

MEMO: Colorado Department of Transportation, Environmental Programs Branch (EPB), Denver, CO

To: Lisa Streisfeld, CDOT Region 2
From: Peterson, Jeff, CDOT EPB
CC: Rob Frei, CDOT Region 2
Date: 7/29/2011
Re: Special status species at US 287 at Lamar

INTRODUCTION: This memo reflects the conditions found along the proposed new alignment of US 287 around Lamar in July, 2011. It is meant to update the Technical Memorandum entitled "U.S. 287 at Lamar; Threatened and Endangered Species" dated June 9, 2003 and updated August 2, 2007. Both memos were prepared by CH2Mhill.

The project area is located in Prowers County, Colorado. The new alignment roughly follows CR CC.5 from the existing US 287 northward to US 50. At US 50 a large intersection is proposed which will allow access from US 287 to US 50 both east and west bound. US 287 is then proposed to continue northward through exiting agricultural fields, over the Arkansas River before curving to the east to reconnect with US 50 northwest of Lamar. See figure 1 for an aerial view of the proposed alignment. The land is currently owned by CDOT, Prowers County, and private landowners. This project currently has \$200,000 for design with an additional \$5 million programmed for both fiscal years 2016 and 2017.

SPECIES:

According to US Fish and Wildlife's IPaC system, as of July 21, 2011 there are four federally listed species that should be addressed for Prowers County. They are:

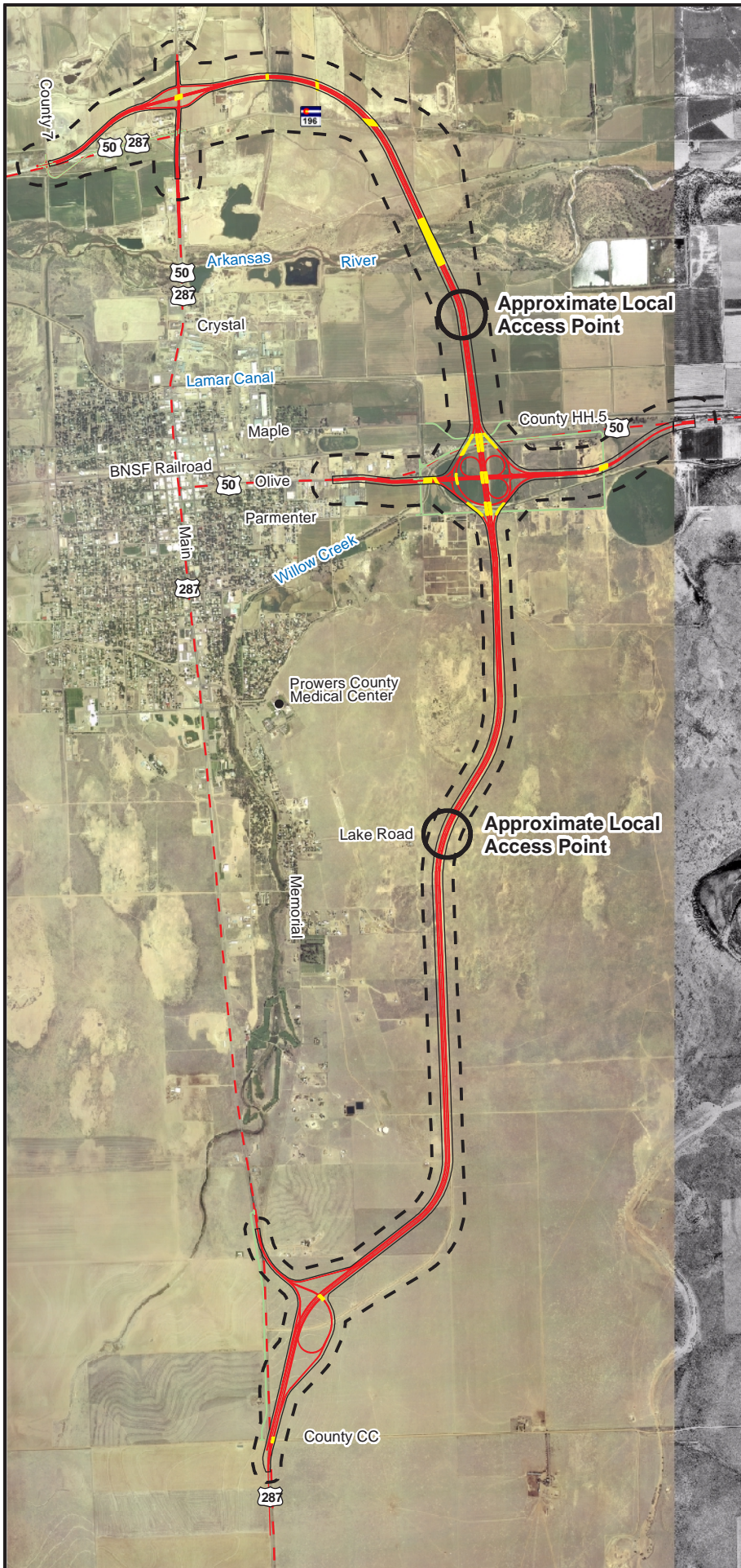
- Arkansas darter (*Etheostoma cragini*) Federal Candidate
- Least Tern (*Sternula antillarum*) Federal Endangered
- Lesser Prairie Chicken (*Tympanuchus pallidicinctus*) Federal Candidate
- Piping Plover (*Charadrius melodus*) Federal Threatened

According to the Colorado Division of Wildlife the following species are on the State of Colorado's list of threatened, endangered and species of concern and should also be addressed:

- Black-tailed prairie dog (*Cynomys ludovicianus*) Species of Concern
- Ferruginous Hawk (*Buteo regalis*) Species of Concern
- Long-billed Curlew (*Numenius americanus*) Species of Concern
- Massasauga (*Sistrurus catenatus*) Species of Concern
- Mountain Plover (*Charadrius montanus*) Species of Concern
- Plains leopard frog (*Rana blairi*) Species of Concern
- Swift fox (*Vulpes velox*) Species of Concern
- Texas horned lizard (*Phrynosoma cornutum*) Species of Concern
- Western Snowy Plover (*Charadrius alexandrinus nivosus*) Species of Concern
- Yellow mud turtle (*Kinosternon flavescens*) Species of Concern
- Bald Eagle (*Haliaeetus leucocephalus*) State Threatened
- Northern leopard frog (*Rana pipiens*) Species of Concern
- Orangethroat darter (*Etheostoma spectabile*) Species of Concern
- Stonecat (*Noturus flavus*) Species of Concern
- Lake chub (*Couesius plumbeus*) State Endangered
- Plains minnow (*Hybognathus placitus*) State Endangered
- Brassy minnow (*Hybognathus hankinsoni*) State Threatened
- Burrowing Owl (*Athene cunicularia*) State Threatened

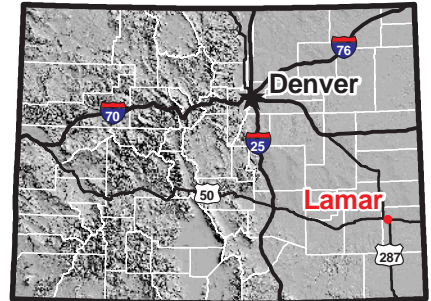
The following briefly describes the habitat requirements for each species.

Arkansas darter: In Colorado, Arkansas darters exist in just a few localities in clear, spring-fed streams that have abundant aquatic vegetation.



Legend

- Study Area
- Proposed Project Footprint
- Proposed US 287 and 50
- 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

Least Tern: In Colorado, Least Terns nest on the shores and islands of irrigation reservoirs. These locations are sparsely vegetated, sandy, silty or gravelly.

Lesser Prairie Chicken: Inhabits mixed grass-dwarf shrub communities that occur on sandy soils. Leks typically occur on knolls or ridges with relatively short and/or sparse vegetation. They will use human-created open areas (e.g., oil well pads, roads, reverted cropland, cultivated fields, and areas treated with herbicides), and recently burned areas to display. Lesser Prairie Chickens nest in sand sagebrush or shinnery oak grasslands with high canopy cover and moderate vertical and horizontal cover, primarily residual vegetation. Lesser Prairie Chickens may also use grain and milo from farmers' fields to forage for seed and other plant material during the winter months.

Piping Plover: Nests on sandy upper beaches, especially where scattered grass tufts are present, and sparsely vegetated shores and islands of shallow lakes, ponds, rivers, and impoundments.

Black-tailed prairie dog: Fine to medium textured soils in all major grassland types are preferred because burrows and other structures tend to retain their shape and strength better than in coarse, loose soils. Shallow slopes of less than 10% are preferred presumably in part because such areas drain well and are only slightly prone to flooding.

Ferruginous Hawk: Uses vast expanses of ungrazed or lightly grazed grassland and shrubland with varied topography. The Ferruginous Hawk feeds on small to medium sized mammals.

Long-billed Curlew: Uses prairies and grassy meadows, generally near water. The curlew nests in dry prairies and moist meadows on the ground usually in flat area with short grass, sometimes on more irregular terrain, often near rock or other conspicuous object.

Massasauga: Massasauga utilize semiarid grassland areas of relatively open shortgrass prairie. Hibernates in underground burrow (e.g., of mammal or crayfish), crevice, or similar protected site.

Mountain Plover: Preferred habitat consists of short-grass plains and fields, plowed fields and sandy deserts, and commercial sod farms. Nesting areas are characterized by very short vegetation, significant areas of bare ground (typically >30%, which may be the minimum requirement), and flat or gentle slopes (<5%). Commonly, nesting takes place in barren fields.

Plains leopard frog: Usually in the vicinity of streams, ponds, creek pools, reservoirs, irrigation ditches, and marshes in areas of prairie and desert grassland, farmland, and prairie canyons;

Swift fox: Open prairie and arid plains, including areas intermixed with winter wheat fields. Tends to avoid irrigated and dryland agricultural fields.

Texas horned lizard: Open arid and semiarid regions with sparse vegetation; grass, cactus, scattered brush or scrubby trees. Soil may vary in texture from sandy to rocky.

Western Snowy Plover: Utilizes beaches, dry mud or salt flats, sandy shores of rivers, lakes, and ponds. This plover nests on the ground on broad open beaches or salt or dry mud flats, where vegetation is sparse or absent.

Yellow mud turtle: Inhabits various quiet or slow-flowing bodies of water, usually with soft mud or sand bottom.

Bald Eagle: Usually found near open water or prairie dog colonies with large trees, especially cottonwoods, in the vicinity.

Northern leopard frog: Typical habitats include wet meadows and the bank of shallows of marshes, ponds, glacial kettle ponds, beaver ponds, lakes, reservoirs, streams, and irrigation ditches.

Orangethroat darter: Uses slow to swift riffles, sometimes runs and pools, of headwater, creeks, and small rivers with sand, gravel, rubble, or bedrock substrates.

Stonecat: Often under rocks in runs, riffles, and rapids in warm creeks and small to large rivers.

Lake chub: Varied habitats, standing or flowing water, large or small bodies of water; most common in gravel-bottomed pools and runs of streams and along rocky lake margins.

Plains minnow: Found in large streams and rivers over beds of sand and silt with some current. Clear to highly turbid rivers and creeks with sandy bottoms, high levels of dissolved solids, and slight to moderate erratic flows. Eggs probably are scattered over silt-bottomed backwaters.

Brassy minnow: Typically found in small, clear, sluggish, weedy creeks or small rivers with sand, gravel, or mud bottom overlain with organic sediment. Also common in cool, stained or acid waters of boggy streams, ponds, and lakes.

Burrowing Owl: Open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports, nesting and roosting in burrow dug by mammal. Burrowing Owls nest in abandoned burrows, particularly those of prairie dogs in Colorado.

PROJECT AREA HABITAT:

The following photographs document the habitat along the proposed alignment. Please see figures 2 and 3 for the location and directions the photos were taken.

Site 1.



This is an active hay field and provides no suitable habitat for the above mentioned species.

Site 2.



This is an active alfalfa field and provides no habitat for the above mentioned species.

Site 3.



This area is being actively farmed and provides no habitat for the above mentioned species.

Site 4.



Perennial stream that could provide habitat for the brassy minnow, yellow mud turtle, plains leopard frog, northern leopard frog and Arkansas darter.

Site 5.



This area is being actively farmed and provides no habitat for the above mentioned species.

Site 6.



This area is being actively farmed and provides no habitat for the above mentioned species.

Site 7.



This area is being actively farmed and provides no habitat for the above mentioned species.

Site 8.



This area contains black-tailed prairie dogs and provide habitat for Burrowing Owls. There are also perennial wetlands that provide nesting habitat for a variety of species. While not observed on this day, these banks could provide nesting habitat for Piping Plovers, Long-billed Curlew, Least Tern, and Western Snowy Plover.

Site 9.



This area is open rangeland and could provide habitat for kit fox, Texas horned lizard, massasagua, Mountain Plover, and Ferruginous Hawk.

Site 10.



This area is open rangeland and could provide habitat for kit fox, Texas horned lizard, massasagua, Mountain Plover, and Ferruginous Hawk.

Site 11.



This area is open rangeland and could provide habitat for kit fox, Texas horned lizard, massasagua, Mountain Plover, and Ferruginous Hawk.

Site 12.



This area contains black-tailed prairie dogs and provide habitat for Burrowing Owls.

Site 13.



This area is open rangeland and could provide habitat for kit fox, Texas horned lizard, massasagua, Mountain Plover, Lesser Prairie Chicken, and Ferruginous Hawk.

Site 14.



This area is open rangeland and could provide habitat for kit fox, Texas horned lizard, massasagua, Mountain Plover, Lesser Prairie Chicken, and Ferruginous Hawk.

Site 15.



This area is open rangeland and could provide habitat for kit fox, Texas horned lizard, massasagua, Mountain Plover, Lesser Prairie Chicken, and Ferruginous Hawk.

Site 16.



This area is open rangeland and could provide habitat for kit fox, Texas horned lizard, massasagua, Mountain Plover, Lesser Prairie Chicken, and Ferruginous Hawk.

Site 17.



This area is open rangeland and could provide habitat for kit fox, Texas horned lizard, massasagua, Mountain Plover, Lesser Prairie Chicken, and Ferruginous Hawk.

Site 18.



This area is open rangeland and could provide habitat for kit fox, Texas horned lizard, massasagua, Mountain Plover, and Ferruginous Hawk.

Site 19.



This area is open rangeland and could provide habitat for kit fox, Texas horned lizard, massasagua, Mountain Plover, Lesser Prairie Chicken, and Ferruginous Hawk.

Site 20.



Annual irrigation canal which may provide habitat for the yellow mud turtle.

Site 21.



This area is being actively farmed and provides no habitat for the above mentioned species.

Site 22.



This area is being actively farmed and provides no habitat for the above mentioned species.

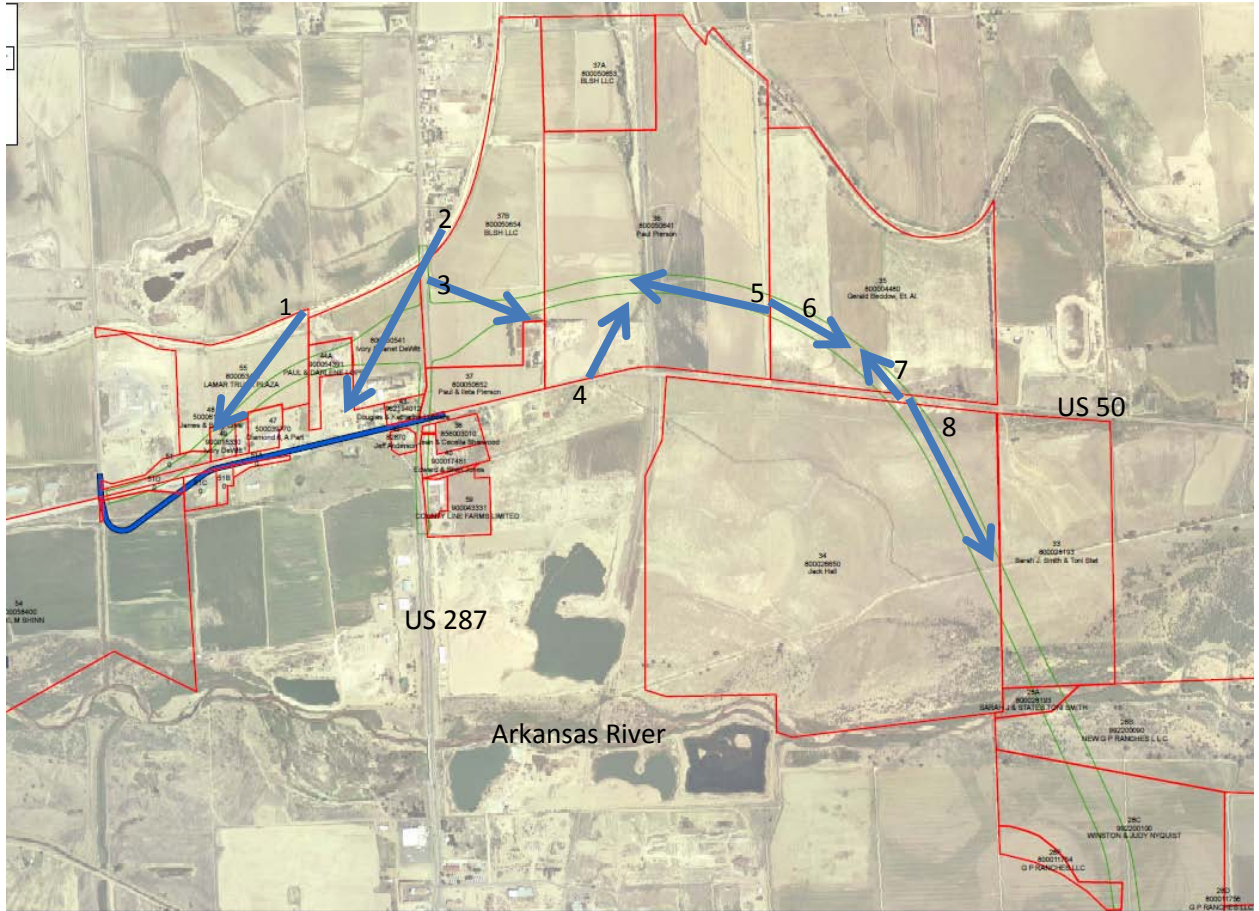


Figure 2. Arrows show the direction the numbered photos were taken from. Green lines indicate the proposed footprint of the project.

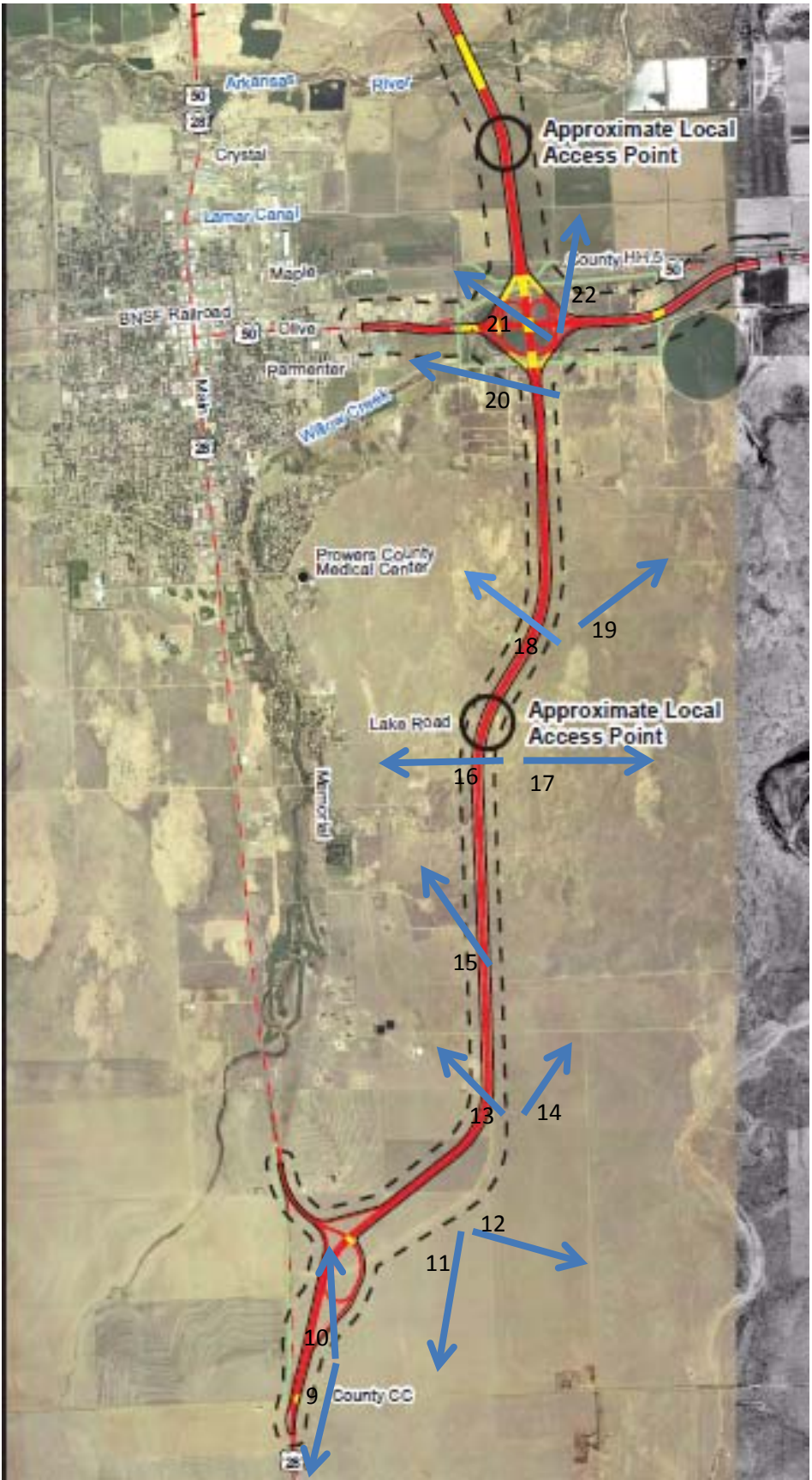


Figure 3. Arrows show the direction the numbered photos were taken. The project footprint is bounded by the dotted black line. US 287 is indicated by the dotted red line.

Please note: Access to the proposed crossing site of the Arkansas River was not granted. However, the habitat would be expected to support Long-billed Curlew, Bald Eagle, northern leopard frog, stonecat, lake chub and plains minnow.

Of the listed species only the orangethroat darter does not have habitat within the project area and will not be addressed further in this evaluation.

DETERMINATIONS AND RECOMMENDED CONSERVATION MEASURES:

Arkansas darter: This species is known from the project area at the Markham Arroyo Ditch and possibly the Hyde Canal.

Conservation measures:

- Install water quality BMPs to ensure silt and other debris does not enter waterways.
- Do not alter the hydrology of Markham Arroyo or the Hyde Canal.
- Avoid or remove barriers to fish movement (i.e. waterfalls)

Determination: May affect, not likely to adversely affect due to lack of impact to suitable habitat.

Least Tern: Suitable habitat may exist along the Arkansas River. However, due to the dense vegetation along the river, it is unlikely that the area is being used for nesting.

Conservation measures:

- Survey for suitable habitat at the Arkansas River (permission was not obtained for this evaluation).
- If suitable habitat does exist, avoid impact during the nesting season (April 15 – Aug 19).

Determination: If habitat is present, this project may affect, but is not likely to adversely affect the tern due to project scheduling. If no habitat is present, no effect.

Black-tailed prairie dog: This species does exist within the project area.

Conservation measures:

-Follow CDOT's black-tailed prairie dog policy

Determination: This project will likely impact this species

Ferruginous Hawk: This species does exist within the project area.

Conservation measures:

-Survey for nests prior to construction.

-If a nest is found follow CDOW guidelines (no work within 0.5 miles of nest from February 1 through July 15.

-If an inactive nest is found, remove the nest prior to occupation.

Determination: If no nests are found, no measurable impact due to amount of available habitat. If a nest is found and CDOW guidelines are followed, no effect. If a nest is found, but CDOW guidelines are not able to be followed, this project may impact individuals but not the species as a whole due to the amount of available habitat in the area.

Long-billed Curlew: Suitable habitat does exist within the project area. However, no curlew have been seen within 18 miles from the project location.

Conservation measures:

-Work in habitat outside of nesting season (May 30 – July 15).

-If that is not an option, survey suitable habitat prior to work.

-If an active nest is found, establish a no work zone 150' around the nest.

Determination: If no nests are found, no measurable impact due to amount of available habitat. If a nest is found and the buffer can be established, no effect. If a nest is found but cannot be avoided, this project may impact individuals but not the species as a whole.

Massasauga: Suitable habitat does exist within the project area.

Conservation measures:

-Maintain native range conditions in areas that are not farmed after construction is completed.

Determination: This project may impact individuals, but not the species as a whole.

Mountain Plover: Suitable habitat does exist within the project area.

Conservation measures:

- Conservation measures:

-Work in habitat outside of nesting season (May 30 – Aug 15).

-If that is not an option, survey suitable habitat prior to work.

-If an active nest is found, establish a no work zone 150' around the nest.

Determination: If no nests are found, no measurable impact due to amount of available habitat. If a nest is found and the buffer can be established, no effect. If a nest is found but cannot be avoided, this project may impact individuals but not the species as a whole.

Plains leopard frog: Suitable habitat does exist within the project area.

Conservation measures:

- Avoid work along canal margins May – July to minimize impact to metamorphosing larvae.

- Maintain current hydrology.

Determination: This project may impact individuals, but not the species as a whole.

Swift fox: Suitable habitat does exist within the project area.

Conservation measures:

-Minimize amount of impact to habitat taken in southern 1/3 of the project.

-If possible, provide structures that will allow safe passage under the highway.

- According to a study done by the California DOT entitled Effects of Four-Lane Highways on Desert Kit Fox and Swift Fox: Inferences for the San Joaquin Kit Fox Population, Clevenger, et. al., April 30, 2010. Culverts or CBCs should be placed as often as possible within swift fox habitat and should be 24"x24" minimum in size.

Determination: This project may impact individuals, but not the species as a whole.

Texas horned lizard: Suitable habitat does exist within the project area.

Conservation measures:

- If possible, provide structures that will allow safe passage under the highway. Structures installed for the swift fox will be used for the Texas horned lizard (see swift fox conservation measures for details).

Determination: This project may impact individuals, but not the species as a whole.

Western Snowy Plover: Suitable habitat does exist within the project area.

Conservation measures:

-Avoid impacting sandy areas near the Arkansas River.

Determination: This project may impact individuals, but not the species as a whole.

Lesser Prairie Chicken: Suitable habitat does exist within the project footprint. The Colorado Division of Wildlife (CDOW) does not believe there are any leks in the vicinity of the project area.

Conservation measures:

- Contact CDOW prior to final design and construction for updated information on leks
- Avoid any leks identified in the future

Determination: Due to the vast area available to the chicken and the lack of leks known at this time, it is believed that this project will have no measurable effect on the prairie chicken.

Piping Plover: Suitable habitat may exist along the Arkansas River. However, due to the dense vegetation along the river, it is unlikely that the area is being used for nesting.

Conservation measures:

-Survey for suitable habitat at the Arkansas River (permission was not obtained for this evaluation).

- If suitable habitat does exist, avoid impact during the nesting season (May 1 – June 28).

Determination: If habitat is present, this project may affect, but is not likely to adversely affect the plover due to project scheduling. If no habitat is present, no effect.

Bald Eagle: Suitable habitat does exist within the project area.

Conservation measures:

- Survey for nests and roosts. If found follow CDOW guidelines for buffer zones and seasonal restrictions.
- Work between July 31 and October 15 if a nest is located within ½ mile of the project area.
- Minimize impacts to prairie dog towns.
- Minimize removal of large cottonwood trees.

Determination: If nests or roosts are found within ½ mile of the project area, and the conservation measures are not implemented, this project may affect individuals, but not the species as a whole. If an active nest is found within ½ mile of the project and a buffer is not established, this project could be at risk of violating the Bald and Golden Eagle Protection Act.

Northern leopard frog: Suitable habitat does exist within the project area. However, there are no accounts of northern leopard frogs in Prowers County.

Conservation measures: none

Determination: This project will have no effect on the northern leopard frog.

Stonecat: Suitable habitat does exist within the project area. However, there are no accounts of stonecat within this watershed.

Conservation measures: none

Determination: This project will have no effect on the stonecat.

Lake chub: Suitable habitat does exist within the project area. However, there are no accounts of lake chub within this watershed.

Conservation measures: none

Determination: This project will have no effect on the lake chub.

Plains minnow: Suitable habitat does exist within the project area. However, the plains minnow is believed to be extirpated from Colorado.

Conservation measures: Use BMPs to keep highway construction/operation pollutants from entering waterways.

Determination: This project will have no effect on the plains minnow.

Brassy minnow: Suitable habitat does exist within the project area. However, there are no accounts of brassy minnow within this watershed.

Conservation measures: none

Determination: This project will have no effect on the brassy minnow.

Burrowing Owl: This species is known exist within the project area.

Conservation measures:

- Schedule work to occur within prairie dog town before March 15 or after October 31.
- If scheduling outside of the nesting season is not an option, survey for active nests within prairie dogs towns according to the CDOW recommended survey protocols.

-Active nests must be avoided out to a distance of 150' from edge of disturbance. Install a fence to delineate this boundary.

Determination: If no nests are found or if work is done outside of the nesting season, then there will be no measurable impact due to the amount of available habitat. If an active nest is found, but avoided until it is no longer active, there will be no impact, if an active nest is found but cannot be avoided, this project may impact individuals, but not the species as a whole.

SUMMARY:

Based upon the project description, location, habitat requirements and species distribution, the US 287 at Lamar project is expected to have the following effects.

May affect, but not likely to adversely affect. (A concurrence letter from the USFWS will be required):

Arkansas darter
Piping Plover
Least Tern

May affect individuals, but not the species as a whole:

Yellow mud turtle
Plains leopard frog
Black-tailed prairie dog
Burrowing Owl
Western Snowy Plover
Swift fox
Texas horned lizard
Massasaqua

No effect if recommended conservation measures are followed:

Long-billed Curlew
Mountain Plover
Bald Eagle
Ferruginous Hawk

No effect:

Brassy minnow
Northern leopard frog
Lesser Prairie Chicken
Stonecat
Lake chub
Plains minnow