	Counties	Figure Number
Amphibians				
Eastern Tiger Salamander	*Ambystoma tigrinum*	-	-	-
Southern Crawfish Frog	*Lithobates areolatus areolatus*	-	-	-
Strecker's Chorus Frog	*Pseudacris streckeri*	-	-	-

Table 3-10: SGCN Species with Potential Habitat in the Study Area

Common Name	Scientific Name	TXNDD EOID(s)[1]	Counties	Figure Number
Woodhouse's Toad	*Anaxyrus woodhousii*	-	-	-
Birds				
Bald Eagle	*Haliaeetus leucocephalus*	3318, 4002, 4019	Bell, Burnet, Llano, San Saba	**3-1A, 3-1B**
Bank Swallow	*Riparia riparia*	-	-	-
Black-capped Vireo	*Vireo atricapilla*	176, 1272, 1687, 2044, 1912, 2911, 2670, 3562, 4630, 4393, 4442, 4993, 5366, 4774, 5522, 7105, 7133, 7164, 6931, 2425, 7409, 4084, 6584, 3576, 16184	Bell, Burnet, Concho, Coryell, Lampasas, Llano, Mason, McCulloch, Menard, San Saba, Tom Green	**3-7A, 3-7B, 3-7C**
Brewer's Blackbird	*Euphagus cyanocephalus*	-	-	-
Brown Pelican	*Pelecanus occidentalis*	-	-	-
Cactus Wren	*Campylorhynchus brunneicapillus*	-	-	-
Chestnut-collared Longspur	*Calcarius ornatus*	-	-	-
Common Grackle	*Quiscalus quiscula*	-	-	-
Common Nighthawk	*Chordeiles minor*	-	-	-
Elf Owl	*Micrathene whitneyi*	-	-	-
Franklin's Gull	*Leucophaeus pipixcan*	-	-	-
Golden Eagle	*Aquila chrysaetos*	-	-	-
Lark Bunting	*Calamospiza melanocorys*	-	-	-
Least Tern	*Sternula antillarum*	-	-	-
Loggerhead Shrike	*Lanius ludovicianus*	-	-	-
Mottled Duck	*Anas fulvigula*	-	-	-
Mountain Plover	*Charadrius montanus*	8752, 8753, 8755, 8756, 8757	Bell, Williamson	**3-7A**
Northern Bobwhite	*Colinus virginianus*	-	-	-
Pyrrhuloxia	*Cardinalis sinuatus*	-	-	-
Sanderling	*Calidris alba*	-	-	-
Scaled Quail	*Callipepla squamata*	-	-	-
Snowy Plover	*Charadrius nivosus*	-	-	-
Sprague's Pipit	*Anthus spragueii*	-	-	-
Varied Bunting	*Passerina versicolor*	-	-	-
Western Burrowing Owl	*Athene cunicularia hypugaea*	-	-	-
Willet	*Tringa semipalmata*	-	-	-
Wilson's Warbler	*Cardellina pusilla*	-	-	-

Table 3-10: SGCN Species with Potential Habitat in the Study Area

Common Name	Scientific Name	TXNDD EOID(s)[1]	Counties	Figure Number
Yellow Rail	*Coturnicops noveboracensis*	-	-	-
Crustaceans				
Bifurcated Cave Amphipod	*Stygobromus bifurcatus*	-	-	-
No accepted common name	*Artesia subterranea*	-	-	-
No accepted common name	*Caecidotea bilineata*	12809	Bell	**3-7A**
No accepted common name	*Lirceolus bisetus*	12822	San Saba	**3-7B**
No accepted common name	*Texanobathynella bowmani*	-	-	-
Reddell's Cave amphipod	*Stygobromus reddelli*	-	-	-
Fishes				
Guadalupe Bass	*Micropterus treculii*	307, 1053, 2221, 3090, 4920, 7477, 7601, 5353, 13912, 14107, 14117	Bell, Burnet, Lampasas, Mason, McCulloch, Menard, San Saba, Schleicher, Tom Green	**3-7A, 3-7B, 3-7C**
Guadalupe Roundnose Minnow	*Dionda flavipinnis*	-	-	-
Mississippi Silvery Minnow	*Hybognathus nuchalis*	-	-	-
Mountain Mullet	*Agonostomus monticola*	-	-	-
Spotted Sucker	*Minytrema melanops*	-	-	-
Silverband Shiner	*Notropis shumardi*	-	-	-
Texas Shiner	*Notropis amabilis*	13302, 13389, 13384, 13502, 13598	Menard, San Saba, Tom Green	**3-7B, 3-7C**
Insects				
American Bumblebee	*Bombus pensylvanicus*	-	-	-
Comanche Harvester Ant	*Pogonomyrmex comanche*	-	-	-
No accepted common name	*Batrisodes dentifrons*	-	-	-
No accepted common name	*Batrisodes fanti*	-	-	-
No accepted common name	*Batrisodes incispes*	-	-	-
No accepted common name	*Batrisodes pekinsi*	-	-	-
No accepted common name	*Batrisodes feminiclypeus*	-	-	-
No accepted common name	*Batrisodes gravesi*	-	-	-
No accepted common name	*Batrisodes wartoni*	-	-	-
No accepted common name	*Bombus variabilis*	-	-	-

Table 3-10: SGCN Species with Potential Habitat in the Study Area

Common Name	Scientific Name	TXNDD EOID(s)[1]	Counties	Figure Number
No accepted common name	*Cicurina browni*	-	-	-
No accepted common name	*Cicurina coryelli*	-	-	-
No accepted common name	*Cicurina menardia*	-	-	-
No accepted common name	*Cicurina machete*	-	-	-
No accepted common name	*Cicurina sansaba*	-	-	-
No accepted common name	*Cicurina travisae*	-	-	-
No accepted common name	*Cicurina vibora*	-	-	-
No accepted common name	*Eidmannella reclusa*	-	-	-
No accepted common name	*Lymantes nadineae*	-	-	-
No accepted common name	*Melanoplus alexanderi*	-	-	-
No accepted common name	*Ochrotrichia capitana*	-	-	-
No accepted common name	*Oncopodura fenestra*	-	-	-
No accepted common name	*Procloeon distinctum*	-	-	-
No accepted common name	*Pseudocentroptiloides morihari*	-	-	-
No accepted common name	*Rhadine russelli*	-	-	-
No accepted common name	*Rhadine subterranea*	-	-	-
No accepted common name	*Tartarocreagris hoodensis*	-	-	-
No accepted common name	*Tartarocreagris infernalis*	-	-	-
No accepted common name	*Tortopus circumfluus*	-	-	-
No accepted common name	*Tyrannochthonius troglodytes*	-	-	-
No accepted common name	*Susperatus tonkawa*	-	-	-
Reddell Harvestman	*Texella reddelli*	-	-	-
Texas Willowfly	*Taeniopteryx starki*	-	-	-
Mammals				
Big Free-tailed Bat	*Nyctinomops macrotis*	-	-	-
Black-tailed Prairie Dog	*Cynomys ludovicianus*	9193	Schleicher	**3-7C**
Cave Myotis Bat	*Myotis velifer*	-	-	-
Eastern Spotted Skunk	*Spilogale putorius*	12682	Bell	**3-7A**
Hoary Bat	*Lasiurus cinereus*	-	-	-
Kit Fox	*Vulpes macrotis*	-	-	-

Table 3-10: SGCN Species with Potential Habitat in the Study Area

Common Name	Scientific Name	TXNDD EOID(s)[1]	Counties	Figure Number
Llano Pocket Gopher	*Geomys texensis texensis*	6, 3885	Llano, Mason	**3-7B**
Mountain Lion	*Puma concolor*	-	-	-
Pale Townsend's Big-eared Bat	*Corynorhinus townsendii pallescens*	-	-	-
Plains Spotted Skunk	*Spilogale interrupta*	-	-	-
Pronghorn	*Antilocapra americana*	-	-	-
Seminole Bat	*Lasiurus seminolus*	-	-	-
Swift Fox	*Vulpes velox*	3273	Menard	**3-7C**
Townsend's Big-eared Bat	*Corynorhinus townsendii*	-	-	-
Western Pipistrelle	*Parastrellus hesperus*	-	-	-
Mollusks				
Creeper	*Strophitus undulatus*	-	-	-
Lilliput	*Toxolasma parvum*	-	-	-
Louisiana Fatmucket	*Lampsilis hydiana*	-	-	-
Mapleleaf	*Quadrula quadrula*	-	-	-
No accepted common name	*Phreatodrobia micra*	-	-	-
Pimpleback	*Cyclonaias pustulosa*	9812, 9813, 9835, 9836, 9837, 9838, 9839, 9840, 9841, 12572, 10844, 14436, 14329, 14430	Bell, Lampasas, Menard, Mills, San Saba, Williamson	**3-7A, 3-7B, 3-7C**
Pistolgrip	*Tritogonia verrycosa*	-	-	-
Tampico Pearlymussel	*Cyrtonaias tampicoensis*	-	-	-
Tapered Pondhorn	*Uniomerus declivis*	-	-	-
Reptiles				
Common Garter Snake	*Thamnophis sirtalis*	2660, 12569	Bell, Llano	**3-7A, 3-7B**
Concho Water Snake	*Nerodia paucimaculata*	809, 1749	Lampasas, Mills, San Saba	**3-7B**
Eastern Box Turtle	*Terrapene carolina*	-	-	-
Plateau Spot-tailed Earless Lizard	*Holbrookia lacerata*	9608, 9629, 9630, 9631, 9632, 9454, 9475, 9511, 9512, 9513, 9514, 9546, 9510, 9535, 9537, 9473, 9474, 9565, 9573, 9450, 9451, 9453, 9964	Concho, McCulloch, Menard, San Saba, Schleicher, Tom Green	**3-7B, 3-7C**
Prairie Skink	*Plestiodon septentrionalis*	-	-	-
Slender Glass Lizard	*Ophisaurus attenuates*	15986	Burnet	**3-7A**
Smooth Softshell	*Apalone mutica*	-	-	-
Texas Map Turtle	*Graptemys versa*	16213	Menard	**3-7C**
Western Box Turtle	*Terrapene orate*	-	-	-

Table 3-10: SGCN Species with Potential Habitat in the Study Area

Common Name	Scientific Name	TXNDD EOID(s)[1]	Counties	Figure Number
Western Chicken Turtle	*Deirochelys reticularia miaria*	-	-	-
Western Massasauga	*Sistrurus tergeminus*	-	-	-
Plants				
Basin Bellflower	*Campanula reverchonii*	6629	Llano	**3-7B**
Basin Wild-buckwheat	*Eriogonum tenellum var. ramosissimum*	10036, 10119, 10370, 10358	Burnet, Llano, Mason	**3-7B**
Bigflower Cornsalad	*Valerianella stenocarpa*	-	-	-
Bristle Nailwort	*Paronychia setacea*	-	-	-
Broadpod Rushpead	*Pomaria brachycarpa*	-	-	-
Broadpod Twistflower	*Streptanthus platycarpus*	-	-	-
Buckley Tridens	*Tridens buckleyanus*	2877	San Saba	**3-7B**
Canyon Sedge	*Carex edwardsiana*	-	-	-
Edwards Plateau Cornsalad	*Valerianella texana*	1122, 2847, 7524	Llano	**3-7B**
Elmdorf's Onion	*Allium elmendorfii*	-	-	-
Enquist's Sandmint	*Brazoria enquistii*	8917, 8918	Llano, Mason	**3-7B**
Glandular Gay-feather	*Liatris glandulosa*	-	-	-
Glass Mountains Coral-root	*Hexalectris nitida*	2990	Bell	**3-7A**
Granite Spiderwort	*Tradescantia pedicellata*	4847	Burnet	**3-7B**
Gravelbar Brickellbush	*Brickellia dentata*	-	-	-
Green Hawthorn	*Crataegus viridis var. glabriuscula*	-	-	-
Guadalupe Beardtongue	*Penstemon guadalupensis*	-	-	-
Hall's Prairie Clover	*Dalea hallii*	-	-	-
Heller's Beardtongue	*Penstemon triflorus var. integrifolius*	-	-	-
Heller's Marbleseed	*Onosmodium helleri*	-	-	-
Hill Country Wild-mercury	*Argythamnia aphoroides*	4921, 7685, 1341	Menard, Tom Green	**3-7B, 3-7C**
Llano Butterweed	*Packera texensis*	-	-	-
Net-leaf Bundleflower	*Desmanthus reticulatus*	-	-	-
Osage Plains False Foxglove	*Agalinis densiflora*	8716, 8717, 10997	Bell, Coryell	**3-7A**
Parks' Jointweed	*Polygonella parksii*	-	-	-
Plateau Milkvine	*Matelea edwardsensis*	-	-	-
Plateau Loosestrife	*Lythrum ovalifolium*	10576	Lampasas, San Saba	**3-7B**
Prairie Butterfly-weed	*Oenothera triangulata*	-	-	-
Red Yucca	*Hesperaloe parviflora*	-	-	-
Reverchon's Scurfpea	*Pediomelum reverchonii*	-	-	-
Rock Grape	*Vitis rupestris*	10162	Tom Green	**3-7C**
Scarlet Leather-flower	*Clematis texensis*	-	-	-

Table 3-10: SGCN Species with Potential Habitat in the Study Area

Common Name	Scientific Name	TXNDD EOID(s)[1]	Counties	Figure Number
Stanfield's Beebalm	*Monarda stanfieldii*	-	-	-
Sycamore-leaf Snowbell	*Styrax platanifolius ssp. platanifolius*	8748	Bell	**3-7A**
Texabama Croton	*Croton alabamensis var. texensis*	-	-	-
Texas Almond	*Prunus minutiflora*	10542, 10726	Bell	**3-7A**
Texas Amorpha	*Amorpha roemeriana*	-	-	-
Texas Claret-cup Cactus	*Echinocereus coccineus var. paucispinus*	-	-	-
Texas Fescue	*Festuca versuta*	-	-	-
Texas Milkvetch	*Astragalus reflecus*	10224, 10405	Bell	**3-7A**
Texas Peachbush	*Prunus texana*	-	-	-
Texas Sandmint	*Rhododon ciliatus*	-	-	-
Tree Dodder	*Cuscuta exaltata*	11201	Bell	**3-7A**
Threeflower Penstemon	*Penstemon triflorus var. triflorus*	-	-	-
Turner's Hawthorn	*Crataegus turnerorum*	10213, 10276, 10100, 10066, 10364, 10433, 10453, 9975, 10346, 10452	Concho, Mason, Menard, Schleicher, Tom Green	**3-7B, 3-7C**
Turnip-root Scurfpea	*Pediomelum cyphocalyx*	-	-	-
Wright's Milkvetch	*Astragalus wrightii*	-	-	-

Source: TPWD, 2025c; TPWD, 2025d
Note:
1. A hyphen symbol (-) indicates that no EOIDs for the species have been recorded within the study area; however, this does not indicate that the species cannot be found within the study area, and EOIDs occurring within studied counties but outside of the study area boundary are not listed.

It should be noted that the SGCN species in **Table 3-10** do not receive additional protections beyond those provided under the Bald and Golden Eagle Protection Act (BGEPA) and the MBTA. According to the USFWS, the BGEPA prohibits anyone without a permit issued by the Secretary of the Interior from "taking" bald eagles or golden eagles, including their parts, nests, or eggs. In addition to immediate impacts, the term "taking" includes disturbances which are "impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death or nest abandonment" (U.S., 1940).

The bald eagle is a large bird of prey native to North America, located year-round throughout most of the U.S., including some parts of Texas. Bald eagles prefer to nest in habitats along coasts, rivers, lakes and reservoirs, and are most widespread during winter (Cornell Lab of Ornithology, 2025). According to the TPWD, no known bald eagles or bald eagle nests are located within or adjacent to the study area (TPWD, 2025c). However, the study area includes components of suitable habitat; therefore, the bald eagle may occur within the study area.

The golden eagle is a large bird found throughout North America, and they are year-round residents in the western U.S. Preferred nesting habitat includes mountains, hills, cliffs, grasslands, shrublands, coniferous forests, farmland, and areas along rivers and streams (Cornell Lab of Ornithology, 2025). According to USFWS, there is a probability of presence for golden eagles in the months of November, December, February and March, with a breeding season between January and August (USFWS, 2025b). According to the TPWD, no recordings of golden eagles or golden eagle nests are located within or adjacent to the study area (TPWD, 2025c). However, the study area includes components of suitable habitat; therefore, the golden eagle may occur within the study area.

3.6 Community Values and Community Resources

The term "community values" is included as a factor for the consideration of transmission line certification under Section 37.056(c)(4)(A)-(D) of the Texas Utilities Code. The PUCT's CCN application requires consideration of values and resources essential to a local community, such as an assessment of the following:

- Approvals or permits required from other governmental agencies;
- Habitable structure within 500 feet of the centerline of the preliminary route links;
- Amplitude Modulation (AM), Frequency Modulation (FM), microwave, and other electronic installations in the study area;
- FAA-registered airstrips, private airstrips, and heliports located in the study area;
- Irrigated pasture or croplands utilizing center-pivot or other traveling irrigation systems; and
- Comments received from community leaders and members of the public.

In addition to the above-listed items, Kimley-Horn and Halff evaluated the proposed project for community resources that may not be listed by the PUCT but may be important to communities. Kimley-Horn and Halff have defined "community resource" as an area or other natural or human resource recognized by a national, regional, or local community. Examples of a community resource include parks or recreational areas, historical and archeological sites, or scenic vistas. As previously discussed in **Section 2.2.1** and **Section 2.5**, Kimley-Horn and Halff emailed consultation letters to various local elected and appointed officials and hosted public participation meetings to identify and collect information regarding community values and community resources. The above-listed community values and community resources are discussed in the following sections of this document.

3.7 Land Use

Kimley-Horn and Halff solicited information regarding environmental and land use constraints within the study area from municipalities, county officials, and other regional entities as mentioned in **Section 2.2.1**. Kimley-Horn and Halff also solicited information from school districts and various state and federal regulatory agencies. Copies of the consultation letters and agency responses are provided in **Appendix A**. Several agency responses are noted where appropriate within

Section 3.0 and **Section 7.0** of this report. The following summaries illustrate the general responses received:

- The NRCS responded via email on February 25, 2025, stating that there are USDA-NRCS easements and flood control structures within the study area. Hydric soils are present within the study area; however, there are no map units with more than 10% of hydric properties.
- The City of Harker Heights responded via email on January 31, 2025, stating that habitat for the golden-cheeked warbler and black-capped vireo is present within the city. They also noted that bird and butterfly migratory paths cross through the city.
- The Killeen ISD responded via email on February 7, 2025, requesting that no new transmission lines cross their properties.
- The City of San Saba responded via email on February 12, 2025, stating that coming through the city limits of the City of San Saba is not a viable option.

3.7.1 Urban/Residential Areas

The study area is situated across approximately 6,267 square miles within Bell, Burnet, Concho, Coryell, Lampasas, Llano, Mason, McCulloch, Menard, Milam, Mills, San Saba, Schleicher, Tom Green, and Willamson counties, Texas. The study area encompasses several cities, towns, and unincorporated places. Some of the cities located in the eastern portion of the study area near the Interstate Highway 35 corridor include Temple, Belton, Salado, and Killeen. Fort Hood is also a prominent military installation in this region. Brady, Menard, Melvin, and San Saba are some of the cities located within the central portion of the study area. The western portion of the study area extends to the city of Eldorado. Numerous highways, CRs, and private roads are located within the study area. Major highways include, but are not limited to, Interstate Highway 35, Interstate Highway 14, U.S. Highway 87, U.S. Highway 277, U.S. Highway 281, Texas State Highway 16, and Texas State Highway 183. Commercial, residential, and industrial developments are scattered throughout the study area.

3.7.2 Recreation Areas

A review of federal, state, and local websites, maps, and field reconnaissance surveys identified numerous recreational areas located within the study area. There are over 200 listed conservation easement areas within the study area that are associated with city parks, golf courses, aquatic parks, and state parks (National Conservation Easement Database [NCED], 2025). The Land and Water Conservation Fund Act (LWCF) map viewer was used to identify local assistance program parks within the study area (LCWF, 2025), most of which are associated with city or community parks in municipal settings. There are numerous other facilities within the study area designated as town/city park areas, golf courses, and public use areas (pools, playgrounds, etc.) available for use by the general public. A review of the National Park Service (NPS) website indicates that there are no NPS parks, wild and scenic rivers, national monuments, national recreation areas, national preserves, national battlefields, or other national historic sites open to the public within the study area (NPS, 2025). There are two Texas State Parks within the study area: Colorado Bend State Park and Post Oak Ridge State Park (TPWD, 2025i). Two TPWD Wildlife

Management Areas are located within the study area: Mason Mountain Wildlife Management Area and Granger Wildlife Management Area (TPWD, 2025j). There are three USACE-managed lakes within the study area, each of which have designated recreational uses. A summary of these state and federal facilities is provided below:

- Colorado Bend State Park – Encompassing approximately 5,300 acres, the state park provides a variety of activities with over 35 miles of trails for hiking and biking, six miles of Colorado River frontage for fishing, swimming, or kayaking/canoeing, and over 400 caves for guided cave tours. The park offers overnight camping with a choice of drive-up sites, walk-in tent sites, and primitive tent sites. Group camp settings are also available (TPWD, 2025i).

- Post Oak Ridge State Park – This new state park consists of 3,170 acres along the Colorado River that was purchased by TPWD in January 2025 from descendants of the Vann Family that settled the land in 1889. Public access has been limited to fall 2025 public hunts and guided hikes. Long-term objectives are to restore and maintain healthy populations of native fauna and flora in their natural habitats and to provide for compatible public use. Park planning is still under development and will be funded through the Centennial Fund (TPWD, 2025i).

- Mason Mountain Wildlife Management Area – Located north of Mason, Texas, this former exotic game ranch was purchased by TPWD in 1997. Public use of the Wildlife Management Area is limited to drawn hunts and portions of the Wildlife Management Area that are open through the Annual Public Hunting program for migratory birds (mourning and white-winged dove). In addition to TPWD research activities, universities utilize the Wildlife Management Area as an outdoor classroom and study site for undergraduate and graduate projects (TPWD, 2025j).

- Granger Lake – Fee simple acreage consists of approximately 13,600 acres for this lake in Williamson County. Approximately 936 acres are dedicated as high-density recreational use areas which reflect facilities that support water-based activities (e.g., campgrounds, picnic areas, beaches, boat ramps). The remainder of the acreage, except those areas designated as operations-based (e.g., dam and spillway) of a mixture of environmentally sensitive areas, wildlife management areas, and low-density recreation areas as identified in the lake master plan (USACE, 2022). Any of these areas support passive public recreational use (e.g. fishing, hunting, wildlife viewing, hiking). Of these land classifications, wildlife management areas represent the largest category, totaling approximately 6,800 acres.

- Stillhouse Hollow Lake – Located west of the Interstate Highway-35 corridor between the cities of Belton, Harker Heights, and Killeen, this lake similarly provides for 982 acres of high-density recreation use areas that provide access to the lake resource. Resource management areas around the lake perimeter consist of environmentally sensitive areas

and wildlife management areas that total over 6,700 acres, the latter of which extends along the Lampasas River approximately 0.5 mile from the Farm-to-Market Road (FM) 2484 crossing (USACE, 2021). All of these areas support passive public recreational use (e.g., fishing, hunting, wildlife viewing, hiking).

- Belton Lake – Located north of Stillhouse Hollow Lake between the City of Temple and Fort Hood, this lake similarly provides for almost 1,500 acres of high-density recreation use areas that provide access to the lake resource. Resource management areas around the lake perimeter consist of low-density recreation, environmentally sensitive areas, and wildlife management areas that total almost 11,500 acres (USACE, 2018). All of these areas support passive public recreational use (e.g., fishing, hunting, wildlife viewing, hiking).

Preserves and Conservation Lands

The LWCF interactive mapper identified two LWCF-funded preserves within the study area, the Bone Cave Harvestman Preserve and the Solana Ranch Preserve, both of which are designated as Cooperative Endangered Species Conservation Fund locations. The Bone Cave Harvestman Preserve is shown as a point southeast of the intersection of Ronald Reagan Boulevard and State Highway 195 in Williamson County. The Solana Ranch Preserve was shown in the LWCF interactive mapper adjacent to Belton Lake. However, NCED GIS shapefile data along with conservation easement maps provided by the Solana Ranch ownership entity verified the location of the preserve west of the City of Salado, south of FM 2843. Limits of the Bone Cave Harvestman Preserve could not be located by publicly available resources. These lands appear to be privately owned, and access to the public is unknown.

NCED data was used to verify the limits of the Cobb's Cavern Preserve, Karankawa Preserve, and Priscilla's Well Preserve, all of which are in Williamson County, were established by the Williamson County Conservation Foundation, and have been recognized as Karst Fauna Areas under the Williamson County Habitat Conservation Plan (HCP). The Williamson County Conservation Foundation does not currently offer trails or recreational opportunities to these three preserves (Williamson County, 2025a). The Coffin Cave Preserve identified in the NCED database is also shown to be on land owned by Williamson County and is near the LWCF location identified for the Bone Cave Harvestman Preserve. Information about this preserve is scarce. Aerial photography does not support the presence of recreational opportunities for this preserve.

Hidden Springs Ranch is a property owned by Williamson County that straddles the Williamson – Burnet County line approximately 4 miles northwest of the City of Florence. Williamson County has established the northernmost 633.9 acres of the property as a golden-cheeked warbler conservation bank and refers to as the Hidden Springs Ranch Preserve. The management plan for the preserve notes that the Williamson County Conservation Foundation has provisions that allow approved members who have completed training sessions to access the preserve (SWCA, 2025), and members of the public have been included in biological surveys and monitoring (iNaturalist, 2025).

Two other habitat conservation easements were identified in the NCED data. One consists of 357 acres in McCulloch County along the north bank of the San Saba River west of the State Highway 71 crossing. Another was identified along the banks of the Lampasas River upstream of Stillhouse Hollow Lake west of FM 2484 in Bell County. Consisting of approximately 845 acres, the easement consists of multiple tracts along both sides of the river. Records indicate that the easements associated with each of these conservation easements are managed by The Nature Conservancy and located on private land with no public access.

Correspondence between the USFWS (**Appendix A**) and in-person meetings with the USFWS attended by Halff, Oncor, and LCRA TSC were additional measures used to identify other habitat-associated conservation easements in the study area that may not be publicly available. The Pecan Springs Karst Preserve was one such area, which consists of approximately 1,2000 owned by the Hill Country Conservancy in northern Williamson County west of the City of Jarrell. USFWS records also identified the Broad Heart Preserve which was established as black-capped vireo conservation easement, integrated with a wind farm facility in McCulloch County north of Brady, Texas. Since the limits of these preserves could not be obtained from public sources or voluntarily provided by land ownership entities, the Pecan Springs Karst Preserve and Broad Heart Preserve are not shown on the constraints maps.

In addition to these preserves identified through publicly available databases and correspondence with the USFWS, one habitat-associated conservation easement was identified through landowner coordination after the public participation meetings (**Section 5.0**). The Clearwater Ranch Conservation Bank is located in western Burnet County and was established for conservation and management of golden-cheeked warbler and black-capped vireo habitat. Located on private land, the conservation easement is held by the Texas Land Conservancy.

3.7.3 Agriculture

The study area is located within District 7 (Edwards Plateau) and District 4 (Blacklands) of the NASS (NASS, 2022). Crops produced in the eastern portion of the study area (Bell, Burnet, Coryell, Lampasas, Llano, Milam, Mills, San Saba, and Willamson counties) include grains, oilseeds, dry beans, dry peas, cotton and cottonseed, vegetables, melons, potatoes, sweet potatoes, fruits, tree nuts, berries, nursery plants, greenhouse plants, floriculture, sod, and other crops and hay (USDA, 2022b). The western portion of the study area (Concho, Mason, McCulloch, Menard, Schleicher, and Tom Green counties) produces mainly grains, oilseeds, dry beans, dry peas, cotton and cottonseed, vegetables, melons, potatoes, sweet potatoes, fruits, tree nuts, berries, and other crops and hay (USDA, 2022b). Livestock estimates range from approximately 367,000 head of cattle within the eastern portion of the study area to approximately 134,000 head of cattle within the western portion of the study area (NASS, 2024). Cattle and traveling irrigation systems were noted on aerial photography and observed during field reconnaissance.

3.7.4 Industry

Common industries within the study area include educational services, health care, and social assistance (U.S. Census Bureau, 2023) with the exception of Schleicher County and Williamson County. The largest industries within Schleicher County are agriculture, forestry, fishing and hunting, and mining. The largest industries within Williamson County are professional, scientific, and management, and administrative and waste management services. Educational services, health care, social assistance, professional, scientific, and management, and administrative and waste management services industries are concentrated near populated areas. Agriculture, forestry, fishing and hunting, and mining tend to be located within more rural areas.

The oil and gas industry is also prevalent throughout the study area. The RRC database includes numerous oil and gas wells within the study area (RRC, 2025). In addition, numerous supporting pipelines intersect the study area. Available wind generation facility databases identified wind turbines which are primarily distributed within the western and northwestern portions of the study area (United States Wind Turbine Database [USWTDB], 2025). Solar generation facilities are also located within the study area in Bell, Coryell, and Menard counties (United States Photovoltaic Database, 2023).

3.7.5 Aesthetics

Aesthetics is included as a factor for consideration in the evaluation of transmission facilities in Section 37.056(c)(4)(A)-(D) of the Texas Utilities Code. For this study, the term aesthetics is utilized by Kimley-Horn and Halff to address the subjective perception of natural beauty in a landscape. This evaluation attempts to define and evaluate the study area's scenic qualities.

Consideration of the visual environment includes determining aesthetic values (where the significant 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).

Kimley-Horn and Halff considered the following aesthetic values in this study 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 (woodlands, prairies);
- Diversity of scenic elements;
- Degree of human development or alteration; and
- Overall uniqueness of the scenic environment compared with the larger region.

Based on recent aerial photography (ESRI World Imagery Basemap, 2025; NAIP 2024) review, field reconnaissance, and other information described herein, the study area comprises a diverse range of land uses, each of which are influenced by a mix of terrain, waterways, and vegetation. The eastern portion of the study area is a modest blend of prairies, rugged hills, and major

waterways. South of the proposed Bell County East Switch and east of the Interstate Highway 35 corridor, aerial photography and roadside viewsheds show the influence of agriculture as grassland pasture and cropland. Woody vegetation at this scale is typically associated with the floodplains of major drainages and fencerows. Interstate Highway 35 and the City of Salado correlate with the transition from these flatter plains to the more rolling and rugged terrain generally associated with the Texas “Hill Country”. Stillhouse Hollow Lake and the Lampasas River floodplain serve as a scenic transition from the urban centers of the Killeen-Belton-Temple complex (including Fort Hood), to what is a growing community of modest ranchette-sized properties to the south. Approaching the Colorado River, the aesthetic is further shaped by the topography of the river, its tributaries, and Lake Buchanan. County seats are the major population centers at the intersections of state highway networks yet maintain more rural identities compared to communities along the Interstate Highway 35 corridor.

The central portion of the study area provides similarly diverse views. San Saba and McCulloch counties may be described as having a more cultivated aesthetic compared to the more dramatic geology of neighboring Llano and Mason counties. Native vegetation that is not subject to improved agriculture is often dense and unmaintained, featuring differing combinations of mesquite, Ashe juniper, and live oak. The San Saba River influences the aesthetics in this region as well, supporting numerous pecan orchards and other crops that are readily visible from public roadways. Further west, the agricultural aesthetic is maintained by an abundance of ranches, farms, pivot irrigation, and working windmills.

The western portion of the study area reflects the Edwards Plateau and its more arid climate shaped by large-scale ranching. The San Saba River remains a prominent scenic element as it crosses this portion of the study area, supporting larger trees along its riparian corridor compared to the adjacent upland shrub habitats. As with many of the more remote parts of the study area, population centers consist of county seats and other unincorporated communities where the aesthetic (e.g. architecture, land use) reflects the ranching history of the region.

Based on a review of the top 18 scenic drives in Texas, none were located within the study area (TripAdvisor, 2025). The study area is encompassed within the Brazos, Hill Country, and Forts Texas Heritage Trail Regions (THC, 2026). A review of the USNPS website identified no wild and scenic rivers, historic trails, national parks, national monuments, or national battlefields within the study area (NPS, 2025). No other aesthetic resources, designated scenic views, scenic roadways, or unique visual elements were identified.

3.7.6 Transportation/Aviation

Based on recent aerial photography (ESRI World Imagery Basemap, 2025) review, there are numerous highways, CRs, and unpaved private roads throughout the study area. Major highways include, but are not limited to, Interstate Highway 35, Interstate Highway 14, State Highway 183, U.S. Highway 281, State Highway 16, U.S. Highway 87, and U.S. Highway 277 (**Figures 3-1A** through **3-1I** and **Map Insets**). According to the TxDOT Project Tracker, there are numerous planned roadway maintenance projects within the study area (e.g., seal coat, widening of a non-

freeway, and safety improvement projects) (TxDOT, 2025a). Several active and historic railroads are located within the study area (RRC, 2025).

Regional transportation planning for Williamson County identified the Ronald Reagan Corridor Planning initiative as a major transportation initiative that entails numerous phases to improve mobility within the region. Currently, Williamson County is conducting a study to plan the Ronald Reagan Boulevard extension from its current terminus with Interstate Highway 35 south of City of Jarrell, east to State Highway 95, referred to as Corridor D (Williamson County, 2025b). This alignment would utilize portions of the existing FM 1105, FM 972, and CR 302 corridors in connecting the two major highways. There is no known construction funding at this time. The road will be built as growth necessitates and funding is secured. It could be several decades before the entire Ronald Reagan Extension is built (Williamson County, 2025b).

Located farther north, more central to the study area, the Corridor J transportation alignment represents another portion of the long-range transportation plan for Williamson County. This corridor is made up of three segments proposed to extend State Highway 138 east to U.S. Highway 183 to Interstate Highway 35 near CR 305 north of the City of Jarrell. Whereas Corridor J3 would utilize a portion of the existing State Highway 138 corridor, Corridors J1 and J2 would be a new corridor. All three segment studies are funded for study; however, no ROW or construction funding has been identified for any of the segments at this time (Williamson County, 2025b).

At a larger scale, U.S. Highway 190 in the northern reaches of the study area has been identified as a U.S. highway to be upgraded to interstate standards and be ultimately added to the Interstate Highway system as an extension of Interstate Highway 14. Although early coordination with stakeholders and the public has been conducted throughout preparation of this report, construction of an enterprise of this scale is anticipated to be completed incrementally over the span of decades as funding becomes available. As there is no known dedicated funding to develop the Interstate Highway 14 system, each highway project component would compete with other statewide projects for funding (TxDOT, 2024).

Field reconnaissance, coupled with a review of FAA, AirNav, and Texas Airport Directory resources, was conducted to identify airports or airfields within or near the vicinity of the study area (FAA, 2025a; FAA, 2026; AirNav, 2025; and TxDOT, 2025b). This review resulted in the identification of 69 airports or airfields within 20,000 feet of the study area, 49 of which are in the study area. Fourteen heliports were identified within 20,000 feet of the study area, 10 of which are in the study area. These search distances were to capture any registered facilities that could be within the applicable reporting distance specified in the application should a proposed project alternative be located near the study area boundary. The DoD Military Aviation and Installation Assurance Siting Clearinghouse provided an informal review letter on March 13, 2025, with contact information to discuss impacts to Fort Hood. After further communication, the agency responded via email on March 24, 2025, stating that their organization does not believe the

proposed transmission line project will impact airspace, aviation training, or operations at Fort Hood (**Appendix A**). **Table 3-11** lists the aircraft landing facilities within or near the study area.

In addition to FAA-registered aircraft landing facilities, Kimley-Horn and Halff identified numerous unregistered airstrips. The locations of these unregistered airstrips are depicted on **Figures 3-1A** through **3-1I** (**Appendix G**), where applicable.

Table 3-11: Aircraft Landing Facilities Within or Near the Study Area

Facility Name	FAA ID	Facility Use	Counties	Relative Location	Figure Number
FAA Registered Airport with Runway Greater than 3,200 Feet within or near the Study Area					
Britts Crosswind Airport	91TE	Private use	Williamson	Northwest of Georgetown, Texas near U.S. Highway 183.	**3-1B**
Burnet Municipal Airport/Kate Craddock Field	BMQ	Public use	Burnet	In Burnet, Texas near U.S. Highway 281.	**3-1C**
Buttermilk Air Strip	81XA	Private use	Bell, Williamson	Northeast of Florence, Texas at the Bell County – Williamson County line in the eastern portion of the study area.	**3-1B**
Curtis Field Airport	BBD	Public use	McCulloch	In Brady, Texas near U.S. Highway 377.	**3-1E, 3-1F**
Deep Creek Ranch Airport	XS61	Closed indefinitely	San Saba	South of Richland Springs, Texas in the central portion of the study area.	**3-1E**
Draughon-Miller Central Texas Regional Airport	TPL	Public use	Bell	Northwest of Temple, Texas near State Highway 36 in the northeastern corner of the study area.	**3-1A**
Eldorado Airport	27R	Public use	Schleicher	West of Eldorado, Texas and north of U.S. Highway 190 outside of the study area.	**3-1H**
FLF Gliderport	TX23	Private use	Burnet	Southwest of Briggs, Texas and northwest of the intersection of U.S. Highway 183 and State Highway 138 in the southeastern portion of the study area.	**3-1B**
Georgetown Executive Airport	GTU	Public use	Williamson	In Georgetown, Texas near Interstate Highway 35.	**3-1B** (**Inset**)
Harkey Ranch Airport	8TX6	Private use	Mason, McCulloch	Northeast of Mason, Texas at the Mason County – McCulloch County line in the central portion of the study area.	**3-1E**
Lampasas Airport	LZZ	Public use	Lampasas	North of Lampasas, Texas near U.S. Highway 281 in the northern portion of the study area.	**3-1C**

Table 3-11: Aircraft Landing Facilities Within or Near the Study Area

Facility Name	FAA ID	Facility Use	Counties	Relative Location	Figure Number
Llano Municipal Airport	AQO	Public use	Llano	North of Llano, Texas near State Highway 16.	**3-1D**
Menard County Airport	T50	Public use	Menard	West of Menard, Texas and north of U.S. Highway 190 in the southeastern portion of the study area.	**3-1G**
Plane & Fancy Airport	TS87	Private Use	Schleicher	North of U.S. Highway 190 near the Schleicher County – Menard County line.	**3-1G**
Robert Gray Army Airfield	GRK	Public use	Bell	West of Killeen, Texas in the northeastern portion of the study area.	**3-1B**
Rocking R Ranch Airport	6TA0	Private use	Schleicher	Southeast of Eldorado, Texas outside of the study area.	**3-1H**
Salado Airport	2TX	Public use	Bell	South of Salado, Texas near Interstate Highway 35 in the eastern portion of the study area.	**3-1A**
San Saba County Municipal Airport	81R	Public use	San Saba	North of San Saba, Texas near State Highway 16.	**3-1D**
Skylark Field Airport	ILE	Public use	Bell	Located in Killeen, Texas near Interstate Highway 14 in the northeastern portion of the study area.	**3-1B**
Yoakum-Defrenn Army Runway	HLR	Private Use	Bell	North of Killeen, Texas near the Bell County – Coryell County line.	**3-1B**
FAA Registered Airport with Runway Less than or Equal to 3,200 Feet within or near the Study Area					
6 Mile Airpark	06TT	Private use	Schleicher	Northwest of Fort McKavett, Texas and south of U.S. Highway 190 in the southwestern portion of the study area.	**3-1H**
Bar Triangle Airport	5TX1	Private use	Mason	North of Mason, Texas outside of the study area.	**3-1E**
Bemaroy Airport	8XS0	Private use	McCulloch	South of Pear Valley, Texas outside of the study area.	**3-1F** (**Inset**)
Birchfield Ranch Airport	XA44	Private use	Lampasas	Northwest of Lometa, Texas and east of U.S. Highway 183 outside of the study area.	**3-1I**
Buckshot Ranch Airport	7XA4	Private use	Bell	Northeast of Temple, Texas near the northeastern boundary of the study area.	**3-1A**

Table 3-11: Aircraft Landing Facilities Within or Near the Study Area

Facility Name	FAA ID	Facility Use	Counties	Relative Location	Figure Number
Buzzard Creek Airstrip	2TX9	Private use	San Saba	Southeast of Spring Creek, Texas outside of the study area.	**3-1D** (**Inset**)
Camp Longhorn Airport	84TX	Private use	Llano	East of Buchanan Dam, Texas outside of the study area.	**3-1C**
Charping Airport	5TA1	Private use	Bell	North of Temple, Texas near State Highway 317 outside of the study area.	**3-1A** (**Inset**)
Comanche Hills Ranch Airport	71XS	Private use	Lampasas	North of Lampasas, Texas between U.S. Highway 183 and U.S. Highway 281.	**3-1C**
Comanche Ridge Ranch Airport	5XA6	Private use	Menard	South of Hext, Texas outside of the study area.	**3-1F** (**Inset**)
Deer Pasture Airport	69TE	Closed indefinitely	Burnet	Southwest of Lampasas, Texas and east of U.S. Highway 281 in the eastern portion of the study area.	**3-1C**
Eagle Rock Ranch Airport	3XA7	Private use	Mason	Southwest of Pontotoc, Texas in the central portion of the study area.	**3-1E**
Fisher Ranch Airport	67TE	Private use	Bell	Southwest of Killeen, Texas and west of State Highway 195 in the eastern portion of the study area.	**3-1B**
Fly Navy Airport	TA60	Private use	Williamson	Northwest of Liberty Hill, Texas outside of the study area.	**3-1B**
Flying Fajita Airport	84TA	Private use	Bell	East of Moffat, Texas and State Highway 36 outside of the study area.	**3-1A** (**Inset**)
Gone With The Wind Airport	20TT	Private use	Williamson	Northwest of Liberty Hill, Texas near the southern boundary of the study area.	**3-1B**
Griffin Airport	12TX	Private use	Burnet	North of Bertram, Texas in the southeastern portion of the study area.	**3-1C**
Herd Ranch Airport	XA92	Closed indefinitely	Menard	North of Fort McKavett, Texas near U.S. Highway 190 in the southwestern portion of the study area.	**3-1G**
Hilde-Griff Field Airport	05TE	Private use	Williamson	Northwest of Georgetown, Texas outside of the study area.	**3-1B**
Hopf Field Airport	TS46	Private use	Llano	Southwest of Llano, Texas outside of the study area.	**3-1D** (**Inset**)
Hunter's Creek Airport	5XA0	Private use	Tom Green	Northwest of Christoval, Texas outside of the study area.	**3-1H** (**Inset**)

Table 3-11: Aircraft Landing Facilities Within or Near the Study Area

Facility Name	FAA ID	Facility Use	Counties	Relative Location	Figure Number
Indian Falls Ranch Airport	31XA	Private use	Llano	Northeast of Llano, Texas in the central portion of the study area.	**3-1D**
Isbell Ranch Airport	14XS	Private use	Milam	North of Davilla, Texas in the southeastern portion of the study area.	**3-1A**
J Ranch Airport	41TX	Private use	San Saba	East of Cherokee, Texas in the central portion of the study area.	**3-1D**
Keystone Ranch Airport	5TE6	Private use	Tom Green	Northeast of Christoval, Texas and outside of the study area.	**3-1H**
Kings Ranch Airport	TE48	Private use	Lampasas	East of Lampasas, Texas and southwest of Kempner, Texas in the northeastern portion of the study area.	**3-1B, 3-1C**
Landry Airport	TS01	Closed indefinitely	Williamson	North of the intersection of Interstate Highway 35 and State Highway 195 outside of the study area.	**3-1B**
Little Peach Airport	TS92	Closed indefinitely	Bell	Northeast of Moffat, Texas between State Highway 36 and State Highway 317 outside of the study area.	**3-1A** (**Inset**)
Lometa Air Strip	7TE3	Private use	Lampasas	West of Lometa, Texas and north of U.S. Highway 190.	**3-1C, 3-1I**
M & M Land Company Airport	TE15	Private use	Menard	East of Menard, Texas and north of State Highway 29 in the southwestern portion of the study area.	**3-1F**
McFarlin Ranch Airport	XA12	Private Use	Burnet	East of Oatmeal, Texas outside of the study area.	**3-1B** (**Inset**)
Polk Ranch Airport	XS08	Closed Indefinitely	Mason	Southeast of Katemcy, Texas in the southern portion of the study area.	**3-1E**
Postoak Airport	76TA	Private use	Lampasas	Northeast of Lometa, Texas outside of the study area.	**3-1I**
Shale Valley Ranch Airport	2TA0	Private use	Burnet	Northwest of Burnet, Texas in the southern portion of the study area.	**3-1C**
Salado Bluffs Airport	TT61	Private use	Bell	Southwest of Salado, Texas in the eastern portion of the study area.	**3-1A**
Skotz Airfield	99XA	Private use	Burnet	West of Briggs, Texas in the southeastern portion of the study area.	**3-1B**

Table 3-11: Aircraft Landing Facilities Within or Near the Study Area

Facility Name	FAA ID	Facility Use	Counties	Relative Location	Figure Number
Smith I-Ranch Airport	14TE	Closed indefinitely	Mason	Northeast of Hext, Texas in the southern portion of the study area.	**3-1F**
South Trap Airport	73TS	Private use	Schleicher	Southeast of Christoval, Texas in the western portion of the study area.	**3-1H**
Spears Ranch Airport	6TA8	Private use	Williamson	West of Jarrell, Texas in the southeastern portion of the study area.	**3-1B**
Stampede Valley Airport	6TS4	Private use	Bell	Southwest of Pendleton, Texas near State Highway 317 outside of the study area.	**3-1A**
Stiletto Airpark	XS79	Private use	Burnet	Southwest of Briggs, Texas in the southeastern portion of the study area.	**3-1B**
Sybert Farm Airport	40TE	Private use	Williamson	Southwest of Jarrell, Texas in the southeastern portion of the study area.	**3-1B**
White Airport	69TS	Private use	Bell	South of Killeen, Texas near State Highway 195 in the northeastern portion of the study area.	**3-1B**
Wolfe Field Airport	XA32	Private use	Milam	East of Bowers, Texas and north of U.S. Highway 190 outside of the study area.	**3-1A** (**Inset**)
Womack Ranch Airport	XS15	Closed indefinitely	Menard	Southwest of Menard, Texas outside of the study area.	**3-1G**
Worrell Airport	6TS1	Private use	Lampasas	Northwest of Rumley, Texas near the northern boundary of the study area.	**3-1C, 3-1I**
Wright Airport	TE54	Private	Tom Green	Southeast of Christoval, Texas in the northwestern portion of the study area.	**3-1H**
Yancey Creek Ranch Airport	1TX0	Private use	Burnet	West of Lampasas, Texas near the Burnet County – Lampasas County line in the central portion of the study area.	**3-1C**
Yates Field Airport	37TX	Private use	San Saba	Northeast of Richland Springs, Texas outside of the study area.	**3-1D** (**Inset**)
Heliports within or near the Study Area					
4BH Heliport	36TS	Private use	Williamson	West of the City of Georgetown, Texas outside of the study area.	**3-1B**

Table 3-11: Aircraft Landing Facilities Within or Near the Study Area

Facility Name	FAA ID	Facility Use	Counties	Relative Location	Figure Number
Ascension Seton Highland Lakes Hospital Heliport	38TA	Private use	Burnet	Located in the City of Burnet, Texas outside of the study area.	**3-1C**
AdventHealth Central Texas Heliport	92TS	Private use	Bell	West of Killeen, Texas in the northern portion of the study area.	**3-1B**
Harrell Heliport	54TT	Private use	Williamson	Located near Liberty Hill, Texas outside of the study area.	**3-1B**
JF Ranch Heliport	92TX	Private use	Lampasas	North of Lampasas, Texas in the northern portion of the study area.	**3-1C**
Melvin EMS Helipad Heliport	7TS7	Private use	McCulloch	Located in Melvin, Texas near the northern boundary of the study area.	**3-1F**
Northeast Burnet County Fire Rescue Heliport	--[1]	Private Use	Burnet	Southeast of Briggs, Texas and east of US 183.	**3-1B**
Rick's Hilltop Heliport	XA94	Private use	Burnet	North of Burnet, Texas outside of the study area.	**3-1C**
Robert Gray Army Airfield Helipads #1-3	GRK	Private Use	Bell	Southwest of Killeen, Texas in the northeastern portion of the study area.	**3-1B**
Scott & White Children's Hospital Heliport	40TX	Private Use	Bell	In Temple, Texas in the northwest portion of the study area.	**3-1A**
Scott & White Memorial Hospital Helipads #1-4	59XS	Private Use	Bell	Located in Temple, Texas north of U.S. Highway 190.	**3-1A**
Seton Medical Center Harker Heights Heliport	28TS	Private Use	Bell	In Harker Heights, Texas south of Interstate Highway 14 in the northwest portion of the study area.	**3-1B**
Tow Heliport	TT60	Private Use	Llano	West of Lake Buchanan in the south-central portion of the study area.	**3-1C**
Yoakum-Defrenn Army Heliport	HLR	Private Use	Bell	North of Killeen, Texas in the northeastern portion of the study area.	**3-1B**
Private Airstrips within or Near the Study Area					
Landing Strip	n/a	Private Use	Milam	Southwest of Buckholts, Texas outside of the study area.	**3-1A**
Landing Strip	n/a	Private Use	Bell	Southeast of Holland, Texas in the southeast portion of the study area.	**3-1A**
Landing Strip	n/a	Private Use	Bell	In Temple, Texas in the northeast portion of the study area.	**3-1A**
Landing Strip	n/a	Private Use	Bell	In Belton, Texas in the northeast portion of the study area.	**3-1A**

Table 3-11: Aircraft Landing Facilities Within or Near the Study Area

Facility Name	FAA ID	Facility Use	Counties	Relative Location	Figure Number
Landing Strip	n/a	Private Use	Bell	Northwest of Jarrell, Texas in the eastern portion of the study area.	**3-1B**
Landing Strip	n/a	Private Use	Bell	South of Harker Heights, Texas in the eastern portion of the study area.	**3-1B**
Landing Strip	n/a	Private Use	Coryell	Northeast of Copperas Cove, Texas outside of the study area.	**3-1B (Inset)**
Landing Strip	n/a	Private Use	Burnet	Northwest of Briggs, Texas in the southeastern portion of the study area.	**3-1B**
Landing Strip	n/a	Private Use	Lampasas	Northeast of Lampasas, Texas in the northeastern portion of the study area.	**3-1C**
Landing Strip	n/a	Private Use	Burnet	Southwest of Lampasas, Texas in the eastern portion of the study area.	**3-1C**
Landing Strip	n/a	Private Use	Burnet	East of the San Saba – Burnet – Llano County Line in the central portion of the study area.	**3-1C**
Landing Strip	n/a	Private Use	Burnet	Southeast of the San Saba – Burnet – Llano County Line in the central portion of the study area.	**3-1C**
Landing Strip	n/a	Private Use	Llano	South of the San Saba – Burnet – Llano County Line in the central portion of the study area.	**3-1C**
Landing Strip	n/a	Private Use	San Saba	Southwest of the San Saba – Burnet – Lampasas County Line in the central portion of the study area.	**3-1D**
Landing Strip	n/a	Private Use	San Saba	Southeast of Richland Springs, Texas in the north-central portion of the study area.	**3-1E**
Landing Strip	n/a	Private Use	McCulloch	Northeast of Brady, Texas in the north-central portion of the study area.	**3-1E**
Landing Strip	n/a	Private Use	Menard	Northeast of Menard, Texas in the western portion of the study area.	**3-1F**
Landing Strip	n/a	Private Use	Menard	Northeast of Menard, Texas in the western portion of the study area.	**3-1F**
Wood Ranch Landing Field	n/a	Private Use	Concho	West of Eden, Texas in the northwest portion of the study area.	**3-1G**

Table 3-11: Aircraft Landing Facilities Within or Near the Study Area

Facility Name	FAA ID	Facility Use	Counties	Relative Location	Figure Number
Landing Strip	n/a	Private Use	Menard	Southwest of Eden, Texas in the western portion of the study area.	**3-1G**
Landing Strips	n/a	Private Use	Menard	Northwest of Menard, Texas in the western portion of the study area.	**3-1G**
Landing Strip	n/a	Private Use	Tom Green	Northwest of Eden, Texas outside of the study area.	**3-1G (Inset)**
Landing Field	n/a	Private Use	Schleicher	Southwest of Menard, Texas in the southwestern portion of the study area.	**3-1G**
Landing Strips	n/a	Private Use	Schleicher	East of Eldorado, Texas in the southwestern portion of the study area.	**3-1H**
Landing Strip	n/a	Private Use	Tom Green	Southeast of San Angelo, Texas outside of the study area.	**3-1H**
Landing Strip	n/a	Private Use	Tom Green	South of San Angelo, Texas in the northwestern portion of the study area.	**3-1H**
Landing Strip	n/a	Private Use	Tom Green	South of San Angelo, Texas in the northwestern portion of the study area.	**3-1H**
Landing Strip	n/a	Private Use	Schleicher	Northeast of Eldorado, Texas in the southwestern portion of the study area.	**3-1H**

Source: FAA, 2025a; FAA, 2026; AirNav, 2025

Note:

1. This heliport was identified on recent aerial photography (ESRI World Imagery Basemap, 2025; NAIP, 2024); however, no FAA ID could be identified.

3.7.7 Communication Towers

A review of Homeland Infrastructure Foundation-Level Data from the Federal Communications Commission (FCC) was utilized to identify FM and AM radio transmitters within the study area (FCC, 2025a; FCC, 2025b). This data indicated there are seven AM radio transmitters within 10,000 feet of the study area, and 27 FM transmitters within 2,000 feet of the study area. In addition, records review and field reconnaissance identified over 1,900 communication towers within 2,000 feet of the study area including a mix of cellular towers, microwave towers, and land mobile towers as shown in **Figures 3-1A** through **3-1I** (**Appendix G**) (FCC, 2025b).

3.8 Cultural Resources

The ecological diversity of the study area reflects a range of physiographic and environmental conditions, each of which is characterized by distinct soil profiles, vegetation types, precipitation regimes, and landform configurations that have directly influenced patterns of prehistoric and historic land use. The Ecoregions of Texas Level III and Level IV maps were prepared by a collaborative effort

between the U.S. Environmental Protection Agency (EPA), TCEQ, and the NRCS (Griffith et al., 2007). This classification system analyzes the ecoregions at a finer scale than the MLRAs. **Table 3-12** lists the different ecoregions found within the study area, from greatest to least coverage.

Table 3-12: Ecoregions within the Study Area

Level III Ecoregion	Level IV Ecoregion	Description
Edwards Plateau	Edwards Plateau Woodland	Elevated plateau with rolling terrain
	Llano Uplift	Rocky basin
	Semiarid Edwards Plateau	Flat, arid plateau
	Balcones Canyonlands	Dissected plateau and escarpment with stair step topography
Cross Timbers	Limestone Cut Plain	Flat, dissected limestone terrain
	Western Cross Timbers	Mixed woodland and prairie
Texas Blackland Prairies	Northern Blackland Prairie	Rolling to level plains and dark soils
Central Great Plains	Limestone Plains	Limestone bedrock and soils
	Red Prairie	Fine red soils

Source: Griffith et al., 2007

Similarly, the THC has developed recognized archeological regions linked by environmental and cultural similarities that have been commonly used for planning purposes (Brown et al. 1982; Kenmotsu and Perttula 1993; Mercado-Allinger et al., 1996). The entire study area is located within the Central Texas Archeological Region, which consists of lower density ground cover characterized by a mix of grasslands, low shrub thicket, and riparian woodlands. Prehistoric sites in the region often have moderate to high surface visibility, with visibility increasing to the west as ground cover becomes less dense. These sites include burned rock middens, lithic procurement sites, and campsites, and are occasionally found in rock shelters and in terrace deposits. Historic sites in this region often have greater surface visibility than prehistoric sites and include surface features, such as wells and buildings, with a higher density of artifacts and are found most frequently along old roads and uplands (Post, Buckley, Schuh & Jernigan, Inc., 2008).

A records review of previously recorded archeological historical properties was conducted to determine the likelihood of impacts to cultural resources within the study area. The research was conducted using the THC Texas Archeological Sites Atlas (TASA) database, which contains published and unpublished data on prior cultural resources surveys, districts and properties listed in or eligible for listing in the National Register of Historic Places (NRHP), State Antiquities Landmarks (SALs), Official Texas Historical Markers (OTHMs), cemeteries, and previously recorded archeological historical properties, including those listed in or eligible for listing in the NRHP or SAL (THC, 2025a). An OTHM is a state-level THC designation recognizing topics in Texas history (THC, 2025b). The NRHP is a federal program administered in our state by the THC in coordination with the NPS that provides national recognition of a property's historical or architectural significance and denotes that it is worthy of preservation (THC, 2025c).

3.8.1 Previously Recorded Archeological Sites

A comprehensive records review (THC, 2025a) identified over 2,200 previously recorded archeological sites within the study area. These resources span a broad cultural spectrum, including pre-contact lithic scatters, middens, campsites, rock shelters, and caves, as well as historic-period structures, schools, mining sites, and building/farmstead remnants. The presence of multicomponent sites, those exhibiting evidence of use across both pre-contact and historic periods, further underscores the long-term and recurrent use of the landscape.

Of the documented sites in the study area, 131 have been determined eligible for inclusion in the NRHP. Many of these also have SAL designations. These NRHP-eligible sites represent a variety of resource types, including open campsites, rock shelters, lithic quarries, and historically significant community features such as former townsites and Civilian Conservation Corps (CCC) camps. The overall site density and diversity indicate high archeological sensitivity within the project area and support the likelihood of encountering additional unrecorded cultural resources during future investigations. **Table 3-13** provides a summary of the NRHP-eligible sites by county, along with their SAL designation. As demonstrated in the table, no NRHP-eligible sites were identified within Mason, Milam, Mills, Schleicher, or Tom Green counties within the study area.

Table 3-13: Previously Recorded NRHP-eligible Archeological Sites

Site ID	Ecoregion	Time Period	Site Type	SAL Designation
Bell County				
41BL1012	Limestone Cut Plain	Pre-contact to post-contact	Rock shelter	No
41BL1013	Limestone Cut Plain	Pre-contact	Rock shelter	No
41BL1023	Limestone Cut Plain	Pre-contact	Rock shelter	No
41BL1032	Limestone Cut Plain	Pre-contact	Rock shelter	No
41BL1225	Limestone Cut Plain	Late Prehistoric to Neo-American	Closed campsite, rock shelter	No
41BL1229	Limestone Cut Plain	Late Prehistoric to Neo-American	Closed campsite, rock shelter	No
41BL1355	Limestone Cut Plain	Late pre-contact	Burned rock midden	No
41BL1370	Limestone Cut Plain	Late pre-contact	Burned rock midden	No
41BL1412	Limestone Cut Plain	Early Statehood (1845-1860)	Log cabin	No
41BL146	Limestone Cut Plain	Pre-contact to post-contact	Petroglyphs and burned rock midden	No
41BL154	Limestone Cut Plain	Archaic period	Hunting site	No
41BL155	Limestone Cut Plain	Archaic period	Occupation site with burned rock middens and lithic scatters	No
41BL165	Limestone Cut Plain	Post-contact	Military reservation, CCC camp	No
41BL168	Limestone Cut Plain	Pre-contact	Rock shelter	No
41BL189	Limestone Cut Plain	Post-contact	Cultural scatter, livestock dip tank	No

Table 3-13: Previously Recorded NRHP-eligible Archeological Sites

Site ID	Ecoregion	Time Period	Site Type	SAL Designation
41BL198	Limestone Cut Plain	Pre-contact	Rock shelter	No
41BL222	Limestone Cut Plain	Post-contact	Trash scatter	No
41BL231	Limestone Cut Plain	Pre-contact to post-contact	Lithic scatter, burned rock midden	No
41BL273	Limestone Cut Plain	Post-contact	House remains	No
41BL323	Limestone Cut Plain	Paleo-Indian period to post-contact	Open site, quarry. workshop, habitation	Yes
41BL365	Limestone Cut Plain	20th Century	Wooden bridge	No
41BL367	Limestone Cut Plain	20th Century	Wooden bridge	No
41BL371	Limestone Cut Plain	Post-contact	Well casing, deer blind	No
41BL390	Limestone Cut Plain	Post-contact, 1930s	Bridge	No
41BL43	Limestone Cut Plain	Pre-contact	Rock shelter	No
41BL433	Limestone Cut Plain	Pre-contact	Rock shelter	No
41BL495	Limestone Cut Plain	Pre-contact	Rock shelter	No
41BL496	Limestone Cut Plain	Pre-contact	Rock shelter	No
41BL497	Limestone Cut Plain	Pre-contact	Rock shelter	No
41BL596	Limestone Cut Plain	Pre-contact	Rock shelter	No
41BL633	Limestone Cut Plain	19th to 20th century	Indian rock art	No
41BL635	Limestone Cut Plain	Pre-contact	Rock shelters	No
41BL69	Limestone Cut Plain	Pre-contact	Rock shelter, possible burial site	No
41BL728	Limestone Cut Plain	Pre-contact	Rock shelter, shell midden	No
41BL740	Limestone Cut Plain	Archaic period	Lithic scatter, burned rock	No
41BL743	Limestone Cut Plain	Archaic period	Lithic scatter, burned rock	No
41BL744	Limestone Cut Plain	Archaic period	Rock shelter, lithic scatter, middens	No
41BL751	Limestone Cut Plain	Pre-contact	Burned rock midden, lithic scatter	No
41BL754	Limestone Cut Plain	Pre-contact	Rock shelter	No
41BL755	Limestone Cut Plain	Pre-contact	Habitation site	No
41BL765	Limestone Cut Plain	Pre-contact	Rock shelter, lithics	No
41BL773	Limestone Cut Plain	Pre-contact	Rock shelter	No
41BL780	Limestone Cut Plain	Archaic period	Rock shelter	No
41BL788	Limestone Cut Plain	Pre-contact	Unknown	No
41BL806	Limestone Cut Plain	Late pre-contact	Rock shelter, lithic scatter, burned rock midden	No
41BL817	Limestone Cut Plain	Mid to Late 19th century	Springhouse, mill pond	No
41BL821	Limestone Cut Plain	Late archaic period	Burned rock scatter, midden, lithic scatter	No

Table 3-13: Previously Recorded NRHP-eligible Archeological Sites

Site ID	Ecoregion	Time Period	Site Type	SAL Designation
41BL827	Limestone Cut Plain	Late pre-contact	Burned rock scatter, rock shelter	No
41BL834	Limestone Cut Plain	Late pre-contact	Chert procurement area, lithic scatter; burned rock midden	No
41BL844	Limestone Cut Plain	Archaic period	Lithic tool scatter, rock shelters	No
41BL886	Limestone Cut Plain	Pre-contact	Rock shelters, lithic scatter, burned rock middens	No
41BL888	Limestone Cut Plain	Late pre-contact	Lithic scatter, burned rock middens	No
41BL991	Limestone Cut Plain	Paleo-Indian period	Lithic scatter, burned rock, tools	No
41BL992	Limestone Cut Plain	Post-contact	Concrete footings	No
Burnet County				
41BT301	Edwards Plateau Woodland	Pre-contact	Open campsite	No
41BT304	Edwards Plateau Woodland	Pre-contact	Open campsite	No
41BT306	Edwards Plateau Woodland	Pre-contact	Open campsite	No
41BT307	Llano Uplift	Pre-contact	Open campsite	No
41BT407	Llano Uplift	Pre-contact	Hearth, campsite	Yes
41BT96	Limestone Cut Plain	Archaic period	Burned rock midden, open campsite	No
Concho County				
41CC298	Edwards Plateau Woodland	Pre-contact	Lithic Scatter, Mortar Complex	Yes
Coryell County				
41CV117	Limestone Cut Plain	Pre-contact	Burned rock mound and scatter, lithics	No
41CV1191	Limestone Cut Plain	Pre-contact	Burned rock scatter	No
41CV1195	Limestone Cut Plain	Pre-contact	Burned rock scatter	No
41CV1210	Limestone Cut Plain	Early 20th century	Domestic dwelling	No
41CV1235	Limestone Cut Plain	Pre-contact	Burned rock mound, lithic scatter	No
41CV1244	Limestone Cut Plain	Archaic period	Burned rock midden, mussel shell, lithics	No
41CV1250	Limestone Cut Plain	Archaic period	Burned rock and lithic scatter	No
41CV1264	Limestone Cut Plain	Pre-contact to post-contact	Rock shelter, petroglyphs	No
41CV1269	Limestone Cut Plain	Archaic period	Burned rock mounds with middens, lithic scatter, burned rock scatter	No
41CV1286	Limestone Cut Plain	Archaic period	Burned rock scatters, lithics	No

Table 3-13: Previously Recorded NRHP-eligible Archeological Sites

Site ID	Ecoregion	Time Period	Site Type	SAL Designation
41CV1310	Limestone Cut Plain	Paleo-Indian to post-contact	Burned rock scatters, lithics	No
41CV1378	Limestone Cut Plain	Pre-contact	Burned rock mound, lithic scatter	No
41CV1391	Limestone Cut Plain	Pre-contact	Burned rock mounds, burned rock scatter	No
41CV1403	Limestone Cut Plain	Archaic period	Burned rock mounds, burned rock scatter	No
41CV1443	Limestone Cut Plain	Archaic period	Burned rock and lithic scatters	No
41CV1453	Limestone Cut Plain	Post-contact	Artifacts and porch pier	No
41CV1555	Limestone Cut Plain	Pre-contact	Open campsite	No
41CV1557	Limestone Cut Plain	Pre-contact	Open campsite	No
41CV273	Limestone Cut Plain	Post-contact	Copperas Cove Stage stop and Post Office	No
41CV413	Limestone Cut Plain	Archaic period	Burned rock mounds	No
41CV732	Limestone Cut Plain	20th century	Habitation	No
Llano County				
41LL484	Llano Uplift	Pre-contact	Buried camp	No
41LL504	Llano Uplift	Post-contact from 1883 to 1937	Former townsite	No
Lampasas County				
41LM27	Limestone Cut Plain	1850s to early 20th century	Health resort	Yes
41LM63	Edwards Plateau Woodland	Pre-contact	Open campsite	No
41LM64	Edwards Plateau Woodland	Pre-contact to post-contact	Cave site; graffiti	No
41LM65	Edwards Plateau Woodland	Pre-contact	Rock shelters	No
McCulloch County				
41MK44	Limestone Plains	Post-contact	Brady Flood Wall	No
Menard County				
41MN1	Edwards Plateau Woodland	Post-contact	Ruins of presidial buildings	Yes
41MN2	Edwards Plateau Woodland	19th century	Fort ruin, rock quarry, burned rock midden	Yes
41MN23	Edwards Plateau Woodland	Post-contact, possibly pre-contact	Open campsite, mission	No
41MN80	Edwards Plateau Woodland	Pre-contact to post-contact	Haney Ranch Mortar Holes, artifact scatter	Yes
San Saba County				

Table 3-13: Previously Recorded NRHP-eligible Archeological Sites

Site ID	Ecoregion	Time Period	Site Type	SAL Designation
41SS113	Western Cross Timbers	Archaic to late pre-contact	Burned rock midden, hearth field	Yes
41SS139	Edwards Plateau Woodland	Archaic period	Burned rock midden, lithic Scatter	Yes
41SS141	Edwards Plateau Woodland	Archaic period	Terrace site, lithic scatter	Yes
41SS145	Edwards Plateau Woodland	Pre-contact	Open campsite	Yes
41SS147	Edwards Plateau Woodland	Pre-contact	Open campsite, lithic scatter	Yes
41SS148	Edwards Plateau Woodland	Pre-contact	Lithic scatter	Yes
41SS150	Edwards Plateau Woodland	Pre-contact	Terrace site, lithic scatter	Yes
41SS151	Edwards Plateau Woodland	20th century	Commissary, camp, artifact scatter	Yes
41SS153	Edwards Plateau Woodland	19th to 20th century	Graffiti	Yes
41SS154	Edwards Plateau Woodland	Post-contact	Railroad bed	Yes
41SS155	Edwards Plateau Woodland	19th to 20th century	Water system	Yes
41SS171	Edwards Plateau Woodland	19th to 20th century	Debris scatter	No
41SS175	Western Cross Timbers	Pre-contact	Campsite	Yes
41SS176	Western Cross Timbers	Pre-contact to post-contact	Open campsite and mill site	Yes
41SS177	Western Cross Timbers	Pre-contact to post-contact	Campsite, burned rock midden, homestead	Yes
41SS178	Western Cross Timbers	Pre-contact	Open campsite	Yes
41SS181	Western Cross Timbers	Pre-contact	Open campsite	Yes
41SS29	Edwards Plateau Woodland	Pre-contact to post-contact	Habitation site, lithic scatter, terrace site, burned rock midden	Yes
41SS32	Edwards Plateau Woodland	Pre-contact	Lithic scatter	Yes
41SS33	Edwards Plateau Woodland	Pre-contact	Lithic scatter, rock shelter, bench	Yes
41SS34	Edwards Plateau Woodland	Pre-contact	Pictograph	Yes
41SS35	Edwards Plateau Woodland	Archaic period	Rock shelter	Yes
41SS39	Edwards Plateau Woodland	Pre-contact	Burned rock midden, lithic scatter	Yes
41SS41	Edwards Plateau Woodland	Pre-contact	Lithic scatter, terrace site	Yes
41SS42	Edwards Plateau Woodland	Archaic period	Lithic scatter, terrace site	Yes
41SS43	Edwards Plateau Woodland	Archaic period	Lithic scatter, terrace site	Yes
41SS45	Edwards Plateau Woodland	Post-contact	Cemetery	Yes
41SS47	Edwards Plateau Woodland	1910-1920	Cedar Camp	Yes
41SS66	Edwards Plateau Woodland	Pre-contact	Lithic scatter	Yes

Table 3-13: Previously Recorded NRHP-eligible Archeological Sites

Site ID	Ecoregion	Time Period	Site Type	SAL Designation
41SS69	Edwards Plateau Woodland	Pre-contact	Burned rock midden, lithic scatter	Yes
41SS70	Edwards Plateau Woodland	Pre-contact	Lithic scatter	Yes
41SS71	Edwards Plateau Woodland	Pre-contact	Lithic scatter, cave in sinkhole	Yes
41SS72	Edwards Plateau Woodland	Pre-contact	Lithic scatter	Yes
Williamson County				
41WM1208	Limestone Cut Plain	Archaic period	Extraction camp	No
41WM1210	Limestone Cut Plain	Archaic period	Burned rock middens	No
41WM1214	Limestone Cut Plain	Pre-contact	Extraction camp	No
41WM1215	Limestone Cut Plain	Pre-contact	Extraction camp	No
41WM1216	Limestone Cut Plain	Pre-contact	Extraction camp	No

Source: THC, 2025a

3.8.2 Historic Sites

3.8.2.1 Cemeteries

Cemeteries, both formal and informal, represent a significant component of the cultural landscape within the study area. A total of 379 cemeteries have been documented within the study area, with at least 67 designated as Historic Texas Cemeteries (HTCs) under the purview of the THC. These resources include community cemeteries, church-affiliated burial grounds, isolated family plots, and potential unmarked Indigenous burial areas.

Spatially, cemeteries are often associated with historic settlements, transportation corridors, and early ranching or agricultural operations. Many are in proximity to homesteads or rural churches, while others are situated in marginal or difficult-to-access terrain. Although most documented cemeteries appear on topographic maps or within local records, undocumented burial grounds, particularly pre-contact or underrepresented community sites, may also be present. Several smaller, private cemeteries for which location information rests with family members or property owners may also be present within the study area. **Table 3-14** summarizes cemeteries identified by THC records within the study area, by county, and of those cemeteries, the number that have historic cemetery designations by the THC.

Table 3-14: Recorded Cemeteries within the Study Area

County	Cemetery Count	HTC Cemetery Count	Figure Number
Bell	137	25	**3-1A, 3-1B**
Burnet	31	6	**3-1B, 3-1C**
Concho	5	0	**3-1F, 3-1G**
Coryell	6	0	**3-1B**
Lampasas	30	3	**3-1B, 3-1C, 3-1D, 3-1I**

Table 3-14: Recorded Cemeteries within the Study Area

County	Cemetery Count	HTC Cemetery Count	Figure Number
Llano	15	4	**3-1D, 3-1E**
Mason	14	1	**3-1E, 3-1F**
McCulloch	16	3	**3-1E, 3-1F**
Menard	16	2	**3-1F, 3-1G**
Milam	9	2	**3-1A**
Mills	0	0	**-**
San Saba	44	5	**3-1D, 3-1E**
Schleicher	4	1	**3-1G, 3-1H**
Tom Green	3	1	**3-1H**
Williamson	49	14	**3-1A, 3-1B**

Source: THC, 2025a

3.8.2.2 Official Texas Historical Marker

The THC records indicate 498 OTHMs located within the study area. These markers provide early history and commemorate early community members, cemeteries, churches, trails, buildings, and other cultural elements that were important to past settlements. Additionally, some natural features such as Hancock Springs, within the City of Lampasas, are commemorated by markers (**Figure 3-1C**). Intended to improve the visibility and accessibility of historical elements within the state, marker locations are limited to physical structures or roadsides, the latter of which may refer to a broad or specific geographic location that may be distant from the location of the actual marker. OTHMs are most prevalent within city limits with marker locations clustered as shown in **Figures 3-1A** through **3-1I** (**Appendix G**). The clusters include marker total counts in cities such as: Belton (41 OTHM), Brady (6 OTHM), Burnet (18 OTHM), Lampasas (54 OTHM), Salado (37 OTHM), San Saba (20 OTHM), and Temple (70 OTHM). **Table 3-15** summarizes the recorded OTHMs within the study area.

In addition to these locations, several other features identified during field reconnaissance and on various mapping sources could represent or contain historic resources. The expansive oil fields mapped on USGS maps each may contain historic-aged structures that could be recorded as archeological sites. Furthermore, windmills, railroads, bridges, and unmapped ranch features such as corrals, fences, and water storage features are likely present within the study area and could be eligible for designation as historic sites if more than 50 years old.

Table 3-15: Recorded OTHMs within the Study Area

County	OTHM Count	Figure Number
Bell	231	**3-1A**, **3-1B**
Burnet	25	**3-1B, 3-1C**
Concho	7	**3-1G**
Coryell	7	**3-1B**
Lampasas	78	**3-1B, 3-1C, 3-1D, 3-1I**

Table 3-15: Recorded OTHMs within the Study Area

County	OTHM Count	Figure Number
Llano	11	**3-1D, 3-1E**
Mason	4	**3-1E**
McCulloch	21	**3-1E, 3-1F**
Menard	17	**3-1F, 3-1G**
Milam	3	**3-1A**
Mills	0	**--**
San Saba	47	**3-1D, 3-1E**
Schleicher	10	**3-1G, 3-1H**
Tom Green	4	**3-1H**
Williamson	33	**3-1A, 3-1B**

Source: THC, 2025a

3.8.3 NRHP Properties and Districts

The study area includes a substantial number of heritage properties formally recognized through the NRHP and SAL designation programs. These properties encompass a wide range of historic resource types, including rural residential structures, civic buildings, cultural landscapes, archeological sites (see **Table 3-13**), and transportation infrastructure. SALs, while fewer in number, represent some of the most significant heritage assets within the state and carry additional regulatory protections under the Texas Antiquities Code. NRHP listings may include individual properties as well as historic districts, the latter of which comprise multiple contributing resources that collectively convey historical significance. The historic districts are located in cities with designated geographic areas varying in size from a few parcels to large acreage assemblies. The historic district boundaries are therefore not included in **Figures 3-1A** through **3-1I** (**Appendix G**). The presence of both NRHP properties and districts and SAL properties across multiple counties within the study area suggests a high potential for encountering additional eligible or landmark-caliber resources, particularly in areas that have not undergone systematic survey. **Table 3-16** summarizes NRHP sites identified by THC records within the study area.

Table 3-16: Recorded NRHP Properties and Districts within the Study Area

County Name	NRHP Type	Number of Records	Figure Number
Bell	Property	57	**3-1A**
	District	15	**--**
Burnet	Property	1	**3-1B**
	District	0	**--**
Concho	Property	0	**--**
	District	0	**--**
Coryell	Property	1	**3-1B**
	District	0	**--**

Table 3-16: Recorded NRHP Properties and Districts within the Study Area

County Name	NRHP Type	Number of Records	Figure Number
Lampasas	Property	4	**3-1C, 3-1D**
	District	2	--
Llano	Property	0	--
	District	0	--
Mason	Property	0	--
	District	0	--
McCulloch	Property	2	**3-1F**
	District	0	--
Menard	Property	0	--
	District	2	--
Milam	Property	0	--
	District	0	--
Mills	Property	0	--
	District	0	--
San Saba	Property	1	**3-1D**
	District	0	--
Schleicher	Property	0	--
	District	0	--
Tom Green	Property	0	--
	District	0	--
Williamson	Property	0	--
	District	0	--

Source: THC, 2025a

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4.0 IDENTIFICATION OF PRELIMINARY ALTERNATIVE ROUTE LINKS

4.1 Routing Considerations

Upon completion of the various data collection activities and constraints mapping process, the next step for the proposed project was to identify preliminary alternative route links to connect the Bell County East Switch to the Big Hill Substation. Potential alternative route links were plotted on recent aerial photography (ESRI World Imagery Basemap, 2025; NAIP, 2024) based on: the findings from reconnaissance surveys; information from local, state, and federal officials; property boundary maps; and other environmental and land use constraints data. The initial property boundary maps utilized to locate apparent property boundaries consisted of GIS data from the applicable county tax offices and appraisal districts. Digital gas and petroleum pipeline data obtained from the RRC (2025) were used to identify pipeline corridors and other oil and gas facilities (e.g., natural gas pads, individual well sites). Where practical, Kimley-Horn and Halff verified the location of some of the pipelines and above-ground oil and gas facilities either by reviewing aerial photography or by field reconnaissance but did not alter the RRC digital data. The environmental and land use constraints maps in **Appendix G** show the locations of pipelines and oil and gas well sites based on the data received from the RRC.

Consistent with the provisions of PUCT Substantive Rules Section 25.101(b)(3)(B), Kimley-Horn and Halff considered existing corridors (e.g., existing electric utility rights-of-way, roadways, property lines) to develop preliminary alternative route links that, to the extent reasonable, moderate the impact to landowners and communities. Paralleling these corridors is a desirable routing approach when feasible because it serves to address the factors and guidelines detailed in Section 37.056(c) of the Texas Utilities Code. For example, the structures and easement of an existing transmission line present an aesthetic, land use, and environmental setting consistent with construction of a new transmission line. However, in some instances, these corridors are not suitable for routing. An existing transmission line does not generally deter adjacent uses. Oil and gas facilities, wind power facilities, residences, commercial buildings, and other attendant structures are often constructed near or adjacent to the existing corridor, thereby precluding the placement of additional adjacent transmission lines. A similar relationship applies to roadways and property boundaries. Homes and businesses are often proximal to the roadway, which would preclude the location of a preliminary alternative route link. Furthermore, apparent property boundaries are often irregular and paralleling them over the course of an entire link or route to the exclusion of other factors would increase the length of the project on a landowner's property and the number of turns (and structures), both of which contribute to the effect on the local aesthetic and environmental setting. Kimley-Horn and Halff attempt to mitigate the latter effects by considering other natural or cultural features, consistent with PUCT guidelines, that may be within a larger property, such as paralleling an interior fence line, ranch road, or field transition. In sum, the routing process entails decisions that balance the routing guidelines established in PUCT Substantive Rules, the Commission's policy of prudent avoidance, land use, and the overall environmental setting over the course of an entire route.

4.2 Routing Development

Oncor and LCRA TSC defined a specific point of origin at Bell County East Switch and Big Hill Substation to which the terminal links would connect. The layout of the station defines each point of origin and the general route link progression from the station. A link is defined as a route segment that progresses generally in a forward direction, prior to diverging, or branching, in at least two different directions to form new links. Each branch location is defined as a node. Ultimately, Kimley-Horn and Halff identified numerous preliminary alternative route links that, when combined, form an assortment of preliminary alternative routes to connect the project endpoints.

Although oil and gas development is much more common in the western portion of the study area, the landscape provided sufficient open space to produce a variety of routing possibilities to connect to the Big Hill Substation. By comparison routing of preliminary alternative route links from the Bell County East Switch, to be located east of the cities of Temple and Belton, contends with a developing Interstate Highway 35 corridor. Existing and ongoing developments between the cities of Salado, Jarrell, and Georgetown, federal property, and other constraints, narrowed the scope of opportunities relative to the rest of the study area. Therefore, the routing approach described below started from the region with a greater degree of identified constraints (i.e., Bell County East Switch) and progressed toward the region with relatively fewer constraints (i.e., Big Hill Substation).

TxDOT requires new transmission lines to cross state or federal highways at a 90-degree angle. Similarly, this 90-degree angle approach is also generally required for railroad crossings. Any link progressions throughout the study area had to consider constraints relative to these transportation corridors, focusing on right-angle crossings that provided opportunities on both sides of the road, highway, or railroad.

Eastern Corridors – Figures 3-1A through 3-1C and 3-1I (Appendix G)

Routing from the Bell County East Switch sought to establish multiple alternative corridors that navigate around development along the Interstate Highway 35 corridor as well as federal property, and natural landscapes west of the Interstate Highway 35 corridor, yet also achieve crossings of the Colorado River that are mindful of nearby park space and the natural setting along the river. Initial route progression from the Bell County East Switch moves toward the southwest to avoid the larger populations centers in the cities of Temple and Belton. Furthermore, routing through federally-owned property associated with Stillhouse Hollow Lake was not available as USACE policy (USACE, 2013) allows for the denial of easement requests where viable alternatives that do not affect federally-owned property exist. These primary factors combined with other residential areas, local airports/airstrips, active limestone quarries, and various natural features in the region confined preliminary corridors generally between the City of Salado and the northern limits of the City of Georgetown.

As preliminary route links progressed into Burnet County, subdivided rural neighborhoods intermixed with larger ranches and a meandering road network with few existing transmission lines limited compatible corridors available for consideration during routing. Preliminary route links in this portion of the study area include more frequent right-angle turns and slighter angles to route around residential areas, to the extent practicable, and to follow apparent property boundaries or other natural or cultural features as they progress to the U.S. Highway 281 corridor between the cities of Lampasas and Burnet, where feasible.

The Colorado River is a prominent riverine feature in the study area. The river corridor is highlighted by Lake Buchanan on the border of Llano County and Burnet County and Colorado Bend State Park and Post Oak Ridge Park in the central reaches of the river. The routing approaches to the Colorado River sought to balance potential impacts to residential communities and the natural setting of this corridor, including these two public parks, terrain, channel meanders, and vegetation.

Central Corridors – Figures 3-1D and 3-1E (Appendix G)

West of the Colorado River, parcel data resembles more of a grid and residences are less dense outside of the larger population centers (e.g. cities of San Saba, Brady, Mason, and Menard). These characteristics facilitated west-to-east progressing preliminary alternative route link corridors that were comparatively straight, with turns or deviations utilized to avoid local constraints including, but not limited to, cemeteries, airports/airstrips, pivot irrigation installations, or individual residences.

The San Saba River is another prominent riverine feature in the study area. Approaches to the river and its floodplain similarly attempted to balance potential impacts to residences, farmsteads, and the natural setting of the river and its major tributaries. Although less common than in other portions of the study area, routing constraints near the San Saba River include pivot irrigation and sand/gravel mining.

Western Corridors – Figures 3-1F through 3-1H (Appendix G)

Near U.S. Highway 83 between the cities of Menard and Eden, preliminary alternative route links begin their transition to the Big Hill Substation endpoint. Oil and gas fields are more prominent but did not otherwise limit a geographically wide breadth of alternatives, with four combined corridors in Concho and Menard counties ultimately transitioning to three in Schleicher and Tom Green counties. As with the central corridors, similar parcel patterns and residential densities allowed for more straightforward west-to-east progressing alternative route link corridors. As with the central corridor routing process, the San Saba River remained a prominent natural feature that was carefully considered in routing. There exists a greater number of existing electric transmission lines in this part of the study area. However, these corridors are generally aligned more prominently north-south rather than westward progressing, thereby limiting availability for paralleling opportunities.

Refinement of Preliminary Route Links

Oncor and LCRA TSC presented the preliminary route links at public participation meetings, as further discussed in **Section 5.0**. The figures located in **Appendix B** depict the preliminary links that were presented at the public participation meetings. After the public participation meetings, Kimley-Horn and Halff made modifications to the preliminary route links considering public feedback received, updated property data, guidance from Oncor and LCRA TSC, and additional field investigations. **Section 6.0** provides a detailed description of the new route links and modifications to the preliminary route links that were made following the public participation meetings.

5.0 PUBLIC INVOLVEMENT PROGRAM

5.1 Public Participation Meetings

Preliminary alternative route links were presented at the in-person public participation meetings as described in **Section 2.5**. **Appendix B** presents figures that depict the location of the preliminary alternative route links that were presented at the public participation meetings, general information about the project, and a questionnaire soliciting input from notified landowners and meeting attendees.

At the public participation meeting held on June 16, 2025, 259 people signed in and 54 questionnaires were received at the meeting. At the public participation meeting held on June 17, 2025, 334 people signed in and 84 questionnaires were received at the meeting. At the public participation meeting held on June 18, 2025, 232 people signed in and 51 questionnaires were received at the meeting. Numerous questionnaires and/or letters were received by either Oncor, LCRA TSC, Kimley-Horn, or Halff after the public participation meetings.

The questionnaire presented at the public participation meetings and available on the Oncor and LCRA TSC websites requested input concerning transmission line issues regarding land use, paralleling existing corridors, and community values/resources. Respondents were asked to rank different factors as the most important consideration in terms of land use, including ranking lists of habitable structures, community values, and other resources in order of importance as it pertains to maximizing the distance from the proposed project. The questionnaire also provided space for respondents to include any general comments or remarks. Completed questionnaires and other comments were received that provided comments, concerns, and requests regarding the location of the transmission line routing. A variety of other general comments were received and are summarized in **Section 5.2**.

As mentioned in **Section 2.6**, in response to public feedback, the study area was expanded to accommodate alternative route links that extended further north in Lampasas, San Saba, and McCulloch counties. This modified study area was not originally depicted in the constraint maps presented at the in-person public participation meetings.

5.2 Public Participation Meeting Comments

As noted previously, comments were received both during and after the public participation meetings. Those received after the meetings were received in a variety of formats, including:

- hard copy or electronic questionnaires from those who may have attended the public participation meetings;
- hard copy or electronic questionnaires from those who obtained a copy of the questionnaire after the public participation meetings;
- electronic mail providing a statement or opinion summary regarding the project, with or without the questionnaire attached; and

- comments received via phone messages, telephone conversations, or other in person or virtual meetings with Oncor or LCRA TSC representatives.

Representative comments, remarks, and concerns submitted in questionnaire, electronic mail format, or other communication are grouped by topic in **Section 5.2.1**.

5.2.1 Questionnaires and General Comments

Many comments were received at the public participation meetings and throughout the routing process thereafter. Some attendees may have provided questionnaires at a public participation meeting that were followed with additional information to Oncor or LCRA TSC via email. Some submittals adopted similar form language focused on a particular subject or location. Many submittals were narrative in format, addressing many topics in one response (e.g., residences, aesthetics, wildlife), and any statement within a narrative may include multiple subjects to express the particular concern or theme (e.g., the proximity of the project to a residence will affect the view of a resource). Therefore, sample comments in general summary form are presented below to reflect the overall public response for a particular theme or topic and to demonstrate the diversity of comments for a given topic. Any statement excerpted from a comment to represent a particular subject does not reflect dismissal or a lack of regard for any other language or subject addressed in the comment. Furthermore, comments not included in the following sections may be referenced in **Section 6.0**, which discusses additions of modifications that were made in direct response to feedback from the public. Overall, respondents consistently expressed the base concern regarding the proximity of any proposed route to their residence and the subsequent effect they believed the project may have on aesthetics, land use or land value, health, and/or wildlife.

<u>Topic: Residences</u>

- “Proximity to primary residence should be avoided.”
- “Proposed line H4 is very, very close to my house.”
- “One of the proposed transmission line [G4] is 572 [feet] from a dwelling…”
- “Furthermore, it crosses directly over a family house.”
- “Avoid putting [within] 1500 feet of anyone’s home.”
- “We are in residential area and line would be too close to structures.”
- “A2 route is running through my property [tract number] right where I have plans to build my retirement home.”

<u>Topic: Ranching</u>

- “… the construction process would take away from our ability to maintain our cattle.”
- “This line runs directly through my ranch.”
- “The size of the towers would impact my farming and ranching operation, especially during construction.”
- “Your northern most route goes through the middle of my ranch…”
- “We are a livestock operation and this is our sole income.”

- "Cuts right through the middle of property which is only grazing land. Will destroy wildlife and domestic animals."

Topic: Aesthetics

- "It is important to note that this beautiful home was designed and built specifically to take advantage of this hill country view."
- "Our renters come to our property to get away from the evidence of the city- the ruggedness and natural environment are our main selling point."
- "I do not want the beautiful, peaceful view from our hilltop ruined by looking at these huge, massive poles."
- "I don't think any of you would want to look at this line everyday either."
- "We purchased our land mostly for the view and your G2 line will ruin that."
- "Our house will be directly impacted by the sight and sounds emitted by the line."
- "This proposed transmission line will take a beautiful natural setting and destroy it for future generations."
- "Imposition of quality of life for residents, including "dark sky" issues from visible lights on the towers."
- "…Would affect my enjoyment of water activities on the Russell Gabriel."
- "I oppose the G4 because the transmission line will disrupt my view and impact the sound at my property without providing any benefit."

Topic: Property Value

- "The addition of a massive powerline outside the front of my house will completely destroy the remaining value of my house."
- "These lines are going to kill our property value."
- "We should be reimbursed for property value lost."
- "The property would be devalued by the power-line crossing it."
- "This vastly reduces our property resale value."
- "The G4 power line will reduce the property value by at least 50%."
- This proposed route of G4 would drastically reduce the potential value of this intersection in West Williamson Co.; once the Corridor J road construction is complete."
- "… destroy historical and financial value to my family's land and all neighbors along the G4 line."

Topic: Environmental Concerns

- "[M]inimize removal of existing oak trees."
- "The G5 link would also pass close to the Lampasas [R]iver and could potentially cause issues with the unique river ecosystem."
- "I would like to see what environmental studies have been done on this."

- "Routing a transmission line through part of the 94-acre property in San Saba would significantly undermine the regenerative land management goals we are working toward."
- "G4 will be a negative impact on the Russell Fork aspect of the San Gabriel River, causing loss of habitat for flora and fauna, endangered birds and directly impact cattle or other livestock."
- "Building the powerline will affect the natural course of migratory birds, natural raw water runoff, streams, rivers and vegetation."
- "The proposed G4 line will cause irreparable damage to natural waterways, delicate ecosystems and will negatively impact wildlife, including bee colonies."
- "This would also affect the San [Gabriel] River due to the runoff from the affected areas. This land is not the most fertile and will take years to recover."
- "Too close to river for all the wildlife, as many are on the endangered list."
- "The tower construction will cause erosion in the [Russell Fork San Gabriel River]."
- "These towers also consume an excessive amount of energy, increasing the community's carbon footprint."
- "Our entire pastureland is threatened by the herbicides/maintenance treatments that will be used to maintain the power line zone."

Topic: Existing Transmission Lines

- "We were impacted by transmission lines to the east of us. Now to the south."
- "Please use existing transmission line corridors."
- "I already currently have a smaller transmission line and I don't want another / larger one installed."
- "There is already one LCRA transmission line running through our property."
- "Use existing electricity routes instead of building new lines."
- "Our land is already impacted by an existing highline along the front, which has significantly disrupted the use and appearance of that part of our property."
- "It would be logical to follow existing highway, minimally disrupting land use."

Topic: Health Concerns

- "We don't want the EMF exposure over the years."
- "[The transmission line] is harmful to the health of people, animals, and even plants."
- "Mounting scientific evidence has linked prolonged exposure to EMFs from such lines to serious health concerns…"
- "… I might have to have a pacemaker which means I will not be able to live near these huge things."
- "Concerns of health issues [losing] my sister from cancer due [to] high lines in Travis County."
- "Concerns about electromagnetic fields, exposure from power lines near residences and proximity to schools."

- "The radiation from those lines could cause health issues for humans and livestock and even vegetation."
- "G4 power lines would not only be ugly, they would create terrible electromagnetic radiation leakage which is not healthy for people, livestock or electronic devices."
- "Document research indicates that exposure to EMF and ELF radiation is associated with increased rates of childhood leukemia, which is deeply concerning as a parent of two children."

Topic: Fish and Wildlife

- "We are under wildlife exemption."
- "This route runs through property that contains a registered bat cave."
- "We worked with the local NRCS government agency to create habitats for the Bobwhite Quail population for conservation purposes."
- "Our property is a wildlife exemption tax status and we have been working very hard to attract and keep various wildlife on our property."
- "I am worried about the red tail hawks and other animals in the area that will be displaced and avoid the power line moving on my property."

Topic: Historic Resources

- "I do not want route G4. We are near a historical church and cemetery."
- "The route south of RR 1222 goes very close to the historically designated Peters Prairie School House and Bethel Cemetery."
- "Such a project would threaten not only the ecological integrity of this river system, but also the unbroken historical and cultural record of the people who have drawn life from its waters for generations."
- "It would also destroy the historical value of our neighborhood, which includes sites and landmarks dating back to the 1800s that hold significant cultural and community importance."
- "I have a 130-year homestead of AM Baron (listed in Burnet Co. History, Vol. II) and the line is within 500 feet."
- "There is also quite a bit of Texas history to this and nearby pieces of property that deserve to be left untarnished by very large and unsightly 765 kV transmission lines."

Topic: Historic Resources

Landowners in Burnet County provided Oncor and LCRA TSC with a study contracted by landowners of four ranch properties along the Link G4 alignment, as presented at the public participation meetings, to identify potential historic resources on the properties. The study included historical research into each property and on-site reconnaissance surveys of the properties to photograph historic age structures. A preliminary assessment was made about whether each property could be eligible for listing in the NRHP based on established criteria in 36 CFR 800. Of the ranch properties assessed, three structures were identified as NRHP eligible for

individual listing based on integrity. Historic resources outside of these properties were not formally assessed. However, the study proposed the potential for developing a broader regional historic district based on properties with ownership of the same family for 50 years or more.

Topic: Flood Protection

The City of Lampasas and the Lampasas Commissioners Court expressed their objections to Link J1 regarding its proximity to several flood retarding structures which are a series of earthen dams that create ponds/lakes for sediment and floodwater storage. Link J1 would cross the flood pool and easement of Flood Retarding Structure #8 and runs close to three other structures (#3, #4, and #6). These four structures have been reclassified as high hazard structures by the TCEQ. The reclassification mandates extensive upgrades and construction efforts, which include areas that the proposed Link J1 would impact. The city and county are concerned that "the construction and presence of the proposed transmission line along Route J1 would significantly undermine the effectiveness of these four retarding structures," due to the potential of the transmission line to hinder future upgrades and improvements.

In addition to these representations by local officials, multiple landowners along Link J1 expressed similar concerns regarding the Link J1 crossing of the flood control feature. These comments also expressed concerns consistent with responses in general: link proximity to homes, some of which may be historic-aged structures; the clearing of vegetation (specifically mature oaks); impacts to wildlife; impacts to the local viewshed; impacts to potential historic resources'; and impacts to land values.

Topic: Buck Ridge Subdivision

Residents of the Buck Ridge Subdivision returned questionnaires at both the Lampasas and Menard meetings and provided several comments by electronic mail. These residents addressed a proposed modification of Link M1. This subdivision is noted to be developing rapidly as many houses are currently under construction or in the planning stage to be constructed in upcoming years. Common themes expressed include concern about loss of property values, overall health of the families, and the effect on the aesthetic of the neighborhood. There was an emphasis on concern for the children in the neighborhood regarding their health and safety due to the proximity of the proposed transmission line. There was a recommendation to move the proposed Link M1 to parallel FM 2028 on either the south or north side of the road.

Topic: Rocky Hollow Subdivision

Comments were provided by this subdivision located south of the City of San Saba expressing similar concerns with most of the comments being a community-wide statement. The only comments and questionnaires received in association with this subdivision were those provided by electronic mail after the public participation meetings. The comments expressed concerns regarding the proximity of Link J1 to the subdivision and residences. Concerns of the project effects on health, the overall aesthetic of the neighborhood, and property value were consistent

themes. The residents urged for an alternative route to be chosen that would "better balance infrastructure needs with community well-being."

5.2.2 Regional Organization

Some landowners coordinated supplemental responses in a format independent of the questionnaires provided at the public participation meetings and submitted comments to Oncor and/or LCRA TSC in a formal manner.

G4 Opposition Alliance

The study area includes scattered concentrations of residences and rural communities from which one group, the G4 Opposition Alliance, coordinated a supplemental response to the questionnaires provided at the public participation meetings. Group members provided original narratives (178 total) expressing their concerns related to Link G4 as presented on constraints maps at the public participation meetings. The members provided handwritten comments on a standard form that were provided via electronic mail to Oncor or LCRA TSC. Comments are consistent with those previously listed including discussions of health concerns, effects on local aesthetics, loss of property values, and the economic impact on local landowners. Several environmental concerns were also included such as the effects on endangered wildlife, unique vegetation, and erosion along the river. Additionally, the landowners included remarks about routing along or using existing transmission lines corridors, future development conflicts, effects of construction, and other concerns that are specific to their property or personhood. Comments also emphasized local weather dangers including tornadoes and high flood risk areas. Overall, the residents heavily encouraged locating an alternative route. Representative comments submitted regarding Link G4 are included below:

- "This area tends to have bad weather with high winds and tornadic activity potentially leading to structural stress and component failure."
- "The area has limestone bedrock and is riddle with caves such as Inner Space Cavern, Longhorn Cavern, Buttercup Creek Cave Preserve, etc. The San Gabriel River and its tributaries are prone to flooding, recently washing away the Old Joppa bridge. The area is prone to high winds."
- "It would undermine the economic base of rural landowners who rely on the land for grazing, small scale farming, and long-term stewardship."
- "Farmers and ranchers will deal with nutrient lacking soil, decreasing crop yields."
- "All surround areas will be at a higher risk for soil erosion, and flash floods."
- "It would take several decades for our land to recover from the excavation."
- "The unique hill county oak-juniper woodlands are home to a number of species including the endangered golden-cheek warbler and black-capped vireo. Many of the trees in the woodland areas are over a hundred years old and the impact of their loss will be detrimental to all manner of flora and fauna that rely on these mature trees for shelter and security."

- "As a pilot as well, this will effectively inhibit my ability to fly airplanes locally due to the relative gigantic size of the G4 line. Not only causing restraint in the local airspace, but an eye sore as well."
- "Documented studies have shown EMF's and ELF's harm wildlife, cause low birth weight in cattle, have caused higher incidences of leukemia in children."
- "It disruptive commercial interest as we have a wedding facility and this is our only income as I am retired."
- "We had plans to have several family homes on the ranch and would not want to live near the lines for health reasons."
- "It is too close to the Russell Fork of the San Gabriel River and cuts right through the middle of my property."
- "This mega-sized transmission line will interfere with existing flight paths used to access the property."
- "This project will cause unnecessary and permanent disruption to the land, reduce property values, and pose long-term safety and environmental risks."
- "I don't like G4 because it cuts right through the middle of my property."
- "I am opposed to the G4 route because it doesn't follow existing rights-of-way/corridors already in use (i.e. other transmission lines, pipelines, and roadways)."

Friends of the San Saba River

As noted herein, the San Saba River is a prominent riverine feature that traverses the study area and has been recognized at the state level for its ecological integrity, and at the federal level as critical habitat for mussel species. Friends of the San Saba River is a not-for-profit 501(c)(3) public charity that was established in 2012 to protect the water flow from the Upper San Saba River. Members include owners of land located along the river and other citizens with a shared interest in the river's resources. In addition to direct comments received through the public involvement process, the group has a website (Friends of the San Saba River, 2025) that summarizes information presented at the public participation meetings, and formalizes their comments as follows:

- "The three proposed routes would increase flooding potential and create a massive increase of sedimentation entering the San Saba River, which would negatively impact the water supply for fish, wildlife, endangered freshwater mussels, and landowners who rely on the San Saba River for residential and livestock use.

  Friends of the San Saba ("FOSS") is leading the fight against the three proposed routes for the Oncor/LCRA 765kV high-voltage transmission line. FOSS believes Oncor and LCRA should construct their 765kV transmission line along existing or planned highway rights-of-way or along existing easements. The transmission line should not be constructed near the San Saba River where it will adversely impact fish, endangered freshwater mussels, wildlife, livestock and landowners."

In addition to the website devoted to the proposed project, FOSS sent correspondence letters to Oncor and LCRA TSC in July and August 2025 to clarify that their objections include all routes that cross the San Saba River. Other comments were submitted on behalf of the group, or landowners responding independently of the group's representation provided their comments regarding the San Saba River as well. Representative statements are provided below.

- "The Friends of the San Saba are strongly opposed to P4, M3, L1, and K6. These will disrupt riparian landowners. The State of Texas recognizes the San Saba River as a unique natural resource. It is classified on the list of Major Waterways of Texas. There is also general public recognition of the need to preserve the beauty, history, and unique nature of the river. This river hosts all kinds of terrestrial and aquatic wildlife. Pastureland is very valuable here as well."
- "I am a landowner on the San Saba River. With recent flooding and the flash floods that occur, transmission lines should not be put here. Areas like the San Saba hold the greatest density of wildlife. Please minimize the length near or across the San Saba River."
- "Should use existing corridors, but I would much prefer the K4 and M3 route and not L2, M2, K6. The San Saba River and Community of Camp San Saba are not on the map."
- "The middle route runs too close to the San Saba River."

5.3 Post-Public Meeting Coordination

After the public participation meetings, Oncor and LCRA TSC representatives attended several meetings with individual landowners and local, state, and federal government officials to further discuss the project. The topics addressed in these meetings included the CCN application process, the need for the project, the routing process, and the project timeline as it relates to the CCN application process, easement acquisition, and construction. Entities and individuals with which Oncor and LCRA TSC communicated post-public meeting include:

Federal and State Agencies

- United States Air Force (Fort Hood Military Base)
- USFWS
- TPWD

State Legislative Communications

- Senator Charles Schwertner – Senate District 5
- Senator Pete Flores – Senate District 24
- Senator Charles Perry – Senate District 28
- Representative Ellen Troxclair -- House District 19
- Representative Brad Buckley – House District 54
- Representative David Spiller – House District 68
- Representative Stan Lambert – House District 71
- Representative Drew Darby – House District 72

Local Officials

- Burnet Commissioner Damon Beirle
- Burnet County Judge Brian Wilson
- Lampasas County Commissioners Court
- Mason County Commissioners Court
- McCulloch County Commissioners Court
- McCulloch County Judge Frank Trull
- Williamson County Commissioner Valrie Covey
- Lampasas City Council

In addition to direct communication between Oncor, LCRA TSC, and these individuals, Burnet County issued a county resolution requesting Oncor and LCRA TSC to consider alternative routes outside of Burnet County, work with landowners in the county to understand and abide with their requests relating to their land, and address construction damage in Burnet County caused by building the lines. Mason County issued a county resolution opposing all routes in the county. McCulloch County issued a county resolution opposing the construction of a 765 kV transmission line across, alongside, or through the watershed of the San Saba River.

6.0 FINALIZATION OF THE ALTERNATIVE ROUTE LINKS

Based on input, comments, and information received by Halff, Kimley-Horn, Oncor, and LCRA TSC at and following the public participation meetings, Kimley-Horn and Halff considered modifications to preliminary alternative route links, removal of preliminary route links, and the addition of new alternative route links. The decision to remove, modify, or add a link involved consideration of several factors. The study area is large and dynamic with real-time conditions outpacing what may be observed on aerial photography in some locations. Kimley-Horn and Halff conducted site visits of the study area after the public participation meetings to verify the status of potential property changes that were researched at the early stages of the routing study and to adjust the route network as necessary. Additional reconnaissance surveys were conducted around the time of the public participation meetings to evaluate and field verify some of the input, comments, and information received at and following the public participation meetings. Aerial reconnaissance of the study area was also used to verify potential constraints. After considering new information and conducting further constraints analyses, modifications to the set of preliminary alternative route links were adopted and finalized, the results of which are described in detail in the following sections.

6.1 Route Link Additions and Removals

Following the public open house meetings, Oncor and LCRA TSC asked Kimley-Horn and Halff to evaluate and consider expansion of the breadth of alternative route links throughout the study area. Additional alternative route links evaluated and considered by Kimley-Horn and Halff included the eastern portion of the study area to maximize routing opportunities to approach and cross the Interstate Highway 35 corridor, and the central portion of the study area to further evaluate and consider existing utility and roadway corridors and approaches to the Colorado River and San Saba River. Other preliminary alternative routes were also added within the study area to improve overall geographic diversity. Some links were removed upon identification of constraints that were identified after the public participation meetings. **Table 6-1** provides a brief description of these preliminary route links and their location within the study area. The route link additions and removals described in **Table 6-1** are incorporated into graphics provided in **Appendix C** and on the constraints maps shown in **Figures 3-1A** through **3-1I** in **Appendix G**.

TABLE BEGINS ON NEXT PAGE

Table 6-1: Summary of Preliminary Route Link Additions and Removals

Figure ID[1]	Link ID	Description
Map Panel 1		
6-1	C4	This link was added as an additional east-west alternative to Links C2 and C3. Providing an alternative connection between Links B2 and D1, Link C4 splits Link B2 into Links B21 and B22, and Link D1 into Links D11 and D12. Much of the land use is agricultural, with residential concentrated near the State Highway 95 corridor.
6-2	C5	This link was added as an additional east-west alternative to Links E1 and E2. Providing an alternative connection between Links D1 and E5, Link C5 splits Link D1 into Links D12 and D13, and Link E5 into Links E51 and E52. Link C5 parallels an existing transmission line corridor prior to turning southwest to increase the distance from Salado Airport. Agriculture is the predominant land use along this corridor.
6-3	E6, E7, and E8	These links were added to provide east-west alternatives north of the Link F Group. Land use is predominantly composed of forested rangeland and pasture. There is a greater density of residences along Link E6 near FM 1670 and FM 2484, which consist of a mixture of subdivision and larger individual lots. The addition of Links E6 and E7 split Link E1 into Links E11, E12, and E13.
6-4	F45	This link was added to provide an alternative to the original Link F4 to avoid a planned development on Tracts 2628, 2629, and 2630. The addition of Link F45 split the original Link F4 into Links F41, F42, and F43.
6-5	F03, F04, and F20	Link F03 was added as continuation of the modified Link F0 (see **Figure 6-34**) that would parallel the proposed Corridor J transportation alignment. Links F04 and F20 were added as recommended alternatives to the original Link F0 and F2. Links F04 and F20 were provided as alternatives avoiding a large-scale proposed development between FM 2843 and a potential future highway. The addition of Link F03 splits Link F0 into Links F01 and F02 (see **Figure 6-34**). The addition of Link F04 splits Link F3 into Links F31 and F32. The addition of Link F20 splits Link F2 into Links F22 and F23, and Link F3 into Links F32 and F33.

TABLE CONTINUES ON NEXT PAGE

Table 6-1: Summary of Preliminary Route Link Additions and Removals

Figure ID[1]	Link ID	Description
Map Panel 2		
6-6	E8 (cont.), E9, G71, G72, G73, G81, and G82	These links continue the westward progression from Link E8, with Links G71, G72, G73, G81, and G82 maintaining east-west alternatives north of the Link F Group. Link E9 serves to provide a northward progression to Link G71 but may also allow a Link E8 progression back to Links F22, F23, and F24. Land use along these corridors is a mix of forested rangeland, pasture, and residential. The addition of Link E9 splits Link F2 into Links F21 and F22. The addition of Link G72 splits Link F2 into Links F23 and F24. The addition of Links G81 and G9 (see **Figure 6-7**) splits Link G1 into Links G11 and G12. The addition of Link G82 splits Link G1 into Links G12 and G13.
6-7	F5 and G9	Link F5 was removed to avoid an established conservation easement. Link G9 was added as a routing replacement for Link F5 to maintain routing opportunities to Link G3. Residences and other habitable structures are sparse along this corridor, becoming more concentrated near US 183. Once the Link G9 corridor was established, Link G81 was developed to allow progression from Link G73. The addition of Link G81 and G9 splits Link G1 into Links G11 and G12. The addition of Link G9 also splits Link G3 into Links G31 and G32.
6-8	F8 and G45	Link F8 was added as an alternative south of Link G4. Common land use along this corridor consists of open pasture and forested rangeland intermixed with residential. Link G45 was added to provide an alternative north of FM 243. The addition of Link F8 splits Link F4 into Links F43 and F44. The addition of Links F8 and G45 combined splits Link G4 into Links G41, G42, G43, and G44.
Map Panel 3		
6-9	U1	Link U1 represents the easternmost link that was added to progress north of the City of Lampasas and the original Link J, K, and M Groups for additional routing diversity. Land use along this corridor is predominantly forested rangeland and pasture. Residences and other habitable structures are sparse along this corridor, concentrated near state and federal highways. The addition of Link U1 splits link G5 into Links G51 and G52.
6-10	U2 and U3	The addition of these links continues the westward progression of the links added north of the original Link J, K, and M Groups. Link U2 traverses a more direct westward path from Link U1. Link U3 progresses northwest paralleling an existing transmission line south and west of the City of Lometa.
6-11	H0	This link was added as an alternative to Link H1, paralleling an existing transmission line for roughly half its length. The addition of Link H0 splits Link H4 into Links H41 and H42, and Link J1 into Links J10 and J11.

Table 6-1: Summary of Preliminary Route Link Additions and Removals

Figure ID[1]	Link ID	Description
6-12	J26	This link was in consideration of impacts from the original Link J2. This link will parallel portions of the southern boundary of the new Post Oak Ridge State Park. The addition of Link J26 splits Link J2 into Links J21 and J22. The addition of Links J26 and J27 (see **Figure 6-15**) also splits Link J2 into Links J23 and J24.
6-13	J7	Link J7 was added to provide route connectivity from Link J3 to Link J2. The addition of Link J7 split Links J2 into Links J22 and J23, and Link J3 into Links J31 and J32.
Map Panel 4		
6-14	U2 (cont.), U3 (cont.), U4, U5, and U6	This map depicts the westward progression of the Links U2 and U3 (See **Figure 6-10**), whereas Links U4 and U5 provides connectivity from the original Link J1 alignment to these northern corridors. Link U2 continues its westward progression through forested rangeland to avoid improved agriculture along FM 560. Link U3 continues paralleling the south side of an existing transmission line as described in **Figure 6-10**. Link U6 continues the westward progression of Link U3 paralleling an existing transmission line, diverting to cross FM 580 to avoid habitable structures. The addition of Link U4 splits Link J1 into Links J11 and J12.
6-15	J27 and J8	Link J27 was added for additional geographic diversity. Land use along this corridor is predominantly forested rangeland. The addition of Links J26 (see **Figure 6-12**) and J27 split Link J2 into Links J23 and J24. Link J8 was added to provide route connectivity between the original Link J2 and Link J3 corridors. Land use along this corridor consists primarily of forested rangeland and some improved agriculture. The addition of Link J8 split Link J2 into Links J24 and J25, and Link J3 into Links J32 and J33.
6-16	J14, J15, J16, K7, K8, U6 (cont.), U7, U8, U9, and V1	These links continue the westward progression north of the Link J, K, and M Groups. Links U6 and U8 traverse the south side of the City of San Saba crossing a variety of terrain and land use, including improved agriculture along the FM 1030 corridor. From Link U8, Link V1 continues north to parallel the US 190 corridor, whereas Link U9 provides an option southwest to Link K8. Links J14 and U7 provide an alternative to this progression from the original Link J Group. Link J14 splits Link J1 into Links J12 and J13. Links K7 and K8 provide an alternative from the original Link J Group, generally paralleling an easement corridor consisting of multiple pipelines. Link J15 provides a progression from Link J14 to Link K8, and Link J16 provides an alternative progression to the original Link K Group. The addition of Links J16 and K7 splits Link K1 into Links K11, K12, and K13.

Table 6-1: Summary of Preliminary Route Link Additions and Removals

Figure ID[1]	Link ID	Description
6-17	J5, K2, and J6	Link J5 and K2 were removed due to significant environmental impacts and were deemed no longer necessary following the addition of significant routing diversity to the north. Link J6 was modified to generally parallel FM 501 and CR 373 on a westward progression that splits Link K6 into Links K61 and K62 (See **Figure 6-54**).
Map Panel 5		
6-18	K8 (cont.), U9 (cont.), V1 (cont.), V2, V3, and V4	This map depicts the westward progression of Links K8, U9, and V1 (See **Figure 6-16**). Link V1 continues to parallel the south side of U.S. Highway 190, diverting westward from nearby population centers to resume paralleling the south side of U.S. 190. Link U9 and K8's approach to FM 2732 considered the existing pipeline corridor, residences, orchards, and the San Saba River before ultimately returning to the pipeline corridor via Link V2. Links V2 and V3 continue the northwestward progression of Link K8, roughly following an existing pipeline corridor through forested rangeland and pasture. Link V4 diverts from the pipeline corridor on a direct westward course until reaching US 190 (see **Figure 6-19**).
6-19	V4 (cont.), V5, V6, V7, and V8	This map depicts the westward progression of Links V1, V3, and V4 (See **Figure 6-16**). Link V5 continues along the US 190 corridor, avoiding population centers near the community of Rochelle. Links V6 and V7 provide a return to the original Link K5 corridor. The addition of Link V7 splits Link K5 into Links K51 and K52. Link V8 continues the northernmost progression westward through land consisting of open pasture and improved agriculture, north of the City of Brady (see **Figure 6-22**).
6-20	K2 (cont.), and K3	These links were removed due to significant environmental impacts (specifically the San Saba River) and were deemed no longer necessary following the addition of significant routing diversity to the north. A portion of Link K6 was removed and rerouted to the south (See **Figure 6-54**).
6-21	L4	This link was added to provide an alternative to Link L1, paralleling the east side of an existing transmission line, diverting to cross U.S. 87 before returning to parallel the east side to its terminus. The portion of this link northeast of U.S. 87 and RM 1222 will cross near multiple traveling irrigation units. The addition of Link L4 splits Link M2 into Links M21 and M22, and Link M3 into Links M31 and M32.
Map Panel 6		
6-22	V8 (cont.)	Link V8 continues a westward progression from **Figure 6-19** around the City of Brady, attempting to avoid scattered residences, minimize the length across forested areas, and to follow compatible corridors (e.g. CR 128).

Table 6-1: Summary of Preliminary Route Link Additions and Removals

Figure ID[1]	Link ID	Description
6-23	V8 (cont.)	Link V8 continues its westward progression paralleling the south side of McCulloch CR 128/Concho CR 3326 before turning south to parallel the east side of an existing transmission line and connect with the original Link N1, splitting it into Links N11 and N12.
6-24	M7	This link was added to parallel an existing transmission line along US 190, providing connectivity between the original Link M1 and M2 corridors. The addition of Link M7 split Link M1 into Links M11 and M12, and Link M2 into Links M22 and M23.
6-25	M8	This link was added to consider an alternative that parallels State Highway 29. Land use along this corridor is a mixture of forested rangeland and open pasture. The eastern portion of Link M8 leaves the State Highway 29 corridor to avoid a small solar array near the FM 1221 intersection and pivot irrigation near the FM 1311 intersection. The addition of Link M8 split Link M3 into Links M32 and M33, and Link P4 into Links P41 and P42.
Map Panel 7		
6-26	O2	Link O2 was removed after a modification was made to Link N3 to reduce the impact of routing in that area (see **Figure 6-59**).
Map Panel 8		
6-27	Z and T1	Link Z was removed after the finalization of the Big Hill Substation terminus as defined by Link Z2. After the removal of Link Z, Link T1 was modified to provide connectivity from Links P1 and modified R1 (see **Figure 6-62**) to Link T2.

Notes:
1. Please refer to **Appendix C, Preliminary Route Link Additions and Removals** for all map panel and figure references

6.2 Route Link Modifications

A route link modification is distinguished from a route link addition in that it is a reconfiguration of a portion of a link, the relocation of an entire link, or the addition or renaming of a link necessitated by other link additions or modifications along the specified link. Link modifications included those in direct response to information reflected in **Section 5.0**, information received by Oncor or LCRA TSC directly from local officials or landowners or based on additional investigations identified routing constraints that necessitated a change. The route link modifications described in **Table 6-2** are incorporated into graphics provided in **Appendix C** and on the constraints maps shown in **Figure 3-1A** through **Figure 3-1I** in **Appendix G**.

TABLE BEGINS ON NEXT PAGE

Table 6-2: Summary of Preliminary Route Link Modifications

Figure ID[1]	Link ID	Description
Map Panel 1		
6-28	A0, A01, A1, and A4	Links A01 is an added link to provide an alternative means to route around habitable structures along Shaw Road. This addition split Link A4 into Links A41 and A42. The former Link A0, A1, and A4 node was moved. This modification allows for two distinct link progressions from Link A0-A1 and Link A0-A41, with different turn locations (i.e. structure locations), as shown in **Figure 6-28** inset.
6-29	A3 and A6	These links were modified to increase distance from habitable structures.
6-30	B3	This link was modified to increase distance from a habitable structure.
6-31	E1	Link E1 was split into Links E11, E12, and E13 by the addition of Links E6 and E7 (see **Figure 6-3**) was modified to move toward the property line.
6-32	E2	This link was modified to increase distance from habitable structures.
6-33	F4	Link F4 was split into Links F41, F42, and F43 by the addition of Links F45 (see **Figure 6-4**). Link F41 was modified to account for a new habitable structure that was verified from aerial reconnaissance and to better coincide with the proposed Ronald Reagan Extension that proposes to utilize parts of CR 302.
6-34	F0 and F2	Link F0 was split into Links F01 and F02 by the addition of Link F03 (see **Figure 6-5**). Link F2 was split into Links F21 and F22 by the addition of Link E9 (see **Figure 6-5**). Link F01 was modified to better align with the proposed Corridor J transportation alignment. Links F02 and F21 are realignments of the original Links F0 and F2 to better align with and avoid the established conservation easement.
Map Panel 2		
6-35	F3	Link F34 was modified to better align with the proposed Corridor J transportation alignment.
6-36	F4	Link F4 was split into Links F41, F42, and F43 by the addition of Link F45 (see **Figure 6-4**). Link F43 was adjusted to avoid an expanded quarry footprint identified from updated imagery and aerial reconnaissance.
6-37	F4	Link F4 was split into Links F41, F42, and F43 by the addition of Link F45 (see **Figure 6-4**). Link F43 was adjusted to avoid an established conservation easement and other sensitive habitat along Cobbs Springs Branch.
6-38	G3	Link G3 was split into Links G31 and G32 by the addition of Link G9 (see **Figure 6-7**). This section of Link G31 was modified to increase distance from a fire station helipad.
6-39	G3	Link G3 was split into Links G31 and G32 by the addition of Link G9 (see **Figure 6-7**). This section of G32 was modified to align with the necessary node location established by the new Link G9.

Table 6-2: Summary of Preliminary Route Link Modifications

Figure ID[1]	Link ID	Description
6-40	G6	This link was slightly adjusted to avoid a windmill and above-ground water tank that was verified from aerial reconnaissance.
6-41	G4	Link G4 was split into Links G41, G42, G43, and G44 by the addition of Links G45 and F8 (see **Figure 6-8**). This segment of Link G41 was shifted to the north to increase the distance from habitable structures.
6-42	G4	Link G4 was split into Links G41, G42, G43, and G44 by the addition of Links G45 and F8 (see **Figure 6-8**). Link G42 was adjusted slightly to better align with tract boundaries.
6-43	G4	Link G4 was split into Links G41, G42, G43, and G44 by the addition of Links G45 and F8 (see **Figure 6-8**). Link G43 was shifted to the east to better align with property boundaries. Link G44 was shifted from the south side of several property boundaries to the north side after identifying a new habitable structure from aerial reconnaissance.
Map Panel 3		
6-44	G5	Link G5 was split into Links G51 and G52 by the addition of Link U1 (see **Figure 6-9**). Link G52 was modified to better align with tract boundaries.
6-45	G6 and I1	These links were shifted south to increase the distance from habitable structures.
6-46	H4	Link H4 was split into Links H41 and H42 by the addition of Link H0 (see **Figure 6-11**). This section of Link H42 was modified to roughly parallel the south side of an existing pipeline corridor.
6-47	H5	This link was rerouted to the north to increase the distance from an airstrip under construction. Construction of the airstrip was apparent from aerial reconnaissance.
6-48	I2	The modification of Link H5 (see **Figure 6-47**) required an adjustment to the Links H5, I1, I2, and J31 node.
6-49	J3	Link J3 was split into Links J31 and J32 by the addition of Link J7 (see **Figure 6-13**). This section of Link J31 was shifted to the south to avoid an established conservation easement.
Map Panel 4		
6-50	J2 and J4	Link J2 was split into Links J24 and J25 by the addition of Link J8 (see **Figure 6-15**). Upon the removal of Link J5 (see **Figure 6-17**), Link J25 was shifted to route north to Link J27. Link J4 was shifted from its parallel alignment along State Highway 16 to parallel apparent property boundaries to the new Link J25, J27 and J4 node.
6-51	J1, J4, and K1	Link J4 was modified to avoid placement of a transmission line turn (and structures) on steep terrain transitioning from the State Highway 16 embankment. This modification required an adjustment of the former Link J1, J4, and K1 node.
6-52	K1	Link K1 was split into Links K11, K12, and K13 by the addition of Links J16 and K7 (see **Figure 6-16**). Link K12 was modified to reduce the impact to several properties in this area.

Table 6-2: Summary of Preliminary Route Link Modifications

Figure ID[1]	Link ID	Description
Map Panel 5		
6-53	K5	Link K5 was split into Links K51 and K52 by the addition of Link V7 (see **Figure 6-19**). Link K51 was modified to better follow external property lines of multiple properties in the area.
6-54	J6 and K6	Upon the removal of Links K2 and K3 (see **Figure 6-20**), Link K6 was modified so that it could still maintain interconnectivity with other route links. Link K6 was realigned south in consideration of existing land uses, residences, and apparent property boundaries. Link K6 was split into Links K61 and K62 by the modification of Link J6. Link K62 splits Link K4 into Links K41 and K42.
6-55	K6	Link K61, split into Links K61 and K62 by the modification of Link J6 (See **Figure 6-54**). Link K61 link was modified to avoid an established conservation easement on Tract 870.
6-56	M3	Link M3 was split into Link M31 and M32 by the addition of Link L4 (see **Figure 6-21**). This section of Link M32 was modified to reduce the impact to properties in the vicinity of RM 1222. Link M32 was shifted to the south in consideration of local terrain and extended through Tract 956 to avoid crossing a half-pivot irrigation field. This modification also reduced the potential impact to a commercial bird raising facility.
Map Panel 6		
6-57	M1	Link M1 was split into Links M11 and M12 by the addition of Link M7 (see **Figure 6-24**). This section of Link M12 was modified to decrease the impact to The Ranches at Buck Ridge subdivision.
6-58	N3	This link was shifted south in consideration of a landing strip.
Map Panel 7		
6-59	N3, O1, O3, P1, and P2	Link N3 was modified to allow for paralleling an existing transmission line. This modification and node adjustment shortened the length of Link O3 and increased the length of Link P2. Link O1 was then shifted to parallel the west side of an existing transmission line from its original eastern parallel alignment. This latter modification resulted in a slight adjustment to the Link N12, O1, and P1 node, slightly increasing the length of Link N12. As noted in **Figure 6-26**, these modifications eliminated the need for Link O2, resulting in removal as a routing alternative.
6-60	P3, Q1, and Q2	Links P3 and Q1 were shifted to better follow existing property lines. Link Q2 was subsequently extended to this northern extent, resulting in a relocation of the original Link P3, Q1, and Q2 node.

Table 6-2: Summary of Preliminary Route Link Modifications

Figure ID[1]	Link ID	Description
Map Panel 8		
6-61	R1	Link R1 was modified to reduce impacts to crossed properties.
6-62	R1, R2, and S	Link R1 was shifted to the north to increase distance from a habitable structure. Link R2 was modified to continue paralleling the east side of an existing transmission line. The modification of Link R2 resulted in the decrease in the length of Link S.

Notes:

1. Please refer to **Appendix C, Preliminary Route Link Modifications** for all map panel and figure references.

6.3 Other Route Link Development

Figure 6-63 shows Link F05 which was developed after the public participation meetings as an additional east-to-west alternative among the Link F Group addition and modifications with the intent to continue paralleling the future Corridor J transportation alignment. Link F05 would have split Link F3 into Links F33 and F34. From a routing perspective as shown on **Figure 6-63**, Link F05 provides an additional alternative to Link F34 and other links further west. Through in-person meetings with the USFWS, it was verified that portions of Link F05 crossed the Pecan Springs Karst Preserve which is encumbered by a conservation easement. Consistent with other routing modifications described in **Table 6-1** and **Table 6-2** to avoid these areas, the link was not included in the final list of adopted route link alternatives to be carried through for analysis in the EA. Given the geographic diversity presented by other links in this part of the study area, no other Link F05 alternative around the preserve was developed.

6.4 Alternative Route Development

Upon completion of all route link additions, removals, and modifications, it was the determined by Kimley-Horn, Halff, Oncor, and LCRA TSC that when combined, the alternative route links that would form an adequate number of reasonable and geographically diverse alternative routes. Of 171 adopted route links, hundreds of thousands of alternative route combinations were possible. Through an iterative process that considered route length, constraints data, input from public meetings, information from local, state, and federal officials, and other data, Kimley-Horn, Halff, Oncor, and LCRA TSC reduced the total number of route combinations to a smaller subset of geographically diverse and forward progressing alternative routes, as defined in **Table 7-1** (**Appendix D**), for a more detailed evaluation analysis as provided in **Table 7-2** and **Table 7-3** (**Appendix E**). The subset of alternative routes uses each of the 171 alternative links in at least one route.

7.0 EVALUATION OF THE ALTERNATIVE ROUTES

The environmental evaluation presented in this section addresses impacts to the environment in consideration of the requirements of Section 37.056(c)(4)(A)-(D) of the Texas Utilities Code; PUCT Substantive Rule Section 25.101, including the PUCT's policy of prudent avoidance; Kimley-Horn and Halff's environmental analysis and reconnaissance surveys; and information and responses received from local, state, and federal agencies. Recent national aerial imagery (ESRI World Imagery Basemap, 2025; NAIP, 2024) was used to take measurements for the environmental data.

Kimley-Horn and Halff professionals with expertise in different environmental disciplines (e.g., geology/soils, hydrology, terrestrial ecology, wetland ecology, and land use/aesthetics) evaluated the proposed transmission line routes based upon known environmental conditions present along each route. In addition, Kimley-Horn and Halff evaluated potential impacts to archeological and other historical sites. Each researcher independently analyzed the transmission line routes presented in **Table 7-1** (**Appendix D**) and the environmental and land use data presented by route and by route link in **Table 7-2** and **Table 7-3** (**Appendix E**), respectively, for the researcher's technical discipline. Evaluations of the impacts are discussed below.

7.1 Impacts on Physiography and Geology

Construction of the proposed transmission line is anticipated to have no significant effect on the physiographic or geologic features of the area. Site-specific geotechnical and engineering studies, as discussed in **Section 1.3.1**, will be performed to determine the placement of structures. The depth and diameter of the foundation will vary depending on the design of the structure specific to that location. The construction of the proposed project would require removal of soil and/or minor surface disturbance. It would have no measurable impact on the geologic resources or features along the proposed project, though potentially localized impacts could impact karst areas geology.

The study area overlaps known karst areas as discussed in **Section 3.2.3** and shown on **Figure 3.4**. There are many known caves and karst features throughout the study area. Karst geology is highly porous, and contaminants or sediment introduced at the surface can rapidly infiltrate into subsurface environments, posing risks to karst systems. Prior to construction of the project, karst geologists may conduct field assessments to determine if karst features are identified in the project ROW. If a structure must be located at or near a karst feature, alternate foundation design and installation can be utilized to further reduce impact to the karst system.

Construction activities such as drilling, excavation, and heavy equipment operation could result in the unintended release of fuels, lubricants, hydraulic fluids, and other hazardous substances, which could migrate through fractures or sinkholes, potentially impacting aquifers and karst-dwelling species that rely on the karst landscape and geology. Routes intersecting karst areas have a higher risk of contaminants reaching underground voids due to the greater likelihood of surface-to-subsurface connectivity. Site-specific geotechnical and engineering studies, as

discussed in **Section 1.3.1**, will be performed to determine the placement of structures. Additional Best Management Practices (BMPs), including those suggested by TPWD in their response letter (**Appendix A**), may be further considered, where applicable, to minimize impacts.

7.2 Impacts on Soils

7.2.1 Soil Associations

Typically, the construction and operation of transmission lines do not create long-term adverse impacts to soils within the limits of disturbance. However, soil erosion is common in portions of the study area where ecosystems exhibit dry climates. The potential for soil erosion is likely highest during the initial clearing of the project ROW when vegetation removal is necessary to provide adequate workspace for construction. In areas where most woody vegetation is removed from the ROW, and only leaf litter and small amounts of herbaceous vegetation remain, movement of heavy equipment during construction may create the greatest potential for erosion.

To reduce potential impacts to soils, Oncor and LCRA TSC will use a stormwater discharge Construction General Permit (TXR150000) administered by TCEQ and develop a Stormwater Pollution Prevention Plan (SWPPP), as required, which will detail measures to minimize potential soil erosion and downstream sedimentation. In accordance with the Construction General Permit, ROW inspections will be performed during and after construction to ensure erosion-prone areas are identified, stabilized, and restored according to permit conditions.

Project-specific BMPs may also be developed in consideration of Oncor and LCRA TSC's respective HCPs and recommendations provided by TPWD (**Appendix A**), as appropriate. These measures may include additional erosion and sediment control techniques and maintenance of existing vegetation where feasible.

Taking into consideration that the landscape varies across the study area, the final suite of BMPs will be tailored to site-specific conditions and informed by design-level planning to minimize erosion, maintain slope stability, and protect adjacent vegetation and water resources during and after construction. Following completion of construction, disturbed areas will be allowed to reestablish with low growing vegetation through natural succession from adjacent plant communities and/or revegetated via methods such as hydroseeding with native forbs and grasses. With the implementation of appropriate erosion control and stabilization measures, disturbed areas are expected to recover following construction; therefore, no significant impacts to soils are anticipated as a result of the proposed project.

7.2.2 Prime Farmland

As discussed in **Section 3.3.2**, there are multiple NRCS soil unit classifications designated as prime farmland, if irrigated, within much of the study area (NRCS, 2025b). Most of the proposed alternative route links, predominantly within the eastern portion of the study area, cross soil associations considered prime farmland, if irrigated. A review of aerial photography (ESRI World

Imagery Basemap, 2025; NAIP, 2024), suggests that agricultural cropland is common within the study area and all proposed routes would cross some length of agricultural cropland.

The installation of transmission lines is considered a minimal activity by the NRCS and exempt from provisions of the Farmland Protection Policy Act (U.S., 1981). Other than potential construction-related erosion (mitigated per the SWPPP, as required), impacts to prime farmland soils are anticipated to be minimal and limited to small areas occupied by the base of support structures. Therefore, no significant impacts to prime farmland soils are anticipated as a result of the proposed project.

7.3 Impacts on Water Resources

7.3.1 Surface Water and Floodplains

The construction of the proposed project would have minimal adverse impacts on surface water resources. According to the NWI, potential riverine features are present along the proposed alternative routes. As discussed in **Section 3.4.1** and **Section 3.5.2.2**, segments of Little River, Rocky Creek, Clear Creek, Gorman Creek, the San Saba River, the San Gabriel River, Willis Creek, and the Colorado River within the study area are considered ESSSs (TPWD, 2025a). Links that cross ESSSs within the study area include:

- Links C1, C2, and B21 (Little River);
- Link F41 (Willis Creek);
- Link J27 (Gorman Creek);
- Link G51 (Rocky Creek); and
- Links J11, U2, and U3 (Colorado River).

Additionally, as included in **Table 3-4**, water features designated as impaired by TCEQ are present within the study area, several of which are crossed by proposed alternative route links. Surface waters crossed by the proposed alternative routes would be spanned by supporting structures placed outside the stream bed to minimize disturbance of these aquatic resources. Therefore, adverse impacts to these areas will likely be avoided.

Other potential impacts to surface waters include erosion from construction activities and spills of petroleum products (e.g. fuel or lubricants) or other chemicals. Vegetation removal could result in soil runoff into surface waters. However, the impacts of vegetation removal will be limited, due to: (1) preservation of vegetation along streams where practical; (2) Oncor and LCRA TSC's efforts to manage runoff from construction areas through the use of BMPs; and (3) implementation of a SWPPP, as required.

In addition to spanning surface waters, TPWD, in their March 21, 2025 response (**Appendix A**), recommended implementing erosion control measures in disturbed riparian areas to prevent sediment runoff until disturbed areas are permanently revegetated with site-specific native

vegetation. Oncor and LCRA TSC will revegetate disturbed areas after construction is completed in accordance with the Construction General Permit (TXR150000) for stormwater discharges.

Although routing efforts have been made to avoid placing infrastructure within major streams and surface waters, a large portion of the NHD-mapped water features in the study area reflected in **Tables 7-2** and **7-3** (**Appendix E**) are associated with ephemeral streams, and dry erosional swales that may only have flowing water after substantial rain events. Total avoidance of these features would not be practical. The design, construction, and operation of the proposed facilities would not significantly impact such flows and would not be impacted by such occurrences.

As discussed in **Section 3.4.1**, FEMA has not mapped floodplain data for Concho, Lampasas, Mason, McCulloch, Menard, Milam, Mills, San Saba, and Schleicher counties. According to the FEMA Flood Hazard Maps for Burnet, Bell, Williamson, Llano, and Tom Green counties and 1987-1991 Flood Insurance Rate Maps for unincorporated places in Lampasas, Menard, and San Saba County, the proposed links cross through a majority of unshaded Zone X: Area of Minimal Flood Hazard. Along these routes some transmission line structures would be located within FEMA hatched Zone A: 100-Year Floodplain, shaded Zone AE: 100-Year Floodplain, unshaded Zone X: 500-Year Floodplain, and hatched Zone AE: Floodway (FEMA, 1987-1991; FEMA, 2025). The mapped 100-year floodplain is typically associated with streams throughout the proposed project. No proposed alternative routes cross USACE managed lakes, dams, or other structures (USACE, 2025d). In its February 3, 2025, response letter, FEMA requested that the community floodplain administrator be contacted for the review and possible permit requirements for this project (**Appendix A**).

If it becomes necessary to locate transmission line structures within a floodplain, the structures would be designed and constructed so as not to impede the flow of water or create any hazard during flooding. Also, if structures are to be located within floodplains, Oncor and LCRA TSC would coordinate in advance with the appropriate county floodplain administrators. Construction of the proposed project should not have significant impacts on the function of floodplains, nor should it adversely affect adjacent or downstream properties.

The USACE regulates the discharge of dredged and fill material into waters of the U.S., including wetlands, under Section 404 of the Clean Water Act (Section 404) (U.S., 1972). USACE regulations implementing Section 404 include specific authorization under Nationwide Permit (NWP) 57 for Electric Utility Line and Telecommunication Activities (86 Federal Register 2744, January 13, 2021). NWP 57 authorizes the construction, maintenance, repair, and removal of electric utility lines (including overhead transmission lines), telecommunication lines, and associated foundations, access roads, and substations, in all jurisdictional water features. Under NWP 57, an overhead transmission line must not result in a loss greater than 0.5 acre of waters of the U.S. Generally, transmission lines are designed to span stream or wetland crossings in most instances, thereby minimizing impacts to waters of the U.S. NWP 57 specifies certain conditions that necessitate filing a pre-construction notification (PCN) with the USACE and obtaining written approval before construction activities begin. NWP 57 requires the submittal of a PCN with the USACE if either (i) a

Section 10 permit is required or (ii) the discharge will result in the loss of greater than 0.1 acre of waters of the U.S. Beyond these PCN criteria specific to NWP 57, NWP General Condition 18 states that a PCN must be submitted to the USACE if any federally listed species, or species proposed for listing, might be affected or is in the vicinity of the construction activity. Similarly, NWP General Condition 20 states that a PCN must be submitted to the USACE if an action authorized by a NWP has the potential to affect historic properties.

The USACE Fort Worth District responded via email (**Appendix A**) noting that the project would likely require a PCN and that they would need additional information to generate a formal review. The project was assigned project number SWF-2025-00068. In addition to NWP general conditions that may warrant a PCN, the USACE Fort Worth District also has Regional Condition 1 which provides that a PCN is required for activities proposed for authorization by any NWP that occur in Karst Zones 1 and 2 in Bexar, Travis, and Williamson counties. Given the presence of these karst zones and the potential presence of listed threatened and endangered species within the study area, coordination with USACE will continue during project design and permitting to ensure compliance with any necessary PCNs under the NWP program.

Field verification will likely be required to determine the presence of waters of the U.S. that would require permitting under the Section 404 program. If wetlands are cleared during construction of the proposed project, there should be no change in pre-construction contours or local drainage patterns, and wetlands should eventually re-establish within the ROW. Consistent with TPWD guidance (**Appendix A**), the location of the proposed project minimizes impacts to waterways, associated floodplains, riparian corridors, and wetlands, and maintains buffers to these features by minimizing fragmentation and utilizing/paralleling existing disturbed corridors where available. During the routing process, Kimley-Horn and Halff carefully considered the locations of the Little River, Willis Creek, Rocky Creek, Yancey Creek, Antelope Creek, Cherokee Creek, Clear Creek, the Colorado River, Gorman Creek, the San Gabriel River, and the San Saba River to minimize disturbance to these resources.

As required, Oncor and LCRA TSC will develop a SWPPP, which will detail measures to minimize impacts to surface waters during construction of the proposed project. Oncor and LCRA TSC will also comply with any compensatory mitigation requirements that may be required as part of the Section 404 permitting process. From a water resources perspective, the proposed project is anticipated to have minimal impacts on surface water.

7.3.2 Groundwater/Aquifer

Project construction, operation, and maintenance are generally not expected to adversely affect groundwater resources within the proposed project footprint or its vicinity but may have localized effects on individual springs or spring complexes. The project has the potential to impact the Edwards, Edwards-Trinity, and Trinity Aquifers if groundwater flowpaths are intercepted during bedrock excavation. Springs are present throughout the study area and are frequently noted on USGS topographic maps, indicating that groundwater is near the surface. Links E8, F20, K41, and M7 may intersect springs. Avoiding excavation near springs and implementing a groundwater

mitigation plan as part of BMPs should minimize the impacts of the project on groundwater resources and springs.

The portion of the study area in Williamson County overlaps the Edwards Aquifer, which is regulated by TCEQ. The project may impact aquifers by disturbing the recharge area of the aquifers. Based on the potential project footprint, the amount of recharge area disturbed by construction would be insignificant compared with the total amount of recharge area available for the groundwater systems in the region. Coordination with TCEQ and participation in the Edwards Aquifer Protection Program, if needed, is recommended to ensure compliance with the Edwards Aquifer Rule. No measurable alteration of aquifer recharge capacity is anticipated, and the likelihood of groundwater contamination is unlikely.

Clearing vegetation for the construction and post-construction maintenance of the project may affect groundwater quality and quantity of local springs by altering the local recharge potential, thereby impacting spring flow. These effects will be minimized by avoiding placement of towers near springs once the project is constructed and considering maintenance alternatives near springs following construction.

The main potential impact on groundwater resources from large construction projects is pollution resulting from the accidental spillage of petroleum or other chemical products or sedimentation from runoff or ground disturbance. Industry standard BMPs will be identified in the SWPPP, as required, and implemented during construction for proper control and handling of sediment, runoff, or any surface spillage. Oncor and LCRA TSC will take all necessary precautions to avoid the occurrence of sedimentation or spills. Therefore, the project is not expected to have a significant impact to groundwater resources within the study area.

7.4 Impact on Ecosystems

Oncor developed an HCP for Maintenance and Construction Activities which is used as a framework guide to promote consistency in environmental protection and the development of BMPs, and focuses specifically on the avoidance, minimization, and mitigation measures for threatened and endangered species or their habitats. Oncor's HCP was approved by the USFWS in 2011 under Section 10(a)(1)(B) of the Endangered Species Act (ESA) (Oncor, 2011). The HCP establishes a 30-year incidental take permit that authorizes Oncor to construct, operate, and maintain its transmission facilities across a defined 100-county permit area of Texas. The study area traverses 15 counties, seven of which (Bell, Burnet, Coryell, Lampasas, Miliam, Mills, and Tom Green) fall within the HCP permit area. Williamson County is included in Oncor's Service Area but not the permit area. The counties within the study area that are not included in the HCP are Concho, Llano, Mason, McCulloch, Menard, San Saba, and Schleicher.

The HCP identifies "covered species" which are federally listed species for which incidental take is authorized under the permit, and "species of special interest," which are species of conservation concern addressed through voluntary consideration of avoidance and minimization practices but

without take authorization. Oncor's obligations under the HCP apply only within the permit area, in locations where covered species or their habitats may be affected.

LCRA TSC developed an HCP for Maintenance and Construction Activities that was approved by the USFWS in 2019 under Section 10(a)(1)(B) of the ESA (SWCA, 2019). The HCP establishes a 30-year incidental take permit that authorizes LCRA TSC to construct and maintain its transmission facilities across a defined 241-county permit area of Texas. All counties traversed by the study area fall within the LCRA TSC HCP permit area.

LCRA TSC's HCP outlines specific avoidance, minimization, and mitigation measures within suitable or occupied habitat of 23 covered species, including 22 federally listed species and one species that was previously petitioned for listing. The HCP also includes 16 federally listed plant species occurring in portions of the permit area that overlap with covered species, for which LCRA TSC voluntarily implements avoidance and minimization practices.

Those portions of the project that may occur in Williamson County are subject to the Williamson County Regional HCP (Williamson County Conservation Foundation, 2008) which was similarly developed to outline avoidance and minimization measures and establish uniform mitigation options for development activities, including utilities, that might have an impact on threatened and endangered species. The Regional HCP authorizes take for four federally listed species. The Regional HCP became effective in October of 2008 and has a plan life of 30 years.

The proposed project will be implemented in smaller components, each reviewed during subsequent design and permitting phases to ensure that avoidance and minimization measures remain appropriate and practicable for site-specific conditions. Oncor and LCRA TSC will coordinate with the appropriate federal, state, and/or regional entities, as required, to address requirements of any applicable HCPs.

7.4.1 Vegetation

7.4.1.1 Terrestrial Vegetation

The construction and maintenance of the proposed transmission line will necessitate clearing woody and herbaceous vegetation within the ROW to facilitate access for structure installation, line stringing, and future maintenance. While efforts will be made to minimize impacts on existing groundcover, some vegetation removal is unavoidable. Additional clearing may also be required for temporary easements outside the ROW during construction. Future maintenance activities might include periodic mowing and/or herbicide applications to maintain an herbaceous vegetation layer within the ROW.

Table 7-2 (**Appendix E**) presents the length of different land cover types crossed by each of the alternative routes. As shown in the table, all alternative routes would require some clearing of woody vegetation associated with upland and riparian woodland communities. Similarly, riparian areas crossed by the alternative routes may also contain woody or shrub growth. Most riparian

areas are associated with crossings of the Colorado River, Little River, San Saba River, and South Concho River, and the numerous draws within the study area. The clearing of these communities could cause some degree of habitat fragmentation and will be limited to the minimum area necessary for access and construction. Existing rights-of-way and previously disturbed corridors will be used whenever feasible.

As discussed in **Section 3.5.1.1**, the predominant land cover types within the study area include shrubland, woodland, grassland, and riparian/wetland systems, followed by smaller areas of woodland, cropland, urban development, and open water. These upland and transitional communities provide structural and ecological diversity that supports soil stability, hydrologic balance, and wildlife connectivity. Construction of new linear facilities would require limited vegetation clearing and temporary and localized ground disturbance, potentially altering these functions at localized scales (TPWD, 2014b; Elliott, 2014). Below is a summary of potential impacts to each land cover.

Shrubland and grassland systems are susceptible to fragmentation, soil compaction, and invasion following disturbance, while barren and sparsely vegetated habitats—though low in apparent cover—often support dune- and wash-specialist species whose microhabitats can be disproportionately affected by surface disruption (TPWD, 2014b; Elliott, 2014). However, disturbance will be confined to the ROW and temporary work areas, and surrounding habitat will remain intact. Following construction, disturbed areas will be stabilized and allowed to revegetate naturally and/or restored through seeding with native forbs and grasses, where practicable. These communities typically recover rapidly through natural succession, and no long-term or landscape-scale impacts are anticipated.

Riparian corridors, associated with the Colorado River, Little River, San Saba River, and South Concho River, and local draws, provide essential bank stability, shading, and aquatic habitat connectivity; disturbance or canopy reduction along these systems can increase erosion, sedimentation, and thermal loading (Laurance & Yensen, 1991; TPWD, 2014b). Where crossings, as discussed in **Section 7.3.1**, are unavoidable, vegetation disturbance will be minimized through use of existing access points and dry construction methods. Any temporarily disturbed vegetation will be stabilized and allowed to recover following construction.

Woodland patches, though limited, may experience localized canopy loss and altered microclimates where clearing is required for structures or access (Fahrig, 2003; Haddad et al., 2015). Routing of the alternative links was conducted to minimize crossing woodlands, where possible.

Cropland and developed/urban land covers generally present lower ecological sensitivity than intact native classes; however, new edges adjoining native remnants can propagate invasive species and alter local drainage, so soil stabilization will remain important where these areas interface with native vegetation. Invasive species will be addressed as practicable through

standard vegetation management practices to support successful site stabilization and native revegetation.

As shown in **Table 7-2** (**Appendix E**), most of each alternative route crosses rangeland pasture. For areas of rangeland pasture crossed by alternative routes that are used for grazing, the project ROW might be temporarily unavailable for grazing during construction. The only land permanently lost to grazing would be that which is occupied by the base of the transmission line structures.

Vegetation impacts will be minimized through implementation of avoidance and minimization measures to reduce soil disturbance, preserving mature vegetation when practical, and promptly stabilizing disturbed areas using native seed mixes or existing groundcover, where practicable.

Erosion and sedimentation controls, including silt fencing, sediment logs, interceptor swales, and temporary seeding, will be used as appropriate to maintain soil stability and prevent sediment transport into adjacent habitats. Oncor and LCRA TSC will develop a SWPPP, as required, which will detail measures to minimize impacts to surface waters during construction of the proposed project. These practices will substantially reduce the extent and duration of vegetation disturbance. As a result, long-term effects on terrestrial vegetation are expected to be minor, with most areas expected to recover through natural succession and stabilization following construction.

Overall, effects to terrestrial vegetation would be minimized through proper vegetation management, and application of standard BMPs informed by the SWPPP, as required, TPWD recommendations (**Appendix A**), and Oncor and LCRA TSC HCPs, where applicable. Thus, adverse impacts to terrestrial vegetation are not anticipated.

7.4.1.2 Aquatic/Hydric Vegetation

Based on interpretation of aerial photography and topographic imagery (ESRI World Imagery Basemap, 2025; NAIP, 2024), as well as review of NWI maps (USFWS, 2025a), the approximate impacts associated with each of the alternative routes were measured in linear feet and miles. Potential wetlands occurring along the alternative routes generally correspond with riparian systems; however, NWI data provide only a generalized indication of potential wetland presence. Determination of jurisdictional status under the Clean Water Act requires a site-specific delineation assessing hydrophytic vegetation, hydric soils, and wetland hydrology in accordance with USACE protocols.

As indicated in **Section 7.3.1**, avoidance and minimization measures as it applies to aquatic and riparian areas began with the development of proposed alternative routes. Where crossings or disturbances of surface waters are unavoidable, the Oncor and LCRA TSC HCPs recommend minimizing channel and bank alteration, preserving natural flow patterns, and maintaining riparian vegetation to protect water quality and aquatic habitat integrity.

Construction activities within or adjacent to aquatic systems would employ temporary erosion and sediment controls, limit in-stream work to dry or low-flow conditions and ensure timely stabilization and revegetation of disturbed banks. These measures are designed to reduce degradation to the vegetation that supports aquatic habitats and are consistent with Section 404 permitting and the BMP standards outlined in the Oncor and LCRA TSC HCPs. Through implementation of BMPs during construction and consideration of HCP related conservation measures, adverse impacts to aquatic habitats and vegetation are expected to be minimal, localized, and recoverable. No long-term adverse effects on aquatic vegetation are anticipated.

7.4.1.3 Commercially or Recreationally Important Vegetation

As stated in **Section 3.5.1.3**, multiple agriculturally important plant species are known to occur within the study area. Temporary impacts to row and forage cropland areas are anticipated by the proposed project during the construction phase. However, once construction is completed, a full resumption of crop production is anticipated. In comparison with the size of the study area, the impacts from alternative route crossings of crop production should not be significant.

7.4.1.4 Endangered and Threatened Plant Species

As stated in **Section 3.5.1.4**, and **Table 3-8**, there is one federally listed plant species and one state listed plant species with potential to occur within the counties overlapped by the study area. The bracted twistflower is federally listed as threatened, and the rock quillwort is state listed as threatened. Additional information about potential project-related impacts to these species is provided below.

Federally Listed Threatened and Endangered Plant Species

Bracted Twistflower (*Streptanthus bracteatus*)

The bracted twistflower, a species federally listed as threatened, is known from open juniper-oak woodlands and shrublands including steep to moderate slopes and canyon bottoms. The species inhabits shallow calcareous soils over limestone in Tarrant, Brackett, or Speck over Edwards, Glen Rose, and Walnut geologic formations along the Balcones Escarpment. The populations flower in April and May, and the yearly population size fluctuates with winter rainfall.

Within the study area, portions of Williamson and Bell counties contain suitable limestone slopes and ledges consistent with suitable habitat for the species. Environmental Conservation Online System indicates that the species range is intersected by links F5, F24, G9, G11, G12, G71, G72, G73, G81 in Bell, Williamson and Burnet counties. Construction and maintenance activities associated with transmission line installation, including vegetation clearing, grading, structure placement, and vehicular movement, could compact or destabilize soils and disturb native vegetation, potentially impacting suitable habitat. Upon approval of a route by the PUCT, Oncor and LCRA TSC will coordinate with the USFWS to determine survey protocols, if necessary, and any project-specific mitigation measures to minimize potential impacts to this species. This could include avoidance, minimization, and mitigation measures as outlined in **Sections 7.4.1.1** and **7.4.1.2**.

State Listed Threatened and Endangered Plant Species

Rock Quillwort (*Isoetes lithophila*)

The rock quillwort is listed as threatened by TPWD and is endemic to granite and igneous outcrops in the Edwards Plateau region. The species grows in sand and gravel substrates in ephemeral pools during rainy seasons in unshaded basins. Many of the counties in the study area are situated within the Edwards Plateau and adjacent regions, in areas that contain suitable rock outcrop depressions that retain water seasonally or other shallow rock-bottomed basins that could support the species. There are historic observations of the species found within the study areas (EOIDs 3531, 5130, 6651, 6148). Construction and maintenance activities associated with transmission line installation, including sediment removal, grading, structure placement, vehicular movement, and alteration of rainwater runoff, could alter suitable rock outcrops or shallow rock basins, potentially impacting suitable habitat. Upon approval of a route by the PUCT, the proper avoidance, minimization, and mitigation measures as outlined in **Sections 7.4.1.1** and **7.4.1.2** will be implemented to protect the rock quillwort and its habitat to the extent feasible.

TPWD included several recommendations for plant species in its response letter (**Appendix A**). Construction within the ROW will be performed in such a manner as to minimize adverse impacts to vegetation by retaining existing ground cover and revegetating disturbed areas with native plant species whenever feasible. All brush and undergrowth within the ROW will be removed. Soil and plant conservation practices will be undertaken to protect native vegetation and ensure a successful restoration program for disturbed areas. These practices will emphasize native species, where possible, while considering landowner preferences and wildlife needs. Erosion and stream sedimentation will be controlled in accordance with procedures set forth in the SWPPP, as required.

7.4.2 Fish and Wildlife

7.4.2.1 Terrestrial Wildlife

The primary impact of construction activities on wildlife is expected to be habitat alteration from ROW vegetation clearing and associated ground disturbances. Increased noise and activity during construction may temporarily displace wildlife beyond the immediate work area. Short-term impacts from construction and long-term changes to habitat may occur; however, the overall wildlife impacts associated with transmission line corridors are usually minimal. Potential impacts are greatest where ROW intersects brushland pasture, riparian areas, or wetlands. These effects were considered during route development by paralleling existing ROW to the greatest extent practicable and will be furthered by implementing site-specific BMPs during construction. The terrestrial vegetation avoidance, minimization, and restoration measures described in **Section 7.4.1**, together with the soil and water protection measures outlined in **Sections 7.2.1** and **7.3**, respectively, will help reduce potential impacts on terrestrial fauna that depend on these habitats. Below is a summary of project-related impacts with respect to wildlife.

Species with low mobility, such as reptiles, amphibians, young birds, and small mammals, are more susceptible to impacts from machinery and ground disturbance. Nesting and young birds may be affected if vegetation clearing occurs within the breeding season, and burrowing species

may be impacted by soil compaction or excavation. More mobile species, such as deer, foxes, and other medium-sized mammals, would likely shift into adjacent habitats. The presence of similar vegetation types outside the ROW would minimize long-term effects. Native revegetation and routine vegetation maintenance can create edge habitat beneficial to some species (TPWD, 2025f).

Following construction, recolonization is expected as grasses, forbs, and shrubs are allowed to recover within the ROW area. Routine vegetation maintenance may cause some localized impacts, particularly if clearing coincides with the breeding season, but these effects are expected to be temporary. Increased light penetration following clearing can promote the growth of grasses and forbs, creating edge conditions that benefit some wildlife species (TPWD, 2025f).

Avian species are protected under the MBTA, which prohibits the take of migratory birds, active nests, and eggs except under a valid USFWS permit (U.S., 1918). To minimize impacts, clearing is recommended outside peak nesting season (March through August) or after nest abandonment (U.S., 1918). Birds that are less agile in flight, or those that travel in flocks, are more susceptible to collision with transmission lines (Avian Powerline interaction Committee [APLIC], 2012). These birds are less capable of maneuvering around obstacles. Use of line-marking devices, as recommended by the APLIC (2012), reduces the risk of collision. TPWD included several recommendations for avoidance of risks to bird species in its response letter (**Appendix A**). The project will be constructed in compliance with applicable state and federal wildlife regulations, including the MBTA, and consistent with the Oncor and LCRA TSC HCPs.

After construction is completed and grasses, forbs, and shrubs are allowed to recover, many forms of wildlife are anticipated to re-occupy the ROW area. Periodic vegetation maintenance within the ROW may temporarily cause some negative impacts to wildlife habitat. Maintenance clearing activities during the breeding season may destroy some nests and broods. With the increase in sunlight penetration to a previously dense shrub/tree stratum, more perennial forbs, and grasses would be expected to germinate. Such edge habitats are preferred by many species, such as the eastern cottontail rabbit (*Sylvilagus floridanus*), coyote, and scaled quail.

Transmission line structures could benefit some bird species, particularly raptors, by providing resting and hunting perches, especially in open treeless habitats (APLIC, 2012). Study area resident raptors, such as the American kestrel (*Falco sparverius*) and the red-tailed hawk (*Buteo jamaicensis*), often utilize the support structures as nesting sites, as well as hunting or resting perches. Transmission lines have increased raptor populations in some areas of the U.S. because of these benefits (APLIC, 2012). The danger of electrocution to birds would be insignificant since the distance between conductors, or between conductor and ground wire on the 765 kV transmission line, is greater than the wingspan of any bird in the area (i.e. greater than 8 feet). Also, it is Oncor and LCRA TSC's standard practice to install devices at appropriate locations to deter bird landings on the insulator between the conductor and structure. This standard practice is consistent with agency-recognized guidelines for minimizing bird collision risks (APLIC, 2012).

Temporary disturbance during construction is expected to diminish as habitats stabilize and revegetate, and wildlife use of the ROW is expected to return to pre-construction levels over time. With the implementation of the avoidance, minimization, and restoration measures described in this and preceding sections, with consideration of the TPWD response letter and the measures outlined in Oncor and LCRA TSC's HCPs, no significant long-term impacts to terrestrial wildlife are anticipated.

7.4.2.2 Fish and Aquatic Wildlife

Potential impacts to aquatic systems with the construction of transmission lines involve mainly the effects of increased erosion and sedimentation. Land clearing and/or construction may result in increased suspended solids entering streams traversed by the transmission line, which in turn may negatively affect many aquatic organisms that require relatively clear water for feeding and/or reproduction. The proposed project would span aquatic features such as lakes, streams, and ponds, and erosion controls would be utilized to minimize any impacts to aquatic systems. In evaluating impacts to aquatic systems, factors taken into consideration include the amount of potential wetlands crossed, the amount of ROW within 100 feet of streams, the number of stream crossings, and the amount of open water crossed.

Physical habitat loss or modification could result whenever temporary access roads cross a perennial stream, or through sedimentation due to erosion, increased suspended solids loading, or accidental petroleum spills directly into a stream. The primary aquatic ecosystems that could be directly affected by the proposed project are the Leon River, Colorado River, Lampasas River, San Saba River, and South Concho River tributary networks, the few seasonally flooded reaches of their larger tributaries, and the scattered man-made ponds within the study area. No alternative route links are proposed to cross Lake Belton, Stillhouse Hollow Lake, Granger Lake, Lake Buchanan, or Brady Reservoir, or other major lakes within the study area.

Water quality degrades as a result of particulate loading caused by construction within stream beds, by clearing of riparian vegetation, and by siltation from erosion in newly disturbed areas. Particularly sensitive in this respect are gravel, riffle, and sand bottom habitats. Blanketing of these areas by fine sediments could eliminate habitats important for fish spawning, resident benthic invertebrates, the aquatic nymphal stages of dragonflies, mayflies and caddisflies, and freshwater mussels. These impacts would be largely, if not completely, prevented through the use of appropriate industry-standard construction techniques. No heavy equipment will operate in flowing stream segments, and it is anticipated that temporary road crossings of stream features within the project area will not be required. In addition, implementation of the SWPPP, as required, would further minimize any potential impacts to aquatic communities. As outlined in **Section 7.3.1**, alternative routes may cross some open water associated with the spanning of the Colorado River, San Saba River, Little River, Rocky Creek, and Willis Creek, which may require consideration of the flow regime during construction. Routing efforts have been implemented to minimize the amount of stream impacts by attempting to span streams at a perpendicular angle in many cases, thereby minimizing the amount of stream habitat affected.

Site-specific evaluations will be performed if potential karst features, springs, and aquatic resources intersect the ROW. Impacts to aquatic habitat are expected to be minimal and localized through the use of appropriate industry-standard construction techniques and measures as outlined in Oncor and LCRA TSC's HCPs. No heavy equipment will operate in flowing stream segments, and it is anticipated that temporary road crossings of perennial stream features within the project area will not be required. In addition, implementation of the SWPPP, as required, would further minimize any potential impacts to aquatic communities.

Overall, the proposed project is not expected to adversely affect regional aquatic communities or habitat availability within the study area. Effects will be temporary and confined to the immediate construction footprint, and disturbed areas will naturally recover following completion of work. In consideration of avoidance measures used to plan and construct the proposed project, no significant impacts to aquatic wildlife are anticipated.

7.4.2.3 Commercially or Recreationally Important Fish and Wildlife Species

Construction of the proposed project would not adversely impact commercially or recreationally important species occurring within the study area. Game species are highly mobile and will most likely temporarily abandon the area during project construction. As mentioned in **Section 7.4.1.2**, impacts to aquatic habitat would be minimal, thereby minimizing any impacts to fish in the study area.

7.4.2.4 Endangered and Threatened Fish and Wildlife Species

An evaluation of USFWS and TPWD data identified 24 threatened, endangered, proposed, or candidate wildlife species with the potential to occur within the larger study area based on known ranges and the presence of suitable habitat (**Table 3-9** in **Section 3.5**). The identification of suitable habitat does not indicate that these species would be affected by the proposed project or any of the alternative routes, as routing considerations were made to avoid, minimize, or span sensitive habitat areas, as described in preceding sections. Potential effects to listed species will be further evaluated following PUCT approval of a route and the project advances through final design and construction planning. Species are discussed by federal/state regulatory jurisdiction and terrestrial/aquatic habitat type.

Federally Listed Threatened and Endangered Terrestrial Species

Review of USFWS (2025b) data identified nine terrestrial wildlife species that are federally listed or proposed for listing that may have suitable habitat within counties intersecting the study area (**Table 3-9**). These species occupy riparian and upland woodlands, aquatic fringe, desert scrub, grasslands, and cliff habitats. Construction activities, such as vegetation clearing, daily construction traffic, and the finished project, could affect these species. Below is a description of the nine federally listed terrestrial wildlife species with the potential to occur in the study area.

Bone Cave Harvestman (*Texella reyesi*) and Coffin Cave Mold Beetle (*Batrisodes texanus*)

The Bone Cave harvestman and Coffin Cave mold beetle are federally endangered troglobitic species with the potential to occur within the study area. These species inhabit caves, voids, and

interstitial spaces within the North Williamson County KFR in Williamson County. The thermally stable subterranean habitat required by these species face destruction, degradation, and fragmentation predominately resulting from increased rates of urban development within their limited range. These karst habitats are highly sensitive to disturbance, as they take millions of years to form and are unable to be recreated once they are impacted. These habitats may not have surface expression and are only discovered during construction or clearing. Project activities that involve ROW clearing, surface grading, and construction activities could impact karst features within the study area and reduce or destroy available karst habitat.

Following PUCT approval of a final route, Oncor and LCRA TSC will coordinate with USFWS to establish survey protocols and mitigation measures, if necessary, where suitable habitat is identified. In situations where impacts to the species may be unavoidable, additional BMPs and measures as recommended by the Williamson County Regional HCP and TPWD in their response letter (**Appendix A**), may be considered to minimize impacts where possible.

These recommendations in conjunction with vegetation-based avoidance, minimization, and mitigation measures as outlined in **Sections 7.2.1**, **7.3.1**, **and 7.3.2**, will protect these karst species and their habitat to the extent feasible.

Black Rail (*Laterallus jamaicensis*), Piping Plover (*Charadrius melod*us), Rufa Red Knot (*Caladris canutus rufa*), and Whooping Crane (*Grus americana*)

The black rail, piping plover, rufa red knot, and whooping crane are federally protected bird species with potential to occur in or near the study area. These species occupy diverse habitats ranging from marshes and riparian woodlands to open grasslands and shorelines, several of which correspond to environmental conditions documented within the study area. The black rail (threatened), which inhabits marshes, wet meadows, and grassy swamps, may occur in Bell, Lampasas, and Williamson counties, where seasonally and permanently flooded wetlands may provide suitable habitat. The piping plover (threatened) may occur in Bell and Williamson counties, where inland reservoirs and open shoreline habitats provide potential migratory stopover areas, while the rufa red knot (threatened) may also occur in Bell and Williamson counties, using similar shoreline or mudflat habitats during migration. The whooping crane (endangered) migrates through a broad corridor that includes Bell, Burnet, Lampasas, San Saba, and Williamson counties, where larger wetland complexes near larger reservoirs, lakes, and flooded fields may provide temporary roosting or foraging sites.

The USFWS IPaC notes that impacts for the piping plover and rufa red knot need only be addressed for wind energy projects. Nonetheless, transmission line routing avoids many of the aquatic habitat types used by these two species, as well as habitat used by the black rail and whooping crane during stopovers. Through implementation of avoidance, minimization, and mitigation measures outlined in **Section 7.4.2.1**, impacts to the black rail, piping plover, rufa red knot, and whooping crane are expected to be avoided or minimized to the extent practicable.

Golden-cheeked Warbler (*Setophaga chrysoparia*)

The golden-cheeked warbler breeds in mature juniper–oak woodlands which is common to the eastern portion of the study area in Bell, Burnet, Lampasas, Mason, San Saba, and Williamson counties, where mixed woodland habitat consistent with the species' nesting requirements is present. The species is federally listed as an endangered species primarily due to the removal, modification, and fragmentation of essential Ashe juniper-oak woodland habitat throughout its breeding range. The species migrates from Central America and the highlands of southern Mexico to central Texas from March to April where it breeds exclusively in the mixed Ashe juniper and deciduous woodlands of the Edwards Plateau ecoregion of Texas. Project activities such as ROW clearing, construction activity, and noise within breeding and foraging habitats could displace individuals during migration, reduce available nesting areas, or cause nest abandonment if activities take place during the breeding season. To minimize potential impacts to the species, routing considered wooded and riparian areas and paralleled existing corridors where possible to minimize habitat fragmentation effects.

Following PUCT approval of a final route, Oncor and LCRA TSC will coordinate with USFWS to establish survey protocols and mitigation measures, if necessary, where suitable habitat is identified. In situations where impacts to the species are unavoidable, additional BMPs, as recommended by the Oncor and LCRA TSC HCPs and TPWD in their response letter (**Appendix A**), may be considered to minimize impacts where possible. When impacts to the species are unavoidable or cannot be minimized sufficiently, additional mitigation may be required prior to construction activities taking place by purchasing credits from a USFWS-approved golden-cheeked warbler conservation bank or contributing funds to a USFWS-approved third-party conservation program. Through the implementation of these avoidance, minimization, and mitigation measures and coordination with the USFWS, the project will minimize potential impacts to the golden-cheeked warbler.

Monarch Butterfly (*Danaus plexippus plexippus*)

The monarch butterfly is proposed for federal listing as threatened due to widespread population declines linked to habitat loss, herbicide and pesticide use, and climate variability along its migratory pathway. Monarchs depend on milkweed (*Asclepias* spp.) for larval development and require diverse nectar sources during migration. Although some areas in the western U.S. maintain monarch populations year-round, the study area lies within the central flyway for migration and contains grassland and cropland habitats where host (milkweed) and nectar plants may be found throughout the study area providing potentially suitable stopover habitat during spring and fall migrations. ROW vegetation management, including mowing and herbicide application, could reduce milkweed availability where present. USFWS and TPWD guidance recommends restoring disturbed areas with native seed mixes that include nectar-producing plants, and avoiding herbicide use in sensitive areas. They also recommend that construction and maintenance scheduling should also account for and avoid peak migration periods as practical.

Consideration of these recommendations, in conjunction with vegetation-based avoidance, minimization, and mitigation measures as outlined in **Sections 7.3.1** and **7.4.1.1** will protect the monarch butterfly and its habitat to the extent feasible. While this species is not currently protected

by the ESA as a listed species, the avoidance, mitigation, and minimization measures recommended herein would reduce impacts to the species. If the monarch butterfly were to be listed before completion of the project, coordination with the USFWS may be necessary.

Tricolored Bat (*Perimyotis subflavus*)

The tricolored bat is proposed for federal listing as endangered due to severe population declines associated with white-nose syndrome and other stressors. In Texas, tricolored bats may roost year-round in tree foliage, cavities, bark, bridges, culverts, and abandoned structures. Within the study area, forested and riparian habitats, scattered tree cover, and manmade structures throughout the study area may provide suitable roosting opportunities, while foraging typically occurs along woodland edges, and over open water. Project impacts may include the loss of roosting habitat from vegetation clearing, disturbance to roosts, and temporary displacement from construction noise and vibration. The tricolored bat is typically active in Texas from approximately April through October, with maternity activity generally occurring between April and August. While this species is not currently protected by the ESA as a listed species, state and federal regulatory agencies may still require avoidance and mitigation measures to minimize the potential effect to the species. Upon approval of a route by the PUCT, Oncor and LCRA TSC will coordinate with the USFWS to determine survey protocols, if necessary, and other appropriate mitigation measures.

State Listed Threatened and Endangered Terrestrial Species

Review of TPWD (2025b) data identified six terrestrial wildlife species that are state-listed within the counties intersecting the study area (**Table 3-9**). These species include birds and reptiles which occupy riparian and upland woodlands, aquatic fringe, desert scrub, grasslands, and cliff habitats. Coordination for state-listed terrestrial species will occur through TPWD's Wildlife Habitat Assessment Program (WHAB), which provides recommendations for survey needs, avoidance measures, and conservation practices under the broader Wildlife Diversity Program and Texas Conservation Action Plan (TCAP).

Interior Least Tern (*Sternula antillarum anthalassos*), White-Faced Ibis (*Plegadis chihi*), Wood Stork (*Mycteria americana*)

The interior least tern is a state-listed endangered species that breeds on sparsely vegetated sandbars or gravel bars, shorelines along rivers and reservoirs with limited human disturbance, man-made structures such as wastewater treatment plants, and gravel pits. Within the study area, suitable habitat for the interior least tern may occur in Bell, Burnet, Lampasas, Tom Green, and Williamson counties. The white-faced ibis is a state-listed threatened species that forages and nests in freshwater and brackish marshes, flooded pastures, and shallow wetlands with emergent vegetation. Habitat suitable for this species may occur throughout the study area in Bell, Burnet, Concho, Lampasas, Mason, McCulloch, Menard, San Saba, Schleicher, Tom Green, and Williamson counties, in areas where seasonal wetlands, stock ponds, and intermittently flooded areas provide foraging or migratory stopover opportunities. The wood stork is a state-listed threatened species that utilizes shallow freshwater wetlands, flooded pastures, ponds, and riparian areas for foraging and roosting. Within the study area, suitable habitat for the wood stork may occur in Bell and Williamson counties.

Project related vegetation clearing, construction near riparian corridors, or disturbance during the breeding season (generally March-August) could result in nest abandonment, reduced productivity, or loss of foraging habitat. Indirect effects may also include reduction of prey and roosting opportunities from vegetation removal. Avoidance, minimization, and mitigation measures as outlined in **Sections 7.3.1**, **7.4.1.1**, **7.4.1.2**, and **7.4.2.1** would serve to protect these species and their associated habitat to the extent feasible.

Zone-Tailed Hawk (*Buteo albonotatus*)

The zone-tailed hawk is a state-listed threatened species that breeds in rugged canyonlands, riparian woodlands, and the arid hill country. This species typically nests in tall trees along drainages or on cliffs within the Edwards Plateau and Trans-Pecos regions. Within the study area this species is likely to occur within Burnet, Lampasas, Mason, and San Saba counties, particularly in areas with access to the available riparian corridors that intersect it. Potential impacts from project activities include vegetation clearing, construction near riparian corridors, or disturbance during the breeding season could result in nest abandonment, reduced productivity, or loss of foraging habitat. Indirect effects may also include reduction of prey and roosting opportunities from vegetation removal. Avoidance, minimization, and mitigation measures as outlined in **Sections 7.3.1**, **7.4.1.1**, **7.4.1.2**, and **7.4.2.1** would serve to protect this species and its associated habitat to the extent feasible.

Black Bear (*Ursus americanus*)

The black bear is a state-listed threatened species that typically inhabits the remote canyons, riparian corridors, and wooded uplands of west and southwest Texas. This species also occurs occasionally to the east in the Edwards Plateau, particularly along the wooded riparian corridors of the San Saba and Concho Rivers. Within the study area, this species may occur within Concho, Mason, McCulloch, Menard, Schleicher, and Tom Green counties. Project impacts may include loss of foraging habitat from vegetation clearing and temporary displacement (species is large and mobile) from construction noise.

Texas Horned Lizard (*Phrynosoma cornutum*)

The Texas horned lizard is a state-listed threatened species due to declines associated with habitat loss, introduction of invasive grasses, and the reduction of harvester ant populations, a primary food source. It may occupy grasslands and rangeland pasture habitats throughout the study area.

Within the study area, the species is known to inhabit Bell, Burnet, Concho, Lampasas, Mason, McCulloch, Menard, San Saba, Schleicher, Tom Green and Williamson counties. Potential impacts from project activities include direct mortality from vegetation clearing or vehicle traffic, soil compaction in sandy areas, and degradation of native vegetation communities that support harvester ants. Indirect impacts may result from invasive species establishment or fire ant expansion following disturbance. TPWD recommends the use of a biological monitor during construction, or alternative measures to allow observed species to vacate areas during construction, and special construction provisions during cold weather (**Appendix A**). Other

avoidance, minimization, and mitigation measures related to vegetation and wildlife outlined in **Sections 7.4.1.1**, **7.4.1.2**, and **7.4.2.1** would further minimize potential effects to this species.

Federally Listed Threatened and Endangered Aquatic Species

Review of USFWS (2025b) data identified six aquatic species that are federally listed or proposed for federal listing within the counties intersecting the study area (see **Table 3-9** in **Section 3.5**). These include species restricted to spring-fed systems, intermittent, and perennial river reaches of the Brazos and Colorado River basins. As noted herein, transmission line routing carefully considered approaches to stream corridors and all stream crossings will be spanned without the placement of any structures within the channel. Following PUCT approval of a final project route, coordination with USFWS will occur to determine survey protocols and conservation measures where habitat is identified.

Salado Springs Salamander (*Eurycea chisholmensis*)

The Salado Springs salamander is a federally and state-listed aquatic salamander species known to inhabit Bell and Williamson counties within the study area. This species inhabits wetted caves, groundwater-fed springs, seeps, and spring runs associated with the Northern Segment of the Edwards Aquifer. These species require habitats with stable water chemistry and temperature, substrate and flow regime. Multiple designated critical habitats for the Salado salamander are present within the study area. Link F04 abuts an USFWS CHU for the Salado Springs salamander. Parts of the study area are underlain by the Northern Segment of the Edwards Aquifer and contain spring-fed features or aquatic karst features that could provide conditions consistent with suitable habitat for this species.

Potential project impacts to these species and their habitats include sedimentation or polluted water input into the aquifer or surface habitats or altered hydrology from construction activities. Aquatic-based avoidance, minimization, and mitigation measures as outlined in **Sections 7.3.1** and **7.4.2.2**, as well as recommendations outlined by TPWD (**Appendix A**) may be followed as necessary to protect the Salado Spring Salamander and associated habitat to the extent feasible. Further coordination with USFWS will occur, as appropriate.

Clear Creek Gambusia (*Gambusia heterochir*)

The Clear Creek gambusia is a federally and state-listed fish species that occurs in the impounded headwater springs of Clear Creek, a tributary of the San Saba River in Menard County. The species is associated with clear, constant-temperature spring water with a low pH and dense aquatic vegetation. Outside of this localized area, suitable habitat is not expected to occur. Although Clear Creek is located within the study area, none of the proposed alternative routes intersect Clear Creek, thus impacts are not anticipated for this species.

Balcones Spike (*Fusconaia iheringi*), Texas Fatmucket (*Lampsilis bracteate*), Texas Fawnsfoot (*Truncilla macrodon*) and Texas Pimpleback (*Cyclonaias petrina*)

The Balcones spike, Texas fatmucket, Texas fawnsfoot, and Texas pimpleback are federally and state-listed mussels occurring in the perennial streams, tributaries, and major waterways associated with the wetlands and open waters of the Colorado River basins. They inhabit sand,

gravel, silt, mud, and cobble substrates in flowing water, where they depend on stable flow regimes and clean substrates. In Bell, Burnet, Concho, Coryell, Lampasas, Llano, Mason, McCulloch, Menard, Milam, Mills, San Saba, Schleicher, Tom Green, and Williamson counties, perennial reaches, tributaries, and waterways of the Colorado River and San Saba River may support suitable mussel habitat. Potential project impacts include sedimentation and erosion from construction near waterways, substrate disturbance from in-channel work, and localized alterations to flow.

USFWS CHUs for federally listed freshwater mussel species occur along portions of the San Saba River and Colorado River and are intersected by several project links, as shown in **Table 7-4**.

Table 7-4: USFWS Critical Habitat Units Crossed by Alternative Route Links

Species	Waterbody	Link	County
Balcones spike	San Saba River	V1	San Saba
		V2	
Texas fatmucket	Cherokee Creek	J11	San Saba
		J27	
	San Saba River	K51	San Saba
		K61	McCulloch
		L1	
		L4	
		M33	Menard
		P41	
		P42	
Texas fawnsfoot	Lower San Saba River	V1	San Saba
		V2	
Texas pimpleback	Upper San Saba River	M33	Menard
		P41	
		P42	
	Lower San Saba River	V1	San Saba
		V2	
	Upper Colorado River	U2	San Saba/Lampasas
		U3	

Source: USFWS, 2025b

Aquatic-based avoidance, minimization, and mitigation measures as outlined in **Sections 7.3.1** and **7.4.2.2**, as well as recommendations outlined by TPWD (**Appendix A**) will be considered as necessary to protect the mussel species and their habitat to the extent feasible. TPWD recommends the use of BMPs for riparian areas such as spanning water features, the use of double silt fences, and doubling soil stabilization measures along the banks of streams and rivers that may support the species. In areas where stream crossings disturbances are unavoidable,

Oncor and LCRA TSC will coordinate with USFWS and TPWD to determine appropriate survey protocols and mitigation measures, as required. If Section 404-regulated activities occur in waters where these species may occur, coordination with USACE Fort Worth district would occur to address PCN requirements under the NWP program and Section 7 (of the ESA) consultation measures with the USFWS.

State Listed Threatened and Endangered Aquatic Species

Review of TPWD (2025b) data identified three aquatic species that are state-listed within the counties intersecting the study area (see **Table 3-9** in **Section 3.5**). These include fishes associated with the Brazos and Colorado Rivers and spring-fed tributaries. Consideration for state-listed aquatic species will occur through TPWD's WHAB Program, if necessary, which provides recommendations for survey needs, avoidance measures, and conservation practices under the broader Wildlife Diversity Program and TCAP.

Brazos Heelsplitter (*Potamilus streckersoni*)

The Brazos heelsplitter is listed as threatened by TPWD and is endemic to the Brazos River drainage. The species can be found in perennial streams, tributaries, large rivers, and reservoirs. Nearshore habitats with soft substrates and low-velocity flow may be consistent with suitable habitat for this species

Within the study area, Bell, Burnet, Lampasas, and Williamson counties are within the Brazos River drainage. Portions of the study area within these counties contain the Little, Leon, Lampasas, and San Gabriel systems that contain physical and hydrologic conditions consistent with suitable habitat for this species. Potential project impacts include sedimentation and erosion from construction near waterways, substrate disturbance from in-channel work, and localized alterations to flow. Aquatic-based avoidance, minimization, and mitigation measures as outlined in **Sections 7.3** and **7.4.2.2** would serve to protect the Brazos heelsplitter and associated habitat to the extent feasible.

Chub Shiner (*Notropis potteri*)

The chub shiner is a small fish listed as threatened by TWPD that could occur in any number of streams in the Colorado River Basin that provide permanent or seasonal flowing water over a silt or sand substrate. Potential project impacts include sedimentation and erosion from construction near waterways, substrate disturbance from in-channel work, and localized alterations to flow. Aquatic-based avoidance, minimization, and mitigation measures as outlined in **Sections 7.3** and **7.4.2.2** would serve to protect the chub shiner to the extent feasible.

Clear Creek Amphipod (*Hyalella texana*)

The Clear Creek amphipod is listed as threatened by TPWD and is a crustacean found within a single spring system within the Edwards Aquifer region. The species was discovered in the Clear Creek spring system in Menard County where it occupies saturated voids and groundwater discharge zones associated with headwater springs. Clear Creek is located within the study area, however none of the proposed alternative routes intersect this system, and impacts are not anticipated for this species. Although the species has not been found in any other counties within

the study area, the spring system may be connected to nearby discharge zones and should be considered if constructing near Clear Creek. Outside of this localized area, suitable habitat is not expected to occur. Aquatic-based avoidance, minimization, and mitigation measures outlined in **Sections 7.3.1**, **7.4.1.1**, **7.4.1.2**, and **7.4.2.1** will be followed to protect the Clear Creek Amphipod to the extent feasible

Species of Greatest Conservation Need

Many of the SGCN species listed in **Table 3-10** are highly mobile and would disperse during construction activities. These species include the larger mammals, bat species, and migratory bird species, many of which may utilize transitions between grasslands or open rangelands and forested areas for foraging or movement. The black-capped vireo was delisted from the federal endangered species list in 2018. Recorded EOIDs within the study area are consistent with areas where the golden-cheeked warbler has been recorded and may still be subject to provisions of Oncor's HCP. Reptiles and amphibians listed in **Table 3-10** could potentially be impacted by construction of the transmission line due to ground disturbance. These species are less likely to avoid construction activities. However, impacts to these species would be short-term and limited to the construction phase of the proposed project.

Several of the SGCN listed in **Table 3-10** may be associated with karst and cave environments and may occur in proximity to habitats occupied by federally or state-listed karst invertebrates and other karst-dependent species. Project activities that involve ROW clearing, surface grading, and construction activities could impact karst features within the study area and impact available karst habitat. The karst-associated SGCN species listed in **Table 3-10** are not individually covered under the Oncor and LCRA TSC HCPs. Minimization and mitigation measures for federally-listed species covered by the Williamson County Regional HCP would apply to similar environments for karst-associated SGCN species. Agency coordination and BMP measures that may be required for the Bone Cave Harvestman and Coffin Cave mold beetle would serve these species. Any impacts to karst SGCN are anticipated to be minor, localized, and limited to the construction phase of the proposed project.

The black-tailed prairie dog (*Cynomys ludovicianus*) and Llano pocket gopher (*Geomys texensis llanensis*) are ground-dwelling mammals with potential to occur within the proposed project. Ground disturbance during construction could temporarily displace these species, collapse existing burrows, or reduce access to shelter. With the implementation of avoidance measures and rapid post-construction stabilization, any impacts are expected to be short term and limited to the construction phase of the project.

Fish and mollusk species listed in **Table 3-10** are limited to very specific aquatic habitats that can be easily avoided during construction and mitigated through implementation of BMPs related to aquatic habitats and vegetation as referenced in **Sections 7.3.1**, **7.4.1.2**, and **7.4.2.2**.

As mentioned in **Section 3.5.2.4**, the BGEPA prohibits anyone without a permit issued by the Secretary of the Interior from "taking" bald eagles or golden eagles, including their parts, nests, or eggs. Based on recent aerial photography (ESRI World Imagery Basemap, 2025; NAIP, 2024)

and the site visits, the study area has the potential to exhibit habitat for the golden eagle. Data provided by TPWD indicates that there are no known golden eagles or golden eagle nests within the study area.

As discussed in **Section 3.5.2.4**, no bald eagles, bald eagle nests, or habitat for bald eagles were observed within the study area; therefore, the proposed project is not anticipated to impact this species. However, in the unlikely event that a bald eagle or a bald eagle nest is observed during construction activities, coordination with USFWS would occur, and appropriate buffers may be required to be established (USFWS, 2007).

Endangered, threatened, or SGCN species listed in **Tables 3-8** through **3-10,** but not mentioned in this section, are unlikely to occur within the proposed project. These species are unlikely to be impacted by the construction and operation of the proposed project.

7.5 Summary of Natural Resources Impacts

Natural resources in the study area have been evaluated to determine the potential ecological impacts of the proposed project. For the proposed project, potential natural resource impacts included potential impacts to vegetation and wildlife. Although all alternative routes have the potential to impact natural resources, none of the alternative routes for the proposed project are anticipated to have any significant impacts to the natural resources of the area.

Given the project's large geographic extent and variable ecological conditions, the environmental constraints identified in this EA will be re-evaluated prior to construction once a route is approved by the PUCT using the most recent EOID data, updated habitat mapping, and field verification methods. This review will also consider the timing and sequencing of construction activities and apply guidance from the Oncor and LCRA TSC HCPs. Such adaptive review will help determine whether additional coordination, species-specific surveys, or BMPs are warranted to ensure continued protection of sensitive resources.

7.6 Impacts on Community Values and Community Resources

Impacts on community resources, whether direct or indirect, can be more accurately gauged as they affect recreation areas, recreational resources, or aesthetics. Community resources can be impacted by either direct effects resulting in the removal of a valued resource or indirect effects resulting from a loss in the enjoyment or use of the resource due to characteristics (primarily aesthetic) of the proposed project. The following sections discuss impacts to community values and community resources.

7.7 Land Use Impacts

Land use impacts from transmission line construction are determined by the amount of land (of any use) displaced by the actual ROW and by the compatibility of electric transmission line ROW with adjacent land uses. During construction, temporary impacts to land uses within the ROW could occur due to the movement of workers and materials through the area. Noise and dust from

construction, as well as disruption of traffic flow, may also temporarily affect residents and businesses in the area immediately adjacent to the ROW. Coordination between Oncor, LCRA TSC, its contractors, and landowners regarding access to the ROW and construction scheduling should minimize these disruptions. Most existing land uses may continue during construction.

The primary factors for measuring potential land use impacts from the proposed project include proximity to oil and gas wells, proximity to habitable structures, and length parallel to existing corridors, as discussed below.

7.7.1 Urban/Residential Areas

Important measures of potential land use impacts include the number of habitable structures and their proximity to each alternative route. As instructed in the CCN application, Kimley-Horn and Halff identified and listed the number and distance of habitable structures located within 500 feet of the centerline of each alternative route through interpretation of aerial imagery (ESRI World Imagery Basemap, 2025; NAIP, 2024) and verification during field reconnaissance, where practical. To account for photographic interpretation limitations such as shadows, tree canopies, and horizontal accuracy of the photography, Kimley-Horn and Halff identified all habitable structures within a measured distance of 520 feet of any alternative route link. The number of habitable structures spatially related to nearby routes and links are documented in **Table 7-2** and **Table 7-3** (**Appendix E**), respectively. The distance from the link centerline to each listed habitable structure and a general description of each habitable structure is provided in **Table 7-5** (**Appendix F**). **Figures 3-1A** through **3-1I** (**Appendix G**) show identified and listed habitable structures within 520 feet of any link on the routing constraints maps. Listed habitable structures include a mixture of single-family residences, mobile living units, and barn/garage/shed facilities that could be occupied on a regular basis. Habitable structure measurements reflect conditions that were confirmed from aerial reconnaissance as of October 2025.

PUCT Substantive Rules Section 25.101(b)(3)(B) requires, among other things, the PUCT to consider whether new transmission line routes parallel existing compatible ROW, property lines, or other natural or cultural features when selecting a route. For the proposed project, the length of alternative routes parallel to existing compatible ROW (including apparent property boundaries and transmission lines) ranges between 29 to 53 percent of the total route length. Pipelines were not considered compatible corridors and were not calculated in the route length parallel to compatible ROW.

7.7.2 Recreation Areas

Parks and recreation areas are identified as areas owned by a governmental body or an organizational group, club, or church. Potential impacts to recreation areas include the disruption or preemption of recreation activities. Given the large size of the study area, numerous park and recreation areas of varying shapes (e.g., linear, irregular), type (e.g., Texas State Parks, trails, town/city park areas, wildlife management areas, golf courses, and public use areas), and size are located in proximity to the proposed project. Although no alternative route links are proposed

to cross parks or recreation areas, several links are located within 1,000 feet of park and recreation areas and are documented in **Table 7-6** (**Appendix F**).

In addition to Hidden Springs Preserve, several other conservation easements are located within 1,000 feet of the alternative route links (NCED, 2025). Link G42 (approximately 4,460 feet) is the only alternative route link that is proposed to cross a conservation easement. Records show that the conservation easement being crossed, a portion of SO3 Ranch (Tracts 2014-2017 in Burnet County on **Figure 3-1B**), is managed by the Texas Agricultural Land Trust and has private ownership. A review of aerial imagery (NAIP, 2024) suggested that this area is not used for recreational purposes. Therefore, this crossing is not represented as park or recreational area in **Table 7-2** and **Table 7-3** (**Appendix E**), or **Table 7-6**. Other conservation easements in the NCED database located within 1,000 feet of the alternative route links are also privately owned and do not provide public recreational access or associated facilities; therefore, they are also not included in **Table 7-2** and **Table 7-3** (**Appendix E**), or **Table 7-6**.

As noted by TPWD (**Appendix A**), Texas Parks and Wildlife Code Chapter 26 states that before a state agency can approve any project that will result in the use or taking of public land designated and used as a park, public recreation area, wildlife refuge, or historic site, the state agency must provide notices to the public, conduct a hearing, and demonstrate that no feasible or prudent alternative exists. Additionally, the project must incorporate all reasonable planning to minimize harm to the property. TPWD also provided detailed comments regarding its evaluation and assessment of the potential impact of various preliminary route links on Texas State Parks and other TPWD property in and near the study area (**Appendix A**). The proposed project will not result in the conversion of any parkland, recreation area, wildlife refuge, or historic area. Adverse impacts to parks and recreation areas and their purposes are not anticipated as a result of the proposed project.

7.7.3 Agriculture

Impacts to agricultural lands can be ranked by potential impact. Transmission line projects have a lower impact on grazing areas and a higher impact on cropland. Given that agriculture is one of the predominant land uses within the study area, the alternative routes cross a substantial length of agricultural land (pasture and range land). Because Oncor and LCRA TSC will not fence the ROW for the proposed project or otherwise separate the ROW from adjacent lands, there would be no long-term or significant displacement of farming or grazing activities. Most existing land uses may be resumed following construction. As depicted on **Figures 3-1A** through **3-1I**, five mobile irrigation systems scattered throughout the study area are crossed by alternative route links G44, U6, J27, J33, and K61. Routing attempted to span these mobile irrigation systems by placing supporting structures in areas with no disturbance to the mobile irrigation system. Therefore, adverse impacts to these areas will be avoided. Furthermore, no above-ground mechanical components (e.g., windmills or water troughs) will be adversely affected as a result of the proposed project.

7.7.4 Industry

As discussed in **Section 3.7.4**, educational services, health care, and social assistance are prevalent throughout the study area. These industries are largely concentrated in urban centers that are not near the alternative route links and are therefore not anticipated to be affected by the proposed project. Numerous oil and gas facilities are located within the study area consisting of well locations, pipelines, electric lines, and other associated above-ground appurtenances. No known oil or gas well locations will be crossed by any alternative route for the proposed project. Where feasible, Oncor and LCRA TSC attempted to cross existing pipelines and electric transmission lines at a right angle. Construction of the proposed project will have no significant adverse impacts to oil and gas infrastructure that may be crossed by an alternative route.

Wind turbines and solar power facilities were identified within the study area. No wind turbines within the study area will be crossed by any alternative route. Solar farms are common and expansive near Bell County East Switch. Approximately 1,400 feet of Link A2 would cross a solar panel array west of the switch and would require removal of the panels within the ROW.

7.7.5 Aesthetics

Aesthetic impacts exist when structures alter the character of the existing visual environment. The impact to this resource is related to the quality of the view, in the case of natural scenic areas. In the case of valued community resources and recreation areas, the significance of the impact is related to the existing use of the area.

Construction of the proposed project could have temporary and permanent aesthetic effects. Temporary impacts would include the assembly and construction of the structures. Where vegetation is cleared, the brush debris could have a negative impact on the local visual environment. Permanent impacts are limited to the views of the structures and wires.

To evaluate aesthetic impacts, reconnaissance surveys were conducted to determine the areas where segments of the proposed project would be visible from publicly accessible locations. These locations included areas of potential community value, community resources, public recreation areas, and federal and state highways that cross the study area. Measurements were made to estimate the length of the proposed project that would be present within recreational or major highway foreground visual zones (i.e. one-half mile unobstructed by topography, structures or vegetation). This determination of the visibility of the transmission line from various points was calculated from recent aerial photography and field reconnaissance surveys.

All alternative routes will be visible from public roadways at one or more locations. The following federal and state highways are located within the one-half mile foreground visual zone of the alternative routes:

- Interstate Highway 35
- Texas State Highway 16
- Texas State Highway 29
- Texas State Highway 71
- Texas State Highway 95
- Texas State Highway 138
- Texas State Highway 195
- Business State Highway 195
- U.S. Highway 83
- U.S. Highway 87
- U.S. Highway 190
- Business U.S. Highway 190
- U.S. Highway 277
- U.S. Highway 281
- U.S. Highway 283
- U.S. Highway 377

The length of each route within the foreground visual zone of federal and state highways in the study area is listed in **Table 7-2** (**Appendix E**).

The discussion in **Section 7.7.2** considered potential interference of a transmission line with activities occurring in parks and recreation areas within 1,000 feet of any alternative route. The evaluation of potential aesthetic impacts also includes consideration of the amount of any alternative route within the visual foreground zone of public parks and recreation areas. The following five public parks and recreation areas are located within the one-half mile foreground visual zone of the alternative routes:

- Stillhouse Recreation Area
- Hidden Springs Preserve
- Colorado Bend State Park
- Post Oak Ridge State Park
- Mill Pond Park

To assess potential aesthetic impacts to these park and recreation areas, Kimley-Horn and Halff reviewed facilities maps and aerial imagery to identify locations where the proposed transmission line may be visible to park and recreation users (TPWD, 2025i; SWCA, 2025; ESRI World Imagery Basemap, 2025; NAIP, 2024). While transmission lines are not anticipated to physically alter park and recreation features, they may introduce aesthetic impacts. The potential aesthetic impacts to each park and recreation area as a result of the proposed project are further discussed below. TPWD also provided detailed comments regarding its assessment of potential visual impacts of various route links, as presented at the public participation meetings, in relation to Colorado Bend State Park, Post Oak Ridge State Park, and other state parks or TPWD property in and near the study area (**Appendix A**).

Stillhouse Recreation Area

As detailed in **Table 7-6** (**Appendix F**), Stillhouse Recreation Area is located around Stillhouse Hollow Lake and provides a variety of recreational opportunities, including day-use facilities with picnic tables and campsites for overnight use. Passive recreational opportunities include fishing, hunting, wildlife viewing, and hiking. Link E6 is located approximately 360 feet from the recreation area's southern boundary; however, a review of aerial imagery (Google Earth, 2025; NAIP, 2024)

did not identify any recreation facilities, such as hiking trails, picnic benches, or campsites within half a mile of Link E6. Additionally, a dense riparian tree canopy surrounds Stillhouse Hollow Lake's southern boundary near E6, which would obscure views of the transmission line from the lake. While visibility of the transmission line may increase during winter months when deciduous trees shed their leaves, any potential views of the line would remain limited.

Hidden Springs Preserve

As detailed in **Table 7-6** (**Appendix F**), Hidden Springs Preserve is a conservation easement that straddles the Burnet – Williamson County Line. The property is managed primarily for habitat conservation and mitigation purposes, and recreational use within the preservation, if any, is expected to be limited. Link G9 is located approximately 100 feet of the preserve's northern boundary; however, a review of aerial imagery (Google Earth, 2025; NAIP, 2024) did not identify any facilities on the property that may be used by the public and suggested that a dense tree canopy on the preserve would obscure most views of the transmission line. While visibility of the transmission line may increase during winter months when deciduous trees shed their leaves, any potential views of the line would remain limited.

Colorado Bend State Park

As detailed in **Table 7-6** (**Appendix F**), Colorado Bend State Park provides numerous recreational opportunities, including hiking and biking, overnight and day-use camping, fishing, swimming, kayaking and canoeing, and caving. A 2025 map of Colorado Bend State Park (TPWD, 2025i) was reviewed to identify park facilities located within the half-mile foreground visual zone of the proposed transmission line. Link J11 is located approximately 100 feet from the park's northern boundary and would span Colorado Park Road, the park's primary entrance road. As a result, the main entrance to the park, including the gate and fee booth, would be located within the foreground visual zone of Link J11.

The approximately 1.5-mile segment of the Tie Slide Trail that parallels the park's northern boundary and leads to the River Overlook represents the area with the greatest potential for aesthetic impacts. This segment is located approximately 115 to 530 feet from Link J11. While portions of the trail are enclosed by woody vegetation that may partially obscure views of the proposed transmission line, other segments cross predominantly grassland habitat where the transmission line may be more visible. Views of the proposed transmission line may also be possible from the River Overlook, located approximately 320 feet south of Link J11, where Link J11 is proposed to cross the Colorado River. Additionally, an approximately one-mile segment of the Gorman Falls Trail is also located within one-half mile of Link J11; however, this trail ranges from approximately 285 to 2,540 feet from Link J11 and is largely surrounded by dense woody vegetation that would substantially limit visibility of the proposed transmission line.

Other park facilities within the foreground visual zone of Link J11, including Gorman Falls, trail parking areas, and a public restroom, are located approximately 1,840 to 2,200 feet from Link J11. Visibility of the proposed transmission line from these locations would be further limited by

dense woody vegetation and topographic features, including the bend in the Colorado River near Gorman Falls. Aesthetic impacts are anticipated to be minimal to these facilities.

An approximately 260-foot segment of the Spicewood Springs Trail, which follows Colorado Bend State Park's southern boundary, would be located within the half-mile foreground visual zone of Link J26. Due to the trail's distance from Link J26 and the presence of woody vegetation and varied topography, the proposed transmission line is not anticipated to be visible from the Spicewood Springs Trail.

Both Link J11 and Link J26 would cross the Colorado River and would therefore be visible to river users, including kayakers, canoeists, anglers, and swimmers. Views of the proposed transmission line would be limited in duration and extent as users move through the river corridor, and visibility would be partially obscured by riparian vegetation along the riverbanks. No other park facilities, including campgrounds, would be located within the half-mile visual foreground zone of the proposed transmission line.

Post Oak Ridge State Park

As detailed in **Table 7-6** (**Appendix F**), Post Oak Ridge State Park is a new Texas State Park along the Colorado River that was purchased by TPWD in January 2025. The park is not open yet and is in the planning stage of development (TPWD, 2025i). Public access has been limited to public hunts and guided hikes in fall 2025. Link J26 abuts the park's southern boundary and is therefore located within the half-mile foreground visual zone of this park. Woody vegetation is present along portions of the southern park boundary and may partially obscure views of the proposed transmission line; however, the extent to which such vegetation would obscure views from future park facilities is unknown, as the proximity of those facilities to Link J26 has not yet been established.

Mill Pond Park

Although Mill Pond Park is not crossed by any of the alternative routes and is therefore not included in **Table 7-6** (**Appendix F**), Link U6 is located within the one-half mile foreground visual zone of the park. Mill Pond Park includes a 0.25-mile running track, the San Saba Civic Center, and multiple playing fields. The track and a portion of the San Saba Civic Center are located within the foreground visual zone of Link U6; however, these park features are located approximately 1,770 feet from Link U6 and are separated from the proposed transmission line by a dense tree canopy that would substantially limit visibility. Due to the distance between Link U6 and park facilities, as well as the presence of dense vegetation, views of the proposed transmission line from the track and civic center would be limited; therefore, no aesthetic impacts to Mill Pond Park are anticipated.

7.7.6 Transportation/Aviation

Potential impacts to transportation could include temporary disruption of traffic and conflicts with proposed roadway and/or utility improvements and may include slightly increased traffic during

construction of the proposed project. However, such impacts are usually temporary. As discussed in **Section 2.2.1**, Kimley-Horn and Halff attempted to identify any planned improvements proposed by TxDOT or by local agencies.

The typical structure height for Oncor's structures is anticipated to be 155-160 feet with a maximum anticipated height of 198 feet. The typical structure height for LCRA TSC's structures is anticipated to be 140-170 feet with a maximum anticipated height of 198 feet. However, tower height will vary depending on terrain and other engineering constraints. According to FAA Regulations, Part 77 (FAA, 2025b), notification of the construction of the proposed project is required if structure heights exceed the height of an imaginary surface extending outward and upward at a slope of: (1) 100 to 1 for a horizontal distance of 20,000 feet from the nearest point of the nearest runway of a public, private, or military airport having at least 1 runway longer than 3,200 feet; (2) 50 to 1 for a horizontal distance of 10,000 feet from the nearest runway of a public, private, or military airport where all runways are 3,200 feet in length or less; or (3) 25 to 1 for a horizontal distance of 5,000 feet for heliports.

Kimley-Horn and Halff's review of airport runway and facilities data, recent aerial photography (ESRI World Imagery Basemap, 2025; NAIP, 2024), and reconnaissance surveys identified:

- 11 FAA-registered airports with at least one runway greater than 3,200 feet in length within 20,000 feet of any alternative route links for the proposed project;
- 16 FAA-registered airports with all runways less than 3,200 feet in length within 10,000 feet of any alternative route links for the proposed project;
- Six private airstrips within 10,000 feet of any alternative route links for the proposed project; and
- Two heliports within 5,000 feet of any alternative route link for the proposed project.

Approximate distances from aviation facilities to alternative route links, organized by facility type and runway length, are provided in **Table 7-7** (**Appendix F**). Salado Bluff Airport, shown as "intersection" by multiple links in the table is a recently approved airport for which construction appeared complete as of March 11, 2026. The locations of aviation facilities are also shown in **Figures 3-1A** through **3-1I** and **Map Insets** (**Appendix G**).

A review of historical USGS topographic maps (USGS, 2025a) identified six additional landing strips, for a total of 12 private airstrips, located within 10,000 feet of multiple links. Recent aerial photography (ESRI World Imagery Basemap, 2025; NAIP, 2024) and aerial reconnaissance surveys support that portions of these six additional landing strips have not been maintained; have become overgrown with vegetation or partially developed; and appear to no longer be in use. Locations of all 12 unregistered airstrips are labeled on **Figures 3-1A** through **3-1I** (**Appendix G**); however, because six no longer remain in their entirety or do not appear to be in use, only the six operational airstrips are recorded in **Table 7-2** (**Appendix E**), or **Table 7-3** (**Appendix E**), or **Table 7-7** (**Appendix F**). Oncor and LCRA TSC were notified of an airstrip under construction approximately one mile south of Link J3, east of State Highway 16 in San

Saba County. Because of the incomplete information regarding the FAA status and incomplete construction status, the airstrip is not included in these tables.

7.7.7 Communication Towers

As stated in **Section 3.7.7** and shown on **Figures 3-1A** through **3-1I** (**Appendix G**), numerous communication towers, including AM and FM radio transmitters, were identified within the study area. A total of 44 of these communication towers were identified within 2,000 feet of the route link centerlines. Although there are no FM towers located within 2,000 feet of an alternative route link, there is one AM tower located within 10,000 feet of an alternative route link. Approximate distance and direction from these 45 communication towers to alternative route links are provided in **Table 7-8** (**Appendix F**).

7.8 Cultural Resources Impacts

Construction activities can adversely impact cultural resources. Adverse impacts are found when an undertaking alters, directly or indirectly, the archeological, historical, or cultural characteristics that qualify a property for inclusion in the NRHP. These impacts occur when an undertaking diminishes a property's integrity of location, design, setting, materials, construction, or association that contributes to a resource's significance in accordance with the NRHP criteria.

As discussed in Title 36 CFR Part 800 (U.S., 2004), adverse impacts to NRHP listed or NRHP eligible properties may occur under conditions that include, but are not limited to:

- Destruction or alteration of all or part of a property;
- Isolation from or alteration of the property's surrounding environment (setting); or
- Introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting.

Direct impacts typically occur during construction. Indirect impacts include those caused by construction that occur later in time or impacts that are further removed but foreseeable.

These impacts may include alterations in the pattern of land use, changes in population density, or accelerated growth rates, all of which may impact properties with historical, architectural, archeological, or cultural significance.

The preferred form of mitigation for direct or indirect impacts for cultural resources is avoidance. An alternative form of mitigation of direct impacts can be developed for archeological and historical sites with the implementation of a program of detailed data retrieval. Additionally, relocation may be possible for some historic structures. Indirect impacts on historical properties and landscapes can be lessened through careful design considerations and landscaping.

The method utilized to assess an area for potential prehistoric cultural resources is to identify high probability areas (HPAs). Locations that are usually identified as HPAs for the occurrence of prehistoric sites include water crossings, stream confluences, drainages, alluvial terraces, wide floodplains, upland knolls, and other areas where lithic resources can be found. When defining HPAs, a distance relationship to a water resource (about 1,000 feet) is set that would encompass landforms that may have attracted past human activity and are therefore deemed appropriate for the presence of cultural resource sites.

As a formal cultural resources survey has not been conducted for any of the alternative routes, the possibility of affecting unknown archeological sites exists. The proposed project has potential for encountering sites along the numerous streams and creeks within the study area, their tributary networks, and along major draws and drainages. The THC generally advises that a qualified archeologist survey the PUCT-approved route following criteria for intensive pedestrian survey, including the potential for deep testing. The evaluation of historic-aged structures during the survey should follow THC Guidance for Studying Late 19th-Century and Early 20th-Century Sites, which requires deed research to identify the individual(s) associated with recorded historic-age resource(s). The THC also generally recommends that any work occurring over land owned or managed by a state agency or political subdivision of the state requires a Texas Antiquities Permit prior to initiation of fieldwork.

7.8.1 Historical Summary

As discussed in **Section 3.8.2**, numerous cemeteries have been documented within the study area, at least 67 of which are designated as HTCs. As shown in **Table 7-9** (**Appendix F**) and reflected in **Table 7-3** (**Appendix E**), 23 cemeteries are located within 1,000 feet of proposed alternative route links, five of which are designated as HTCs. Although Greathouse Cemetery, Montgomery Cemetery, and Rochelle Cemetery all contain OTHMs, these OTHMs are located outside the 1,000-foot buffer of the alternative route links. Old Spiller Cemetery and Senterfitt Cemetery are the only cemeteries designated as OTHMs with markers located within 1,000 feet of the alternative route links. Seven additional OTHMS, for a total of nine, are located within 1,000 feet of the alternative route links. As discussed in **Section 3.8.1**, there are numerous properties and districts in the study area that have been recorded in the NRHP; however, none of these sites or districts are located within 1,000 feet of the alternative route links.

Field reconnaissance of the study area provided a better understanding of surviving property types in the region, and potentially historically significant resources were observed. Most of the study area retains a rural, agricultural character intermixed with industry. Typical historic resources in the study area vicinity may include intact farms or the remnants of farms, with structures consisting primarily of farmhouses, associated barns and outbuildings, fencing and other components including water storage tanks, troughs, animal pens, and windmills. These observations are based on views of areas in the region from public roadways and from aerial reconnaissance. Additional potentially historic features may be found in areas that were not visually accessible from public roadways.

7.8.2 Archeological Summary

As discussed in **Section 3.8.1**, numerous archeological sites are located within the study area, 100 of which are currently recorded within 1,000 feet of the proposed route centerline. **Table 7-9** (**Appendix F**) details the archeological sites and the nearest proposed route link.

Prehistoric sites recorded near the study area vary given the diversity of the study area and would commonly be associated with streams and valleys close to historical water sources. Permanent water sources are common throughout the study area, and the overall lack of significant development beyond the scattered downtown areas of cities, towns, and other communities allows the possibility of intact archeological material. Consequently, HPAs were identified within the study area. HPAs typically consist of areas that contain deep soils and lie within 300 meters (nearly 1,000 feet) of natural water sources. These areas may include:

- uplands overlooking bodies of water, typically a major stream or river;
- nearby springs;
- river terraces and bluffs adjacent to stream channels;
- upland edges adjacent to valleys and stream confluences;
- outcrops containing lithic materials useful for making stone tools;
- areas near previously documented resources; and
- historic-aged structures (including windmills) identified on historic maps.

Alternative route links within the study area may contain numerous individual HPAs, the cumulative lengths of which are provided in **Table 7-3** (**Appendix E**).

Following PUCT approval of a route for the proposed project, a cultural resources survey will be conducted in accordance with established research design developed by Oncor, LCRA TSC, and THC for new transmission line studies. Any cultural resources discovered during this initial survey will be mitigated, if required, through consultation with the THC. In the event Oncor, LCRA TSC, or their contractors encounter any archeological materials or other cultural resources during construction of the proposed project, Oncor and LCRA TSC will cease work in the immediate vicinity of the resource and report the discovery to the THC. It is anticipated that the project will have no substantial impacts to cultural resources, including NRHPs, OTHMs, SALs, or HPAs.

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8.0 LIST OF PREPARERS

This report was prepared for Oncor and LCRA TSC by Kimley-Horn, Halff, and Zara Environmental LLC. Oncor and LCRA TSC provided information in **Section 1.0**. **Table 8-1** provides a list of the project team with primary responsibilities for the preparation of this document.

Table 8-1: List of Preparers

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9.0 REFERENCES

AirNav, 2025. Airport Search Results. Retrieved June, 2025, from: https://www.airnav.com/airports/us/TX.

Avian Powerline Interaction Committee (APLIC), 2012. Collisions. Retrieved June 2025, from: https://www.aplic.org/Collisions.php.

Blair, W. F., 1950. The Biotic Provinces of Texas. Texas Journal of Science, 93-11.

Brown, T.M., K.L. Killen, H. Simons, and V. Wulfkuhle, 1982. Resource Protection Planning Process for Texas. Texas Historical Commission, Austin.

Bureau of Economic Geology (BEG), 1996. Physiographic Map of Texas. The University of Texas at Austin.

Cornell Lab of Ornithology, 2025. All About Birds, Bird Guide. Cornell University. Retrieved July 2025, from: https://www.allaboutbirds.org/news/.

Cowardin, L., Carter, V., Golet, F., & Laroe, A.E., 1979. Classification of Wetlands and Deepwater Habitats of the United States. Jamestown, North Dakota: USFWS. Retrieved June 2025.

Dixon, J. R., 2013. Amphibians and Reptiles of Texas. College Station, Texas: Texas A&M Press.

Elliott, L. 2014. Descriptions of Systems, Mapping Subsystems, and Vegetation Types for Texas. TPWD. Retrieved April 2025, from: https://tpwd.texas.gov/gis/programs/landscape-ecology/supporting-documents/?_authenticator=eec853a0242d03d64244125bb68506208113307e.

Environmental Systems Research Institute (ESRI), 2025. World Imagery Basemap. Accessed from ArcGIS Pro.

Fahrig, L.2003. Effects of habitat fragmentation on biodiversity. Annual Review of Ecology, Evolution, and Systematics. 34: 487-515. Accessed February 2025, from: https://doi.org/10.1146/annurev.ecolsys.34.011802.132419.

Federal Aviation Administration (FAA), 2025a. Airports. Retrieved March 2025, from: https://adds-faa.opendata.arcgis.com/datasets/e747ab91a11045e8b3f8a3efd093d3b5_0/explore?location=31.518301%2C-99.342868%2C8.

Federal Aviation Administration (FAA), 2025b. Title 4: Safe, Efficient Use, and Preservation of the Navigable Airspace. 14 CFR Part 77.

Federal Aviation Administration (FAA), 2026. Airport Data and Information Portal. Retrieved March 2026, from: https://adip.faa.gov/agis/public/#/public.

Federal Communications Commission (FCC), 2025a. FM Transmission Towers Map Viewer. Retrieved March 2025, from: https://www.arcgis.com/apps/mapviewer/index.html?layers=4cd9d7ee6cb347bcb4815c6f292a32b2.

Federal Communications Commission (FCC), 2025b. Cellular Towers Map Viewer. Retrieved March 2025, from: https://hifld-geoplatform.hub.arcgis.com/datasets/cellular-towers/explore?location=31.643944%2C-103.431742%2C10.03.

Federal Emergency Management Agency (FEMA), 1987-1991. FIRM Flood Insurance Rate Maps for Lampasas, Menard, and San Saba Counties, Texas (Unincorporated Areas). Retrieved February 2026, from: https://msc.fema.gov/portal.

Federal Emergency Management Agency (FEMA), 2025. FEMA Flood map Service Center. Retrieved June 2025 from: https//www.fema.gov/flood-maps/national-flood-hazard-layer.

Griffith, G. E., Bryce, S., Omernik, J., & Rogers, A., 2007. Ecoregions of Texas Map. Project AS-199 Report to Texas Commission on Environmental Quality. Austin, Texas. Retrieved Novermber 2025, from: https://texashistory.unt.edu/ark:/67531/metapth640838/m1/8/.

Haddad, N. M., Brudvig, L. A., Clobert, J., Davies, K. F., Gonzalez, A., Holt, R. D., & Townshend, J. R. 2015. Habitat fragmentation and its lasting impact on Earth's ecosystems. Science Advances, 1: e1500052. Accessed February 2025. https://doi.org/10.1126/sciadv.1500052.

Howells, R.G. 2014. *Field Guide to Texas Freshwater Mussels, 2nd Edition*. Biostudies, Kerrville, TX.

Howells, R.G. 2010a. False spike (*Quadrula mitchelli*): Summary of selected biological and ecological data for Texas. BioStudies, Kerrville, Texas. 16 pp.

Howells, R.G. 2010b. Texas fatmucket *Lampsilis bracteata* (Gould 1855): Summary of selected biological and ecological data for Texas. BioStudies, Kerrville, Texas. Prepared for the Save Our Springs Alliance, Austin, Texas.

Howells, R.G. 2010c. Texas fawnsfoot (*Truncilla macrodon*): summary of selected biological data for Texas. BioStudies, Kerrville, Texas. Prepared for Save Our Springs Alliance, Austin, Texas.

Howells, R.G. 2010d. Texas pimpleback (*Quadrula petrina*): Summary of Selected Biological and Ecological Data for Texas. BioStudies, Kerrville, Texas. 20 pp. [also available as pp. 103-122 in Howells 2010].

iNaturalist, 2025. Hidden Springs Preserve Biodiversity. Retrieved Feb 9, 2026, from https://www.inaturalist.org/projects/hidden-springs-preserve-biodiversity.

Kenmotsu, N.A., and Perttula, T.K. (editors). 1993. Archeology in the Eastern Planning Region, Texas: A Planning Document. Department of Antiquities Protection, Cultural Resource Management Report 3. Texas Historical Commission, Austin.

Land and Water Conservation Fund (LCWF) Places Funded by LWCF, 2025. Retrieved June 2025, from: https://lwcfcoalition.org/map.

Laurance, W. F., & Yensen, E. 1991. Predicting the impacts of edge effects in fragmented habitats. Biological Conservation, 55: 77-92. Accessed October 2025. https://doi.org/10.1016/0006-3207(91)90006-U.

Lockwood, M. W., & Freeman, B., 2014. The Texas Ornithological Society Handbook of Texas Birds. College Station, Texas: Texas A&M University Press.

Mercado-Allinger, P.A., Kenmotsu, N.A., and Perttula, T.K. (editors). 1996. Archeology in the Central and Southern Planning Region, Texas: A Planning Document. Department of Antiquities Protection, Cultural Resource Management Report 3. Texas Historical Commission, Austin.

National Agriculture Imagery Program (NAIP), 2024. Texas NAIP Imagery. Retrieved March 2025, from: https://data.tnris.org/collection/?c=7e795b90-d89d-42a0-8bc9-4a7ef9b99e93.

National Agricultural Statistics Service (NASS), 2017. Census of Agriculture. Retrieved March 31, 2025, from: https://cafomaps.org/by-state/tx.html/.

National Agricultural Statistics Service (NASS), 2022. Texas Agricultural Statistical Districts Map. Retrieved March 5, 2025, from: https://www.nass.usda.gov /Statistics_by_State/Texas/Publications/Charts_&_Maps/distmap2.php.

National Agricultural Statistics Service (NASS), 2024. Texas Agricultural Statistical Districts. Retrieved November 14, 2024, from: https://www.nass.usda.gov/Statistics_by_State/Texas/Publications/Annual_Statistical_Bulletin/tx-bulletin-2024-web-updated.pdf.

National Conservation Easement Database (NCED), 2025. NCED Planning Application. Retrieved March 2025, from: https://site.tplgis.org/NCED/planningapp/.

National Park Service (NPS), 2022. Karst Landscapes. Retrieved May 15, 2025, from: https://www.nps.gov/subjects/caves/karst-landscapes.htm.

National Park Service (NPS), 2025. Find A Park. Retrieved April 2025, from: https://www.nps.gov/findapark/index.htm.

National Resource Conservation Service (NRCS), 2014. Official Soil Descriptions. Retrieved June 2025, from: https://websoilsurvey.nrcs.usda.gov/app/.

National Resource Conservation Service (NRCS), 2022. Web Soil Survey Fact Sheet. Retrieved June 2025, from: https://www.nrcs.usda.gov/sites/default/files/2022-08/WSS-factsheet.pdf.

National Resource Conservation Service (NRCS), 2025a. Soil Facts. Retrieved June 2025, from: https://www.nrcs.usda.gov/resources/education-and-teaching-materials/soil-facts#soil_survey.

National Resource Conservation Service (NRCS), 2025b. Web Soil Survey. Retrieved June 2025, from: https://websoilsurvey.nrcs.usda.gov/app/.

Oncor Electric Delivery Company LLC (Oncor), 2011. Habitat Conservation Plan for Maintenance and Construction Activities. Prepared in cooperation with Prepared in cooperation with the U.S. Department of the Interior, Fish and Wildlife Service, Austin Ecological Services Field Office. Austin, Texas.

Post, Buckley, Schuh & Jernigan, 2008. Generic Research Design for Archeological Surveys of Oncor Electric Delivery Electric Transmission Line Projects in Texas. Document No. 070050. PBS&J, Dallas.

Railroad Commission of Texas (RRC), 2025. Public GIS Viewer (Map). Retrieved March 2025, from: https://www.rrc.texas.gov/resource-center/research/gis-viewer/.

Randklev, C.R., B. Lundeen, R.G. Howells, and J.H. Kennedy. 2010. Habitat preference and first account of a living population of Texas fawnsfoot, *Truncilla macrodon* (I. Lea, 1859) in the Brazos River, Texas. Southwestern Naturalist 55: 302–303.

Randklev, C.R., M.S. Johnson, E.T. Tsakiris, S. Rogers-Oetker, K.J. Roe, S. McMurray, Robertson, J. Groce, and N. Wilkins. 2012. False Spike, *Quadrula mitchelli* (Bivalvia: Unionidae) is not extinct: first account of a live population in over 30 years. *American Malacological Bulletin* 30: 327–328.

Randklev, C.R., M. Cordova, E. Tsakiris, J. Groce, and B. Sowards. 2014a. Freshwater mussel (Family: Unionidae) survey of Allens Creek and the lower Brazos. Report submitted to Texas Parks and Wildlife. 57 pages.

Randklev, C.R., M. Cordova, J. Groce, E.T. Trsakiris, and B. Sowards. 2014b. Freshwater mussel (Family: Uniondae) data collection in the middle and lower Brazos River. Report submitted to Texas Parks and Wildlife. 51 pages.

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.

Randklev, C. R., N. A. Johnson, T. Miller, J. Morton, J. Dudding, K. Skow, B. Bosman, M. Hart, E. T. Tsakiris, K. Inoue, and R. R. Lopez. 2017b. Freshwater mussels (Unionidae): central and west Texas final report. Texas A&M Institute of Renewable Natural Resources, College Station, TX.

Schmidly, D. J., & Bradley, R. D., 2016. The Mammals of Texas (7th ed.). Austin, Texas: University of Texas Press. Online Version. Accessed April 2025, from: https://www.depts.ttu.edu/nsrl/mammals-of-texas-online-edition/.

Smith, C.S., N.A. Johnson, K. Inoue, R.D. Doyle, and C.R. Randklev. 2019. Integrative taxonomy reveals a new species of freshwater mussel, *Potamilus streckersoni* sp. nov. (Bivalvia: Unionidae): implications for conservation and management. Systematics and Biodiversity, DOI: 10.1080/14772000.2019.1607615.

Sowards, B., E.T. Tsakiris, M. Libson, and C.R. Randklev. 2013. Recent collection of a false spike (*Quadrula mitchelli*) in the San Saba River, Texas, with comments on habitat use. Walkerana 16: 63–67.

SWCA Environmental Consultants (SWCA). 2019. Final LCRA Transmission Services Corporation Transmission System Habitat Conservation Plan. Prepared for LCRA Transmission Services Corporation. Austin, Texas.

SWCA, 2025. Management Plan for the Lands Managed by the Williamson County Conservation Foundation under the Williamson County Regional Habitat Conservation Plan, Appendix A. Retrieved December 2025, from: https://www.wilcotx.gov/DocumentCenter/View/15336/2024-Management-Plan-PDF.

Texas Commission on Environmental Quality (TCEQ), 2024. 2024 Texas Integrated Report – Texas 303(d) List (Category 5). Retrieved June 2025, from: https://www.tceq.texas.gov/downloads/water-quality/assessment/integrated-report-2024/2024-303d.

Texas Commission on Environmental Quality (TCEQ), 2025. Surface Water Quality Viewer. Retrieved October 17, 2024, from: https://tceq.maps.arcgis.com/apps/webappviewer/index.html?id=b0ab6bac411a49189106064b70bbe778.

Texas Department of Transportation (TxDOT), 2024. I-14 System in Texas: Implementation Plan and Report. March 2024 - from: https://ftp.dot.state.tx.us/pub/txdot/get-involved/statewide/i-14-system-in-texas/032924-implementation-plan.pdf.

Texas Department of Transportation (TxDOT), 2025a. Project Tracker. Retrieved March 2025 from: https://apps3.txdot.gov/apps-cq/project_tracker/.

Texas Department of Transportation (TxDOT), 2025b. Texas Airport Directory Map. Retrieved March 5, 2025, from: https://maps.dot.state.tx.us/TADSMap/.

Texas Department of Transportation (TxDOT), 2025c. Open Data Portal. [Online maps and information]. Retrieved August 2025, from: https://gis-txdot.opendata.arcgis.com/.

Texas Geographic Information Office, 2024. Land Parcels. Accessed March 2025, from: https://data.tnris.org/collection/?c=d0f7da13-ab09-4994-a16f-d52589e2476e.

Texas Historical Commission (THC), 2025a. Texas Archeological Sites Atlas. [Electronic document]. Accessed December 2025, from: https://atlas.thc.texas.gov/.

Texas Historical Commission (THC), 2025b. Historical Markers. Accessed February 2026, from: https://thc.texas.gov/preserve/preservation-programs/historical-markers.

Texas Historical Commission (THC), 2025c. National Register of Historic Places. Accessed February 2026, from: https://thc.texas.gov/preserve/designate-historic-properties/national-register-historic-places.

Texas Historical Commission (THC), 2026. Texas Time Travel. Retrieved February 2026, from https://texastimetravel.com/regions/.

Texas Municipal League (TML), 2025. Texas Municipal League City Officials Directory. Accessed September 2025, from: https://directory.tml.org/.

Texas Parks and Wildlife Department (TPWD), 1975. Parks and Wildlife Code. Retrieved March 6, 2025, from: https://statutes.capitol.texas.gov/Docs/PW/htm/PW.68.htm.

Texas Parks and Wildlife Department (TPWD), 1997. Barton Springs Salamander. Retrieved November 2025, from: https://tpwd.texas.gov/huntwild/wild/species/bartonspringssalamander/.

Texas Parks and Wildlife Department (TPWD), 2006. Revision of Karst Species Zones for the Austin, Texas, Area. Retrieved May 15, 2025, from: https://tpwd.texas.gov/business/grants/wildlife/section-6/docs/invertebrates/e52_final_report.pdf.

Texas Parks and Wildlife Department (TPWD), 2014a. Texas Karst 2014 Dataset. Retrieved September 26, 2025, from: https://tpwd.texas.gov/portal/home/item.html?id=48e6976b074347db971d162e241e4410.

Texas Parks and Wildlife Department (TPWD), 2014b. Ecological Mapping Systems of Texas (EMST). Retrieved February 2025, from: https://tpwd.texas.gov/landwater/land/programs/landscape-ecology/ems/.

Texas Parks and Wildlife Department (TPWD), 2025a. Ecologically Significant Stream Segments. Retrieved March 2025, from: https://tpwd.texas.gov/landwater/water/conservation/water_resources/water_quantity/sigsegs/index.phtml.

Texas Parks and Wildlife Department (TPWD), 2025b. Texas Natural Diversity Database (TXNDD): Methodology. Retrieved March 3, 2025, from: Texas Parks and Wildlife Department: https://tpwd.texas.gov/huntwild/wild/wildlife_diversity/txndd/about.phtml.

Texas Parks and Wildlife Department (TPWD), 2025c. Texas Natural Diversity Database (TXNDD). Retrieved March 5, 2025, via email upon direct request to TPWD.

Texas Parks and Wildlife Department (TPWD), 2025d. Annotated County Lists of Rare Species (RTEST). Retrieved April 2025, from: Texas Parks and Wildlife Department: https://tpwd.texas.gov/gis/rtest.

Texas Parks and Wildlife Department (TPWD), 2025e. Migratory Flyways of North America. Retrieved February 11, 2025, from: https://tpwd.texas.gov/huntwild/wild/birding/migration/flyways/central/.

Texas Parks and Wildlife Department (TPWD), 2025f. Hill Country Wildlife Management. Retrieved April 29, 2025, from: Texas Parks and Wildlife Department: https://tpwd.texas.gov/landwater/land/habitats/hillcountry/.

Texas Parks and Wildlife Department (TPWD), 2025g. Texas Community Fishing Lakes. Retrieved April 29, 2025, from: https://tpwd.texas.gov/fishboat/fish /recreational/lakes/cfl.phtml.

Texas Parks and Wildlife Department (TWPD), 2025h. Freshwater Lakes: Prairies and Lakes Region. Retrieved April 29, 2025, from: https://tpwd.texas.gov/fishboat/fish /recreational/lakes/inplains.phtml.

Texas Parks and Wildlife Department (TPWD), 2025i. Texas State Parks Map. Retrieved March 5, 2025, from: https://tpwd.texas.gov/state-parks/parks-map.

Texas Parks and Wildlife Department (TPWD), 2025j. Wildlife Management Areas of Texas. Retrieved March 5, 2025, from: https://tpwd.texas.gov/huntwild/hunt/wma/.

Texas Parks and Wildlife Department (TPWD), 2025k. Texas Parks and Wildlife Department Commission Agenda Item 9, January 23, 2025. Retrieved October 18, 2025, from: https://tpwd.texas.gov/business/feedback/meetings/2025/0123/agenda/item.phtml?item=9#09_exc.

Texas Parks and Wildlife Department (TPWD), 2025l. Texas Tortoise Best Management Practices. Retrieved June 2025, from: https://tpwd.texas.gov/huntwild/wild/ wildlife_diversity/habitat_assessment/media/texas_tortoise_bmps.pdf.

Texas Water Development Board (TWDB), 2011. Aquifers of Texas. Retrieved June 2025, from: https://www.twdb.texas.gov/publications/reports/numbered_reports /doc/R380_AquifersofTexas.pdf.

Texas Water Development Board (TWDB), 2019a. Groundwater Conditions in the Cross Timbers Aquifer. Retrieved December 2025, from: https://www.twdb.texas.gov/groundwater/docs/GMR_reports/GMR19-01_CrossTimbersAquifer.pdf.

Texas Water Development Board (TWDB), 2019b. Groundwater Conservation Districts (GCD). Retrieved June 2025, from: https:// www.twdb.texas.gov/mapping/ gisdata.asp.

Texas Water Development Board (TWDB), 2021. Groundwater Management Areas. Retrieved April 2025, from: https:// www.twdb.texas.gov/ mapping/ gisdata.asp.

Texas Water Development Board (TWDB), 2025a. Groundwater Management Areas. Retrieved July 2025, from: https://www.twdb.texas.gov/groundwater/management_areas/index.asp.

Texas Water Development Board (TWDB), 2025b. Brackish Resources Aquifer Characterization System (BRACS) Program Points Dataset. Retrieved March 5, 2025, from: https://www.twdb.texas.gov/groundwater/bracs/GISdata.asp.

Texas Water Development Board (TWDB), 2025c. Submitted Drillers Reports (SDR) Database. Retrieved July 2025, from: https://www.twdb.texas.gov/groundwater/data/drillersdb.asp.

Texas Water Development Board (TWDB), 2025d. Groundwater Database Reports. Retrieved March 5, 2025, from: https://www3.twdb.texas.gov/apps/waterdatainteractive/groundwaterdataviewer.

TripAdvisor, 2025. Scenic Drive in Texas. Retrieved March 2025, from: https://www. tripadvisor.com/Attractions-g28964-Activities-c47-t74-Texas.html.

Tsakiris, E.T., and C.R. Randklev. 2016a. Distribution and habitat associations of freshwater mussels (Bivalvia: Unionidae) in the lower Guadalupe River, Texas. Report submitted to Texas Parks and Wildlife. 30 pages.

Tsakiris, E.T., and C.R. Randklev. 2016b. Structural changes in freshwater mussel (Bivalvia: Unionidae) assemblages downstream of Lake Somerville, Texas. The American Midland Naturalist 175: 120–127.

U.S. Census Bureau, U.S. Department of Commerce, 2023. Census Bureau Profile Results by County. Retrieved March 5, 2025, from: https://data.census.gov/profile.

United States Army Corp of Engineers (USACE). 2013. ER 1130-2-550, Chapter 17. Non-recreation Outgrant Policy. Retrieved October 18, 2025, from: https://www.saw.usace.army.mil/Portals/59/docs/recreation/Land%20Use/USACE%20Non-Recreation%20Outgrant%20Policy%20ER1130-5-550%20Ch.%2017%20.pdf.

United States Army Corps of Engineers (USACE), 2018. Belton Lake Master Plan, Bell and Coryell Counties. Retrieved December 29, 2025, from: https://www.swf.usace.army.mil/Portals/47/docs/Lakes/Belton/MasterPlan/Belton_Lake_Master_Plan_Final_Complete_Dec_2018.pdf?ver=2019-01-03-114622-650.

United States Army Corps of Engineers (USACE), 2021. Stillhouse Hollow Lake Master Plan, Bell County. Retrieved December 29, 2025, from: https://www.swf.usace.army.mil/Portals/47/docs/About/MasterPlans/Stillhouse%20Hollow/Final%20Stillhouse-Hollow%20Lake%20MP-Main-Document.pdf?ver=hbZSmu4fSEaIzQK4Wh_Ptg%3d%3d.

United States Army Corps of Engineers (USACE), 2022. Granger Lake Master Plan, Williamson County. Retrieved December 29, 2025, from: https://www.swf.usace.army.mil/Portals/47/docs/Lakes/Granger/MasterPlan/Granger_Lake_MP_30Sept22.pdf?ver=rPYvTK611hQlvxlnmoHgiQ%3D%3D.

United States Army Corps of Engineers (USACE), 2025a. Belton Lake. Retrieved June 2025, from: https://www.swf-wc.usace.army.mil/belton//.

United States Army Corps of Engineers (USACE), 2025b. Granger Lake. Retrieved June 2025, from: https://www.swf-wc.usace.army.mil/granger/.

United States Army Corps of Engineers (USACE), 2025c. Stillhouse Lake. Retrieved June 2025, from: https://www.swf-wc.usace.army.mil/stillhouse/.

United States Army Corps of Engineers (USACE), 2025d. Lakes and Recreation Information. Retrieved June 2025, from: https://www.swf.usace.army.mil/About/Lakes-and-Recreation-Information/.

United States Department of Agriculture (USDA), 2022a. Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin. Retrieved February 28, 2025, from: https://www.nrcs.usda.gov/sites/default/files/2022-10/AgHandbook296_text_low-res.pdf.

United States Department of Agriculture (USDA), 2022b. Census of Agriculture County Profile. Retrieved July 2025, from: https://www.nass.usda.gov/Publications/AgCensus/2022/Online_Resources/County_Profiles/Texas.

United States (U.S.), 1918. Migratory Bird Treaty Act. 16 USC 703-712.

United States (U.S.), 1940. Bald and Golden Eagle Protection Act. 50 CFR 22.

United States (U.S.), 1972 Clean Water Act. 33 USC 1251-1387.

United States (U.S.), 1975. Endangered and Threatened Wildlife and Plants. 50 CFR 17.

United States (U.S.), 1981. Farmland Protection Policy Act. 7 CFR 658.

United States (U.S.), 2004. Protection of Historic Properties. 36 CFR 800.

United States Fish and Wildlife Service (USFWS), 2007. National Bald Eagle Management Guidelines. Retrieved June 2025, from: https:/ /www.fws.gov/ sites/ default/ files/ documents/national-bald-eagle manAgement-guidelines_0.pdf.

United States Fish and Wildlife Service (USFWS), 2022. 5-year Review: Navasota's ladies'-tresses (*Spiranthes parksii*). Retrieved December 2025, from: https://ecosphere-documents-production-public.s3.amazonaws.com/sams/public_docs/species_nonpublish/3914.pdf.

United States Fish and Wildlife Service (USFWS), 2024a. Central Texas Karst Invertebrates Karst Zones and Karst Fauna Regions Overview. Retrieved September 26, 2025, from: https://www.fws.gov/sites/default/files/documents/2024-06/central-texas-karst-invertebrates-karst-fauna-region-and-karst-zone-overview-2024_0.pdf.

United States Fish and Wildlife Service (USFWS), 2024b. Endangered and Threatened Wildlife and Plants; Endangered Species Status With Critical Habitat for Guadalupe Fatmucket, Texas Fatmucket, Guadalupe Orb, Texas Pimpleback, Balcones Spike, and False Spike, and Threatened Species Status With Section 4(d) Rule and Critical Habitat for Texas Fawnsfoot. *Federal Register*, *89 FR 48034*. 2024-11645.

United States Fish and Wildlife Service (USFWS), 2025a. National Wetlands Inventory. Retrieved June 2025, from: https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/.

United States Fish and Wildlife Service (USFWS), 2025b. Information for Planning and Consultation (IPaC). Retrieved February 17, 2026, from: U.S. Fish and Wildlife Service: https:/ /ecos.fws.gov/ipac/.

United States Geological Survey – Texas Water Science Center (USGS), 2014. Geologic Database of Texas. Retrieved July 2025, from: https://data.geographic.texas.gov/collection/?c=79a18636-3419-4e22-92a3-d40c92eced14.

United States Geological Survey (USGS), 2018. Water Science Glossary. Retrieved June 2025, from: https://www.usgs.gov/special-topics/water-science-school/science/water-scienceglossary#:~:text=basin%2D%2Dan%20area%20of,by%20another%20body%20of%20water.

United States Geological Survey (USGS), 2025a. USGS Topographic Base Map. Retrieved April 2025, from ESRI Basemap.

United States Geological Survey (USGS), 2025b. Geologic Atlas of Texas. Retrieved April 2025, from: https://webapps.usgs.gov/txgeology/.

United States Geological Survey (USGS), 2025c. Watershed Boundary Dataset. Retrieved June 2025, from: https://www.usgs.gov/national-hydrography/access-national-hydrography-products.

United States Geological Survey (USGS), 2025d. National Hydrography Dataset Flowlines and Waterbodies. Retrieved June 2025, from: https://apps.nationalmap.gov/viewer/.

United States Large-Scale Solar Photovoltaic Database, 2023. Retrieved March 31, 2025, from: https://energy.usgs.gov/uspvdb/data/.

United States Wind Turbine Database (USWTDB), 2025. U.S. Wind Turbine Database Viewer. Retrieved March 5, 2025, from: https://energy.usgs.gov/uswtdb/.

Williamson County Conservation Foundation, 2008. Williamson County Regional Habitat Conservation Plan. Retrieved February 9, 2026, from: https://www.wilcotx.gov/DocumentCenter/View/1353/Williamson-County-Regional-Habitat-Conservation-Plan-Final-PDF.

Williamson County. 2025a. Conservation-Foundation. Retrieved February 6, 2025, from: https://www.wilcotx.gov/275/Conservation-Foundation.

Williamson County. 2025b. Infrastructure Department/Road Bond/Active Projects/Precinct 3. Retrieved December 29, 2025, from: https://www.wilcotx.gov/801/Precinct-3.