

Cushing Extension Environmental Report Tables

Keystone filed an updated Environmental Report in its November 17, 2006, Supplemental Filing with the Department of State. In that filing, Keystone noted a pending change in pipeline alignment and that change was filed with the Department of State on December 15, 2006. Consequently, some environmental and human resource information has been updated for the Cushing Extension. These updates are provided here as revised Environmental Report tables (table numbers correlate with those filed November 17, 2006). Changes from previously submitted information are indicated by highlighting.

**List of Cushing Tables
Supplemental Filing, January 24, 2007**

1.1-1	Miles of ownership	1
2.1-1	Miles of pipe per state	2
2.1-2	Land requirements (acres disturbed per action/state)	3
2.1-6	Buildings within 25 feet of ROW	5
2.3-1	Comparison of the Keystone Pipeline System with Two Other System Alternatives	6
2.4-3	Alternative lengths	7
2.4-4	Alternative lengths, utility co-location, crossings (waterbody, road, rail, utility).....	8
3.4-1	Sensitive soils along the pipeline (hydric, prime farmland, etc).....	9
3.4-2	Average slope class along proposed route – miles.....	10
3.5-1	Waterbodies within 10 miles downstream of proposed crossings.....	11
3.5-4	Crossings within 10 miles of USEPA Tier 1 or 2 sediment sampling sites.....	12
3.5-6	Public Water Supplies within 1 mile of centerline	13
3.5-8	Miles of wetlands crossed.....	14
3.6-2	Miles of vegetative communities crossed	15
3.8-1	Miles of ownership on the pipeline	16
3.8-2	Land uses on proposed project –miles	17
3.8-3	Number of residences and public assembly locations within 500 feet of pipeline.....	18
4.2-1	Acreage of sensitive soils (highly erodible, hydric, etc)	19
4.2-2	Ownership by acres - does not include pipe storage/contractor yards	20
4.2-3	Land uses by acres- does not include pipe storage or contractor yards	21
6-1	Soils, cropland/rangeland acres, number of waterbodies, open water acres, wetland acres, grassland acres,	22
F-1	Waterbody crossings	26

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Table 1.1-1 Ownership of Land Crossed by Keystone (miles)¹

	Federal	Tribal	State	Private²	Total
KEYSTONE MAINLINE					
North Dakota	0.0	0.0	0.8	216.1	216.9
South Dakota	0.0	0.0	0.5	218.4	218.9
Nebraska	0.0	0.0	0.0	213.7	213.7
Kansas	0.0	0.0	0.0	98.8	98.8
Missouri	0.1	0.0	1.9	271.1	273.1
Illinois	3.0	0.0	0.0	53.5	56.5
<i>Keystone Mainline subtotal</i>	<i>3.1</i>	<i>0.0</i>	<i>3.2</i>	<i>1,071.6</i>	<i>1,077.9</i>
CUSHING EXTENSION					
Nebraska	0.0	0.0	0.0	2.4	2.4
Kansas	3.6	0.0	0.0	206.6	210.1
Oklahoma ³	0.0	0.0	3.6	77.3	81.0
<i>Cushing Extension Subtotal³</i>	<i>3.6</i>	<i>0.0</i>	<i>3.6</i>	<i>286.3</i>	<i>293.5</i>
Keystone Pipeline Project Total	6.7	0.0	6.8	1,357.9	1,371.4

¹Slight discrepancies in total values due to rounding.

²Includes privately owned lands with a federal or state easement.

³No tribal lands crossed in Oklahoma with the revised alignment as described in Section 2.4.1.4.

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Table 2.1-1 Miles of Pipeline per State

	North Dakota	South Dakota	Nebraska	Kansas	Missouri	Illinois	Oklahoma	TOTAL
KEYSTONE MAINLINE								
(miles)	216.9	218.9	213.7	98.8	273.1	56.5	0.0	1,078.0
CUSHING EXTENSION								
(miles)	0.0	0.0	2.4	210.1	0.0	0.0	81	293.5
PROJECT TOTAL	216.9	218.9	216.1	308.9	273.1	56.5	81	1,371.4

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Table 2-1-2 Land Requirements

Facility	Land Affected During Construction ¹ (acres)	Land Affected During Operation ² (acres)
Keystone Mainline Subtotal⁵	16,648	6,595
CUSHING EXTENSION		
NEBRASKA		
Pipeline ROW	32	15
Lateral ROWs	0	0
Additional Temporary Workspace Areas	4	0
Pipe and Contractor Yards	15	0
Pump Stations/Delivery Facilities ³	0	0
Nebraska Subtotal⁴	51	15
KANSAS		
Pipeline ROW	2,802	1,273
Lateral ROWs	0	0
Additional Temporary Workspace Areas	158	0
Pipe and Contractor Yards	295	0
Pump Stations/Delivery Facilities ³	4	4
Kansas Subtotal⁴	3,259	1,278
OKLAHOMA		
Pipeline ROW	1,079	496
Lateral ROWs	11	6
Additional Temporary Workspace Areas	77	0
Pipe and Contractor Yards	105	0
Pump Stations/Delivery Facilities ³	4	4
Oklahoma Subtotal⁴	1,276	506
Cushing Extension Subtotal⁴	4,586	1,798
PROJECT TOTAL⁴	21,234	8,393

¹ Disturbance is based on a total of 110-foot-wide construction ROW for 30- and 36-inch pipe and a 95-foot-wide construction ROW for 24-inch pipe, except in certain wetlands, shelterbelts, and other forested areas, residential areas, and commercial/industrial areas where a 85-foot-wide construction ROW will be used, or in areas requiring extra width for workspace necessitated by site conditions. Disturbance also includes pipe storage and contractor yards.

² Operation acreage was estimated based on a 50-foot-wide permanently maintained ROW in all areas. All pigging facilities will be located within either pump stations or delivery facility sites. Mainline valves and densitometers will be constructed within the construction ROW and operated within a 50-foot x 50-foot area or 50-foot x 66-foot area, respectively, centered on the permanently maintained 50-foot-wide ROW. Other mainline valves will be located within the area associated with a pump station. Consequently, the acres of disturbance for these aboveground facilities are captured within the Pipeline ROW and Pump Station/Delivery Facilities categories within the table.

³ The Wood River delivery facility will be constructed outside of the existing pipeline operational tank facilities. The delivery facility in Patoka will be located within the terminal. Delivery facilities along the Cushing Extension at Ponca City and Cushing will be located within existing tank storage terminals. Additional temporary workspace areas include temporary disturbance for the construction of pump stations and/or delivery facilities.

⁴ Discrepancies in total acreages are due to rounding.

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Table 2.1-6 Areas with Buildings Located Within 25 Feet of Construction ROW

	Counties	Milepost	Structures
CUSHING EXTENSION			
Nebraska	N/A	N/A	None
Kansas	Marion	124.6	single
	Butler	156.4	development
	Butler	162.0	single
	Cowley	180.3	single
	Cowley	208.3	several
Oklahoma	Kay	233.2	development
	Noble	241.9	several
	Noble	246.7	single
	Noble	258.7	single
	Payne	269.7	several
	Payne	270.5	single
	Payne	274.5	development
	Payne	279.4	single
	Payne	289.6	single
	Payne	291.7	single

Table 2.3-1 Comparison of the Keystone Pipeline System with Two Other System Alternatives

	Keystone Pipeline Project	Enbridge Projects and Spearhead-Cushing Expansion	Hypothetical Kinder Morgan Express-Platte Pipeline System Expansion and Cushing Extension
Delivery Points	Midwestern, U.S. and Cushing, Oklahoma	Midwestern, U.S. and Cushing, Oklahoma	Midwestern, U.S. and Cushing, Oklahoma
Miles of Pipe to Midwestern markets (Canada and U.S.)	1,078	955	1,282
Additional Miles of Pipe to Cushing	294	655	294
Total Miles	1,372	1,610	1,576
Project Cost (U.S. portion only)	\$2.0 billion	\$3.3 billion	\$2.1 billion
Project Status	<ul style="list-style-type: none"> • Regulatory application submitted – April 2006 • Secured contracts for 340,000 bpd 	<ul style="list-style-type: none"> • Southern Access-approved • Southern Access Extension – proposed • Alberta Clipper-proposed • Spearhead Loop – not proposed 	Not Proposed
In-Service Date	November 2009	Unknown	N/A

Table 2.4-3 Route Alternative Comparisons

Route	Mileage
Western Alternative A	1,414
Western Alternative B	1372
Eastern Alternative	1,373

Table 2.4-4 Phase 2 Route Alternatives – Length, Utility Co-location, and Crossing Comparisons

		Phase II Route Alternatives														
Route Option	Length (miles)	Co-location Percentage				Waterbody Crossings		Road Crossings		Rail Crossings	Utility Crossings	Land Use Crossings				
		Railroad (%)	Powerline (%)	Road (%)	Pipeline (%)	minor	major	minor	major			National State Parks	National Forest Lands	Conservation Areas	Wildlife Areas	Indian/Military Reserves
Western A	1414	1.2	0.6	11.7	14.1	1600	96	1729	21	131	109	1	0	0	1	0
Western B	1372	1.3	0.7	8.1	9.9	1474	81	1635	18	122	102	1	0	0	1	0
Eastern	1373	2.8	0.6	4.3	7.9	1560	73	1710	20	137	85	0	0	0	1	0

Notes: Waterbody Crossing Classifications: Minor < 100ft > Major width. Road Crossing Classifications:

Minor = unpaved and paved local streets and two lane highways, Major = four lane highways and interstates

This crossing list was completed in greater detail than the assessment table illustrated in the respective routing report

Table 3.4-1 Summary of Sensitive Soils Along the Proposed Pipeline Route

State/County	Total Miles ¹	Highly Erodible ²	Prime Farmland ³	Hydric ⁴	Compaction Prone ⁵	Stony – Rocky ⁶	Shallow Bedrock ⁷	Droughty ⁸
KEYSTONE MAINLINE								
North Dakota	216.9	18.7	115.1	28.4	14.4	3.1	29.5	0.0
South Dakota	218.9	11.6	99.8	26.8	27.7	1.5	0.0	0.0
Nebraska	213.7	43.8	134.8	8.9	10.9	0.5	4.0	0.0
Kansas	98.8	23.6	46.3	2.0	8.6	0.2	29.6	0.0
Missouri	273.1	48.9	145.9	51.8	140.3	16.5	80.2	0.0
Illinois	56.5	4.5	40.8	16.3	35.2	0.1	0.1	0.0
Keystone Mainline Subtotal⁹	1,077.9	151.1	582.7	134.2	237.1	21.9	143.4	0.0
CUSHING EXTENSION								
Nebraska	2.4	1.1	1.4	0.0	0.0	0.0	0.0	0.0
Kansas	210.1	13.0	157.2	1.4	10.9	9.8	38.1	0.0
Oklahoma	81.0	4.4	53.5	<0.1	0.3	8.0	10.9	0.0
Cushing Extension Subtotal⁹	293.5	18.5	212.1	1.4	11.2	17.8	49.0	0.0
Project Total	1,371.4	169.6	794.8	135.6	248.3	39.7	192.4	0.0

¹Mileage does not account for areas or disturbance associated with metering or pump stations, transmission lines, laterals, or pipe storage/contractor yards. Individual soils may occur in more than one characteristic class.

²Includes all soils listed as highly erodible.

³Includes land listed by the NRCS (2005) as potential prime farmland if adequate protection from flooding and adequate drainage are provided.

⁴As designated by the NRCS (2005).

⁵Includes soils that have clay loam or finer textures in somewhat poor, poor, and very poor drainage classes.

⁶Includes soils that have either: 1) a cobbly, stony, bouldery, gravelly, or shaly modifier to the textural class, or 2) have >five percent (weight basis) of stones larger than three inches in the surface layer.

⁷Includes soils that have bedrock within 60 inches of the soil surface.

⁸Includes coarse-textured soils (sandy loams and coarser) that are moderately well to excessively drained.

⁹Discrepancies in mileage are due to rounding.

Table 3.4-2 Average Slope Class Along the Proposed Pipeline Route

State/County	Total Miles ¹	Slope Class ² (percent)				
		0-5	>5-8	>8-15	>15-30	>30
-----Miles-----						
KEYSTONE MAINLINE						
North Dakota	216.9	170.9	43.5	2.5	0.0	0.0
South Dakota	218.9	189.9	17.9	11.1	0.0	0.0
Nebraska	213.7	119.7	42.2	51.8	0.0	0.0
Kansas	98.8	31.7	58.2	8.9	0.0	0.0
Missouri	273.1	133.5	17.8	104.9	16.9	0.0
Illinois	56.5	34.0	2.9	19.6	0.0	0.0
Keystone Mainline Subtotal³	1,077.9	679.7	182.5	198.8	16.9	0.0
CUSHING EXTENSION						
Nebraska	2.4	0.2	2.2	0.0	0.0	0.0
Kansas	210.1	162.0	47.8	0.0	0.0	0.0
Oklahoma	81.0	75.0	5.5	0.0	0.0	0.0
Cushing Extension Subtotal³	293.5	238.0	55.5	0.0	0.0	0.0
Project Total	1371.4	917.7	238.0	198.8	16.9	0.0

Note: Depth to bedrock listed in the STATSGO database is greater than 24 inches for the entire Keystone Project.

¹Mileage does not account for disturbance associated with metering or pump stations, transmission lines, laterals, or pipe storage/contractor yards.

²Slopes are grouped by the averages of the high and low slope ranges provided in the STATSGO database for each map unit identification (MUID) component soil series. For example, Tresano series, 3 to 10 percent slopes, is 20 percent of MUID CO010. Its average slope is six and one-half percent. The representative acreage, calculated by multiplying percent composition by the total MUID acreage, is included in the >five to eight percent slope class.

³Discrepancies are due to rounding.

Table 3.5-1 Waterbodies Within 10 Miles Downstream of Proposed Crossings

State	County	Stream Crossing Point	Approximate Milepost	Affected Downstream Reservoir / Fishery / Wildlife Areas	Other Description
Kansas	Clay	W. Fancy Creek	36.5	Turtle Creek Wildlife Area, Turtle Creek Lake	More than 10 miles downstream, approximately 15 to 20, very large reservoir
	Clay	Lincoln Creek	44, 45.5	Milford Wildlife Area, Milford Lake	Lincoln Creek feeds into the Republican River which leads directly downstream to the Milford Wildlife Area and Milford Lake
	Clay	Republican River	50	Milford Wildlife Area, Milford Lake	Pipeline crossed directly through the Milford Wildlife Area at this crossing. Feeds directly into Milford Wildlife Area and Milford Lake
	Clay	Cane Creek	54	Milford Wildlife Area, Milford Lake	Pipeline crossed directly through the Milford Wildlife Area at this crossing. Feeds directly into Milford Wildlife Area and Milford Lake
	Clay	Trib to Milford Lake	58	Milford Wildlife Area, Milford Lake	
	Clay	Quinnby Creek	61, 62	Milford Wildlife Area, Milford Lake, Milford Lake Project	
	Dickinson	Lyon Creek	98.5, 100, 101.5	Herington Reservoir	Immediately downstream
	Marion	Cottonwood River	117	Marion Lake Reservoir, Marion Lake State Wildlife Area	River crossing is downstream, but passes very closely to lake and WVA
	Cowley	Arkansas River	206	Kaw WMA, Kaw Lake	
	Cowley	Spring Creek	206	Kaw WMA, Kaw Lake	Fishing area 3040 directly downstream
	Kay	Cholocco Creek	212, 213	Kaw WMA, Kaw Lake	
	Noble	Trib to Sooner Lake	252	Sooner Lake	

Table 3.5-4 Crossing Locations within 10 Stream-Miles of USEPA Tier 1 or Tier 2 Sediment Sampling Sites

Surface Waterbody Associated with Sampling Site ¹	County	State	Waterbody Crossing Closest to Sampling Site (MP) ²	USEPA Sediment Quality Category
CUSHING EXTENSION				
Little Blue River	Jefferson	NE	0	Tier 1
Rose Creek	Jefferson	NE	0	Tier 2
Little Blue River	Washington	NE	3	Tier 2
Milford Lake	Geary	KS	67	Tier 2
Smoky Hill River	Dickinson	KS	79	Tier 1
Herington Reservoir	Dickinson	KS	95	Tier 3
Prairie Creek	Sedgwick	KS	152	Tier 3
West Branch Whitewater River	Butler	KS	154	Tier 1
Walnut River	Butler	KS	158	Tier 1
Walnut River	Butler	KS	170	Tier 1
Little Walnut River	Butler	KS	171	Tier 2
Arkansas River	Sumner	KS	192	Tier 3
Arkansas River	Cowley	KS	211	Tier 3
Kaw Lake	Kay	OK	218	Tier 1

¹Indicates waterbody associated with the sediment sampling location. Waterbody may not be directly impacted by the proposed project.

²Indicates the approximate waterbody crossing point that might lead to the USEPA Tier 1 or Tier 2 sampling site. The waterbody, which is crossed by the project, may be a tributary to the waterbody associated with the sampling site. Refer to Appendix F for names and classifications of the crossed waterbodies.

3.5-6 Public Water Supplies within 1 mile of Centerline

State	County	Approximate Milepost Marker (mi)	Distance from Centerline (mi)	Cardinal Direction from Centerline	PWS Name	
CUSHING EXTENSION						
Nebraska	Jefferson	N/A	N/A	N/A	NONE	
	Washington	3.75	0.32	east	Hollenberg	
	Washington	20.80	0.20	west	Greenleaf Well #7	
	Washington	21.06	0.27	east	Greenleaf Well #8	
	Washington	21.67	0.70	east	Greenleaf	
	Washington	21.70	0.67	east	Standby Well #5	
	Washington	21.77	0.71	east	Greenleaf	
	Washington	21.78	0.71	east	Greenleaf	
	Washington	21.83	0.67	east	Standby Well #6	
	Dickinson	73.79	0.37	east	Chapman	
	Dickinson	73.80	0.40	east	Chapman	
	Dickinson	73.80	0.42	east	Chapman	
	Butler	146.13	0.37	west	Potwin	
	Butler	146.16	0.38	west	Potwin	
	Butler	146.16	0.38	west	Potwin	
	Butler	146.20	0.24	west	Potwin	
	Butler	146.38	0.02	east	Potwin	
	Butler	146.41	0.05	west	Potwin	
	Butler	155.27	0.27	west	Towanda	
	Butler	155.50	0.78	west	Towanda	
Kansas	Butler	155.63	0.65	west	Towanda	
	Butler	155.78	0.02	west	Towanda	
	Butler	155.78	0.02	west	Towanda	
	Butler	155.90	0.05	west	Towanda	
	Butler	155.90	0.05	west	Towanda	
	Butler	155.90	0.05	west	Towanda	
	Cowley	194.81	0.04	west	Winifield	
	Payne	290.17	0.04	west	Lincoln Co RW & Sewer Dist	
	Oklahoma					

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Table 3.5-8 Miles of Wetlands Crossed by the Keystone Pipeline Project

State	Wetland Types Crossed (miles)				TOTALS
	Palustrine Emergent	Palustrine Forested	Riverine/ Open Water/	Palustrine Scrub Shrub	
NWI Codes	PEM	PFO	ROW	PSS	
KEYSTONE MAINLINE					
ND	16.7	0.4	0.6	1.0	18.7
SD	18.6	0.0	0.7	0.3	19.6
NE	2.0	0.4	1.3	0.1	3.8
KS	0.5	0.4	1.3	0.0	2.2
MO	1.9	3.3	4.1	0.3	9.6
IL	0.9	0.8	1.1	0.6	3.4
Keystone Mainline Total	40.6	5.3	9.1	2.3	57.3
CUSHING EXTENSION¹					
NE	0.0	0.0	0.0	0.0	0.0
KS	2.6	3.5	0.6	0.0	6.7
OK	2.9	1.4	0.4	0.0	4.6
Cushing Extension Subtotal	5.5	4.9	1.0	0.0	11.4
PROJECT TOTAL	46.1	10.2	10.1	2.3	68.7

¹Preliminary identification of wetlands and waters of the U.S. was based on the review of aerial photographs.

Table 3.6-2 Miles of Vegetative Communities Crossed by the Keystone Pipeline ROW

State	Vegetative Communities Crossed (miles)								ROW	TOTAL
	Urban or Built-up land	Cropland	Grassland/Rangeland	Upland Forest Land	Riverine/Open Water	Palustrine Forested Wetlands	Palustrine Emergent/Scrub-Shrub	ROW		
KEYSTONE MAINLINE										
ND	0.2	167.6	26.3	3.0	0.6	0.4	17.7	1.1	216.9	
SD	1.2	158.6	37.7	0.2	0.7	0.0	18.9	1.6	218.9	
NE	0.3	181.0	24.8	2.1	1.3	0.4	2.1	1.7	213.7	
KS	0.1	70.5	18.5	7.5	1.3	0.4	0.5	0.0	98.8	
MO	2.9	148.3	72.5	35.9	4.1	3.3	2.2	3.9	273.1	
IL	0.8	44.4	1.7	4.7	1.1	0.8	1.5	1.6	56.5	
Subtotal	5.5	70.4	181.5	53.4	9.1	5.3	42.9	9.8	1,077.9	
CUSHING EXTENSION										
NE	0.0	0.8	1.2	0.3	0.0	0.0	0.0	0.0	2.4	
KS	0.2	130.8	63.8	6.5	0.6	3.5	2.6	2.1	210.1	
OK	1.1	30.7	40.4	1.7	0.4	1.3	3.6	1.8	80.9	
Subtotal	1.3	162.3	105.4	8.5	1.0	4.8	6.2	3.9	293.5	
PROJECT TOTAL	6.8	932.7	286.9	61.9	10.1	10.1	49.1	13.7	1371.4	

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Table 3.8-1 Surface Ownership Crossed by the Proposed Project

	Miles Crossed	% of Total Length
Keystone Mainline Subtotal	1,077.9	78.7
CUSHING EXTENSION		
Nebraska		
Federal	0.0	0.0
State	0.0	0.0
Private	2.4	100.0
NE Subtotal	2.4	100.0
Kansas		
Federal	3.6	1.7
State	0.0	0.0
Private	206.6	98.3
KS Subtotal	210.1	100.0
Oklahoma		
Federal	0.0	0.0
State	3.6	4.5
Private	77.3	95.5
OK Subtotal	81.0	100.0
Cushing Extension Subtotal	293.5	21.4
PROJECT TOTAL	1,371.4	100.0

Table 3.8-2 Land Uses Crossed by the Proposed Project

	Keystone Mainline (miles)						Cushing Extension (miles)		
	ND	SD	NE	KS	MO	IL	NE	KS	OK
Developed	1.3	2.8	2.0	0.1	6.8	2.3	0.0	2.3	2.9
Agriculture/Cropland	167.6	158.6	181.0	70.5	148.3	44.4	0.8	130.8	30.7
Grassland/Rangeland	26.3	37.7	24.8	18.5	72.5	1.7	1.2	63.8	40.3
Forest Land	3.0	0.2	2.1	7.5	35.9	4.7	0.4	6.5	1.7
Water	0.6	0.7	1.3	1.3	4.1	1.1	0.0	0.6	0.4
Wetlands	18.1	18.9	2.5	0.9	5.5	2.3	0.0	6.1	5.0
Total	216.9	218.9	213.7	98.8	273.1	56.5	2.4	210.1	81.0

Table 3.8-3 Potential Residences and Public Assembly Places near the Proposed Project

	Potential Residences or Residential Areas (within 500 feet) ¹	Public Assembly Places (within 500 feet) ¹
KEYSTONE MAINLINE		
North Dakota	61	2
South Dakota	69	1
Nebraska	112	3
Kansas	87	0
Missouri	579	3
Illinois	77	1
Keystone Mainline Subtotal	985	10
CUSHING EXTENSION		
Nebraska	1	0
Kansas	124	1
Oklahoma	86	0
Cushing Extension Subtotal	211	1
PROJECT TOTAL	1,196	12

¹To be confirmed with field surveys within 500 feet of the proposed centerline.

Table 4.2-1 Acreage Summary, Soil Characteristics of Concern

State/ County	Total Acres ¹	Highly Erodible Water ²	Prime Farmland ³	Hydric ⁴	Compaction Prone ⁵	Stony – Rocky ⁶	Shallow Bedrock ⁷	Droughty ⁸
KEYSTONE MAINLINE								
North Dakota	3,343	270	1,607	392	198	39	45	0
South Dakota	3,099	167	6	383	398	21	4	0
Nebraska	3,027	625	1,906	126	154	7	30	0
Kansas	1,402	351	642	16	105	3	22	0
Missouri	3,936	728	2,069	803	2,054	260	271	0
Illinois	736	57	537	218	454	1	5	0
Keystone Mainline Subtotal ⁹	15,243	2,198	8,237	1,938	3,363	533	373	0
CUSHING EXTENSION								
Nebraska	35	16	20	0	0	0	0	0
Kansas	2,968	179	2,223	20	153	137	533	0
Oklahoma	1,155	64	781	<1	5	113	154	0
Cushing Extension Subtotal ⁹	4,158	260	3,024	20	159	250	687	0
Project Total	19,401	2,458	11,261	1,958	3,522	783	1,060	0

¹Based on a total of 110-foot-wide ROW for 30- and 36-inch pipe and a 95-foot-wide ROW for 24-inch pipeline during construction, except in certain wetlands and as agreed with landowners, in shelterbelts and other forested areas, and commercial/industrial areas where an 85-foot-wide construction ROW will be used, or in areas requiring extra width for workspace necessitated by site conditions. Acreage does not account for 1,820 acres associated with pipe storage/contractor yards or disturbance associated with transmission lines or access roads. Individual soils may occur in more than one characteristic class.

²Includes soils listed as identified by a STATSGO database search.

³Includes land listed by the NRCS (1995) as potential prime farmland if adequate protection from flooding and adequate drainage are provided.

⁴As designated by the NRCS (1995).

⁵Includes soils that have clay loam or finer textures in somewhat poor, poor, and very poor drainage classes.

⁶Includes soils that have either: 1) a cobbly, stony, bouldery, gravelly, or shaly modifier to the textural class, or 2) have >five percent (weight basis) of stones larger than three inches in the surface layer.

⁷Includes soils that have bedrock within 60 inches of the soil surface.

⁸Includes coarse-textured soils (sandy loams and coarser) that are moderately well to excessively drained.

⁹Discrepancies in acreage totals are due to rounding.

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Table 4.2-2 Acreage Summary of Federal, State, and Private Lands Affected by Construction of the Keystone Project

	Federal	State	Private	Total
KEYSTONE MAINLINE				
North Dakota	0	13	3,340	3,353
South Dakota	0	8	3,491	3,499
Nebraska	0	0	3,262	3,262
Kansas	0	0	1,497	1,497
Missouri	1	27	4,183	4,211
Illinois	37	0	789	826
Keystone Mainline Subtotal	38	48	16,562	16,648
CUSHING EXTENSION				
Nebraska	0	0	51	51
Kansas	52	0	3,207	3,259
Oklahoma	0	53	1,223	1,276
Cushing Extension Subtotal	52	53	4,481	4,586
Project Total	90	101	21,043	21,234

Note: Acreage does not include 1,820 acres of disturbance associated with pipe storage/contractor yards or disturbance associated with transmission lines.

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Table 4.2-3 Acres of Land Uses Affected by Construction of the Keystone Project

	Developed	Agriculture/ Cropland	Grassland/ Rangeland	Forest	Water	Wetland/ Riparian	Total
KEYSTONE MAINLINE							
North Dakota	348	2,314	379	45	9	258	3,353
South Dakota	447	2,226	544	4	10	268	3,499
Nebraska	280	2,539	652	34	18	39	3,262
Kansas	97	984	570	113	20	113	1,497
Missouri	398	2,102	1,032	538	62	79	4,211
Illinois	131	567	20	63	14	31	826
<i>Keystone Mainline Subtotal</i>	<i>1,701</i>	<i>10,732</i>	<i>2,597</i>	<i>797</i>	<i>133</i>	<i>688</i>	<i>16,648</i>
CUSHING EXTENSION							
Nebraska	15	11	18	6	<1	0	51
Kansas	339	1,830	887	104	9	90	3,259
Oklahoma	147	434	598	28	5	63	1,276
<i>Cushing Extension Subtotal</i>	<i>501</i>	<i>2,275</i>	<i>1,503</i>	<i>138</i>	<i>14</i>	<i>153</i>	<i>4,586</i>
Project Total	2,202	13,008	4,100	935	148	841	21,234

Note: Acreage does not include 1,820 acres of disturbance associated with pipe storage/contractor yards or disturbance associated with transmission lines.

Table 6-1 Impact Summary

Resource	Impact Summary
Air Quality	<ul style="list-style-type: none"> Fugitive dust will be generated from ROW construction activities and traffic over the construction period regardless of the dust suppression measures applied. All regions crossed by the project are in attainment for particulate matter and no state-mandated dust control permits will be required. Operational hydrocarbon emissions from 27 pump stations (23 initial [plus one future] on the Keystone Mainline and three on Cushing Extension) spaced 30 to 50 miles apart will be minimal since pumps will be electric and no new crude oil tanks will be required.
Geology, Minerals, and Paleontology	<ul style="list-style-type: none"> Construction and operation of the Keystone pipeline system will limit access to underlying minerals (sand and gravel) for the project life. This limitation will be confined to the width of the permanent pipeline ROW that overlies glacial deposits, or approximately 800 miles. The Keystone pipeline system will be located over approximately 40 miles of underlying coal seams between Wood River and Patoka, Illinois. This coal is currently being mined with underground methods. The Keystone pipeline will be located within an existing pipeline corridor and will not add a new limitation on access to underlying coal. Any Pleistocene-era mammalian fossils excavated during construction will not be studied or retrieved.
Soils and Agricultural Production	<ul style="list-style-type: none"> A small fraction of the excavated soils in areas with highly erodible soils (2,458 acres) will be lost to increased water and wind erosion acting on disturbed soil surfaces until grass and other herbaceous vegetation is restored (three to five years). Agricultural cropland and rangeland (including hayland) production will be lost from the construction ROW for the season during construction on approximately 21,234 acres. During the next growing season, production on haylands and pasturelands may be reduced but not completely lost. Long-term productivity will not be impaired.
Water Resources	<ul style="list-style-type: none"> Construction across waterbodies will cause local short-term increases in total suspended solids and deposited sediment in 272 perennial streams and rivers. Channel disturbance within the Missouri River (two crossings), Platte River, Chariton River, Cuyver River (two crossings), Mississippi River, Hurricane Creek, and Kaskaskia River will be avoided by using horizontal directional drills to install the pipeline. Water used for hydrostatic testing of the pipeline will be obtained from surface water resources. The volume for a 50-mile test section of 30-inch pipeline is approximately nine million gallons. Withdrawals rates and volumes will be designed to avoid impacts to aquatic life and downstream water users. Hydrostatic test water will be discharged to the land surface at an approved location. Discharged water may evaporate or infiltrate into the soil or drainage where the water is released. Pipeline construction will disturb a total of 987 acres of wetlands, river systems and open water. Of this total, approximately 840 acres are wetlands (695 acres palustrine emergent wetlands and 145 acres forested wetlands) and 147 acres are located in river systems and open water. It is estimated that vegetation cover in palustrine emergent wetlands will recover in three to five years; forested wetlands will require 20 to 50 years. No permanent loss of wetlands will occur as a result of this project; however, approximately 61 acres of forested wetland will be permanently converted to herbaceous wetland.
Vegetation	<ul style="list-style-type: none"> Pipeline construction will disturb a total of 21,234 acres including 4,101 acres of native and modified grassland and 1,078 acres of upland and forested wetlands. It is estimated that vegetation cover in native and modified grasslands will recover in three to five years, while forests and woodlands will require 20 to 50 years. Trees will not be able to grow on approximately 520 acres of currently forested woodlands during operation to allow aerial

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Resource	Impact Summary
	surveillance.
Wildlife	<ul style="list-style-type: none"> • Approximately 1,773 acres of upland and wetland wildlife habitats will be cleared during pipeline construction and then will recover over short- and long-term time frames (see Wetlands and Vegetation above). • Wildlife displacement from the construction ROW is expected to be short-term. No long-term displacement impacts from increased human activity are expected. • There may be a potential loss of bird eggs and young from pipeline clearing activities or increased human presence if these activities occur during the breeding season along the entire length of the pipeline. • Powerlines (ranging in length from one to 27 miles) will be constructed to serve the pump stations. The powerlines represent a collision hazard for waterfowl and other birds similar to existing electrical distribution lines.
Aquatic Resources	<ul style="list-style-type: none"> • Short-term (one to 10 day) increases in total suspended solids and sediment deposition downstream from channel excavation at open-cut stream crossings will occur in 272 perennial rivers and streams (see Water Resources above).
Sensitive Species	<ul style="list-style-type: none"> • There will be a potential reduction in sensitive wildlife and aquatic species habitats as the result of pipeline construction. These habitat changes are described for wildlife and aquatic resources above. • Keystone received the USFWS and state wildlife agency lists of species to be evaluated for project effects. The primary listed species to be considered are those associated with the Missouri River and Mississippi River (e.g., pallid sturgeon, least tern, piping plover, bald eagle), smaller streams and rivers (e.g., Topeka shiner, scaleshell mussel, winged mapleleaf), wetlands and moist prairie (e.g., western prairie fringed orchid, prairie bush clover), and deciduous forests (e.g., Indiana bat). In 2006, Keystone initiated habitat and occurrence surveys for several federally listed and state sensitive species, and will continue these surveys in 2007. • Keystone will coordinate with the USFWS and state wildlife agencies to estimate direct and indirect impacts to federally listed and sensitive species, and to identify pipeline route adjustments, and construction procedures that will avoid, or minimize effects to these species. For example, horizontal directional drills of the Missouri and Mississippi rivers will avoid channel and river bank disturbance. Keystone has adjusted its proposed pipeline route at several locations in North and South Dakota to reduce the length of wetland and native prairie crossings.

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Resource	Impact Summary
<p>Land Use (including noise, transportation)</p>	<ul style="list-style-type: none"> • Approximately 8,393 acres will not be able to be occupied by residential or other structures within the permanent pipeline ROW and pump station sites over the life of the project. Agricultural uses (cropland) will be allowed to continue as before except at the pump station sites. • Approximately 37 acres of land owned by the USACE will be crossed by the pipeline at Carlyle Lake between Wood River and Patoka, Illinois. Approximately 33 acres of land administered by the NPS at the Missouri River crossing at Yankton, South Dakota, will be crossed by a horizontal directional drill under the river. Approximately 17 acres of land will be crossed by the pipeline at Edward “Ted” and Pat Jones-Confluence Point State Park in Missouri. Approximately 52 acres of land owned by the USACE will be crossed at the Milford Wildlife Area in Kansas. Small parcels of state land (generally less than 10 acres of surface disturbance) will be crossed in North Dakota, South Dakota, Missouri, and Oklahoma. The majority of these state lands are used for wildlife management purposes. Keystone will consult with the state and federal managers of these lands to develop site-specific crossing plans to maintain public access and existing land uses. • Construction noise will be heard to nearby (generally one-half mile or less) residences during daytime construction activities over a period of several weeks. • Long-term operational noise from pump stations will be maintained below community noise level thresholds. • Aboveground facilities (pump stations, powerlines, valves, densitometers) will exist for the life of the project. The majority of these facilities will be located in rural areas. Powerlines will be located along county roads and, therefore, will pass within the view of roadside residences. • Short-term obstruction or temporary disruption to local roads will occur during construction. Major highways will be bored. There would be no long-term impacts to transportation.
<p>Cultural Resources</p>	<ul style="list-style-type: none"> • Keystone developed study plans that were approved by the State Historic Preservation Office in each state crossed by the Keystone project. Keystone then initiated field surveys in 2006 to determine the locations of prehistoric and historic cultural resources that could be affected by surface disturbance caused by pipeline and ancillary facility construction. Cultural resource impacts could include physical disturbance of archaeological sites or architecturally significant structures and features, and introduce visual or audible elements (e.g., pump stations) that would alter the setting of a cultural resource feature. • Impacts to sites that are eligible for the National Register of Historic Places (NRHP) would be mitigated by one or more of the following measures: avoidance through use of pipeline realignments and facility relocations; approved data recovery from sites that cannot be avoided; and use of landscaping or other techniques to minimize or eliminate effects on the historic setting or ambience of standing structures. • Construction activities could adversely affect undiscovered archaeological sites. If previously undocumented sites are discovered within the construction corridor, work that could adversely affect the discovery would cease until consultation with appropriate cultural preservation agencies is completed. If the previously unidentified site is recommended as eligible to the NRHP, impacts will be mitigated through the procedures included in an Unanticipated Discovery Plan. • Treatment of any discovered human remains would be handled in accordance with the guidelines contained in the Native American Grave Protection and Repatriation Act (NAGPRA) or state laws, depending on the age and cultural affiliation of the remains. Construction will not resume in an area where human remains are discovered until an

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Resource	Impact Summary
	authorized agency provides a notice to proceed.
Native American Consultation	<ul style="list-style-type: none">• The DOS, as the lead federal agency, will consult with tribes that may have a past or current affiliation with the Keystone Pipeline project area and solicit input. These contacts will be maintained throughout the project permitting process.
Socioeconomic Conditions	<ul style="list-style-type: none">• In exchange for monetary compensation, Keystone will acquire easements from landowners to place pipeline facilities on private lands. Keystone also will compensate landowners for property damage resulting from construction and make repairs as needed.• In the short term, construction of the pipeline will provide direct employment of up to 2,500 to 3,000 workers distributed across five to six states at once. Pipeline employees will increase retail sales in local areas along the pipeline route. Demands on local infrastructure will include temporary accommodations and, potentially, emergency services. It is anticipated that workers will commute from larger population centers to the pipeline work sites.• In the long term, operations will increase revenues to the states and counties crossed by the pipeline. It is estimated that the project will pay about \$30 million dollars in property taxes in the first year of operation.
Public Health and Safety	<ul style="list-style-type: none">• The USDOT prescribes pipeline design and operational requirements that limit the risk of accidental crude oil releases (leaks or spills) from pipelines. Over the operational life of the Keystone Pipeline Project there will be a very low likelihood of a crude oil release from the pipeline that could injure people, drinking water supplies, and ecologically sensitive areas. Keystone submitted a preliminary risk assessment for the accidental release of crude oil from the pipeline. The assessment included the likelihood of crude oil releases and potential for environmental affects, depending upon release volumes and locations. Based on refinements of the route, hydraulic models, and additional engineering information, an updated risk assessment will be submitted to the Department of State in the first quarter of 2007.

APPENDIX F-1 Waterbody Crossings

State / County	Approximate MP	Waterbody Name	Intermittent Perennial, Reservoir, or Lake	State Water Quality Classification	Supports Use Designation
CUSHING EXTENSION					
NEBRASKA					
Jefferson	0.3	Unnamed	Intermittent Stream/River		
Jefferson	0.4	Unnamed	Intermittent Stream/River		
Jefferson	0.6	Unnamed	Intermittent Stream/River		
Jefferson	0.8	Unnamed	Intermittent Stream/River		
Jefferson	1.7	Unnamed	Intermittent Stream/River		
Jefferson	1.8	Unnamed	Intermittent Stream/River		
Jefferson	1.9	Unnamed	Intermittent Stream/River		
KANSAS					
Washington	2.8	Unnamed	Intermittent Stream/River		
Washington	3.6	Unnamed	Intermittent Stream/River		
Washington	4.1	Little Blue River	Perennial Stream/River	General Purpose Waters; Expected Aquatic Life Use; Primary Contact Recreation Not Open to Public; Secondary Contact Recreation Not Open To Public; Domestic Water Supply; Food Procurement Use;	Supporting

APPENDIX F-1 Waterbody Crossings

State / County	Approximate MP	Waterbody Name	Intermittent Perennial, Reservoir, or Lake	State Water Quality Classification	Supports Use Designation
CUSHING EXTENSION					
Washington	6.8	Joy Creek	Perennial Stream/River	Groundwater Recharge; Industrial Water Supply; Irrigation; Livestock Watering	
Washington	9.1	Unnamed	Connector		
Washington	9.6	Mill Creek	Perennial Stream/River	General Purpose Waters; Expected Aquatic Life Use; Secondary Contact Recreation Not Open to Public; Food Procurement Use	Supporting
Washington	12.1	Mill Creek	Perennial Stream/River	General Purpose Waters; Expected Aquatic Life Use; Secondary Contact Recreation Not Open to Public; Food Procurement Use	Supporting
Washington	13.5	Mill Creek	Perennial Stream/River	General Purpose Waters; Expected Aquatic Life Use; Secondary Contact Recreation Not Open to Public; Food Procurement Use	Supporting
Washington	22.6	Coon Creek	Perennial Stream/River	General Purpose Waters; Expected Aquatic Life Use; Primary Contact Recreation Not Open to Public; Food Procurement	Supporting
Washington	23.9	Coon Creek	Perennial Stream/River		
Washington	26.2	Unnamed	Connector		
Washington	28.7	Unnamed	Intermittent Stream/River		
Washington	29.7	Unnamed	Intermittent Stream/River		

APPENDIX F-1 Waterbody Crossings

State / County	Approximate MP	Waterbody Name	Intermittent Perennial, Reservoir, or Lake	State Water Quality Classification	Supports Use Designation
CUSHING EXTENSION					
Washington	30.3	Unnamed	Intermittent Stream/River		
Washington	30.5	Unnamed	Intermittent Stream/River		
Washington	31.3	Unnamed	Intermittent Stream/River		
Washington	32.1	Unnamed	Intermittent Stream/River		
Clay	33.3	Unnamed	Intermittent Stream/River		
Clay	34.7	Carter Creek	Perennial Stream/River	General Purpose Waters; Expected Aquatic Life Use; Secondary Contact Recreation Not Open to Public	Supporting
Clay	34.8	Carter Creek	Perennial Stream/River	General Purpose Waters; Expected Aquatic Life Use; Secondary Contact Recreation Not Open to Public	Supporting
Clay	34.8	Carter Creek	Perennial Stream/River	General Purpose Waters; Expected Aquatic Life Use; Secondary Contact Recreation Not Open to Public	Supporting
Clay	34.9	Carter Creek	Perennial Stream/River	General Purpose Waters; Expected Aquatic Life Use; Secondary Contact Recreation Not Open to Public	Supporting
Clay	35.0	Carter Creek	Perennial Stream/River	General Purpose Waters; Expected Aquatic Life Use; Secondary Contact Recreation Not Open to Public	Supporting

APPENDIX F-1 Waterbody Crossings

State / County	Approximate MP	Waterbody Name	Intermittent Perennial, Reservoir, or Lake	State Water Quality Classification	Supports Use Designation
CUSHING EXTENSION					
Clay	36.3	West Fancy Creek	Perennial Stream/River	General Purpose Waters; Expected Aquatic Life Use; Primary Contact Recreation Not Open to Public; Food Procurement	Supporting
Clay	36.4	Unnamed	Intermittent Stream/River		
Clay	37.9	Unnamed	Intermittent Stream/River		
Clay	39.6	Unnamed	Intermittent Stream/River		
Clay	40.8	Unnamed	Intermittent Stream/River		
Clay	43.8	Unnamed	Intermittent Stream/River		
Clay	43.9	Lincoln Creek	Intermittent Stream/River	General Purpose Waters; Expected Aquatic Life Use; Secondary Contact Recreation Not Open to Public	Supporting
Clay	45.5	Unnamed	Intermittent Stream/River		
Clay	51.2	Republican River	Artificial Path	General Purpose Waters; Special Aquatic Life Use; Primary Contact Recreation Not Open to Public; Domestic Water Supply; Food Procurement Use; Groundwater Recharge; Industrial Water Supply; Irrigation; Livestock Watering	Supporting
Clay	52.5	Unnamed	Intermittent Stream/River		

APPENDIX F-1 Waterbody Crossings

State / County	Approximate MP	Waterbody Name	Intermittent Perennial, Reservoir, or Lake	State Water Quality Classification	Supports Use Designation
CUSHING EXTENSION					
Clay	54.0	Cane Creek	Perennial Stream/River		
Clay	54.9	Unnamed	Intermittent Stream/River		
Clay	55.4	Unnamed	Intermittent Stream/River		
Clay	57.8	Unnamed	Intermittent Stream/River		
Clay	58.1	Unnamed	Intermittent Stream/River		
Clay	59.3	Unnamed	Intermittent Stream/River		
Clay	60.1	Unnamed	Intermittent Stream/River		
Clay	60.8	Unnamed	Intermittent Stream/River		
Clay	62.0	Unnamed	Intermittent Stream/River		
Clay	62.7	Unnamed	Intermittent Stream/River		
Dickinson	63.9	Unnamed	Intermittent Stream/River		
Dickinson	64.6	Unnamed	Intermittent Stream/River		

APPENDIX F-1 Waterbody Crossings

State / County	Approximate MP	Waterbody Name	Intermittent Perennial, Reservoir, or Lake	State Water Quality Classification	Supports Use Designation
CUSHING EXTENSION					
Dickinson	68.8	Chapman Creek	Perennial Stream/River	General Purpose Waters; Expected Aquatic Life Use; Primary Contact Recreation Not Open to Public; Domestic Water Supply; Food Procurement Use; Groundwater Recharge; Industrial Water Supply; Irrigation; Livestock Watering	Supporting
Dickinson	69.5	Unnamed	Intermittent Stream/River		
Dickinson	70.3	Branch of Chapman Creek	Perennial Stream/River		
Dickinson	70.7	Unnamed	Intermittent Stream/River		
Dickinson	71.2	Unnamed	Intermittent Stream/River		
Dickinson	71.9	Unnamed	Intermittent Stream/River		
Dickinson	72.0	Unnamed	Intermittent Stream/River		
Dickinson	72.1	Unnamed	Intermittent Stream/River		

APPENDIX F-1 Waterbody Crossings

State / County	Approximate MP	Waterbody Name	Intermittent Perennial, Reservoir, or Lake	State Water Quality Classification	Supports Use Designation
CUSHING EXTENSION					
Dickinson	76.6	Smoky Hill River	Artificial Path	General Purpose Waters; Expected Aquatic Life Use; Primary Contact Recreation Not Open to Public; Domestic Water Supply; Food Procurement Use; Groundwater Recharge; Industrial Water Supply; Irrigation; Livestock Watering	Supporting
Dickinson	78.3	Unnamed	Intermittent Stream/River		
Dickinson	78.6	Unnamed	Intermittent Stream/River		
Dickinson	79.5	Unnamed	Intermittent Stream/River		
Dickinson	80.0	Unnamed	Intermittent Stream/River		
Dickinson	80.1	Unnamed	Intermittent Stream/River		
Dickinson	81.4	Unnamed	Intermittent Stream/River		
Dickinson	83.6	Unnamed	Intermittent Stream/River		
Dickinson	85.1	Unnamed	Perennial Stream/River		
Dickinson	86.2	Unnamed	Intermittent Stream/River		
Dickinson	87.1	Carry Creek	Perennial Stream/River	General Purpose Waters; Special Aquatic Life Use; Food Procurement	Supporting

APPENDIX F-1 Waterbody Crossings

State / County	Approximate MP	Waterbody Name	Intermittent Perennial, Reservoir, or Lake	State Water Quality Classification	Supports Use Designation
CUSHING EXTENSION					
Dickinson	87.6	Unnamed	Intermittent Stream/River		
Dickinson	89.6	Unnamed	Intermittent Stream/River		
Dickinson	90.0	Unnamed	Intermittent Stream/River		
Dickinson	91.1	Unnamed	Intermittent Stream/River		
Dickinson	91.7	Unnamed	Intermittent Stream/River		
Dickinson	92.0	West Branch Lyon Creek	Perennial Stream/River	General Purpose Waters; Special Aquatic Life Use; Food Procurement	Supporting
Dickinson	95.2	Unnamed	Intermittent Stream/River		
Dickinson	95.9	Unnamed	Intermittent Stream/River		
Dickinson	96.3	Unnamed	Perennial Stream/River		
Dickinson	97.2	Unnamed	Perennial Stream/River		
Dickinson	98.8	Lyon Creek	Perennial Stream/River		
Marion	100.0	Unnamed	Perennial Stream/River		
Marion	101.4	Unnamed	Intermittent Stream/River		
Marion	101.7	Unnamed	Intermittent Stream/River		

APPENDIX F-1 Waterbody Crossings

State / County	Approximate MP	Waterbody Name	Intermittent Perennial, Reservoir, or Lake	State Water Quality Classification	Supports Use Designation
CUSHING EXTENSION					
Marion	103.3	Unnamed	Intermittent Stream/River		
Marion	105.1	Unnamed	Intermittent Stream/River		
Marion	105.2	Unnamed	Intermittent Stream/River		
Marion	106.3	Unnamed	Intermittent Stream/River		
Marion	108.7	Unnamed	Intermittent Stream/River		
Marion	109.4	Unnamed	Intermittent Stream/River		
Marion	111.6	Unnamed	Intermittent Stream/River		
Marion	111.9	Unnamed	Intermittent Stream/River		
Marion	112.7	Unnamed	Intermittent Stream/River		
Marion	114.1	Mud Creek	Perennial Stream/River	General Purpose Waters; Special Aquatic Life Use; Domestic Water Supply; Food Procurement	Supporting
Marion	116.9	Unnamed	Intermittent Stream/River		

APPENDIX F-1 Waterbody Crossings

State / County	Approximate MP	Waterbody Name	Intermittent Perennial, Reservoir, or Lake	State Water Quality Classification	Supports Use Designation
CUSHING EXTENSION					
Marion	117.1	Cottonwood River	Perennial Stream/River	General Purpose Waters; Expected Aquatic Life Use; Primary Contact Recreation Not Open to Public; Domestic Water Supply; Food Procurement; Groundwater Recharge; Industrial Water Supply; Irrigation; Livestock Watering	Supporting
Marion	118.9	Spring Branch River	Perennial Stream/River	General Purpose Waters; Expected Aquatic Life Use	Supporting
Marion	119.9	Unnamed	Intermittent Stream/River		
Marion	120.6	Unnamed	Intermittent Stream/River		
Marion	122.6	Unnamed	Intermittent Stream/River		
Marion	123.4	Catlin Creek	Perennial Stream/River	General Purpose Waters; Special Aquatic Life Use; Food Procurement	Supporting
Marion	124.2	Unnamed	Intermittent Stream/River		
Marion	124.3	Unnamed	Intermittent Stream/River		

APPENDIX F-1 Waterbody Crossings

State / County	Approximate MP	Waterbody Name	Intermittent Perennial, Reservoir, or Lake	State Water Quality Classification	Supports Use Designation
CUSHING EXTENSION					
Marion	128.2	Unnamed	Intermittent Stream/River		
Marion	129.0	Doyle Creek	Perennial Stream/River	General Purpose Waters; Expected Aquatic Life Use; Domestic Water Supply; Food Procurement; Groundwater Recharge; Industrial Water Supply; Irrigation; Livestock Watering	Supporting
Marion	129.1	Unnamed	Intermittent Stream/River		
Marion	129.2	Unnamed	Intermittent Stream/River		
Marion	129.5	Unnamed	Intermittent Stream/River		
Marion	130.2	Unnamed	Intermittent Stream/River		
Marion	130.3	Unnamed	Intermittent Stream/River		
Marion	133.0	Unnamed	Intermittent Stream/River		
Marion	133.1	Unnamed	Intermittent Stream/River		
Marion	133.4	Unnamed	Intermittent Stream/River		

APPENDIX F-1 Waterbody Crossings

State / County	Approximate MP	Waterbody Name	Intermittent Perennial, Reservoir, or Lake	State Water Quality Classification	Supports Use Designation
CUSHING EXTENSION					
Marion	134.4	Unnamed	Intermittent Stream/River		
Butler	136.2	Unnamed	Perennial Stream/River		
Butler	136.3	Unnamed	Intermittent Stream/River		
Butler	136.8	Unnamed	Intermittent Stream/River		
Butler	137.4	Unnamed	Intermittent Stream/River		
Butler	139.4	Unnamed	Intermittent Stream/River		
Butler	140.1	May Branch	Perennial Stream/River		
Butler	142.5	East Branch Whitewater River	Perennial Stream/River	General Purpose Waters; Expected Aquatic Life Use; Domestic Water Supply; Food Procurement; Groundwater Recharge; Industrial Water Supply; Irrigation; Livestock Watering	Supporting
Butler	145.0	Diamond Creek	Perennial Stream/River	No Data	No Data
Butler	145.6	Brush Creek	Intermittent Stream/River	No Data	No Data
Butler	146.5	Unnamed	Intermittent Stream/River		
Butler	148.7	Fourmile Creek	Perennial Stream/River	General Purpose Waters; Expected Aquatic Life Use; Food Procurement	Supporting

APPENDIX F-1 Waterbody Crossings

State / County	Approximate MP	Waterbody Name	Intermittent Perennial, Reservoir, or Lake	State Water Quality Classification	Supports Use Designation
CUSHING EXTENSION					
Butler	149.0	Unnamed	Intermittent Stream/River		
Butler	150.9	Rock Creek	Perennial Stream/River	General Purpose Waters; Expected Aquatic Life Use	Supporting
Butler	151.6	Unnamed	Intermittent Stream/River		
Butler	152.4	Unnamed	Intermittent Stream/River		
Butler	153.3	Unnamed	Intermittent Stream/River		
Butler	155.0	Spring Branch	Perennial Stream/River	General Purpose Waters; Expected Aquatic Life Use	Supporting
Butler	155.9	Unnamed	Intermittent Stream/River		
Butler	156.0	Unnamed	Intermittent Stream/River		
Butler	158.3	Whitewater River	Perennial Stream/River	General Purpose Waters; Expected Aquatic Life Use; Domestic Water Supply; Food Procurement; Groundwater Recharge; Industrial Water Supply; Irrigation; Livestock Watering	Supporting
Butler	159.1	Badger Creek	Intermittent Stream/River	General Purpose Waters; Expected Aquatic Life Use; Domestic Water Supply	Supporting
Butler	160.0	Unnamed	Intermittent Stream/River		

APPENDIX F-1 Waterbody Crossings

State / County	Approximate MP	Waterbody Name	Intermittent Perennial, Reservoir, or Lake	State Water Quality Classification	Supports Use Designation
CUSHING EXTENSION					
Butler	160.6	Unnamed	Perennial Stream/River		
Butler	164.1	Dry Creek	Perennial Stream/River	General Purpose Waters; Expected Aquatic Life Use	Supporting
Butler	165.4	Unnamed	Perennial Stream/River		
Butler	167.6	Unnamed	Perennial Stream/River		
Butler	168.0	Fourmile Creek	Perennial Stream/River	General Purpose Waters; Expected Aquatic Life Use; Primary Contact Recreation Not Open To Public; Domestic Water Supply; Food Procurement; Groundwater Recharge; Industrial Water Supply; Irrigation; Livestock Watering	Supporting
Butler	169.6	Unnamed	Intermittent Stream/River		
Butler	170.9	Unnamed	Intermittent Stream/River		
Butler	172.5	Unnamed	Intermittent Stream/River		
Butler	174.8	Eightmile Creek	Perennial Stream/River	General Purpose Waters; Expected Aquatic Life Use; Domestic Water Supply; Food Procurement; Groundwater Recharge; Industrial Water Supply; Irrigation; Livestock Watering	Supporting
Butler	175.8	Unnamed	Intermittent Stream/River		

APPENDIX F-1 Waterbody Crossings

State / County	Approximate MP	Waterbody Name	Intermittent Perennial, Reservoir, or Lake	State Water Quality Classification	Supports Use Designation
CUSHING EXTENSION					
Butler	176.2	Unnamed	Intermittent Stream/River		
Butler	176.9	Unnamed	Intermittent Stream/River		
Butler	177.5	Unnamed	Intermittent Stream/River		
Butler	178.1	Unnamed	Intermittent Stream/River		
Cowley	178.9	Unnamed	Intermittent Stream/River		
Cowley	180.9	Polecat Creek	Perennial Stream/River	General Purpose Waters; Expected Aquatic Life Use; Food Procurement	Supporting
Cowley	182.3	Unnamed	Intermittent Stream/River		
Cowley	183.1	Unnamed	Intermittent Stream/River		
Cowley	185.4	Stewart Creek	Perennial Stream/River	General Purpose Waters; Expected Aquatic Life Use	Supporting
Cowley	185.5	Stewart Creek	Perennial Stream/River	General Purpose Waters; Expected Aquatic Life Use	Supporting
Cowley	185.6	Stewart Creek	Perennial Stream/River	General Purpose Waters; Expected Aquatic Life Use	Supporting
Cowley	187.0	Unnamed	Intermittent Stream/River		

APPENDIX F-1 Waterbody Crossings

State / County	Approximate MP	Waterbody Name	Intermittent Perennial, Reservoir, or Lake	State Water Quality Classification	Supports Use Designation
CUSHING EXTENSION					
Cowley	188.1	Unnamed	Intermittent Stream/River		
Cowley	188.3	Crooked Creek	Intermittent Stream/River	General Purpose Waters; Expected Aquatic Life Use	Supporting
Cowley	188.4	Unnamed	Intermittent Stream/River		
Cowley	190.2	Unnamed	Intermittent Stream/River		
Cowley	191.2	Unnamed	Intermittent Stream/River		
Cowley	191.6	Unnamed	Intermittent Stream/River		
Cowley	195.2	Unnamed	Intermittent Stream/River		
Cowley	196.2	Unnamed	Intermittent Stream/River		
Cowley	196.5	Unnamed	Intermittent Stream/River		
Cowley	198.3	Unnamed	Intermittent Stream/River		
Cowley	200.0	Unnamed	Intermittent Stream/River		
Cowley	201.4	Spring Creek	Intermittent Stream/River	General Purpose Waters; Expected Aquatic Life Use	Supporting

APPENDIX F-1 Waterbody Crossings

State / County	Approximate MP	Waterbody Name	Intermittent Perennial, Reservoir, or Lake	State Water Quality Classification	Supports Use Designation
CUSHING EXTENSION					
Cowley	201.8	Unnamed	Intermittent Stream/River		
Cowley	205.3	Unnamed	Intermittent Stream/River		
Cowley	205.7	Arkansas River	Artificial Path	General Purpose Waters; Special Aquatic Life Use; Primary Contact Recreation by Law or Written Permission; Domestic Water Supply; Food Procurement; Groundwater Recharge; Industrial Water Supply; Irrigation; Livestock Watering	Supporting
Cowley	206.2	Spring Creek	Intermittent Stream/River	No Data	
Cowley	207.8	Unnamed	Intermittent Stream/River		
Cowley	208.3	Unnamed	Intermittent Stream/River		
Cowley	209.5	Unnamed	Intermittent Stream/River		
OKLAHOMA					
Kay	212.2	Chilocco Creek	Intermittent Stream/River		
Kay	212.8	Chilocco Creek	Intermittent Stream/River		
Kay	220.0	Unnamed	Intermittent Stream/River		

APPENDIX F-1 Waterbody Crossings

State / County	Approximate MP	Waterbody Name	Intermittent Perennial, Reservoir, or Lake	State Water Quality Classification	Supports Use Designation
CUSHING EXTENSION					
Kay	225.0	Bois d'Arc Creek	Perennial Stream/River	Agriculture; WW Aquatic Community; Hydropower; Primary Contact Recreation; Public and Private Water Supply; Fish Consumption; Aesthetics	Fully Supporting; Insufficient Information; Insufficient Information; Not Supporting; Fully Supporting; Not Assessed; Fully Supporting
Kay	230.7	Bois d'Arc Creek	Perennial Stream/River	Agriculture; WW Aquatic Community; Hydropower; Primary Contact Recreation; Public and Private Water Supply; Fish Consumption; Aesthetics	Fully Supporting; Insufficient Information; Insufficient Information; Not Supporting; Fully Supporting; Not Assessed; Fully Supporting
Kay	232.6	Unnamed	Intermittent Stream/River		
Kay	234.1	Bois d'Arc Creek	Perennial Stream/River	Agriculture; WW Aquatic Community; Hydropower; Primary Contact Recreation; Public and Private Water Supply; Fish Consumption; Aesthetics	Fully Supporting; Insufficient Information; Insufficient Information; Not Supporting; Fully Supporting; Not Assessed; Fully Supporting
Kay	234.4	Bois d'Arc Creek	Perennial Stream/River	Agriculture; WW Aquatic Community; Hydropower; Primary Contact Recreation; Public and Private Water Supply; Fish Consumption; Aesthetics	Fully Supporting; Insufficient Information; Insufficient Information; Not Supporting; Fully Supporting; Not Assessed; Fully Supporting
Kay	236.0	Bois d'Arc Creek	Perennial Stream/River	Agriculture; WW Aquatic Community; Hydropower; Primary Contact Recreation; Public and Private Water Supply; Fish Consumption; Aesthetics	Fully Supporting; Insufficient Information; Insufficient Information; Not Supporting; Fully Supporting; Not Assessed; Fully Supporting
Kay	239.0	Cowskin Creek	Intermittent Stream/River	No Data	No Data

APPENDIX F-1 Waterbody Crossings

State / County	Approximate MP	Waterbody Name	Intermittent Perennial, Reservoir, or Lake	State Water Quality Classification	Supports Use Designation
CUSHING EXTENSION					
Kay	240.3	Salt Fork Arkansas River	Artificial Path	Aesthetics; Agriculture;WW Aquatic Community; Industrial and Municipal Process and Cooling Water;Primary Contact Recreation; Public and Private water supply; Fish Consumption	Insufficient Data; Fully Supporting/Not Assessed; Not Supporting, Fully Supporting; Not Supporting; Not Assessed; Not Assessed
Kay	240.8	Deadman Creek	Intermittent Stream/River		
Noble	241.6	Unnamed	Intermittent Stream/River		
Noble	248.3	Red Rock Creek	Perennial Stream/River		
Noble	249.1	Unnamed	Intermittent Stream/River		
Noble	250.2	Unnamed	Intermittent Stream/River		
Noble	250.3	Unnamed	Intermittent Stream/River		
Noble	251.6	Long Branch	Intermittent Stream/River		
Noble	260.3	Black Bear Creek	Perennial Stream/River		
Noble	261.6	Unnamed	Intermittent Stream/River		
Noble	262.6	Unnamed	Intermittent Stream/River		

APPENDIX F-1 Waterbody Crossings

State / County	Approximate MP	Waterbody Name	Intermittent Perennial, Reservoir, or Lake	State Water Quality Classification	Supports Use Designation
CUSHING EXTENSION					
Noble	264.2	Long Branch	Intermittent Stream/River		
Payne	268.4	Unnamed	Intermittent Stream/River		
Payne	269.2	East Brush Creek	Intermittent Stream/River		
Payne	270.0	Unnamed	Intermittent Stream/River		
Payne	271.1	Little Stillwater Creek	Intermittent Stream/River		
Payne	271.3	Unnamed	Intermittent Stream/River		
Payne	273.0	Unnamed	Intermittent Stream/River		
Payne	274.4	Unnamed	Intermittent Stream/River		
Payne	275.8	Unnamed	Intermittent Stream/River		
Payne	278.0	Unnamed	Intermittent Stream/River		
Payne	279.0	Unnamed	Intermittent Stream/River		
Payne	279.7	Unnamed	Intermittent Stream/River		

APPENDIX F-1 Waterbody Crossings

State / County	Approximate MP	Waterbody Name	Intermittent Perennial, Reservoir, or Lake	State Water Quality Classification	Supports Use Designation
CUSHING EXTENSION					
Payne	283.2	Long Branch	Intermittent Stream/River		
Payne	284.9	Cimarron River	Artificial Path		
Payne	286.5	Unnamed	Intermittent Stream/River		
Payne	287.6	Cabin Creek	Intermittent Stream/River		
Payne	288.9	Cabin Creek	Intermittent Stream/River		
Payne	289.0	Cabin Creek	Intermittent Stream/River		
Payne	289.2	Cabin Creek	Intermittent Stream/River		