

# U.S. 287 at Lamar: Threatened and Endangered Species

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## 1.0 Introduction and Project Description

Federal and state threatened or endangered species (TES) include species identified and/or protected under several designations. In Colorado a species may be listed as threatened or endangered, or be a candidate for protection, under the federal Endangered Species Act (ESA), or state listed under the Colorado Nongame, Endangered, or Threatened Species Conservation Act (Colorado NETSCA). Species may be listed for protection under both federal and state law.

This Technical Memorandum identifies TES that are known to exist or may occur in the project area. Sensitive or rare species identified by the Colorado Natural Heritage Program (CNHP) are also included.

### 1.1 Proposed Action

The proposed action will relocate U.S. 287 and U.S. 50 from Main Street to a new alignment approximately one mile east of Lamar, Colorado, as shown in Figure 1. The proposed action consists of new mainline, ultimately four lanes wide, three new interchanges, and provisions for two future local access points along the route. In addition, the new alignment includes a new crossing of the Arkansas River. The three interchange locations are at the southern terminus, the northern portion and east of Lamar at a point along the alignment where it crosses U.S. 50.

At the southern terminus, located just north of County Road CC, the proposed interchange is a grade separated trumpet configuration with Main Street, providing a free-flow movement into downtown Lamar. A 1.2-mile segment of existing U.S. 287 will be reconfigured to serve as a frontage road providing local access.

A local access point to serve the Prowers County Medical Center will be provided at Lake Road approximately three miles north of the southern interchange. (The proposed action includes constructing an at-grade intersection, with connecting roads to be built by others in the future.) A grade separated crossing (no access) is proposed over existing Parmenter Street. An extension of Parmenter Street to the east will be constructed to provide access back to U.S. 50.

The east interchange with U.S. 50 consists of a grade separated wide diamond with future directional loop ramps to be added when traffic volumes warrant. The mainline will cross the UPRR and County Road HH.50 at a grade-separated crossing (no access) just north of the existing U.S. 50. To facilitate this interchange configuration a 1.8-mile segment of U.S. 50 will be realigned about 1,000 feet south of its present location.

A second local access point to U.S. 287 will be provided approximately one mile north of the U.S. 50 interchange. This connection will allow the City and/or County to construct an extension of existing Crystal Street east to connect with relocated U.S. 287/U.S. 50. (The proposed action includes constructing an at-grade intersection, with connecting roads to be built by others in the future.)

The mainline will cross the Arkansas River approximately 1.4 miles downstream of the existing U.S. 287/U.S. 50 bridge. The proposed bridge is a 1,400-foot-long multi-span structure to provide adequate flood capacity and wildlife movement along the riparian corridor. A grade separated crossing (no access) is proposed over existing SH 196 just north of the new Arkansas River bridge.

Along the northern portion of the alignment a grade separated diamond interchange is proposed with SH 196. The realignment of U.S. 287 will reconnect with the existing highway at County Road 7 just west of the Port of Entry station. The existing east/west portion of U.S. 287/U.S. 50 south of the realignment will be reconfigured to serve as a frontage road to maintain access to existing businesses along U.S. 287/U.S. 50. This new frontage road will be extended west approximately 600 feet and connect to County Road 7 with an improved at-grade intersection.

The existing high-speed curve of U.S. 287/U.S. 50, known locally as the "KLMR curve" for the radio station near the west tangent of the curve, will be removed. The existing U.S. 287/U.S. 50 route north of the Arkansas River bridge will be designated as Main Street, and will consist of a four-lane section north to the proposed interchange at SH 196.

The "study area" in which environmental resources were evaluated is 600 feet wide south of U.S. 50 and 1,200 feet wide north of U.S. 50. The "project footprint" or "preferred alignment" comprises a 300-foot-wide right-of-way, including the features described above.

## 2.0 Methodology

This study was conducted by reviewing:

- current conditions in the project corridor through field reconnaissance conducted in August and September 2002 and late April 2003 by project biologists;
- the CNHP database to establish known sensitive species and plant communities in or near the project area;
- U.S. Fish and Wildlife Service (USFWS) and Colorado Division of Wildlife (CDOW) database information identifying candidate, proposed and listed state or federal TES known to occur in Prowers County (USFWS 2001; Michaels 2002); and
- project-related issues with CDOW Lamar staff regarding listed species in the area (Bennett 2002; Yost 2002; Konishi 2004).

Available literature, databases and communications from the USFWS, CDOW and CNHP were reviewed to determine the potential for TES and sensitive species presence or suitable habitat in the project area. USGS quadrangle maps and available literature were also reviewed. Based on these reviews, a list of potential TES and sensitive species in the project area was developed (Table 1). These species were determined to either potentially occur in or near the project area, or the project area is within the range of the species and suitable habitat is present in the project area. Sensitive species ranked by CNHP for rareness, state species of concern, and federal candidate and proposed species are not regulated. However, they were included in this review for documentation purposes.

Following development of the list of potential species or suitable habitat in the project area, a site reconnaissance of the proposed project area was conducted on foot and in vehicles in August and September 2002. Scanning surveys with binoculars were conducted through the entire project area. The presence or potential presence of species based on signs (tracks, vocalizations, etc.) was recorded as was potential suitable habitat within the project area. A second site reconnaissance was conducted in April 2003 to review areas of the preferred alternative added since the late summer survey. Site surveys for black-tailed prairie dogs and burrowing owls were conducted during this reconnaissance. Results of both field surveys are provided in Section 3.0.

**TABLE 1**  
Threatened, Endangered, and Sensitive Species Potentially Occurring in the Project Area

Common Name	Scientific Name	State and Federal Regulatory Status <sup>1</sup>	CNHP Rareness Rank <sup>2</sup>
<b>Amphibians</b>			
Couch's spadefoot toad	<i>Scaphiopus couchii</i>	SC	S1
Plains leopard frog	<i>Rana blairi</i>	SC	S3
<b>Birds</b>			
Bald eagle	<i>Haliaeetus leucocephalus</i>	ST, FT	S1B, S3N
Burrowing owl	<i>Athene cunicularia</i>	ST	S4
Eskimo curlew	<i>Numenius borealis</i>	FE	S1
Ferruginous hawk	<i>Buteo regalis</i>	SC	S3B, S4N
Gary vireo	<i>Vireo vicinior</i>	--	S2B
Least tern	<i>Sterna antillarum</i>	SE, FE	S1B
Lesser prairie-chicken	<i>Tympanuchus pallidicinctus</i>	ST	S2
Long-billed curlew	<i>Numenius americanus</i>	SC	S2B
Mountain plover	<i>Charadrius montanus</i>	SC	S2B
Piping plover	<i>Charadrius melodus</i>	ST, FT	S1, S1B
Western snowy plover	<i>Charadrius alexandrinus nivosus</i>	SC	S1B
Whooping crane	<i>Grus americana</i>	SE, FE	SAN
<b>Fish</b>			
Arkansas darter	<i>Etheostoma cragini</i>	ST	S2
Suckermouth minnow	<i>Phenacobius mirabilis</i>	SE	S3

**TABLE 1**  
Threatened, Endangered, and Sensitive Species Potentially Occurring in the Project Area

Common Name	Scientific Name	State and Federal Regulatory Status <sup>1</sup>	CNHP Rareness Rank <sup>2</sup>
<b>Insects</b>			
Little white tiger beetle	<i>Cicindela lepida</i>	--	S3
<b>Mammals</b>			
Black-footed ferret	<i>Mustela nigripes</i>	SE, FE	S1
Black-tailed prairie dog	<i>Cynomys ludovicianus</i>	SC	S4
Eastern spotted skunk	<i>Spilogale putorius</i>	--	S2
Southern plains woodrat	<i>Neotomo micropus</i>	--	S3
Swift fox	<i>Vulpes velox</i>	SC	S3
<b>Reptiles</b>			
Longnose snake	<i>Rhinocheilus lecontei</i>	--	S1
Texas horned lizard	<i>Phrynosoma cornutum</i>	SC	S3
Yellow mud turtle	<i>Kinosternon flavescens</i>	SC	S1
<b>Plants</b>			
Dwarf milkweed	<i>Asclepias pumila</i>	--	S1, S2

Source: CNHP 2002.

#### FOOTNOTES

##### <sup>1</sup>Regulatory Status (updated 2004)

FC = Federal endangered species candidate      SC = State species of concern  
FE = Federal endangered species                    SE = State endangered species  
FT = Federal threatened species                    ST = State threatened species

##### <sup>2</sup>CNHP Rareness Rank (updated 2004)

S1 = critically imperiled in the state (5 or fewer occurrences)  
S2 = imperiled in the state (6 to 20 occurrences)  
S3 = vulnerable throughout the state or found locally in a restricted range (21 to 100 occurrences)  
S4 = apparently secure in state, though may be rare in parts of range, especially periphery  
S#B = refers to breeding season rareness  
S#N = refers to non-breeding season rareness  
SAN = refers to non-breeding accidental occurrence in the state

## 3.0 Current Conditions

The southern portion of the project area corridor is predominantly characterized by short/mixed-grass rangeland and sandsage (*Artemisia filifolia*) sandhill community, while the northern portion of the project area contains irrigated crop and pasture bordering the Arkansas River. Figure 1 shows the project corridor, the proposed alignment, and various habitat types.

A large portion of the proposed project area is highly disturbed due to intensive farming or ranching activities. The majority of waterways in the project area are characterized as ditches or canals, and water quality and habitat quality are poor. The riparian area adjacent

to the Arkansas River is dominated by impenetrable stands of tamarisk, a phreatophyte that is impacting water supplies. Drought conditions have also affected water levels in all water systems including the Arkansas River.

### 3.1 Rangeland

The southern portion of the project corridor is characterized by short/mixed grass rangeland and sandhill plant community. A large percentage of the project corridor south of the Arkansas River is used for forage crops and short/mixed-grass rangeland (continuous from the southern terminus at U.S. 287, north five miles to the Fort Bent Canal). This rangeland consists of typical shortgrass/mixed-grass prairie including blue grama (*Bouteloua gracilis*), side oat grama (*Bouteloua curtipendula*), needle and thread (*Hesperostipa comata*) and sand dropseed (*Sporobolus cryptandrus*). Sandsage is the dominant plant community/wildlife habitat south of the irrigated cropland bounding the Lamar Canal, a distance of approximately two and one-half miles. Dominant species include sandsage and sagewort (*Artemisia* sp.) with an admixture of scrub oak (*Quercus* sp.).

### 3.2 Irrigated Cropland and Pasture

The northern portion of the project corridor consists of irrigated cropland and pasture, and along the Arkansas River, remnant riparian forest and dense willow/tamarisk stands. The project corridor crosses five irrigation canals on both north and south floodplains of the Arkansas River. Prominent habitat/plant community features of this portion of the project area include intermittent stands of plains cottonwood trees (*Populus deltoides* var. *monilifera*), located generally in the river floodplain; irrigation canals with narrow fringe wetlands; dense willow and tamarisk stands located on and directly adjacent to the bank of the Arkansas River; and cropland or short/mixed-grass pasture north and south of the river.

### 3.3 Species

Table 2 lists TES and sensitive or rare species known to occur in or near the project area and species for which suitable habitat is present, and their habitat. This list is based on results of the literature and database reviews, interviews with agency biologists, and field reconnaissance and surveys of the project area by project biologists. Supplemental information for each species is provided in the text following Table 2.

The following TES and rare species were eliminated from consideration or evaluation in the project area due to the low probability of occurrence based on rarity and lack of observations and suitable habitat in the project vicinity: Eskimo curlew (*Numenius borealis*), whooping crane (*Grus americana*), and gray vireo (*Vireo vicinior*). Additionally, the dwarf milkweed (*Asclepias pumila*), a CNHP rare species, was eliminated from further evaluation due to lack of suitable habitat in the project area.

**TABLE 2**  
Habitat Requirements for Threatened, Endangered, and Sensitive Species Known from or With Suitable Habitat in the Project Area

Common Name	Scientific Name	Habitat Requirements	Known from Project Area	Suitable Habitat in Project Area <sup>1</sup>
<b>Amphibians</b>				
Couch's spadefoot toad	<i>Scaphiopus couchii</i>	Shortgrass prairie waterways		Yes
Plains leopard frog	<i>Rana blairi</i>	Margins of surface water bodies		Yes
<b>Birds</b>				
Bald eagle	<i>Haliaeetus leucocephalus</i>	Open water bodies, prairie dog colonies		Yes; W
Burrowing owl	<i>Athene cunicularia</i>	Grasslands with animal burrows; prairie dog colonies	Yes	
Ferruginous hawk	<i>Buteo regalis</i>	Grasslands with prairie dog colonies		Yes; W
Least tern	<i>Sterna antillarum</i>	River channel sandbars, open water, lake/reservoir shorelines		Yes; S
Lesser prairie-chicken	<i>Tympanuchus pallidicinctus</i>	Mixed-grass prairie habitat, particularly sand dropseed, blue grama and little bluestem, and sandsage and yucca. Optimal habitat occurs as a mosaic of mixed-grass and forbs with interspersed shrubby cover.		Yes; B
Long-billed curlew	<i>Numenius americanus</i>	Shortgrass prairie, fallow agricultural fields, meadows		Yes; B
Mountain plover	<i>Chardrius montanus</i>	Intensively grazed shortgrass prairie and prairie dog colonies. Prefers level areas with significant percentage of bare ground, migrants use dry mudflats and dry reservoir shorelines. Nests are located on the ground, often on hilltops.		Yes; B
Piping plover	<i>Charadrius melodus</i>	Lake shores, mudflats, beaches, riverbed sandbars and wetlands	Yes	
Western snowy plover	<i>Charadrius alexandrinus nivosus</i>	Nests on secluded lake shores or alkali flats above high water. Uses open water margins.		Yes; B
<b>Fish</b>				
Arkansas darter	<i>Etheostoma cragini</i>	Pebble/sand bottomed pools in spring-fed streams and marshes	Yes	
Suckermouth minnow	<i>Phenacobius mirabilis</i>	Clear, shallow riffle zones in streams with sand and gravel substrates.		Yes
<b>Insects</b>				
Little white tiger beetle	<i>Cicindela lepida</i>	Sand hills and floodplains	Yes	
<b>Mammals</b>				
Black-footed ferret	<i>Mustela nigripes</i>	Prairie dog colonies		Yes

TABLE 2

Habitat Requirements for Threatened, Endangered, and Sensitive Species Known from or With Suitable Habitat in the Project Area

Common Name	Scientific Name	Habitat Requirements	Known from Project Area	Suitable Habitat in Project Area <sup>1</sup>
Black-tailed prairie dog	<i>Cynomys ludovicianus</i>	Short/mixed grasslands	Yes	
Eastern spotted skunk	<i>Spilogale putorius</i>	Agricultural areas with abundant brush, riparian woodlands		Yes
Southern plains woodrat	<i>Neotoma micropus</i>	Semi-arid and desert grasslands; prefers areas with prickly pear, cholla cactus		Yes
Swift fox	<i>Vulpes velox</i>	Short/mixed grass prairie on flat open range		Yes
<b>Reptiles</b>				
Longnose snake	<i>Rhinocheilus lecontei</i>	Sand hills, grasslands, weedy areas		Yes
Texas horned lizard	<i>Phrynosoma cornutum</i>	Shortgrass prairie with bare ground		Yes
Yellow mud turtle	<i>Kinosternon flavescens</i>	Waterways and surrounding grasslands and sand hills; prefers south-facing sand slopes for nesting	Yes	

Source: CNHP 2002

<sup>1</sup>Seasonal Occurrences

B = breeding; S = summer resident; W = winter resident

### 3.3.1 Amphibians

Two sensitive amphibians potentially occur in the project area:

- Couch's spadefoot toad, and
- Plains leopard frog.

**Couch's spadefoot toad** (*Scaphiopus couchii*) is a mottled toad that is not well known in Colorado. This species is cryptic and its habitat preferences have not been properly distinguished, though its habitat is believed to include shortgrass prairie waterways (Hammerson 1999). The CDOW lists Couch's spadefoot toad as a species of concern; the CNHP rareness rank is S1. Although Hammerson (1999) does not report any occurrences in Prowers County, the project area has the same temperature, precipitation and growing season as known locations on the Arkansas River to the west in Bent and Otero counties (Hammerson 1999). Further, Hammerson (1999) states that because the species is difficult to predict and locate it is likely to be more widely distributed in southern Colorado. Suitable habitat exists in the project area in riparian areas.

The **plains leopard frog** (*Rana blairi*) is a medium-sized frog formerly widespread in the Great Plains and including the southeastern counties of Colorado. It is excluded from the northeastern portion of the state by the northern leopard frog (*Rana pipiens*) and the two exhibit sympatry and some hybridization in counties north of the project area (Hammerson 1999). The CDOW lists the plains leopard frog as a species of concern; the CNHP rareness rank is S3. Plains leopard frogs may be found on the margins of any surface water body.

Populations have suffered from water development and predation by the bullfrog (*Rana catesbeiana*). Suitable habitat exists in the project area in riparian areas.

### 3.3.2 Birds

The following species of listed and sensitive birds are present or may occur in or near the project area, including during migratory stopovers:

- Bald eagle,
- Burrowing owl,
- Ferruginous hawk,
- Least tern,
- Lesser prairie-chicken,
- Long-billed curlew,
- Mountain plover,
- Piping plover, and
- Western snowy plover.

The **bald eagle** (*Haliaeetus leucocephalus*) is a large raptor that winters in the Arkansas River valley. The bald eagle is listed as threatened by CDOW and USFWS. Bald eagles prefer habitat containing surface water, including reservoirs, lakes and streams. Wintering bald eagle habitat often includes prairie dog colonies. It is estimated that 800 individuals winter in Colorado; and 51 pairs nested in the state in 2001 (CDOW 2002d). On the eastern plains wintering bald eagle prefer the South Platte and Arkansas River valleys (Andrews and Righter 1992). Field reconnaissance of the project area identified suitable habitat along the Arkansas River including the black-tailed prairie dog colony located north of the river.

The **burrowing owl** (*Athene cunicularia*) is a small, ground nesting, diurnal owl whose primary habitat is prairie dog colonies. Burrowing owls roost and nest underground in abandoned burrows excavated by burrowing mammals; but have a strong preference for prairie dog burrows. This bird breeds in Colorado during summer months but migrates south out of the state from October to the end of February (Partners in Flight 2002). This species is a state threatened species and its CNHP rareness rank is S4.

A survey for burrowing owls was conducted in April 2003 within and adjacent to the area occupied by the prairie dog colony in the footprint of the preferred alignment south of SH 196. The survey protocol followed CDOW recommendations, and consisted of early morning visual survey for two consecutive mornings. Results of the survey indicated one individual and one breeding pair of owls observed adjacent to the survey area in the prairie dog colony. Additional owls were also observed in the colony farther outside the project area. The burrowing owl survey is Attachment A.

The **ferruginous hawk** (*Buteo regalis*) is a large soaring hawk of Colorado's eastern plains. Although uncommon during summer, Colorado hosts 20 percent of the species' population during winter (Andrews and Righter 1992; Partners in Flight 2002). The CDOW lists the ferruginous hawk as a species of concern and the CNHP rareness rank is S3B, S4N. This raptor preys primarily on prairie dogs and other rodents (Partners in Flight 2002). Wintering birds are known to preferentially hunt prairie dog colonies (Andrews and Righter



1992). Field reconnaissance identified suitable habitat in the project area in the black-tailed prairie dog colony located north of the Arkansas River.

The **least tern** (*Sterna antillarum*) is the smallest North American tern, measuring 9 inches long with a wingspan of 20 inches. In Colorado, it is found in the Arkansas and South Platte River valleys. The least tern is a state and federal endangered species; the CNHP rareness rank is S1B. Least terns are uncommon summer residents at several Arkansas River valley reservoirs located between Lamar and La Junta. Nesting sites include sandy/pebbly lakeshores above high water line and on river channel sandbars. Field reconnaissance indicates that although mid-channel sandbars exist where the project area crosses the Arkansas River, these areas are not isolated enough from treed shorelines and would not serve as nesting sites. Least tern may occasionally forage along the Arkansas River in the project area during migration or as non-breeding summer residents.

The **lesser prairie-chicken** (*Tympanuchus pallidicinctus*) is found in portions of southeast Colorado and adjoining states. The lesser prairie-chicken is a threatened species under Colorado NETSCA; its CNHP rareness ranking is S2. Lesser prairie-chicken prefer mixed-grass prairie habitat, particularly sand dropseed, blue grama and little bluestem, and sandsage and yucca. Optimal habitat occurs as a mosaic of mixed-grass and forbs with interspersed shrubby cover (Natural Resources Conservation Service and Wildlife Habitat Council 1999; Colorado Division of Wildlife 2002). Populations in Colorado are centered south of Holly, approximately 30 miles east of the project area, and in Baca, Pueblo and Kiowa counties (Colorado Division of Wildlife 2002). Intensive surveys conducted over much of southeastern Colorado by CDOW in April 2004 did not detect lesser prairie-chickens within 15 miles of Lamar (Konishi 2004).

The **long-billed curlew** (*Numenius americanus*) is a shorebird that breeds in Prowers County. It is known from an observation made nine miles west of the project area in 1975. This species is a CDOW species of concern; its CNHP rareness rank is S2B. Long-billed curlews utilize shortgrass prairie, fallow fields, and meadows. Nest sites are often located near open water. Breeding areas are known to exist northeast of the project area in Prowers and Kiowa counties (Andrews and Righter 1992). Much of the project area is suitable migratory stopover habitat; pasture areas north of the Arkansas River may be potential nesting habitat.

The **mountain plover** (*Charadrius montanus*) is a small shorebird of the shortgrass prairie inhabiting eastern Colorado including Prowers County. This species is a Colorado species of concern; its CNHP rarity rank is S2B. Colorado is one of two primary breeding states; however, population estimates plummeted from 1967 to 1991 in northeastern Colorado from 21,000 to 1,971 birds (Knopf 1991). Mountain plovers migrate and breed in Prowers County; the species is reported from a site two miles south of the project area (CNHP 2002). Mountain plover habitat includes intensively grazed shortgrass prairie and prairie dog colonies. They prefer level areas with significant percentage of bare ground, and migrants utilize dry mudflats and dry reservoir shorelines (Andrews and Righter 1992). Field reconnaissance identified potential habitat in the project area south of the Fort Bent Canal and in the black-tailed prairie dog colony north of the Arkansas River.

The **piping plover** (*Charadrius melodus*) is a small shorebird that potentially visits or inhabits lake shores, mudflats, beaches, riverbed sandbars and wetlands of northern Prowers County and the lower Arkansas River valley (Andrews and Righter 1992; CDOW 2002). The piping plover is a federal and Colorado threatened species with a CNHP rareness rank of S1. These birds are both migratory and breeders in southeastern Colorado. Piping plovers select as habitat areas with sparse vegetation. The John Martin Reservoir and Adobe Creek Reservoir in Bent County are the primary nesting sites in Colorado; and nesting has also been reported at Neenoshe and Neegronda reservoirs north of the project area (CDOW 2002; Andrews and Righter 1992). One piping plover observation was made adjacent to the western end of the project area in May 1988 (CNHP 2002). Field reconnaissance located two areas of suitable habitat within the project area: sandbars in the Arkansas River channel and wet meadows located in the Arkansas River floodplain north of the river.

The **western snowy plover** (*Charadrius alexandrinus nivosus*) is a small shorebird that requires secluded lake shores or alkali flats above high water for successful nesting. This species is a Colorado species of concern; the CNHP rareness rank is S1B. Western snowy plover is an uncommon spring and fall migrant in the lower Arkansas River valley. Summer residents breed at Blue Lake, Cheraw Lake and Neegronda Reservoir in and adjacent to the Arkansas River valley (Andrews and Righter 1992). Field reconnaissance did not locate any breeding habitat or high quality stop-over habitat within the project area. Western snowy plover may occasionally forage through the project area during migration.

### 3.3.3 Fish

One listed fish is known to occur in the project area and a second species has suitable habitat and could occur in the project area or nearby downstream:

- Arkansas darter, and
- Suckermouth minnow.

The **Arkansas darter** (*Etheostoma cragini*) is a 3-inch minnow-like fish related to walleye and perch. The fish is protected as a Colorado threatened species; its CNHP rareness rank is S2. The Arkansas darter prefers spring-fed, pebble- or sand-bottomed pools of small spring-fed streams and marshes (USFWS 2001; CDOW 2002b). CDOW has identified the area north of U.S. 50 as important Arkansas darter habitat. Within the project area Arkansas darter populations have been identified in the Markham Arroyo Ditch during the 1990s; populations also may exist in the adjoining Hyde Canal (Bennett 2002; CNHP 2002). Populations also exist in the Vista Del Rio Ditch west of the project area. The Arkansas River is not likely important habitat, as high sediment and turbidity have impaired the river's water quality.

The **suckermouth minnow** (*Phenacobius mirabilis*) is a small (2- to 5-inch) cyprinid that inhabits the Arkansas River from the John Martin Reservoir east to the Colorado state line. The suckermouth minnow is a Colorado state endangered species, and has a CNHP ranking of S3. This species prefers clear, shallow riffle zones in streams with sand and gravel substrates, and spawns during summer floods (Bennett 2002; CDOW 2002b). Field reconnaissance of the Arkansas River found suitable habitat where the proposed project corridor crosses the Arkansas River and downstream of this crossing.

### 3.3.4 Insects

One rare insect is known to occur in the project area:

- Little white tiger beetle.

The **little white tiger beetle** (*Cicindela lepida*) is the only sensitive insect species listed for Prowers County (CNHP 2002). The CNHP lists the beetle's rarity as S3. General habitat in this area includes both sandhill topography and floodplains. This species was sighted adjacent to the west side of the project area near the Fort Bent Canal in 1991 (CNHP 2002).

### 3.3.5 Mammals

One state species of concern is known to occur in the project area and four other listed or rare species may have suitable habitat. Four of these species are extant in southeastern Colorado and may occur where suitable habitat exists (Anderson, et al. 1986; Fitzgerald, et al. 1994). The black-footed ferret has not been identified as a wild population in Colorado since before 1977 and has never been reported in Prowers County. Listed and rare mammals known or potentially occurring in the project area are:

- Black-footed ferret,
- Black-tailed prairie dog,
- Eastern spotted skunk,
- Southern plains woodrat, and
- Swift fox.

The **black-footed ferret** (*Mustela nigripes*) is a cat-sized weasel with a distinctive black eye mask. It is arguably the rarest mammal in the western hemisphere, with no wild populations known to exist. It is a federally and state listed endangered species, and listed by CNHP as S1. In some circumstances the USFWS currently requires surveys to be conducted to verify no adverse effects on this species from federal actions (see Section 4.0 Potential Impacts and Mitigation). Field reconnaissance identified potential black-footed ferret habitat within the project area at a black-tailed prairie dog colony south of SH 196 and north of the Arkansas River that measures about 125 acres. Details and results of the April 2003 project survey for prairie dogs are described in Attachment A.

The **black-tailed prairie dog** (*Cynomys ludovicianus*) is a colonial, highly social, squirrel family rodent that is a candidate for state listing under NETSCA; the CNHP rareness rank is S4. The black-tailed prairie dog is an important ground dwelling Great Plains animal known to have wide-ranging effects on North American grassland ecosystems. This species has declined greatly from its populations of early last century largely due to agricultural conversion of grasslands, systematic eradication efforts and the accidental introduction of sylvatic plague (USFWS 2002). The CDOW has recently increased its estimate of the black-tailed prairie dog habitat in Colorado from 200,000 or 300,000 to 600,000 acres (CDOW 2002). Black-tailed prairie dogs are diurnal and active year-round. Field reconnaissance located one black-tailed prairie dog colony within the project area. This colony is located north of the Arkansas River and is estimated to cover about 125 acres, a portion of which is within the preferred alternative footprint. See Attachment A for prairie dog survey results. This colony also represents suitable habitat for plovers, burrowing owl and black-footed ferret.

The **eastern spotted skunk** (*Spilogale putorius*) is a small skunk of the Great Plains and eastern United States whose range includes a portion of the South Platte River in northeast Colorado, and the lower Arkansas River valley in Prowers and Bent counties (Fitzgerald, et al. 1994). The CNHP rareness rank is S2. This skunk inhabits agricultural areas where there is abundant brush, and riparian woodlands. One undated eastern spotted skunk occurrence is known from a location four miles south of the project area (CNHP 2002). Field reconnaissance identified continuous habitat north of the Fort Bent Canal in the project area.

The **southern plains woodrat** (*Neotomo micropus*) is a medium-sized woodrat whose range reaches its northern limit along the Arkansas River in southeastern Colorado. This species is ranked S3 by CNHP. The southern plains woodrat typically inhabits semi-arid and desert grasslands. In Colorado it relies on prickly pear and cholla cactus grasslands (Fitzgerald et al. 1994). Home ranges are quite small; dens are constructed from cholla joints and prickly pear leaves (Finley 1958). One undated observation of the southern plains woodrat has been reported nine miles south of the project area (CNHP 2002). Field reconnaissance of the project area identified suitable habitat in the southern half of the project area where cactus and stands of shrubs are mixed with short/mixed grasses.

The **swift fox** (*Vulpes velox*) is a small, primarily nocturnal canid, that is widespread across the eastern plains of Colorado. However, population decline due to predator control and hunting has resulted in the swift fox being listed as a state species of concern. The CNHP rareness rank is S3. Swift fox prefer flat open range, but have been found in dissected topography in southeastern Colorado. Field reconnaissance identified the southern third of the project area as potential swift fox habitat.

### 3.3.6 Reptiles

Sensitive reptiles known or potentially occurring in the project area are:

- Longnose snake,
- Texas horned lizard, and
- Yellow mud turtle.

The **longnose snake** (*Rhinocheilus lecontei*) is a secretive, average-sized snake with a black “saddle” pattern along the spine. Widely distributed in the southwest, in Colorado it is known only in the southeastern counties and not thought to be significantly distributed north of the Arkansas River system (Hammerson 1999). The CNHP rareness rank is S1. This species is thought to be fairly common in the Arkansas River valley where it inhabits grasslands and weedy areas, and especially sandhill habitat (Hammerson 1999). Field reconnaissance identified suitable habitat north of County Road DD, or approximately the northern 70 percent of the project area.

The **Texas horned lizard** (*Phrynosoma cornutum*) is a five-inch-long, flat bodied, spiny lizard of southern grasslands that occurs in the southeastern corner of Colorado south of the Fort Bent Canal. CDOW lists this lizard as a species of concern; the CNHP rareness rank is S3. Texas horned lizards have suffered from over-collection and grassland conversion to crops.

This species requires grassland habitat, and prefers areas with large bare ground mosaics. They are compatible with livestock grazed areas, but are not found in cropland (Hammerson 1999). This species has been reported from Prowers County locations west and south of the project area (Hammerson 1999). Field reconnaissance identified suitable habitat south of the Fort Bent Canal, approximately the southern two-thirds of the project area, but particularly between the Fort Bent Canal and County Road DD.

The **yellow mud turtle** (*Kinosternon flavescens*) is a hard-shelled, yellow-throated turtle that is fairly localized along the eastern border of Colorado in the Republican and Arkansas river drainages. This species is a CDOW species of concern; the CNHP rareness rank is S1. Habitat for the yellow mud turtle includes permanent/intermittent streams, ponds, ephemeral pools, irrigation ditches, and surrounding grasslands and sand hills (Hammerson 1999). Aquatic habitats with vegetation and/or muddy or sandy substrates are preferred (Mahmoud 1969). Two observations of yellow mud turtle have been made in the area: an old record (1904) from the Fort Bent Canal in the project area vicinity and in 1998 from Willow Creek approximately one mile west of the project area (CNHP 2002). Field reconnaissance identified the area north of the Fort Bent Canal as suitable habitat.

## 4.0 Potential Impacts

This section discusses the potential impacts of the proposed project on listed species known or potentially occurring in the project area. Non-regulated species including federal candidates for listing, state species of concern, and rare species listed by CNHP are also documented, though they do not receive regulatory protection.

Direct effects on species may result from habitat disturbance, loss of foraging area or food source, disturbance from construction-related activities, and project operation and maintenance activities. Indirect impacts may result from increased public access and fragmentation of habitat. Habitat fragmentation and loss will be minimized through utilization of the existing county road for the alignment south of U.S. 50.

Potential impacts to each species are summarized in Table 3. Shaded lines indicate species that are federal threatened, endangered or candidate, or state threatened, endangered or special concern.

### 4.1 Amphibians

**Couch's spadefoot toad** and the **Plains leopard frog** may be temporarily affected by construction along the canals, ditches, and the Arkansas River in the project area. Impacts to these species can be avoided by implementing water quality best management practices during construction, and no mitigation is necessary.

### 4.2 Birds

The effects on **bald eagles** and **ferruginous hawks** from construction and operation of the project can be minimized through pre-construction surveys for roosting trees and habitat.

If occupied habitat is determined to be in the project area, set backs recommended by CDOW will be implemented as feasible.

Impacts to **burrowing owls**, including habitat loss and nesting disturbances, can be avoided by following CDOT's guidelines for removing black-tailed prairie dog, and filling and grading of burrows from November through February before territories are occupied.

**Least terns** are not likely to nest in the project area because mid-channel sandbars exist only intermittently where the proposed alignment crosses the Arkansas River; this area is not isolated enough from dense shoreline vegetation to serve as a nesting site. Thus, the project will not affect the least tern, and no mitigation is necessary.

Although suitable habitat exists within the project area, surveys by CDOW in Spring 2004 did not detect **lesser prairie- chicken** within 15 miles of Lamar. The proposed project will not affect on the species, and no mitigation is necessary.

The proposed project may result in the loss of a small amount of **long-billed curlew** migratory habitat, but not affect nesting habitat. No impact will occur to the species and no mitigation is necessary.

Potential impacts to **mountain plovers** in the project area will be avoided by building on the existing county road alignment south of the Fort Bent Canal; and minimized by implementing CDOT prairie dog relocation guidelines in the colony north of the Arkansas River. No mitigation is necessary.

Although the **piping plover** is known from a location adjacent to the west end of the project area, only migratory stopover habitat is available in the project area. The project may have minimal effect on use of wet meadow and sandbar areas during construction in the project area, and minimal long-term effect from loss of habitat. Potential impacts can be avoided by conducting ground disturbance from October through March, before the plover migrates back into southeastern Colorado.

**Western snowy plovers** may occasionally utilize the project area as a migratory stopover. The project is not expected to affect this species and no mitigation is necessary.

### 4.3 Fish

The **Arkansas darter** and **suckermouth minnow** may be impacted temporarily by impaired water quality during construction activities. This potential impact can be avoided through use of best management practices (BMPs) for erosion and sediment control, and with compliance inspection monitoring during construction. Bridges and culverts spanning all waters in the project area will be designed to allow for appropriate flows and water quality.

### 4.4 Insects

The **little white tiger beetle** will not be affected by the proposed action, and no mitigation is necessary.

## 4.5 Mammals

The **black-footed ferret** may be affected by loss of habitat and food source with removal of the prairie dog colony. According to a U.S. Fish and Wildlife biologist that specializes in the black-footed ferret, the conditions in and near the study area make it highly unlikely ferrets are present or would be impacted by the Proposed Action (Leachman 2003). Current species understanding is that very large prairie dog colonies are necessary to support ferrets; captive releases, for example, are not made in colonies under several thousand acres in size. While the ecology of ferrets suggests the small colony in the study area may provide a minor supplemental food source, there is no current or historic record of ferrets ever being sighted in Prowers County.

Construction of the project will result in destruction of a portion of the **black-tailed prairie dog** colony located on the north side of the Arkansas River. Constructing the preferred alternative will fragment a portion of the colony, although black-tailed prairie dogs will recolonize adjacent suitable soils. Project impacts to the black-tailed prairie dog will be managed by implementing CDOT's relocation guidelines.

The **eastern spotted skunk**, the **southern plains woodrat**, and the **swift fox** have suitable habitat in the project area. Potential project effects include fragmentation of habitat and increased vehicle mortality.

## 4.6 Reptiles

The **longnose snake** and **Texas horned lizard** will not be affected by construction of the proposed project. Operation of the project may act as a dispersal barrier to movement up and down the Arkansas River valley, and may slightly increase mortality due to vehicular collisions. No mitigation is necessary.

Potential effects to the **yellow mud turtle** from project construction can be avoided by using BMPs to control erosion, sedimentation and protect water quality. Operation of the project will have little effect on the yellow mud turtle because their dispersal movements are small and waterway habitat will be restored.

TABLE 3

Potential Impacts and Mitigations for Listed Species Known From and Potentially Occurring in the Project Area

Species	Potential Impacts	Mitigation Recommendations
<b>Amphibians</b>		
Couch's spadefoot toad	Impaired water quality and habitat disturbance during construction along canals, ditches, and Arkansas River	Implement construction best management practices (BMPs) to protect water quality and riparian areas
Plains leopard frog	Same as Couch's spadefoot toad	Same as Couch's spadefoot toad
<b>Birds</b>		
Bald eagle	Loss of roosting habitat if large cottonwoods removed from riparian areas; loss of food	Avoid removing large cottonwoods along Arkansas; follow CDOT prairie dog

**TABLE 3**  
Potential Impacts and Mitigations for Listed Species Known From and Potentially Occurring in the Project Area

Species	Potential Impacts	Mitigation Recommendations
	source from removing prairie dog colony north of Arkansas River	management policy
Burrowing owl	Loss of habitat from removing prairie dog colony north of Arkansas River, nesting disturbance during construction	Follow CDOT prairie dog management policy; schedule site preparation from November to February while species is absent
Ferruginous hawk	Same as for bald eagle	Same as for bald eagle
Least tern	No impact	No mitigation required
Lesser prairie-chicken	No impact	No mitigation required
Long-billed curlew	No impact	No mitigation required
Mountain plover	Minor habitat fragmentation and loss in the prairie dog colony north of the Arkansas River	Follow CDOT prairie dog management policy
Piping plover	Minor habitat loss, nesting disturbance	Schedule bridge construction seasonally to avoid nesting birds
Western snowy plover	No impact	No mitigation required
<b>Fish</b>		
Arkansas darter	Impaired water quality during construction	Implement water quality BMPs
Suckermouth minnow	Same as Arkansas darter	Implement water quality BMPs
<b>Insects</b>		
Little white tiger beetle	No impact	No mitigation required
<b>Mammals</b>		
Black-footed ferret	Loss of minor habitat and food source from removing prairie dog colony north of Arkansas River	Follow CDOT prairie dog management policy
Black-tailed prairie dog	Habitat fragmentation and loss north of Arkansas River	Follow CDOT prairie dog management policy
Eastern spotted skunk	Habitat fragmentation, increased vehicle mortality	No mitigation required
Southern plains woodrat	Habitat fragmentation, increased vehicle mortality	No mitigation required
Swift fox	Minor habitat loss south of Fort Bent Canal	No mitigation required
<b>Reptiles</b>		
Longnose snake	Barrier to movement along Arkansas River valley	No mitigation required
Texas horned lizard	Same as longnose snake	Same as longnose snake
Yellow mud turtle	Impaired water quality during construction	Implement water quality BMPs

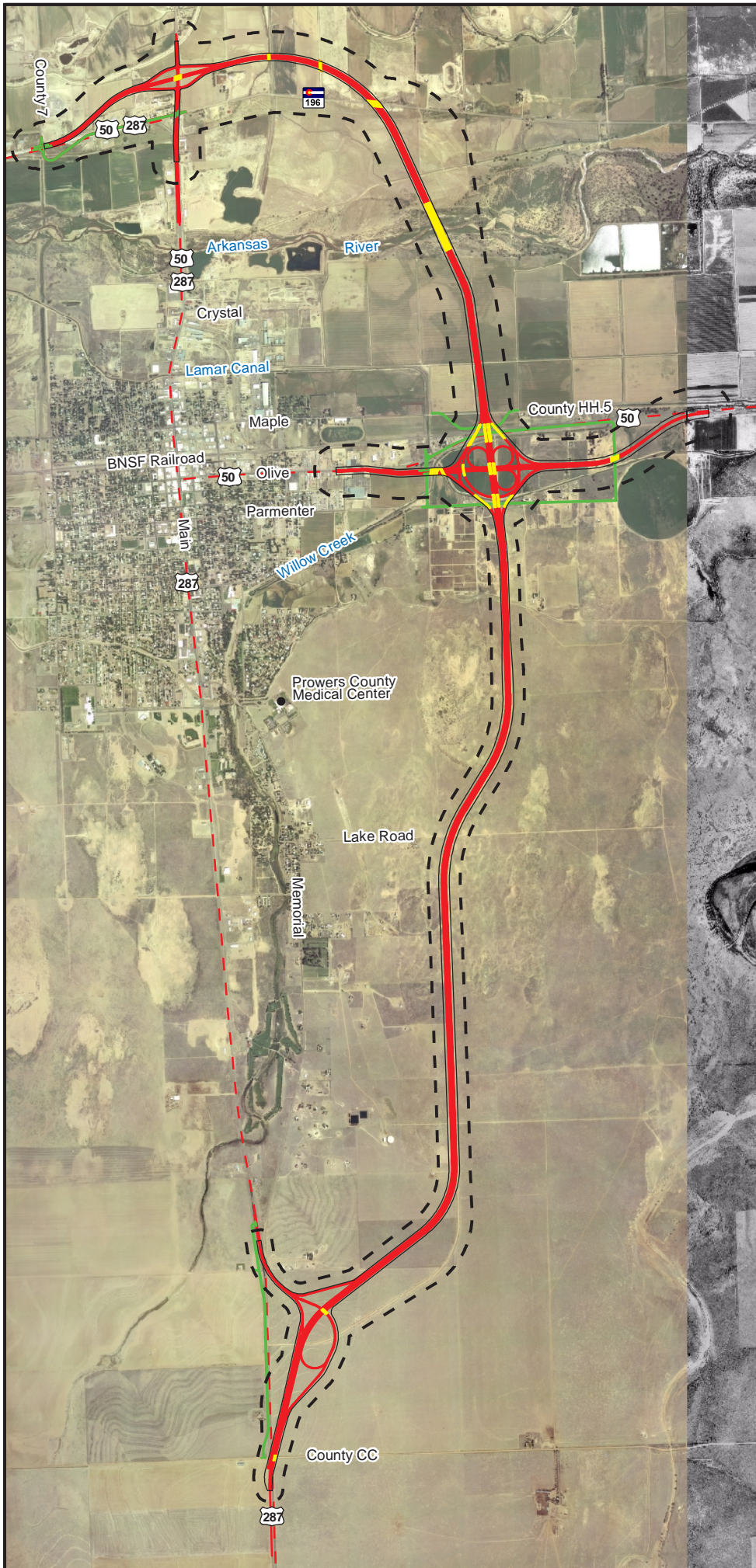


## 5.0 References

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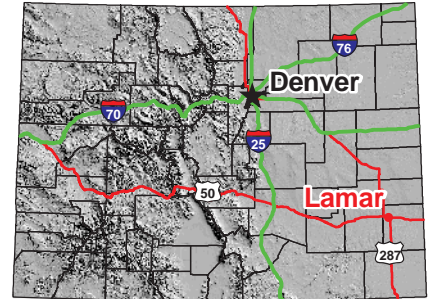
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**Legend**

- Study Area
- Proposed Project Footprint
- Frontage Roads
- Bridges
- Existing US 50 and 287



Location Map



**Sources:**

CH2MHILL  
 Kirkham-Michael  
 Color Aerials 2002  
 BW Aerials 1988

**Projection:**

Colorado State Plane Grid  
 South Zone, NAD83

**Figure 1**  
**Proposed Action**

*US 287 at Lamar*





**Legend**

- Study Area
- Proposed Project Footprint
- Existing US 50 and 287
- Suitable Habitat**
- Arkansas Darter
- Piping Plover
- Prairie Dog, Burrowing Owl, Black Footed Ferret
- Raptors
- Swift Fox, Lesser Prairie Chicken
- Swift Fox, Mountain Plover



**Sources:**

CH2MHILL  
 Kirkham-Michael  
 Color Aerials 2002  
 BW Aerials 1988

**Projection:**

Colorado State Plane Grid  
 South Zone, NAD83

**Figure 2**  
**Suitable Habitat**

*US 287 at Lamar*

# U.S. 287 at Lamar: Black-Tailed Prairie Dog/Burrowing Owl Survey

PREPARED FOR: CDOT Region 2  
PREPARED BY: John DuWaldt  
COPIES: Jessie Gourlie/CH2M HILL, Dirk Draper/CH2M HILL  
DATE: June 20, 2003

## 1.0 Introduction

This attachment reports the results of a field survey conducted April 29 and 30, 2003, at the U.S. Highway 287 (US 287) Lamar project area located on the east side of the City of Lamar in Prowers County, Colorado. The field survey was conducted to:

- Determine the presence of black-tailed prairie dogs within, and proximate to, the Preferred Alternative;
- Determine the presence of burrowing owls within and proximate to the Preferred Alternative;
- Determine if the size and density of black-tailed prairie dog burrows in the subject colony meet the U.S. Fish and Wildlife Service (USFWS) black-footed ferret survey criteria (USFWS 1989); and
- Screen Preferred Alternative areas including the north and south terminus, and the State Highway 50 (SH 50) interchange area for sensitive biotic resources.

## 2.0 Methodology

Project biologists Jessie Gourlie and John DuWaldt conducted a burrowing owl survey of the subject black-tailed prairie dog (BTPD) colony on the mornings of April 29 and 30, 2003, from 7:45 a.m. to 10:45 a.m. and 11:00 a.m., respectively. Survey protocol followed Colorado Division of Wildlife (CDOW) recommendations for burrowing owl surveys (CDOW, undated) and consisted of binocular scans of consecutive segments of the BTPD colony from inconspicuous locations peripheral to the colony. Observation points on three sides of the approximately rhomboid-shaped colony were used. Although owls closest to observation points were aware of the presence of investigators, those owls did not employ burrow escapes, so it is assumed that no owls were missed as a result of spooking by surveyors. Survey results were recorded in a logbook. Burrowing owl burrows proximate to the Preferred Alternative were marked 2 hours prior to a horizontal location survey on April 29. Pin flags used to mark two owl burrows proximate to the Preferred Alternative were removed immediately following use by the horizontal survey crew.

Following the binocular survey, the Preferred Alternative and adjacent area were walked to locate physical evidence of other unobserved burrowing owls. No physical evidence was noted at burrows other than those known to be occupied.

Boundaries of the BTPD colony were mapped using observations from perimeter walks on the north, east, and west sides of the colony. The perimeter of the colony was mapped onto a 7.5-minute U.S. Geological Survey (USGS) topographic quadrangle, and an acreage estimate was calculated using the mapped area.

Other portions of the Preferred Alternative located at the northern and southern terminus, and the SH 50 interchange were surveyed from automobile and on foot with binoculars.

## 3.0 Results

### 3.1 Black-Tailed Prairie Dogs Occupying the Preferred Alternative

Black-tailed prairie dogs occupy a 1,320-foot section of the Preferred Alternative that traverses north to south across the Hall property. The Preferred Alternative crosses a colony that stretches east to west across the Smith and Hall properties. An approximate 6-acre area of the alignment on the Hall property is occupied by this colony. An estimated 164 BTPD burrows and 63 BTPDs occupy this portion of the alignment. The BTPD density on the occupied portion of the alignment is 10.5 BTPDs/acre and 27.3 burrows/acre. These numbers represent averages for the occupied alignment; however, the actual distribution of animals is skewed toward the northern half of the alignment on the Hall property.

Colorado Department of Transportation (CDOT) policy requires that efforts be made by the project to minimize the loss of prairie dogs and that BTPD removals be conducted humanely. The above information will be used in planning removal of these animals prior to construction, as well as documenting the impacts of the project in the environmental assessment. In addition, the USFWS "Black-Footed Ferret Survey Guidelines for Compliance With the Endangered Species Act (1989) states that subject prairie dog colonies with burrow densities greater than 8.0/acre qualify for black-footed ferret surveys (although this is not the only criteria). There is no required animal density.

### 3.2 Burrowing Owls

All burrowing owls were located within the BTPD colony. A total of 10 burrowing owls were observed during the two survey periods. This population consisted of three pairs and four single individuals. Three burrowing owls (one pair plus one individual owl) were located within 200 feet of the Preferred Alternative on the Hall property south of State Highway 196 (SH 196). The remaining seven burrowing owls were located more than 600 feet from the Preferred Alternative, and six of the seven other burrowing owls were located in excess of 2,000 feet from the Preferred Alternative. One burrowing owl was located on the Smith property and nine were located on the Hall property. Of the three burrowing owls located closest to the Preferred Alternative, two were a nesting pair and the third owl appeared to be an unmated adult. All owls were inhabiting burrows within the BTPD colony.



### 3.3 Black-Tailed Prairie Dog Colony Area

The BTPD colony is located on the Hall and Smith properties and is crossed by the Preferred Alternative on the Hall property. The colony occupies an area that is roughly trapezoid in shape. The trapezoid is bounded by the east boundary of the Smith property; the west boundary of the Hall property; the Vista del Rio canal on the north; and the Hyde canal on the south. This is shown in Figure A1. The colony is estimated to be 5,657 feet in length and 1,509 feet at its greatest width. The east and west ends of the colony are narrower than the central portion. A conservative calculation of the area of the BTPD colony was estimated to determine if the 80-acre threshold for a USFWS-required black-footed ferret survey is exceeded. The following calculation estimates that the colony is, at a minimum, 125.6 acres in size:

Central BTPD colony size:	$3,394 \text{ ft} \times 1,509 \text{ ft} = \frac{5,121,546 \text{ sq ft}}{43,560 \text{ sq ft (square feet in 1 acre)}} = 117.6 \text{ acres}$
Narrow end one-fifth of BTPD colony size:	$589 \text{ ft} \times 589 \text{ ft} = \frac{346,921 \text{ sq ft}}{43,560 \text{ sq ft}} = 8.0 \text{ acres}$
Total acreage:	$117.6 + 8.0 = 125.6 \text{ acres}$

## 4.0 Northern and Southern Termini, and the SH 50 Interchange

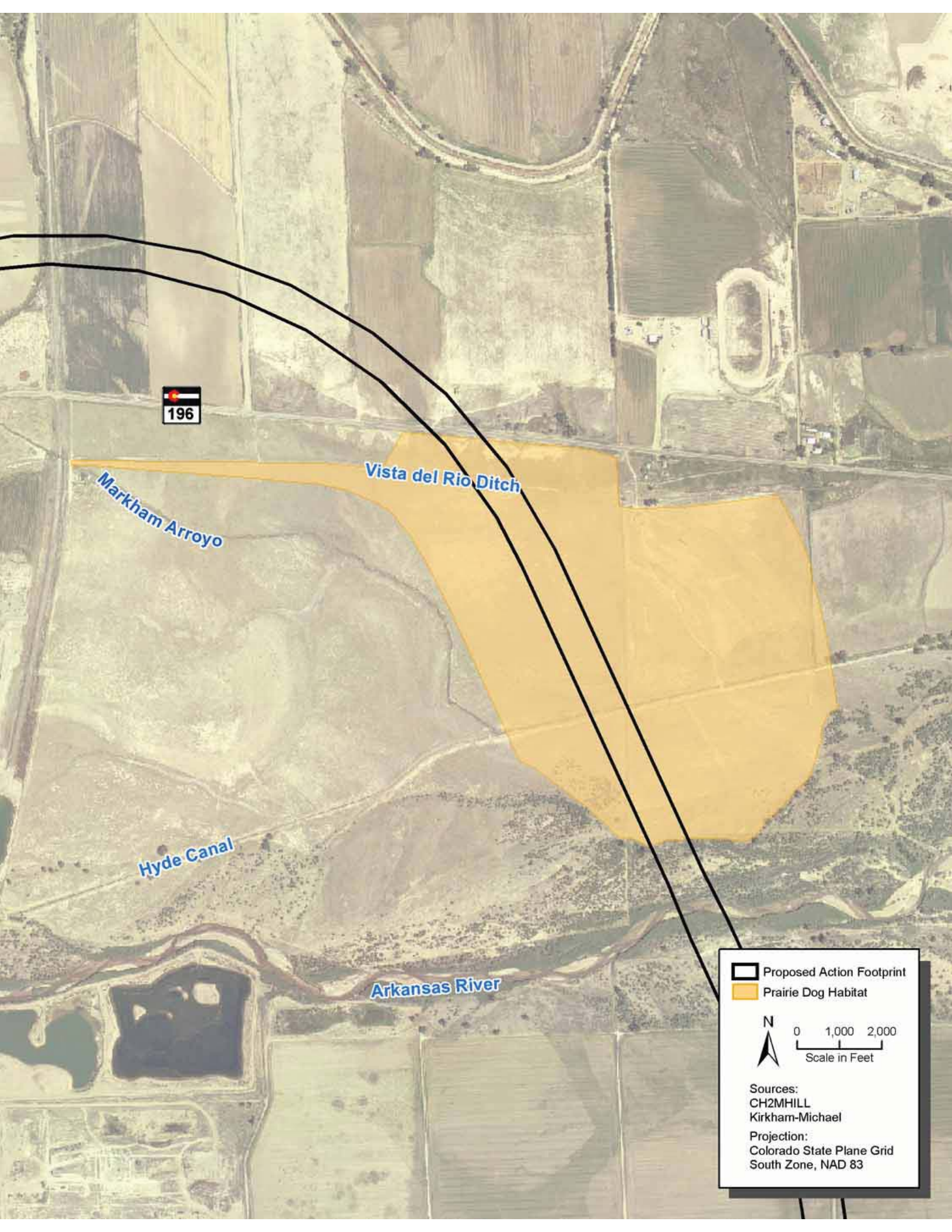
Binocular observations of Preferred Alternative areas located at the northern and southern terminus of the Bypass, and the SH 50 interchange located few significant or sensitive biological resources beyond those already identified.

### 4.1 Northern Terminus

Habitat consists of winter wheat and alfalfa fields, disturbed commercial properties, and the Markham Canal. The realignment will likely result in a larger loss of crop acreage. The Markham Canal is habitat for the candidate threatened species Arkansas darter. A small colony of two dozen cliff swallows (a migratory bird protected by the Migratory Bird Treaty Act) were nesting under the SH 50 bridge over the Amity Canal at the northern end of the study area.

### 4.2 Southern Terminus

Habitat consists of grazed short/mixed grasses. The realignment will result in a larger loss of rangeland. At the realigned southern terminus area, a flock of 30 male lark buntings, prairie horned larks, and a red-tailed hawk were observed.





196

Markham Arroyo

Vista del Rio Ditch

Hyde Canal

Arkansas River

 Proposed Action Footprint  
 Prairie Dog Habitat

N  
0 1,000 2,000  
Scale in Feet

Sources:  
CH2MHILL  
Kirkham-Michael

Projection:  
Colorado State Plane Grid  
South Zone, NAD 83



### 4.3 SH 50 Interchange

Habitat consist of canals, a few trees, and cropland. The realignment will result in a larger loss of crop acreage and two additional canal crossings at Willow Creek and the Lamar Canal.

Other wildlife observed included a Swainson's hawk hunting on the Hall property, great blue herons passing along the Arkansas River, and bank swallows nesting off the alignment.

## 5.0 Conclusions and Recommendations

No burrowing owls were located within the Preferred Alternative at the time of the survey; however, it is possible that in future years, including the construction period, burrowing owls could roost and nest in the Preferred Alternative. For these three species (black-tailed prairie dog, burrowing owl, and black-footed ferret), and in accordance with CDOT, CDOW, and USFWS guidelines for mitigating impacts to these species, the following is recommended:

### 5.1 Black-Tailed Prairie Dog

The CDOT BTPD mitigation policy requires the project to follow a triage hierarchy of preferred removal options. However, the mitigation options and order of preference are:

- Avoid;
- Relocate within the constraints of SB99-111; or
- Capture live and distribute to black-footed ferret program(s).

Removal should be conducted by a professional service; if toxicants are to be applied, the contractors' permits, training records, and performance should be verified. The CDOW does not consider clearing and grubbing a humane option for removing animals from the right-of-way.

### 5.2 Burrowing Owl

1. Resurvey the alignment prior to clearing and grubbing if construction commences after the spring migration (after March 1 and before October 31). If clearing of the BTPD colony portion of the Preferred Alternative occurs between November 1 and February 28, no survey is necessary.
2. If a resurvey shows that burrowing owls have nested in an area that will be physically disturbed by construction of the project, consult with the USFWS relative to a nest depredation permit.

### 5.3 Black-Footed Ferret

Conduct a presence/absence survey of the entire Hall/Smith property BTPD colony as close to initiating construction/removing black-tailed prairie dogs and not more than 1 year prior to the construction start. However, if toxicants are used to remove BTPDs the survey is required to occur 30 days or less prior to the removal (see Attachment B, Black-Footed Ferret Survey Methodology).

## 6.0 References

Colorado Division of Wildlife (CDOW). (Undated). *Suggestions for Handling Burrowing Owl Issues*. Electronic facsimile received August 14, 2002. CDOW. Denver, CO, pp. 2.

## U.S. 287 at Lamar: Black-Footed Ferret Survey Methodology

PREPARED FOR: CDOT Region 2  
PREPARED BY: John DuWaldt  
COPIES: Jessie Gourlie/CH2M HILL, Dirk Draper/CH2M HILL  
DATE: June 20, 2003

### 1.0 Introduction

This attachment outlines requirements for conducting a black-footed ferret (BFF) (*Mustela nigripes*) survey on the black-tailed prairie dog colony located on the Hall and Smith property in the U.S. Highway 287 (US 287) Lamar project area. The Preferred Alternative crosses approximately 6 acres of this colony on the Hall property and will result in disturbance of the colony and a loss of approximately 164 burrows and an estimated 63 black-tailed prairie dogs. The 1989 U.S. Fish and Wildlife Service (USFWS) "Black-footed Ferret Survey Guidelines for Compliance With the Endangered Species Act" (guidelines) provides detailed information regarding survey requirements used to establish the absence/presence of the black-footed ferret (USFWS, 1989). Confirmed presence of the ferret would require the project to enter a formal consultation with the USFWS pursuant to Section 7 of the Endangered Species Act. Although the USFWS has conceded that no black-footed ferret population exists along the urbanized Front Range, it still requires surveys for prairie dog colonies subject to disturbance or removal in other parts of the state including Prowers County. Survey technique and timing are variable according to the spatial composition of the subject prairie dog colony as well as time of year and type of removal or disturbance planned. This attachment serves to outline the exact survey requirements for the US 287 Lamar project according to the USFWS guidelines.

The black-footed ferret is a small black-masked prairie weasel, and is one of the rarer mammals in the western hemisphere. It is classified as an endangered species by the USFWS and the Colorado Division of Wildlife (CDOW), and is not known to exist as a wild population in Colorado. The black-footed ferret is an obligate predator of prairie dogs and inhabits prairie dog colonies in preference over all other habitats. For the purpose of determining which colonies qualify for BFF surveys, the guidelines define a colony (town) as a "... group of prairie dog holes whose density meets or exceeds 20 burrows per hectare (8 burrows/acre)." Colonies meeting or exceeding this burrow density and encompassing 80 acres or more that are scheduled for disturbance or destruction outside of the urban Colorado Front Range require a black-footed ferret survey prior to treatment. The 80-acre threshold is based on basal metabolism research and home-range field observations establishing that black-footed ferrets require a prairie dog area of at least this size to survive. The USFWS also has requirements for surveying multi-colony mosaics, but that case does not apply to the US 287 Lamar project.

## 2.0 Methodology

BFF surveys consist of a trained biologist conducting either a nocturnal spotlighting survey used to detect animals aboveground or a daylight search for wintertime evidence (snow tracks, fresh digging, scat, skeletal remains) diagnostic of the black-footed ferret. Four factors dictate the timing and intensity of the survey:

- The size of the colony;
- Whether or not toxicants will be employed to remove prairie dogs;
- The type of toxicant used; and
- The time of year when ground disturbance will commence.

Figure B1 shows a decision-logic detailing how these factors affect the survey requirement for the BTPD colony crossed by the US 287 Bypass alignment on the Hall property. Table B1 lists the requirements for each of the two survey methods. It should be noted that although the nocturnal method allows July-October surveys and the daylight method allows December-March surveys, behavioral observations indicate that BFF are less active aboveground during April, May, June, and November (USFWS, 1989; Biggins et al., 1986). Resulting concerns regarding false negatives led to a survey prohibition during these four months.

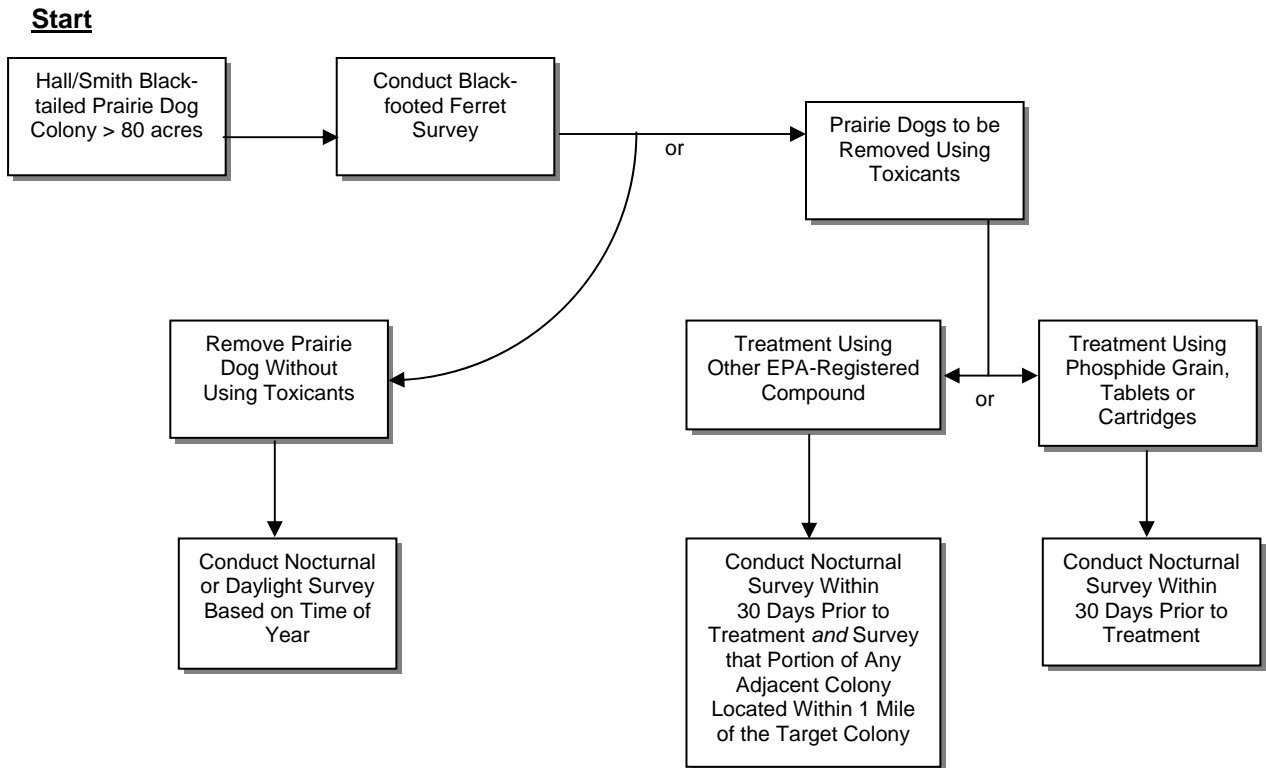


FIGURE B1  
Black-footed Ferret Survey Requirements

TABLE B1  
Survey Method Requirements

Nocturnal Survey Method	Diurnal Survey Method
<b>Season:</b> July 1-October 31.	<b>Season:</b> December 1-March 31.
<b>Timing:</b> Within 1 year prior to disturbance/treatment (see Figure B1 regarding use of toxicants).	<b>Timing:</b> Same.
<b>Conditions:</b> Conduct continuous spotlight survey from dusk until dawn. Successive-night start point should be altered.	<b>Conditions:</b> Searches conducted in daylight. Each search conducted at least 24 hours after new snowfall; or 10 days or more after previous search.
<b>Intensity:</b> Three consecutive nights/320 acres. Hall/Smith colony requires one night based on size (125 acres).	<b>Intensity:</b> Three searches on each colony. Searches may be conducted from slow-moving vehicle (<5 mph), but overlapping transects must be driven.
<b>Crew Size:</b> One vehicle/two observers. At least one crewmember should be a biologist trained in BFF search techniques.	<b>Crew Size:</b> Same.
<b>Tools:</b> Two 200,000-300,000 candle-power spotlights, notebook, and camera.	<b>Tools:</b> Camera, notebook, maps, measuring tape, baggies, and skull/track/scat illustrations.
<b>Evidence Documentation:</b> Photographs, notes, and map of animal locations.	<b>Evidence Documentation:</b> Photographs, drawing, and measurements of BFF-type digging, etc.; map evidence locations.
<b>Agency Contact:</b> USFWS Region 6; Colorado Division of Wildlife, Lamar, Colorado.	<b>Agency Contact:</b> Same. In addition, it is requested that sufficient evidence be gathered prior to contacting agency.

### 3.0 Conclusions and Recommendations

The USFWS requires a black-footed ferret survey to determine if the black-tailed prairie dog colony crossed by the proposed US 287 Bypass alignment harbors any BFF. This colony meets the 80-acre minimum size requirement for a BFF survey, and the entire colony is required to be surveyed. In addition, if prairie dogs inhabiting the alignment will be euthanized using non-phosphide toxicants, it is required that any other colony within 1 mile of the subject colony be surveyed as well. In the current situation, a second smaller colony was noted near industrial property southwest of the Hall property on the south side of the Arkansas River and is likely within 1 mile of the Hall/Smith colony. It is suggested that non-phosphide toxicants be avoided unless they are less expensive than a 1-day addition to the survey effort.

It is recommended that the nocturnal search method be employed during summer/fall because it is an effective method of locating BFF; it requires at least 33 percent less labor than the daylight, wintertime method, and can be performed without the presence of snow and without the need for more than one mobilization.

Approximately 5 to 8 labor hours will be required to develop a survey report that addresses USFWS requirements. This report must include maps of the colony and survey route(s), description of searches, acreage, weather, and time periods, identify crew and qualifications, state any BFF or signs observed, report any unknown or ambiguous observations, and include copies of notebook/datasheets used.

While it is not likely that a BFF would be reported as a result of this survey, the survey is a partial mitigation for impacts to the black-tailed prairie dog colony and provides Prowers County, CDOT, CDOW, and USFWS with important information regarding both the existence of the black-footed ferret in southeastern Colorado and the health and ecological status of black-tailed prairie dog community.

## 4.0 References

Biggins, Dean E., M.H. Schroeder, S.C. Forrest, and L. Richardson. (1986). Activity of radio-tagged black-footed ferrets. In: *The Black-footed Ferret, Great Basin Naturalist Memoirs No. 8*. Brigham Young University, Provo, UT.

U.S. Fish and Wildlife Service (USFWS). (1989). *Black-footed Ferret Survey Guidelines for Compliance With the Endangered Species Act*. USFWS, Denver, CO, and Albuquerque, NM.