

Appendix A

Table of Contents

List of Datasets Utilized in the GIS Routing Program for the Dakota Access Project.....	3
USFWS Easements Route Alternative Maps.....	5

Weighting is between 0 - 1000.
0 = Preferred Routing (<i>Low Risk</i>)
500 = Avoided Routing (<i>Moderate Risk</i>)
1000 = Excluded Routing (<i>High Risk</i>)

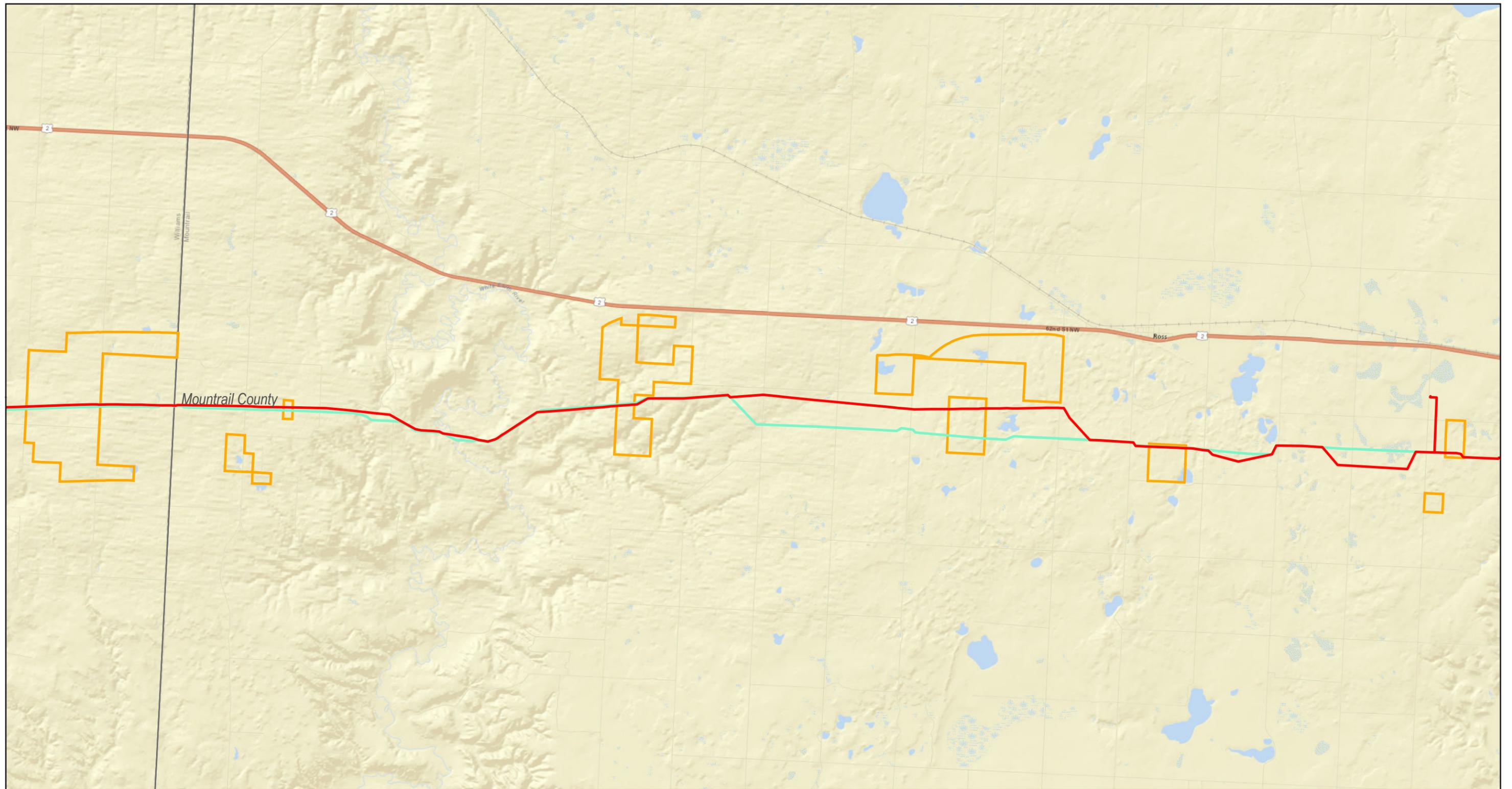
Engineering Datasets	Feature Type	Weight	Buffer (ft)
Existing Pipelines	Polyline	Preferred- Collocate as much as possible without adding significant pipe length	50
Karst	Polygon	Avoid	N/A
Railroads	Polyline	Avoid	25
Roads	Polyline	Avoid	TBD
Side Hill Slope	Raster	0-20%= 1 ; 20-30% = 100 ; 30-40% = 200 ; >40% = 1000	N/A
Alignment Slope	Raster	0 = 1 ; -1 & 1 =100 ; -2 & 2 = 500 ; -3 & 3 = 1000	N/A
Powerlines	Polyline	Preferred- Collocate as much as possible without adding significant pipe length	50
Environmental Datasets	Feature Type	Weight	Buffer
EPA 303 d & EPA 303 c Waterbodies	Polygon	Avoid	N/A
Sole Source Aquifers	Polygon	Avoid	N/A
Fault Lines	Polyline & Polygon	Avoid	1250
Coal Beds	Polygon	Exclusion	N/A
Coal Fields	Polygon	Exclusion	N/A
FEMA Floodplain- 100 Year Floodplain	Polygon	Crossing Table Only- Do not use for routing	N/A
Critical Habitat / T&E Species (Defined within project study area)	Polygon	Exclusion	N/A
Conservation Easements	Polygon	Avoid	N/A
National Registry of Historic Places (SHPO)	Point	Exclusion	500
NHD Flowlines	Polyline	Artificial Path = 30; Canal/Ditch = 30; Connector = 30; Intermittent Stream = 25; Perennial Stream = 30	Typical Routing. Identify detailed buffers after first iteration.
NHD Waterbodies	Polygon	Lake/Pond/Swamp/Marsh = 100; Major Reservoir = Avoid	N/A
NWI Wetlands	Polygon	Avoid PFO / PSS. PEM at 50	Strong Avoidance from major forested wetland crossings
PHMSA Navigable Waterways	Polygon	Avoid	N/A
PHMSA Unusually Sensitive Areas- Drinking Water	Polygon	Avoid	N/A
PHMSA Unusually Sensitive Areas- Ecological Areas	Polygon	Avoid	N/A
SSURGO Soils (Pending Project Requirements)	Polygon	Crossing Table and Review Only- Did not use for routing.	N/A
STATSGO Depth to Bedrock (Statistical coverage if required)	Polygon	Avoid- Review Minimum for Avoidance	N/A
State Forest Ownership Boundaries	Polygon	Avoid	N/A
State Parks and Natural Area Preserves	Polygon	Avoid	N/A
Wild and Scenic Rivers	Polyline	Avoid	Buffer Setback so the HDD is not visible from the river
Wilderness Areas	Polygon	Exclusion	N/A
Wildlife Management Areas	Polygon	Avoid	N/A
National Forest	Polygon	Exclusion	N/A

National Parks	Polygon	Exclusion	N/A
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Land Datasets	Feature Type	Weight	Buffer
Airports	Polygon	Exclusion	N/A
Bridges	Point	Avoid	500
Cemeteries	Point	Exclusion	1000
Churches	Point	Avoid	250
Dams	Point	Exclusion	1000
Golf Courses	Polygon	Avoid	N/A
Government Buildings	Point	Exclusion	200
PHMSA Highly Populated Areas	Polygon	Review based on coverage- Avoid	N/A
Hospitals	Point	Avoid	1000
Institutions	Point	Avoid	Polygonal Review
Land Ownership (Federal, State, & Private)	Polygon	Federal & Tribal = Exclusion ; Unclassified Protected Areas = Exclusion ; State = Avoid ; Private (Interpolated) = Preferred	N/A
Landmarks	Polygon	Exclusion	TBD
Local Identified Structures	Point	Exclusion	150
Military Installations	Polygon	Avoid	N/A
PHMSA Other Populated Areas	Polygon	Review based on coverage- Avoid	N/A
Parks and Recreation	Point	Avoid	500
Schools	Point	Exclusion	1000
Transportation Terminals	Point	Exclusion	500
Oil & Gas Wells	Point	Exclusion	110
Water Wells	Point	Exclusion	150
Superfund Sites	Polygon	Exclusion	N/A
Landfills	Point	Exclusion	1250
Hazardous Waste Dump Sites	Point	Exclusion	1250
EPA Facilities of Interests	Point	Avoid	100

Further Data Download- From State GIS Websites	Feature Type	Weight	Buffer
Hunting Leases / Club	Polygon	Avoid	N/A
Brownfields	Polygon	Exclusion	N/A
Sink Holes	Point	Exclusion	1000
Mining Boundaries	Polygon	Exclusion	N/A

Socioeconomic	Feature Type	Weight	Buffer
TIGER Census Data	Point, Polyline, & Polygon	Did not utilize for this routing exercise. Review after first iteration.	Did not utilize for this routing exercise. Review after first iteration.



-  FWS Easements
-  Route Alternative 1
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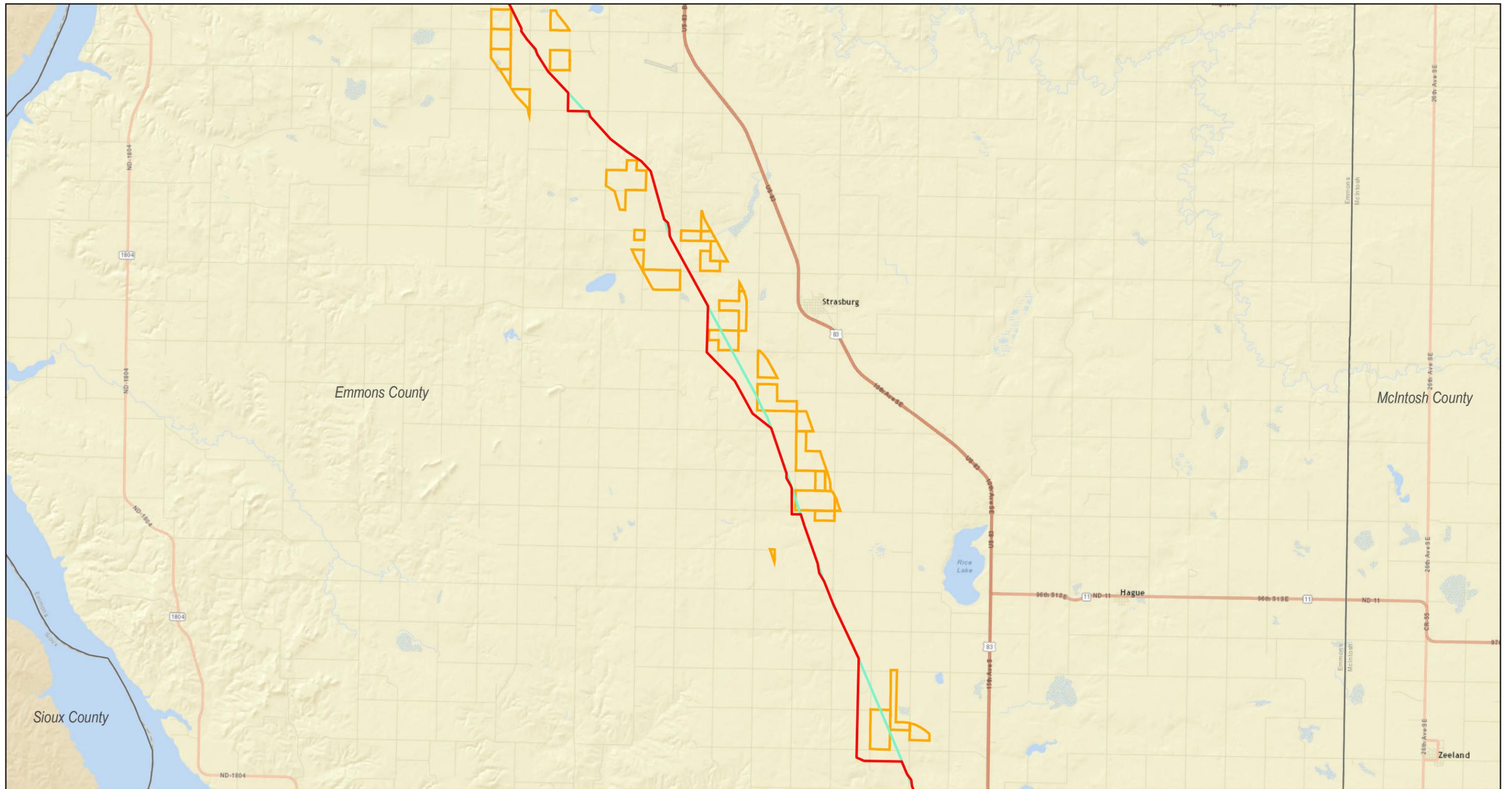
Page 1 of 2

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UTM83-14F

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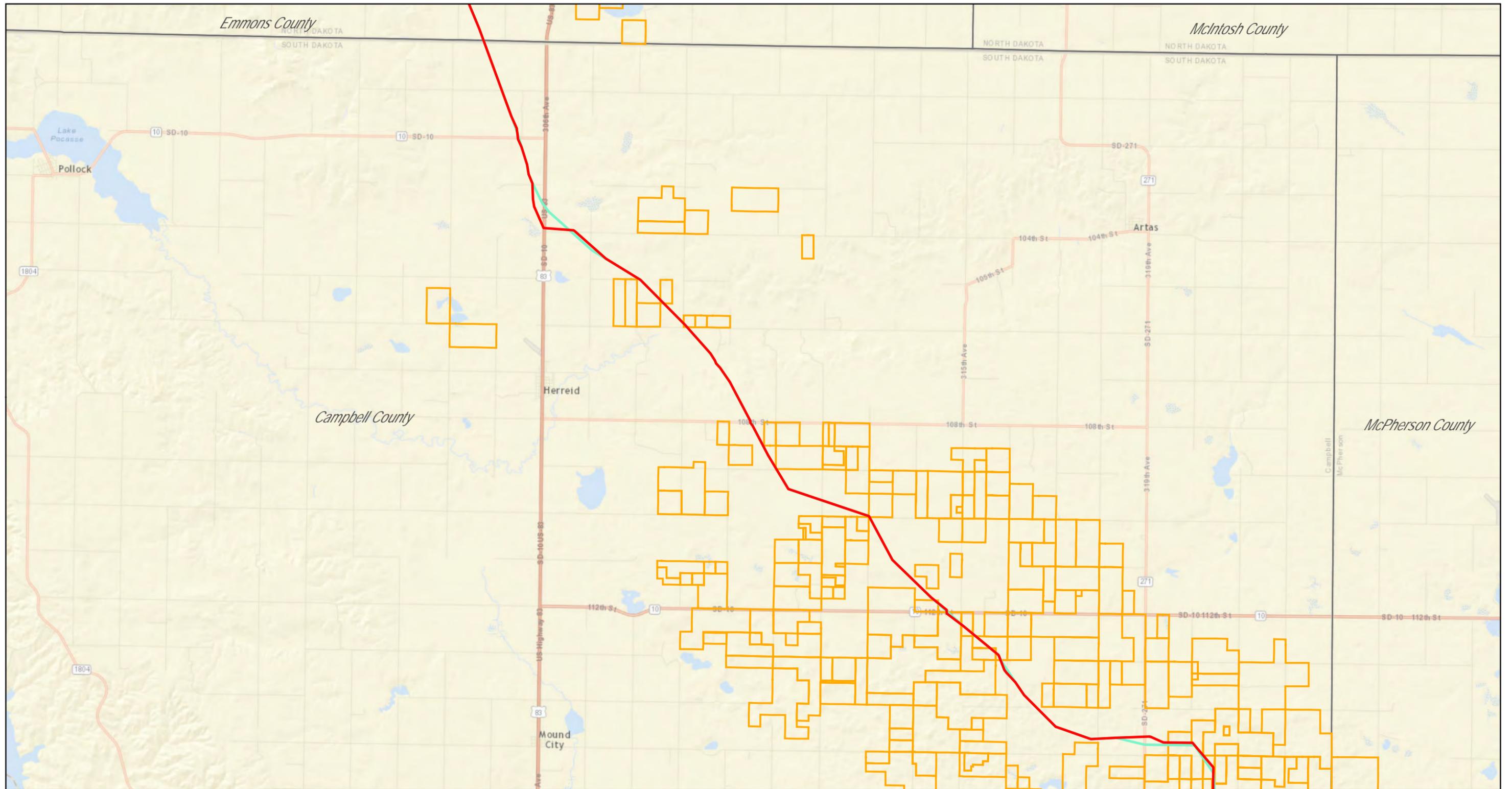
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Page 2 of 2	Scale: 1:150,000
UTM83-14F	Date: Oct, 2015



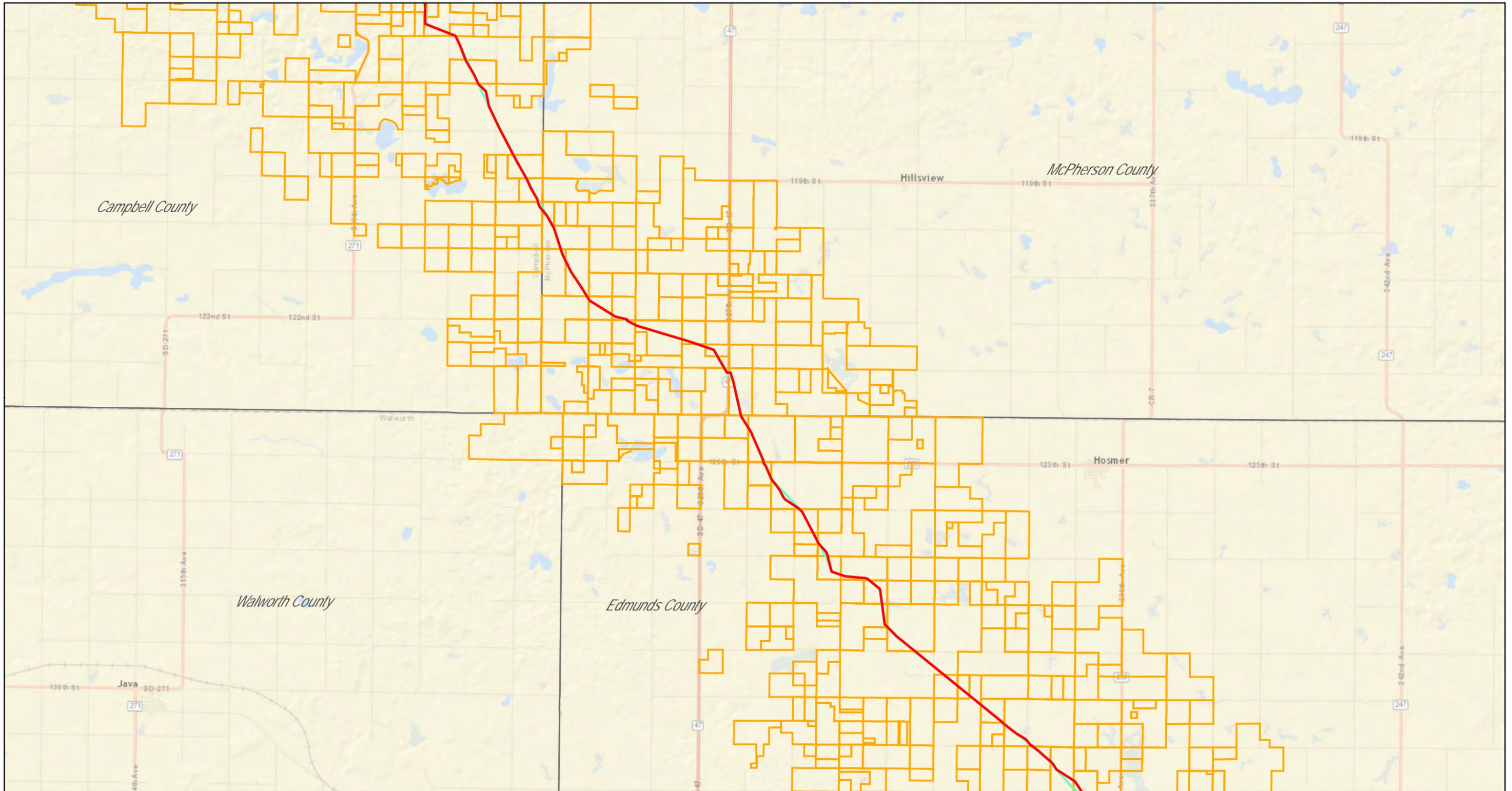


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Environmental Assessment
South Dakota**

Page 1 of 11	Scale: 1:126,720
UTM83-14F	Date: Nov, 2015

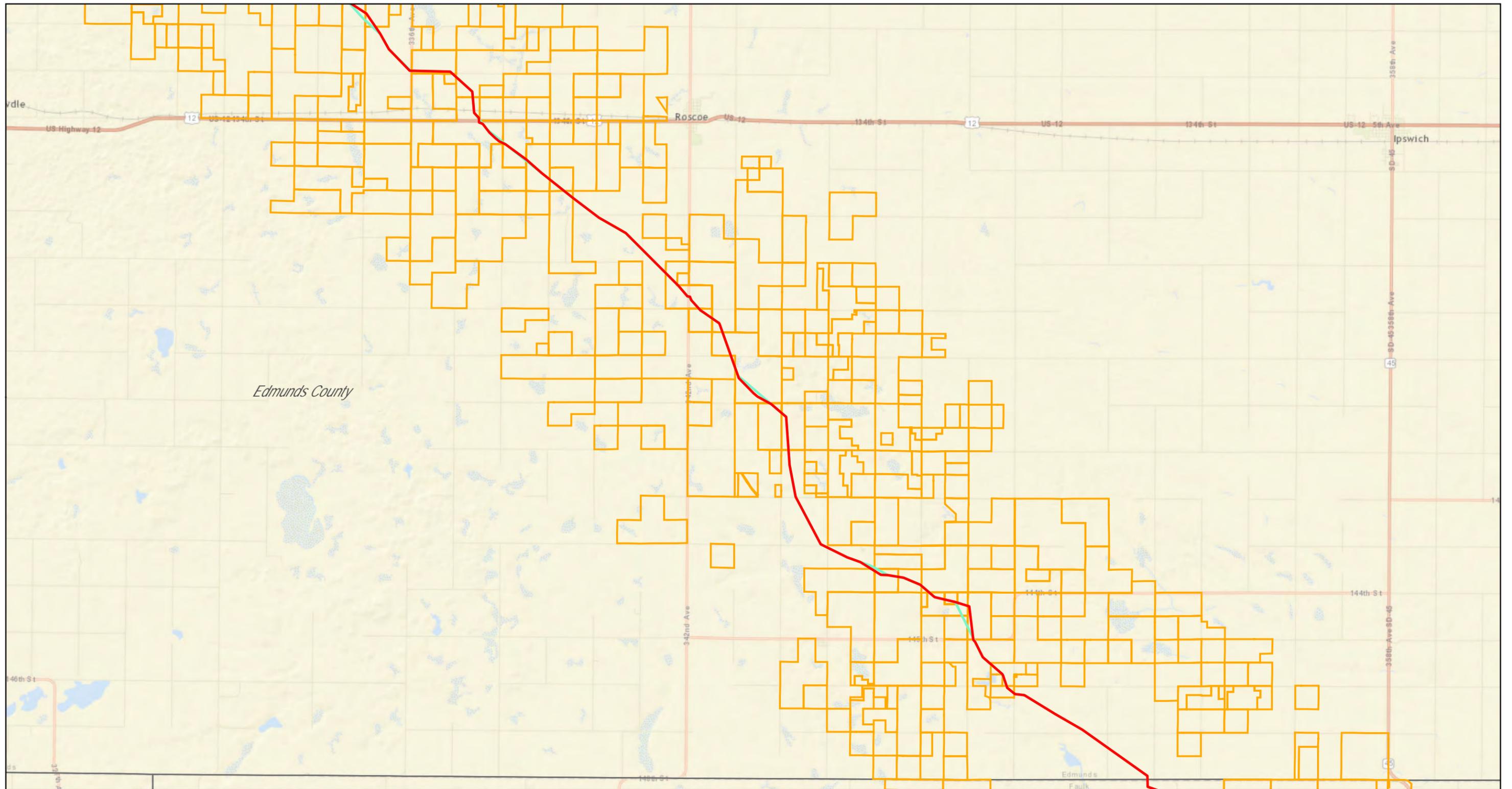


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Environmental Assessment
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Page 2 of 11	Scale: 1:126,720
UTM83-14F	Date: Nov, 2015



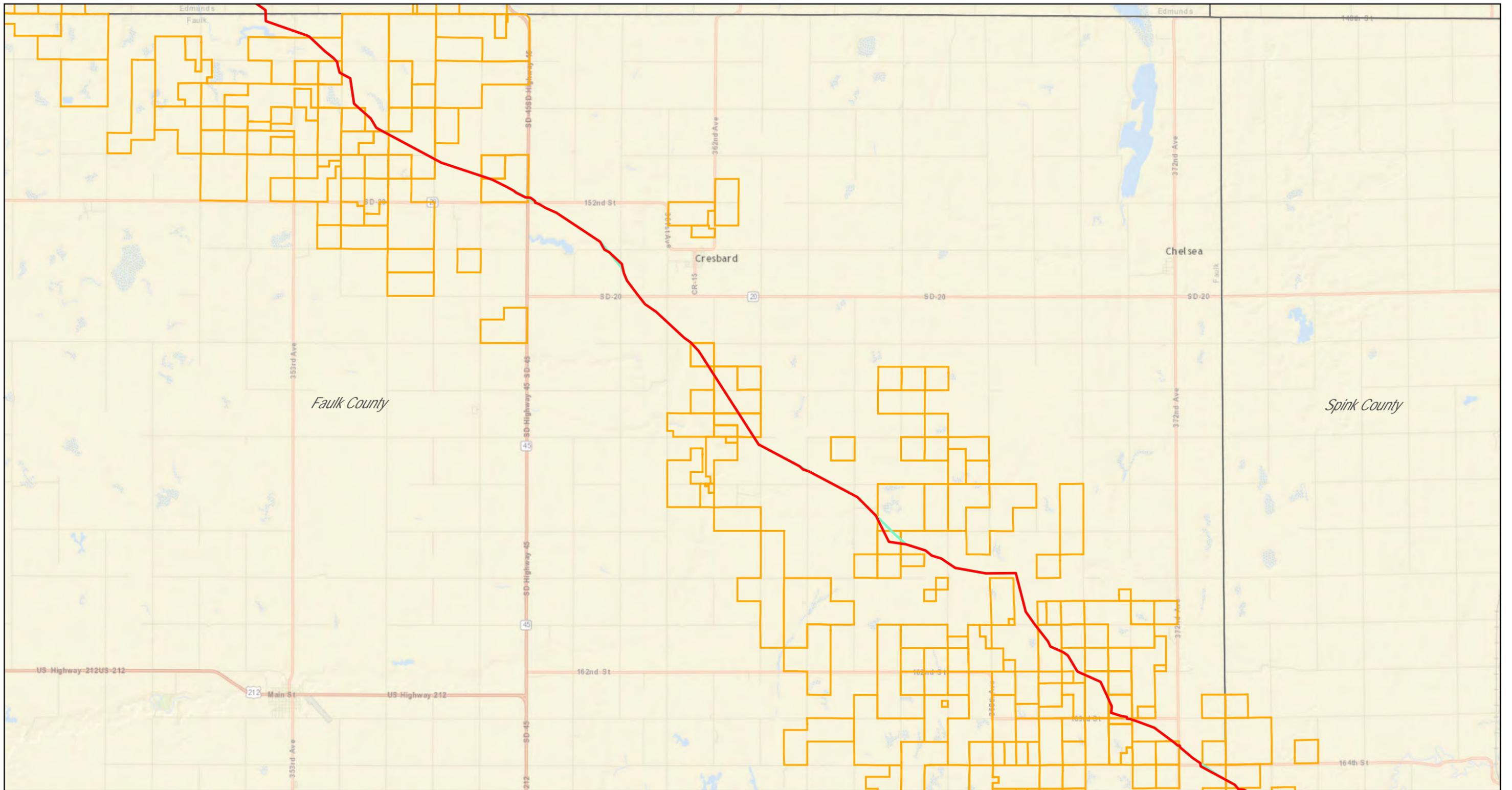
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Environmental Assessment
South Dakota**

Page 3 of 11	Scale: 1:126,720
UTM83-14F	Date: Nov, 2015



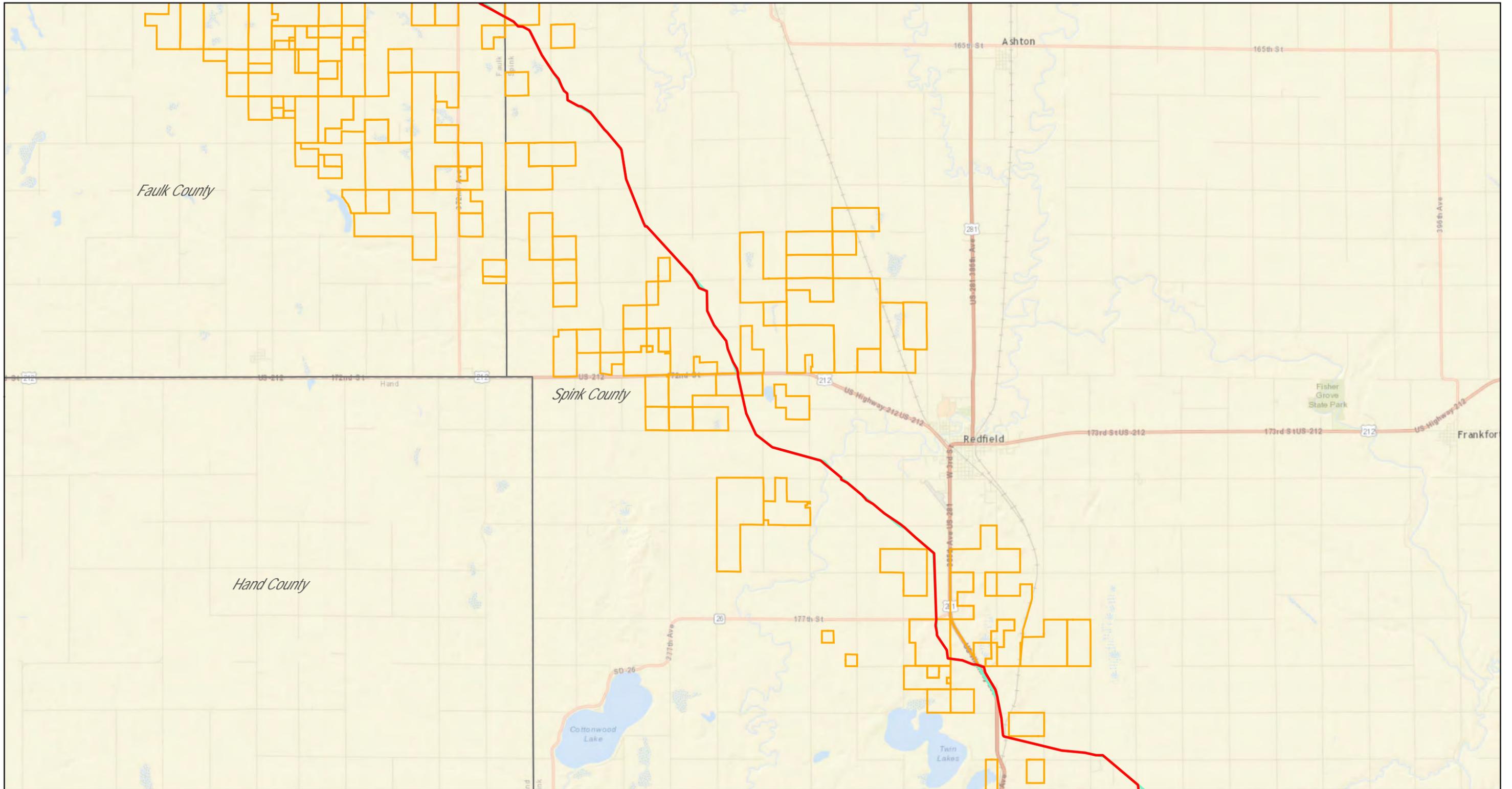


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Environmental Assessment
South Dakota**

Page 4 of 11	Scale: 1:126,720
UTM83-14F	Date: Nov, 2015



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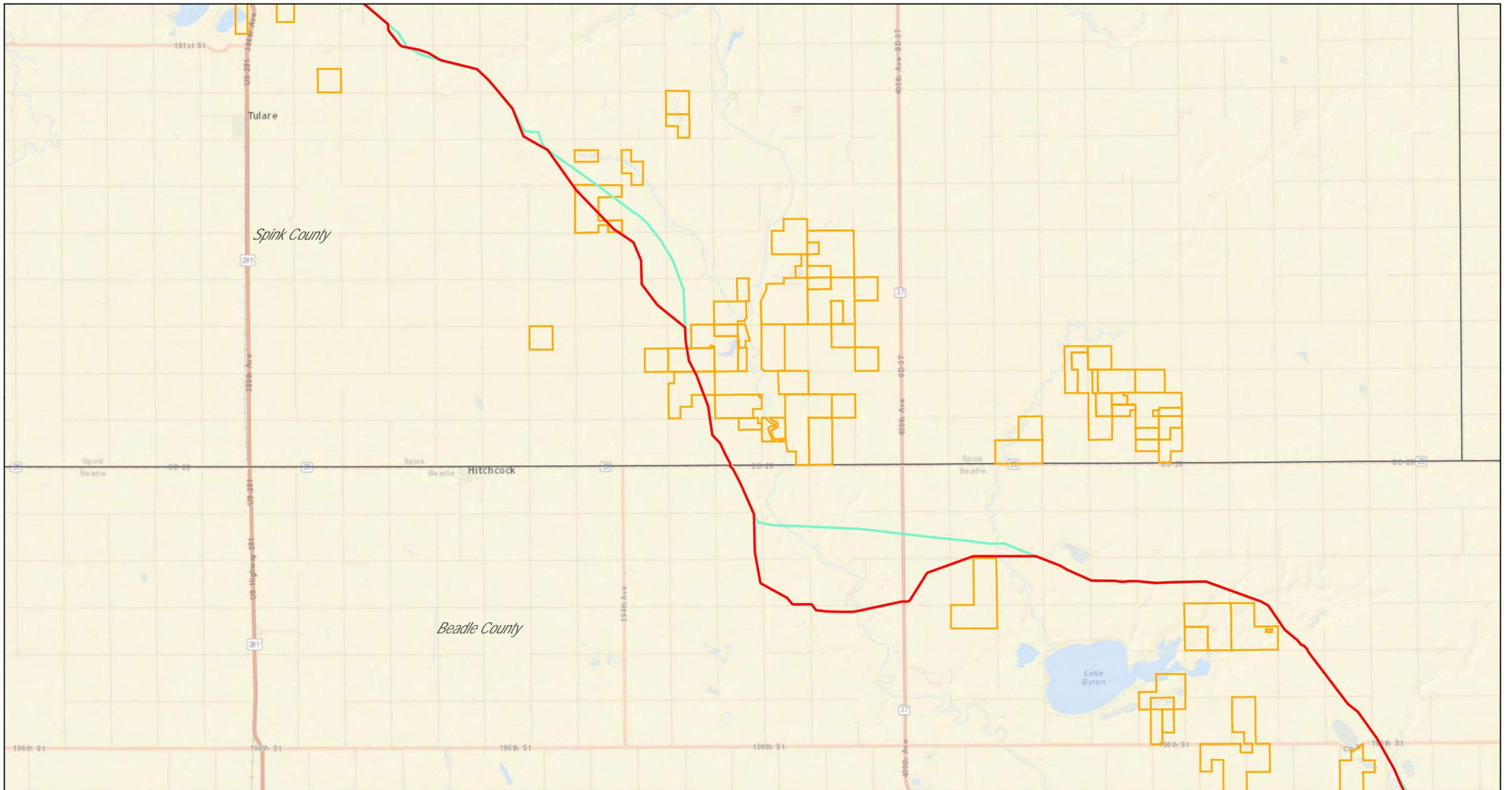
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USFWS Easements
Environmental Assessment
South Dakota**

Page 5 of 11

Scale: 1:126,720

UTM83-14F

Date: Nov, 2015



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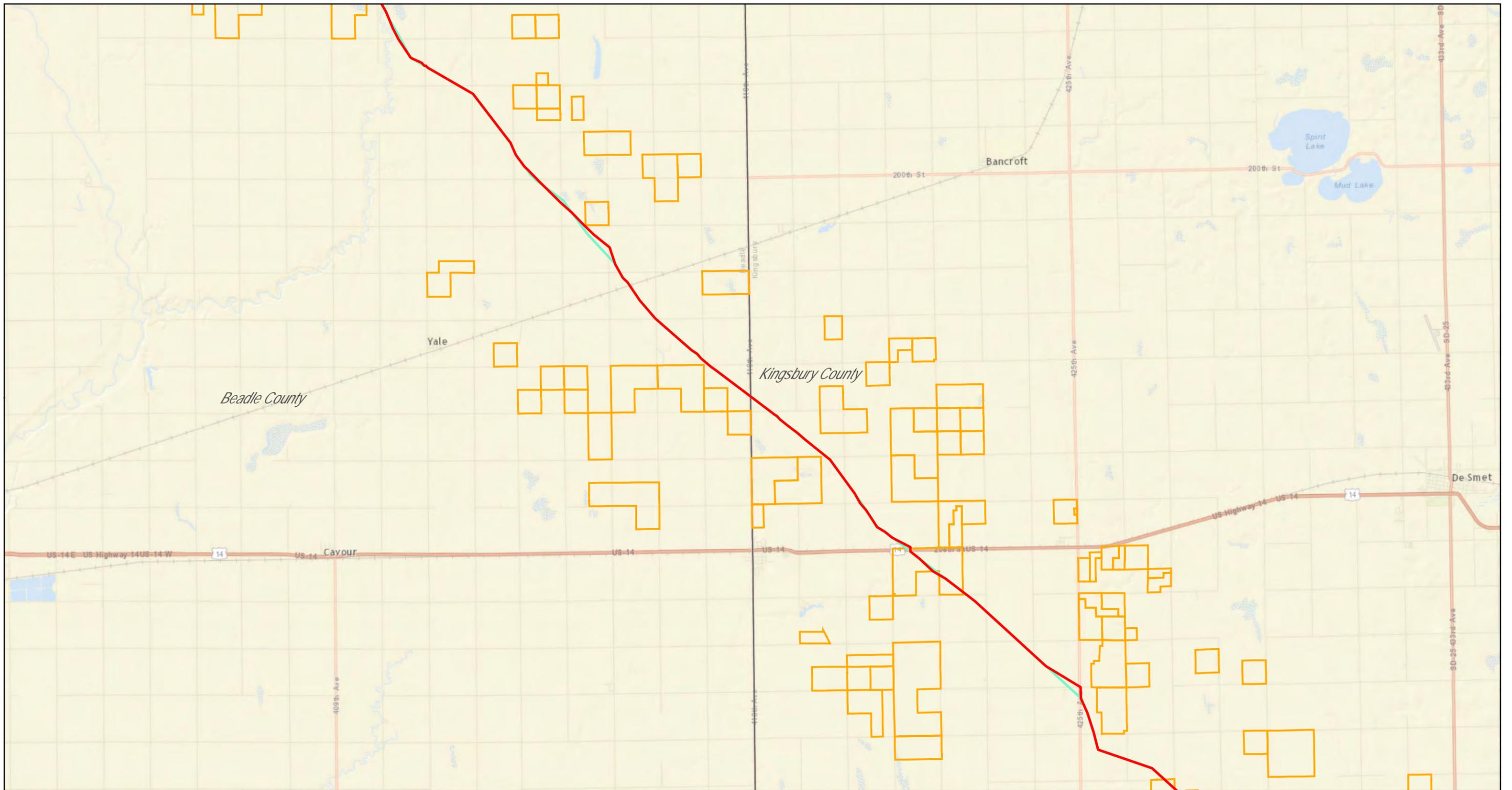
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Environmental Assessment
South Dakota**

Page 6 of 11

Scale: 1:126,720

UTM83-14F

Date: Nov, 2015

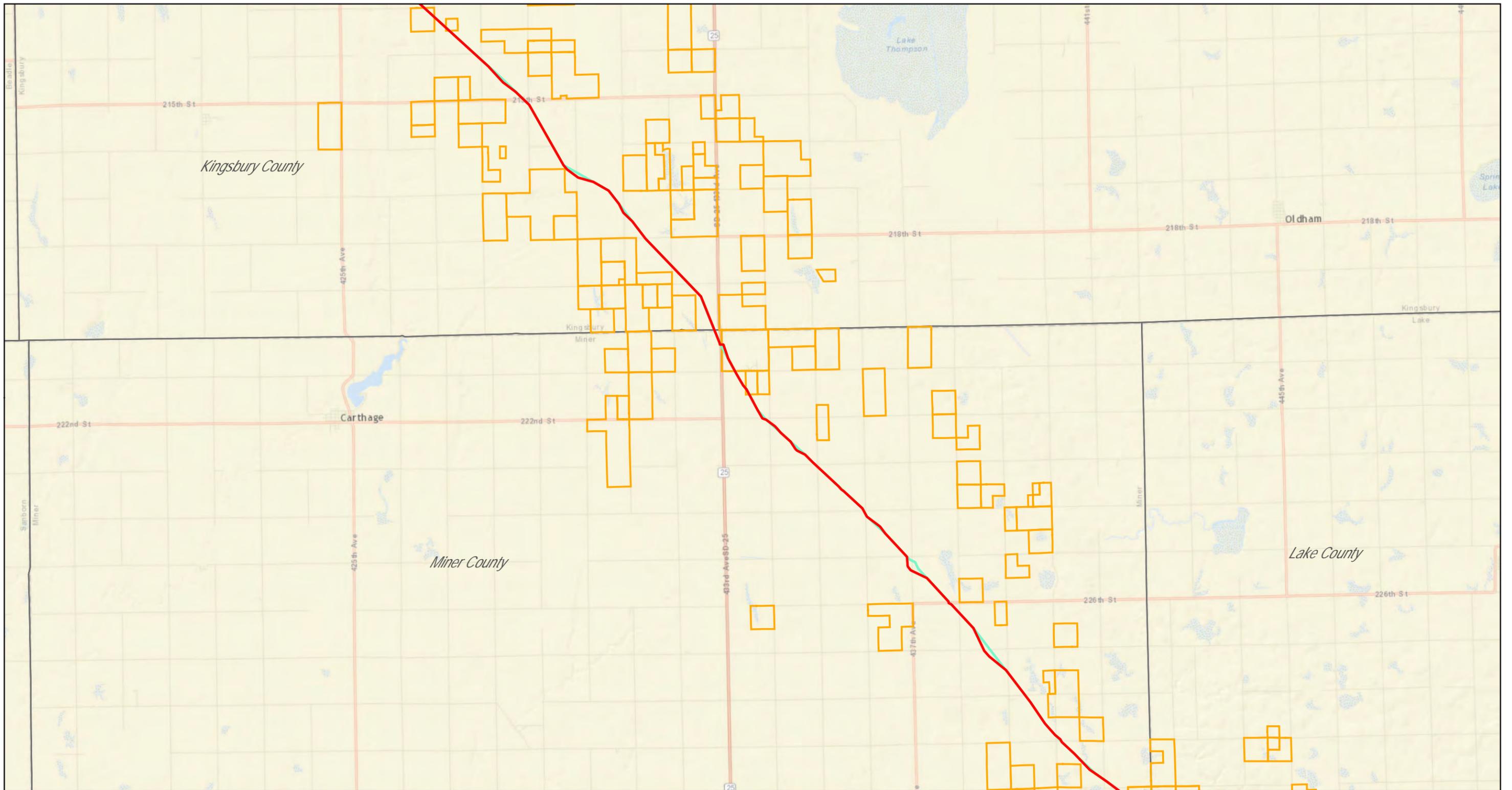


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**Dakota Access Pipeline Project
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Environmental Assessment
South Dakota**

Page 7 of 11	Scale: 1:126,720
UTM83-14F	Date: Nov, 2015

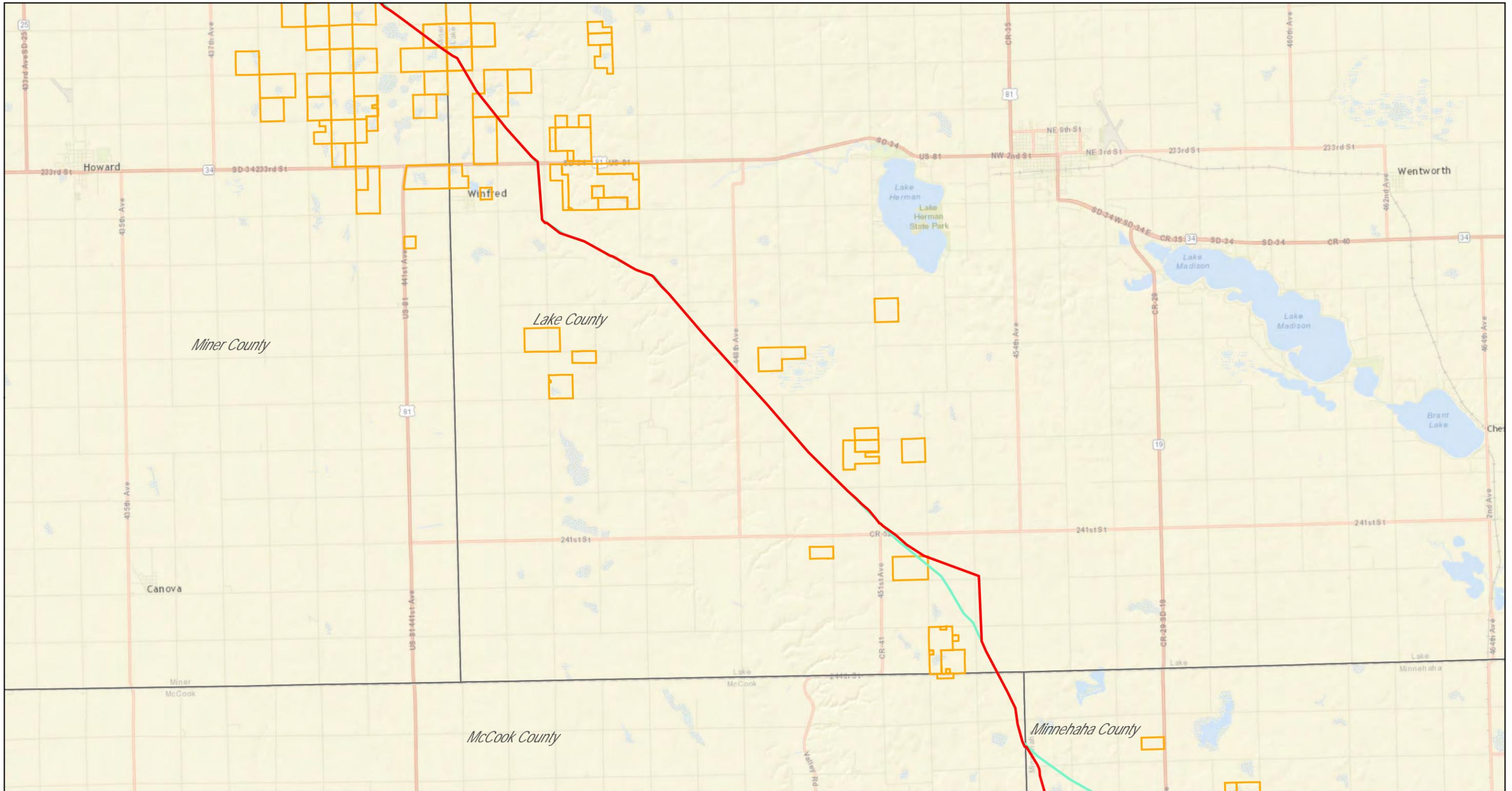


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**Dakota Access Pipeline Project
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Environmental Assessment
South Dakota**

Page 8 of 11	Scale: 1:126,720
UTM83-14F	Date: Nov, 2015



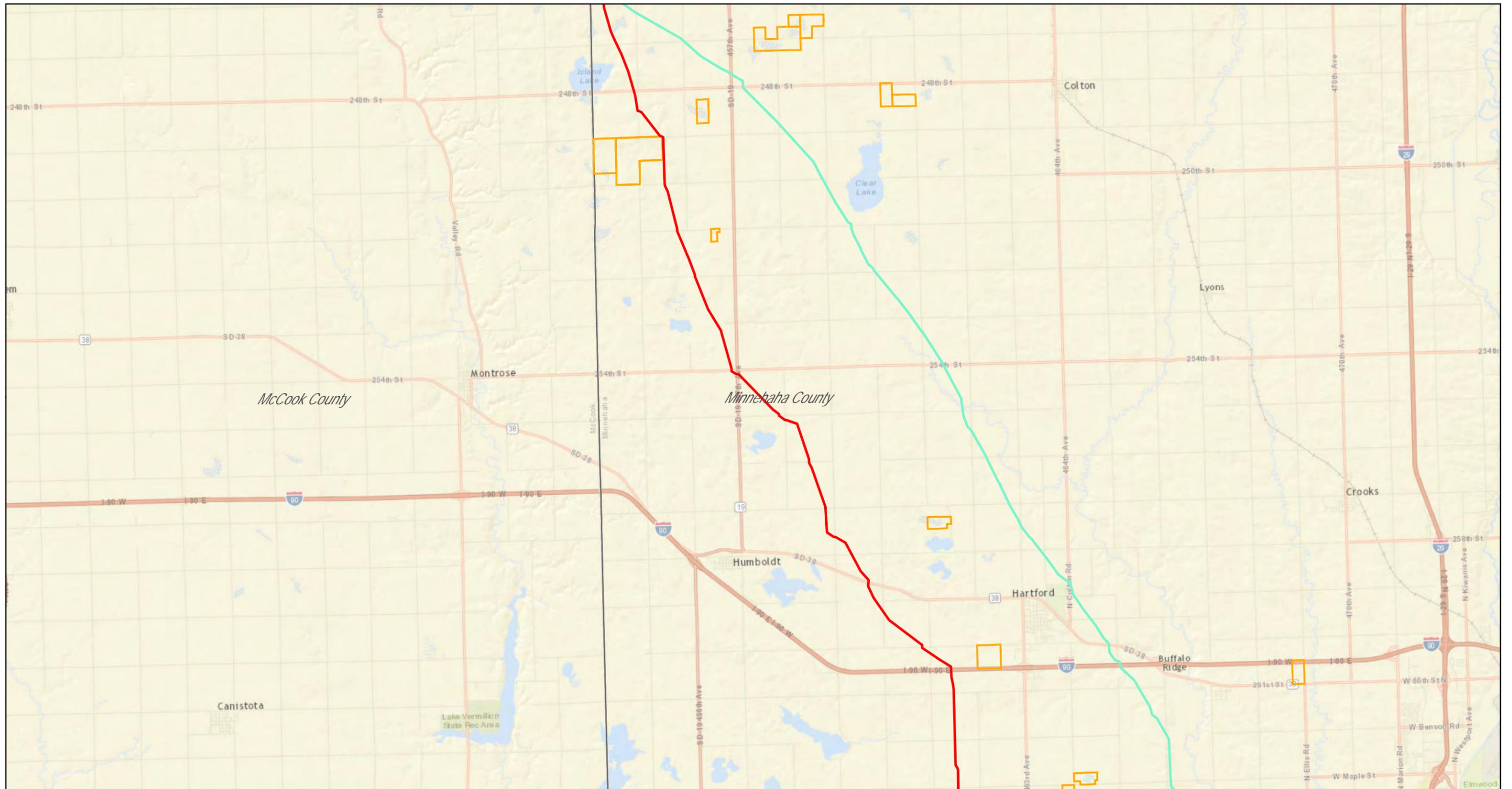
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Environmental Assessment
South Dakota**

Page 9 of 11	Scale: 1:126,720
UTM83-14F	Date: Nov, 2015

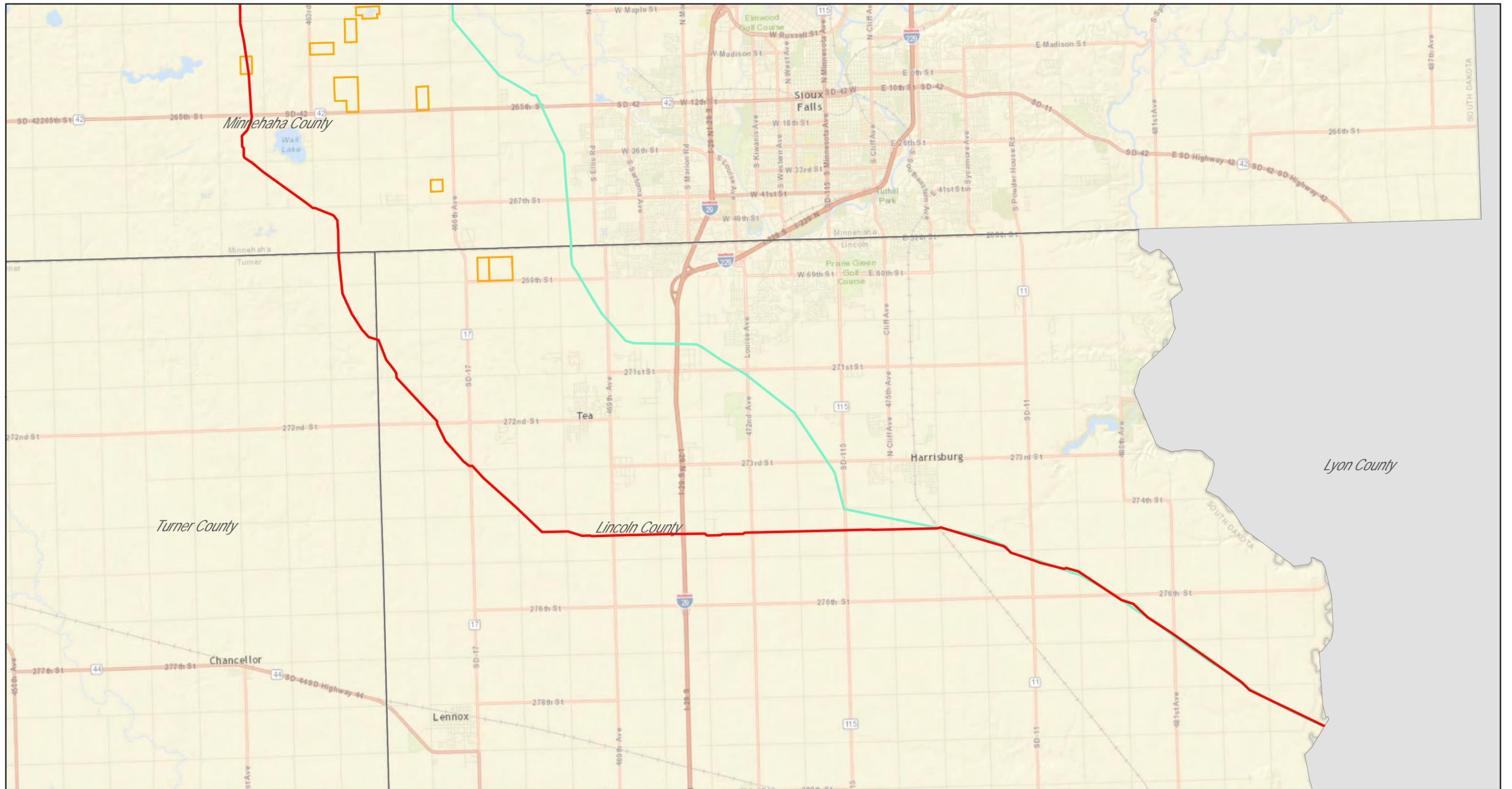


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**Dakota Access Pipeline Project
USFWS Easements
Environmental Assessment
South Dakota**

Page 10 of 11	Scale: 1:126,720
UTM83-14F	Date: Nov, 2015



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USFWS Easements
Environmental Assessment
South Dakota**