DAKOTA ACCESS PIPELINE PROJECT

U.S. FISH AND WILDLIFE SERVICE
ENVIRONMENTAL ASSESSMENT
GRASSLAND AND WETLAND EASEMENT CROSSINGS

December 2015

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

ACRONYMS AND ABBREVIATIONS

BMPs	best management practices
bopd	barrels of oil per day
cm	centimeters
Company	Energy Transfer Company
EA	Environmental Assessment
FRP	Facilities Response Plan
GIS	Geographic Information System
HDD	horizontal directional drill
km	kilometers
L/R	launcher and receiver
m	meters
MP	milepost
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NWR	National Wildlife Refuge
PHMSA	Pipeline and Hazardous Materials Safety Administration
Project	Dakota Access Pipeline Project
ROW	right-of-way
SDNHP	South Dakota Natural Heritage Program
SHPO	State Historic Preservation Officer
SUP	Special Use Permit
T&E	threatened and endangered
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
WMD	Wetland Management District

1.0 PROJECT INTRODUCTION

Dakota Access, LLC (Dakota Access), is proposing to construct the Dakota Access Pipeline Project (Project). Dakota Access Pipeline− Energy Transfer Crude Oil Operations Management, LLC will operate the Project. The overall proposed Project is an approximate 1,150-mile-long, 12-inch to 30-inch diameter pipeline that would connect the rapidly expanding Bakken and Three Forks production areas in North Dakota to existing crude infrastructure in Illinois. The Project originates in the northwest portion of North Dakota and traverses southeast through South Dakota, Iowa, and Illinois and terminates at the existing Patoka, Illinois hub (Figure 1). The pipeline is proposed to transport approximately 450,000 barrels of oil per day (bopd) initially, with an anticipated capacity 570,000 bopd or more. Once the crude arrives at the existing tank farms in Patoka, shippers would be able to access and distribute their crude to multiple markets, including Midwest and Gulf Coast markets via existing and proposed pipeline infrastructure.

Dakota Access has secured binding long-term transportation and deficiency contracts from multiple committed shippers to support development of the Project with a crude oil transportation capacity of approximately 450,000 bopd, with ninety percent (90%) of the transportation capacity subscribed by those committed shippers and the remaining ten percent (10%) of the transportation capacity reserved for walk-up shippers. Transportation service on the Dakota Access Pipeline shall be provided by Dakota Access pursuant to the Interstate Commerce Act of 1887 in accordance with the rules and regulations of the Federal Energy Regulatory Commission (18 CFR Parts 341-349) for common carrier crude oil pipeline transportation service, and the Pipeline and Hazardous Materials Safety Administration (PHMSA) (49 CFR Parts 190-199) regulations thereunder. Subscriptions from committed shippers were obtained by Dakota Access in connection with an initial open season that ran from March 12 to May 23, 2014, and an expansion open season that commenced on September 23, 2014, and concluded in mid-December of 2014.

Figure 1. Vicinity Map of Project area.

2.0 PURPOSE AND NEED

The Project crosses regions in North Dakota and South Dakota that contain grassland and wetland easements managed by the U.S. Fish and Wildlife Service (USFWS) National Wildlife Refuge (NWR) System. Ten USFWS wetland management districts (WMDs) are within the state of North Dakota and five districts are within South Dakota. The proposed Project crosses two districts within North Dakota and four districts within South Dakota. Dakota Access is in the process of acquiring permits from the U.S. Army Corps of Engineers (USACE) for crossing jurisdictional waters of the U.S., and the respective State public utility agencies to construct the Project.

This Environmental Assessment (EA) was developed specifically to address potential impacts to the USFWS wetland and grassland easements within the Project area. A significant effort was made to avoid USFWS easements; however, due to the length of the project and the vast presence of easements in the area avoidance of all easements was not feasible. This EA is in accordance with section 102(2)(C) of the National Environmental Policy Act (42 U.S.C. § 4321) and the National Wildlife Refuge System Administration Act of 1966, as amended (16 U.S.C. § 668dd-668ee), to obtain a Special Use Permit (SUP) to construct. The permitting requirements and conditions are set forth in 50 CFR Part 29.

3.0 PROJECT SUMMARY

North Dakota

Based on USFWS easement location data obtained by Dakota Access in July and November 2014, and February 2015, the North Dakota Project area is in an area of the state with a relatively low concentration of USFWS easements (Figures 2 and 3). The Project in North Dakota totals approximately 358 miles of pipeline and six tank terminal sites. There are two main underground pipeline components, the Supply Line (148 miles), which connects the six tank terminal sites, and the Mainline (210 miles). The Project begins in Mountrail County and heads west through Williams County then continues in a southeast direction through McKenzie, Dunn, Mercer, Morton and Emmons counties. The diameter of the pipeline increases incrementally at designated tank terminals from 12 inches to 20, 24 and ultimately 30 inches.

At the discharge site of the Johnson Corner tank terminal and pump station, the 30-inch diameter Mainline commences and heads into a generally southeast direction. The Mainline portion of the Project within North Dakota is approximately 210 miles long before exiting the state in Emmons County. In North Dakota, the Project traverses two WMDs; Lostwood and Long Lake.

South Dakota

The eastern half of the state of South Dakota where the Project crosses has a high concentration of easements (Figures 2 and 4). The Project enters South Dakota in Campbell County approximately 17 miles east of the Missouri River, and continues southeast through McPherson, Edmunds, Faulk, Spink, Beadle, Kingsbury, Miner, Lake, McCook, Minnehaha, Turner, and Lincoln counties for a combined total of approximately 272 miles. The Project crosses the Big Sioux River approximately 14 miles south of Sioux Falls, and continues in a southeast direction through Iowa. The Project spans four WMDs in South Dakota: Sand Lake, Huron, Madison, and Lake Andes.

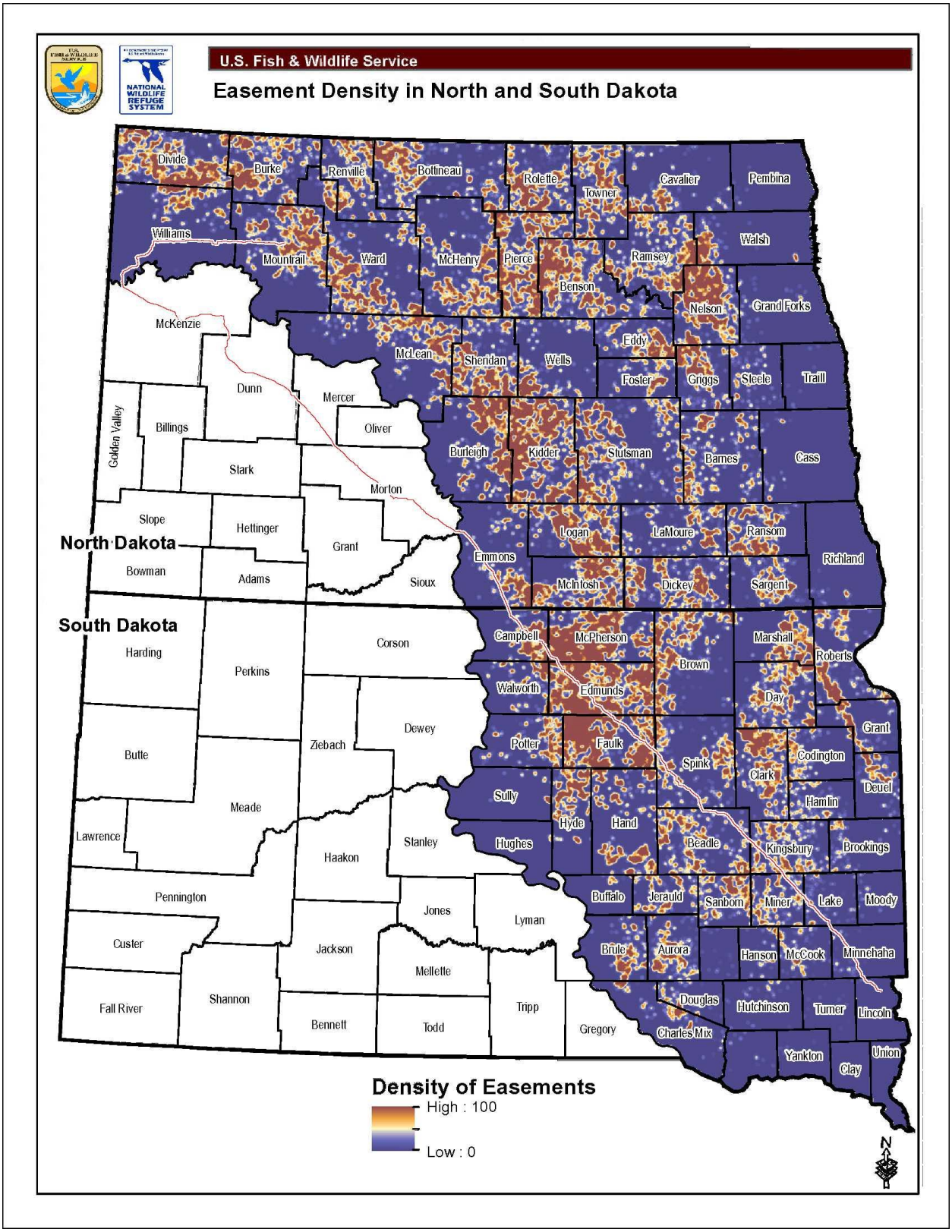

Figure 2. USFWS Easement Density Map of North Dakota and South Dakota with Project centerline.

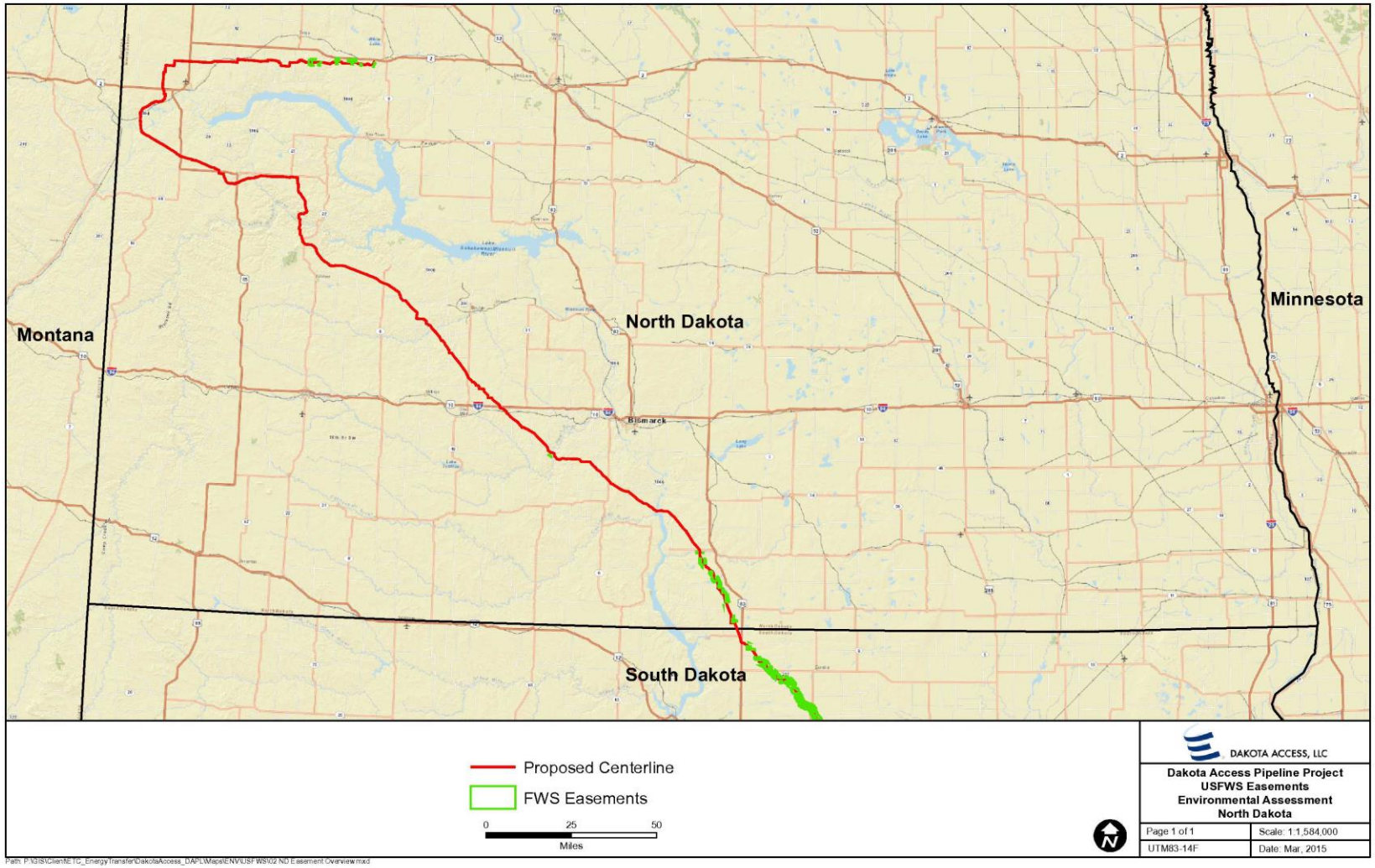

Figure 3. North Dakota USFWS Easements Overview within Project Area.

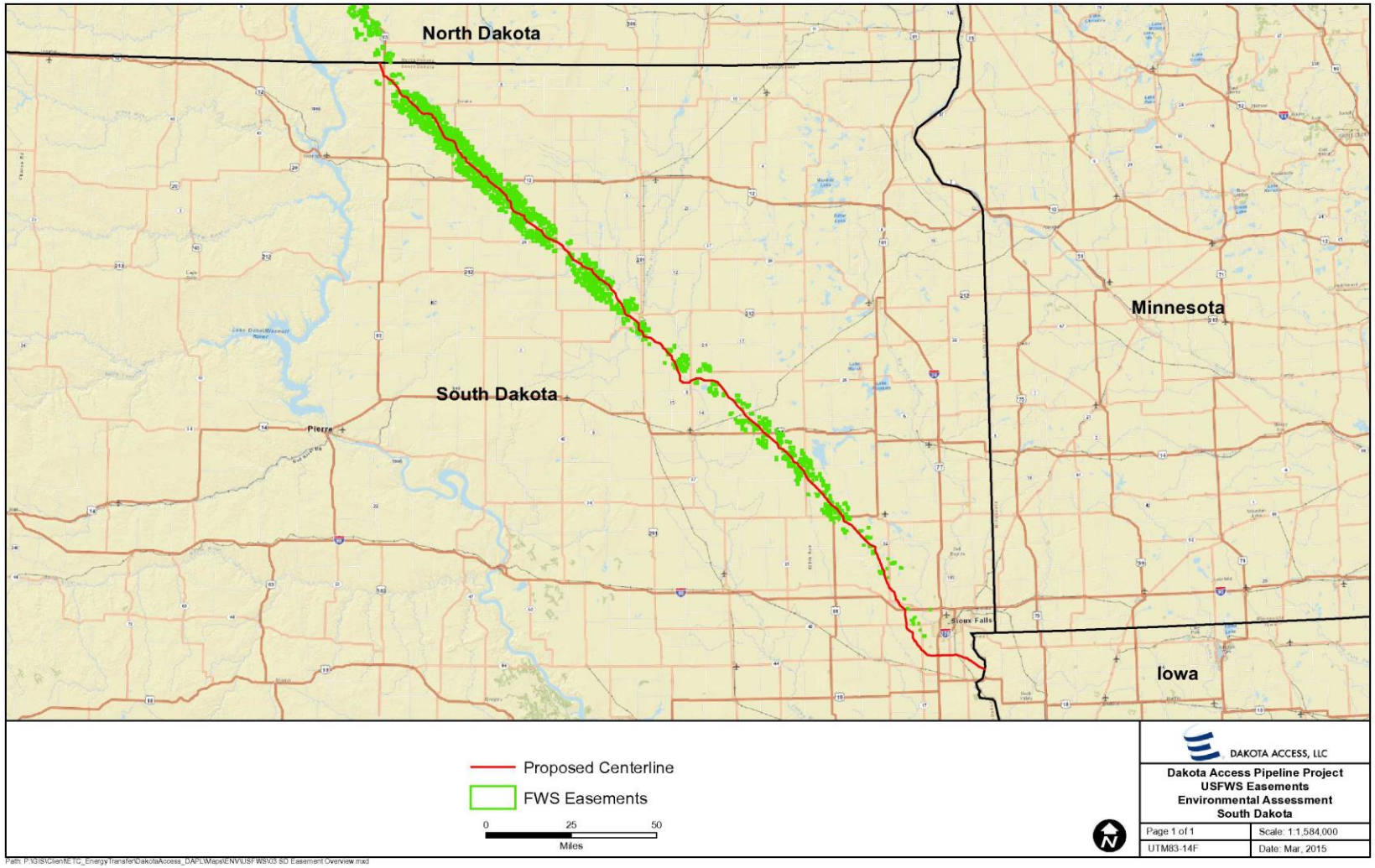

Figure 4. South Dakota USFWS Easements Overview within Project Area.

3.1 Project Construction

Pipeline

Construction of the new pipeline would require a typical construction ROW width of 125 feet in uplands, 100 feet in non-forested wetlands, 85 feet in forested areas (wetlands and uplands), and up to 150 feet in agricultural areas. Following construction, a 50-foot wide permanent easement would be retained along the pipeline. Where necessary, Dakota Access would utilize additional temporary workspace outside of the construction ROW to facilitate specialized construction procedures, such as horizontal directional drills (HDD); railroad, road, wetland, waterbody, and foreign utility line crossings; tie-ins with existing pipeline facilities; areas with steep side slopes; and pipeline crossovers.

Aboveground Facilities

In North Dakota, six tank terminals/pump stations are located along Supply Line in Mountrail, Williams and McKenzie counties. There is only one pump station located within the state of South Dakota, in Spink County, approximately seven miles southeast of Redfield. All tank terminals and pump stations have been sited outside of USFWS easements.

Valves used to isolate specific sections of pipeline and minimize crude release in the event of an emergency would be located throughout the pipeline, including 20 throughout the Supply Line in North Dakota, 25 throughout the Mainline in North Dakota, and 40 along the pipeline in South Dakota. The permanent valve sites would be constructed within the 50-foot permanently maintained ROW, and be approximately 75-feet-long and 50-feet-wide. The spacing intervals between the valves along the ROW are based upon the location of the high consequence areas, federal regulations, and permit requirements. All valves would have remote actuators so that in the unlikely event of an emergency, these valves can be quickly activated from the operational control room to isolate sections of the pipeline to minimize environmental impacts. All valves have been situated outside of USFWS grassland easements and USFWS protected wetland basins within USFWS wetland easements to avoid permanent impacts.

All pipeline segments will allow the passage of internal inspection devices (i.e. pig), which are capable of detecting internal and external anomalies in the pipe such as corrosion, dents, and scratches. Pipeline internal inspection technology has improved significantly in recent years. Pig launcher/receivers (L/Rs) are designed to launch and receive internal inspection devices for routing maintenance during operation of the system. A total of six L/Rs would be located along the pipeline within North Dakota (at four of the six tank terminal sites and two along the mainline), and a total of three L/Rs would be installed in South Dakota. L/Rs are 200-feet-wide by 400-feet-long. These L/R stations are not located within USFWS grassland easements or USFWS protected wetland basins within wetland easements to avoid permanent impacts.

3.2 Project Timeline

Dakota Access anticipates starting construction in 2015 as soon as applicable permits and approvals have been issued. Commissioning of the facilities should occur in September 2016 for in-service in November. Restoration activities will continue as necessary to ensure proper restoration of the disturbed areas.

4.0 ALTERNATIVES

4.1 Route Alternatives Considered

Dakota Access utilized a sophisticated and proprietary Geographic Information System (GIS) based routing program to determine the baseline pipeline route based on multiple publicly available and purchased datasets. Datasets utilized during the Project GIS routing analysis included engineering (e.g., existing pipelines, railroads, karst, and power lines, etc.), environmental (e.g., critical habitat, fault lines, state parks, national forests, brownfields, national registry of historic places, etc.), and land (e.g., dams, airports, cemeteries, schools, mining, and military installations, etc.).

Each of these datasets were weighted based on the risk (e.g., low, moderate, or high; however on a scale of 0 to 1000) associated with crossing or following certain features. Appendix A includes a list of every dataset utilized in the GIS routing program and the weight scale set for each dataset for the Project. In general, the preferred route for the pipeline would follow features identified as low risk, avoid or minimize crossing features identified as moderate risk, and exclude features identified as high risk. For example, the existing pipelines dataset was weighted as a low risk feature in the GIS routing program so that the routing tool followed existing pipelines to the extent possible to minimize potential impacts. An example of a high risk feature of the datasets utilized in the GIS routing program is the federally designated critical habitat dataset. Since federally designated critical habitat was weighted for this Project as high risk, the GIS routing program excluded any critical habitat from the baseline pipeline route to avoid impacts.

4.1.1 Route Alternative 1

Dakota Access obtained USFWS easement location data in July 2014 when identified during the Project fatal flaw analysis and initial coordination with the USFWS. The baseline centerline route (Route Alternative 1) (Appendix A) was the output of the GIS routing analysis described above in Section 4.1, and was submitted to the USFWS WMDs in September 2014 for initial review of grassland and wetland easements crossed by the pipeline based on the July 2014 easement location data. The baseline route crossed 131 USFWS easements (seven easements within North Dakota and 124 easements within South Dakota). Dakota Access and the lead USFWS WMD (Sand Lake WMD) had an intensive route review in October 2014 of the baseline route and easements crossed to determine avoidance and minimization. During this review, the USFWS made recommendations on avoiding and minimizing impacts to the easements crossed by the Project. Grassland easements were prioritized for avoidance. At the time of investigation of Route Alternative 1, the USFWS did not have field verified data on protected wetland basins within the wetland easements. However an attempt was made by the USFWS and Dakota Access to identify potential wetland basins within the wetland easements through desktop analysis. Extensive coordination and review identified areas where Dakota Access could make route modifications to avoid and minimize potential impacts to USFWS easements (Appendix A).

4.1.2 Route Alternative 2 (Preferred)

Route Alternative 2 (Appendix A) is the preferred route which is the result of incorporating route modifications based on USFWS avoidance and minimization recommendations of potential impacts to grassland and wetland easements of Route Alternative 1. The Project crosses an area

in South Dakota with a high concentration of USFWS easements, compared to the relatively low concentration of easements within the North Dakota Project area (Figures 2, 3, and 4). Due to the density of easements within the states of North Dakota and South Dakota (Figure 2), complete avoidance of crossing all USFWS easements was not feasible.

As stated above in Section 4.1.1, Route Alternative 1 crossed through seven easements within the Long Lake WMD, all located within Emmons County, North Dakota. Since these easement locations were identified early on in the design phase of the Project, Dakota Access was able to adjust the centerline route and avoid all easements in North Dakota (located in the Long Lake WMD). Route Alternative 1 crossed 131 USFWS easements, through the route modifications discussed above in Section 4.1.1 Dakota Access reduced the number of easements crossed by the preferred route to 112 easements (three grassland easements and 109 wetland easements) in South Dakota. Potential impacts to wetland basins were determined through desktop analysis as stated in Section 4.1.1. Since the USFWS had not field verified wetland basins at the time of Route Alternative 1 modifications, wetland basin impacts minimized by route modifications incorporated into the preferred route are unaccounted.

Updated easement data for the Project area acquired in February 2015 disclosed six new easements that would be crossed within the Lostwood WMD in North Dakota. The six new easements consist of five wetland easements and one grassland easement. At the time this easement data was acquired, Dakota Access was unable to route the pipeline around these easements. The newly identified easements make the total easements crossed by the preferred route within North Dakota and South Dakota 118 (one grassland easement and five wetland easements within North Dakota and three grassland easements and 109 wetland easements within South Dakota). The counties crossed within the USFWS WMDs, miles of pipeline within the WMDs, and the number of easements crossed within each WMDs for the preferred route is outlined in Table 4-1 below.

Table 4-1
USFWS Wetland Management Districts Crossed by the Dakota Access Pipeline Project

Wetland Management District	Counties Crossed Within the District	Approximate Miles Crossed within WMD	Number of Easements[1] Crossed Within Each WMD
North Dakota			
Lostwood	Mountrail and Williams	98.2	6
Long Lake	Emmons	45.7	0
South Dakota			
Sand Lake	Campbell, McPherson, Edmunds, Faulk, and Spink	136.0	99
Huron	Beadle	30.2	0
Madison	Kingsbury, Miner, Lake, McCook, and Minnehaha	81.5	13
Lake Andes	Turner and Lincoln	25.7	0

[1] Numbers represent easement tracts crossed, not jurisdictional crossings.

While Dakota Access was unable to reroute completely around four (one in North Dakota and three in South Dakota) grassland easements due to constructability limitations, USFWS recommended avoidance of the grassland easements, therefore Dakota Access adjusted the proposed construction techniques at the grassland easements (i.e. bore or HDD). Therefore all surface impacts to grassland easements are avoided by the preferred route.

The preferred route most closely meets the objectives of the Project, while minimizing potential impacts to the environment and USFWS easements. Dakota Access has coordinated with the USFWS throughout the Project design phase to avoid and minimize potential impacts to USFWS grassland and wetland easements. Additional details on the preferred route and potential impacts to grassland and wetland easements are provided in Section 5.0.

4.2 Alternatives Considered and Dismissed

The following alternatives were considered but immediately dismissed due to the reasons described below for each alternative.

4.2.1 No Action Alternative

The proposed Project would not be built if the "no action" alternative were pursued. The "no action" alternative would not provide the infrastructure necessary to transport light sweet crude oil to refining facilities. In northwest North Dakota, exploration and production of oil is a major economic activity, with crude oil production being the primary mineral resource of interest. Although the "no action" alternative itself would not incur environmental impacts, it would also not address the existing demand to transport crude oil to refining facilities, likely leading to alternative pipeline project development proposals.

4.2.2 System Alternatives

The parent company of Dakota Access, Energy Transfer Company (Company) is one of the largest and most diversified investment grade limited partnerships in the United States with approximately 71,000 miles of pipeline assets today (Energy Transfer, 2014). The Company and its partners have a presence in more than half of the contiguous United States; however, the Company does not own or operate any existing facilities in North or South Dakota. The Project will be the Company's first asset in the Dakotas. For this reason, the manipulation of operating pressures to increase transport capacity in pipelines or altering existing infrastructure to increase storage and transport capacity are not viable options to meet the Project's objectives or shippers' demands.

4.2.3 Trucking Transportation Alternative

Currently, due to a lack of transport capacity in the Williston Basin, approximately 1% of the crude oil is moved via truck (Kringstad, 2014). While trucking is instrumental in the gathering and distribution of crude on a limited scale, trucking as an alternative for transporting the volume of crude oil the distances planned for the Project is not viable. Factors such as road safety, roadway capacity, and a lack of reliability due to seasonal constraints, in addition to other logistical issues involving availability of labor force, trailer truck capacity, and economics, all contribute to truck transportation not being a realistic alternative.

A sharp increase in traffic on North Dakota roads as a result of the rapid expansion in the number of commercial trucks linked to the oil industry speaks to the issues associated with road safety. In 2012, the Federal Motor Carrier Safety Administration reported a traffic fatality rate in North Dakota of 0.48 per million vehicle miles traveled, with 48 deaths involving a bus or large truck, far surpassing any other state (U.S. Department of Transportation, 2014). In the pre-boom years of 2001 to 2005, there was an average of only 13 annual deaths involving commercial trucks. Furthermore, the economic cost of severe truck crashes has more than doubled between 2008 and 2012. Much of the increase in the fatality rate can be attributed to the energy production boom,

along with the fact that the state's infrastructure still consists of single-lane, rural, and unpaved roads in many areas (Bachman, 2014). Harsh winter weather and seasonal road restrictions compromise the reliability of truck transportation even further.

To meet shippers' demands, Dakota Access plans to transport 450,000 bpd approximately 1,150 miles across four states. A pipeline is a safer and more economical alternative than trucking for the volumes transported and distances covered by the Project. Assuming the average oil tanker truck is capable of holding about 220 barrels of oil, the transportation of 450,000 bpd would require a total of 2,045 (450,000/220) full trucks to depart the proposed tank terminals daily; more than 85 (2,045/24) trucks would have to be filled every hour with a 24-hour/day operation. Time spent in transit, loading/offloading, and additional time for maintenance would add to the number of trucks needed to offset for the Project.

Analysis of infrastructure considerations (the burden of thousands of additional trucks on county, state, and interstate highways, as well as the loading and offloading facilities that would have to be constructed), economic considerations (e.g., labor costs, purchase and maintenance of hauling equipment, fuel, public infrastructure, etc.), and reliability considerations (e.g., weather, mechanical, manpower, road closures) all contribute to making the truck transportation alternative unviable.

4.2.4 Rail Transportation Alternative

Reliance on rail as a transportation method in the Williston Basin has drastically increased in recent years, carrying a negligible percentage of the overall market share as recently as 2010 to nearly 60% of the overall market share by mid-2014 (Kringstad, 2014). The rise in the use of rail as a primary transportation method has been driven in large part by the rapid increase in production of crude oil coupled with a lack of pipeline capacity to account for additional supplies.

Negative impacts from the growth in popularity of rail as a method of long-distance transportation of crude oil include delays that disrupt the agricultural sector, reductions in coal-fired power plant inventories, and significant production issues in the food production industry. In August 2014, reports filed with the federal government indicated that the Burlington Northern Santa Fe Railway had a backlog of 1,336 rail cars waiting to ship grain and other products while Canadian Pacific Railway had a backlog of nearly 1,000 cars (Nixon, 2014). For industries, such as those listed, in which the use of pipelines is not an option the only viable alternative would be increased reliance on trucking, which would exacerbate some of the issues listed in the section above.

Assuming a carrying capacity of 600 barrels per car, a total of 750 rail cars would be required to depart the tank terminal daily to transport 450,000 barrels of crude oil to its final destination. Loading and offloading 750 rail cars in a day would require servicing more than 31 rail cars per hour. With an assumption of 125 rail cars per train, 6 trains would have to depart the tank terminal every day; with 10 to 12 trains currently leaving the state per day carrying Bakken crude, the Project would represent a 50 to 60% increase in the number of trains transporting crude oil out of the state, likely exacerbating issues with delays (Howarth and Owings, 2014).

Rail operations on the scale of the Project do not exist in the United States. An oil-by-rail facility designed to handle an average of 360,000 bpd has been proposed in the Port of Vancouver, Washington. Known as the Vancouver Energy proposal, the project would be the

largest rail terminal in the country (Florip, 2014). A rail transportation alternative to handle the volumes of the Project would require the design and construction of 125 to 158% of that of the Vancouver Energy proposal.

From a safety standpoint, railroad transport consistently reports a substantially higher number of transportation accidents than pipelines (USDOT, 2015). A series of major accidents taking place in 2013 to 2014 in Canada and the United States has heightened concern about the risks involved in shipping crude by rail (Fritelli, 2014).

While rail tanker cars are a vital part of the short-haul distribution network for crude oil, pipelines are a more reliable, safer, and more economical alternative for the large volumes transported and long distances covered by the Project. As such, the rail transportation alternative is not considered a viable alternative.

5.0 AFFECTED ENVIRONMENT

The Project crosses both grassland and wetland easements within North Dakota and South Dakota. Grassland easements are an agreement between the landowner and the USFWS to keep their land in grass and limit the time of year for mowing, haying and grass seed harvest. Wetland easements are an agreement between the landowner and the USFWS to protect wetlands from being drained, leveled, filled, or burned. Both grassland and wetland easements are to provide and protect waterfowl habitat, and other wildlife that utilize similar habitats. In addition to habitat, these easements aim to protect the functions and values that these habitats provide to the surrounding areas.

5.1 Grassland Easements

As stated previously, initial coordination between USFWS and Dakota Access identified avoidance of grassland easements as priority. Dakota Access adjusted the Project alignment to avoid crossing all grassland easements, except for three within South Dakota and one within North Dakota.

The three South Dakota grassland easements are located in Campbell County at milepost (MP) 235.3, Spink County at MP 330.2, and one in Minnehaha County at MP 438.5 (Appendix B, pages 12, 42, and 51). However, due to USFWS concerns regarding potential impacts to the grassland easements, Dakota Access changed the proposed construction methods at these crossings to avoid surface disturbance and potential impacts. The grassland easements in Campbell (MP 235.3), Spink (MP 330.2), and Minnehaha counties (MP 438.5) are crossed at the corner of the easement tracts and adjacent to road crossings. Dakota Access modified the construction methods at these three locations and plans to bore under the road and continue the bore under the grassland easement to avoid surface impacts. Therefore, impacts to these three grassland easements identified early in the design phase within South Dakota will be avoided.

An additional grassland easement was identified in the February 2015 USFWS easement data located in Mountrail County, North Dakota at Supply Line MP 12.3 (Appendix B, page 6). This grassland easement is large in size and no reasonable route around it is available; however, through coordination with the USFWS, Dakota Access has adjusted the centerline to route through the shortest distance of the grassland easement, and proposes to cross this easement via HDD. Due to the size of this easement, transporting equipment across the easement to facilitate construction of the Project is required. To minimize potential impacts to the grassland easement, Dakota Access will install air bridge matting (Appendix B, page 53 includes an air bridge sketch)

to be utilized as the designated travel lane for construction equipment. The air bridge travel lane will be located on an existing two-track road, approximately 250 feet north of the centerline. The use of air bridge matting will avoid potential soil compaction and ruts from equipment transport. Therefore, no adverse surface impacts to this grassland easement will result from the Project.

All surface impacts to grassland easements in North Dakota and South Dakota have been avoided by route modifications or construction methods.

5.2 Wetland Easements

Throughout the design and permitting process, Dakota Access coordinated with the USFWS to minimize crossing wetland easements to the extent practicable. As stated previously in Section 4.1.2, all easements were completely routed around and avoided within North Dakota initially. However, the February 2015 easement data revealed five new wetland easements within the Project area on the Supply Line in North Dakota. The five wetland easements within North Dakota have been verified (through both field and desktop reviews) by the USFWS, and electronic files of these wetland basins were provided to Dakota Access. Four of the five wetland easements crossed contain protected wetland basins (11 wetland basins within Project footprint) within the Project area, and total approximately 2.5 acres of protected wetland basins to be temporarily impacted by the Project within North Dakota (Appendix B, pages 3-8).

The USFWS field verified all wetland basins within easements within South Dakota and provided electronic files of these wetland basins to Dakota Access. This data was utilized to further minimize potential impacts of the preferred route to wetland basins through Project design to the extent practicable, which is illustrated in Appendix B (pages 9-52) mapping.

In South Dakota, the preferred route crosses 109 wetland easements with approximately 200 wetland basins field verified by the USFWS within the Project area (Appendix B, pages 9-52). Draft workspace in February of 2015 avoided approximately 36 of these basins. Utilizing the USFWS field verified wetland basins data; Dakota Access further edited workspace and was able to avoid an additional 18 basins. This avoidance and minimization through Project design reduced the total number of basins crossed to 146. At approximately 40 of the 146 wetland basin locations Project delineated wetlands, based on the Regional Supplements to the Corps of Engineers Wetland Delineation Manual: Great Plains and Midwest Regions (USACE, 2010) and the routine determination guidelines provided in the USACE Wetland Delineation Manual (Technical Report Y-87-1), matched with the USFWS wetland basins. Potential impacts at these locations were minimized through reduction in workspace (i.e. neckdown the construction corridor width from 150 feet to 100 feet), therefore minimizing impacts to these areas. Of the 109 wetland easements crossed in South Dakota, the Project crosses protected wetland basins at only 60 of the wetland easements. Wetland basins were avoided at the remaining 49 wetland easement crossed by the Project. Incorporating the avoidance and minimization of all wetland basins within South Dakota, Project construction would temporarily impact a total of approximately 69.3 acres of wetland basins within USFWS easements through construction.

Total temporary impacts to wetland basins within USFWS easements in North Dakota and South Dakota is 71.8 acres. The total temporary impacts to the wetland basins (71.8 acres) would be less than 0.6 percent of the entire North Dakota and South Dakota Project footprint.

6.0 RESOURCES WITHIN AFFECTED ENVIRONMENT

The following sections evaluate the resources and potential impacts within the affected environment within the scope of this EA; including vegetation, water quality, air quality, threatened and endangered species, and cultural resources. Each section includes a conclusion on potential impacts to the resources discussed.

6.1 Vegetation

Vegetation community types that occur within the affected environment were identified, described, and delineated based on field activities and aerial photography. The vegetation communities crossed within the affected environment include agriculture, native grassland, and wetlands. Dominant species identified within the grassland easement in North Dakota included Kentucky bluegrass (*Poa pratensis*), smooth brome (*Bromus inermis*), crested wheatgrass (*Agropyron cristatum*), little bluestem (*Schizachyrium scoparium*), western snowberry (*Symphoricarpos occidentalis*), and prairie rose (*Rosa arkansana*). Dominant species within the grassland easements crossed in South Dakota included Kentucky bluegrass, smooth brome, yellow sweetclover (*Melilotus officinalis*), intermediate wheatgrass (*Thinopyrum intermedium*), and curlycup gumweed (*Grindelia squarrosa*). Dominant wetland vegetation identified within the wetland basins in North Dakota included broadleaf cattail (*Typha latifolia*), prairie cordgrass (*Spartina pectinata*), foxtail barley (*Hordeum jubatum*), sedge (*Carex* sp.), slimstem reedgrass (*Calamagrostis stricta*), water smartweed (*Persicaria amphibia*), and reed canarygrass (*Phalaris arundinacea*). The dominant species identified within the South Dakota wetland basins included prairie cordgrass, spikerush (*Eleocharis* sp.), foxtail barley, sedge, rough barnyardgrass (*Echinochloa muricata*), American water plantain (*Alisma subcordatum*), and swamp smartweed (*Polygonum hydropiperoides*). Upland vegetation including Kentucky bluegrass, smooth brome, alfalfa and agricultural crop (soybeans) were also identified within the South Dakota USFWS wetland basins.

Temporary impacts to vegetation will occur during construction. To protect the terrain of the Project area, Dakota Access will restore the areas affected by pipeline construction to pre-construction contours, mitigation measures to limit disturbance of vegetation within grassland and wetland easements are discussed further in Section 7.0.

Noxious Weeds

The state of North Dakota has 11 state listed noxious and invasive weeds. The species listed are: Russian knapweed (*Acroptilon repens*), absinth wormwood (*Artemisia absinthium*), musk thistle (*Carduus nutans*), diffuse knapweed (*Centaurea diffusa*), yellow toadflax (*Linaria vulgaris*), spotted knapweed (*Centaurea maculosa*), Canada thistle (*Cirsium arvense*), leafy spurge (*Euphorbia esula*), dalmatian toadflax (*Linaria dalmatica*), purple loosestrife (*Lythrum salicaria*), and saltcedar (*Tamarix chinensis*). These state invasive species are regulated under North Dakota Law (North Dakota Century Code § 4.1-47-02).

The South Dakota state noxious weed list is found in South Dakota Codified Law (Chapter 38-22). There are currently seven noxious weeds on the state list, which include Russian knapweed, whitetop (*Cardaria draba*), Canada thistle, leafy spurge, purple loosestrife, saltcedar, and perennial sowthistle (*Sonchus arvensis*). Under the law, it is a landowner's legal responsibility to manage noxious weeds on their lands. Local county governments have the responsibility for the implementation and enforcement of weed management.

Construction activities resulting in surface disturbance may contribute to the spread of noxious weeds. Noxious weeds have the potential to increase in disturbed areas along the ROW where construction occurs. Mitigation measures to limit disturbance of vegetation are discussed further in Section 7.0.

6.2 Water Quality

Dakota Access has submitted Nationwide Permit 12 Pre Construction Notifications to the USACE for authorization to discharge fill within USACE jurisdictional wetlands and waterbodies under Sections 404/401 of the Clean Water Act. Additionally, specialized methods for crossing wetlands and waterbodies including expedited timing for construction and restoration and implementation of erosion control devices are utilized to minimize impacts within and adjacent to the wetland basins, these are discussed further in Section 7.0. Further, Dakota Access will acquire any required state and local water quality permits to construct the Project. Therefore, impacts beyond direct, temporary construction impacts to water quality due to the Project are not anticipated.

PHMSA administers the national regulatory program to ensure safe transportation of crude oil and other hazardous materials by pipelines. PHMSA develops safety regulations and risk management approaches to encompass safety in pipeline design, construction, testing, operation, maintenance, and pipeline facilities emergency response. Dakota Access has asked for no waivers from PHMSA for the construction and operation of the pipeline. Dakota Access will meet or exceed all federal laws and regulations.

PHMSA prescribes pipeline design and operational requirements that limit the risk of accidental crude oil releases from pipelines. Dakota Access will submit a Project-specific Facilities Response Plan (FRP) prior to operation to PHMSA for approval in accordance with applicable regulations.

In the unlikely event of a pipeline release, Dakota Access will initiate its FRP to contain and clean up the spill. To minimize impacts to aquatic resources, appropriate remedial measures will be implemented to meet federal and state standards designed to ensure protection of aquatic biota.

Compliance with federal regulations, the location of valves, spill containment measures, and the FRP will minimize adverse effects to public safety and to the environment. PHMSA promulgates and enforces federal pipeline safety standards for hazardous liquids pipelines at 49 CFR Parts 194 and 195. These regulations are intended to ensure public protection and to prevent accidents and failures. 49 CFR Part 195 specifically addresses petroleum pipeline safety issues and specifies material selection, qualification, minimum design requirements; and protection from internal, external, and atmospheric corrosion.

In conclusion, wetland and waterbody construction crossing methods, implementation of erosion control devices, and PHMSA requirements would minimize potential impacts to water quality from construction and operation of the Project.

6.3 Air Quality

Air quality impacts within the scope of this EA include potential air emissions during construction. Potential emissions during construction would be from mobile sources. Mobile sources of emissions are the tailpipe emissions from employee commuter vehicles and construction equipment to be used during construction of the pipeline. No permitting is

required for mobile sources. Mobile source emissions from construction of the pipeline would be temporary; therefore impacts to air quality from the construction of the Project are not anticipated.

6.4 Threatened and Endangered Species

Dakota Access is continuing consultation for federally threatened and endangered (T&E) species with the local USFWS Ecological Services Field Offices in Bismarck, North Dakota, Pierre, South Dakota, and the Rock Island Ecological Services Field Office in Moline, Illinois, the lead for federally listed species for the entire Dakota Access Project. For the purpose of this EA, only species that are listed within the counties crossed by the Project within North Dakota and South Dakota where easements are crossed will be discussed, since all USFWS easement crossings for the Project only occur within these states.

A total of 9 T&E species are listed as threatened, endangered or candidate within the North Dakota and South Dakota Project area that crosses USFWS easements. Table 6-1 below provides a comprehensive list of listed species, counties they are listed in, and effect determination for the affected environment. No critical habitat is crossed by the Project within the affected environment. Based on the habitat requirements for the 9 federally listed T&E species, it has been determined that the Project would have no effect on any of the listed species within the affected environment. Of the 9 listed species, the whooping crane (*Grus americana*) and the piping plover (*Charadrius melodus*) may utilize habitat on wetland easements, and the Dakota skipper (*Hesperia dacotae*) and Sprague's pipit (*Charadrius melodus*) may utilize the grassland easement habitats. Therefore these four species and their habitat requirements are described further below and provide justification for the no effect determination. The T&E species information will be updated throughout pre-construction and construction based on continued consultations.

Table 6-1
Federally Threatened and Endangered Species within the Dakota Access North Dakota and South Dakota USFWS Easements Project Area

Common Name	Scientific Name	Federal Status	North Dakota	South Dakota	Effect Determination
Mammals					
Gray wolf	*Canis lupus*	E	Mountrail, Williams	Not Listed	No effect
Northern long-eared bat	*Myotis septentrionalis*	T	Mountrail, Williams	Campbell, Edmunds, Faulk, Kingsbury, Lake, McPherson, Miner, Minnehaha, Spink	No effect
Birds					
Least tern	*Sterna antillarum*	E	Mountrail, Williams	Campbell	No effect
Piping plover	*Charadrius melodus*	T	Mountrail, Williams	Campbell, Kingsbury	No effect
Rufa red knot	*Calidris canutus rufa*	T	Mountrail, Williams	Campbell, Edmunds, Faulk, Kingsbury, McPherson, Miner, Spink	No effect
Sprague's pipit	*Anthus spragueii*	C	Mountrail, Williams	Campbell, McPherson	No effect
Whooping crane	*Grus americana*	E	Mountrail, Williams	Campbell, Edmunds, Faulk, Kingsbury, Lake, McPherson, Miner, Minnehaha, Spink	No effect
Invertebrates					
Dakota skipper	*Hesperia dacotae*	T	Mountrail	Edmunds, McPherson	No effect
Plants					
Western prairie fringed orchid	*Platanthera praeclara*	T	Not Listed	Lake, Miner, Minnehaha	No effect

Abbreviations:
E: Endangered
T: Threatened
C: Candidate

Whooping Crane

Biology

The whooping crane was federally-listed as endangered under the ESA on March 11, 1967 (USFWS, 2012a). The crane is a large migratory bird species with a long neck and legs, reaching a height of 51 to 63 inches (Esch, 2012). Whooping cranes have primarily white plumage with black primary wing feathers and legs. The crown, lore, and malar areas consist of bare skin covered with few short black bristly feathers (USFWS, 2015a). This species has a bright red crown and the lore and malar areas are generally dark grayish black with some red. Juveniles are distinct with blotches of cinnamon or brown in their white plumage and visible feathers on their heads, contrary to bare skin observed on adults' heads. The bills of whooping cranes have a gray or olive coloration with a pinkish base. Differentiating between male and female whooping cranes is difficult since they share similar physical characteristics, but males (16 pounds) on average weigh more than females (14 pounds) (Esch, 2012).

There are currently four distinct populations of whooping cranes in the wild, with the only natural population migrating between Wood Buffalo National Park in Alberta, Canada and the Aransas National Wildlife Refuge along the Texas coast. The other three populations consist of the following: 1) an experimental population migrating between Wisconsin and Florida; 2) a reintroduced experimental non-migratory population in central Florida; and (3) a non-migratory population in Louisiana (USFWS, 2012a). The previously mentioned natural population has steadily increased an average of 4.6 percent annually (USFWS, 2012a). Historically, this population wintered solely in the Aransas National Wildlife Refuge, but recent reports have spotted whooping cranes in other suitable Texas coastal areas and even inland Central Texas (Texas Parks and Wildlife Department, 2014). As of the spring of 2011, this population of whooping cranes consisted of 279 individuals (USFWS, 2012a).

The natural whooping crane population travels a defined migration corridor between summer and winter habitats. This corridor begins in the Northwest Territories of Canada and passes southeast through the center of North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, and ends at the Texas coast (USFWS, 2012a). Autumn migrations run from mid-September until mid-November, whereas the spring migration begins in late-March or early April and lasts until early May (USFWS, 2015a). Throughout its journey, whooping cranes inhabit various areas, including croplands and palustrine wetlands reaching less than four hectare in size. During the nesting season in the summer, this species relies on poorly drained potholes and wetlands for nesting areas. In the winter, estuarine marshes, bays, and tidal flats are primary habitat (USFWS, 2012a). In general, whooping cranes prefer open areas near water and vegetation (Esch, 2012).

Reproduction occurs once a year during the summer in late April to mid-May, with chicks hatching about a month after eggs are laid (USFWS, 2015a). Generally, two eggs are laid per nest and parents will take turns incubating the nest. The chicks will be cared for until they are nine months old, feeding on worms and insects provided by the parents. At two or three years of age whooping cranes choose a mate for life, and can sexually reproduce between four and five years old (Esch, 2012). Once mature, this species consumes a variety of foods. In the winter, whooping cranes will eat primarily blue crabs, wolfberry fruits, and clams, occasionally consuming acorns, snails, crayfish, and insects when food is scarce. In the summer, whooping cranes eat insects, frogs, rodents, small birds, minnows, and berries. During migration, this

species consumes a combination of foods eaten in the winter and summer, in addition to plant tubers and agricultural grains (USFWS, 2015a).

The whooping crane's population numbers are low primarily due to human population growth. The construction of roads, buildings, power lines, towers, and wind turbines have drained crucial wetlands utilized by this species in its migration corridor. In addition, a decrease in river flows has contributed to habitat degradation of riverine migration habitat (USFWS, 2012a). Furthermore, efforts to introduce birds raised in captivity with hopes of steadily increasing whooping crane numbers in the wild have struggled when it comes time for breeding and raising chicks (USFWS, 2012a).

Habitat Assessment

The North Dakota and South Dakota Project area is within the migratory range of this species (Cornell Lab of Ornithology, 2014). Based on South Dakota Natural Heritage Program (SDNHP) and North Dakota Heritage Inventory (NDNHI) data, only one whooping crane occurrence record is located in Kingsbury County, South Dakota approximately one mile from the Project area (NDNHI and SDNHP, 2014). While the Project area within North Dakota and South Dakota may provide suitable stopover habitat for migrating whooping cranes, this species is highly mobile and would likely avoid construction. Therefore, no effect on this species within the affected environment is anticipated.

Sprague's Pipit

Biology

The Sprague's pipit was listed to the USFWS Candidate Species List on September 15, 2010 (USFWS, 2009). This species is a small prairie bird, approximately 4 to 6 inches in length with sandy brown feathers with black streaks and two blurred white wing bars. Sprague's pipit has a large eye-ring and a short, thin bill (USFWS, 2014a). The upper mandible is black, while the lower mandible is light tan with a black tip. Male and female Sprague's pipit are similar in appearance, however the males fly high in the air for a territorial flight display (USFWS, 2014a).

The Sprague's pipit breeds in the northern prairies of the Great Plains and winters from September-April in Arizona, New Mexico, Texas, Oklahoma, Arkansas, Mississippi, Louisiana, and Northern Mexico (National Audubon Society, 2014). This species prefers grassland with good drainage, few shrubs, and high visibility. Native grasses like wheatgrass, June grass, blue grama, Canby blue, green needle grass, smooth brome, and crested wheat are ideal for the Sprague's pipit (Javier, 2007). Native grasslands with at least 75 percent native cover, and an approximate minimum grassland size requirement of 358 acres. This species has not been observed in grasslands less than approximately 72 acres in size (USFWS, 2014a). Non-native pasturelands and cultivated lands are not likely to be utilized for nesting by the Sprague's pipit (USFWS, 2010). The Sprague's pipit is well camouflaged in the prairie grasses and will walk or run while foraging or avoiding predators, unless flushed from the grass and forced to flight (Javier, 2007). This species primarily consumes arthropods, but will eat seeds during migration and wintering (National Audubon Society, 2014).

Breeding habitat range includes parts of Canada, Montana, North Dakota, and the northern portions of South Dakota. Breeding season can extend from April through mid-May (USFWS, 2010). This species is a ground nesting bird that utilizes mid-height grasslands with little bare ground during and creates nests of dead grass within depressions in the ground (NatureServe,

2015). Sprague's pipit raise one to two broods with an approximate clutch size is four or five eggs (NatureServe, 2015). Brooding and incubation is mainly by females, although males may also brood and incubate the eggs and clutch (USFWS, 2010).

Sprague's pipit migratory habitat includes the Great Plains and south to Mexico. The majority of the population is believed to winter in Mexico, most of the U.S. migratory sightings have been in Texas (USFWS, 2014a). The migratory habitat may include grassland areas similar to breeding habitat, agricultural areas, and pasture (USFWS, 2010).

The loss of native prairie habitat from conversion to agricultural uses is identified as one of the main reasons for decline of this species (Cornell Lab of Ornithology, 2014).

Habitat Assessment

All of the North Dakota Project area is within the breeding range of this species. Only a small northern portion of the South Dakota Project area is within the breeding range, while the majority of the South Dakota Project area is within the migratory range of the Sprague's pipit. Dakota Access has avoided impacts to all grassland easements crossed by the Project within North Dakota and South Dakota by adjusting the pipeline alignment and incorporating alternative crossing methods (i.e. boring, HDD) at these locations so that there are no surface impacts to potential breeding habitat within the grassland easements. Since the grassland easement crossings are adjacent to existing roads and disturbance, indirect impacts from noise during construction is not anticipated. As stated previously, since the migratory habitat of this species may include agricultural areas and pasture, the majority of the South Dakota Project area may provide suitable migratory habitat (USFWS, 2010). While the Project area within South Dakota may provide suitable stopover habitat for migrating Sprague's pipit, this species is highly mobile and would likely avoid construction. Therefore, no effect on this species within the affected environment is anticipated.

Piping Plover

Biology

The piping plover was listed to the USFWS Threatened and Endangered Species List on December 11, 1985 (USFWS, 2009). The classification of threatened or endangered status is dependent on location, where Northern Great Plains and the Atlantic Gulf Coast populations are listed as threatened, while the Great Lakes population is listed as endangered. All three populations are considered threatened throughout their wintering range (USFWS, 2009). The piping plover is a robin sized shorebird characterized in the summer by a black neck band and black forehead ring, a sandy colored back, a white underside, thin featherless orange legs, and a robust black and orange beak. During the winter and non-breeding months, both the neck band and forehead ring are difficult to observe and the legs may take on a more yellowed color (USFWS, 2013; USFWS, 2012b).

There are three geographically distinct breeding populations of piping plover found in the Northern Great Plains, the Great Lakes, and the Atlantic Coast (USFWS, 2009). All three populations share a common coastal wintering range which extends from the Carolinas, south to the Yucatan (USFWS, 2009). In 2001 and 2002, critical habitat was designated for the Great Lakes and Northern Great Plains breeding populations, as well as for all wintering areas within the U.S. (USFWS, 2009). The Great Lakes critical habitat spans 201 miles of shoreline within the states that border the Great Lakes. Critical habitat for the Northern Great Plains population

was created in 2005, and spans about 183,000 acres and 1,200 miles of river from Montana to Minnesota, south to Nebraska (USFWS, 2009). In 2012, research found about 1,300 pairs of piping plovers present in the Northern Great Plains population (USFWS, 2009). There were about 60 pairs in Montana, 650 pairs in North Dakota (located mainly on the Missouri River), approximately 150 pairs in each South Dakota and Nebraska, two pairs in Minnesota, and less than ten pairs in Colorado, Kansas, and Iowa combined (USFWS, 2009). The piping plover inhabits areas near water, preferring river sandbars and alkali wetlands for nesting in the Great Plains and gravelly shorelines in the Great Lakes region (USFWS, 2013). For wintering, the piping plover resides on large coastal sand or mudflats near a sandy beach (USFWS, 2013).

Breeding season for the piping plover spans from late March through April (Texas Parks and Wildlife Department, 2015). The birds make nests on the ground on thinly vegetated sand or gravel beaches and dunes approximately 150 to 300 feet apart (USFWS, 2009; USFWS, 2013). The nests for the Northern Great Plains population are generally located along alkali lakes, rivers, and reservoir shorelines that are gravelly and lack sand dunes (USFWS, 2009). The piping plover has been documented utilizing vegetated nesting sites on occasion, nesting within cottonwood saplings along the Missouri River (USFWS, 2009). Typically, this species nests at the water's edge, but during drought years they have been noted to nest as far as 1,000 feet away from the edge of the water (USFWS, 2009). Each nest contains three to four eggs that are incubated by both sexes and hatch in approximately 30 days. In the event that eggs are destroyed early in the breeding season, oftentimes a second batch of eggs will be laid. Protective behavior is often exhibited by the piping plover, feigning a broken wing to lead a predator away when it comes too close to the nest. Chicks will also make use of natural camouflage and hide in the event that danger presents itself. Both the male and female feed the young a diet consisting of freshwater and marine invertebrates until about four weeks after hatching, at which point the chicks will fledge (National Park Service, 2015; Texas Parks and Wildlife Department, 2015; USFWS, 2013).

The diet of piping plovers consists of worms, fly larvae, beetles, crustaceans, mollusks, and other invertebrates (USFWS, 2013). Birds forage near lakeshore or ocean, plucking prey out of the sand (USFWS, 2013). Studies suggest that food availability is dependent on the specific habitat used by the bird; however, more research is needed to determine the exact diets of these birds (USFWS, 2009).

The piping plover has declined due to habitat loss and degradation. Development of coastal beaches has led to a loss of traditional nesting locations, and the increased presence of people in these environments contributes to piping plover nest abandonment or accidental crushing of eggs and young by vehicular or pedestrian traffic. Pet harassment and an increase in predation from raccoons, gulls, foxes and other opportunistic species that readily adapt to man's development activities are also detrimental to piping plover populations (National Park Service, 2015; USFWS, 2001).

Habitat Assessment

Dakota Access conducted baseline habitat assessments and identified some alkaline wetlands within the North Dakota Project area that could provide potentially suitable piping plover habitat. However, none of these alkaline wetlands are located within the wetland easements; therefore, no effect on this species within the affected environment is anticipated.

Dakota Skipper

Biology

The Dakota skipper was listed under the ESA on October 23, 2014 (USFWS, 2015c). This species is a small to medium-sized butterfly with a one to 1.3-inch wingspan (Xerces Society, 2015). Like other species of skippers, it has a thick body, recurved antennae and fast powerful flight patterns (USFWS, 2014b). The upper side of the male's wing is tawny-orange to brown color with a prominent mark on the forewing; the lower surface is dusty yellow-orange. The upper side of the female's wing is darker brown with tawny-orange spots and a few white spots on the forewing margin; the lower side is gray-brown with a faint white spot band across the middle (USFWS, 2014b). The Dakota skipper is often confused with the Ottoe skipper (*Hesperia ottoe*), however the Ottoe skipper is larger overall with longer wings (Xerces Society, 2015).

Historically, scientists recorded Dakota skippers from northeast Illinois to Southern Saskatchewan; however, their actual historical range is not known due to extensive destruction of native prairies that preceded biological surveys. The species likely lived throughout the unbroken, vast grasslands of the north-central United States and south-central Canada (USFWS, 2014b). The Dakota skipper is now extirpated in Illinois and Iowa. The last remaining stronghold for the species in the United States appears to be in western Minnesota, northeastern South Dakota, and most of North Dakota (United States Geological Survey [USGS], 1995). It is now scattered throughout this range in small isolated communities where undisturbed native prairie remains. The most significant populations are in areas that straddle the border between tallgrass and mixed-grass prairies (USFWS, 2014b).

Dakota skippers have specific habitat requirements for untilled, remnant high quality prairie habitats that are dominated by native grasses that contain a high diversity of native forbs (USFWS, 2014c). The species live in two types of prairies. Moist bluestems prairies, characterized by smooth camas (*Zygadenus elegans*), wood lily (*Lilium philadephicum*), and harebell (*Campanula rotundifolia*), and upland prairies, characterized by bluestem, needlegrass and purple coneflower (*Echinacea angustifolia*) (USFWS, 2014b). The species depends on a diversity of native plants endemic to tallgrass and mixed-grasses prairies. Adult butterflies feed on nectar from native prairie wildflowers and coneflowers (USGS, 1995). Therefore, when nonnative and woody plant species become dominate, populations decline due to insufficient sources of larval food and nectar for adults (USFWS, 2014c).

The Dakota skipper changes from the larva state to the butterfly state in mid-June. Once the butterflies have mated, females lay eggs on a variety of plants from approximately mid-June through early July. The eggs then hatch in seven to ten days (USGS, 1995). The Dakota skipper butterfly then dies around the end of June; only one generation is produced each year (USGS, 1995).

Habitat destruction is the primary threat to Dakota skipper populations, which have declined dramatically due to the widespread conversion of native prairie to farms, ranches and other land uses. Along with conversion of native prairies, grazing by livestock can have devastating effects on skipper populations. If not properly managed, long-term grazing can easily destroy the prairie grasses vital to skipper habitat. Along with the above mentioned threats to native habitats the introduction and development of wind energy farms have become a new threat to Dakota skipper populations (MNDNR, 2015). The USFWS along with state agencies are working with private

landowners to conserve native prairie habitats through a variety of management tools including haying, prescribed burns and managed grazing practices (USFWS, 2014b).

Habitat Assessment

Dakota Access has avoided impacts to all grassland easements crossed by the Project within North Dakota and South Dakota by adjusting the pipeline alignment and incorporating alternative crossing methods (i.e. boring, HDD) at these locations so that there are no surface impacts. Therefore no effect on this species within the affected environment is anticipated.

6.5 Cultural Resources

The cultural resources assessment was conducted in compliance with provisions of the following:

- National Historic Preservation Act (NHPA) of 1966 (as amended);
- North Dakota Century Code 23-06-27;
- North Dakota State Historic Preservation Office (SHPO) Guidelines Manual for Cultural Resource Inventory Projects (State Historic Society of North Dakota 2012);
- South Dakota Codified Law 1-19A-11.1(11.1), and;
- South Dakota Guidelines for Compliance with the NHPA (South Dakota State Historical Society 2012).

The objective of these investigations was to identify and record the extent and temporal affiliation of cultural resources and to assess their potential eligibility for inclusion in the National Register of Historic Places (NRHP).

Methods

Literature Review

A site files check of the South Dakota SHPO Historic Sites Survey, the South Dakota State Historical Society's Cultural Resource Geographic Research Information, and the Archaeology and Historic Preservation Division of the State Historical Society of North Dakota for previous cultural resources surveys, previously recorded archaeological sites, cemeteries, bridges, structures, and historic districts within a 1.6-kilometer (km) (1.0-mile) radius of the project area was conducted prior to the commencement of fieldwork. Subsequent literature reviews were conducted for route variations.

Field Surveys

The research goals include the identification of historic properties significant at the national, state, regional, or local level within the Project area and collecting sufficient site-specific data to utilize in project planning. Each archaeological resource documented within project corridor during the course of this Phase I survey was evaluated using the NRHP criteria for evaluation (36 CFR 60.4).

Archaeological field methods during the Class III (North Dakota) / Level III (South Dakota) intensive cultural resources survey consisted of a combination of systematic shovel testing and pedestrian survey with visual inspection within the 400-foot-wide Project corridor.

Where surface visibility was less than 30%, shovel tests were positioned at 30-meters (m) (98-feet) intervals along four linear transects spaced 30 m (98 feet) apart. Radial shovel tests were

excavated at an interval of 5 to 10 m (16 to 33 feet) from positive shovel tests along the periphery of each identified site to determine the site boundaries within the project corridor. All shovel tests were excavated to a depth of at least 10 centimeters (cm) (3.9 inches) into the underlying subsoil. Removed soils were screened through 0.625-cm (0.25-inches) hardware cloth, with all recovered artifacts bagged and recorded by shovel test number. All artifacts recovered from shovel tests were bagged in accordance with provenience. A profile of every shovel test was drawn, and artifact contents were recorded for all positive shovel tests. The location of all shovel tests also was recorded using the ArcGIS Collector Application with an iPad and a hand-held GPS unit.

Areas in which the surface visibility exceeded 30% or slope exceeded 15% were subjected to a pedestrian survey with visual inspection. The ground surface was inspected at the same intervals as that described above for shovel testing. When cultural material was encountered, the survey interval was reduced to between 10 and 15 m (33 and 50 feet) to help delimit site boundaries. Artifacts recovered during visual inspection were bagged according to provenience and artifact locations and/or concentrations and the site boundaries were mapped using the ArcGIS Collector Application with an iPad and a hand-held GPS unit.

Results – North Dakota

Literature Review

The Class I Literature Review determined that 33 archaeological sites are mapped within a mile radius of the USFWS wetland and grassland easements. These sites consist of 19 historic or prehistoric artifact scatters, 3 historic farmsteads, and 11 site leads (historic mines or quarries) that have not been formally assessed to determine NRHP eligibility. Of these sites, only four (32MNx334, 32MN1339, 32MN1340, and 32MNx929) are mapped within the Project survey corridor, and all of these sites were recommended as unevaluated pending additional survey investigations.

Field Surveys

A Class II/III cultural resources inventory of the USFWS wetland and grassland easements in Mountrail and Williams Counties, North Dakota was conducted between August of 2014 and April of 2015. The surveys resulted in the revisit of four previously recorded sites. Of these sites, no evidence of site 32MN334 was encountered. The other three resources (32MN0929, 32MN1339 and 32MN1340) are stone features that are unevaluated for listing in the National Register of Historic Places. The field surveys verified the boundaries of these three sites within the survey corridor, and the Project workspace was subsequently modified to avoid impacts to these sites. To ensure the protection of these sites, exclusionary fencing will be placed along the outer workspace boundary, and an Environmental Inspector (EI) will monitor construction activities to ensure that no impacts occur to these features. No additional cultural resources were encountered during the field efforts, and no further work is recommended for the USFWS wetland and grassland easements traversed by the Project in North Dakota (Table 6-2).

Table 6-2 Archaeological Sites Revisited in North Dakota					
Site No.	**County**	**MP**	**Site Type**	**Cultural Affiliation**	**Preliminary NRHP Recommendations**
Archaeological Sites					
32MNx334	Mountrail	8.0	Artifact scatter	Unknown – no evidence of site encountered	Not eligible
32MN929	Mountrail	7.6	Stone features (cairns)	Unknown	Unevaluated – avoided by modification to project workspace
32MN1339	Mountrail	7.6	Prehistoric stone feature	Unknown	Unevaluated – outside Project workspace
32MN1340	Mountrail	7.6	Prehistoric stone feature	Unknown	Unevaluated – outside Project workspace

Results – South Dakota

Literature Review

The literature review identified 106 previous surveys, 66 archaeological sites, 108 structures, and seven cemeteries within a 1.6-km (1-mile) radius of the USFWS jurisdictional areas. The 66 previous archaeological sites consisted of 39 prehistoric sites, 26 historic-age sites, and one multi-component site. Five of the sites were identified as eligible for inclusion in the NRHP and one was identified as listed on the NRHP. None of the sites are located within the USFWS jurisdictional areas.

Field Surveys

A Level III Intensive Cultural Resources Survey was conducted between August 19, 2014, and April 15, 2015. A total of 146 wetland basins were surveyed for cultural resources resulting in the documentation of five newly recorded archaeological sites (39CA0282, 39ED2007, 39FK0112, 39KB0041, and 39KB2003) (Table 6-3). Site 39CA0282 contains prehistoric stone circles, while Site 39KB0041 is a prehistoric isolated find. Site 39FK0112 is a historical farmstead/homestead, and Sites 39ED2007 and 39KB2003 are historical rail lines. Sites 39KB0041 and 39FK0112 are recommended as not eligible for inclusion in the NRHP and no further work is recommended. Sites 39CA0282, 39ED2007, and 39KB2003 are recommended as eligible for inclusion in the NRHP; however, sites 39ED2007 and 39KB2003 will be avoided by HDD. Site 39CA0282 is located beyond Project workspace boundary and will not be impacted by construction. The site will be avoided and exclusionary fencing will be installed along the outer workspace boundary to ensure that inadvertent impacts do not occur to the site during construction. Based on the results of the field effort, no further work is recommended for the USFWS wetland easements traversed by the Project in South Dakota.

Table 6-3 Archaeological Sites and Historical Structures Identified					
Field Site No.	**County**	**MP**	**Site Type**	**Cultural Affiliation**	**Preliminary NRHP Recommendations**
Archaeological Sites					
39CA0282	Campbell	234.8	Stone Circle	Native American	Eligible – Beyond Project workspace
39ED2007	Edmunds	262.1	Chicago Milwaukee St. Paul and Pacific Railroad	Euro American	Eligible – Avoided by bore
39FK0112	Faulk	301.7	Historical Farmstead/Homestead	Euro American	Not Eligible
39KB2003	Kingsbury	381.1	North Western Railroad	Euro American	Eligible – Avoided by bore
39KB0041	Kingsbury	382.5	Isolated Find	Prehistoric	Not Eligible

7.0 MITIGATIVE MEASURES

Dakota Access has avoided surface impacts to grassland easements through construction design (i.e. bore and/or HDD), and the USFWS SUP will contain specific guidance on how operation practices may occur within the grassland easements if needed.

Dakota Access has designed the Project to avoid permanent fill in wetlands. Aboveground facilities have been sited outside of USFWS grassland easements and protected basins within wetland easements, resulting in no permanent impacts to these USFWS protected areas. Temporary impacts to wetlands will be limited to the construction phase.

During initial routing and through the alternatives evaluation process, Dakota Access has worked and to avoid and minimize impacts to wetlands. Where impacts were unavoidable, Dakota Access will implement best management practices (BMPs) to ensure that the wetland is restored post-construction in accordance with regulations and permits. BMPs will be specified in the SUP for Project construction and may inlcude: minimizing disturbed areas; controlling stormwater flow; stabilizing soils; protecting slopes; establishing perimeter controls and sediment barriers; retaining sediment on site; controlling dewatering practices; and establishing stabilized construction access.

The method of pipeline construction in wetlands will depend largely on the stability of the soils at the time of construction. If wetland soils are not excessively saturated at the time of construction and can support construction equipment on equipment mats, timber riprap, or straw mats, construction will occur in a manner similar to conventional upland cross-country construction techniques. Several modifications and limitations to conventional upland construction procedures can be implemented during wetland construction to reduce the impacts to wetland hydrology and soil structure, ensure the integrity of the pipeline within the feature, and also to facilitate restoration.

Construction equipment working in wetlands will be limited to that essential for proper installation. In areas where there is no reasonable access to the ROW except through wetlands, non-essential equipment will be allowed to travel along the prescribed travel path across wetlands. The refueling of equipment, storage of fuel, lubricants or hazardous materials within

100 feet of a wetland is not to be conducted unless no reasonable alternative exists and additional containment measures are implemented. Additionally, the USFWS SUP will contain specific guidance on refueling sites and how potential spills will be handled.

Erosion control devices such as silt fence and staked straw bales will be installed and maintained as necessary to minimize the potential for sediment runoff into wetlands. Sediment barriers will be installed across the full width of the construction ROW at the base of slopes adjacent to wetland boundaries. Silt fence and/or straw bales installed across the working side of the ROW may be removed during active construction but will be replaced after each pass or at the end of the working day. In some cases a compacted earthen berm (drivable berms) may be suitable as a sediment barrier adjacent to the wetland in lieu of removable sediment barriers. Compacted earthen berms would be constructed in a manner that would allow vehicles and equipment to cross the sediment barrier without damaging the berms effectiveness to minimized sediment runoff. If an earthen berm is breached by the crossing of heavy equipment, the berm would be repaired immediately or gaps would be closed by the installation of temporary sediment barriers (i.e. silt fence and/or straw bales). Sediment barriers will also be installed within wetlands along the edge of the ROW, where necessary, to minimize the potential for sediment to run off the construction ROW and into wetland areas outside the work area. If trench dewatering is necessary in wetlands, silt-laden trench water will be discharged into an energy dissipation/sediment filtration device, such as a geotextile filter bag or straw bale structure, to minimize the potential for erosion and sedimentation.

Where wetland soils are saturated and/or inundated, the pipeline may be installed using the push-pull technique. The push-pull technique will involve stringing and welding the pipeline outside of the wetland and excavating and backfilling the trench using a backhoe supported by equipment mats or timber riprap. The prefabricated pipeline will be installed in the wetland by equipping it with buoys and pushing or pulling it across the water-filled trench. After the pipeline is floated into place, the floats will be removed and the pipeline will sink into place. Most pipe installed in wetlands will be coated with concrete or equipped with set-on weights to provide negative buoyancy. Additionally, trench plugs will be installed as needed at the entry and exit points of the feature to facilitate restoration of the subsurface hydrology and prevent the pipeline trench from inadvertently draining the feature.

Because little or no grading will occur in wetlands, restoration of contours will be accomplished during backfilling. Prior to backfilling, trench plugs will be installed where necessary to prevent subsurface drainage of water from wetlands. In areas where topsoil has been segregated from subsoil, the subsoil will be backfilled first, followed by the topsoil. Construction in wetlands under wet conditions may require use of equipment mats, timber riprap, gravel fill, geotextile fabric, and/or straw mats which will be removed following backfilling.

Where wetlands are located at the base of slopes outside of cultivated fields, permanent slope breakers will be constructed across the ROW in upland areas adjacent to the wetland boundary. Temporary sediment barriers will be installed where necessary until revegetation of adjacent upland areas is successful as defined within the USFWS SUP. Once revegetation is successful, sediment barriers will be removed from the ROW and disposed of properly.

In order to mitigate the spread of any noxious weeds, Dakota Access will likely implement BMPs and weed control practices during construction and operation. Mitigation measures may include: treating known noxious weed infestations prior to ground disturbance, immediately

reseeding following construction, and using weed-free seed in reclamation activities and erosion control materials.

8.0 POTENTIAL FUTURE IMPACTS FROM OPERATIONS

As stated previously in Section 3.1, no aboveground structures would be located within a USFWS grassland easement or wetland basin within a wetland easement. Therefore there will be no ongoing operations or future maintenance to aboveground structures within the USFWS easements.

Following completion of construction, the 50-foot-wide permanent ROW easement along the entire Project alignment (generally centered on the pipeline 25 feet on either side of the centerline) would be retained along the pipeline route. The 50-foot-wide easement would be maintained in an herbaceous state (cleared of large diameter woody vegetation) to facilitate inspection of the pipeline, operational maintenance, and compliance with the federal pipeline safety regulations. Maintenance of the permanent ROW would entail periodic vegetation clearing measures, in accordance with PHMSA regulation for pipeline inspection. This may involve selective tree cutting and periodic mowing. However, since the wetland basins within the Project area are all herbaceous, no habitat conversion would occur. Vegetation maintenance of the ROW in areas of active cropland is not expected to occur due to agricultural practices.

Future repair or maintenance to the pipeline may be required by Dakota Access. Any pipeline work that would need to occur within a grassland easement or wetland basin within a wetland easement would be coordinated with the USFWS as outlined within the SUP. Potential impacts to easements would be limited to repair or maintenance to the pipeline and would be temporary in nature, similar to the temporary impacts described within the EA for the construction of the pipeline. Therefore, potential future impacts from operation of the pipeline are not anticipated.

9.0 COORDINATION AND CONSULTATION

Dakota Access is in the process of permitting the overall Project through multiple federal and state agencies within each state crossed by the Project (North Dakota, South Dakota, Iowa and Illinois). Table 9-1 below includes a comprehensive list of ongoing federal and state coordination/consultation.

Table 9-1
Dakota Access Pipeline Project Environmental/Regulatory Permits

Agency/Responsible Party	Coordination/Consultation
NORTH DAKOTA	
Federal	
USACE Omaha District – North Dakota Regulatory Office	Nationwide Permit 12- Section 404/10 Wetlands and Waterbodies
	Archaeological Resources Protection Act, Section 106 consultation, tribal consultation
USACE Omaha District	EA for crossing the Missouri River/Lake Oahe (private lands encumbered by federal flowage easements and federal land managed by the USACE) Title 30 Rights-of-Way for pipelines through federal lands, Temporary Construction License and COE Flowage Easement Consent to cross

Table 9-1 Dakota Access Pipeline Project Environmental/Regulatory Permits	
Agency/Responsible Party	**Coordination/Consultation**
USFWS, North Dakota Ecological Services Field Office and NWR	Endangered Species Act (ESA) Section 7 Consultations
	EA for Wetland and Grassland Easement crossings – SUP for construction NHPA Section 106 review and consultation for USFWS Easement crossings
U.S Bureau of Reclamation	Letter of consent to cross irrigation works
State	
North Dakota Public Service Commission (PSC)	North Dakota Energy Conversion and Transmission Facility Siting Act: Certificate of Corridor and Route
North Dakota Department of Health, Division of Water Quality	National Pollutant Discharge Elimination System - Stormwater Construction General Permit
	National Pollutant Discharge Elimination System – General Permit for Discharges of Hydrostatic Test Water, if into waters of the U.S.
	§401 Individual Water Quality Certification
North Dakota State Water Commission	Surface Water Withdrawal Permit
	Sovereign Land Permit
State Historical Society of North Dakota; SHPO	Inventory Permit required for State-owned lands (North Dakota Century Code [NDCC] 53-03) ; Section 106 of NHPA consultation/compliance
SOUTH DAKOTA	
Federal	
USACE, Omaha District – South Dakota Regulatory Office	Nationwide Permit 12- Section 404 Wetlands and Waterbodies
USFWS, South Dakota Ecological Services Field Office and NWR	ESA Section 7 Consultation
	EA for wetland and grassland easement crossings – SUP for construction NHPA Section 106 review and consultation for USFWS easement crossings
State	
South Dakota Public Utilities Commission	Energy Conversion and Transmission Facilities Act- Siting Permit
South Dakota Department of Environment and Natural Resources	National Pollutant Discharge Elimination System (NPDES) General Permit for Discharges of Hydrostatic Test Water
	Surface Water Withdrawal Permit
South Dakota State Historical Society; SHPO	NHPA (Archeological and Historic Preservation Act), Section 106 consultation

Table 9-1 Dakota Access Pipeline Project Environmental/Regulatory Permits	
Agency/Responsible Party	**Coordination/Consultation**
IOWA	
Federal	
USACE, Rock Island District	Nationwide Permit 12- Section 404/10 Wetlands and Waterbodies
USFWS, Rock Island Ecological Services Field Office	ESA Section 7 Consultation
State	
Iowa Utilities Board	Hazardous Liquid Pipeline Authorization
Iowa Department of Natural Resources	Sovereign Lands Permits
	Floodplain Permit
	Protected species consultation
	Temporary water withdrawal permit
	Hydrostatic test discharge permit
Iowa (SHPO)	NHPA, Section 106 consultation
ILLINOIS	
Federal	
USACE, Rock Island District	Nationwide Permit 12- Section 404/10 Wetlands and Waterbodies
USACE, St. Louis District	Nationwide Permit 12- Section 404/10 Wetlands and Waterbodies
	EA for Section 408, Illinois River levees crossing and USACE Flowage Easements
USFWS, Rock Island Ecological Services Field Office	ESA Section 7 Consultation
State	
Illinois Commerce Commission	Certificate of Public Convenience and Necessity
Illinois Environmental Protection Agency	NPDES Individual Permit for Discharges of Hydrostatic Test Water into waters of the U.S.
Illinois Department of Natural Resources	State Listed Threatened and Endangered Species Consultation/Clearance
Illinois Historic Preservation Agency (IHPA-Illinois SHPO)	Consultation and Inventory Permit required for State-owned lands (20 ILCS 3435/3); Section 106 of NHPA consultation/compliance

As listed in Table 9-1 above, there are multiple federal actions occurring concurrently as a result of the Project. The USACE-Omaha District is the lead federal agency for the USACE interests in the Project, although all impacts to jurisdictional wetlands and waterbodies are also coordinated through the respective local USACE offices.

In addition to the EA for the USFWS wetland and grassland easement SUP in North Dakota and South Dakota, an EA for the USACE in North Dakota is currently out for public comment for the crossing of private lands encumbered by federal flowage easements and land owned by the federal government under the management by the USACE. Also, the Project crosses USACE

levees and flowage easements at the Illinois River within the St. Louis District; therefore an EA is currently being drafted for these crossings. Section 106 consultations are occurring for each USACE Project area included within the scope of the EAs, in addition to the federal and state permitting processes (Table 9-1) as required. The Section 106 consultation process for USFWS is described in detail below.

9.1 USFWS Section 106 Consultation

Consultation for purposes of Section 106 begins with a federal agency's determination whether the proposed Federal action is an undertaking as defined at 36 CFR Section 800.16(y), and if so, whether it is the type of activity that has the potential to affect historic properties.

Undertaking means a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; and those requiring a Federal permit, license or approval.

With regard to the Project, the proposed USFWS action that is subject to Section 106 review is the issuance of a SUP allowing the Project to extend across USFWS grassland easements and wetland basins – the areas for which rights were conveyed to the USFWS from landowners for protective purpose.

The Advisory Council on Historic Preservation (ACHP) has provided guidance clarifying that consultation regarding permitting, licensing and assistance actions can differ from federal property management undertakings in terms of the limitations of a federal agency to control the actions of applicants (ACHP, 2008). These consultation limitations pertain to a federal agency's ability to influence the applicant's actions and decisions outside the agency's permitting or approval authorities. The federal agency can consult within the full meaning of Section 106 review for purposes of assessing the effects of issuing permits allowing the Project to cross easements, but the agency is constrained by its limited jurisdiction and authority to assume responsibility for considering effects of the Project on historic properties situated outside its easements – those areas for which rights have not been conveyed to USFWS for protection of wetlands or grasslands.

Therefore, USFWS's obligations to conduct Section 106 consultation and to consider the effects of the Project are substantially constrained to historic properties found within the jurisdictional areas of the USFWS easements and to the extent that USFWS permits dictate the location of the Project's approaches to the ingress and immediately beyond the egress points of USFWS easements. These areas, for all intents and purposes, constitute the Areas of Potential Effects (APE) defined at Section 800.16(d) as: "…the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking."

USFWS's APEs are those segments of the Project that are under the direct jurisdiction of the USFWS which as a consequence of its actions - the issuance of a SUP – may result in alterations in the character or use of historic properties. Therefore, in the event a historic property is identified within an USFWS jurisdictional area, the entirety of that resource shall be considered whether within or beyond the USFWS's jurisdictional limits.

Consistent with Section 106 of the NHPA, Dakota Access has initiated review with the USFWS Regional Historic Preservation Officer (Region 6). The Class II/III draft report for North Dakota and the Level III draft report for South Dakota were submitted to the regional USFWS archaeologist on May 5, 2015 and May 6, 2015, respectfully. Revised cultural reports based on USFWS comments were submitted to USFWS on October 27, 2015. In compliance with Section 106 consultation procedures, the USFWS is responsible for initiating formal consultation with the respective SHPOs and tribal entities. The USFWS has initiated Section 106 consultation via letter dated October 23, 2015 to 21 tribes. In addition, the USFWS has initiated consultation via letter dated October 29, 2015 to the North Dakota and South Dakota SHPOs, the Advisory Council on Historic Preservation, and the USACE. The following tribes were sent consultation letters:

Assiniboine and Sioux Tribes
Crow Nation
Cheyenne River Sioux Tribe
Flandreau Santee Sioux Tribe
Crow Creek Sioux Tribe
Lower Brule Sioux Tribe
Lower Sioux Indian Community
Ponca Tribe of Nebraska
Northern Cheyenne Tribe
Prairie Island Indian Community
Rosebud Sioux Tribe
Omaha Tribe of Nebraska
Santee Sioux Nation
Sisseton-Wahpeton Oyate
Turtle Mountain Band of Chippewa
Spirit Lake Tribe
Winnebago Tribe
Standing Rock Sioux Tribe
Yankton Sioux Tribe
Three Affiliated Tribes
Oglala Sioux Tribe

9.2 Public Comments Considered

To be compiled following the conclusion of the public comment period.

REFERENCES

Bachman, J. 2014. North Dakota's Downside to the Oil Boom: Traffic Deaths. Businessweek. http://www.businessweek.com/articles/2014-06-09/north-dakotas-downside-to-the-oil-boom-traffic-deaths.

Cornell Lab of Ornithology. 2014. All About Birds. http://www.allaboutbirds.org/guide/search. Accessed November and December 2014 and June 2015.

Energy Transfer. 2014. Company Overview http://www.energytransfer.com/company_overview.aspx. Accessed November 2014.

eBird. 2014. eBird Observation Maps. http://ebird.org/ebird/map/. Accessed November and December 2014.

Esch, J. 2012. Animal Diversity Web: *Grus Americana*. http://animaldiversity.org/accounts/Grus_americana/. Accessed February 2015.

Florip, E. 2014. Proposed Oil Terminal Would Be Biggest In Volume. The Columbian. http://www.columbian.com/news/2014/nov/24/proposed-oil-terminal-biggest-volume-vancouver/.

Fritelli, J. 2014. U.S. Rail Transportation of Crude Oil: Background and Issues for Congress. Congressional Research Service. http://fas.org/sgp/crs/misc/R43390.pdf.

Horwath, B. and Owings, C. 2014. No Keystone XL Means More Oil By Rail, Report Says. Oil Patch Dispatch. http://oilpatchdispatch.areavoices.com/2014/01/31/no-keystone-xl-means-more-oil-by-rail-report-says/.

Javier, R. 2007. Animal Diversity Web: Anthus spragueii. http://animaldiversity.ummz.umich.edu/accounts/Anthus_spragueii/. Accessed November 2014.

Kringstad, J. 2014. Energy Development and Transmission Committee. North Dakota Pipeline Authority. https://ndpipelines.files.wordpress.com/2012/04/kringstad-edt-7-8-2014.pdf.

Minnesota Department of Natural Resources. 2015. Rare Species Guide: Dakota Skipper (*Hesperia dacotae*). http://www.dnr.state.mn.us/rsg/profile.html?action=elementDetail&selectedElement=IILEP65140. Accessed February 2015.

National Audubon Society. 2014. The Online Guide to North American Birds. http://birds.audubon.org/birdid. Accessed November 2014.

National Park Service. 2015. Sleeping Bear Dunes: Nature & Science: Piping Plovers. http://www.nps.gov/slbe/naturescience/pipingplover.htm. Accessed February 2015.

NatureServe. 2014. NatureServe Explorer. http://explorer.natureserve.org/. Accessed December 2014.

Nixon, R. 2014. Grain Piles Up, Waiting For A Ride, As Trains Move North Dakota Oil. New York Times. http://www.nytimes.com/2014/08/26/us/grain-piles-up-waiting-for-a-ride-as-trains-move-north-dakota-oil.html.

North Dakota Natural Heritage Inventory. 2014. North Dakota Parks and Recreation Department. Occurrence data within 2 miles of pipeline route. Received December 2014.

South Dakota Natural Heritage Program. 2014. South Dakota Game, Fish, and Parks, Wildlife Diversity Program. Occurrence data within 2 miles of pipeline route. Received July 2014.

Texas Parks and Wildlife Department. 2015. Wildlife Fact Sheets: Piping Plover (*Charadrius melodus*). https://tpwd.texas.gov/huntwild/wild/species/piplover/. Accessed February 2015.

Texas Parks and Wildlife Department. 2014. Whooping Cranes Beginning Their Fall Journey to Texas. http://tpwd.texas.gov/newsmedia/releases/?req=20141008d. Accessed February 2015.

The Xerces Society for Invertebrate Conservation. 2015. Skippers: Dakota Skipper (*Hesperia dacotae*). http://www.xerces.org/dakota-skipper/. Accessed February 2015.

U.S. Army Corps of Engineers. 2010. Regional Supplements to Corps Delineation Manual. Great Plains Supplement and Mid-West Supplement.

U.S. Department of Transportation. 2014. Pocket Guide to Large Truck and Bus Statistics. Federal Motor Carrier Safety Administration. http://www.fmcsa.dot.gov/sites/fmcsa.dot.gov/files/docs/FMCSA%20Pocket%20Guide%20to%20Large%20Truck%20and%20Bus%20Statistics%20-%202014%20-%20508C.pdf.

U.S. Department of Transportation. 2015. Transportation Accidents by Mode. Office of the Assistant Secretary for Research and Technology. http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/national_transportation_statistics/html/table_02_03.html.

U.S. Fish and Wildlife Service. 2015a. Environmental Conservation Online System: Species Profile for Whooping Crane (*Grus americana*). http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B003. Accessed February 2015.

U.S. Fish and Wildlife Service. 2015b. Endangered Species: Dakota skipper (*Hesperia dacotae*). http://www.fws.gov/midwest/Endangered/insects/dask/index.html. Accessed February 2015.

U.S. Fish and Wildlife Service. 2014a. U.S. Fish and Wildlife Service Species Assessment and Listing Priority Assignment Form. http://ecos.fws.gov/docs/candidate/assessments/2014/r6/B0GD_V01.pdf. Accessed November 2015.

U.S. Fish and Wildlife Service. 2014b. Dakota Skipper (*Hesperia dacotae*) Fact Sheet. https://www.fws.gov/midwest/endangered/insects/dask/daskFactSheet.html. Accessed February 2015.

U.S. Fish and Wildlife Service. 2014c. Federal Register: Endangered and Threatened Wildlife and Plants; Threatened Species Status for Dakota Skipper and Endangered Species Status for Poweshiek Skipperling, Final rule. http://www.fws.gov/midwest/Endangered/insects/dask/pdf/FRButterflyFinalListing24Oct2014.pdf. Accessed February 2015.

U.S. Fish and Wildlife Service. 2013. South Dakota Field Office: Piping Plover *Charadrius melodus*. http://www.fws.gov/southdakotafieldoffice/PLOVER.HTM. Accessed February 2015.

U.S. Fish and Wildlife Service. 2012a. Whooping Crane (*Grus americana*) 5-Year Review: Summary and Evaluation. http://ecos.fws.gov/docs/five_year_review/doc3977.pdf. Accessed February 2015.

U.S. Fish and Wildlife Service. 2012b. Endangered Species: Piping Plover. http://www.fws.gov/mountain-prairie/species/birds/pipingplover/. Accessed February 2015.

U.S. Fish and Wildlife Service. 2010. Sprague's Pipit (*Anthus spragueii*) Conservation Plan. http://www.fws.gov/mountain-prairie/species/birds/spraguespipit/SpraguesJS2010r4.pdf. Accessed June 2015.

U.S. Fish and Wildlife Service. 2009. Piping Plover (*Charadrius melodus*) 5-Year Review: Summary and Evaluation. http://www.fws.gov/northeast/endangered/pdf/piping_plover_five_year_review_and_summary.pdf. Accessed February 2015.

U.S. Fish and Wildlife Service. 2001. Piping Plover Fact Sheet. http://www.fws.gov/midwest/endangered/pipingplover/pipingpl.html. Accessed February 2015.

U.S. Geological Survey. 2014. Northern Prairie Wildlife Research Center. http://www.npwrc.usgs.gov/resource/wildlife/nddanger/species/platprae.htm. Accessed December 2014.

U.S. Geological Survey. 2013. Northern Prairie Wildlife Research Center: Dakota Skipper

Butterfly (*Hesperia dacotae*). http://www.npwrc.usgs.gov/resource/wildlife/nddanger/species/hespdaco.htm. Accessed February 2015.