

### 3.9 LAND USE, RECREATION, AND VISUAL RESOURCES

The proposed Project would affect land use on or near the pipeline right-of-way (ROW) and in the locations of appurtenant facilities (e.g., power lines, access roads, and construction camps). This section describes the potential impacts of the proposed Project on land use, recreation, and visual resources. For each element of the environment, information is provided on the environmental setting, construction impacts, operational impacts, and mitigation.

#### 3.9.1 Land Ownership and Use

##### 3.9.1.1 Environmental Setting

##### Land Ownership along Proposed Pipeline Corridor

Construction of the proposed pipeline would occur across 1,384 miles of land (see Table 3.9.1-1). Approximately 1,286 miles of the proposed pipeline would cross private land, approximately 44 miles would cross federal land, and approximately 54 miles would cross state-owned land.

<b>TABLE 3.9.1-1 Land Ownership Crossed by the Proposed Project Pipeline (Miles)</b>					
<b>State</b>	<b>Federal</b>	<b>State</b>	<b>Private</b>	<b>Total</b>	<b>Percent of Total</b>
<b>Steele City Segment</b>					
Montana	43.8	20.0	218.9	<b>282.7</b>	<b>33.2%</b>
South Dakota	0.0	25.9	288.3	<b>314.2</b>	<b>36.9%</b>
Nebraska	0.0	5.8	248.9	<b>254.7</b>	<b>29.9%</b>
<i>Segment Total</i>	<i>43.8</i>	<i>51.7</i>	<i>756.1</i>	<b>851.6</b>	<b>100.0%</b>
<b>Cushing Extension</b>					
Kansas <sup>a</sup>					
<b>Gulf Coast Segment</b>					
Oklahoma	0.0	2.1	153.7	<b>155.7</b>	<b>32.2%</b>
Texas	0.0	0.0	328.0	<b>328.1</b>	<b>67.8%</b>
<i>Segment Total</i>	<i>0.0</i>	<i>2.1</i>	<i>481.7</i>	<b>483.8</b>	<b>100.0%</b>
<b>Houston Lateral</b>					
Texas	0.0	0.0	48.6	<b>48.6</b>	<b>100.0%</b>
<b>Project Total</b>	<b>43.8</b>	<b>53.8</b>	<b>1,286.4</b>	<b>1,384.0</b>	<b>100.0%</b>

<sup>a</sup> No new pipeline mileage would be constructed in Kansas.

##### **Steele City Segment**

The proposed pipeline of the Steele City Segment would cross about 282.7 miles of Montana, 314.2 miles of South Dakota, and 254.7 miles of Nebraska. Land ownership along the proposed pipeline is summarized in Table 3.9.1-1. Of the 851.6 miles of land that would be crossed by the proposed pipeline, about 756.1 miles would be private land, 51.7 miles would be state land, and 43.8 miles would be federal land.

### **Cushing Extension**

Two new pump stations would be constructed on privately owned land in Kansas along the Cushing Extension of the Keystone Pipeline system to accommodate increased crude oil volumes associated with the proposed Project.

### **Gulf Coast Segment**

The proposed Gulf Coast Segment pipeline would cross 155.7 miles in Oklahoma and 328.1 miles in Texas, of which 481.7 miles would occur on private land and the remaining 2.1 miles would occur on state land in Oklahoma.

### **Houston Lateral**

The proposed Houston Lateral pipeline would cross 48.6 miles of privately-owned land in Texas.

### **Land Use along Proposed Pipeline Corridor**

The proposed Project would cross 754.4 miles of rangeland, 329.2 miles of agricultural lands, 175.5 miles of forest land, 64.6 miles of developed lands, and 60.1 miles of water and wetlands (Table 3.9.1-2).

<b>TABLE 3.9.1-2 Current Land Uses That Would be Affected by the Proposed Project Pipeline (Miles)</b>						
<b>State</b>	<b>Developed</b>	<b>Agriculture</b>	<b>Rangeland</b>	<b>Forest<sup>a</sup></b>	<b>Water/Wetland</b>	<b>Total<sup>b</sup></b>
<b>Steele City Segment</b>						
Montana	2.8	70.2	204.4	0.6	4.7	<b>282.7</b>
South Dakota	3.0	80.9	223.7	0.9	5.5	<b>314.0</b>
Nebraska	3.9	112.8	126.1	4.5	7.4	<b>254.7</b>
<i>Segment Total</i>	<i>9.7</i>	<i>263.9</i>	<i>554.2</i>	<i>6.0</i>	<i>17.6</i>	<b>851.4</b>
<b>Cushing Extension</b>						
Kansas	0.0	0.0	0.0	0.0	0.0	<b>0.0</b>
<b>Gulf Coast Segment</b>						
Oklahoma	17.3	11.7	83.4	40.3	3.2	<b>155.9</b>
Texas	35.9	50.4	97.7	111.5	32.4	<b>327.9</b>
<i>Segment Total</i>	<i>53.2</i>	<i>62.1</i>	<i>181.1</i>	<i>151.8</i>	<i>35.6</i>	<b>483.8</b>
<b>Houston Lateral</b>						
Texas	1.7	3.2	19.1	17.7	6.9	<b>48.6</b>
<b>Project Total</b>	<b>64.6</b>	<b>329.2</b>	<b>754.4</b>	<b>175.5</b>	<b>60.1</b>	<b>1,383.8</b>

<sup>a</sup> No groves or nurseries are crossed by the proposed Project. Locations of forest land are identified by milepost in Appendix O.

<sup>b</sup> Discrepancies in totals are due to rounding.

### ***Steele City Segment***

Land uses along the proposed pipeline of the Steele City Segment include 554.2 miles of rangeland, 263.9 miles of agricultural land, 17.6 miles of water/wetlands, 9.7 miles of developed land, and 6 miles of forest land (Table 3.9.1-2).

### ***Cushing Extension***

No new pipeline would be constructed along the existing Cushing Extension. However, two new pump stations would be constructed in rangeland and forest land. Acreages that would be impacted by construction and operation of the two new proposed pump stations are addressed under subsections for construction and operational impacts.

### ***Gulf Coast Segment***

The Gulf Coast Segment would cross 181.1 miles of rangelands, 151.8 miles of forest land, 62.1 miles of agricultural land, 53.2 miles of developed land, and 35.6 miles of water/wetlands (Table 3.9.1-2). Developed land would comprise sparsely populated areas located outside of communities, most of which are concentrated in central Texas and south to the proposed Project terminus. Forest land in Oklahoma and Texas would primarily be located in the South Central Plains Ecoregion (see Table 3.5-1), which is locally called “piney woods.” Wetland crossings would largely be concentrated in the Texas portion of the Gulf Coast Segment.

### ***Houston Lateral***

The proposed pipeline for the Houston Lateral would cross 19.1 miles of rangeland, 17.7 miles of forest land, 6.9 miles of water/wetlands, 3.2 miles of agricultural land, and 1.7 miles of developed land (Table 3.9.1-3). Water and wetlands would be affected near the Trinity River and San Jacinto River, and developed land would be crossed near the proposed Project terminus in the East Houston area.

#### **3.9.1.2 Potential Impacts**

This section describes the potential impacts of constructing and operating the proposed Project on each type of land use. For a detailed discussion about impacts to waterbodies and wetlands, please refer to Sections 3.3 and 3.4, respectively.

#### **Easement Acquisition for Right-of-Way (ROW) and Ancillary Facilities**

The proposed Project would require the acquisition of temporary and permanent easements with landowners and land managers along the pipeline ROW and at the locations of proposed ancillary facilities. Land ownership that would be affected by proposed Project construction, operation, and maintenance is shown in Table 3.9.1-3.

<b>TABLE 3.9.1-3 Land Ownership Affected by Construction and/or Operation of the Proposed Project (Acres)<sup>a</sup></b>					
<b>State</b>	<b>Federal</b>	<b>State</b>	<b>Private</b>	<b>Total</b>	<b>Percent of Total</b>
<b>Steele City Segment</b>					
Montana	654.5	303.5	3,721.9	<b>4,679.9</b>	<b>33%</b>
South Dakota	0.2	380.1	4,808.6	<b>5,188.9</b>	<b>37%</b>
Nebraska	0.3	116.9	4,114.9	<b>4,232.1</b>	<b>30%</b>
<i>Segment Total</i>	<i>655.0</i>	<i>800.5</i>	<i>12,645.4</i>	<b>14,100.9</b>	<b>100%</b>
<b>Cushing Extension</b>					
Kansas	0.0	0.0	15.2	<b>15.2</b>	<b>100%</b>
<b>Gulf Coast Segment</b>					
Oklahoma	0.0	40.8	3,065.8	<b>3,106.6</b>	<b>36%</b>
Texas	0.0	0.0	5,435.8	<b>5,435.8</b>	<b>64%</b>
<i>Segment Total</i>	<i>0.0</i>	<i>40.8</i>	<i>8,501.6</i>	<b>8,542.4</b>	<b>100%</b>
<b>Houston Lateral</b>					
Texas	0.0	0.0	652.0	<b>652.0</b>	<b>100%</b>
<b>Project Total</b>	<b>655.0</b>	<b>841.3</b>	<b>21,814.2</b>	<b>23,310.5</b>	<b>100%</b>

<sup>a</sup> All acreages assume a 110-foot-wide construction ROW and do not include: the tank farm, access roads and rail sidings on the Steele City Segment; and permanent easements on federal- or state-owned road ROW.

Temporary workspace areas (TWAs) would necessitate the negotiation of temporary ROW easements. Operation and maintenance of the pipeline and ancillary facilities would require permanent ROW easements for the proposed Project lifetime. Easements would typically cover monetary compensation to landowners for long term land use losses (e.g., property use during construction, operation and maintenance), and for temporary land use losses (e.g., crop production impairment, private road damage or obstruction etc). Easements would also address restoration of land or compensation to landowners for any unavoidable construction-related damage to property. For some areas such as water crossings, road/railroad crossings, and steep or rocky slopes, additional TWAs may be needed. In some cases, land would likely be purchased rather than controlled through easements.

### **Temporary and Permanent Access Roads**

The construction ROW would be accessed by public and existing private roads. State transportation agencies would be consulted prior to construction to assess road infrastructure (e.g., bridges) to determine if it is suitable for potential construction loads. If infrastructure is insufficient to transport the projected Project loads, a plan would be developed to avoid or reinforce the infrastructure. No improvement or maintenance is likely to be required for paved roads before or during construction, although gravel and dirt roads may require maintenance during that time. Private roads and temporary access roads would only be used with the permission of the affected landowner or land management agency. In the event that oversized or overweight loads would be needed to transport construction materials to the proposed Project work spreads, separate permit applications would be submitted to the appropriate state regulatory agencies.

Construction of the proposed Project would require the use of 978.8 acres for access roads, including 464.6 acres in the Steele City Segment, 452.2 acres in the Gulf Coast Segment, and 62.0 acres in the

Houston Lateral (Table 3.9.1-4). Proposed Project operations would require 113.0 acres for permanent access roads, including 30.8 acres in the Steele City Segment, 63.2 acres in the Gulf Coast Segment, and 19.0 acres in the Houston Lateral (Table 3.9.1-4).

<b>TABLE 3.9.1-4 Land Affected by Access Roads (Acres)</b>		
<b>State</b>	<b>Construction (Temporary)</b>	<b>Operation (Permanent)</b>
<b>Steele City Segment</b>		
Montana	266.5	21.7
South Dakota	144.8	9.1
Nebraska	53.3	0.0
<i>Steele City Subtotal</i>	<i>464.6</i>	<i>30.8</i>
<b>Cushing Extension</b>		
Kansas	0.0	0.0
<b>Gulf Coast Segment</b>		
Oklahoma	118.6	15.1
Texas	333.6	48.1
<i>Gulf Coast Subtotal</i>	<i>452.2</i>	<i>63.2</i>
<b>Houston Lateral</b>		
Texas	62.0	19.0
<b>Project Total<sup>a</sup></b>	<b>978.8</b>	<b>113.0</b>

<sup>a</sup> Acres of disturbances from temporary and permanent access roads are calculated based upon a 30-foot width.

## Pipeline Construction

Construction of the pipeline would involve several key land use issues and impacts, including:

- Lease or acquisition and development of the pipeline ROW and land for appurtenant facilities;
- Possible damage to agricultural features such as irrigation systems or drain tiles;
- Temporary loss of the agricultural productivity of the land;
- Potential visual impacts attributable to removal of existing vegetation and visibility of exposed soil; and
- Increased dust and noise to neighboring residential and commercial areas.

The duration of the construction phase would affect the degree of land use impact. The pipeline would be constructed in 17 separate spreads under the currently proposed Project schedule. It is anticipated that each spread would require from six to eight months for construction and that all pump stations would be completed in 18 to 24 months.

A 110-foot-wide construction ROW would be required for installation of the 36-inch-diameter pipeline, including a 60-foot-wide temporary easement/temporary use permit and a 50-foot-wide permanent easement/right-of-way. The construction ROW width could be reduced to 85 feet to avoid or reduce impacts in some areas, including wetlands, cultural sites, and residential and commercial/industrial areas. Table 3.9.1-5 provides estimates of the acreages of land impacted by each proposed Project element

during construction. The proposed Project would require a total of approximately 24,134 acres<sup>1</sup> during construction.

<b>TABLE 3.9.1-5 Summary of Land Affected During Construction<sup>a,b</sup> (Acres)</b>									
<b>State</b>	<b>Pipeline ROW</b>	<b>Lateral ROW</b>	<b>Additional Temporary Workspace Areas<sup>c</sup></b>	<b>Pipe Storage Sites, Rail Sidings, and Contractor Yards</b>	<b>Construction Camps</b>	<b>Pump Stations/Delivery Facilities</b>	<b>Access Roads<sup>d</sup></b>	<b>Tank Farm</b>	<b>Total</b>
<b>Steele City Segment</b>									
Montana	3,758.6	-	327.8	460.7	182.5	50.1	266.5	-	<b>5,046.2</b>
South Dakota	4,178.9	-	309.3	581.2	160.2	59.4	144.8	-	<b>5,433.8</b>
Nebraska	3,384.8	-	349.5	515.6	-	42.2	53.3	-	<b>4,345.4</b>
<i>Segment Subtotal<sup>e,f</sup></i>	11,322.3	-	986.6	1,557.5	342.7	151.7	464.6	-	<b>14,825.4</b>
<b>Cushing Extension<sup>f</sup></b>									
Kansas <sup>e,g,f</sup>	-	-	-	-	-	15.2	-	-	<b>15.2</b>
<b>Gulf Coast Segment</b>									
Oklahoma	2,033.5	-	179.1	701.3	-	0.0	118.6	74.1	<b>3,106.6</b>
Texas	4,198.8	-	332.6	519.6	-	51.1	333.6	-	<b>5,435.7</b>
<i>Segment Subtotal<sup>e</sup></i>	6,232.3	-	511.7	1,220.9	-	51.1	452.2	74.1	<b>8,542.3</b>
<b>Houston Lateral</b>									
Texas	-	652	32	5	-	-	62	-	<b>751</b>

<sup>a</sup> Disturbance is based on a total of 110-foot-wide construction ROW for a 36-inch-diameter pipe, except in certain wetlands, cultural sites, shelterbelts, residential areas, and commercial/industrial areas where an 85-foot-wide construction ROW would be used, or in areas requiring extra width for workspace necessitated by site conditions. Disturbance also includes pipe stock piles, contractor yards, and construction camps.

<sup>b</sup> Operational acreage was estimated based on a 50-foot-wide permanent ROW in all areas. All pigging facilities would be located within either pump stations or delivery facility sites. Intermediate mainline valves and densitometers would be constructed within the construction easement and operated within a 50-foot by 50-foot area or 50-foot by 66-foot area within the permanently maintained 50-foot-wide ROW. Other mainline valves, check valves and block valves, and meters would be located within the area associated with a pump station, delivery site or permanent ROW. Consequently, the acres of disturbance for these aboveground facilities are captured within the pipeline ROW and ump station/delivery facilities categories within the table.

<sup>c</sup> Includes staging areas of approximately 5 acres. Does not include the potential for extended additional TWAs necessary for construction in rough terrain or in unstable soils. These locations are currently undergoing identification and analysis. Potential disturbance associated with these areas would be included in supplemental filings when these additional temporary work spaces are identified.

<sup>d</sup> Access roads temporary and permanent disturbances are based on a 30-foot width; all non-public roads are conservatively estimated to require upgrades and maintenance during construction.

<sup>e</sup> Discrepancies in total acreages are due to rounding.

<sup>f</sup> Includes disturbances associated with construction of the Steele City Segment, the Gulf Coast Segment, and the Houston Lateral. This total includes 15 acres associated with construction and operation of new pump stations along the Keystone Cushing Extension.

<sup>g</sup> Disturbance associated with the Keystone Cushing Extension in this table is for the two new pump stations to be constructed for this proposed Project.

Changes in land use due to construction would for the most part be temporary. Temporary impacts to land use include loss of agricultural productivity, potential damage to drain tiles or other irrigation systems, visual impacts from the removal of vegetation within the ROW, and increased noise and dust.

<sup>1</sup> This total number of acres varies from the total provided in Table 3.9.1-3 since it includes: pipe storage, rail, and contractor yards; access roads; construction camps; and the tank farm whereas the Table 3.9.1-5 does not.

Existing commercial or industrial sites with public or private road access would be used when practical and temporary workspaces would be restored to preconstruction levels.

Temporary and permanent changes in vegetation due to the clearing of trees and shrubs, pipeline excavation, and general construction activity are expected within the ROW. It is estimated that disturbed pastures, croplands, and grassy rangelands may take one to five years to recover to preconstruction levels. Herbaceous vegetation, low shrubs, and forest lands are estimated to take from one to 20 or more years to recover depending upon the species. The permanent pipeline ROW would require occasional trimming to remove woody vegetation and trees from the permanent easement/ROW to facilitate aerial inspection. Landowners would be permitted to cultivate crops in the permanent easement.

Impacts to each type of land uses are described in greater detail in the following sections.

### Agricultural Land, Rangeland and Prime Farmland

As shown in Table 3.9.1-6, agricultural land and rangeland would comprise 79 percent of the land affected by proposed Project construction, including 4,656 acres of agricultural land and 11,122 acres of rangeland.

<b>TABLE 3.9.1-6 Current Land Uses That Would be Affected by Construction (Acres)</b>						
<b>State</b>	<b>Developed</b>	<b>Agriculture<sup>a</sup></b>	<b>Rangeland</b>	<b>Forest<sup>b</sup></b>	<b>Water/Wetland</b>	<b>Total<sup>c</sup></b>
<b>Steele City Segment</b>						
Montana	41	1,005	3,010	8	64	<b>4,128</b>
South Dakota	48	1,152	3,255	15	69	<b>4,539</b>
Nebraska	60	1,578	1,955	67	110	<b>3,770</b>
<i>Segment Total</i>	<i>149</i>	<i>3,735</i>	<i>8,220</i>	<i>90</i>	<i>243</i>	<b><i>12,437</i></b>
<b>Cushing Extension</b>						
Kansas	0	0	14	1	0	<b>15</b>
<b>Gulf Coast Segment</b>						
Oklahoma	220	166	1,224	607	38	<b>2,255</b>
Texas	483	712	1,397	1,604	367	<b>4,563</b>
<i>Segment Total</i>	<i>703</i>	<i>878</i>	<i>2,621</i>	<i>2,211</i>	<i>405</i>	<b><i>6,818</i></b>
<b>Houston Lateral</b>						
Texas	23	43	267	236	83	<b>652</b>
<b>Project Total</b>	<b>875</b>	<b>4,656</b>	<b>11,122</b>	<b>2,538</b>	<b>731</b>	<b>19,922</b>

<sup>a</sup> Agriculture includes land listed by the NRCS (2007) as potential prime farmland, if adequate protections from flooding and adequate drainage are provided.

<sup>b</sup> No groves or nurseries are crossed by the proposed Project. Locations of forest land are identified by milepost in Appendix O.

<sup>c</sup> The acreage includes disturbance associated with centerline easements, ATWs, and pump stations. Discrepancies in totals are due to rounding.

The USDA defines prime farmland as, “land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses.” Prime farmland includes cultivated land, pastures, or forest that is not located on developed land or in water and wetlands (Table 3.9.1-6). Not all prime farmland soils are used for agricultural purposes.

Acres of prime farmland that would be affected by proposed Project construction within each segment and within each state are shown in Table 3.9.1-7. For the entire proposed Project corridor, construction would affect 7,157 acres of prime farmland.

<b>TABLE 3.9.1-7 Prime Farmland That Would be Affected by the Proposed Project (Acres)</b>	
<b>State</b>	<b>Construction<sup>b</sup></b>
<b>Steele City Segment</b>	
Montana	961
South Dakota	1,490
Nebraska	1,389
<i>Segment Total</i>	<i>3,840</i>
<b>Cushing Extension</b>	
Kansas	14
<b>Gulf Coast Segment</b>	
Oklahoma	985
Texas	1,872
<i>Segment Total</i>	<i>2,857</i>
<b>Houston Lateral</b>	
Texas	446
<b>Project Total</b>	<b>7,157</b>

<sup>a</sup> Includes land listed by the NRCS (2007) as potential prime farmland, if adequate protection from flooding and adequate drainage is provided.

<sup>b</sup> Acreage does not include land disturbance associated with pipe storage/contractor yards or that associated with power lines.

### ***Potential Crop Types in Affected Areas***

Crop production along the proposed Project corridor is estimated using statewide statistics. As shown in Table 3.9.1-8, the principal crops include wheat (27.260 million acres), hay (18.910 million acres), grain corn (16.900 million acres), and soybeans (12.530 million acres), with significantly less acreage in sorghum (5.800 million acres), cotton (3.400 million acres), and barley (0.740 million acres).



**TABLE 3.9.1-8  
Total State Acreages of Largest Crops Grown, 2008**

<b>State</b>	<b>Crop</b>	<b>State Harvested Acres (in 1,000)</b>
<b>Steele City Segment</b>		
Montana	Wheat, All	5,470
	Hay, All	2,400
	Barley, All	740
	<i>Total Principal Crops</i>	<i>8,610</i>
South Dakota	Corn for Grain	4,400
	Soybeans	4,060
	Hay, All	3,850
	Wheat All	3,420
	<i>Total Principal Crops</i>	<i>15,730</i>
Nebraska	Corn for Grain	8,550
	Soybeans	4,860
	Hay, All	2,570
	Wheat, All	1,670
	<i>Total Principal Crops</i>	<i>17,650</i>
<b>Gulf Coast Segment and Houston Lateral (Texas Only)</b>		
Kansas	Wheat, All	8,900
	Corn for Grain	3,630
	Soybeans	3,250
	Hay, All	2,750
	Sorghum for Grain	2,750
	<i>Total Principal Crops</i>	<i>21,280</i>
Oklahoma	Wheat, All	4,500
	Hay, All	2,910
	Soybeans	360
	Corn for Grain	320
	<i>Total Principal Crops</i>	<i>8,090</i>
Texas	Hay, All	4,430
	Cotton, Upland	3,400
	Wheat, All	3,300
	Sorghum for Grain	3,050
	<i>Total Principal Crops</i>	<i>14,180</i>

Source: USDA National Agricultural Statistics Service (NASS) Quick Stats, accessed June 22, 2009.

Prior to construction, agricultural land (where crops are present) would be disked or mowed to ground level to provide clear, safe, and efficient access for construction. Timber shelterbelts within the proposed construction ROW would be removed to the minimum extent practicable for proposed pipeline construction. Additional construction impacts could include:

- Soil profile disturbance;
- Irrigation system damage; and
- Drainage system damage.

Impacts to soil profiles could include topsoil degradation, soil compaction, and rock introduction or redistribution. According to the proposed Project CMR plan (Appendix B), pipeline construction would not stop or obstruct active irrigation ditches except during the short (typically one day or less) time period needed to install the pipeline beneath the ditch. Additionally, drain tiles and fences would be repaired or restored using either original material or high quality new material, and farm terraces would be restored to their preconstruction functions. Construction could also cause temporary loss of crops and/or forage on affected lands.

### ***Conservation Programs***

Conservation easements crossed by the proposed Project (Table 3.9.1-9) are managed by either the United States Department of Agriculture (USDA) or the U.S. Fish and Wildlife Service (USFWS).

#### **USDA Programs**

The Farm Service Agency (FSA) and the Natural Resources Conservation Service (NRCS), both part of the USDA, manage various types of government land conservation, cost-sharing, and financial programs. FSA programs include the Conservation Reserve Program (CRP) and the Farmable Wetlands Program (FWP). The CRP is one of the largest conservation programs in the country. Eligible FWP land can be enrolled through the CRP. Landowners with CRP contracts are provided rental payments and cost sharing to develop long-term conservation vegetative covers on eligible farmland. The program goals are the reduction of erosion, improvement of water quality, enhancement of forest and wetlands resources, and establishment of wildlife habitat. Landowners are encouraged to plant grasses, trees, and other vegetation on highly-erodible cropland. The full listing of affected CRP tracts in the Steele City Segment may be found in Appendix K, Conservation Reserve Program Facilities. There are no CRP tracts in either the Gulf Coast Segment or the Houston Lateral. The NRCS Wetland Reserve Program (WRP) provides long-term or permanent protection for areas the landowner has restored with NRCS funding assistance. A WRP contract land would be crossed in Texas on the Gulf Coast Segment.

Pipeline construction should have no effect on landowners' participation in CRP. Affected landowners would be required to contact their local FSA offices as part of their contractual agreement for participation in the program. FSA would require that landowners, prior to pipeline construction, notify the FSA of the planned construction activities (Braun, pers. comm. 2009). Assuming the land would be restored to its pre-construction condition, landowners would not lose their eligibility for participation in the CRP.

## USFWS Programs

A USFWS wetland easement is a legal agreement that provides landowners compensation to permanently protect wetlands. Wetlands covered by an easement cannot be drained, filled, leveled, or burned. When these wetlands dry up naturally, they can be farmed, grazed, or hayed. The easements typically allow localized, low-intensity, or broad extraction of natural resources (e.g., logging or mining). A wetland easement in Phillips County would be crossed by the proposed Project. The Rainwater Basin, which is managed by the USFWS, is a wetland area south of the Platte River in Nebraska used by many migratory birds in the spring and fall.

<b>TABLE 3.9.1-9 USFWS, NRCS, and Other Easements Crossed by the Proposed Project</b>		
<b>Easements</b>	<b>Approximate Mileposts</b>	<b>Miles Crossed</b>
<b>Montana</b>		
Cornwell Ranch Conservation Easement (FWP)	49.4 and 70.9	3.1
Philips County USFWS Wetland Easement	4.3 - 5.1	0.8
CRP Contract Land (consists of 39 easements)	Multiple	9.2
<b>South Dakota</b>		
CRP Contract Land (consists of 39 easements)	Multiple	7.6
<b>Nebraska</b>		
CRP Contract Land (consists of 27 easements)	Multiple	5.2
Rainwater Basin Wetlands (UFWS)	758.0 - 847.4	89.4
<b>Texas</b>		
WRP Contract Land (consists of 1 easement)	Near 162	0.7

## Forest Land

The entire proposed Project would cross 202.8 miles (2,537 acres) of forest land (Table 3.9.1-10). The majority of this forest land occurs within the “piney woods” area of the Gulf Coast Segment. During construction, trees would be removed from the ROW. Landowners would be consulted to determine if timber within the ROW has a commercial or salvage value, and landowners at their discretion could contract with Keystone to clear and harvest trees prior to removal. Tree removal and disposal would be accomplished consistent with all local, state, and federal permit requirements. Trees would be allowed to regrow only in the temporary ROW after construction, consistent with DOT pipeline safety standards and Keystone requirements for aerial pipeline safety inspections.

<b>TABLE 3.9.1-10 Forest Land That Would be Affected by the Proposed Project (Miles and Acreage)</b>			
<b>State</b>	<b>Miles Crossed<sup>a</sup></b>	<b>Acreage<sup>b</sup></b>	<b>Mileposts</b>
<b>Steele City Segment</b>			
Montana	0.6	8	36.1 to 196.1
South Dakota	0.9	15	409 to 595.9
Nebraska	4.6	67	599.9 to 850.6
<i>Segment Total</i>	<i>6.1</i>	<i>90</i>	
<b>Cushing Extension</b>			
Kansas	0.0	-	-
<b>Gulf Coast Segment</b>			
Oklahoma	41.6	607	1.2 to 155.8
Texas	152.2	1,604	155.8 to 482.7
<i>Segment Total</i>	<i>193.8</i>	<i>2,211</i>	
<b>Houston Lateral</b>			
Texas	2.95	236	0.0 to 40.8
<b>Project Total</b>	<b>202.85</b>	<b>2,537</b>	<b>-</b>

<sup>a</sup> Distances crossed reflect the sum of the actual distance within the referenced mileposts. Totals were rounded to the nearest 0.1 mile. Values less than 0.1 a mile, but greater than zero, were rounded to 0.05 mile.

<sup>b</sup> Acreage includes disturbance associated with centerline easements, ATWs, and pump stations. Acreage does not include acres of disturbance associated with pipe storage/contractor yards or disturbance. Discrepancies in totals are due to rounding.

### Developed Land – Residential/Commercial/Industrial

Construction of the proposed Project would affect a total of 875 acres of developed land (see Table 3.9.1-6). The proposed Project area was surveyed in the spring of 2009 to determine the number of inhabited or abandoned buildings within 25 feet and within 500 feet of the construction ROW, and to develop site-specific crossing plans and procedures for residences in close proximity to the ROW (Table 3.9.1-11). Approximately 170 structures would be located within 25 feet of the proposed construction ROW and 2,325 structures would be located within 500 feet of the ROW. At the new pump station locations in Kansas, no structures are located within 500 feet of the proposed construction ROW.

<b>TABLE 3.9.1-11 Number of Structures Within 25 and 500 Feet of Construction ROW</b>		
<b>State</b>	<b>Within 25 feet of the ROW</b>	<b>Within 500 feet of the ROW</b>
<b>Steele City Segment</b>		
Montana	9	117
South Dakota	15	96
Nebraska	17	150
<i>Segment Total</i>	<i>41</i>	<i>363</i>
<b>Cushing Extension</b>		
Kansas	0	0
<b>Gulf Coast Segment</b>		
Oklahoma	28	448
Texas	91	1,410
<i>Segment Total</i>	<i>119</i>	<i>1,858</i>
<b>Houston Lateral</b>		
Texas	10	104
<b>Project Total</b>	<b>170</b>	<b>2,325</b>

Note: Excludes swimming pools, power poles, groundwater wells, and baseball fields.

More than one-third of the structures within 500 feet of the proposed ROW are homes or residences, almost 20 percent are out-buildings, and almost 12 percent are barns (see Table 3.9.1-12). Less than 17 percent of structures within 25 feet of the ROW are homes or residences.

Type of Structure	Within 25 feet of the ROW	Percent of Total	Within 500 feet of the ROW	Percent of Total
Barn	21	12.35%	275	11.83%
Building	49	28.82%	228	9.81%
Cabin	1	0.59%	5	0.22%
Commercial Building	0	0.00%	138	5.94%
Commercial Structure	1	0.59%	14	0.60%
Garage	2	1.18%	40	1.72%
Home/Residence	28	16.47%	783	33.68%
Industrial	1	0.59%	4	0.17%
Other	31	18.24%	153	6.58%
Out-Building	32	18.82%	458	19.70%
Public Assembly	0	0.00%	14	0.60%
School	0	0.00%	1	0.04%
Storage Building	4	2.35%	212	9.12%
<b>Project Total</b>	<b>170</b>	<b>100.0%</b>	<b>2,325</b>	<b>100.0%</b>

Homes and residences within 25 feet of the ROW would likely experience many temporary inconveniences during the construction period (typically 7 to 30 days) including disruptions to privacy and property ingress or egress. Homes within 500 feet of the ROW could experience temporary inconveniences such as construction dust and noise during the construction period. However, local noise restrictions would apply and the CMR plan (Appendix B) includes best management practices (BMPs) to address dust suppression.

### **Pipeline Operation**

Estimates of the total acreage of land impacted during operation of the proposed Project are provided for various Project elements (e.g., pipeline ROW and pump stations) in Table 3.9.1-13. Land committed for operations and maintenance activities of the proposed Project would amount to approximately 8,793 acres<sup>2</sup>.

<sup>2</sup> This total number of acres varies from the total provided in Table 3.9.1-14 since it includes: pipe storage, rail, and contractor yards; access roads; construction camps; and the tank farm whereas Table 3.9.1-13 does not.

**TABLE 3.9.1-13  
Summary of Land Affected During Operation<sup>a,b</sup> (Acres)**

<b>State</b>	<b>Pipeline ROW</b>	<b>Lateral ROW</b>	<b>Pump Stations/ Delivery Facilities</b>	<b>Access Roads<sup>c</sup></b>	<b>Tank Farm<sup>d</sup></b>	<b>Total</b>
<b>Steele City Segment</b>						
Montana	1,713.2	-	50.1	21.7	-	<b>1,785.0</b>
South Dakota	1,904.0	-	59.4	9.1	-	<b>1,972.5</b>
Nebraska	1,543.8	-	42.2	0.0	-	<b>1,586.0</b>
<i>Steele City Subtotal<sup>e,f</sup></i>	<i>5,161.0</i>	<i>-</i>	<i>151.7</i>	<i>30.8</i>	<i>0.0</i>	<b><i>5,343.5</i></b>
<b>Cushing Extension<sup>f</sup></b>						
Kansas <sup>e,g,f</sup>	-	-	15.2	-	-	<b>15.2</b>
<b>Gulf Coast Segment</b>						
Oklahoma	943.8	-	0.0	15.1	74.1	<b>1,033.0</b>
Texas	1,988.9	-	51.1	48.1	-	<b>2,088.1</b>
<i>Gulf Coast Subtotal<sup>e</sup></i>	<i>2,932.7</i>	<i>-</i>	<i>51.1</i>	<i>63.2</i>	<i>74.1</i>	<b><i>3,121.1</i></b>
<b>Houston Lateral</b>						
Texas	-	294.0	-	19.0	-	<b>313.0</b>
<b>Project Total<sup>e,g,f,h</sup></b>	<b>8,093.7</b>	<b>294.0</b>	<b>218.0</b>	<b>112.9</b>	<b>74.1</b>	<b>8,792.8</b>

<sup>a</sup> Disturbance is based on a total of 110-foot-wide construction ROW for a 36-inch-diameter pipe, except in certain wetlands, cultural sites, shelterbelts, residential areas, and commercial/industrial areas where an 85-foot-wide construction ROW would be used, or in areas requiring extra width for workspace necessitated by site conditions. Disturbance also includes pipe stock piles, contractor yards, and construction camps.

<sup>b</sup> Operational acreage was estimated based on a 50-foot-wide permanent ROW in all areas. All pigging facilities would be located within either pump stations or delivery facility sites. Intermediate mainline valves (MLVs) and densitometers would be constructed within the construction easement and operated within a 50-foot by 50-foot area or 50-foot by 66-foot area within the permanently maintained 50-foot-wide ROW. Other MLVs, check valves, and block valves, and meters would be located within the area associated with a pump station, delivery site or permanent ROW. Consequently, the acres of disturbance for these aboveground facilities are captured within the pipeline ROW and pump station/delivery facilities categories within the table.

<sup>c</sup> Access roads temporary and permanent disturbances are based on a 30-foot width; all non-public roads are conservatively estimated to require upgrades and maintenance during construction.

<sup>d</sup> The tank farm includes PS-32 acreage.

<sup>e</sup> Discrepancies in total acreages are due to rounding.

<sup>f</sup> Includes disturbances associated with construction of the Steele City Segment, the Gulf Coast Segment, and the Houston Lateral. This total includes 12 acres associated with construction and operation of new pump stations along the Keystone Cushing Extension.

<sup>g</sup> Disturbance associated with the Keystone Cushing Extension in this table is for the two new pump stations to be constructed for this proposed Project.

<sup>h</sup> Includes staging areas of approximately 5 acres. Does not include the potential for extended additional TWAs necessary for construction in rough terrain or in unstable soils. These locations are currently undergoing identification and analysis. Potential disturbance associated with these areas would be included in supplemental filings when these additional temporary work spaces are identified.

Approximately 8,625 acres of land would be affected during proposed Project operations (Table 3.9.1-14). The proposed Project would affect approximately 4,702 acres of rangeland, 2,046 acres of agricultural lands, 1,067 acres of forest land, 437 acres of developed lands, and 373 acres of water and wetlands (Table 3.9.1-14).

<b>TABLE 3.9.1-14 Current Land Uses That Would be Affected by Operation (Acres)</b>						
<b>State</b>	<b>Developed</b>	<b>Agriculture<sup>a</sup></b>	<b>Rangeland</b>	<b>Forest<sup>b</sup></b>	<b>Water/Wetland</b>	<b>Total</b>
<b>Steele City Segment</b>						
Montana	19	448	1,261	4	28	<b>1,760</b>
South Dakota	20	511	1,389	6	33	<b>1,959</b>
Nebraska	26	693	780	29	55	<b>1,583</b>
<i>Segment Total</i>	<i>65</i>	<i>1,652</i>	<i>3,430</i>	<i>39</i>	<i>116</i>	<b>5,302</b>
<b>Cushing Extension</b>						
Kansas	0	0	14	1	0	<b>15</b>
<b>Gulf Coast Segment</b>						
Oklahoma	113	71	539	245	19	<b>987</b>
Texas	247	304	603	677	196	<b>2,027</b>
<i>Segment Total</i>	<i>360</i>	<i>375</i>	<i>1,142</i>	<i>922</i>	<i>215</i>	<b>3,014</b>
<b>Houston Lateral</b>						
Texas	12	19	116	105	42	<b>294</b>
<b>Project Total</b>	<b>437</b>	<b>2,046</b>	<b>4,702</b>	<b>1,067</b>	<b>373</b>	<b>8,625</b>

<sup>a</sup> No groves or nurseries are crossed by the proposed Project. Locations of forest land are identified by milepost in Appendix O.

<sup>b</sup> Acreage does not include acres of disturbance associated with electrical distribution lines. Discrepancies in totals are due to rounding.

### **Agricultural Land, Rangeland and Prime Farmland**

Agricultural land and rangeland together would amount to 78 percent of the land that would be affected by proposed Project operation (Table 3.9.1-14). Additionally, proposed Project operation would affect approximately 3,126 acres of prime farmland (Table 3.9.1-15).

<b>TABLE 3.9.1-15 Prime Farmland<sup>a</sup> That Would be Affected by Operation (Acres)</b>	
<b>State</b>	<b>Operation<sup>b</sup></b>
<b>Steele City Segment</b>	
Montana	410
South Dakota	645
Nebraska	604
<i>Segment Total</i>	<i>1,659</i>
<b>Cushing Extension</b>	
Kansas	14
<b>Gulf Coast Segment</b>	
Oklahoma	423
Texas	831
<i>Segment Total</i>	<i>1,254</i>
<b>Houston Lateral</b>	
Texas	199
<b>Project Total</b>	<b>3,126</b>

<sup>a</sup> Prime farmlands include lands listed by the NRCS (2007) as potential prime farmland, if adequate protection from flooding and adequate drainage is provided.

<sup>b</sup> Acreage does not include land disturbance associated with pipe storage/contractor yards or that associated with power lines.

### ***Potential Crop Types in Affected Areas***

Impacts to crops from operation of the proposed Project would be less than for construction because the ROW width would be reduced from 110 feet to 50 feet for the permanent ROW. Since the proposed pipeline would be buried to a nominal depth of 4 feet and maintained at a depth of 4 feet in cultivated agricultural areas pursuant to Special Condition 19 (the Special Conditions are presented in Appendix U), agricultural land use would continue for the most part across the permanent ROW.

### ***Conservation Programs***

Impacts to conservation lands from operation of the proposed Project would be less than for construction because the ROW width would be reduced from 110 feet to 50 feet for the permanent ROW. Low level grasses and plants would be allowed to regrow on the ROW, however moderate to large vegetation would continue to be cleared from the permanent ROW and would not be allowed to re-establish.

### ***Forest Land***

Operation of the proposed Project would affect approximately 1,067 acres of forest land (Table 3.9.3-14). Trees would be allowed to regrow only in the temporary ROW after construction, consistent with DOT pipeline safety standards and Keystone requirements for aerial pipeline safety inspections.

### ***Developed Land – Residential/Commercial/Industrial***

Operation of the proposed Project would affect approximately 437 acres of developed land along the proposed Project ROW, including 65 acres within the Steele City Segment, 360 acres within the Gulf Coast Segment, and 12 acres within the Houston Lateral (Table 3.9.3-14). Some current land uses would be converted to long-term utility use for the life of the proposed Project. The long-term conversion would put constraints on development of private land. To facilitate maintenance or emergency access, improvements including landscaping, catch basins, leaching fields, garages, guy wires, houses, utility poles, septic tanks, sheds, swimming pools, or any other structures that are not easily removed would be prohibited from the permanent ROW.

#### **3.9.1.3 Potential Mitigation**

The proposed Project would incorporate the procedures presented in the Project CMR plan (Appendix B) to reduce potential Project construction and operation impacts. The CMR plan includes general BMP measures, including worksite appearance maintenance and noise and dust control. The CMR plan includes specific conditions that would be followed during construction within agricultural, forest, pasture, rangeland, grasslands, wetland crossings, waterbodies, and riparian lands. The CMR plan also includes measures to avoid or minimize potential damage to drain tile systems. As noted in the CMR plan, specific landowner requirements could occasionally supersede the procedures in the CMR plan. However, the conditions of applicable federal, state, and local permits would apply in all cases.



## **Agricultural Land, Rangeland and Prime Farmland**

Construction could cause the temporary loss of crop production or forage on affected lands. According to the CMR plan (Appendix B), landowners would be compensated for any construction-related crop or forage loss. To minimize potential impacts to agricultural lands (including prime farmland), the CMR plan commits Keystone to measures that would protect the soil profile, including:

- Segregating the upper 12 inches of topsoil during construction and replacing it during site restoration (Section 2.3.2.3 describes the topsoil separation methods that would be used);
- Utilizing soil ripping or chiseling to alleviate soil compaction and to return the soil to pre-construction conditions;
- Plowing wood chips, manure, or other organic matter into the soil to further enhance soil aeration, if required; and
- Removing excess rock that is greater than 3 inches in diameter from the top 12 inches of soil in all active agricultural fields, pastures, and hayfields.

If pipeline construction crosses active irrigation ditches, the ditches would not be stopped or obstructed except during the typical one day or less time period needed to install the pipeline beneath the ditch. Drain tiles and fences would be repaired or restored using either original material or high quality new material, and farm terraces would be restored to their preconstruction functions.

To minimize potential impacts to rangelands, the CMR plan (Appendix B) includes measures that would reduce impacts, including:

- Restoring disturbed areas with custom seed mixes (approved by landowners and land managers) to match the native foliage;
- Providing access to rangeland during construction when practicable;
- Installing temporary fences with gates around construction areas to prevent injury to livestock or workers;
- Leaving hard plugs (short lengths of unexcavated trench) or installing soft plugs (areas where the trench is excavated and replaced with minimally compacted material) to allow livestock and wildlife to cross the trench safely;
- Removing litter, garbage, and any pipeline shavings at the end of each construction day, to protect livestock and wildlife from accidental ingestion;
- Prohibiting construction personnel from feeding or harassing livestock or wildlife;
- Prohibiting construction personnel from carrying firearms or pets into the construction area;
- Securing rangeland fences to prevent drooping;
- Closing any openings in the fence at the end of each day to prevent livestock from escaping;
- Maintaining all existing improvements such as fences, gates, irrigation ditches, cattle guards, and reservoirs to the degree practicable; and
- Returning any damaged improvements to at least their condition prior to construction.

## **Compensation**

Disturbed agricultural land and rangeland would be returned to approximate pre-construction use and capability. For agricultural land and rangeland requiring reseeding, an inspection after the first growing season would determine if additional revegetation would be required. If the landowner performs the required reseeding, monetary compensation would be provided. Revegetation would be considered successful when crop yields or vegetation are similar to adjacent undisturbed portions of the same field. Landowners would be compensated for any decreases in land productivity that are demonstrated to result from proposed Project-related activities. Landowners would also be compensated for yields less than those on unaffected lands where lesser yields would result from proposed Project impacts. Crop values would be assessed based upon the values of those crops in the specific area, as well as local crop prices at grain elevators. Landowners would be compensated for crop loss effects over three years. During the year of construction, 100 percent of calculated losses would be compensated. In the second year 75 percent of calculated losses would be compensated and during the third year 50 percent of calculated losses would be compensated. If landowners demonstrate that crop losses persist beyond three years, additional compensation would be negotiated.

## **Conservation Programs**

Should CRP participants be required to leave the program because of the proposed Project, they would be compensated. Compensation would be for any lost CRP payments, including retroactive forfeit payments.

## **Forest Land**

Potential adverse impacts to forest land would be reduced through protection, reclamation, and remediation measures committed to in the CMR plan (Appendix B). Examples of protective or restorative measures on forest lands would include:

- Routing the proposed Project along existing ROW areas in forest lands, when practical;
- Felling trees toward the pipeline centerline to minimize additional tree disturbance;
- Recovering all trees and slash that fall outside of the ROW;
- Depositing all tree materials according to specific protection measures and in accordance with landowner, land manager, or permit requirements;
- Removing stumps using equipment that helps to preserve organic matter; and
- Reversing effects on windbreaks, shelterbelts, and living snow fences to the degree practicable.

## **Developed Land – Residential/Commercial/Industrial**

To minimize potential impacts to developed lands, the CMR plan (Appendix B) includes measures that would be implemented, including:

- Prior to construction, surveys would be conducted to confirm the location of buildings relative to the pipeline and to ascertain whether the buildings are occupied residences or businesses;
- Site-specific protective constructions plans would be developed for residential and commercial/industrial structures within 25 feet of the construction ROW;

- Noise levels would be controlled during non-daylight hours consistent with any applicable noise regulations around residential and commercial/industrial areas;
- If noise levels are expected to exceed regulations, advance notice would be provided to all residences within 500 feet of the construction ROW;
- High noise level activities would be limited in duration and coordinated to expedite the construction work through the area;
- Written permission would be required for certain objects related to current land uses to remain in the permanent ROW;
- Consideration would be given in some cases to provide construction shielding for certain land improvements (e.g., fences and sheds) and to preserve landscaping and mature trees;
- Workspaces would be fenced from residential areas where appropriate;
- Vehicle access and traffic control would be provided in construction areas;
- Trash and debris would be removed and disposed from the construction site each day;
- Plating would be used to cover open trenches during non-construction times in developed areas;
- For areas in which the pipeline is within 25 feet of a residential structure, excavation of the pipeline trench would be delayed until the pipe was ready to be installed, then the trench would be quickly backfilled after installation;
- Following installation of the pipeline and backfilling, all fences, landscaping improvements, shrubs, lawn areas, and other structures would be restored to pre-construction conditions (or as directed by the landowner); and
- Knowledgeable individuals would be retained to assist in landscape restoration.

### ***Compensation***

Commercial and industrial landowners would be compensated for any construction-related impacts based upon land values determined by local professional appraisers. Any damaged infrastructure would be repaired or replaced or the owner would be compensated for the damage.

## **3.9.2 Recreation and Special Interest Areas**

### **3.9.2.1 Environmental Setting**

The proposed Project would cross approximately 90.5 miles of recreation and special interest areas in Montana, South Dakota, Nebraska, Oklahoma, and Texas on the Steele City Segment and Gulf Coast Segment (Table 3.9.2-1). These areas would include state or federal public lands, recreational waterbodies, state parks and forests, national historic trails, wildlife management areas, and wildlife refuges. No national parks or national forests would be affected by the proposed Project, but six national historic trails would be crossed.

BLM field offices are required to manage public lands crossed by the proposed Project according to the following resource management plans: the Big Dry (April 1996); the Powder River (March 1985); and the Judith Valley Phillips. BLM lands are primarily composed of grasslands leased to farmers with livestock. Construction and operation of the proposed Project would be consistent with existing leases, management plans, and current land uses.

<b>TABLE 3.9.2-1 Recreation and Special Interest Areas Crossed by the Proposed Project</b>		
<b>State</b>	<b>Name / Ownership</b>	<b>Miles Crossed</b>
<b>Steele City Segment</b>		
Montana	Montana State Trust Lands (consists of 25 parcels)	19.2
	BLM (consists of 50 parcels)	42.0
	Missouri River (MP 88.9); Yellowstone River (MP 196.0)	0.2
	U.S. Department of Defense	0.4
	Lewis and Clark National Historic Trail	<1
South Dakota	Spring Creek (MP 346.8); Cheyenne River (MP 425.6); Sarah Larabee Creek (MP 464.8)	0.3
	State School Land	21.3
	<i>Segment Total</i>	<i>89.3</i>
<b>Cushing Extension</b>		
Kansas	-	-
<b>Gulf Coast Segment</b>		
Oklahoma	Deep Fork Wildlife Management Area - Oklahoma Department of Wildlife Conservation	1.2
Texas	El Camino Real de los Tejas National Historic Trail	<1
	<i>Segment Total</i>	<i>1.2</i>
<b>Houston Lateral</b>		
Texas	-	-
	<i>Segment Total</i>	<i>0.0</i>
<b>Project Total</b>		<b>90.5</b>

A total of 1,748 waterbodies would be crossed by the proposed Project (Table 3.9.2-2). The Steele City Segment would cross 792 waterbodies, with 432 ephemeral streams and 261 intermittent streams. The Gulf Coast Segment would cross 936 waterbodies, with 334 ephemeral streams, 297 intermittent streams, and 238 perennial rivers or streams. The Houston Lateral would cross 20 waterbodies, with eight ephemeral streams and five perennial rivers or streams. Recreational use would likely be centered on or near the 309 total perennial rivers and streams crossed by the proposed Project, including 66 in the Steele City Segment, 238 crossed in the Gulf Coast Segment, and five crossed in the Houston Lateral.

<b>TABLE 3.9.2-2 Waterbody Crossings</b>								
<b>State</b>	<b>Perennial Rivers or Streams</b>	<b>Intermittent Streams</b>	<b>Ephemeral Streams</b>	<b>Natural Ponds</b>	<b>Canals</b>	<b>Man-made pond</b>	<b>Other<sup>a</sup></b>	<b>Total</b>
<b>Steele City Segment</b>								
Montana	19	111	197	--	15	1	-	<b>343</b>
South Dakota	20	97	169	2		5	-	<b>293</b>
Nebraska	27	53	66	1	8	1	-	<b>156</b>
<i>Segment Total</i>	66	261	432	3	23	7	0	<b>792</b>
<b>Cushing Extension</b>								
Kansas	-	-	-	-	-	-	-	-
<b>Gulf Coast Segment</b>								
Oklahoma	67	113	112	-	-	-	23	<b>315</b>
Texas	171	184	222	-	-	-	44	<b>621</b>
<i>Segment Total</i>	238	297	334	0	-	0	67	<b>936</b>
<b>Houston Lateral</b>								
Texas	5	2	8		3	-	2	<b>20</b>
<b>Total</b>	<b>309</b>	<b>560</b>	<b>774</b>	<b>3</b>	<b>26</b>	<b>7</b>	<b>69</b>	<b>1,748</b>

<sup>a</sup> "Other" includes artificial water paths, seasonal water, and unclassified waterbodies.

### 3.9.2.2 Potential Impacts

Construction activities would temporarily affect recreational traffic and use patterns in special management and recreational areas. Sightseers, hikers, wildlife viewers, fishers and hunters, and other recreationists would be temporarily dislocated. In some cases, construction of the pipeline could cause disrupted or delayed recreational usage of private lands. Compensation for damages associated with these disruptions would be negotiated with affected landowners. Construction scheduling would be coordinated with local, state, and federal agencies to reduce the conflicts with recreational users. Impacts are expected to be short term. Noise impacts from pump stations are expected to be minor and would be within appropriate regulatory levels. Recreational use access would not be affected by proposed Project operations within special management areas.

The proposed Project would not cross rivers within any reaches that have been designated by federal, state or local authorities as wild and/or scenic. Waterbodies with recreationally and/or commercially valuable fish species would be crossed using site specific waterbody crossing plans designed to reduce impacts to these important resources.

### 3.9.3 Visual Resources

Visual resources are landscape characteristics that have an aesthetic value to residents and visitors from sensitive viewpoints such as residences, recreation areas, rivers, and highways. All land has inherent visual values that warrant different levels of management. Aesthetic judgment, especially related to landscape views, is often considered subjective.

As a Federal land-management agency, BLM is charged with managing the scenic resources of public lands through the Federal Land Policy and Management Act of 1976 as amended (FLPMA). As a result of that responsibility, the Visual Resource Management (VRM) methodology has been developed to identify and evaluate scenic resources under its jurisdiction and to develop management objectives for those resources. The system classifies resources based on scenic quality, viewer sensitivity to visual change, and viewing distance (USDI BLM 1980, 1984, and 1986).

For the proposed Project, only Montana contains lands managed by the BLM and thus is subject to Visual Resource Class Objectives. The system includes four visual inventory classes: Classes I and II are the most valued, Class III represents a moderate value, and Class IV is of least value. Management objectives for each class are tailored to the inherent visual value of the respective landscape. The Class I objective is to preserve the existing character of the landscape, including the natural ecological qualities, although some very limited management activity is permitted. The Class II objective is to preserve the existing character of the landscape while keeping landscape changes to a minimum. Whatever landscape changes occur should reflect the ambient colors, textures, and form of the surrounding features. The Class III objective is to keep landscape changes moderate while retaining some portion of the existing character of the landscape. Landscape changes should reflect the basic features found in the landscape character and should not attract much attention or dominate the view. The Class IV objective allows management activities that require major alterations to the existing character of the landscape that may dominate the view, although the location, disturbance, and blending with the surrounding landscape should be minimized.

For the purposes of this proposed Project, visual resource analysts for the Malta and Miles City BLM Field Offices conducted land inventories within their respective jurisdictions in Montana. Both offices recognize that even though BLM lands are intermingled among private lands along the proposed route, the quality of the landscape is not limited by ownership. As a result, the VRM classifications were applied to both public and private lands within the proposed Project in Montana. It should be noted that BLM does not retain the jurisdiction, however, to apply Visual Resource Class Objectives to non-BLM managed lands. Additional information pertaining to VRM classifications on BLM lands in Montana are included in the following resource management plans (RMPs); the Big Dry (1995), Powder River (1985), Judith-Valley-Phillips (1992), (USDI BLM 1995, 1985 and 1992).

South Dakota, Nebraska, Kansas, Oklahoma, and Texas do not have formal guidelines for managing visual resources for private or state-owned lands. For these states, the prevailing landscape characteristics within the proposed Project area are identified and project effects to those characteristics are analyzed.

### **3.9.3.1 Environmental Setting**

The proposed Project area crosses a variety of landscapes consisting of wetlands, waterways, floodplains, grassland/rangeland, and upland forest. The most common landscapes temporarily affected during proposed Project construction would consist of grasslands and rangelands (11,533 acres) and upland forest (2,523). Once constructed, the permanent ROW would impact 749.1 acres of grassland/rangeland and 175.6 acres of upland forest. Some of the proposed Project would follow existing utility right-of-ways and roads, while other segments would exist within a new right-of-way.

Two scenic byways are crossed by the proposed Project: The Big Sky Back Country Byway (Montana) and Historic Route 66 (Oklahoma). The Big Sky Back Country Byway was designated by the BLM in 2000. The BLM's Byways Program is a component of the National Scenic Byways Program. BLM Byways Handbook (8357-1) provides specific direction for BLM's Byways program. The proposed Project also crosses Historic Route 66 in Oklahoma. This historic route in Oklahoma has not been nominated to the Federal Highway Administration's National Scenic Byways program and the actual

roadway in the vicinity of the proposed Project has been abandoned and replaced by parallel roadways. During construction, some activity may be seen from these roadways (or parallel roads), but this would be temporary, occurring only during construction.

All federal lands that would be crossed by the proposed Project occur within the Steele City Segment and are under the management of BLM and the Department of Defense. The VRM classifications of federal lands that would be crossed include Class II (approximately 8.44 miles), Class III (approximately 5.79 miles), and Class IV areas (approximately 29.83 miles) (Table 3.9.3-1). Non-federally managed lands with BLM classifications include 28.04 acres of Class II, 42.54 acres of Class III, and 168.34 acres of Class IV lands.

Type of Federal Land Crossed	Class I	Class II	Class III	Class IV	Total
BLM	-	8.08	5.79	29.83	<b>43.39</b>
BLM and Department of Defense	-	0.36	-	-	<b>0.36</b>
State, Municipal, or Privately Ownership	-	28.04	42.54	168.34	<b>238.91</b>
<b>Total</b>	-	<b>36.48</b>	<b>48.33</b>	<b>198.17</b>	<b>282.66</b>

### 3.9.3.2 Potential Impacts

Construction and operation of the proposed Project would have some visual impacts, although most would be temporary. Such impacts would be associated with the construction ROW; additional temporary workspace; clearing and removal of existing vegetation; exposure of bare soils; earthwork and grading scars; trenching; rock formation alteration; machinery and pipe storage; new aboveground structures such as pump stations; pipeline markers, and various landform changes. Most visual effects resulting from ROW disturbance in agricultural areas would likely be substantially reduced with the first crop growth. Perceptible changes resulting from construction and operation would largely be visible to travelers along the major transportation corridors in the vicinity of the proposed Project. Their views would typically be limited to short periods of time and small portions of the ROW. Although recreational travelers are generally more sensitive to changes in scenic quality, there are no major recreation areas in the vicinity of the proposed route and few recreationists would be affected. During the final stages of construction, backfilling and grading would restore the construction ROW to its approximate previous contours and reclamation and revegetation would ultimately return the ROW to its approximate previous condition except in currently forested areas. In addition, vegetative buffers would be planted around the pump stations to reduce the visual impacts of the facilities. No pump stations would be situated on federal lands or in visually sensitive lands.

Most of the landscape changes caused by the proposed Project would be visible as linear changes to vegetation patterns. The proposed pipeline route was adjusted to reduce adverse aesthetic impacts, where possible, and measures to reduce long term visual impacts to insignificant levels would be implemented as described in the proposed Project CMR plan (Appendix B). Aboveground facilities would be painted in accordance with standard industry painting practices to further reduce visual impacts. Landowners would be consulted to address visual aesthetic issues that arise as a result of construction activities. Where reclamation and revegetation result in returning the ROW to visual conditions similar to existing conditions, there would be either no impact or only minor impacts to visual resources during operation.

For those segments of the proposed Project on BLM managed lands in Montana, consistency with the CMR plan (Appendix B) would require that the proposed Project remains consistent with the respective Visual Resource Class Objectives and the respective BLM RMPs.

### 3.9.4 Connected Actions

#### 3.9.4.1 Power Distribution Lines and Substations

The proposed Project would require electrical service from local power providers (see Section 2.5.1). This section provides a preliminary assessment of impacts to land use, recreation, and visual resources from the proposed power distribution lines.

### Environmental Setting

#### Land Ownership

Proposed power distribution lines would cross approximately 342.7 miles of privately-owned land, approximately 44.7 miles of federal land, and approximately 19.8 miles of state land would be located on privately-owned land (Table 3.9.4-1).

<b>TABLE 3.9.4-1 Land Ownership Crossed by Power Distribution Lines (Miles)</b>					
<b>State</b>	<b>Federal</b>	<b>State</b>	<b>Private</b>	<b>Total</b>	<b>Percent of Total</b>
<b>Steele City Segment</b>					
Montana	39.1	7.7	88.9	<b>135.7</b>	<b>33.4%</b>
South Dakota	5.6	12.1	141.5	<b>159.2</b>	<b>39.1%</b>
Nebraska	0.0	0.0	68.1	<b>68.1</b>	<b>16.7%</b>
<i>Segment Total</i>	<i>44.7</i>	<i>19.8</i>	<i>298.5</i>	<b>363.0</b>	<b>89.2%</b>
<b>Cushing Extension</b>					
Kansas	0.0	0.0	13.6	<b>13.6</b>	<b>3.3%</b>
<b>Gulf Coast Segment</b>					
Oklahoma	0.0	0.0	12.7	<b>12.7</b>	<b>3.1%</b>
Texas	0.0	0.0	17.9	<b>17.9</b>	<b>4.4%</b>
<i>Segment Total</i>	<i>0.0</i>	<i>0.0</i>	<i>30.6</i>	<b>30.6</b>	<b>7.5%</b>
<b>Houston Lateral</b>					
Texas	-	-	-	-	-
<b>Project Total</b>	<b>44.7</b>	<b>19.8</b>	<b>342.7</b>	<b>407.2</b>	<b>100.0%</b>
<b>Total Percent</b>	<b>11.0%</b>	<b>4.8%</b>	<b>84.2%</b>	<b>100.0%</b>	



## Land Use

Land uses categories along the proposed power distribution line ROWs include developed land, agricultural land, rangeland, forest land, and waterbodies and wetlands (Tables 3.9.4-3 and 3.9.4-4).

## Potential Impacts

### Construction Impacts

Areas of land disturbance have been estimated based upon the number and type of proposed distribution line support structures. Assumptions used to calculate temporary impacts from ground disturbances during power distribution line construction are displayed in Table 3.9.4-2. As shown, a 69-kV structure with a maximum height of 40 to 60 feet, spaced 350 feet apart and spanning 300 to 400 feet, would disturb a 60-foot radius, on average. Structures supporting 115-kV and 138-kV lines would disturb, on average, a 70-foot and 80-foot radius, respectively. An H-frame power line of any voltage would disturb, on average, a 90-foot radius.

<b>Transmission Structure</b>	<b>Maximum Structure Height (feet)</b>	<b>Spacing Between Structures (feet)</b>	<b>Average Structure Span (feet)</b>	<b>Average Disturbance Radius (feet)</b>
69-kV	40-60	350	300-400	60
115-kV	50-70	550	500-600	70
138-kV	60-80	650	600-700	80
H-frame	70-90	800	700-900	90

The ROW area would be cleared to prepare for construction. Limited clearing would be required along existing roads in native and improved rangelands and agricultural lands. Some trees could require removal to provide adequate clearance between conductors and underlying vegetation. Where possible, trees would be trimmed to avoid removal.

Power distribution line construction would also require the development of temporary access roads, which would occupy a 20-foot-wide area within the ROW for all of the power poles. Pulling and tensioning areas would require one acre per change in direction. Turnaround areas would require a 30-foot radius at each structure. Construction staging areas would require one acre every 25 miles.

Total land area affected by construction of the power distribution lines would be approximately 1,333 acres (Table 3.9.4-3). Of this total, about 1,187 acres would be in the Steele City Segment, 44 acres would be in the Cushing Extension, and 100 acres would be in the Gulf Coast Segment.

<b>TABLE 3.9.4-3 Existing Land Uses Temporarily Affected by Construction of Power Distribution Lines (Acres)</b>						
<b>State</b>	<b>Developed</b>	<b>Agriculture</b>	<b>Rangeland</b>	<b>Forest</b>	<b>Water/Wetland</b>	<b>Total</b>
<b>Steele City Segment</b>						
Montana	8.8	81.7	343.0	1.1	8.5	<b>443.1</b>
South Dakota	53.9	137.4	314.8	1.0	13.7	<b>520.8</b>
Nebraska	14.5	106.1	90.5	5.6	6.1	<b>222.8</b>
<i>Segment Total</i>	<i>77.2</i>	<i>325.2</i>	<i>748.3</i>	<i>7.7</i>	<i>28.3</i>	<b><i>1,186.7</i></b>
<b>Cushing Extension</b>						
Kansas	1.3	19.1	21.6	1.8	0.6	<b>44.4</b>
<b>Gulf Coast Segment</b>						
Oklahoma <sup>a</sup>	4.5	1.5	26.2	8.8	0.5	<b>41.6</b>
Texas	4.5	26.6	11.2	15.0	1.2	<b>58.5</b>
<i>Segment Total</i>	<i>9.0</i>	<i>28.1</i>	<i>37.4</i>	<i>23.8</i>	<i>1.7</i>	<b><i>100.1</i></b>
<b>Houston Lateral</b>						
Texas	-	-	-	-	-	-
<b>Project Total</b>	<b>87.6</b>	<b>372.3</b>	<b>809.1</b>	<b>33.2</b>	<b>30.6</b>	<b>1,332.9</b>

<sup>a</sup> Includes power to Cushing tank farm.

Aerial interpretation<sup>56</sup> and field surveys were used to discern the number of buildings within 50 feet of the proposed power distribution lines (Table 3.9.4-4). An estimated 78 structures would be located within 50 feet of the proposed power distribution lines, including 74 in the Steele City Segment and four in the Gulf Coast Segment.

<b>TABLE 3.9.4-4 Number of Buildings Within 50 Feet of a Power Distribution Line</b>	
<b>State</b>	<b>Number of Structures within 50 Feet</b>
<b>Steele City Segment</b>	
Montana	13
South Dakota	48
Nebraska	13
<i>Segment Total</i>	<i>74</i>
<b>Cushing Extension</b>	
Kansas	0
<b>Gulf Coast Segment</b>	
Oklahoma	2
Texas	2
<i>Segment Total</i>	<i>4</i>
<b>Houston Lateral</b>	
Texas	-
<b>Project Total</b>	<b>78</b>

Most construction impacts on land use would be temporary and may include short term disruptions to local traffic, land access, and agricultural practices. A small amount of land clearing would likely be required at support structure locations and other construction staging areas described previously. Short term noise and dust impacts may occur at one or more of the 78 structures identified within 50 feet of the construction ROWs (Table 3.9.4-4).

### **Operation Impacts**

In forest lands, during power distribution line operations, each power provider would maintain a ROW free of woody vegetation. All operations-related impacts on land use would likely last through the useful lifetime of the power distribution lines. Impacts associated with permanent access roads for use during power distribution line operations are not estimated since the number and location of these roads are not currently known.

Assumptions used to calculate impacts from power distribution line operational structures are provided in Tables 3.9.4-5. As shown, a 69-kV, 115-kV, and 138-kV structure would each affect, on average, a 12 square-foot area. An H-frame power line structure of any voltage would affect approximately 24 square feet.

<b>Structure</b>	<b>Maximum Structure Height (feet)</b>	<b>Spacing Between Structures (feet)</b>	<b>Average Structure Span (feet)</b>	<b>Average Disturbance (square feet)</b>
69-kV	40-60	350	300-400	12
115-kV	50-70	550	500-600	12
138-kV	60-80	650	600-700	12
H-frame	70-90	800	700-900	24

Due to the need for a cleared power distribution line ROW, operational impacts in forested lands are greater than for other land uses. ROW widths in forest lands for various types of power distribution line structures are provided in Table 3.9.4-6.

<b>Structure</b>	<b>ROW (feet)</b>	<b>Average Disturbance (square feet)</b>
69-kV	60-80	80
115-kV	60-80	80
138-kV	60-80	80
H-frame	100-150	150

Estimates of the acreage of land affected for each land use type during operation of the proposed power distribution lines are provided in Table 3.9.4-7. Total acreage of land affected during power distribution line operations would be approximately 1,090 acres. Actual impacted acreage may vary from the estimates based upon actual power distribution line designs to be developed by each power provider.

<b>TABLE 3.9.4-7 Existing Land Uses Affected by Power Distribution Line Operations (Acres)</b>						
<b>State</b>	<b>Developed</b>	<b>Agriculture<sup>a</sup></b>	<b>Rangeland</b>	<b>Forest</b>	<b>Water/Wetland</b>	<b>Total</b>
<b>Steele City Segment</b>						
Montana	6.5	60.5	253.4	4.1	6.6	<b>331.1</b>
South Dakota	40.0	101.8	233.2	3.6	10.7	<b>389.3</b>
Nebraska	10.7	78.6	67.0	20.6	9.3	<b>186.2</b>
<i>Segment Total</i>	<i>57.2</i>	<i>240.9</i>	<i>553.6</i>	<i>28.3</i>	<i>26.6</i>	<b>906.6</b>
<b>Cushing Extension</b>						
Kansas	1.0	14.1	16.0	6.5	0.4	<b>38.0</b>
<b>Gulf Coast Segment</b>						
Oklahoma <sup>a</sup>	3.3	1.1	19.4	32.7	0.4	<b>56.9</b>
Texas	3.4	19.7	8.3	55.4	1.2	<b>88.0</b>
<i>Segment Total</i>	<i>6.7</i>	<i>20.8</i>	<i>27.7</i>	<i>88.1</i>	<i>1.6</i>	<b>144.9</b>
<b>Houston Lateral</b>						
Texas	-	-	-	-	-	-
<b>Project Total</b>	<b>64.9</b>	<b>275.8</b>	<b>597.3</b>	<b>122.9</b>	<b>28.6</b>	<b>1,089.5</b>

<sup>a</sup> Includes power to Cushing tank farm.

Operation of the power distribution lines could lead to some impacts to vegetation external to the construction ROW due to the need for tree trimming to reduce hazards to power line operations. The locations of actual power distribution line structures could lead to long term operational impacts to farming and other land uses. Impacts to land use are primarily based on surface disturbance areas. Impacts associated with service drops (electrical lines running from a utility pole to a pump station) from adjacent distribution lines are expected to be minimal and comparable to those associated with supplying electricity to the average home or farm.

### **Potential Mitigation**

Once the power distribution poles are in place and the conductor wires are strung between poles, the construction ROW would be restored pursuant to each power provider's requirements as specified in easement agreements with landowners. This may include soil reshaping and contouring, and reseeded as specified by landowners. All remaining materials and litter would be removed from the construction area and properly disposed.

Preliminary power line locations have been identified in consultation with each utility company. Where feasible, the entire length of each of these preliminary power line routes would be placed along existing county roads, section lines, or field edges to minimize interference with adjacent land uses. Upon completion, power providers would restore the work area around each new service drop as specified by applicable permit conditions.

## Recreation and Special Interest Areas

### *Environmental Setting*

The proposed power distribution lines would likely cross recreation and special interest areas (Table 3.9.4-8). In Montana, the power distribution lines would likely cross Montana State Trust Lands, BLM land, Bureau of Reclamation land, and U.S. Department of Defense land. South Dakota power distribution lines would cross South Dakota Game, Fish, and Park land; BLM land; U.S. Forest Service land; and State School land. No special interest areas would be crossed in Nebraska, Kansas, Oklahoma, or Texas.

<b>TABLE 3.9.4-8 Recreation and Special Interest Areas Crossed by Power Distribution Lines</b>	
<b>State</b>	<b>Name / Ownership</b>
<b>Steele City Segment</b>	
Montana	Montana State Trust Lands BLM Bureau of Reclamation U.S. Department of Defense U.S. Fish and Wildlife Service
South Dakota	BLM South Dakota Game, Fish, and Park Lands State School Land U.S. Forest Service State of South Dakota Lands
Nebraska	None
<b>Cushing Extension</b>	
Kansas	None
<b>Gulf Coast Segment</b>	
Oklahoma	None
Texas	None
<b>Houston Lateral</b>	
Texas	None

### *Potential Impacts*

Power distribution line impacts on recreation and special interest areas are unknown. To the extent that the power distribution lines would change the character, general use, and/or recreation opportunities provided on special interest lands, there would be an adverse impact.

### *Potential Mitigation*

Final design of the power distribution lines would likely include locational criteria to reduce potential impacts on recreation and special interest areas.

## Visual Resources

Visual resources are natural or developed landscape characteristics that have an aesthetic value to residents and visitors from sensitive viewpoints such as residences, recreation areas, rivers, and highways. The Visual Resource Management (VRM) system was developed by BLM to assist in the identification and protection of scenic lands in a systematic and interdisciplinary manner. See Section 3.9.3.1 for a description of the VRM classification system.

### *Environmental Setting*

The VRM classes for federal lands crossed by proposed power distribution lines, which include lands managed by BLM, the Bureau of Reclamation, and the Department of Defense along the Steele City Segment are displayed in Table 3.9.4-9. The proposed power distribution lines would be located on BLM-managed lands designated as Class III (28.2 miles) and Class IV (6.5 miles).

Type of Federal Land Crossed	Class I	Class II	Class III	Class IV	Unclassified	Total
BLM	-	0.0	28.2	6.5	0.0	<b>34.7</b>
Bureau of Reclamation	-	-	0.4	-	-	<b>0.4</b>
Department of Defense	-	0.0	-	2.0	-	<b>2.0</b>
U.S. Fish and Wildlife Service	-	0.6	-	-	1.5	<b>2.1</b>
<b>Total</b>	-	<b>0.6</b>	<b>28.6</b>	<b>8.5</b>	<b>1.5</b>	<b>39.2</b>

### *Potential Impacts*

Outside of Montana, there are no formal guidelines for managing visual resources on private or state-owned lands. BLM is responsible for identifying and protecting scenic values on public lands under several provisions of FLPMA and NEPA. It is plausible that the proposed power distribution lines may not be consistent with BLM's Visual Resource Class Objectives and could generate adverse impacts to visual resources due to their high visibility, although other power distribution lines are assumed to be present in the general area of the distribution lines. The assessment of visual impacts of the proposed power distribution lines would be included in the analysis conducted by BLM as part of the review of the electrical power providers BLM ROW grant applications.

### *Potential Mitigation*

Because potential impacts from the proposed power distribution lines have not been identified for visual resources, no mitigation measures are proposed at this time. Determination of any necessary mitigation measures for power distribution lines would be part of the environmental reviews required by applicable federal, state, and local regulations.

#### **3.9.4.2 Big Bend to Witten 230-kV Transmission Line**

The Western Area Power Administration (Western) determined that a 230-kV transmission line would be required to ensure system reliability within the Western power grid given the power requirements for pump stations 20 and 21 in the Witten, South Dakota area. To meet these requirements, the existing Big

Bend-Fort Thompson No. 2 230-kV line turning structure would be converted to a double circuit structure. Western would construct 2.1 miles of new double-circuit transmission line south to the new Big Bend Substation and would construct the Big Bend Substation. Western would own and operate the 2.1-mile-long line. Ownership of the Big Bend Substation would be transferred to the Basin Electric Power Cooperative (BEPC).

BEPC has proposed construction and operation of a new 230-kV transmission line from the new Big Bend Substation to the existing Witten Substation, the latter owned by Rosebud Electric Cooperative. The approximately 70-mile-long transmission line would be built, owned, and operated by BEPC. The proposed line would be built within a 125-foot-wide ROW, although the specific type of structure to be used has not yet been determined. All substation and switchyard work would be within secured areas. The Big Bend substation site and the Witten area expansion site would be cleared and leveled. Topsoil would be separated from underlying soils and placed on disturbed areas located outside of security fences. Substation components would be transported to the site on local highways and roads.

As described in Section 2.2, Western and BEPC have identified two alternative corridors (A and B) for the proposed Big Bend to Witten 230-kV transmission line project, and there are several route options within each corridor. For Corridor A, the Western Alternative would be 67.2 miles long and BEPC Alternatives A through D would be 69.7 to 72.0 miles long, respectively. For Corridor B, the BEPC Alternatives E through H would be 73.9 to 75.2 miles long, respectively.

## Environmental Setting

### Land Ownership

Ownership of lands that would be crossed by the Big Bend to Witten transmission line alternatives is summarized in Tables 3.9.4-10 and 3.9.4-11. All affected land would be in South Dakota. For Corridor A, route options would cross between 60.1 and 65.0 miles of private land, and between 6.8 and 7.0 miles of the Lower Brule Reservation (Table 3.9.4-10). Corridor B route options would cross between 65.1 and 66.2 miles of private land, and between 8.7 and 9.0 miles of the Lower Brule Reservation (Table 3.9.4-11). Three potential route options (the Western option, BEPC-C, and BEPC-G) would cross approximately 0.3 acre of state lands.

	<b>Western</b>	<b>BEPC-A</b>	<b>BEPC-B</b>	<b>BEPC-C</b>	<b>BEPC-D</b>
Federal <sup>a</sup>					
Lower Brule Reservation	6.8	7.0	7.0	7.0	7.0
State <sup>b</sup>	0.3	0.0	0.0	0.3	0.0
Private <sup>c</sup>	60.1	62.7	63.1	64.4	65.0
<b>Total</b>	<b>67.2</b>	<b>69.7</b>	<b>70.1</b>	<b>71.7</b>	<b>72.0</b>

<sup>a</sup> The information for federal lands and the Lower Brule Reservation was obtained from ESRI.

<sup>b</sup> The information for state lands was obtained from the South Dakota GIS.

<sup>c</sup> Private lands are the difference in length from total transmission line, federal land, and state land.

<b>TABLE 3.9.4-11 Land Ownership Crossed by the Big Bend to Witten 230-kV Transmission Line Corridor B Alternatives (Miles)</b>				
	<b>BEPC-E</b>	<b>BEPC-F</b>	<b>BEPC-G</b>	<b>BEPC-H</b>
Federal <sup>a</sup>				
Lower Brule Reservation	8.8	8.7	8.7	9.0
State <sup>b</sup>	0.0	0.0	0.3	0.0
Private <sup>c</sup>	65.1	65.9	65.5	66.2
<b>Total</b>	<b>73.9</b>	<b>74.6</b>	<b>74.5</b>	<b>75.2</b>

<sup>a</sup> The information for federal lands and the Lower Brule Reservation was obtained from ESRI.

<sup>b</sup> The information for state lands was obtained from the South Dakota GIS.

<sup>c</sup> Private lands are the difference in length from total transmission line, federal land, and state land.

### **Land Use**

The acreages for each type of land use for each alternative corridor are summarized in Tables 3.9.4-12 and 3.9.4-13. Within alternative Corridor A, BEPC-D would affect more land than the other route options (approximately 1,091.6 acres) and the Western Route would affect the least amount of land among route options (approximately 1,018.5 acres). Within alternative Corridor B, BEPC-H would affect more land than the other route options (approximately 1,139.0 acres) and BEPC-E would affect the least amount of land among route options (approximately 1,119.3 acres).

<b>TABLE 3.9.4-12 Existing Land Uses Affected by the Big Bend to Witten 230-kV Transmission Line Corridor A Alternatives (Acres)<sup>a</sup></b>						
<b>Alternatives</b>	<b>Developed</b>	<b>Agriculture</b>	<b>Rangeland</b>	<b>Forest</b>	<b>Water/ Wetland</b>	<b>Total <sup>b</sup></b>
Western <sup>c</sup>	40.1	501.5	458.9	1.6	15.9	<b>1,018.5</b>
BEPC-A	27.4	389.5	627.0	0.7	11.8	<b>1,056.4</b>
BEPC-B	27.3	404.3	620.5	0.7	8.7	<b>1,061.5</b>
BEPC-C	69.3	427.7	576.6	0.7	12.0	<b>1,086.3</b>
BEPC-D	76.9	398.6	608.2	0.7	7.2	<b>1,091.6</b>

<sup>a</sup> Acres based upon square feet of affected land (125-foot ROW x lines miles x 5,280 feet) and divided by 43,560 feet/acre.

<sup>b</sup> Totals may not sum due to rounding.

<sup>c</sup> The Western route includes an additional 0.5 acre of barren land.

Source: Land use from National Land Cover Database, 2001.



**TABLE 3.9.4-13  
Existing Land Uses Affected by Big Bend to Witten 230-kV Transmission Line  
Alternatives for Corridor B (Acres)<sup>a</sup>**

<b>Alternatives</b>	<b>Developed</b>	<b>Agriculture</b>	<b>Rangeland</b>	<b>Forest</b>	<b>Water/ Wetland</b>	<b>Total<sup>b</sup></b>
BEPC-E	66.9	346.4	692.7	2.4	10.9	<b>1,119.3</b>
BEPC-F	61.5	348.8	712.3	0.6	7.5	<b>1,130.7</b>
BEPC-G	66.5	433.5	611.8	1.8	14.7	<b>1,128.3</b>
BEPC-H	107.1	374.7	645.8	2.6	8.8	<b>1,139.0</b>

<sup>a</sup> Acres based upon square feet of affected land (125-foot ROW x lines miles x 5,280 feet) and divided by 43,560 feet/acre.

<sup>b</sup> Totals may not sum due to rounding.

Source: Land use from National Land Cover Database, 2001.

## Potential Impacts

### Construction Impacts

Construction related land disturbances would be confined to a relatively small area needed for site access and equipment operations. Estimates of temporary, construction-related land disturbances for each alternative corridor and route option are provided in Tables 3.9.4-14 (Corridor A) and 3.9.4-15 (Corridor B).

Pulling and tensioning of the conductor wires would be required every 10,000 feet, resulting in approximately 35 to 40 pulling and tensioning sites, depending upon the alternative corridor and route option chosen. Each tensioning site could be located within the ROW, although angles in the route would require an additional 1.8 acres outside of the ROW.

**TABLE 3.9.4-14  
Estimated Big Bend to Witten 230-kV Transmission Line  
Construction Impacts for Corridor A (Acres)**

	<b>Western</b>	<b>BEPC-A</b>	<b>BEPC-B</b>	<b>BEPC-C</b>	<b>BEPC-D</b>
Pre-Construction Surveys	0.001	0.001	0.001	0.001	0.001
Additional Temp Work-spaces	10	10	10	10	10
Number of Pulling Tensioning Sites	35	37	37	38	38
Temp Disturbances per Structure	0.29	0.29	0.29	0.29	0.29
Number of Structures	444	460	463	473	475
Temporary Disturbances <sup>a</sup>	129	133	134	137	138
Route Length (miles)	67.2	69.7	70.1	71.7	72.0
ROW	1,018.5	1,056.4	1,061.5	1,086.3	1,091.6
<b>Estimated Total <sup>b</sup></b>	<b>1,157.5</b>	<b>1,199.4</b>	<b>1,205.5</b>	<b>1,233.3</b>	<b>1,239.6</b>

<sup>a</sup> Temporary Disturbances = Temporary disturbances per structure x number of structures.

<sup>b</sup> Totals may not sum due to rounding.

Source: BEPC 2009.

**TABLE 3.9.4-15**  
**Estimated Big Bend to Witten 230-kV Transmission Line**  
**Construction Impacts for Corridor B (Acres)**

	BEPC-E	BEPC-F	BEPC-G	BEPC-H
Pre-Construction Surveys	0.001	0.001	0.001	0.001
Additional Temp Work-spaces	10	10	10	10
Number of Pulling Tensioning Sites	39	39	39	40
Temp Disturbances per Structure	0.29	0.29	0.29	0.29
Number of Structures	488	492	492	496
Temp Disturbances <sup>a</sup>	142	143	143	144
Route Length (miles)	73.9	74.6	74.5	75.2
ROW	1,119.3	1,130.7	1,128.3	1,139.0
<b>Estimated Total <sup>b</sup></b>	<b>1,271.3</b>	<b>1,283.7</b>	<b>1,281.3</b>	<b>1,293.0</b>

<sup>a</sup> Temporary Disturbances = Temporary disturbances per structure x number of structures.

<sup>b</sup> Totals may not sum due to rounding.

Source: BEPC 2009.

Within Corridor A, the Western route option would affect the fewest number of rangeland acres (approximately 458.9 acres) and route option BEPC-A would affect the greatest number of acres (approximately 627.0 acres). Within Corridor B, the BEPC-G route option would affect the fewest rangeland acres (approximately 611.8 acres) and route option BEPC-F would affect the greatest number (approximately 712.3 acres).

Within Corridor A, the Western route would affect approximately 1.6 acres of forest land while other routes would each affect approximately 0.7 acre (Table 3.9.10.12). Within Corridor B, route option BEPC-H would affect the most forest land (approximately 2.6 acres), while BEPC-F would affect the least amount of forest land (approximately 0.6 acre).

Within Corridor A, route option BEPC-D would affect the greatest area of developed lands (approximately 76.9 acres), while route options BEPC-A and BEPC-B would affect the least area (approximately 27.4 and 27.3 acres respectively). Within Corridor B, route option BEPC-H would affect the most developed land (approximately 107.1 acres) and route option BEPC-F would affect the least developed land (approximately 61.5 acres).

Within Corridor A, the Western route would impact the greatest amount of water and wetlands (approximately 15.9 acres), while route option BEPC-D would affect the least amount of water and wetlands (approximately 7.2 acres). Within Corridor B, route option BEPC-G would affect the most water and wetlands (approximately 14.7 acres), while route option BEPC-F would affect the least amount of water and wetlands (approximately 7.5 acres).

For all potential 230-kV transmission line route options, most construction impacts on land use would be temporary and may include short term disruptions to local traffic, land access, and agricultural practices. A small amount of land clearing would likely be required at support structure locations and other construction staging areas. Short term noise and dust impacts may occur at structures located within 50 feet of the construction ROW.

## **Operation Impacts**

Operation of the transmission lines would permanently affect a relatively small amount of land. An average of 6.6 support structures per mile would be required. The average height of the structures would be 110 feet, and each would span approximately 800 feet. Permanent land disturbance would be approximately 8.7 square feet (0.0002 acre) per structure (BEPC 2009).

Operation of the 230-kV transmission line could lead to some impacts to vegetation external to the construction ROW due to the need for tree trimming to reduce hazards to power line operations. The locations of actual 230-kV transmission line structures could lead to long term operational impacts to farming and other land uses. Impacts to land use are primarily based on surface disturbance areas.

All operations-related impacts on land use would likely last through the useful lifetime of the 230-kV transmission line. Impacts associated with permanent access roads for use during transmission line operations are not estimated since the number and location of these roads are not currently known.

Each transmission line route alternative would consist largely of agricultural land and rangeland and, therefore, tree and brush removal in the ROW would likely be minimal. Trees and brush would not be removed unless they interfered with construction activities or the safe operation of the transmission line. Forested land use areas associated with drainages were avoided during the preliminary routing process.

## **Potential Mitigation**

Mitigations for potential impacts from 230-kV transmission line construction, operation and maintenance would include BMPs appropriate for transmission line activities. Mitigations would include disturbed soil preservation and reclamation, ROW revegetation, and repair of any roads, trails, fences or other improvements associated with transmission line construction, operations and maintenance.

## **Recreation and Special Interest Areas**

### ***Environmental Setting***

The potential alternative corridors from the proposed Big Bend Substation to the existing Fort Thompson Substation would be located in or near five identified recreation areas managed by the Lower Brule Indian Reservation in the Lake Sharpe area. The Good Soldier Creek Recreation Area and the Trailwaters Recreation Area are located on the east and west side of State Highway 47, which the proposed transmission line would parallel in this vicinity. The Counselor Creek Recreation Area would be approximately 3 miles west of the transmission line alternatives and the Fort Thompson Recreation Area and North Shore Recreation Area would be located on the north side of Lake Sharpe.

Year-around recreation opportunities in these areas include shore fishing, hiking, picnicking, camping, boating, horseback riding, ATV riding, snowmobile and dirt bike riding, cross-country skiing, wildlife viewing, and photography. Recreational access permits are required for all non-tribal members using these recreation areas and all other tribal lands.

Water-based recreational opportunities within the Big Bend to Witten Transmission line alternative corridors would occur at perennial and intermittent stream crossings. Within Corridor A, the BEPC-D route would cross the least number of streams, including four perennial and 26 intermittent streams (Table 3.9.4-16). The remaining Corridor A routes would cross between one and four perennial streams and between 33 and 36 intermittent streams. Within Corridor B, route option BEPC-E would cross the least number of streams, including three perennial and 23 intermittent streams (Table 3.9.4-17). The remaining

Corridor B routes would cross between four and seven perennial streams and 20 to 31 intermittent streams. Recreational use would likely be centered on or near the perennial rivers and streams crossed by the Big Bend to Witten Transmission line.

<b>TABLE 3.9.4-16 Streams/River Crossings along the Big Bend to Witten 230-kV Transmission Line Corridor A Alternatives</b>					
	<b>Western</b>	<b>BEPC-A</b>	<b>BEPC-B</b>	<b>BEPC-C</b>	<b>BEPC-D</b>
Perennial	1	4	4	4	4
Intermittent	33	34	36	35	26
<b>Total</b>	<b>34</b>	<b>38</b>	<b>40</b>	<b>39</b>	<b>30</b>

Source: Streams/Rivers from ESRI.

<b>TABLE 3.9.4-17 Streams/River Crossings along the Big Bend to Witten 230-kV Transmission Line Corridor B Alternatives</b>				
	<b>BEPC-E</b>	<b>BEPC-F</b>	<b>BEPC-G</b>	<b>BEPC-H</b>
Perennial	3	4	7	7
Intermittent	23	25	31	20
<b>Total</b>	<b>26</b>	<b>29</b>	<b>38</b>	<b>27</b>

Source: Streams/Rivers from ESRI.

### ***Potential Impacts***

Recreationists within the Lower Brule Reservation may be affected temporarily during construction activities. Impacts to recreation areas would result from both construction activities and the presence of workers, equipment, and vehicles along the construction route. However, disturbed land would be restored to pre-construction conditions to the extent possible.

### ***Potential Mitigation***

Western and BEPC would communicate with appropriate personnel from the Lower Brule Indian Reservation and relevant state and federal resource agencies to schedule construction work to reduce, to the extent practicable, disturbance to recreational uses.

### **Visual Resources**

#### ***Environmental Setting***

Visual resources are natural or developed landscape characteristics that have an aesthetic value to residents and visitors from sensitive viewpoints such as residences, recreation areas, rivers, and highways. The Big Bend to Witten 230-kV transmission line alternatives would pass through sparsely populated areas in Lyman and Tripp counties. Communities within the alternative corridors include Reliance and Hamill, with 2000 populations of 206 and 11, respectively. The Lower Brule Indian Reservation would be located at the northern terminus and contains a number of recreational opportunities for tribal members

and visitors. Major roadways would likely cross the transmission line, including State Highway 47, Interstate Highway 90, State Highway 49, and U.S. Highway 18.

### ***Potential Impacts***

The analysis of environmental effects associated with the proposed 230-kV transmission line would be handled under a separate environmental review, likely conducted by either or both of RUS and Western. Based on currently available information, it is likely that changes to visual resources would be both temporary (e.g., digging the foundations for power poles) and permanent (e.g., erection of power poles and lines). Impacts to visual resources during construction would result from both construction activities and the presence of workers, equipment, and vehicles along the construction route. Visual impacts would also result from the clearing and removal of existing vegetation, exposure of bare soils, and the presence of machinery and new aboveground structures.

The majority of viewers of the 230-kV transmission line project during construction and operation would be travelers along the transportation corridors in the vicinity of the project. Their views would typically be limited to short periods of time and small portions of the route. In addition, residents and recreationists using recreation areas within the Lower Brule Reservation could be affected by the addition of power poles and lines. Some individuals viewing the route from residences within 0.75 mile of the route might be able to observe portions of the construction activities throughout the construction period.

### ***Potential Mitigation***

Potential mitigation measures to address any environmental impacts identified for the proposed 230-kV transmission line project would be identified in a separate environmental review, likely conducted by either or both of RUS and Western.

#### **3.9.4.3 Bakken Marketlink and Cushing Marketlink Projects**

Construction and operation of the Bakken Marketlink Project would include metering systems, three new storage tanks near Baker, Montana, and two new storage tanks within the boundaries of the proposed Cushing tank farm. Keystone reported that the property proposed for the Bakken Marketlink facilities near Pump Station 14 is currently used as pastureland and hayfields and that a survey of the property indicated that there were no waterbodies or wetlands on the property. DOS reviewed aerial photographs of the area and confirmed the current use of the land and that there are no waterbodies associated with the site. A site inspection by the DOS third-party contractor confirmed these findings. As a result, the potential impacts associated with expansion of the pump station site to include the Bakken Marketlink facilities would likely be similar to those described above for the proposed Project pump station and pipeline ROW in that area.

The Cushing Marketlink project would be located within the boundaries of the proposed Cushing tank farm of the Keystone XL Project and would include metering systems and two storage tanks. As a result, the impacts of construction and operation of the Cushing Marketlink Project on land use, recreation, and visual resources would be essentially the same as potential impacts associated with construction and operation of the proposed Cushing tank farm described in this section.

Currently there is insufficient information to complete an environmental review of the Marketlink projects. The permit applications for these projects would be reviewed and acted on by other agencies. Those agencies would conduct more detailed environmental reviews of the Marketlink projects. Potential impacts to land use, recreation, or visual resources of the Marketlink projects would be evaluated and

avoided, minimized, or mitigated in accordance with applicable regulations during the environmental reviews for these projects.

### 3.9.5 References

Basin Electric Power Cooperative (BEPC). 2009. Lower Brule to Witten 230-kV Transmission Project provided to ENTRIX August 2009.

BEPC. See Basin Electric Power Cooperative.

Braun, M. 2009. RE: Number of acres in conservation programs which would be affected by the XL Pipeline. Personal Communication December 1, 2009 from Maria Braun, USDA/Farm Service Agency Director, Fallon County, Montana to Duane Paul, Senior Economist, Cardno ENTRIX.

Montana Department of Natural Resources and Conservation. 2009. Website: <http://dnrc.mt.gov>. Accessed December 2, 2009.

NASS. See USDA National Agricultural Statistics Service.

NRCS. See USDA National Resource Conservation Service.

USDA National Agricultural Statistics Service (NASS) Quick Stats, accessed June 22, 2009.

USDA National Resource Conservation Service (NRCS). 2007. Prime Farmland Soils Definition. Website: <http://soils.usda.gov/technical/handbook/contents/part622.html#04>.

USDI BLM. See U.S. Department of the Interior, Bureau of Land Management.

Department of the Interior (USDI), Bureau of Land Management (BLM). 1980. Visual Resource Management Program. Washington, D.C. United States Government Printing Office.

\_\_\_\_\_. 1984. BLM Manual 8400. Visual Resource Management. Washington Office, Washington, DC.

\_\_\_\_\_. 1985. Powder River Resource Management Plan/EIS. Website: [http://www.blm.gov/mt/st/en/prog/planning/powder\\_river.html](http://www.blm.gov/mt/st/en/prog/planning/powder_river.html).

\_\_\_\_\_. 1986. BLM Manual Handbook 8410-1. Visual Resource Inventory. Washington Office, Washington, DC. 20 pp.

\_\_\_\_\_. 1992. Judith-Valley-Phillips Resource Management Plan/EIS. Montana State Office. October 1992. Website: <http://www.blm.gov/mt/st/en/prog/planning/JVP.html>.

\_\_\_\_\_. 1995. Big Dry Resource Management Plan/EIS. BLM Miles City District Office, Big Dry Resource Area, February 1995. Website: [http://www.blm.gov/mt/st/en/prog/planning/big\\_dry.html](http://www.blm.gov/mt/st/en/prog/planning/big_dry.html).