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PUC DOCKET NO. 48341

APPLICATION OF ELECTRIC TRANSMISSION TEXAS, LLC TO AMEND ITS CERTIFICATES OF CONVENIENCE AND NECESSITY FOR THE PROPOSED EDITH CLARKE TO FOARD CITY DOUBLE CIRCUIT 345-KV TRANSMISSION LINE PROJECT IN FOARD COUNTY, TEXAS	§	BEFORE THE PUBLIC UTILITY COMMISSION OF TEXAS

APPLICATION

MAY 25, 2018

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APPLICATION OF ELECTRIC TRANSMISSION TEXAS, LLC TO AMEND ITS CERTIFICATES OF CONVENIENCE AND NECESSITY FOR THE PROPOSED EDITH CLARKE TO FOARD CITY DOUBLE CIRCUIT 345-KV TRANSMISSION LINE PROJECT IN FOARD COUNTY, TEXAS

DOCKET NO. 48341

Submit seven (7) copies of the application and all attachments supporting the application: If the application is being filed pursuant to 16 Tex. Admin. Code § 25.101(b)(3)(D) (TAC) or 16 TAC § 25.174, include in the application all direct testimony. The application and other necessary documents shall be submitted to:

Public Utility Commission of Texas
Attn: Filing Clerk
1701 N. Congress Ave.
Austin, Texas 78711-3326

Applicant, Electric Transmission Texas, LLC (ETT) requests that all parties serve copies of all pleadings, discovery, correspondence, and other documents on the following ETT representative:

Service Contact:

Jerry Huerta
State Bar No. 24004709
AEP Service Corporation
400 W. 15th Street, Suite 1520
Austin, Texas 78701
(512) 481-3323 (Telephone)
(512) 481-4591 (Facsimile)
jnhuerta@aep.com

Attorney for Electric Transmission Texas, LLC

1.	**Applicant (Utility) Name:**	Electric Transmission Texas, LLC
	Certificate Number:	30193 and 30194
	Street Address:	400 W. 15th Street, Suite 800 Austin, TX 78701
	Mailing Address:	400 W. 15th Street, Suite 800 Austin, TX 78701

2. **Please identify all entities that will hold an ownership interest or an investment interest in the proposed project but which are not subject to the Commission's jurisdiction.**

   Not Applicable

3.	**Person to Contact:**	Randal E. Roper, PE
	Title/Position:	Regulatory Case Manager – AEP Texas Inc.
	Phone Number:	(512) 481 – 4572
	Mailing Address:	400 W. 15th Street, Suite 1520 Austin, TX 78701
	Email Address:	reroper@aep.com
	Alternate Contact:	Roy R. Bermea
	Title/Position:	Regulatory Consultant – AEP Texas Inc.
	Phone Number:	(512) 481 – 4575
	Mailing Address:	400 W. 15th Street, Suite 1520 Austin, TX 78701
	Email Address:	rrbermea@aep.com
	Legal Counsel:	Jerry Huerta – AEP Service Corporation
	Phone Number:	(512) 481 – 3323
	Mailing Address:	400 W. 15th Street, Suite 1520 Austin, TX 78701
	Email Address:	jnhuerta@aep.com

4. Project Description:

Name or Designation of Project:

Application of Electric Transmission Texas, LLC to amend its certificates of convenience and necessity for the Proposed Edith Clarke to Foard City Double Circuit 345-kV Transmission Line Project in Foard County, Texas (Application)

Provide a general description of the project, including the design voltage rating (kV), the operating voltage (kV), the CREZ Zone(s) (if any) where the project is located (all or in part), any substations and/or substation reactive compensation constructed as part of the project, and any series elements such as sectionalizing switching devices, series line compensation, etc. For HVDC transmission lines, the converter stations should be considered to be project components and should be addressed in the project description.

Electric Transmission Texas, LLC (ETT) is proposing to design and construct a new 345-kilovolt (kV) transmission line in Foard County, Texas to interconnect a new wind facility (Project). The proposed transmission line would be constructed as a single circuit 345-kV transmission line in Foard County on double circuit capable tubular steel monopole structures. The line will extend from the ETT Edith Clarke 345-kV Station to the windfarm Foard City Substation. The proposed Project will be approximately 2.6 miles in length and will require a nominal 150-foot wide right-of-way (ROW).

If the project will be owned by more than one party, briefly explain the ownership arrangements between the parties and provide a description of the portion(s) that will be owned by each party. Provide a description of the responsibilities of each party for implementing the project (design, Right-Of-Way acquisition, material procurement, construction, etc.).

Not applicable. The Project that is the subject of the application will be owned solely by ETT.

Identify and explain any deviation in transmission project components from the original transmission specifications as previously approved by the Commission or recommended by a PURA §39.151 organization.

Not applicable. There are no transmission specifications that have been previously approved by the Commission for this Project. The Electric Reliability Council of Texas (ERCOT) Nodal Protocols Section 3.11 relating to Transmission Planning defines a project that is to interconnect new generation as a "neutral project", which is not required to be submitted for ERCOT Regional Planning Group (RPG) review. Since the Project was not submitted for RPG review, ERCOT did not provide any specific transmission specifications for the Project. Thus, there have been no deviations in the transmission Project components from the original transmission specifications previously recommended by ERCOT (a PURA §39.151 organization).

5. Conductor and Structures:

Conductor Size and Type

The conductor to be used for the Project is 954 KCM ACSR (Cardinal), 54/7 Stranded.

Number of conductors per phase

The Project will be constructed with two (2) conductors per phase.

Continuous Summer Static Current Rating (A)

The Continuous Summer Static Current Rating for the Project is 2200 Amps.

Continuous Summer Static Line Capacity at Operating Voltage (MVA)

The Continuous Summer Static Line Capacity at Operating Voltage for the Project is 1350 MVA.

Continuous Summer Static Line Capacity at Design Voltage (MVA)

The Continuous Summer Static Line Capacity at Design Voltage for the Project is 2000 MVA.

Type and composition of Structures

The Project will be constructed primarily using self-supporting, double-circuit capable steel single pole structures. Alternative structure types, such as 3-pole structures, may be used due to engineering constraints. Constraints can include, but are not limited to, Federal Aviation Administration height limitations, underground and overhead obstructions, or existing line crossings.

Height of Typical Structures

The typical structure for the Project will be approximately 140 feet to 195 feet in height; however, the height may vary depending on the clearance requirements at a particular location, due to the terrain, span lengths, and overhead obstructions.

Estimated Maximum Height of Structures

The estimated maximum height of structures is 195 feet above ground.

Explain why these structures were selected; include such factors as landowner preference, engineering considerations, and costs comparisons to alternate structures that were considered. Provide dimensional drawings of the typical structures to be used in the project.

The specific area of the Project is used for farming and some ranching. This is the primary reason that self-supporting tubular steel monopole structures were selected for this Project since they do provide a reduced structure footprint. The steel monopole structures will also provide the necessary strength to support the conductor loads required for the Project. Guy wires associated with guyed structures would also run the risk of being damaged by vehicles and mowers, which increases maintenance, and can also be a reliability and public safety concern.

The reduced footprint of the monopole structure will ease the ability to access the easement in a manner to reduce the impact to farming operation for maintenance of the area around the structure, as well provide the ability of the farmer to utilize more of the property. Monopole tubular steel structures are also cost competitive for this Project application.

Dimensional drawings of the typical monopole double-circuit capable structures are included as Figures 1-2 and 1-3 of the *Environmental Assessment for ETT's Proposed Edith Clarke to Foard City 345 kV Transmission Line in Foard County, Texas* (EA). This document was prepared for ETT by routing consultant, Burns & McDonnell, and is included as Attachment 1 to this CCN Application.

For joint applications, provide and separately identify the above-required information regarding structures for the portion(s) of the project owned by each applicant.

Not applicable. This is not a joint application.

6. Right-of-way:

Miles of Right-of-Way

The number of miles of right-of-way for the proposed Project is approximately 2.6 miles.

Miles of Circuit

The line will be constructed with one circuit installed and the number of miles of circuit will be approximately 2.7 miles. There is approximately 0.1 mile of circuit located within the Edith Clarke Substation.

Width of Right-of-Way

The typical right-of-way for the Project will be 150 feet in width.

Percent of Right-of-Way Acquired

None of the right-of-way (0%) has been acquired on private property at this time. However, ETT has acquired written consent from all impacted landowners crossed by the Consensus Route presented for this Project. Written consent for each landowner crossed by the Consensus Route is provided as Attachment 2 to this CCN Application. Aerial road permits for crossings are anticipated but have not been obtained at this time.

For joint applications, provide and separately identify the above-required information for each route for the portion(s) of the project owned by each applicant.

Not applicable. This is not a joint application.

Provide a brief description of the area traversed by the transmission line. Include a description of the general land uses in the area and the type of terrain crossed by the line.

The area traversed by the transmission line is located in the North-Central Plains Physiographic Province of Texas, which geographically is on the boundary of the Southwestern Tablelands and Central Great Plains just east of the base of the Panhandle. The region is characterized by gently rolling hills and broad flats. Study Area elevations range from a high of approximately 1,553 feet above msl in the northwest corner of the Study Area to a low of 1,428 feet above msl at the east-central edge of the Study Area along Beaver Creek. The Study Area is located within a rural portion of Foard County approximately 2.3 miles south-southwest from the center of the City of Crowell. The Study Area is dominated by agricultural fields, rangeland, and shrubland. There is no commercial or residential development within the Study Area except for a very few isolated single-family homes and farmsteads.

Specific discussion regarding natural, human, and cultural resources in the Study Area is presented in Section 3 of the Environmental Assessment (Attachment 1 of this CCN Application).

7. Substations or Switching Stations:

List the name of all existing HVDC converter stations, substations or switching stations that will be associated with the new transmission line. Provide documentation showing that the owner(s) of the existing HVDC converter stations, substations and/or switching stations have agreed to the installation of the required project facilities.

The existing Edith Clarke 345-kV Station is owned by Electric Transmission Texas, LLC and will have additional substation facilities constructed within the existing station footprint for this Project termination.

List the name of all new HVDC converter stations, substations or switching stations that will be associated with the new transmission line. Provide documentation showing that the owner(s) of the new HVDC converter stations, substations and/or switching stations have agreed to the installation of the required project facilities.

The new Foard City Substation will be owned by the generator, Foard City Wind, LLC and will be the other terminus for this Project.

8. Estimated Schedule:

Estimated Dates of:	Start	Completion
Right-of-way and Land Acquisition	June 2018	Dec 2018
Engineering and Design	March 2018	October 2018
Material and Equipment Procurement	August 2018	December 2018
Construction of Facilities	January 2019	May 2019
Energize Facilities	----------	May 2019

9. Counties:

For each route, list all counties in which the route is to be constructed.

The Consensus Route for the Project is located entirely within Foard County.

10. Municipalities:

For each route, list all municipalities in which the route is to be constructed.

The Consensus Route for the Project is not located within the incorporated boundaries of any municipality.

For each applicant, attach a copy of the franchise, permit or other evidence of the city's consent held by the utility, if necessary or applicable. If franchise, permit, or other evidence of the city's consent has been previously filed, provide only the docket number of the application in which the consent was filed. Each applicant should provide this information only for the portion(s) of the project which will be owned by the applicant.

Not applicable.

11. Affected Utilities:

Identify any other electric utility served by or connected to facilities in this application.

There is no other electric utility served by or directly connected to this Project.

Describe how any other electric utility will be affected and the extent of the other utilities' involvement in the construction of this project. Include any other utilities whose existing facilities will be utilized for the project (vacant circuit positions, ROW, substation sites and/or equipment, etc.) and provide documentation showing that the owner(s) of the existing facilities have agreed to the installation of the required project facilities.

Not applicable.

12. Financing:

Describe the method of financing this project. For each applicant that is to be reimbursed for all or a portion of this project, identify the source and amount of the reimbursement (actual amount if known, estimated amount otherwise) and the portion(s) of the project for which the reimbursement will be made.

Funds for this Project will come from short-term borrowings and owner equity.

13. Estimated Costs:

Provide cost estimates for each route of the proposed project using the following table. Provide a breakdown of "Other" costs by major cost category and amount. Provide the information for each route in an attachment to this application.

	Transmission Facilities	Substation Facilities
Right-of-way and Land Acquisition	$ 670,000	$ 0
Engineering and Design (Utility)	$ 92,000	$ 81,000
Engineering and Design (Contract)	$ 141,000	$ 498,000
Procurement of Material and Equipment (including stores)	$ 2,596,000	$ 2,293,000
Construction of Facilities (Utility)	$ 72,000	$ 72,000
Construction of Facilities (Contract)	$ 3,964,000	$ 2,346,000
Other (all costs not included in the above categories)		
Estimated Total Cost	**$ 7,535,000**	**$ 5,290,000**

For joint applications, provide and separately identify the above-required information for the portion(s) of the project owned by each applicant.

Not applicable. This is not a joint application.

14. Need for the Proposed Project:

For a standard application, describe the need for the construction and state how the proposed project will address the need. Describe the existing transmission system and conditions addressed by this application. For projects that are planned to accommodate load growth, provide historical load data and load projections for at least five years. For projects to accommodate load growth or to address reliability issues, provide a description of the steady state load flow analysis that justifies the project. For interconnection projects, provide any documentation from a transmission service customer, generator, transmission service provider, or other entity to establish that the proposed facilities are needed. For projects related to a Competitive Renewable Energy Zone, the foregoing requirements are not necessary; the applicant need only provide a specific reference to the pertinent portion(s) of an appropriate commission order specifying that the facilities are needed. For all projects, provide any documentation of the review and recommendation of a PURA §39.151 organization.

The proposed 345-kV transmission Project is designed to connect a new transmission service customer, Foard City Wind, LLC. Foard City Wind, LLC has requested ETT to interconnect at its to be constructed Foard City Substation at 345-kV to provide interconnection service to its planned 350-megawatt (MW) Plant capacity comprised of 140 GE 2.5 MW wind turbines.

Under 16 TAC Rule § 25.198(b), a transmission service provider is required to provide service to a transmission customer when certain conditions are met, including execution of an interconnection agreement. The ERCOT Standard Generation Interconnection Agreement between ETT and Foard City Wind, LLC is included in this Application as Attachment 3. Additionally, 16 TAC § 25.195(c)(1) provides as follows: "When an eligible transmission service customer requests transmission service for a new generation source that is planned to be interconnected with a TSP's transmission network, the transmission service customer shall be responsible for the cost of installing step-up transformers to transform the output of the generator to a transmission voltage level and protective devices at the point of interconnection capable of electrically isolating the generation source owned by the transmission service customer. The

TSP shall be responsible, pursuant to paragraph (2) of this subsection, for the cost of installing any other interconnection facilities that are designed to operate at a transmission voltage level and any other upgrades on its transmission system that may be necessary to accommodate the requested transmission service."

The ERCOT Regional Planning Group (RPG) Charter and Procedures defines a project that is directly associated with the interconnection of new generation as a "neutral project", which is not required to be submitted for RPG review. Therefore, there is no documentation of a review or a recommendation of a PURA § 39.151 organization.

As future generators request interconnection to EHV switch stations such as Edith Clarke, the transmission lines connecting the generators to the EHV switch station will utilize a limited numbers of corridors that typically will exist into such stations. Since the corridors into an EHV switch station can be limited, AEP has determined that it is a prudent BMP to consider the maximization of the use of the ROW to reduce future potential landowner impact. Therefore, any line connecting to an EHV switch station will be considered for double circuit capability. In this specific instance the area surrounding the majority of the Edith Clarke Station is either being farmed or has drainage issues. The Consensus Route provides a clear exit path to the south of the station with the ability to significantly reduce the chance of crossing of any of the existing double circuit 345-kV transmission lines to the south and southwest in an area where additional generation could occur. Therefore, in this specific case the request in this CCN Application is to approve the new transmission line as a double circuit 345-kV transmission line at this time.

15. Alternatives to Project:

For a standard application, describe alternatives to the construction of this project (not routing options). Include an analysis of distribution alternatives, upgrading voltage or bundling of conductors of existing facilities, adding transformers, and for utilities that have not unbundled, distributed generation as alternatives to the project. Explain how the project overcomes the insufficiencies of the other options that were considered.

Not applicable. There are no practical alternatives to the Project.

16. Schematic or Diagram:

For a standard application, provide a schematic or diagram of the applicant's transmission system in the proximate area of the project. Show the location and voltage of existing transmission lines and substations, and the location of the construction. Locate any taps, ties, meter points, or other facilities involving other utilities on the system schematic.

A schematic of the transmission system in the proximate area of the Project is included with this application as Attachment 4.

17. Routing Study:

Provide a brief summary of the routing study that includes a description of the process of selecting the study area, identifying routing constraints, selecting potential line segments, and the selection of the routes. Provide a copy of the complete routing study conducted by the utility or consultant. State which route the applicant believes best addresses the requirements of PURA and P.U.C. Substantive Rules.

ETT retained Burns & McDonnell Engineering Company, Inc. (Burns & McDonnell) to prepare the ***Environmental Assessment of the Proposed Edith Clarke to Foard City 345-kV Transmission Line Project in Foard County, Texas*** (Environmental Assessment (EA)). A copy of the complete EA that was prepared by Burns & McDonnell is included as Attachment 1 of this CCN Application. The EA presents the analysis that was conducted by Burns & McDonnell, and the land use and environmental data for the route that was considered for this Project.

The following summary is based on information provided in Chapter 2.0 of the EA.

The objective of the EA was to evaluate the proposed 345-kV transmission line location. Burns & McDonnell utilized a comprehensive transmission line evaluation methodology to evaluate the proposed

route of the transmission line location. Methods used were governed by factors set forth in Section 37.056(c)(4) of the Texas Utilities Code and Commission Substantive Rule 25.101(b)(3). The first step in the assessment of the Project was to delineate a Study Area. The Study Area needed to encompass the endpoints for the proposed Project (ETT's existing Edith Clarke Substation and several possible sites for the proposed Foard City Substation) and include an area large enough to adequately evaluate the proposed transmission line Project in support of ETT's CCN Application. The purpose of delineating a Study Area for the Project was to establish boundaries and limits in which to identify environmental and land use constraints during the information gathering process to properly identify and map various items included within the PUC's CCN application. The delineated Study Area measures approximately 3.0 miles north to south, approximately 3.8 miles east to west, and encompasses an area of approximately 11.4 square miles in Foard County.

Data used in the evaluation of Consensus Route were drawn from a variety of sources, including published literature, information from local, state and federal agencies, recent aerial photography, and ground reconnaissance of the Study Area. Specific discussion related to Study Area selection, constraints identification, and assessment of the Consensus Route is detailed in Section 2.0 of the EA.

ETT determined that the Consensus Route complies with the requirements of PURA and P.U.C. Substantive Rules.

18. Public Meeting or Public Open House:

Provide the date and location for each public meeting or public open house that was held in accordance with 16 TAC § 22.52. Provide a summary of each public meeting or public open house including the approximate number of attendants, and a copy of any survey provided to attendants and a summary of the responses received. For each public meeting or public open house provide a description of the method of notice, a copy of any notices, and the number of notices that were mailed and/or published.

Not Applicable. Because fewer than 25 persons would be entitled to receive direct notice of the application, no public meeting was held prior to filing of this application. However, discussions did occur with landowners within the Study Area that resulted in the Consensus Route filed in this CCN Application.

19. Routing Maps:

Base maps should be a full scale (one inch = not more than one mile) highway map of the county or counties involved, or other maps of comparable scale denoting sufficient cultural and natural features to permit location of all routes in the field. Provide a map (or maps) showing the study area, routing constraints, and all routes or line segments that were considered prior to the selection of the routes. Identify the routes and any existing facilities to be interconnected or coordinated with the project. Identify any taps, ties, meter points, or other facilities involving other utilities on the routing map. Show all existing transmission facilities located in the study area. Include the locations of radio transmitters and other electronic installations, airstrips, irrigated pasture or cropland, parks and recreational areas, historical and archeological sites (subject to the instructions in Question 27), and any environmentally sensitive areas (subject to the instructions in Question 29).

Routing maps are provided in the EA (Attachment 1 to this CCN Application). Figure 2-2 in the EA is an aerial-photograph based map with a scale of 1 inch = 2,000 feet that shows the Study Area, the Consensus Route, existing transmission lines, other environmental and land use features, and the locations of all known habitable structures or groups of habitable structures located within 500 feet of the Consensus Route's centerline. Figure 2-3 in the EA is an aerial-photograph based map with a scale of 1 inch = 1,000 feet that shows an enlarged area in the vicinity of the Consensus Route, with existing transmission lines, other environmental and land use features, and the locations of all known habitable structures or groups of habitable structures located within 500 feet of the Consensus Route's centerline.

Provide aerial photographs of the study area displaying the date that the photographs were taken or maps that show (1) the location of each route with each route segment identified, (2) the locations of all major public roads including, as a minimum, all federal and state roadways, (3) the locations of all known habitable structures or groups of habitable structures (see Question 19 below) on properties directly

affected by any route, and (4) the boundaries (approximate or estimated according to best available information if required) of all properties directly affected by any route.

An aerial-photograph-based property ownership map with a scale of 1 inch = 1,000 feet is included in this application as Attachment 5. It shows the approximate boundaries of all properties that are directly affected by the proposed 345-kV transmission line Consensus Route according to the best information available from county tax appraisal district records. Each property has been assigned a unique "Property/Map ID" number. There is no habitable structure located within 500 feet of the Consensus Route. This Property/Map ID number is among the information provided in Attachment 6 that is the cross-reference table discussed below.

For each route, cross-reference each habitable structure (or group of habitable structures) and directly affected property identified on the maps or photographs with a list of corresponding landowner names and addresses and indicate which route segment affects each structure/group or property.

There is no habitable structure located within 500 feet of the Consensus Route. Landowner names, property identification, links, and map locations are included in a cross-reference table provided as Attachment 6 of this CCN Application.

20. Permits:

List any and all permits and/or approvals required by other governmental agencies for the construction of the proposed project. Indicate whether each permit has been obtained.

ETT will coordinate with appropriate local, state, and federal agencies with jurisdiction regarding the construction of the transmission facilities associated with this Project. ETT and/or Burns & McDonnell have initiated contact with and provided information about the Project to various agencies. Some input from these agencies has been incorporated in this application; however, requests for permits and/or approvals will not be submitted to the appropriate agencies until the alignment of the Consensus Route has been approved by the Commission. None of the following potential permits, approvals, requirements, easements, or clearances has been obtained.

- Permits for crossing state-maintained roads/highways will be obtained from Texas Department of Transportation as necessary.
- Cultural resource clearance will be obtained from the Texas Historical Commission for the proposed Project right-of-way as necessary.
- A Storm Water Pollution Prevention Plan (SWPPP) might be required by the Texas Commission on Environmental Quality (TCEQ). ETT or its contractor will submit a Notice of Intent to the TCEQ at least 48 hours prior to the beginning of construction; and will have the SWPPP on site at the initiation of clearing and construction activities.
- Based on Federal Aviation Administration ("FAA") guidelines, ETT will make a final determination of the need for FAA notification based on the alignment of the approved route, structure locations, and structure designs. The result of the notification, and the subsequent coordination with the FAA could include changes in the design and/or potential requirements to mark and/or illuminate the line.
- Permits or other requirements associated with possible impacts to endangered/threatened species will be coordinated with the U.S. Fish and Wildlife Service as necessary.
- Coordination with Texas Parks & Wildlife Department (TPWD) might be necessary to determine the need for any surveys, and to avoid or minimize any potential adverse impacts to sensitive habitats, threatened or endangered species, and other fish and wildlife resources along the approved route.
- Permits or other requirements associate with possible impacts to waters of the U.S. under the jurisdiction of the U.S. Army Corps of Engineers (USACE) will be coordinated with USACE as necessary.

21. Habitable structures:

For each route list all single-family and multi-family dwellings and related structures, mobile homes, apartment buildings, commercial structures, industrial structures, business structures, churches, hospitals, nursing homes, schools, or other structures normally inhabited by humans or intended to be inhabited by humans on a daily or regular basis within 300 feet of the centerline if the proposed project will be constructed for operation at 230kV or less, or within 500 feet of the centerline if the proposed project will be constructed for operation at greater than 230kV. Provide a general description of each habitable structure and its distance from the centerline of the route. In cities, towns or rural subdivisions, houses can be identified in groups. Provide the number of habitable structures in each group and list the distance from the centerline of the route to the closest and the farthest habitable structure in the group. Locate all listed habitable structures or groups of structures on the routing map.

No habitable structure is located within 500 feet of the Consensus Route.

22. Electronic Installations:

For each route, list all commercial AM radio transmitters located within 10,000 feet of the center line of the route, and all FM radio transmitters, microwave relay stations, or other similar electronic installations located within 2,000 of the center line of the route. Provide a general description of each installation and its distance from the center line of the route. Locate all listed installations on a routing map.

As indicated in Table 6-1 of the EA, no AM radio transmitter was determined to be located within 10,000 feet of the Consensus Route. No FM radio transmitter, microwave tower, or other electronic installation was determined to be located within 2,000 feet of the centerline of the Consensus Route.

23. Airstrips:

For each route, list all known private airstrips within 10,000 feet of the center line of the project. List all airports registered with the Federal Aviation Administration (FAA) with at least one runway more than 3,200 feet in length that are located within 20,000 feet of the center line of any route. For each such airport, indicate whether any transmission structures will exceed a 100:1 horizontal slope (one foot in height for each 100 feet in distance) from the closest point of the closest runway. List all listed airports registered with the FAA having no runway more than 3,200 feet in length that are located within 10,000 feet of the center line of any route. For each such airport, indicate whether any transmission structures will exceed a 50:1 horizontal slope from the closest point of the closest runway. List all heliports located within 5,000 feet of the center line of any route. For each such heliport, indicate whether any transmission structures will exceed a 25:1 horizontal slope from the closest point of the closest landing and takeoff area of the heliport. Provide a general description of each listed private airstrip, registered airport, and heliport; and state the distance of each from the center line of each route. Locate and identify all listed airstrips, airports, and heliports on a routing map.

There is no known private airstrip within 10,000 feet of the centerline of the Consensus Route.

There is no airport registered with the Federal Aviation Administration (FAA) with at least one runway more than 3,200 feet in length located within 20,000 feet of the centerline of the Consensus Route.

There is no airport registered with the FAA having no runway more than 3,200 feet in length located within 10,000 feet of the centerline of the Consensus Route.

There is no heliport located within 5,000 feet of the centerline of the Consensus Route.

24. Irrigation Systems:

For each route identify any pasture or cropland irrigated by traveling irrigation systems (rolling or pivot type) that will be traversed by the route. Provide a description of the irrigated land and state how it will be affected by each route (number and type of structures etc.). Locate any such irrigated pasture or cropland on a routing map.

No pasture or cropland irrigated by traveling irrigation systems (rolling or pivot type) will be traversed by the Consensus Route.

25. Notice:

Notice is to be provided in accordance with 16 TAC § 22.52.

A. Provide a copy of the written direct notice to owners of directly affected land. Attach a list of the names and addresses of the owners of directly affected land receiving notice.

A sample copy of the written direct notice and enclosures that were mailed to owners of directly affected land is provided in Attachments 7a through 7f. A list of the names and addresses of these landowners is provided in Attachment 7g.

B. Provide a copy of the written notice to utilities that are located within five miles of the routes.

A sample copy of the written notice to utilities that are located within five miles of the proposed Project is provided in Attachment 8a. The list of the names and addresses of these utilities is provided in Attachment 8b.

C. Provide a copy of the written notice to county and municipal authorities, and the Department of Defense Siting Clearinghouse. Notice to the DoD Siting Clearinghouse should be provided at the email address found at http://www.acq.osd.mil/dodsc/ .

Sample copy of the written notice to county and municipal authorities is provided as Attachment 9a. The list of the names and addresses of these authorities is provided in Attachment 9b. A copy of the written notice to the Department of Defense Siting Clearinghouse is provided as Attachment 10.

D. Provide a copy of the notice that is to be published in newspapers of general circulation in the counties in which the facilities are to be constructed. Attach a list of the newspapers that will publish the notice for this application. After the notice is published, provide the publisher's affidavits and tear sheets.

A sample copy of the notice to be published in the ***Foard County News***, a newspaper of general circulation in Foard County, is provided in Attachment 11.

For a CREZ application, in addition to the requirements of 16 TAC § 22.52 the applicant shall, not less than twenty-one (21) days before the filing of the application, submit to the Commission staff a "generic" copy of each type of alternative published and written notice for review. Staff's comments, if any, regarding the alternative notices will be provided to the applicant not later than seven days after receipt by Staff of the alternative notices. Applicant may take into consideration any comments made by Commission staff before the notices are published or sent by mail.

Not Applicable. This is not a CREZ application.

In addition to the notices described above, 16 TAC § 22.52 requires ETT to provide notice of this application to the Office of Public Utility Counsel. A copy of that notice is included in this CCN Application as Attachment 12.

26. Parks and Recreation Areas:

For each route, list all parks and recreational areas owned by a governmental body or an organized group, club, or church and located within 1,000 feet of the center line of the route. Provide a general description of each area and its distance from the center line. Identify the owner of the park or recreational area

(public agency, church, club, etc.). List the sources used to identify the parks and recreational areas. Locate the listed sites on a routing map.

Burns & McDonnell performed a review of federal and state databases, county and local maps to identify parks and/or recreational areas within the Study Area. Reconnaissance surveys were also conducted to identify any additional park or recreational areas that are located within the Study Area.

No park or recreational area is crossed by the Consensus Route centerline. Additionally, no park or recreation area is located within 1,000 feet of the Consensus Route's centerline.

27. Historical and Archeological Sites:

For each route, list all historical and archeological sites known to be within 1,000 feet of the center line of the route. Include a description of each site and its distance from the center line. List the sources (national, state or local commission or societies) used to identify the sites. Locate all historical sites on a routing map. For the protection of the sites, archeological sites need not be shown on maps.

To identify the historical and archeological sites in the Study Area, Burns & McDonnell researched the available records and literature at the Texas Archeological Research Laboratory, J.J. Pickle Research Campus, at the University of Texas at Austin. In addition, the Texas Historical Commission's Archeological Sites Atlas files were used to identify listed and eligible National Register of Historical Places (NRHP) properties and sites, NRHP districts, cemeteries, Official Texas Historical Markers, State Archeological Landmarks, and any other potential cultural resources such as National Historic Landmarks, National Monuments, National Memorials, National Historic Sites, and National Historical Parks to ensure the completeness of the study. To identify areas with a high probability for the occurrence of cultural resources, Burns & McDonnell used 7.5-minute topographic maps and aerial photography.

Table 6-1 of the EA indicates that no known cultural resource site is crossed by, or within 1,000 feet of the Consensus Route centerline.

There is no NRHP-listed or determined-eligible site crossed by or within 1,000 feet of the Consensus Route centerline.

28. Coastal Management Program:

For each route, indicate whether the route is located, either in whole or in part, within the coastal management program boundary as defined in 31 TAC §503.1. If any route is, either in whole or in part, within the coastal management program boundary, indicate whether any part of the route is seaward of the Coastal Facilities Designation Line as defined in 31 TAC §19.2(a)(21). Using the designations in 31 TAC §501.3(b), identify the type(s) of Coastal Natural Resource Area(s) impacted by any part of the route and/or facilities.

No part of the Consensus Route of the Proposed Edith Clarke to Foard City 345-kV Transmission Line Project occurs within the coastal management program boundary, as defined in 31 TAC § 503.1.

29. Environmental Impact:

Provide copies of any and all environmental impact studies and/or assessments of the project. If no formal study was conducted for this project, explain how the routing and construction of this project will impact the environment. List the sources used to identify the existence or absence of sensitive environmental areas. Locate any environmentally sensitive areas on a routing map. In some instances, the location of the environmentally sensitive areas or the location of protected or endangered species should not be included on maps to ensure preservation of the areas or species. Within seven days after filing the application for the project, provide a copy of each environmental impact study and/or assessment to the Texas Parks and Wildlife Department (TPWD) for its review at the address below. Include with this application a copy of the letter of transmittal with which the studies/assessments were or will be sent to the TPWD.

Wildlife Habitat Assessment Program
Wildlife Division

Texas Parks and Wildlife Department
4200 Smith School Road
Austin, Texas 78744

The EA that was conducted by Burns & McDonnell is included with this application as Attachment 1. Data used by Burns & McDonnell in the evaluation of the proposed route of the 345-kV transmission line were drawn from a variety of sources, including published literature (documents, reports, maps, aerial photography, etc.), and information from local, state, and federal agencies. An extensive list of resources is provided in Section 8 of the EA. Ground reconnaissance of the study area and computer-based evaluation of digital aerial imagery were utilized for the evaluation of the route of the proposed 345-kV transmission line. Environmentally sensitive areas are shown on Figure 2-2 and Figure 2-3 of the EA.

A copy of the letter of transmittal of the Application, including the EA for this Project, to the TPWD is included in this application as Attachment 13. An affidavit verifying that the Application and EA were sent to TPWD will be filed separately in this docket.

30. Affidavit:

Attach a sworn affidavit from a qualified individual authorized by the applicant to verify and affirm that, to the best of their knowledge, all information provided, statements made, and matters set forth in this application and attachments are true and correct.

The sworn affidavit of Randal E. Roper, Regulatory Case Manager – AEP Texas Inc. is included with this CCN Application as Attachment 14.

CCN Application – List of Attachments

1	Environmental Assessment
2	Consensus Route Agreements
3	Interconnection Agreement
4	Diagram of Transmission System in Project Area
5	Aerial-photograph-based Property Ownership Map
6	Table providing landowner names, property identification, and map locations
7a	Notice – Landowner Letter
7b	Notice – Map of Consensus Route
7c	Notice – Consensus Route Description
7d	Notice – Landowner Brochure
7e	Notice – Comment Form
7f	Notice – Intervenor Form
7g	Notice – Landowner List
8a	Notice – Utilities Letter *
8b	Notice – Utilities List
9a	Notice – County and Municipal Officials Letter *
9b	Notice – County and Municipal Officials List
10	Notice – Department of Defense (DoD) Siting Clearinghouse
11	Notice – Newspaper Publication
12	Notice – Office of Public Utility Counsel *
13	Letter of Transmittal of Application to the Texas Parks and Wildlife Department
14	Affidavit – Application to Amend Certificates of Convenience and Necessity

* Excluding Maps and Route Descriptions provided in Attachment 7 set of documents

BURNS McDONNELL

Environmental Assessment

ETT℠
Electric Transmission Texas

Proposed Edith Clarke to Foard City 345-kV Transmission Line Project
Docket No. 48431

May 2018

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Environmental Assessment

prepared for

Electric Transmission Texas, LLC

Proposed Edith Clarke to Foard City 345-kV Transmission Line Project in Foard County, Texas

Docket No. 48431

May 2018

prepared by

Burns & McDonnell Engineering Company, Inc.
Austin, Texas

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LIST OF ACRONYMS AND ABBREVIATIONS

Abbreviation	Term/Phrase/Name
AEP	American Electric Power
AOS	American Ornithological Society
APLIC	Avian Power Line Interaction Committee
AWBP	Aransas-Wood Buffalo Population
BEG	Bureau of Economic Geology
BGEPA	Bald and Golden Eagle Protection Act
BMP	best management practice
Burns & McDonnell	Burns & McDonnell Engineering Company, Inc.
CCN	Certificate of Convenience and Necessity
CFR	Code of Federal Regulations
CR	County Road
CREZ	Competitive Renewable Energy Zone
CWA	Clean Water Act
CWCTP	Cooperative Whooping Crane Tracking Project
EA	Environmental Assessment and Alternative Routing Analysis
EMST	Ecological Mapping Systems of Texas
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ETT	Electric Transmission Texas, LLC
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulations
FCC	Federal Communications Commission
FEMA	Federal Emergency Management Agency
FM	Farm-to-Market Road
ft	foot/feet
FVZ	foreground visual zone

Abbreviation	Term/Phrase/Name
GIS	geographic information system
GLO	General Land Office
HPA	high probability area
IPaC	Information, Planning, and Conservation
ISD	Independent School District
kV	kilovolt
MBTA	Migratory Bird Treaty Act
ME	Miscellaneous Easement
MW	megawatt
msl	Mean sea level
NAIP	National Agriculture Imagery Program
NASS	National Agricultural Statistics Service
NDD	TPWD's Natural Diversity Database
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Corporation
NESC	National Electrical Safety Code
NOI	Notice of Intent
NOT	Notice of Termination
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NRPC	Nortex Regional Planning Commission
NWI	National Wetlands Inventory
NWP	Nationwide Permit
OTHM	Official Texas Historical Marker
PSF	Permanent School Fund
PUC	Public Utility Commission of Texas

Abbreviation	Term/Phrase/Name
PURA	Public Utility Regulatory Act
ROW	right-of-way
RRC	Railroad Commission of Texas
RTHL	Recorded Texas Historic Landmark
SAL	State Antiquities Landmark
SCS	Soil Conservation Service
SH	State Highway
SWPPP	Storm Water Pollution Prevention Plan
TAC	Texas Administrative Code
TARC	Texas Association of Regional Councils
TARL	Texas Archeological Research Laboratory
TASA	Texas Archeological Sites Atlas
TCEQ	Texas Commission on Environmental Quality
THC	Texas Historical Commission
TORP	Texas Outdoor Recreation Plan
TPDES	Texas Pollution Discharge Elimination System
TPWD	Texas Parks and Wildlife Department
TWDB	Texas Water Development Board
TxDOT	Texas Department of Transportation
U.S.	United States
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

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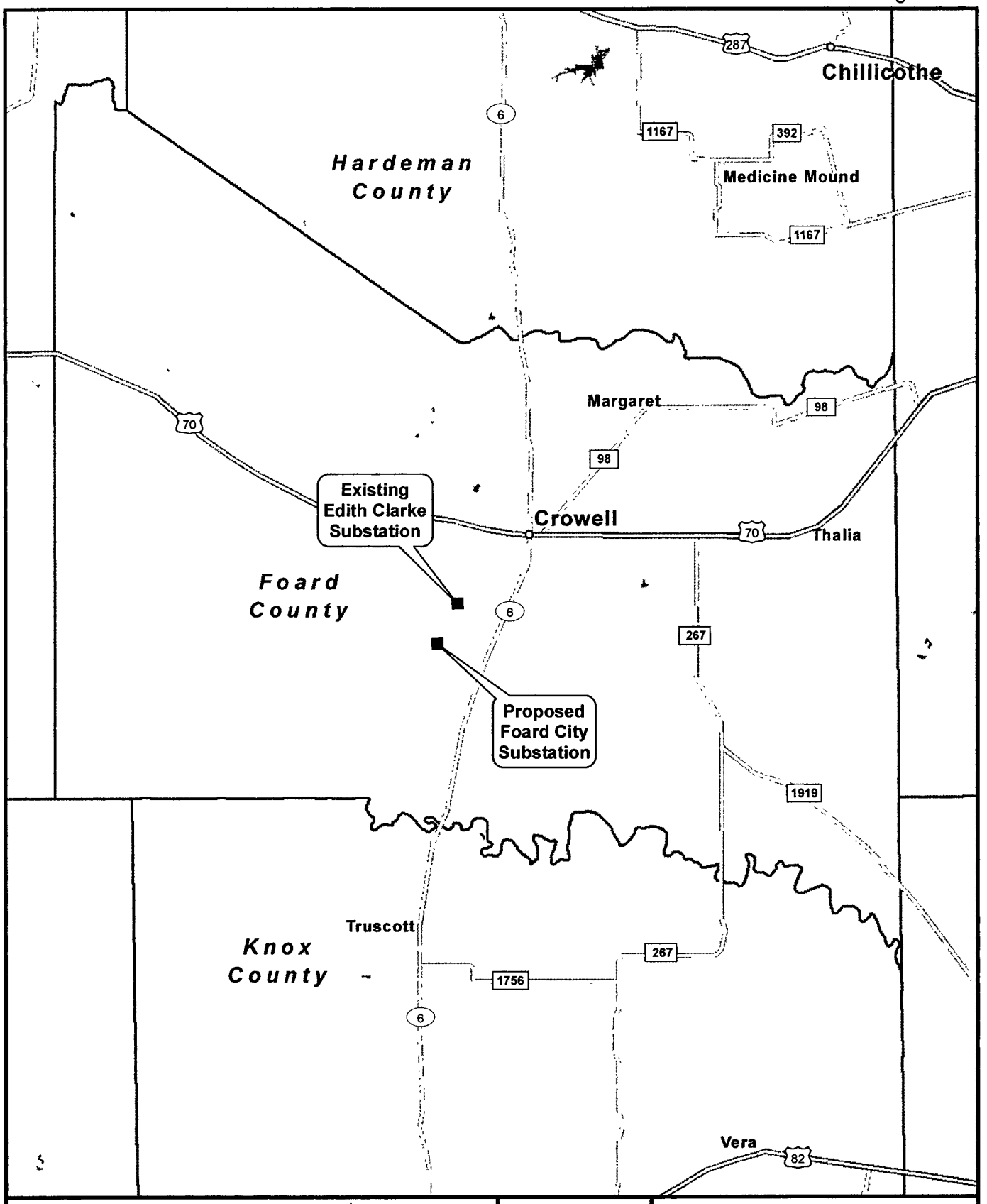
1.0 DESCRIPTION OF THE PROPOSED PROJECT

1.1 Scope of Project

Electric Transmission Texas, LLC (ETT) is proposing to design and construct a new 345-kilovolt (kV) transmission line in Foard County, Texas, to interconnect a new wind generation facility (Project). The proposed transmission line would be constructed as a single-circuit 345-kV transmission line in Foard County on double-circuit capable, tubular steel monopole structures. The proposed transmission line will be constructed between the existing ETT Edith Clarke 345-kV Substation, located approximately 1,350 feet northwest of the Farm-to-Market Road (FM) 2003 and County Road (CR) 327 intersection in central Foard County, and the new windfarm Foard City Substation, located approximately 880 feet north of the CR 337 and CR 334 intersection. The proposed Project will be approximately 13,780 feet long and will require a 150-foot wide right-of-way (ROW). Figure 1-1 shows the Project location; the Study Area is described in Section 2.3.1 and shown on Figure 2-1.

ETT retained Burns & McDonnell Engineering Company, Inc. (Burns & McDonnell) to prepare an Environmental Assessment (EA) to support its application for a Certificate of Convenience and Necessity (CCN) to be submitted to the Public Utility Commission of Texas (PUC) for the Project. This document has been prepared to provide information and address requirements of Section 37.056 (c)(4)(A-D) of the Texas Public Utilities Code, the PUC's CCN application form, and PUC Texas Administrative Code (TAC) §25.101, and the PUC's policy of "prudent avoidance." This document is intended to provide information and address issues concerning the natural, human, and cultural environment within the Study Area. This document may also be used in support of any additional local, state, or Federal permitting activities that may be required for ETT's proposed Project.



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Service Layer Credits:

Source: ESRI; Burns & McDonnell Engineering Company, Inc

BURNS McDONNELL

Figure 1-1
Project Location
Edith Clarke to Foard City
345-kV Transmision Line Project
Electric Transmission Texas
Foard County, Texas

1-2

Issued: 5/14/2018

1.2 Purpose and Need

This proposed 345-kV transmission Project is designed to directly interconnect a new transmission service customer, Foard City Wind, LLC., into the existing ETT Edith Clarke Substation. Foard City Wind has requested ETT to interconnect its proposed 350-megawatt (MW) wind development. Additional details are provided in the CCN application regarding the termination into the ETT Edith Clarke Substation. 16 TAC 25.191(d)(3) requires a Transmission Service Provider to interconnect a generator once the other conditions are completed for transmission service as defined in 16 TAC 25.191(c).

1.3 Description of Proposed Design and Construction

The following information presents the proposed design and construction of facilities for the double-circuit capable 345-kV transmission line.

1.3.1 Transmission Line Design

ETT is proposing to use self-supporting, double-circuit capable tubular steel monopole structures for the Project as shown in Figure 1-2 and Figure 1-3. Design criteria will be per American Electric Power (AEP) standard design specifications and will comply with applicable statues, the appropriate edition of the National Electrical Safety Code (NESC), and acceptable engineering design practice. Geotechnical considerations will include soil borings and in situ soil testing to provide parameters of foundation design and embedment depth of the structures. Structures will be supported by foundations that are appropriate and compatible to the structure design. Structures are anticipated to be base-plated monopoles on drilled shaft foundations. The structure height above ground will range from 140 to 195 feet. These heights will vary depending upon terrain, span requirements, and engineering constraints. Span distance between the structures will vary from 400 feet to 1,200 feet (typically 800 feet), with some exceptions due to individual site conditions or engineering requirements.

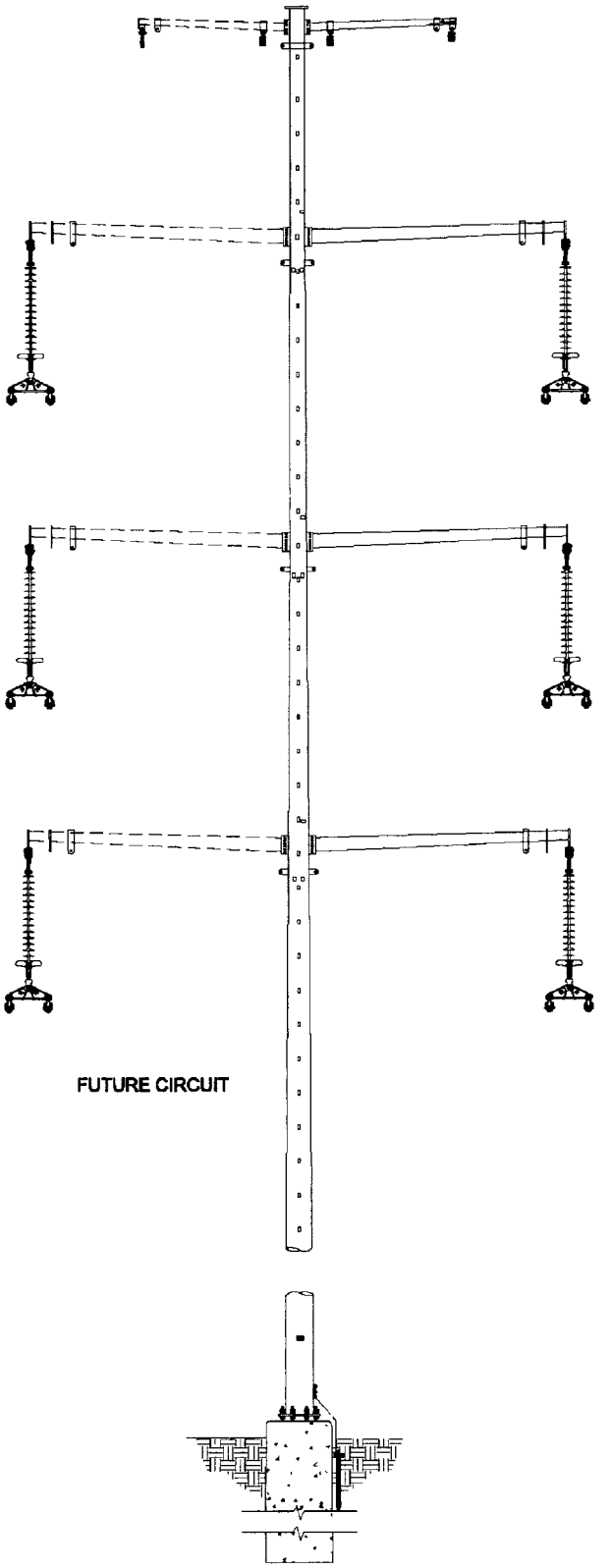

Figure 1-2
Typical Double-Circuit
Tangent Monopole Structure
Edith Clarke to Foard City
345-kV Transmission Line Project
Foard County, Texas

Source: Burns & McDonnell Engineering Company, Inc

Issued 5/14/2018

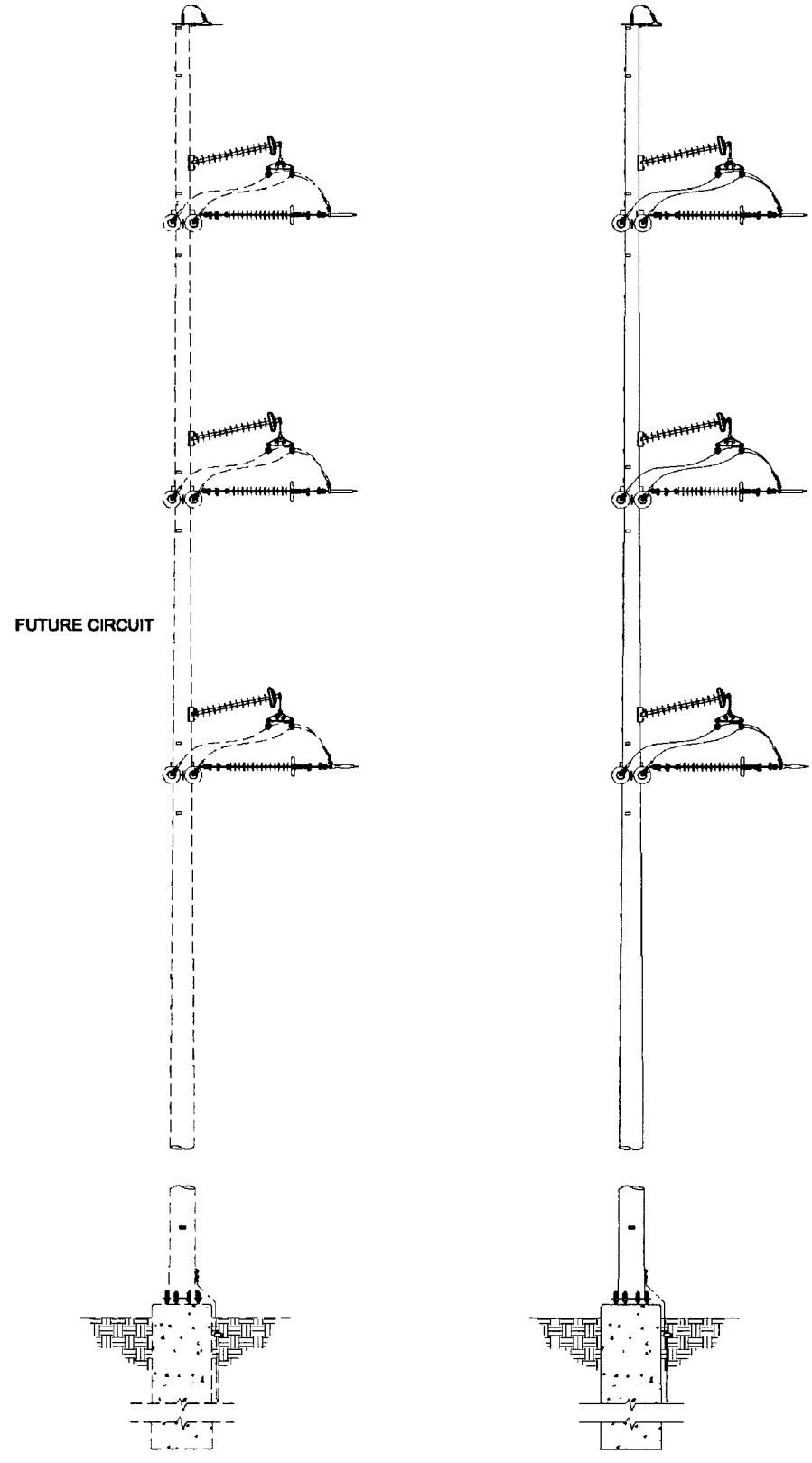

Figure 1-3
Typical 2-Pole
Deadend Structure
Edith Clarke to Foard City
345-kV Transmission Line Project
Foard County, Texas

Source: Burns & McDonnell Engineering Company, Inc

1-5

Issued: 5/14/2018

1.3.2 Right-of-Way Requirements

The proposed ROW width for this Project will be approximately 150 feet. The proposed transmission line will be located along the centerline of the ROW. Additional temporary workspace may be required at line angles and at dead-ends.

1.4 Construction Considerations

Projects of this type require surveying and ROW clearing, foundation installation, structure assembly and erection, conductor and shield wire installation, and cleanup when the Project is completed. Construction operations will be conducted with attention to the preservation of natural habitat.

1.4.1 Clearing and Right-of-Way Preparation

After regulatory approval and design of the transmission line is finalized, ROW will be acquired and then cleared according to AEP's clearing specifications. Clearing will be accomplished to comply with North American Electric Reliability Corporation (NERC) reliability standards. Any required clearing of the ROW will be performed by a contractor under the direction of AEP. Available methods of disposal are mulching, brush piling, and salvaging. The option often selected by landowners requires that cleared brush or trees be stacked and left for use as wildlife habitat adjacent to, but off, the ROW. Trees and brush in the ROW are initially cleared to permit safe construction of the line.

The ROW will be utilized for access during construction operations, with ingress and egress through private property procured as necessary to access the ROW. In these cases, existing private roads will be used where possible. Public roads will also be used for access to the ROW where feasible. Culverts and angular rock fords will be installed to cross streams where necessary.

Clearing plans, methods, and practices are extremely important for success in any program designed to minimize the adverse effects of electric transmission lines on the natural environment. The following measures, thoughtfully implemented and applied to this Project, will help meet this goal:

1. Clearing will be performed in a manner that will maximize the preservation of natural habitat and the conservation of natural resources and minimize impacts to waters in the activity area.
2. The method of clearing ROW will take into account soil stability, the protection of natural vegetation, sensitive habitats, the protection of adjacent resources such as natural habitat for plants and wildlife, and the prevention of silt deposition in watercourses.

3. Contractors will use efficient and effective methods to remove vegetation within the ROW. Hydro axes and flail mowers or similar devices may be used in clearing operations where such use will preserve the cover crop of grass and similar vegetation.
4. If deemed appropriate, U.S. Environmental Protection Agency (EPA)-approved herbicides will be applied and handled in accordance with the product manufacturers' published recommendations and specifications and as directed by appropriate qualified staff.

1.4.2 Structure Assembly and Erection

Survey crews will stake or otherwise mark structure locations. Depending on soil type, crews will place foundations utilizing augured circular holes, rebar cages, and anchor bolts or stubs. Crews will transport and assemble structures and related hardware. The usual procedure is to assemble each structure on its side, then lift the structure and set it on its base. However, taller structures may need to have sections assembled in the air. Sections are either jacked together or connected using bolts, which will be torqued to the manufacturer's recommended value. Once anchor bolt foundations have cured sufficiently, crews will set the structures and install the conductor and shield wire suspension assemblies. Although vehicular traffic is a large part of this operation, construction crews will take care to minimize damage to the ROW by minimizing the number of pathways traveled.

1.4.3 Conductor and Shield Wire Installation

The conductors and shield wires are installed via a tensioning system. A pilot (pulling) line is first threaded through the stringing blocks or travelers for each conductor and shield wire. Conductor and shield wires are then pulled by the pilot line and held tight by a tensioner to keep the wires from contacting the ground and other objects that could be damaging to the wire. In addition, guard structures (temporary wood-pole structures) will be installed where the transmission line crosses overhead electric power lines, overhead telephone lines, roadways, or other areas requiring an additional margin of safety during wire installation. When the wire is tensioned to the required sag, the wire is taken out of the blocks and placed in the suspension and dead-end clamps for permanent attachment.

1.4.4 Construction Operations

Construction operations will be conducted with attention to the preservation of the natural habitat and the conservation of natural resources. The following criteria will be used to attain these goals. These criteria are subject to adjustment according to the rules and judgments of any public agencies whose lands may be crossed by the proposed line.

1. Disturbance of construction areas and laydown yards will be minimized. These areas will be graded in a manner that will minimize erosion and conform to the natural topography.
2. Soil excavated during construction and not used for other purposes will be evenly backfilled onto a cleared area. Backfilled soil will be sloped gradually to conform to the terrain and adjacent land.
3. Erosion control devices will be constructed where necessary to reduce soil erosion in the ROW.
4. If any roads are found to be necessary, they will not be constructed on unstable slopes. Where feasible, service and access roads are constructed jointly, but none are expected in this Project.
5. Clearing and construction activities near streambeds will be performed in a manner that will minimize damage to the natural condition of the area. Stream banks will be restored as necessary to minimize erosion.
6. Concerted and diligent effort will be made to prevent accidental oil spills and other types of pollution, particularly while performing work near streams, lakes, and reservoirs.
7. Precautions will be taken to prevent the possibility of accidental range fires.
8. Tension stringing of conductors will be employed, which may reduce the amount of vegetation clearing necessary.
9. Precautions will be taken to protect natural features and cultural resources (identified by site-specific studies of the Project) along the ROW, if any are found.
10. If federally-protected species or habitat is present, guidance from the U.S. Fish and Wildlife Service (USFWS) will be obtained prior to clearing or construction activities.
11. Soil disturbance during construction will be kept to a minimum, and restorative measures will be taken within a reasonable length of time.

1.4.5 Cleanup

The cleanup operation involves the restoration of disturbed areas to grade (as much as possible), the removal of construction debris, and the restoration or compensation of any items damaged by the construction of the Project. The following criteria generally apply to the cleanup of construction debris and the restoration of the area's natural setting.

1. If site factors make it unusually difficult to establish a protective vegetative cover, other restoration procedures will be used, such as the use of gravel or rocks.
2. Sears, cuts, fill, or other aesthetically degraded areas will be allowed to seed naturally or may be reseeded with native species to reduce erosion, restore a natural appearance, and to provide food and cover for wildlife. If the landowner desires to reseed, then steps will be taken to work with the landowner.
3. If temporary access roads are removed after construction, the original slopes will be restored.

4. Construction equipment and supplies will be dismantled and removed from the ROW when construction is completed.
5. Construction debris will be removed prior to completion of the Project.
6. Replacement of soil adjacent to water crossings for access roads will be at slopes less than the normal angle of repose for the soil type involved and will be stabilized/revegetated to avoid erosion.

1.5 Maintenance Considerations

Maintenance of the facilities will include periodic inspection of the line and repair of damaged structures due to equipment failures, accidents, or natural phenomena, such as wind or lightning. In areas where treatment of vegetation within the ROW is required, mowing, pruning, or application of EPA-approved herbicides will be conducted as required to ensure proper clearance between the conductors and nearby vegetation. While maintenance patrols will vary, aerial, vehicle, and foot patrols will be performed periodically. In cropland areas and properly managed grazing lands and lawn areas, little or no vegetation control will be required, due to existing land-use practices. The major maintenance item will be the trimming of trees that pose a potential danger to the conductors or structures to provide a safe and reliable power line.

AEP's maintenance of ETT's transmission ROW occurs through the implementation of a comprehensive, systematic, integrated vegetation management program designed to ensure that the vegetation along each transmission line is managed at the proper time and in the most cost effective and environmentally sound manner. Vegetation is managed on a prescriptive basis. Ongoing evaluation of the system through ground and aerial inspections provides the basic information used by AEP to develop an annual plan. Circuit criticality, historical data, line voltage, location, vegetative inventory information, and land use are among the factors considered in developing the annual vegetation management plan. The plans are modified as required by vegetation patrols and changed conditions.

1.6 Agency Actions

Numerous Federal, state, and local regulatory agencies and organizations have promulgated rules and regulations regarding the routing and potential impacts associated with the proposed transmission line Project. This section lists the major regulatory agencies that are involved in project planning and permitting of transmission lines in Texas, and describes the permits or approvals required. Burns & McDonnell solicited comments from various regulatory agencies and officials during the development of this document. A summary of agency responses is provided in Section 5.1 (Correspondence with Agencies and Officials) and copies of the responses received are included in Appendix A (Agency

Correspondence). Construction documents and specifications will indicate any special construction measures needed to comply with the regulatory requirements listed below. In addition, depending upon the location of the transmission line structures, road crossing permits may be required by Foard County.

1.6.1 Public Utility Commission of Texas

The proposed transmission line Project will require ETT to file an application to amend its CCN with the PUC. This EA report has been prepared by Burns & McDonnell in support of ETT's application for the CCN on this Project. This document is intended to provide information on certain environmental and land use factors contained in Public Utility Regulatory Act (PURA) § 37.056(c)(4), and PUC's Substantive Rule 16 TAC § 25.101(b)(3)(B), as well as to address relevant questions in the PUC's CCN application. This report may also be used in support of any local, state, or Federal permitting requirements, if necessary. ETT will obtain PUC approval of its CCN application prior to beginning construction of the Project.

1.6.2 Federal Aviation Administration

According to Federal Aviation Administration (FAA) regulations (FAR), Part 77, the construction of a transmission line requires FAA notification if structure heights exceed 200 feet or the height of an imaginary surface extending outward and upward at one of the following slopes (FAA, 2010):

- A 100:1 slope for a horizontal distance of 20,000 feet from the nearest point of the nearest runway of a public or military airport having at least one runway longer than 3,200 feet
- A 50:1 slope for a horizontal distance of 10,000 feet from the nearest runway of a public or military airport where no runway is longer than 3,200 feet in length
- A 25:1 slope for a horizontal distance of 5,000 feet for heliports

Based on these guidelines, the need for FAA notification based on the alignment of the approved route, structure locations, and structure designs will be determined. If necessary, a Notice of Proposed Construction or Alteration (Form 7460-1) will be filed with the FAA at least 30 days prior to construction. The result of this notification and the subsequent coordination with the FAA could include changes in the design or potential requirements to mark or illuminate portions of the line.

1.6.3 U.S. Army Corps of Engineers

Under Section 404 of the Clean Water Act (CWA), activities in waters of the U.S., including wetlands, can be regulated by the U.S. Army Corps of Engineers (USACE), in conjunction with the EPA. Certain construction activities that potentially impact waters of the U.S. may be authorized by one of the USACE's Nationwide Permits (NWPs). Permits that may apply to placement of support structures and

associated activities are NWP 25 (Structural Discharges) and NWP 12 (Utility Line Activities). NWP 25 generally authorizes the discharge of concrete, sand, rock, etc., into tightly sealed forms or cells where the material is used as a structural member for standard pile-supported structures (linear projects, not buildings or other structures).

NWP 12 generally authorizes discharges associated with the construction of utility lines and substations within waters of the U.S. and additional activities affecting waters of the U.S., such as those associated with the construction and maintenance of utility line substations; foundations for overhead utility line towers, poles, and anchors; and access roads for the construction and maintenance of utility lines. Construction of this transmission line Project will likely meet the criteria of NWP 12. However, if the impacts of the Project exceed the criteria established under General Condition 13 or other regional conditions listed under the NWP 12, then a Regional General Permit may be required. An Individual Permit, however, is not anticipated for this Project. If necessary, coordination with the USACE prior to clearing and construction will be conducted to ensure compliance with the appropriate regulations associated with construction-related impacts to waterbodies and wetland features.

Under Section 10 of the Rivers and Harbors Act of 1899, 33 U.S.C. § 403, the USACE is directed by Congress to regulate all work and structures in, or affecting the course, condition, or capacity of navigable waters of the U.S., including tidal waters. No navigable waters occur within the Study Area that would require permitting under this Act.

1.6.4 U.S. Fish and Wildlife Service

The USFWS enforces Federal wildlife laws and provides comments on proposed projects under the jurisdiction of the Endangered Species Act (ESA), Migratory Bird Treaty Act (MBTA), and Bald and Golden Eagle Protection Act (BGEPA). Additionally, USFWS oversight includes review of projects with a Federal nexus under the National Environmental Policy Act (NEPA).

Upon PUC approval of the proposed Project, a survey may be necessary to identify any potential suitable habitat for federally-protected species. If suitable habitat is noted, then informal consultation with the USFWS may be conducted to determine if permitting or other requirements associated with possible impacts to protected species under the ESA, MBTA, or BGEPA is necessary.

1.6.5 Federal Emergency Management Agency

At the time of this report, Foard County does not participate in the Federal Emergency Management Agency (FEMA) program; therefore, floodplain information for the Study Area is not available. Although detailed floodplain analyses for Foard County are not available, floodplains are likely associated with

Beaver Creek and low-lying areas within the Study Area. The Project should have no significant impact on the function of the presumed floodplains.

1.6.6 Texas Parks and Wildlife Department

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

1.6.7 Texas Commission on Environmental Quality

The Project may require a Texas Pollution Discharge Elimination System (TPDES) General Construction Permit (TX150000) as implemented by the Texas Commission on Environmental Quality (TCEQ) under the provisions of Section 402 of the CWA and Chapter 26 of the Texas Water Code. The TCEQ has developed a three-tiered approach for implementing this permit that is dependent on the acreage of disturbance. No permitting is required for land disturbances of less than 1 acre (Tier I). Disturbance of more than 1 acre, but less than 5 acres, would require implementation of a Storm Water Pollution Prevention Plan (SWPPP) (Tier II). If more than 5 acres of land are disturbed, the requirements mentioned above for Tier II are necessary and the submittal of a Notice of Intent (NOI) and Notice of Termination (NOT) to the TCEQ is also required (Tier III). Once a route is approved by the PUC, the amount of ground disturbance and the appropriate tier and conditions of the TX150000 permit will be determined.

1.6.8 Texas Department of Transportation

Permits and approvals will be obtained from the Texas Department of Transportation (TxDOT) for any crossing of, or access from, a state-maintained roadway. Best management practices (BMPs) will be used, as required, to minimize erosion and sedimentation resulting from the construction within TxDOT easements. Revegetation within TxDOT easements will occur as required under the "Revegetation Special Provisions" and contained in TxDOT form 1023 (Rev. 9-93).

1.6.9 Texas Historical Commission

Cultural resources are protected by Federal and State laws if they have some level of significance under the criteria of the National Register of Historic Places (NRHP) (36 Code of Federal Regulations [CFR]

Part 60) or under State guidance TAC, Title 13, Part 2, Chapter 26.7-8). Burns & McDonnell contacted the Texas Historical Commission (THC) and the agency recommended that the final route and substation sites be surveyed by a professional archeologist prior to initiating any ground disturbance.

1.6.10 Texas General Land Office

The Texas General Land Office (GLO) requires a Miscellaneous Easement (ME) for any ROW crossing a state-owned riverbed, navigable stream, or tidally influenced waters. The agency asked to be contacted once the final route for the Project has been determined to see if it will cross any streambeds or Permanent School Fund (PSF) land that would require an easement from the GLO. However, no GLO easement is anticipated for this Project.

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2.0 ROUTE EVALUATION METHODOLOGY

2.1 Objective of Study

The objective of this study was to evaluate the potential environmental and land use impacts for ETT's proposed 345-kV transmission line Project that complies with PURA § 37.056(c)(4)(A)-(D), 16 TAC § 22.52(a)(4), and 16 TAC § 25.101(b)(3)(B), including the PUC's policy of prudent avoidance. Burns & McDonnell utilized a comprehensive and well-established evaluation methodology to evaluate potential impacts of the proposed transmission line route. Burns & McDonnell utilizes a multiphase approach for completing such a Project: define the Study Area; obtain environmental information; map environmental and land use constraints; conduct environmental, engineering and cost analyses; and design and construct the transmission facility. The following sections provide a description of the process used in the development and evaluation of the proposed transmission line route (Consensus Route).

2.2 Data Collection

Data used by Burns & McDonnell in the evaluation of the Project was drawn from a variety of sources, including published literature (documents, reports, maps, aerial photography, etc.), information from local, State and Federal agencies, and site-specific studies or investigations performed by others. Recent aerial imagery (2015 ESRI DigitalGlobe WorldView-2 Satellite imagery; 2016 United States Department of Agriculture [USDA] National Agriculture Imagery Program [NAIP]; Google Earth), Google Maps, U.S. Geological Survey (USGS) topographic maps (1:24,000), USFWS National Wetlands Inventory (NWI) maps, USFWS' Information, Planning, and Conservation (IPaC) system, TPWD's Natural Diversity Database (NDD), TPWD's Ecological Mapping Systems of Texas (EMST), and ground reconnaissance surveys were used throughout the evaluation of the Project. The data collection effort, although concentrated in the early stages of the Project, was an ongoing process.

2.3 Evaluation of the Route

2.3.1 Study Area Delineation

The first step in the assessment of the Project was to delineate a Study Area. The Study Area needed to encompass the endpoints for the proposed Project (ETT's existing Edith Clarke Substation and several possible sites for the proposed Foard City Substation) and include an area large enough to adequately evaluate the proposed transmission line Project in support of ETT's CCN Application. The purpose of delineating a Study Area for the Project was to establish boundaries and limits in which to identify environmental and land use constraints during the information gathering process to properly identify and map various items included within the PUC's CCN application. The delineated Study Area measures

approximately 3.0 miles north to south, approximately 3.8 miles east to west, and encompasses an area of approximately 11.4 square miles in Foard County (Figure 2-1).

2.3.2 Constraints Mapping

To quantify potential impacts to sensitive environmental and land use features, a constraints mapping process was used in evaluating the Project. The geographic locations of environmentally sensitive and other restrictive areas within the Study Area were identified and considered during the evaluation process. These constraints were mapped onto an aerial base map created using 2015 ESRI DigitalGlobe WorldView-2 Satellite imagery. Figure 2-2 shows the environmental and land use constraints within the Study Area. Figure 2-3 is an enlarged view of the Consensus Route in relation to environmental and land use constraints.

2.3.3 Evaluation Factors

The evaluation of the Project involved studying a variety of environmental factors. The Project was examined in the field on March 14, 2018. The field investigation of the Study Area and the Consensus Route was conducted from publicly accessible areas. In evaluating the Consensus Route, 39 environmental criteria were considered. These criteria are presented in Table 2-1.

The analysis of the Project involved the inventory and tabulation of the number or quantity of each environmental criterion located along the Consensus Route (e.g., number of habitable structures within 500 feet, amount of brushland/shrubland crossed, etc.). The number or amount of each criterion was determined by reviewing various maps and recent color aerial imagery (2016 NAIP and Google Maps), and by field verification. Potential environmental impacts of the Consensus Route are addressed in Section 4.0 of this document.

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Table 2-1: Environmental Criteria for Edith Clarke to Foard City 345-kV Project

No.	Environmental Criterion
Land Use	
1	Length of route
2	Number of habitable structures[a] within 500 feet of ROW centerline
3	Length of ROW utilizing existing transmission line ROW
4	Length of ROW parallel to existing transmission line ROW
5	Length of ROW parallel to other existing compatible ROW (roads, highways, railways, etc.)[b]
6	Length of ROW parallel to approximate property lines (not following existing ROW)[c]
7	Length of ROW across parks/recreational areas[d]
8	Number of additional parks/recreational areas[d] within 1,000 ft of ROW centerline
9	Length of ROW across cropland
10	Length of ROW across pastureland/rangeland
11	Length of ROW across cropland or pastureland with mobile irrigation systems
12	Number of pipeline crossings
13	Number of transmission line crossings
14	Number of U.S. and State highway crossings
15	Number of Farm-to-Market (FM)/Ranch-to-Market (RM) road crossings
16	Number of FAA-registered airfields within 20,000 ft of ROW centerline (with runway >3,200 ft)
17	Number of FAA-registered airfields within 10,000 ft of ROW centerline (with runway <3,200 ft)
18	Number of private airstrips within 10,000 ft of ROW centerline
19	Number of heliports within 5,000 ft of ROW centerline
20	Number of commercial AM radio transmitters within 10,000 ft of ROW centerline
21	Number of FM radio transmitters, microwave towers, and other electronic installations within 2,000 ft of ROW centerline
22	Number of water wells within ROW
Aesthetics	
23	Estimated length of ROW within foreground visual zone[e] of U.S. and State highways
24	Estimated length of ROW within foreground visual zone[e] of FM/RM roads
25	Estimated length of ROW within foreground visual zone[e] of parks/recreational areas[c]
Ecology	
26	Length of ROW through brushland/shrubland
27	Length of ROW through riparian brushland/shrubland
28	Length of ROW across potential wetlands[f]
29	Length of ROW across known occupied habitat of federally endangered or threatened species
30	Number of stream crossings
31	Length of ROW parallel (within 100 ft) to streams

No.	Environmental Criterion
32	Length of ROW across open water (ponds, playa lakes[g], etc.)
33	Number of playa lake crossings[g]
34	Length of ROW across 100-year floodplains
Cultural Resources	
35	Number of recorded cultural resource sites crossed by ROW
36	Number of additional recorded cultural resource sites within 1,000 ft of ROW centerline
37	Number of NRHP-listed or determined-eligible sites crossed by ROW
38	Number of additional NRHP-listed or determined-eligible sites within 1,000 ft of ROW centerline
39	Length of ROW crossing areas of high archeological/historical site potential

All length measurements in feet.

[a]Single-family and multi-family dwellings and related structures, mobile homes, apartment buildings, commercial structures, industrial structures, business structures, churches, hospitals, nursing homes, schools, or other structures normally inhabited by humans or intended to be inhabited by humans on a daily or regular basis.

[b]For purposes of this evaluation, pipelines were not considered a compatible corridor.

[c]Property lines created by existing road, highways, or railroad ROW are not "double-counted" in the "length of route parallel to property lines" criterion.

[d]Defined as parks and recreational areas owned by a governmental body or an organized group, club, or church.

[e]0.5 mile, unobstructed.

[f]As mapped by the U.S. Fish and Wildlife Service National Wetland Inventory.

[g]As mapped by the Texas Tech University Playa Lakes Digital Database for the Texas Portion of the Playa Lakes Joint Venture Region.

3.0 EXISTING ENVIRONMENT

3.1 Physiography

As shown on Figure 3-1, Foard County is located within the North-Central Plains Physiographic Province (Bureau of Economic Geology [BEG], 1996), which occur in the north-central portion of the state east to the High Plains, north to Oklahoma and the Canadian Breaks of the Central High Plains, east to the Grand Prairie, and south to the Edwards Plateau and Central Texas Uplift provinces.

The North-Central Plains of Texas form low north-south ridges (questas) ranging from 900 to 3,000 feet in elevation above mean sea level (msl). This area has an erosional surface that developed on upper Paleozoic formations, and where shale bedrock prevails, meandering rivers traverse stretches of local prairie. In areas of harder bedrock, hills and rolling plains dominate, and local areas of hard sandstones and limestones cap steep slopes severely dissected near rivers. Western rocks and soils are oxidized red or gray where gypsum dominates, whereas eastern rocks and soils weather tan to buff (BEG, 1996). Study Area elevations range from a high of approximately 1,553 feet above msl in the northwest corner of the Study Area to a low of 1,428 feet above msl at the east-central edge of the Study Area along Beaver Creek.

3.2 Geology

According to BEG (1987), the Study Area includes the following geologic units (from youngest to oldest): Quaternary-aged surficial deposits and Permian Clear Fork Group (undivided). Surficial deposits are located within the northern and southern portions of the Study Area and consist of sand, clay, silt, caliche, and gravel. Additionally, they include thin remnants of older terraces, and of Seymour Formation, lag gravel, windblown sand and silt, residual soil, and colluvium commonly cemented by caliche.

The Clear Fork Group (undivided) is present in the central portion of the Study Area and is associated with Beaver Creek. It includes mudstone, siltstone, sandstone, dolomite, limestone, and gypsum. The group is mostly mudstone, which is commonly silty, brownish-red, minor gray and green, with calcareous nodules abundant in the lower part, and vertebrate fossils locally common. No reported geologic faults occur in the Study Area or in the immediate vicinity of the Study Area.

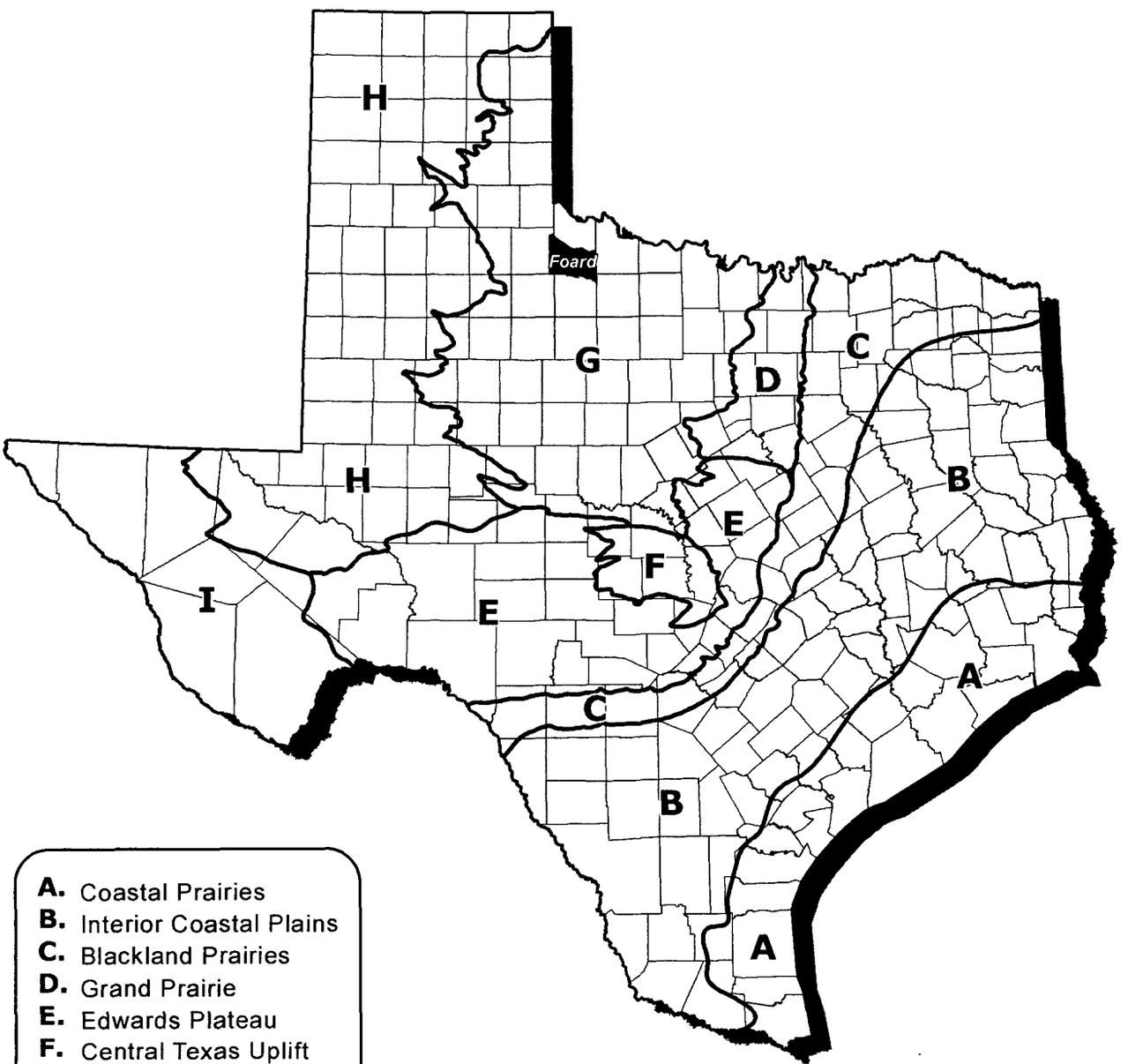

Figure 3-1
Location of Foard County
in Relation to the
Physiographic Provinces of Texas
Edith Clarke to Foard City
345 kV Transmission Line Project

Source. BEG (1996)

Issued: 5/14/2018

3.3 Soils

The Study Area occurs within central Foard County. The general soil map of Foard County, published by the Soil Conservation Service (SCS) in 1964, was referenced for the following descriptions of the general soil map units within the Study Area.

3.3.1 Soil Associations

The SCS, now renamed as the Natural Resources Conservation Service (NRCS), defines a soil association as "a group of soils geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit." A soil association typically consists of one or more major soils, for which it is named, and some minor soils. Soils making up one unit can also occur in other units in a different pattern. According to the Foard County soil map (SCS, 1964), three soil associations occur within the Study Area.

The Abilene-Hollister association, which comprises the majority of the Study Area, is characterized by nearly level hardland soils on a plain dissected by a few tributaries. The main part of it is a large, irregularly shaped area between the Pease and Wichita Rivers, in the eastern half of the county, which encompasses approximately 20 percent of the county. The soils of the two major series, Abilene and Hollister, are dark colored and deep, with minor areas containing Tillman, Wichita, and Vernon soils making up approximately 10 percent of the association. Most of the acreage is cultivated, with wheat being the main crop, but cotton is also grown, and a lack of rainfall limits the yields in most years (SCS, 1964).

The Tillman-Vernon association, which is only located in a small portion of the northwestern and southwestern corners of the Study Area, consists of gently sloping soils on ridges and moderately sloping soils along drainages, and encompasses approximately 43 percent of the county. The Tillman soils are deep and reddish brown and have a firm, but crumbly surface layer, while the Vernon soils are shallow or very shallow, and are reddish brown in color. Most of the acreage is in large ranches and is used as range (SCS, 1964).

The Wichita-Miles association, which is only located in a small area of the north-central portion of the Study Area, consists of nearly level to moderately sloping, moderately sandy soils that for the most part form a high, rather narrow, irregularly shaped ridge in the east-central part of the county. The soils of the two major series, the Wichita and Miles, are deep and brown to reddish brown in color, and comprise approximately 6 percent of the county. Most of the acreage is cultivated and is used mainly for cotton, wheat, and grain sorghum (SCS, 1964).

3.3.2 Prime Farmland Soils

The Secretary of Agriculture, in 7 USC 4201(c)(1)(A), defines prime farmland soils as those soils that have the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops. They have the soil quality, growing season, and moisture supply needed to economically produce sustained high yields of crops when treated and managed, including water management, according to acceptable farming methods. Additional potential prime farmlands are those soils that meet most of the requirements of prime farmland but fail because they lack sufficient natural moisture, or they lack the installation of water management facilities. Such soils would be considered prime farmland if these soil improvement practices were implemented.

According to the NRCS (2015), prime farmland soils comprise approximately 82.0 percent (5,992 acres) of the Study Area, with an additional 0.3 percent (24 acres) included if irrigated, and 0.4 percent (28 acres) included if drained. Foard County encompasses 453,544 acres, of which approximately 42.7 percent (193,785 acres) are considered prime farmland soils, with an additional 2.5 percent (11,548 acres) included if irrigated, and an additional 0.1 percent (428 acres) if drained.

3.4 Mineral and Energy Resources

No major mineral resources are mapped as occurring within the Study Area (BEG, 1979), and no active mineral quarries or mines were observed during field reconnaissance or while reviewing USGS topographic maps.

Additionally, no energy resources are mapped within the Study Area (BEG, 1976). According to Railroad Commission of Texas (RRC) records, no active or plugged oil and gas wells are documented in the Study Area (RRC, 2018), and none were observed during field reconnaissance, nor are visible on aerial photography.

3.5 Water Resources

3.5.1 Surface Water

For surface water planning purposes, Foard County lies within the Red River Basin, which is the fourth largest by area in Texas, draining a total area of approximately 93,450 square miles of which 24,297 square miles are within Texas. The headwaters of the Red River occur west in New Mexico and flow southeastward across the Panhandle, along the Texas-Oklahoma border, and into Arkansas, before reaching its confluence with the Mississippi River in Louisiana (TWDB, 2012). In addition, numerous playa lakes occur in the basin, which collect rainfall but do not contribute notably to runoff (TWDB,

2007). Surface water runoff within the Red River Basin varies greatly, due to its size and location within the state, with average rainfall from 15 to 20 inches annually in the west Texas Panhandle to 50 inches along the Texas, Oklahoma, and Louisiana borders (TWDB, 2012).

Named surface water features (e.g., streams, ponds, canals, lakes, etc.) mapped within the Study Area, according to USGS topographic maps and the National Hydrography Dataset, include only Beaver Creek, which flows west to east through the middle of the Study Area. Average rainfall within the Study Area ranges from approximately 25 to 30 inches annually (TWDB, 2012).

To assist regional water planning groups in identifying sensitive stream segments under TAC Title 31 357.8, TPWD has identified ecologically significant stream segments throughout the state based on criteria pertaining to biological function, hydrological function, riparian conservation areas, water quality, aquatic life, aesthetic value, and the presence of threatened or endangered species or unique communities. No stream segments within the Study Area are designated as ecologically significant streams (TPWD, 2018a).

3.5.2 Floodplains

At the time of this report, Foard County does not participate in the FEMA program, therefore floodplain information for the Study Area is not available. Although detailed floodplain analyses for Foard County are not available, floodplains are likely associated with Beaver Creek and low-lying areas within the Study Area (see Figure 2-2).

3.5.3 Groundwater

According to the TWDB, 9 major aquifers (aquifers that produce large amounts of water over large areas) and 21 minor aquifers (aquifers that produce minor amounts of water over large areas or large amounts of water over small areas) are recognized within the State of Texas. These major and minor aquifers produce groundwater for household, municipal, industrial, and agricultural uses and supply over 59 percent of the water used in Texas (TWDB, 2007).

The principal water-bearing unit in the Study Area is the Seymour Aquifer, which is a major aquifer that extends 4,042 square miles and 25 counties across north-central Texas. The aquifer consists of Quaternary-age, alluvial sediments unconformably overlying Permian-age rocks, with water contained in isolated patches of alluvium as much as 360 feet thick composed of discontinuous beds of poorly sorted gravel, conglomerate, sand, and silty clay. Water quality ranges from fresh to slightly saline; however, it is affected by nitrate exceeding drinking water standards throughout its extent, and excess chloride also occurs throughout the aquifer. Approximately 90 percent of all the groundwater pumped from the aquifer

is used for irrigation, with the remainder used primarily for municipal supply. Water levels in localized areas are predicted to decline in the aquifer by as much as 30 feet (TWDB, 2011).

3.6 Vegetation

3.6.1 Regional Vegetation

As shown on Figure 3-2, Foard County is located within the Rolling Plains vegetational area, which was delineated by Gould et al. (1960) and characterized by Hatch et al. (1990). The Rolling Plains is between the High Plains and the Cross Timbers and Prairies in the northern part of the state and is characterized by a nearly level to rolling plain having moderate to rapid surface drainage. The original prairie vegetation included tall- and midgrasses such as little bluestem (*Schizachyrium scoparium*), big bluestem (*Andropogon gerardii*), sand bluestem (*Andropogon hallii*), sideoats grama (*Bouteloua curtipendula*), Indiangrass (*Sorghastrum nutans*), switchgrass (*Panicum virgatum*), hairy grama (*Bouteloua hirsuta*), blue grama (*Bouteloua gracilis*), Canada wildrye (*Elymus canadensis*), and western wheatgrass (*Pascopyrum smithii*) on the moister sites. Buffalograss (*Bouteloua dactyloides*), curly mesquite (*Hilaria belangeri*), tobosagrass (*Pleuraphis mutica*), threeawns (*Aristida spp.*), sand dropseed (*Sporobolus cryptandrus*), and windmillgrass (*Chloris texensis*) are more common on the xeric or overgrazed sites. More than 75 percent of the area is rangeland, but dryland and irrigated sorghum, small grain, cotton, and forages are important crops (Hatch et al., 1990).

3.6.2 Vegetation Community Types in the Study Area

According to TPWD's EMST vegetation cover types, approximately 45 percent of the Study Area consists of Row Crops, 24 percent as Rolling Plains: Mixedgrass Prairie, 12 percent as Native Invasive: Mesquite Shrubland, and 9 percent as High Plains: Mesquite Shrubland. The remaining 10 percent consists of Rolling Plains: Breaks Evergreen Shrubland, Rolling Plains: Breaks Deciduous Shrubland, Rolling Plains: Breaks Grassland, High Plains: Floodplain Hardwood Forest, High Plains: Floodplain Herbaceous Vegetation, High Plains: Riparian Barrens, High Plains: Riparian Hardwood Forest, High Plains: Riparian Herbaceous Vegetation, Native Invasive: Deciduous Woodland, Native Invasive: Juniper Shrubland, Barren, Urban High Intensity, and Open Water vegetation cover types (TPWD, 2018b).

The Row Crops vegetation type includes all cropland where fields are fallow for some portion of the year. Some fields may rotate into and out of cultivation frequently, and year-round cover crops and tame hay fields are generally mapped as grassland.

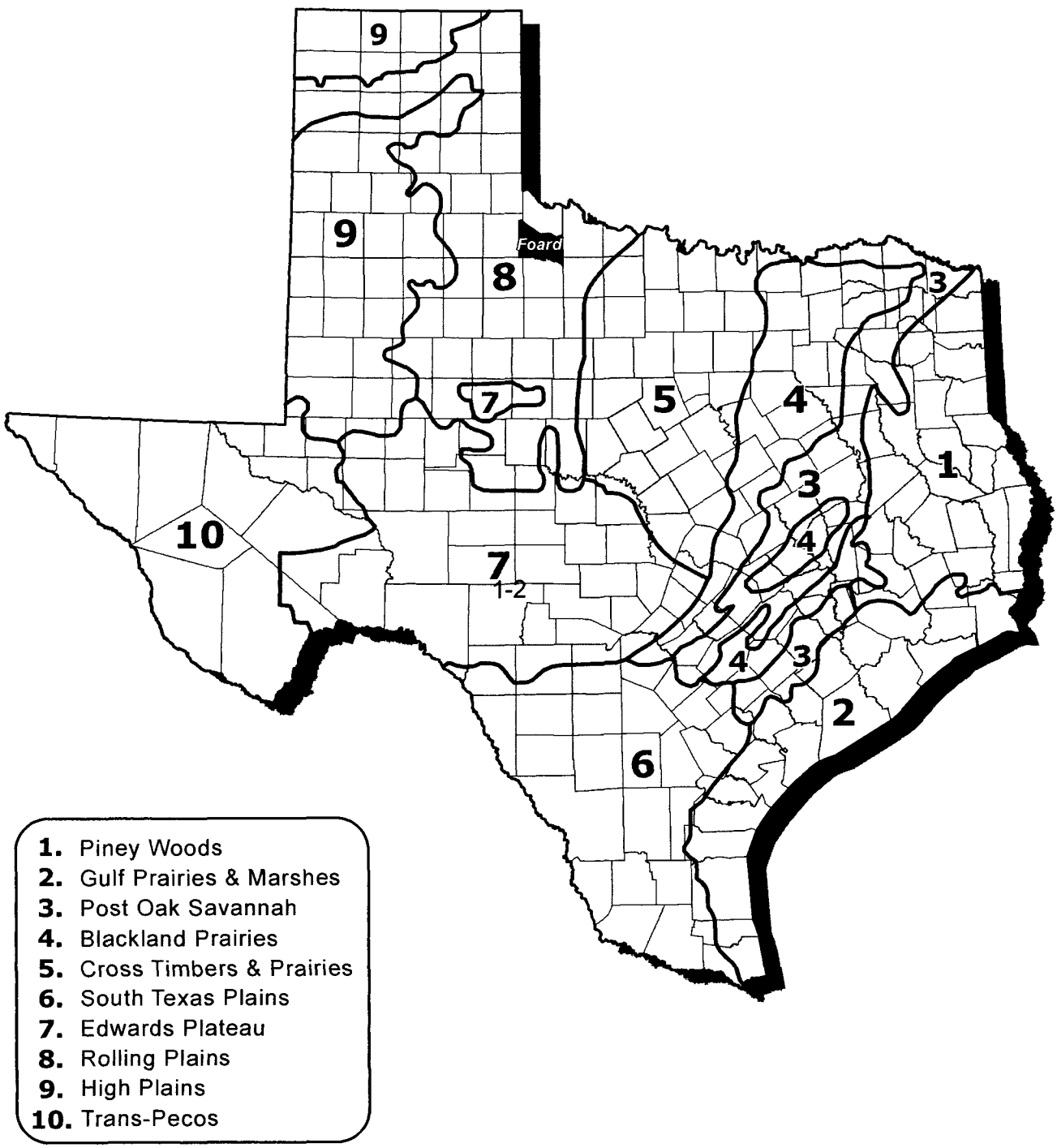

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Figure 3-2
Location of Foard County
in Relation to the
Vegetational Areas of Texas
Edith Clarke to Foard City
345 kV Transmission Line Project

Source. Hatch et al (1990)

3-7

Issued. 5/14/2018

The Rolling Plains: Mixedgrass Prairie is a grassland dominated by species such as little bluestem, Texas wintergrass (*Nassella leucotricha*), sideoats grama, and silver bluestem (*Bothriochloa laguroides* ssp. *torreyana*). This type typically occupies loam, clay loams, or sandy loams. Honey mesquite (*Prosopis glandulosa*) is often an important woody component. Dry sites to the west often contain short grasses such as tobosa, purple threeawn (*Aristida purpurea*), and buffalograss together with honey mesquite and succulents such as Engelmann pricklypear (*Opuntia engelmannii*) and Arkansas yucca (*Yucca arkansana*). Wetter sties to the east may contain mid-grasses such as little bluestem, sideoats grama, Texas wintergrass, and tall grasses such as Indiangrass and big bluestem in locally well-watered areas.

Native Invasive: Mesquite Shrubland. Honey mesquite is often the dominant species of this broadly-defined type, but other common species include lotebush (*Ziziphus obtusifolia*), huisache (*Acacia farnesiana*), sugar hackberry (*Celtis laevigata*), Ashe juniper (*Juniperus ashei*), agarito (*Mahonia trifoliolata*), winged elm (*Ulmus alata*), sumacs (*Rhus* spp.), brasil (*Condalia hookeri*), Texas persimmon (*Diospyros texana*), and Engelmann pricklypear. Trees such as plateau live oak (*Quercus fusiformis*), coastal live oak (*Quercus virginiana*), or post oak (*Quercus stellata*) may form a sparse canopy. Prairie broomweed (*Amphiachyris dracunculoides*), Texas wintergrass, and tobosagrass are common herbaceous species. The type is mapped on soils that are classically considered to have supported grasslands or open shrublands in pre-European settlement times.

High Plains: Mesquite Shrubland. Shrub-dominated occurrences with a scattered overstory component, if any. This type is mapped only in bottomlands or other lower landscape positions and is dominated by honey mesquite together with shrubs and small trees such as netleaf hackberry (*Celtis laevigata* var. *reticulata*), western soapberry (*Sapindus saponaria* var. *drummondii*), lotebush, redberry juniper (*Juniperus pinchotii*), and Chickasaw plum (*Prunus angustifolia*). A variety of herbaceous species may be important, including tobosagrass, prairie broomweed, rescuegrass (*Bromus catharticus*), Texas wintergrass, threeawns, tridens species, blue grama, and buffalograss. Some areas may be salty and include saltcedar (*Tamarix* spp.) as a woody component.

The Rolling Plains: Breaks Deciduous Shrubland vegetation cover type occupies about 6 percent of the Study Area. Common shrubs include honey mesquite, redberry juniper, lotebush, littleleaf sumac (*Rhus microphylla*), and catclaw acacia (*Senegalia greggii*). Common herbaceous species include purple threeawn, sideoats grama, sand dropseed, tobosagrass, prairie broomweed, blue grama, little bluestem, and silver bluestem. The remaining vegetation cover types occupy just 4 percent of the Study Area.

3.6.3 Waters of the U.S., Including Wetlands

Waters of the U.S. include, but are not limited to, territorial seas, lakes, rivers, streams, oceans, bays, ponds, and other special aquatic features, including wetlands. The USACE regulates waters of the U.S., including wetlands, under Section 404 of the CWA. The USACE and EPA jointly define wetlands as those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include bogs, seeps, marshes, swamps, forested bottomland wetlands, and other similar areas (40 CFR 230.3[t]). Wetlands are defined in a broad sense as transitional areas (ecotones) between terrestrial and aquatic systems where the water table is usually at or near the ground surface, or where shallow water covers the land (Cowardin et al., 1979).

The USFWS NWI maps encompassing the Study Area indicate the presence of wetland and open-water habitat features throughout the Study Area. Features in the Study Area are classified as palustrine. Palustrine systems include vegetated, freshwater wetlands and small (less than 20 acres), non-vegetated freshwater wetlands that are both shallow (deepest point less than 6.6 feet at low water) and lack an active wave-formed or bedrock shoreline (Cowardin et al., 1979). Within the Study Area are mapped freshwater emergent wetlands, freshwater forested/ shrub wetlands, and freshwater ponds.

Hydric and aquatic habitats may be considered regulatory wetlands by the USACE. Construction activities resulting in the discharge of dredged or fill materials within waters of the U.S. are subject to the regulations and restrictions outlined in Section 404 of the CWA and may require coordination with the USACE to ensure compliance.

3.7 Fish and Wildlife

3.7.1 Fish and Wildlife Habitats and Species

Blair (1950) delineated seven biotic provinces within Texas. As shown on Figure 3-3, Foard County occurs within the Kansan Biotic Province. The Kansan Biotic Province in Texas extends south and east from the Oklahoma and New Mexico borders, eventually transitioning to the Chihuahuan, Balconian, and Texan Biotic Provinces. The Kansan includes three distinct biotic districts, the Mixed-grass Plains, Short-grass Plains, and Mesquite Plains Districts. The Study Area lies within the Short-grass Plains District. Within the Short-grass Plains District, buffalograss is the principal vegetational constituent and is the most important plant association. Various species of grama grasses are also important to this area (Blair, 1950). Characteristic faunal species of the area are discussed below. A result of extensive agricultural

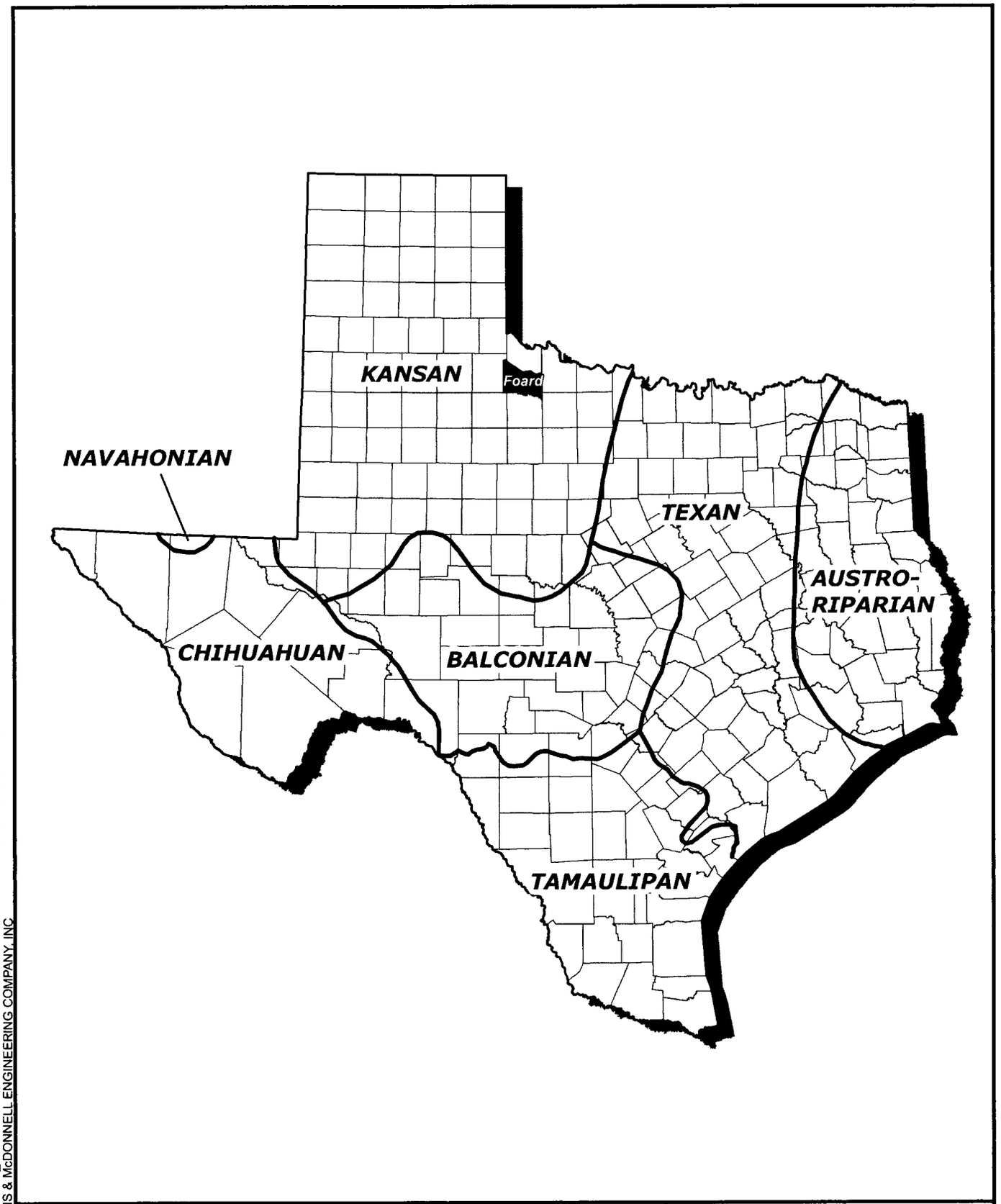

Figure 3-3
Location of Foard County
in Relation to the
Biotic Provinces of Texas
Edith Clarke to Foard City
345 kV Transmission Line Project

Source: Blair (1950)

Issued. 5/14/2018

development in the area includes very little remaining native grassland habitats. Wildlife species that occur include species that have historically occurred in the area, as well as others that are particularly adapted to this agricultural environment.

Aquatic habitats within the Study Area are minimal, and include Beaver Creek, wetlands, and ponds. Aquatic vegetation is limited by the ephemeral nature of these features.

3.7.2 Fish

Fish species in the Study Area are restricted due to the limited abundance of waterbodies with permanent inundation. Fish species that may occur in streams or ponds in the Study Area include the American gizzard shad (*Dorosoma cepedianum*), common carp (*Cyprinus carpio*), black bullhead (*Ameiurus melas*), green sunfish (*Lepomis cyanellus*), orangespotted sunfish (*Lepomis humilis*), bluegill (*Lepomis macrochirus*), white crappie (*Pomoxis annularis*), channel catfish (*Ictalurus punctatus*), flathead catfish (*Pylodictis olivaris*), and largemouth bass (*Micropterus salmoides*) (Thomas et al., 2007).

3.7.3 Amphibians and Reptiles

A representative list of amphibian and reptile species of potential occurrence in the Study Area is included as Table 3-1.

Table 3-1: Representative List of Reptile and Amphibian Species of Potential Occurrence[a] in the Study Area

Common Name[b]	Scientific Name[b]
Frogs and Toads	
American bullfrog	*Lithobates catesbeianus*
Blanchard's cricket frog	*Acris blanchardi*
Couch's spadefoot	*Scaphiopus couchii*
Eastern Chihuahuan green toad	*Anaxyrus debilis debilis*
Rocky Mountain toad	*Anaxyrus woodhousii woodhousii*
Texas toad	*Anaxyrus speciosus*
Lizards	
Chihuahuan greater earless lizard	*Cophosaurus texanus scitulus*
Eastern collared lizard	*Crotaphytus collaris*
Prairie racerunner	*Aspidoscelis sexlineata viridis*
Prairie lizard	*Sceloporus consobrinus*
Texas horned lizard	*Phrynosoma cornutum*
Texas spotted whiptail	*Aspidoscelis gularis gularis*
Snakes	

Common Name[b]	Scientific Name[b]
Bullsnake	*Pituophis catenifer sayi*
Central plains milksnake	*Lampropeltis triangulum gentilis*
Checkered gartersnake	*Thamnophis marcianus*
Chihuahuan nightsnake	*Hypsiglena jani*
Diamond-backed watersnake	*Nerodia rhombifer*
Eastern yellow-bellied racer	*Coluber constrictor flaviventris*
Great Plains ratsnake	*Pantherophis emoryi*
Long-nosed snake	*Rhinocheilus lecontei*
Plain-bellied watersnake	*Nerodia erythrogaster*
Prairie rattlesnake	*Crotalus viridis*
Plains hog-nosed snake	*Heterodon nasicus*
Variable groundsnake	*Sonora semiannulata semiannulata*
Western coachwhip	*Coluber flagellum testaceus*
Western diamond-backed rattlesnake	*Crotalus atrox*
Western ratsnake	*Pantherophis obsoletus*
Turtles	
Plains box turtle	*Terrapene ornata ornata*
Red-eared slider	*Trachemys scripta elegans*
Yellow mud turtle	*Kinosternon flavescens*

(a) According to Werler and Dixon (2000) and Dixon (2013)
(b) Nomenclature follows Crother et al. (2012)

3.7.4 Birds

Avian species of potential occurrence in the Study Area include many year-round residents, migrants/summer residents, and migrants/winter residents. A representative list of bird species of potential occurrence in the Study Area is included as Table 3-2.

Table 3-2: Representative List of Avian Species of Potential Occurrence[a] in the Study Area

Common Name	Scientific Name[b]	Likely Seasonal Occurrence[a, c]
American avocet	*Recurvirostra americana*	M, SR
American coot	*Fulica americana*	R
American crow	*Corvus brachyrhynchos*	R
American robin	*Turdus migratorius*	M, WR
American wigeon	*Anas americana*	M, WR
Ash-throated flycatcher	*Myiarchus cinerascens*	M, SR
Black-chinned hummingbird	*Archilochus alexandri*	M, SR
Blue jay	*Cyanocitta cristata*	R

Common Name	Scientific Name[b]	Likely Seasonal Occurrence[a, c]
Brewer's blackbird	*Euphagus cyanocephalus*	M, WR
Brown-headed cowbird	*Molothrus ater*	R
Carolina chickadee	*Poecile carolinensis*	R
Cattle egret	*Bubulcus ibis*	M, SR
Cedar waxwing	*Bombycilla cedrorum*	M, WR
Cliff swallow	*Petrochelidon pyrrhonota*	M, SR
Common nighthawk	*Chordeiles minor*	M, SR
Cooper's hawk	*Accipiter cooperii*	M, SR
Curve-billed thrasher	*Toxostoma curvirostre*	R
Dunlin	*Calidris alpina*	M
European starling	*Sturnus vulgaris*	R
Franklin's gull	*Leucophaeus pipixcan*	M
Gadwall	*Anas strepera*	M, WR
Golden-fronted woodpecker	*Melanerpes aurifrons*	R
Great blue heron	*Ardea herodias*	R
Great horned owl	*Bubo virginianus*	R
Greater roadrunner	*Geococcyx californianus*	R
Great-tailed grackle	*Quiscalus mexicanus*	R
Green heron	*Butorides virescens*	M, SR
Green-winged teal	*Anas crecca*	M, WR
Horned lark	*Eremophila alpestris*	R
House finch	*Haemorhous mexicanus*	R
House sparrow	*Passer domesticus*	R
Killdeer	*Charadrius vociferus*	R
Ladder-backed woodpecker	*Picoides scalaris*	R
Lark bunting	*Calamospiza melanocorys*	M, WR
Least sandpiper	*Calidris minutilla*	M, WR
Loggerhead shrike	*Lanius ludovicianus*	R
McCown's longspur	*Rhynchophanes mccownii*	M, WR
Mississippi kite	*Ictinia mississippiensis*	M, SR
Mourning dove	*Zenaida macroura*	R
Northern bobwhite	*Colinus virginianus*	R
Northern cardinal	*Cardinalis cardinalis*	R
Northern flicker	*Colaptes auratus*	R
Northern harrier	*Circus cyaneus*	M, WR
Northern mockingbird	*Mimus polyglottos*	R

Common Name	Scientific Name[b]	Likely Seasonal Occurrence[a, c]
Northern pintail	*Anas acuta*	M, WR
Northern shoveler	*Anas clypeata*	M, WR
Painted bunting	*Passerina ciris*	M, SR
Pied-billed grebe	*Podilymbus podiceps*	R
Redhead	*Aythya americana*	M, WR
Red-tailed hawk	*Buteo jamaicensis*	R
Red-winged blackbird	*Agelaius phoeniceus*	M, R
Rock pigeon	*Columba livia*	R
Rock wren	*Salpinctes obsoletus*	R
Ruby-crowned kinglet	*Regulus calendula*	M, WR
Rufous-crowned sparrow	*Aimophila ruficeps*	R
Sandhill crane	*Antigone canadensis*	M, WR
Savannah sparrow	*Passerculus sandwichensis*	M, WR
Scissor-tailed flycatcher	*Tyrannus forficatus*	M, SR
Scaled quail	*Callipepla squamata*	R
Swainson's hawk	*Buteo swainsoni*	M, SR
Turkey vulture	*Cathartes aura*	M, SR
Verdin	*Auriparus flaviceps*	R
Western kingbird	*Tyrannus verticalis*	M, SR
Western meadowlark	*Sturnella neglecta*	R
White-crowned sparrow	*Zonotrichia leucophrys*	M, WR
White-eyed vireo	*Vireo griseus*	M, SR
White-winged dove	*Zenaida asiatica*	R
Wild turkey	*Meleagris gallopavo*	R
Yellow-billed cuckoo	*Coccyzus americanus*	M, SR
Yellow-rumped warbler	*Setophaga coronata*	M, WR

(a) According to Lockwood and Freeman (2014).
(b) Nomenclature follows American Ornithological Society (AOS, 2017).
(c) R – Resident: Occurring regularly in the same general area throughout the year-implies breeding
SR – Summer Resident: Implies breeding but may include nonbreeders
WR – Winter Resident: Occurring during winter season
M – Migrant: Occurs as a transient passing through the area either in spring or fall or both

3.7.5 Mammals

A representative list of mammals that may occur in the Study Area is included as Table 3-3.

Table 3-3: Representative List of Mammalian Species of Potential Occurrence[a] in the Study Area

Common Name[b]	Scientific Name[b]
Xenarthrans	
Nine-banded armadillo	*Dasypus novemcinctus*
Chiroptera	
Brazilian free-tailed bat	*Tadarida brasiliensis*
Cave myotis	*Myotis velifer*
Eastern pipistrelle	*Pipistrellus subflavus*
Townsend's big-eared bat	*Corynorhinus townsendii*
Carnivores	
American badger	*Taxidea taxus*
Bobcat	*Lynx rufus*
Common gray fox	*Urocyon cinereoargenteus*
Coyote	*Canis latrans*
Northern raccoon	*Procyon lotor*
Striped skunk	*Mephitis mephitis*
Artiodactyls	
White-tailed deer	*Odocoileus virginianus*
Rodents	
Deer mouse	*Peromyscus maniculatus*
Eastern white-throated woodrat	*Neotoma leucodon*
Fulvous harvest mouse	*Reithrodontomys fulvescens*
Hispid cotton rat	*Sigmodon hispidus*
Hispid pocket mouse	*Chaetodipus hispidus*
Merriam's pocket mouse	*Perognathus merriami*
Mexican ground squirrel	*Spermophilus mexicanus*
Northern grasshopper mouse	*Onychomys leucogaster*
Ord's kangaroo rat	*Dipodomys ordii*
Plains pocket gopher	*Geomys bursarius*
Southern plains woodrat	*Neotoma micropus*
Spotted ground squirrel	*Spermophilus spilosoma*
Texas mouse	*Peromyscus attwateri*
White-footed mouse	*Peromyscus leucopus*
Lagomorphs	
Black-tailed jackrabbit	*Lepus californicus*
Desert cottontail	*Sylvilagus audubonii*
Eastern cottontail	*Sylvilagus floridanus*

(a) According to Schmidly (2004)
(b) Nomenclature follows Manning et al. (2008)

3.8 Recreationally and Commercially Important Species

A species is considered important if one or more of the following criteria applies:

a. The species is recreationally or commercially valuable
b. The species is endangered or threatened
c. The species affects the well-being of some important species within criterion (a) or (b)
d. The species is critical to the structure and function of the ecological system
e. The species is a biological indicator

Wildlife resources within the Study Area provide human benefits resulting from both consumptive and non-consumptive uses. Non-consumptive uses include observing and photographing wildlife, bird watching, and other similar activities. These uses, although difficult to quantify, deserve consideration in the evaluation of the wildlife resources of the Study Area. Consumptive uses, such as fishing, hunting, and trapping, are more easily quantifiable. Consumptive and non-consumptive uses of wildlife are often enjoyed contemporaneously and are generally compatible. Many species occurring in the Study Area provide consumptive uses, and all provide the potential for non-consumptive benefits.

The white-tailed deer (*Odocoileus virginianus*) is the most economically important big game mammal in Texas (Schmidly, 2004). The TPWD divides the state into ecological regions for deer management. Foard County falls within the Rolling Plains Ecological Region. During the 2016–2017 hunting season, an estimated 53,173 white-tailed deer and 3,800 mule deer were harvested within this ecological region (Purvis, 2017a).

The Rolling Plains Ecological Region also provides habitat for a variety of economically and recreationally important upland game birds, including the mourning dove (*Zenaida macroura*), white-winged dove (*Zenaida asiatica*), northern bobwhite (*Colinus virginianus*), scaled quail (*Callipepla squamata*), and wild turkey (*Meleagris gallopavo*). During the 2016–2017 hunting season, an estimated 1,003,664 mourning dove, 150,701 white-winged dove, 661,804 northern bobwhite, 55,593 scaled quail, and 11,965 wild turkey were harvested within this ecological region, making it one of the most productive in the state (Purvis, 2017b).

Additionally, waterfowl hunting on ponds and lakes is of some economic importance in the region. Waterfowl species that are hunted in the region include the gadwall (*Anas strepera*), green-winged teal (*Anas crecca*), American wigeon (*Anas americana*), northern pintail (*Anas acuta*), and ring-necked duck (*Aythya collaris*), among others (Purvis, 2017b).

No commercial fishing occurs within the Study Area. Also, very limited public access to recreational fishing is available in the Study Area. Common recreational fish species within the general area include largemouth bass, white crappie, channel catfish, flathead catfish, and sunfish species (*Lepomis* spp.).

3.9 Endangered and Threatened Species

An endangered species is one that is in danger of extinction throughout all or a significant portion of its natural range, while a threatened species is one likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

3.9.1 Endangered and Threatened Plant Species

Available information from the USFWS (2018a), TPWD (2018c), and TPWD's NDD (TPWD, 2018d) was reviewed to identify endangered or threatened plant species of potential occurrence within the Study Area. Currently, 31 plant species are listed by the USFWS as endangered or threatened species in Texas (USFWS, 2018b). However, no Federal or state-listed plants have been recorded from Foard County (USFWS, 2018a; TPWD 2018c, 2018d). No sensitive plant communities have been specifically identified by either the USFWS or TPWD as occurring within the Study Area (USFWS, 2018a; TPWD 2018c, 2018d).

3.9.2 Federally-Listed Fish and Wildlife Species

The USFWS (2018a) and TPWD (2018c) county lists of endangered and threatened species indicate that seven federally listed endangered, threatened, or proposed for Federal listing fish and wildlife species may occur in Foard County (Table 3-4). Protection under the ESA can also include protection of habitat designated as critical habitat for supporting a listed species. It should be noted that inclusion in this table does not necessarily mean that a species is known to occur in the Study Area, but only acknowledges the potential for its occurrence, based on historic records, known ranges, and presence of potential habitat. Only those species that USFWS lists as endangered or threatened have Federal protection under the ESA. Most avian species are protected under the MBTA and bald and golden eagles are protected under the BGEPA.

Table 3-4: Federally-Listed Fish and Wildlife Species for Foard County[a]

Common Name	Scientific Name[b]	Status	Potential for Occurrence in the Study Area
		USFWS	
Birds			
Interior least tern	*Sternula antillarum athalassos*	Endangered	Not likely[c]
Whooping crane	*Grus americana*	Endangered	Not likely[c]
Piping plover	*Charadrius melodus*	Threatened	Not likely[c]
Red knot	*Calidris canutus rufa*	Threatened	Not likely[c]
Fishes			
Sharpnose shiner[d]	*Notropis oxyrhynchus*	Endangered	Does not occur
Mammals			
Black-footed ferret[d]	*Cynomys ludovicianus*	Endangered	Does not occur[e]
Gray wolf[d]	*Canis lupus*	Endangered	Does not occur[e]

(a) According to USFWS (2018a) and TPWD (2018c, 2018d)
(b) Nomenclature follows Manning et al. (2008), Crother et al. (2012), AOS (2017), USFWS (2018a), and TPWD (2018c)
(c) Only expected to occur as a migrant, transient, or rare vagrant within the Study Area
(d) Not listed by USFWS (2018a) as occurring in Foard County
(e) Extirpated in Texas

The USFWS considers five of the taxa in Table 3-4 as endangered and two as threatened. They are the endangered interior least tern (*Sternula antillarum athalassos*), whooping crane (*Grus americana*), sharpnose shiner (*Notropis oxyrhynchus*), black-footed ferret (*Cynomys ludovicianus*), and gray wolf (*Canis lupus*); and the threatened piping plover (*Charadrius melodus*) and red knot (*Calidris canutus rufa*).

The TPWD county list for Foard County shows the sharpnose shiner, black-footed ferret, and gray wolf to be federally-listed as endangered; however, the USFWS (2018a) does not list them for Foard County. Rather, the USFWS lists the sharpnose shiner in 19 Texas counties, but not in Foard County, and does not list the black-footed ferret or gray wolf as occurring in any counties in Texas.

3.9.2.1 Interior Least Tern

In Texas, the interior least tern historically nested on sandbars of the Colorado River, Red River, and Rio Grande. Currently, its winter range includes the entire Texas Gulf Coast. The interior least tern's preferred nesting habitat is unvegetated, frequently flooded sand flats, salt flats, sand and gravel bars, and sand, shell, and gravel beaches (Thompson et al., 1997; Campbell, 2003). The species would only be expected as a rare migrant within the Study Area (Lockwood and Freeman, 2014). No documented

records exist from the Study Area (TPWD, 2018d; eBird, 2018), and the species is not expected to occur within the Study Area due to the general absence of suitable habitat.

3.9.2.2 Whooping Crane

The whooping crane is North America's tallest wading bird. Only four wild populations of whooping crane exist. The only self-sustaining and largest wild population is the Aransas-Wood Buffalo population (AWBP). The AWBP breeds in Wood Buffalo National Park in northern Canada and migrates annually to wintering grounds in the Aransas National Wildlife Refuge (NWR) and adjacent areas of the central Texas Coast in Aransas, Calhoun, and Refugio counties (USFWS, 1995, 2009a; Lewis, 1995; Canadian Wildlife Service and USFWS, 2007). Individuals have wintered a considerable distance from these three counties, including as far away as the Panhandle and south to Willacy County (Lockwood and Freeman, 2014). The three smaller wild populations include the non-migratory Florida and Louisiana populations and one population that migrates between Wisconsin and Florida. These are not self-sustaining populations, and each is designated as an "experimental population, non-essential."

During migration, whooping cranes travel during daylight hours and stop over at wetlands, fallow cropland, and pastures to roost and feed. Whooping cranes have an unpredictable pattern of stopover use and may not use the same stopover sites annually. They spend a short period of time at any one location ranging from overnight to several days in inclement weather. Federal and state efforts to record information on whooping cranes sighted in migration began in 1975 and have continued to the present day through the Cooperative Whooping Crane Tracking Project (CWCTP) in the U.S. and Canada (USFWS, 2009a; Tacha et al., 2010). The database incorporates records for the period of 1943 through 2009. As of the fall of 2009, 140 confirmed sightings of migrating whooping cranes occurred in Texas, from the fall of 1965 to the fall of 2009 (USFWS, 2009b). None of these recorded occurrences are within the Study Area, or Foard County.

As shown on Figure 3-4, the Study Area lies within the zone that encompasses 95 percent of known sightings; however, it is unlikely that the species will occur within the Study Area due to a lack of suitable stopover habitat.

3.9.2.3 Piping Plover

The piping plover is a small shorebird that inhabits sandy beaches and alkali flats (Cornell Lab of Ornithology, 2018). Approximately 35 percent of the known global population of piping plovers winters along the Texas Gulf Coast, where they spend 60 to 70 percent of the year (Campbell, 2003). The piping plover population that winters in Texas breeds on the northern Great Plains and around the Great Lakes.

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The species is an uncommon to locally common winter resident along the coastal areas of Texas and can linger through the summer on very rare occasions. Piping plovers are not often observed during migration at inland locations, and most appear to pass east of the Balcones Escarpment (Lockwood and Freeman, 2014). No documented records of the piping plover exist from the Study Area (TPWD, 2018d; eBird, 2018), and it is extremely unlikely that this species would occur in the Study Area.

3.9.2.4 Red Knot

The red knot is a medium-sized, stocky, short-necked sandpiper with a rather short, straight bill. The *rufa* subspecies, one of three subspecies occurring in North America, has one of the longest migration distances known, travelling between its breeding grounds in the central Canadian Arctic to wintering areas that are primarily in South America (USFWS, 2011). During migration and winter in Texas, red knots may be found feeding in small groups, on sandy, shell-lined beaches, and to a lesser degree, on flats of bays and lagoons (Oberholser, 1974). It is an uncommon migrant along the coast, especially the Upper Texas coast, and very rare to casual inland, primarily in the eastern half of the state (Lockwood and Freeman, 2014). No documented records of the red knot exist from the Study Area (TPWD, 2018d; eBird, 2018), and it is extremely unlikely that this species would occur in the Study Area.

3.9.2.5 Sharpnose shiner

The sharpnose shiner is a ray-finned fish belonging to the family Cyprinidae (carps and minnows), has straw-colored with silvery sides, and grows up to 3.74 inches in length (Texas State University, 2018). The sharpnose shiner is currently restricted to the upper Brazos River and its major tributaries in north-central Texas, which represents a greater than 70 percent range reduction. The species historically occurred along most of the Brazos River and parts of its major tributaries. The sharpnose shiner also naturally occurred in the Colorado River and in the Wichita River. Sharpnose shiners are limited to the main channel and certain tributaries of the upper Brazos River basin where they are blocked from moving downstream by Possum Kingdom Lake. With only one isolated population remaining, this species is unable to disperse downstream, and is in danger of extinction from only one adverse event, such as a lack of river flow for two consecutive years (USFWS, 2014, 2015). No documented records of the sharpnose shiner exist in the Study Area (TPWD, 2018d) and the species does not occur in the Study Area due to its currently restricted range and lack of suitable habitat.

3.9.2.6 Black-footed Ferret

The black-footed ferret is a large weasel that is associated primarily with prairie dogs (*Cynomys* spp.) and prairie dog towns. Historically, black-footed ferrets ranged throughout the Great Plains where they occurred in semi-arid grasslands and mountain basins in Arizona, Colorado, Kansas, Montana, Nebraska,

New Mexico, North Dakota, Oklahoma, South Dakota, Texas, Utah, and Wyoming (Campbell, 2003). In Texas, black-footed ferrets originally ranged throughout the northeastern third of the state, including the Panhandle, Trans-Pecos, and most of the Rolling Plains (Schmidly, 2004). The last Texas records of the species were from Bailey County in 1963 (Schmidly, 2004). Most authorities consider the black-footed ferret extirpated from Texas; it does not occur in the Study Area.

3.9.2.7 Gray Wolf

The gray wolf historically inhabited the western two-thirds of the state, but has been extirpated in Texas (Schmidly, 2004), with the last authenticated reports being recorded in Texas in December 1970. It does not occur in the Study Area.

3.9.3 Critical Habitat

The USFWS, in Section 3(5)(A) of the ESA, defines critical habitat as:

> *"(i) the specific areas within the geographical area occupied by the species, at the time that it is listed in accordance with the ESA, on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination by the Secretary of the Interior that such areas are essential for the conservation of the species."* (USFWS, 1973)

No critical habitat has been designated in the Study Area for any species included under the ESA.

3.9.4 State-Listed Fish and Wildlife Species

State-listed species receive protection under state laws, such as Chapters 67, 68, and 88 of the TPWD Code, and sections 65.171–65.184 and 69.01–69.14 of Title 31 of the Texas Administrative Code. Four species are protected at the state level and designated as threatened within Foard County (Table 3-5) (TPWD, 2018c). They are the bald eagle (*Haliaeetus leucocephalus*), peregrine falcon (*Falco peregrinus*), Texas kangaroo rat (*Dipodomys elator*), and Texas horned lizard (*Phrynosoma cornutum*).

Table 3-5: State-Listed Fish and Wildlife Species for Foard County[a]

Common Name	Scientific Name[b]	Status	Potential for Occurrence in the Study Area
		TPWD	
Birds			
Bald eagle	*Haliaeetus leucocephalus*	Threatened	Not likely[c]
Peregrine falcon	*Falco peregrinus*	Threatened	Likely[c]
Mammals			
Texas kangaroo rat	*Dipodomys elator*	Threatened	Likely

Common Name	Scientific Name[b]	Status	Potential for Occurrence in the Study Area
		TPWD	
Reptiles			
Texas horned lizard	*Phrynosoma cornutum*	Threatened	Likely

(a) According to USFWS (2018a) and TPWD (2018c, 2018d).
(b) Nomenclature follows Manning et al. (2008), Crother et al. (2012), AOS (2017), USFWS (2018a), and TPWD (2018c).
(c) Only expected to occur as a migrant, transient, or rare vagrant within the Study Area.

3.9.4.1 Bald Eagle

The bald eagle is present year-round in Texas, and individuals may include breeding, wintering, migrating, and postbreeding dispersing birds. In Texas, bald eagles breed primarily in the eastern third of the state, although in the last decade nesting pairs have been found over a wider area of the state, including sites in the Panhandle (Lockwood and Freeman, 2014). Bald eagles prefer large bodies of water surrounded by tall trees or cliffs, which they use as nesting sites. In 2007, the USFWS removed the bald eagle from the list of endangered and threatened wildlife species (72 Federal Register 130:37345–37372, July 9, 2007); however, the bald eagle still receives Federal protection under provisions of the BGEPA and MBTA. According to TPWD (2018d), no documented bald eagle records or nests occur in the Study Area. The bald eagle may migrate through the Study Area but would not be expected to occur as a winter resident due to the lack of large water bodies within the Study Area.

3.9.4.2 Peregrine Falcon

The peregrine falcon was removed from Federal listing under the ESA by the USFWS in 1999. The TPWD also revised the status of the subspecies American peregrine falcon (*Falco peregrinus anatum*) from endangered to threatened and dropped the subspecies Arctic peregrine falcon (*Falco peregrinus tundrius*) from the state endangered and threatened list altogether. The American peregrine falcon is a rare summer resident in the mountains of Trans-Pecos in Texas. The Arctic peregrine falcon is an uncommon to rare migrant and winter resident statewide (Lockwood and Freeman, 2014). Since the two subspecies are difficult to differentiate in the field, the TPWD will generally only reference this bird at the species level (TPWD, 2018c). Although the TPWD (2018d) and eBird (2018) have no records from the Study Area, the species probably occurs occasionally in the Study Area as a migrant or winter vagrant.

3.9.4.3 Texas Kangaroo Rat

The Texas Kangaroo rat, a small brown mammal with a white belly, has been documented in 11 North Central counties of Texas. They reside in areas with firm clay soils supporting short grass and scattered mesquite brushland. Although the TPWD (2018d) has no records from the Study Area, the species has

been documented approximately 4 miles north of the Study Area and may occur within the Study Area in appropriate habitat.

3.9.4.4 Texas Horned Lizard

The Texas horned lizard occurs throughout the western half of the state in a variety of habitats but prefers arid and semi-arid environments in sandy loam or loamy sand soils that support patchy bunch-grasses, cacti, yucca, and various shrubs (Henke and Fair, 1998). While the species has almost vanished from the eastern half of the state over the past 30 years, it still maintains relatively stable numbers in west Texas. Although TPWD (2018d) shows no documented records within the Study Area for this species, the Texas horned lizard may occur in small numbers in suitable habitat within the Study Area.

3.10 Human Resources

3.10.1 Community Values and Community Resources

The term "community values" is included as a factor for consideration of transmission line certification under PURA § 37.056(c)(4). Although the term is not formally defined in the statute or PUC rules, the PUC and PUC Staff have recognized a working definition as "a shared appreciation of an area or other natural resource by a national, regional, or local community" in several CCN proceedings.

Burns & McDonnell evaluated the proposed Project for community resources that may be important to a particular community as a whole, such as parks or recreational areas, historical and archeological sites, or scenic vistas within the Study Area. Additionally, Burns & McDonnell mailed consultation letters to Federal, state, and local officials (Appendix A) to identify and collect information regarding community values and community resources, among other things. Input received was used in the evaluation of the proposed Project. Community values and community resources are discussed in the following sections

3.10.2 Land Use

The Study Area is located within the central portion of Foard County, approximately 2.3 miles south-southwest from the center of Crowell. Foard County has a total land area of approximately 708 square miles, and the 2017 total population of Foard County was estimated at just 1,222 (U.S. Census Bureau, 2018). Crowell, which serves as the county seat, is the only incorporated city in Foard County. No incorporated cities or unincorporated communities are located within the rural Study Area.

The Study Area is located in State Planning Region No. 3, represented by the Nortex Regional Planning Commission (NRPC), which covers a 9,461 square-mile region and includes Archer, Baylor, Clay, Cottle, Foard, Hardeman, Jack, Montague, Wichita, Wilbarger, and Young Counties. The NRPC contains

approximately 224,336 people within its service area and serves its members as the instrument of local government cooperation and coordination for improving health, safety, and general welfare of their citizens. It is the entity through which local governments consider issues and cooperate in addressing area-wide problems, and consists of 101 local governments, all 11 county governments, 35 school districts, 33 cities, and 22 special districts (Texas Association of Regional Councils [TARC], 2018). The Crowell Independent School District (ISD) serves the Study Area; however, no schools or other facilities are located within the Study Area boundary (Texas Education Agency, 2018).

The Study Area is located within a rural portion of the county and is dominated by agricultural fields, rangeland, and shrubland. No commercial or residential development occurs within the Study Area except for a very few isolated single-family homes and farmsteads. USDA National Agricultural Statistics Service (NASS) geospatial data and interactive maps were referenced to estimate land cover within the Study Area boundary. The total land area of the Study Area is approximately 7,327 acres (11.4 square miles), which includes approximately 3,652 acres of shrubland (approximately 50 percent), 3,284 acres of cropland (approximately 44.8 percent), 97 acres of fallow/idle cropland (1.4 percent), and 10.4 acres of forested land (approximately 0.1 percent). Only 280 acres (3.8 percent of the entire Study Area) were classified as developed land (USDA, 2017).

3.10.3 Recreation

A review of the Texas Outdoor Recreation Plan (TORP), Federal, state, and local maps, an internet search, and field reconnaissance did not identify any national, state, county, or municipal parks, forests/grasslands, wildlife refuges, wildlife management areas, or preserves within the Study Area (TPWD, 2018e; National Park Service [NPS], 2018). One roadside picnic area is located in the central portion of the Study Area on the west side of State Highway (SH) 6. Recreational activities such as hunting may occur on private properties within the Study Area, but these properties are not open to the public.

3.10.4 Agriculture

According to the most recent published USDA 2012 Census of Agriculture, the total market value of agricultural products sold in Foard County was $13,827,000, which is a 22 percent decrease from the county's 2007 total market value of $17,626,000. For comparison, the total market value of agricultural products sold within Texas rose 21 percent, from approximately $21 billion to over $25.3 billion during the same period (USDA, 2012).

The number of farms in Foard County fell from 212 in 2007 to 194 in 2012, a decrease of 8 percent. The total land in farms within Foard County decreased by 7,647 acres between 2007 and 2012, from 375,790 acres to 368,143 acres, a decrease of 2 percent (USDA, 2012).

In terms of value of sales by commodity group, the most valuable agricultural products within Foard County in 2012 include: (1) cattle and calves ($7,498,000); (2) grains, oilseeds, dry beans, and dry peas ($5,356,000); and (3) horses, ponies, mules, burros, and donkeys ($113,000) (USDA, 2012).

3.10.5 Transportation and Aviation

The major transportation feature located within the small Study Area is SH 6, which extends approximately 3.26 miles southwest to northeast across the eastern portion of the Study Area. The total length of SH 6 is approximately 476.3 miles, as it extends southward and southeastward from the Red River at the Texas-Oklahoma boundary to near the north end of the Galveston Causeway. Additionally, two FM roads (FM 1594 and FM 2003) and eight county roads are located within the Study Area. The only other roads located within the Study Area are private roads (TxDOT, 2018a).

A review of the San Antonio Sectional Aeronautical Chart (FAA, 2018), the TxDOT Airport Directory (TxDOT, 2018b), aerial photography, USGS maps, field reconnaissance, and AirNav (2018) and other internet sources identified no FAA-registered airports, no private landing strips, and no heliports within the Study Area.

3.10.6 Communication Towers

A search of the Federal Communications Commission (FCC) website, online cell tower search engines, and field reconnaissance did not identify any commercial AM or FM radio towers, cellular towers, or any other electronic communication towers within the Study Area (FCC, 2018; AntennaSearch, 2018; Cell Reception, 2018).

3.10.7 Utilities

Existing electric facilities within the Study Area include ETT's Edith Clarke Substation, four ETT 345-kV Competitive Energy Renewable Zone (CREZ) transmission lines, one AEP Texas 69-kV transmission line, one Xcel Energy 345-kV transmission line, and some distribution facilities of Southwest Rural Electric Association, Inc. According to the RRC (2018), no mapped oil or gas wells are located within the Study Area. Additionally, no oil or gas development was observed during the field investigation within the Study Area.

3.10.8 Aesthetic Values

Aesthetics is included as a factor for consideration in the evaluation of transmission facilities in PURA § 37.056(c)(4). The term aesthetics refers to the subjective perception of natural beauty in the landscape, and this section of the document attempts to define and measure the Study Area's scenic qualities. Consideration of the visual environment includes a determination of aesthetic values where the major potential effect of the Project on the resource is considered aesthetic, or where the location of a transmission line could affect the scenic enjoyment of a recreation area.

The aesthetic analysis considers potential visual impacts to the public. Areas visible from major roads and highways, or publicly-owned or accessible lands (e.g., parks or privately-owned recreation areas open to the public) were analyzed. Several factors are taken into consideration when attempting to define the potential impact to a scenic resource that would result from the construction of the proposed transmission line. Among these are:

- topographical variation (hills, valleys, etc.)
- prominence of water in the landscape
- vegetation variety (forests, pasture, etc.)
- diversity of scenic elements
- degree of human development or alteration
- overall uniqueness of the scenic environment compared to the larger region

The THC operates the Texas Heritage Trails Program, a statewide heritage tourism program based on 10 scenic driving trails originally created by TxDOT. This program operates throughout 10 regions of Texas and enables people to learn about, and be surrounded by, local customs, traditions, history, and culture of the different regions. The Study Area is located within the Texas Plains Region, which contains the Texas Plains Trail. This trail region stretches across 52 counties in the Panhandle of Texas and highlights the canyons, lakes, prairies, historic towns, and cultural and recreational opportunities of the region. Although the Study Area is located within the Texas Plains Region, none of the recommended cities or sites are located within the Study Area (THC, 2018).

In 1998, TxDOT published a list of some of the best "Scenic Overlooks and Rest Areas" in Texas, each of which presented particularly strong aesthetic views or settings (TxDOT, 1998). A review of this list found that no highlighted scenic overlook or rest area is located within the Study Area. No other outstanding aesthetic resources, designated scenic views, or unique visual elements were identified from the literature review or from ground reconnaissance of the Study Area.

Based on these criteria, the Study Area exhibits a moderate degree of aesthetic quality for the region. The majority of the Study Area is in agricultural use. The area is categorized by relatively flat to gently rolling topography with very little brushland or woodland and no significant permanent waterbodies. The landscape has experienced a moderate degree of alteration due to transportation corridors, existing electric transmission lines, and agricultural practices.

3.11 Cultural Resources

As shown on Figure 3-5, Foard County occurs in the Texas Plains Planning Region as delineated by the THC (Mercado-Allinger et al., 1996). Geographically, the Study Area is on the boundary of the Southwestern Tablelands and Central Great Plains (Griffith et al., 2007). Human occupation of the Texas Plains is divided chronologically into five cultural periods that span over 11,500 years and include Paleoindian, Archaic, Ceramic, Protohistoric, and Historic (Perttula, 2004; Johnson and Holliday, 2004). These divisions are marked by shifts in subsistence strategies and technological innovations visible in the archeological record and through documented oral and written histories. The following sections present an overview of the region's cultural history and the associated archeological and historic resources that could potentially be located within the Study Area.

3.11.1 Paleoindian

Archeological evidence suggests that people first lived within the region around 12,000 years ago. This occupational phase is referred to as the Paleoindian period and extends from the end of the Pleistocene Epoch until the early Holocene. The phase can be subdivided further into Clovis (11,500 to 11,000 B.C.), Folsom (10,800 to 10,300 B.C.), and Late Paleoindian cultures, including Plainview (ca. 10,000 B.C.) and Firstview (ca. 8,600 B.C.) (Johnson and Holliday 2004).

For decades, scholars commonly believed Paleoindian peoples traveled in highly-mobile hunting and gathering bands, living a nomadic lifestyle and exploiting, by choice, a limited number of resources. However, more recent archeological research at the Aubrey and Lubbock Lake sites outside of Dallas and Lubbock, respectively, has revealed evidence of a more diversified subsistence base that included small and medium mammals in addition to the more traditional large mammals and megafauna. The Folsom culture is well represented at Lubbock Lake, and archeological investigations focusing on this period have provided evidence of increased reliance on extinct species of bison for subsistence, as well as shifting lithic technologies (Carlson, 2005).

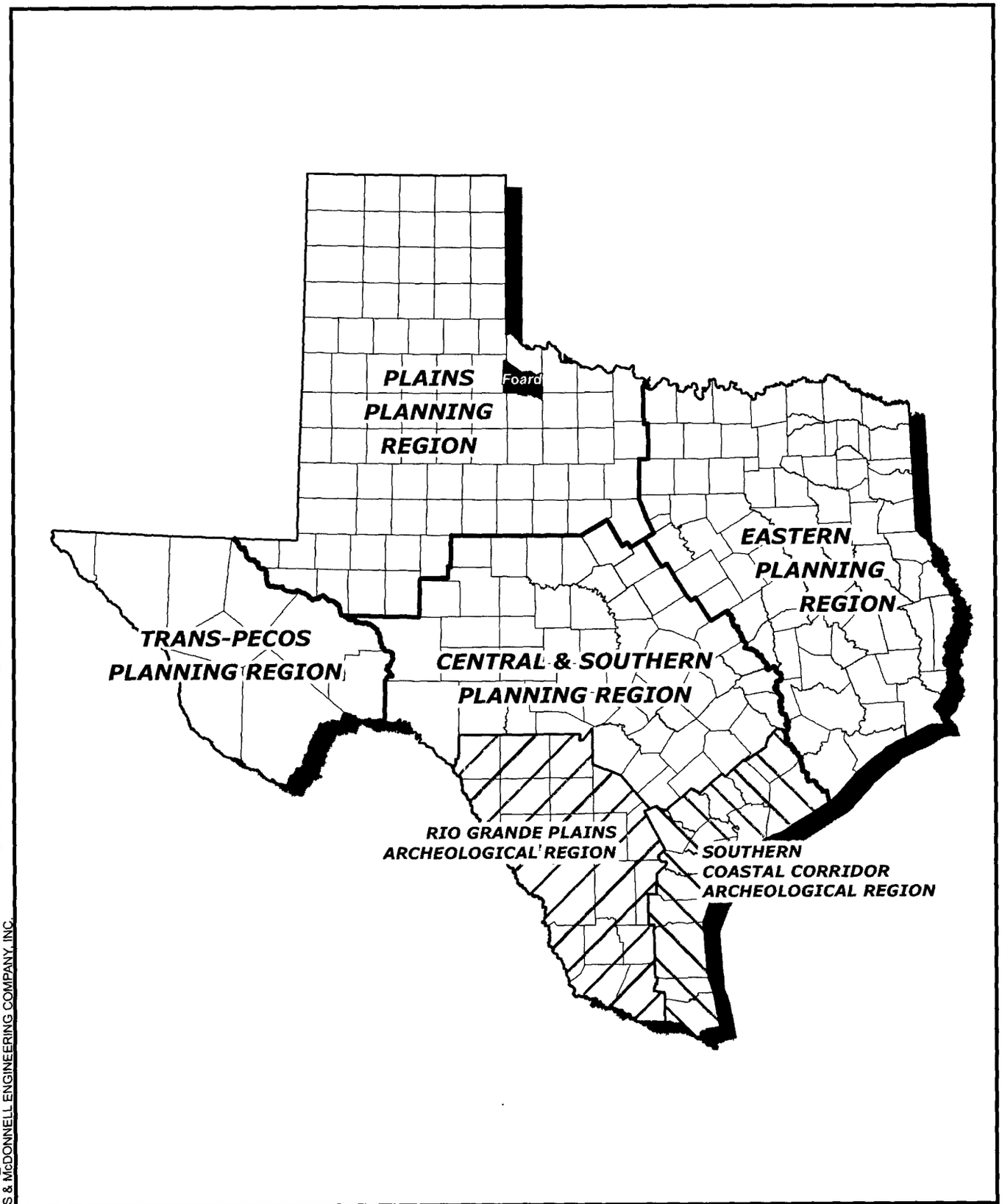

Figure 3-5
Location of Foard County
in Relation to the Cultural Resources
Planning Regions of Texas
Edith Clarke to Foard City
345 kV Transmission Line Project

Source. Mercado-Allinger et al (1996)

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Following the decline of the Folsom cultural phase, around 10,300 B.C., archeologists have identified a series of varied cultural groups distinguished according to a wide range of projectile point styles. Common Late Paleoindian points include Plainview and Firstview, but other points, some of which have contracting stems, were also developed. It appears that people relied upon a diverse diet including plants and small game as well as the continued exploitation of bison. Evidence of this subsistence strategy has been documented at the Lake Theo site in Briscoe County and at Lubbock Lake (Harrison and Killen, 1978; Johnson and Holliday, 2004).

3.11.2 Archaic

The start of the Archaic period (8000 to 2000 B.C.) coincides roughly with the start of the Hypsithermal climatic episode that resulted in an overall warmer and drier climate (Hofman, 1989; Kay, 1998). Consequently, a sudden extinction of megafauna populations forced peoples to exploit faunal resources in bottomland and forested areas (Johnson and Holliday, 2004). Changes in overall subsistence practices during the Archaic appear to have led to accompanying technological shifts. Stemmed (expanding and contracting) and notched (corner and basal) projectile points began to be used, and hafting technologies changed. The lithic toolkit was also expanded to include groundstone tools for the first time, such as manos, metates, and pestles.

During the Middle and Late Archaic period, a further expansion of the lithic toolkit appears to have occurred. Varieties of stemmed, corner-notched, and shallow side-notched projectile points became increasingly popular during this period, as did scrapers, perforators, drills, knives, grooved axes, bannerstones, and plummets. The Archaic culture relied heavily upon bison as an important food source, along with other smaller game. An increase in groundstone tool use, including manos and pestles, also occurred, a phenomenon that is believed to reflect further inclusion of seeds and nuts in people's diets (Blackmar and Hofman, 2006).

3.11.3 Ceramic

The Early Ceramic period (2000 to 1000 B.C.) appears to have been a transitional time for peoples living in the Texas Plains. Several new innovations, including pottery and the bow and arrow, were introduced. Additionally, limited evidence of horticulture and the presence of storage features suggest people continued a foraging lifestyle while moving toward a more sedentary existence (Johnson and Holliday, 2004). Typical cultural markers for this period include thick, conoidal-shaped ceramic vessels and corner- and basally-notched arrow points.

Diagnostic artifacts of the Early Ceramic include corner-notched and stemmed arrow points and brownware ceramics (Boyd, 2004). Excavations at the Kent and Sam Wahl sites in the panhandle suggest a continued foraging lifestyle with seasonal habitation sites and hunting and plant processing campsites. Excavated features include burials, hearths, pits, burned-rock features, and rectangular to oval pit houses.

During the Middle Ceramic period of the Texas Plains, people appear to have been primarily semi-sedentary horticulturists with semi-permanent to permanent residences. Artifact assemblages from this period include cord-marked pottery, diamond-shaped beveled knives, triangular projectile points, distal end scrapers, drills, bison bone digging sticks, and scapula hoes for practicing agriculture. It was during this period that the first widespread permanent villages appear to have been established, typically on ridges and terraces near perennial streams and arable land (Brosowske, 2005). Subsistence strategies included the harvesting of cultigens such as corn, squash, and beans, as well as hunting game and collecting edible wild plants. Bison continued to play a major role in people's diets (Brooks, 2004).

3.11.4 Protohistoric

In general, scholars believe Apachean groups dominated the region during the period of European contact, particularly the Lipan Apache with later incursions by the Comanche, Cheyenne, Arapaho, and Kiowa (Hofman, 1989). Evidence from archeological excavations suggests people were primarily nomadic bison hunters with some sedentary camp settlements and limited horticulture. The Tierra Blanca site in Deaf Smith County contains some of the best evidence for protohistoric life on the Texas Plains. Features include tipi rings, stone foundations, open hearths, and a semi-subterranean, slab-lined circular structure (Hofman, 1989).

The Comanche moved into the Texas Plains region during the eighteenth century. Originally from the Great Basin region to the northwest, family bands and groups migrated south following the cultural incorporation of the European horse, which drastically changed the Comanche social, economic, and political structure (Wallace and Hoebel, 1952). The Comanche were highly mobile, followed the seasons, and came together to hunt bison. While groups of Lipan Apache, Kiowa, Cheyenne, Arapaho, and other surviving indigenous cultures continued to occupy the region during the eighteenth and nineteenth centuries, the Comanche dominated the Texas Plains during the Protohistoric period (Hofman, 1989).

3.11.5 Historic

Spanish and American explorers provided much of the available information regarding the historic period Native American groups residing in the region during the late eighteenth and early nineteenth centuries. The first known Spanish expedition to the Texas Plains was led by Pedro Vial (Brune, 2002). The

expedition established an overland route between the provincial capitals of San Antonio, Texas, and Santa Fe, New Mexico (Ellis, 2011). As westward expansion occurred, conflicts between Europeans and Native Americans prompted the U.S. government to establish a series of frontier forts in the mid-nineteenth century. In 1860, Texas Rangers captured Cynthia Ann Parker at a Comanche camp where the Pease River meets Mule Creek northeast of the Study Area (Leffler, 2016). Cynthia Ann was captured from Fort Parker in Limestone County when she was a child. Raised by Comanches, she later became the wife of Comanche chief Peta Nacona and mother to Quanah Parker.

The Medicine Lodge Treaty of 1867 was created to mitigate conflict by establishing reservations in Oklahoma for the Comanche, Kiowa, Southern Cheyenne, and Arapaho. However, the treaty ultimately proved untenable for all involved due to the U.S. government's inability to honor the terms (Cruse and Mercado-Allinger, 2001). Conditions quickly deteriorated and, as a result, many fled the reservations and joined forces "with the renegade bands who had returned to the Texas Plains" (Cruse and Mercado-Allinger, 2001). Continual attacks on white settlements led to retaliation by the U.S. Army, culminating in what became known as the Red River War, which ended in 1875 (Cruse and Mercado-Allinger, 2001).

Foard County was named for Robert L Foard, a lawyer and Confederate officer. The county was formed from parts of Cottle, King, Knox, and Hardeman Counties. Crowell was chosen as the county seat in 1891. Cattle quickly replaced the great herds of buffalo that once roamed the region (Leffler, 2016). A brief copper mining industry was established in the county in 1877, but was quickly abandoned because of the lack of water, fuel, and transportation in the area (Leffler, 2016). In 1908 the Kansas, Mexico and Orient Railway built tracks from Knox City and Benjamin through Foard County to Chillicothe, accelerating the county's development (Koos and Dixon, 1961; Leffler, 2016).

By the early 1900s, farming and industry were added to ranching as the mainstays of the regional economy. Crops grown included cotton, corn, and wheat (Koos and Dixon, 1961). The agriculture industry in Foard County suffered during the Great Depression and concurrent Dust Bowl and again during severe droughts in the 1950s. Oil was first discovered in Foard County in 1925. Oil, cattle, and agriculture remain the leading industries in Foard County today (Leffler, 2016).

3.11.6 Literature and Records Review

Burns & McDonnell conducted an examination of the Texas Archeological Sites Atlas (TASA) to identify previously-conducted cultural resources investigations and previously-recorded archeological sites and other designated non-archeological historic resources including NRHP-listed properties and districts, Official Texas Historical Markers (OTHMs), including Recorded Texas Historic Landmarks (RTHLs),

State Antiquities Landmarks (SALs), and historic-age cemeteries within the Study Area. Review of TASA found no records of previous investigations or cultural resources within the Study Area.

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4.0 ENVIRONMENTAL IMPACTS OF THE PROJECT

The potential and anticipated impacts to natural, human, and cultural resources resulting from the proposed Project are discussed below by subject area.

4.1 Impact on Natural Resources

4.1.1 Impact on Physiography and Geology

Construction of the proposed transmission line will have no significant effect on the physiographic or geologic features and resources of the area. Erection of the structures would require the removal and minor disturbance of small amounts of near-surface materials but would have no measurable impact on the geologic resources or features along the proposed route. The Project will have no significant impact on mineral resources in the Study Area.

4.1.2 Impact on Soils

The construction and operation of transmission lines normally create very few long-term adverse impacts on soils. Transmission lines are not normally considered to cause a conversion of farmland because the site can still be used in this capacity after construction. The major potential impact upon soils from any transmission line construction would be erosion and soil compaction. The potential for soil erosion is generally greatest during the initial clearing of the ROW; however, erosion control measures during the clearing and construction process will be employed. Where existing land cover includes woody vegetation within the ROW, much of this vegetation will be removed to provide adequate space for construction activities and to minimize corridor maintenance and operational concerns. In these areas, only the leaf litter and a small amount of herbaceous vegetation would remain, and both would be disturbed by the necessary movement of heavy equipment.

Construction of the transmission line would require minimal amounts of clearing in areas that have already been cleared for crops, pastures, and existing road, transmission line, and pipeline ROW. The most important factor in controlling soil erosion associated with construction activity is to revegetate areas that have potential erosion problems immediately following construction. Natural succession would revegetate most of the ROW. Impacts from soil erosion caused by construction activity would be minimized due to the implementation of BMPs designed in the SWPPP. Areas where construction activity has occurred will be restored and revegetated in accordance with the SWPPP and the PUC final order.

Prime farmland soils, as defined by the NRCS, are soils that are best suited for producing food, feed, forage, or fiber crops. The USDA recognizes the importance and vulnerability of prime farmlands

throughout the nation and encourages the wise use and conservation of these soils where possible. According to the NRCS mapping tool, the Consensus Route would not cross prime farmland soils.

4.1.3 Impact on Water Resources

4.1.3.1 Surface Water

Construction and operation of the transmission line would have minimal adverse impact on the surface water resources of the area. The Consensus Route would span all streams. Potential impacts from any major construction project include short-term disturbances resulting from construction activities, which would result primarily from increased siltation from erosion and decreased water quality from accidental spillage of petroleum and other chemical products. Additionally, activities such as clearing of vegetation may temporarily increase local stormwater runoff volumes and sediment loading. Potential impacts would be avoided whenever possible by spanning surface waters, diverting construction traffic around water resources via existing roads, and eliminating unnecessary clearing of vegetation.

Although impacts would be avoided to the extent practicable, some unavoidable impacts could occur. Reducing vegetation removal around surface water features and minimizing ground disturbance would minimize these impacts. The use of erosion control measures, such as silt fencing and selective clearing, and BMPs regarding the use of chemicals, would also minimize potential impacts. As such, impacts occurring from construction of the proposed transmission line would be short term and minor because of the relatively small area that would be disturbed at any one time, the short duration of the construction activities, the preservation of vegetation adjacent to surface water features where practicable, and the implementation of BMPs designed in the SWPPP to control runoff from construction areas. Contractors will also make efforts during construction for proper control and handling of any petroleum or other chemical products.

The measurements of the various criteria used in the environmental analysis of the route for this Project are tabulated in Table 6-1 in Section 6.0 of this report. The Consensus Route crosses five streams; however, Beaver Creek is the only named stream crossed by the Consensus Route. The Consensus Route parallels streams within 100 feet for approximately 240 feet but does not cross any open water (lakes, ponds, etc.).

Generally, surface water resources do not present a major constraint to transmission line construction, unless navigable river crossings or impacts to wetlands occur that would warrant USACE permitting, or areas that would require extensive woodland clearing near streams, which would present potential erosion

control problems. However, navigable river crossings, extensive contiguous wetland systems, and areas requiring extensive woodland clearing near streams do not exist along the Consensus Route.

4.1.3.2 Floodplains

The Consensus Route may potentially cross flood hazard areas. However, Foard County does not participate in the FEMA program; therefore, floodplain information for the Study Area is not available. Although detailed floodplain analyses for Foard County are not available, floodplains are likely associated with Beaver Creek and low-lying areas within the Study Area.

4.1.3.3 Groundwater

No adverse impacts to groundwater are expected to occur from the construction and operation of the proposed transmission line. The amount of recharge area that would be disturbed by construction is minimal when compared to the total amount of recharge area available for the aquifer systems in the region. Additionally, if accidental spillage of fuel, lubricants, or other petroleum products occurred from normal operation of heavy equipment during construction activities, it would be unlikely to result in any groundwater contamination. Any accidental spills would be promptly handled in accordance with state and Federal regulations. Contractors will take necessary precautions to avoid and minimize the occurrence of such spills.

4.1.4 Impact on the Ecosystem

4.1.4.1 Vegetation

Impacts to vegetation resulting from the construction and operation of transmission lines are primarily associated with the removal of existing woody vegetation within the ROW and conversion to herbaceous vegetation. The amount of vegetation cleared from the transmission line ROW would be dependent upon the type of vegetation present and whether the ROW will be completely new or involve widening existing ROW. For example, the greatest amount of vegetation clearing generally occurs in wooded areas, whereas cropland and grassland usually requires little to no removal of vegetation.

Vegetation in the Study Area is dominated by crops and brushland/shrubland, and very little clearing of trees will be necessary for construction. The linear extent of plant communities crossed by the Consensus Route was determined using digital aerial imagery, and the length across potential wetlands was estimated by referencing USFWS NWI maps (see Table 6-1 in Section 6.0). Regarding woody vegetation communities, the Consensus Route crosses approximately 6,893 feet of brushland/shrubland that would require removal.

Construction of the facility within the ROW would be performed to minimize adverse impacts to vegetation and to retain existing ground cover wherever practicable. Additionally, contractors will minimize damage to local vegetation and retain native ground cover wherever practicable. Clearing will occur only where necessary to provide access and working space and to protect conductors. Where necessary, soil conservation practices will be undertaken to protect local vegetation and ensure successful revegetation for areas disturbed during construction.

The Consensus Route crosses Beaver Creek and four unnamed tributaries, but according to USFWS NWI maps, does not cross any mapped areas that potentially support wetlands. These creeks will be spanned by the transmission line. Therefore, no waters of the U.S., including wetlands, will be impacted. Precautions would be taken throughout the construction process to avoid and minimize impacts to these creeks. Placement of approved BMPs for construction and minimization of erosion in disturbed areas would help dissipate the flow of runoff. Placement of silt fences or hay-bale dikes between streams and disturbed areas would also help prevent siltation into the waterway.

4.1.4.2 Aquatic Resources

Impacts to aquatic ecosystems from transmission line construction are generally minor. Aquatic features along the Consensus Route, such as streams, can generally be spanned. The implementation of sedimentation controls, as prescribed in the Project-specific SWPPP, during construction will help to minimize erosion and sedimentation into area streams. Potential impacts include physical habitat loss or modification, increased runoff, erosion and sedimentation, turbidity, and spillage of petroleum or other chemical products. However, all these tend to be short-term effects and will vary with the intensity and timing of the construction along the Consensus Route. Contractors will make efforts during construction for proper control and handling of any petroleum or other chemical products.

Physical habitat loss or modification could result whenever access road crossings intercept a drainage system, through sedimentation due to erosion, increased suspended solids loading, or accidental petroleum spills directly into a creek, pond, or other aquatic feature. Erosion results in siltation and increased suspended solids entering streams or creeks, which in turn may negatively affect many aquatic organisms at many trophic levels. However, impacts to aquatic communities from the proposed Project will be minimal given that creeks in the Study Area are ephemeral or intermittent.

Typically, the main considerations regarding potential impacts to aquatic systems include the length across wetlands and open water, and length of ROW paralleling (within 100 feet) streams. The Consensus Route will cross five streams, including Beaver Creek, and will parallel streams within 100 feet for

approximately 240 feet but will not cross any open water (lakes, ponds, etc.). The transmission line for the Consensus Route will span the stream habitats and the placement of supporting structures in the streambed of drainage features will be avoided. If clearing of vegetation is necessary at stream crossings, contractors may employ selective hand clearing (i.e., use of chainsaws instead of heavy machinery), to minimize erosion problems. Erosion-prone areas adjacent to streams (stream banks) will not be cleared unless necessary. The most effective method for avoiding surface water impacts is the implementation of proper spill-prevention and spill-response plans. Little impact to aquatic resources is anticipated.

4.1.4.3 Wildlife

The impacts of transmission lines on wildlife include short-term effects resulting from physical disturbance during construction, as well as long-term effects resulting from habitat modification, fragmentation, or loss. The net effect from transmission line construction on local wildlife is typically minor. The following section provides a general discussion of the effects of transmission line construction and operation on terrestrial wildlife, followed by a discussion of the possible impact of the Consensus Route.

Any required clearing or other construction-related activities would directly or indirectly affect most animals that reside within or traverse the transmission line ROW. Heavy machinery may adversely affect smaller, low-mobility species, particularly amphibians, reptiles, and small mammals.

If construction occurs during the breeding season (generally spring to fall), construction activities may adversely affect the young of some species. Heavy machinery may cause soil compaction, which may adversely affect fossorial animals (i.e., those that live underground). Mobile species, such as birds and larger mammals, may avoid initial clearing and construction activities and move into adjacent areas outside the ROW. Construction activities may temporarily deprive some animals of cover and potentially subject them to increased natural predation. Wildlife in the immediate area may experience a slight loss of browse or forage material during construction; however, the prevalence of similar habitats in adjacent areas and vegetation succession in the ROW following construction would minimize the effects of these losses.

The increased noise and activity levels during construction could potentially disturb the daily activities (e.g., breeding, foraging, etc.) of species inhabiting the areas adjacent to the ROW. Dust and gaseous emissions should have only minimal effects on wildlife. Although construction activities may disrupt the normal behavior of many wildlife species, little permanent damage to these populations should result. Periodic clearing along the ROW, while producing temporary negative impacts to wildlife, can improve

the habitat for ecotonal or edge species through the increased production of small shrubs, perennial forbs, and grasses.

Transmission line structures will be designed in compliance with the Avian Power Line Interaction Committee (APLIC) standards, as defined in *Reducing Avian Collisions with Power Lines: The State of the Art in 2012* (APLIC, 2012). As such, the danger of electrocution to birds from this Project is anticipated to be insignificant. Some avian species may use transmission line structures or wires for perching and roosting locations; however, this is not the designed intent of those facilities. Additionally, edge-adapted species such as the blue jay (*Cyanocitta cristata)*, some flycatchers, northern cardinal (*Cardinalis cardinalis)*, northern bobwhite (*Colinus virginianus)*, Cooper's hawk (*Accipiter cooperii)*, brown-headed cowbird (*Molothrus ater)*, and northern mockingbird (*Mimus polyglottos*) may select the edge habitat created along the changed vegetation areas adjacent to the transmission ROW (Rochelle et al., 1999).

The transmission line (both structures and wires) could present a hazard to flying birds, particularly migrants. Collision may result in disorientation, crippling, or mortality (New York Power Authority, 2005). Mortality is directly related to an increase in structure height; number of guy wires, conductors, and ground wires; and use of solid or pulsating red lights (Erickson et al., 2005). Birds are known to be attracted to non-flashing red lights and less attracted to flashing lights (FCC, 2015). In addition to lighting concerns, collision hazards are greatest near habitat "magnets" (e.g., wetlands, open water, edges, and riparian zones) and during the fall when flight altitudes of dense migrating flocks are lower in association with cold air masses, fog, and inclement weather. The greatest danger of mortality exists during periods of low ceiling, poor visibility, and drizzle when birds are flying low, perhaps commencing or terminating a flight, and when they may have difficulty seeing obstructions (Electric Power Research Institute, 1993). Most migrant species known to occur in the Study Area, including passerines, should be minimally affected during migration, since their normal flying altitudes are much greater than the heights of the proposed transmission structures (Willard, 1978; Gauthreaux, 1978).

The species most prone to collision are often the largest and most common resident birds in a given area (APLIC, 1994); however, over time, these birds learn the location of transmission lines and become less susceptible to wire strikes (Avery, 1978). Raptors, typically, are uncommon victims of transmission line collisions, because of their great visual acuity (Thompson, 1978). In addition, many raptors only become active after sufficient thermal currents develop, which is usually late in the morning when poor light is not a factor (Avery, 1978).

Power lines within the daily use areas of birds are responsible for most bird collisions occurring in such areas. Waterfowl species are vulnerable because of their low-altitude flight and high speed. Species that travel in large flocks, such as blackbirds and many shorebirds, are also vulnerable, because dense flocking makes movement around obstacles more difficult for individuals in the flock (APLIC, 1994).

Utility companies can employ several means to minimize transmission line impacts on birds in flight. The initial placement of a transmission line is the most important consideration (Avery, 1978; APLIC, 1994, 2006). The proximity of a transmission line to areas of frequent bird use (e.g., communal foraging or roosting areas, rookeries, wetlands, etc.) is crucial. This is especially true for daily use areas, such as feeding areas or other areas where birds may be taking off or landing regularly (APLIC, 1994, 2006). The position of the individual structures can also help reduce collisions. Faanes (1987), in an in-depth study in North Dakota, found that birds in flight tend to avoid the transmission line structures, presumably because such structures are visible from a distance. Instead, most appear to fly over the lines in the mid-span region.

Faanes (1987) reported that 97 percent of birds observed colliding with a power line did so with the ground (static) wire, largely because of attempts to avoid the conductors. Beaulaurier (1981) found that removal of the ground wire at two study sites in Oregon resulted in a reduction in collisions of 35 percent and 69 percent. However, since overhead static wires are installed on transmission lines for safety and reliability reasons, increasing the visibility of the static wire would be a better alternative, where necessary. Increasing the visibility of the wires by using markers such as orange aviation balls, black-and-white ribbons, or spiral vibration dampers, particularly at mid-span, can reduce the number of collisions. Beaulaurier (1981) reviewed 17 studies involving marking ground wires or conductors and found an average reduction in collisions of 45 percent when compared to unmarked lines.

Negative edge effects can be reduced through native revegetation of disturbed construction areas where necessary and appropriate for safe and reliable operation. Additionally, nest management through platform design (if required), equipment protection, and other physical disincentives to bird use and nesting can avoid negative impacts to birds and power reliability (APLIC, 2006).

In general, the greatest potential impact to wildlife typically results from the loss and fragmentation of woodland and wetland habitats. Woodlands, particularly, are relatively static environments that require greater regenerative time compared with cropland or emergent wetlands. In most cases, wetlands and small waterbodies can be spanned with little or no resulting impact to wildlife.

4.1.4.4 Recreationally and Commercially Important Species

Construction of the proposed transmission line is not expected to have significant impacts on terrestrial recreationally and commercially important species in the Study Area. Game species such as the white-tailed deer, mourning dove (*Zenaida macroura*), and scaled quail are very mobile and will leave the immediate vicinity during the initial construction phase. Wildlife in the immediate area may experience a temporary loss of browse or forage vegetation during construction; however, the prevalence of similar habitats in adjacent areas will minimize the effect of the loss. The proposed Project would have little or no impact on waterfowl hunting, recreational fishing, or gamefish in the Study Area.

4.1.4.5 Endangered and Threatened Species

No endangered or threatened plant species have been recorded from Foard County; therefore, no listed plant species will be adversely affected by the proposed Project. Additionally, no sensitive plant communities occur in the Study Area, and no adverse effects to sensitive plant communities are anticipated.

According to USFWS (2018a) and TPWD (2018c), the only Federal or state-listed endangered or threatened fish species of potential occurrence in Foard County is the federally-listed endangered sharpnose shiner. This species does not occur in the Study Area due to its very restricted range outside the Study Area and the lack of suitable habitat. It will not be impacted by the proposed Project.

According to TPWD (2018c), the only reptile species of potential occurrence in Foard County is the state-listed threatened Texas horned lizard. The Texas horned lizard may reside within the Study Area. If this species is present along the Consensus Route it could experience minor temporal disturbance during construction efforts.

The gray wolf and black-footed ferret are considered extirpated in Texas and will not occur in the Study Area. The only other Federal or state-listed endangered or threatened mammal species of potential occurrence in Foard County is the state-listed threatened Texas kangaroo rat. The Texas kangaroo rat may reside within the Study Area and if it is present along the Consensus Route it could experience minor temporal disturbance during construction efforts.

Avian species protected under the ESA that may migrate through the Study Area, such as the interior least tern, whooping crane, piping plover, red knot, and other bird species that receive protection under provisions of the BGEPA and the MBTA such as the bald eagle and peregrine falcon, may be affected by the presence of transmission lines. These species may be susceptible to wire strikes. Larger birds are more prone to transmission line collisions because their large wingspans and lack of maneuverability make

avoiding obstacles more difficult (APLIC, 1994). However, the normal flying altitudes of most migrant species are greater than the heights of the proposed transmission structures (Gauthreaux, 1978; Willard, 1978). Birds with keen eyesight, such as the peregrine falcon, are likely to see obstructions such as transmission lines and avoid collisions (Thompson, 1978). Additionally, the Project will be designed following APLIC standards (APLIC, 2012) which will minimize the attractiveness of the structures for perching and nesting.

4.1.4.6 Critical habitat

No federally-determined critical habitat has been designated in the Study Area for any endangered or threatened species. Therefore, the proposed Project will have no impact on critical habitat.

4.2 Impact on Human Resources

4.2.1 Impact on Community Values

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

Impacts on community values can be classified into two areas: (1) direct effects, or those effects that would occur if the location and construction of a transmission line results in the removal or loss of public access to a valued resource; and (2) indirect effects, or those effects that would result from a loss in the enjoyment or use of a resource due to the characteristics (primarily aesthetic) of the proposed line, structures, or ROW. Impacts on community values, whether direct or indirect, can be more accurately gauged as they affect recreational areas or resources and the visual environment of an area (aesthetics). Impacts in these areas are discussed in detail in Sections 4.2.3 and 4.2.8 of this report, respectively.

4.2.2 Impact on Land Use

Land-use impacts from transmission line construction are determined by the amount of land (of varying 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. Construction noise and dust, as well as temporary disruption of traffic flow, may also temporarily affect residents in the area near the ROW.

Coordination among contractors and landowners regarding access to the ROW and construction scheduling should minimize these disruptions.

4.2.2.1 Habitable Structures

Generally, one of the most important measures of potential land use impact is the number of habitable structures located within a specified distance of a route centerline. Habitable structures are defined by 16 TAC § 25.101(a)(3) as:

> *Structures normally inhabited by humans or intended to be inhabited by humans on a daily or regular basis. Habitable structures include, but are not limited to, single-family and multifamily dwellings and related structures, mobile homes, apartment buildings, commercial structures, industrial structures, business structures, churches, hospitals, nursing homes, and schools* (PUC, 2015).

Review of aerial imagery and field reconnaissance of the Study Area and the Consensus Route determined that no habitable structure is located within 500 feet of the Consensus Route's centerline.

4.2.2.2 Utilizing/Paralleling Existing Transmission Line ROW

The least impact to land use generally results from building within existing transmission line ROW, followed by building parallel to existing transmission line ROW. Utilizing existing transmission line ROW of sufficient width usually eliminates the need for additional clearing. Furthermore, building parallel to existing transmission line ROW, when compared to establishing a new ROW corridor, can also minimize the amount of ROW to be cleared, which generally results in the least amount of impact to landowners, the environment, and the overall aesthetic quality of that area. In fact, the factors listed by 16 TAC § 25.101(b)(3)(B) to be considered in the selection of alternative routes include:

- Whether the routes parallel or utilizes existing compatible ROW for electric facilities, including the use of vacant positions on existing multiple-circuit transmission lines
- Whether the routes parallel or utilizes other existing compatible ROW, including roads, highways, railroads, or telephone utility ROW
- Whether the routes parallel property lines or other natural or cultural features

The Consensus Route does not utilize any existing transmission line ROW for this Project; however, the Consensus Route does parallel approximately 6,609 feet of existing transmission line ROW.

4.2.2.3 Paralleling Other Existing Compatible ROW

Paralleling other existing compatible ROW (roads, highways, etc.) is also generally considered to be a positive routing criterion, one that usually results in fewer impacts than establishing a new ROW corridor

within an area and is included in the PUC's transmission line certification criteria. The Consensus Route parallels approximately 5,269 feet of other existing compatible ROW (CR FM 2003 and CR 337).

4.2.2.4 Paralleling Property Lines

Another important land use criterion is the length of property lines paralleled. In the absence of existing ROW to follow, paralleling property or fence lines minimizes disruption to agricultural activities and creates less of a constraint to future development of a tract of land. Because the Consensus Route parallels existing transmission lines and roadways along property lines, the property lines along FM 2003, CR 337, and the existing transmission line were not "double-counted" in the "length of route parallel to property lines" criterion.

4.2.3 Impact on Recreation

Potential impacts to recreational land, which includes the disruption or preemption of recreational activities, would not occur from the proposed Project as no park or recreation area is crossed by the Consensus Route or located within 1,000 feet of the Consensus Route.

4.2.4 Impact on Agriculture

Agricultural activities constitute a significant land use throughout the Study Area. Potential impacts to agricultural land uses include the disruption or preemption of farming activities. Disruption may include the time lost going around or backing up to structures to cultivate as much area as possible, and the general loss of efficiency compared to plowing or planting unimpeded in straight rows. Preemption of agricultural activities refers to the actual amount of land lost to production directly under the structures. Structures (and routes) located along field edges (property lines, roads, drainage ditches, etc.) generally present fewer problems for farming operations than structures and routes located across open fields. Construction-related activities could slightly impact agricultural production, depending upon the timing of construction related to the local planting and harvesting schedule. Impacts to agricultural land uses can generally be ranked by degree of potential impact; forested land has the highest degree of impact, followed by cultivated cropland, and the least-potential impact occurring in areas where cultivation is not the primary use (pastureland/rangeland).

In this regard, the Consensus Route crosses approximately 1,547 feet of pastureland/rangeland and approximately 3,683 feet of cropland. Due to the relatively small area affected (beneath the structures), and the short duration of construction activities at any one location, such impacts should be temporary and minor. Since the ROW for this project will not be fenced or otherwise separated from adjacent lands,

no significant long-term displacement of farming or grazing activities will occur. Most existing agricultural land uses may be resumed following construction.

The Consensus Route does not cross any portions of cropland irrigated by center-pivot or other aboveground mechanical means.

4.2.5 Impact on Transportation and Aviation

Potential impacts to transportation could include temporary disruption of traffic and conflicts with proposed roadway or utility improvements and may include increased traffic during construction of the proposed Project. However, the Project would generate only minor construction traffic at any given time or location. This traffic would consist of construction employees' personal vehicles, truck traffic for material deliveries, trucks for structure foundation work, and mobile cranes for structure erection. Such impacts, however, are usually temporary and short term. Road crossing permits and access permits will be obtained from TxDOT prior to construction as the Consensus Route crosses FM 2003.

The proposed transmission line should have no significant effect on aviation operations within the Study Area. According to Federal Aviation Regulations (FAR), Part 77, notification of the construction of the proposed transmission line will be required if structure heights exceed the height of an imaginary surface extending outward and upward at a slope of 100 to 1 for a horizontal distance of 20,000 feet from the nearest point of the nearest runway of a public or military airport having at least one runway longer than 3,200 feet (FAA, 2010). For a public or military airport having a runway shorter than 3,200 feet, notification would be required if structure heights exceed the height of an imaginary surface extending at a slope of 50 to 1 for 10,000 feet. Notification is also required for structure heights exceeding the height of an imaginary surface extending outward and upward at a slope of 25 to 1 for a horizontal distance of 5,000 feet from the nearest point of the nearest landing and takeoff area for heliports.

No FAA-registered airport is located within 20,000 feet, no private landing strip is located within 10,000 feet, and no helipad is located within 5,000 feet of the proposed transmission line. The proposed Project would have no effect on aviation operations in the Study Area.

4.2.6 Impact on Communication Towers

The proposed Project would not be expected to have a significant impact on electronic communications in the Study Area. Based on available data and field reconnaissance, no AM radio transmitter is located within 10,000 feet of the Consensus Route. Additionally, no FM, cellular, or other electronic communications tower is located within 2,000 feet of the Consensus Route.