

Project Description



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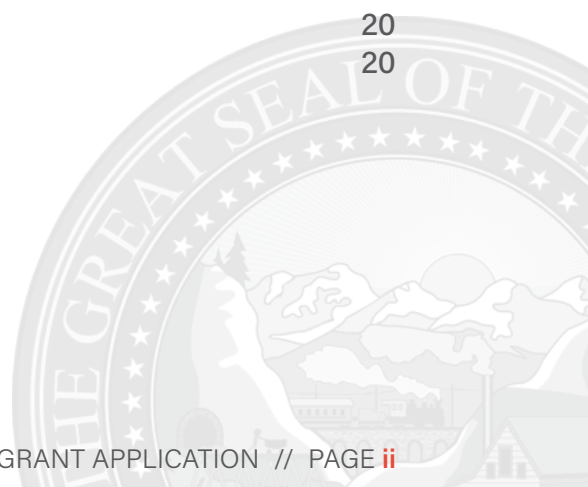
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Project Description

The Nevada Department of Transportation (NDOT) is applying for the Rebuilding American Infrastructure with Sustainability and Equity (RAISE) grant to assist with funding for the Coyote Springs Wildlife Crossings project in rural Clark and Lincoln Counties, Nevada. The Coyote Springs Wildlife Crossings project is located along United State Route 93 (US 93) from milepost 75.24 in Clark County to milepost 23 in Lincoln County, a distance of approximately 34 miles (see map on page 2). The project would construct 61 wildlife crossings and 68 total miles of tortoise barrier fencing within designated critical habitat essential to the recovery of the federally protected Mojave desert tortoise.

The Mojave desert tortoise, *Gopherus agassizii*, was listed by the United States Fish and Wildlife Service (USFWS) as a threatened species under the Endangered Species Act of 1973 (as amended) in 1990. The Mojave desert tortoise population (north and west of the Colorado River) has declined for decades due to various factors, including habitat loss and fragmentation, disease, and predation.

In 1994, the USFWS designated habitat critical to the survival and recovery of the desert tortoise in Nevada, California, Utah, and Arizona. Critical habitat is defined as specific areas supporting physical and biological features essential to the conservation of the species.



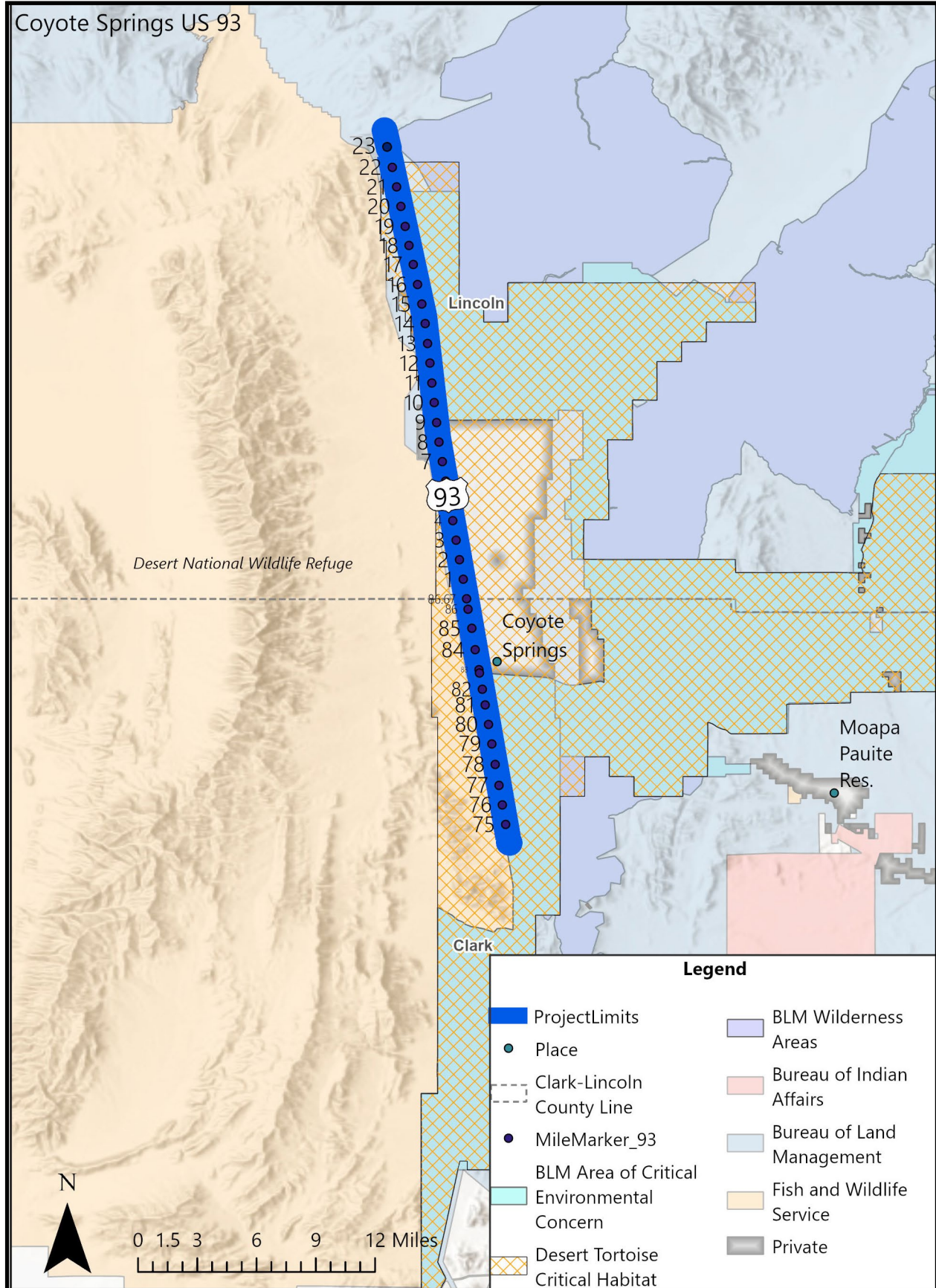
Mojave desert tortoise.

Desert tortoises occupy a variety of habitats, from flats and slopes dominated by creosote brush scrub to rocky slopes in blackbrush and Joshua tree woodlands. Throughout most of the Mojave Desert, tortoises commonly occur on sloping terrain with loamy soils and sparse cover of low-growing shrubs. Most threats to desert tortoises or their habitat are associated with human impacts and climate change.

Recovery of the desert tortoise is complicated by this species' naturally low reproductive rate, high juvenile mortality rate, and thus low adult recruitment rate. Due to their reproductive strategy and the high mortality rates of young tortoises, high adult tortoise survival rates are critical to recover the population and contribute to species survival. However, paved highways further negatively impact desert tortoise populations and habitats as they cause fragmentation and introduce higher potential for road mortality. The Desert Tortoise Final Revised Recovery Plan states wildlife crossings and barrier fencing should be installed and maintained along highways in desert tortoise habitats to avoid population fragmentation and tortoise mortality.

Final Highway Section

The Coyote Springs Wildlife Crossings project corridor is the last section of highway through USFWS designated critical habitat for the desert tortoise in Nevada to remain unfenced.



- 1990**
- The Mojave desert tortoise is listed as threatened under the Endangered Species Act of 1973.
- 1994**
- Critical habitat for the Mojave desert tortoise is designated.
- 1995**
- Clark County entered into contract with Enviroplus Consulting to determine effective, economically feasible road barriers to decrease tortoise mortality.
- 1996**
- Clark County entered into contract with the Nevada Division of Forestry and NDOT to conduct the road barrier project field-testing phase.
- 1999**
- DCP Road Barrier Construction Program initiated.
- 2000**
- Clark County completed their Multiple Species Habitat Conservation Plan.
- 2010**
- Southeastern Lincoln County Habitat Conservation Plan completed
- 2010**
- Tortoise barrier fencing installed along the southern portion of US 93 that passes through the designated Mojave desert tortoise critical habitat.

2019

The Management Oversight Group identified a list of top-priority barrier fence installation projects.

1.1 PROJECT HISTORY

As part of the initial long-term Nevada Desert Conservation Program (DCP) goals, Clark County placed a high priority on installing barriers to protect Mojave desert tortoises and other wildlife. Highway and road barrier fencing were then listed as a condition to Clark County's Multiple Species Habitat Conservation Plan (MSHCP) associated 10(a)1(B) Incidental Take Permit.

In 1995, a study to determine effective and economically feasible road barriers to decrease tortoise mortality along roadways was conducted. The associated field testing of the barriers began in 1996.

The Southeastern Lincoln County Habitat Conservation Plan (which includes tortoise exclusion fencing and habitat restoration) was approved in January 2010 and covers a portion of the project area in Lincoln County.

In approximately 2010, tortoise barrier fencing was installed along the southern portion of US 93 that passes through designated Mojave desert tortoise critical habitat. Installation of barrier fence was followed by effectiveness monitoring, which found that fencing reduces tortoise road mortality when adequately maintained and facilitates connectivity through stormwater culverts, such that approximately 50% of adult tortoises that enter a culvert use it to cross underneath the road (USFWS unpublished data). These results prompted the development of a barrier fence installation prioritization index for the entire four-state range of the Mojave desert tortoise. Prioritization index rankings were then used by the Desert Tortoise Management

Oversight Group to prioritize future barrier fence installation projects, which includes the northern portion of US 93 that passes through unfenced designated tortoise critical habitat.



Dual-purpose drainage structure and tortoise crossing, with tortoise fencing along US 93.

1.2 SAFETY

Each year in Nevada, vehicle collisions with wild and domestic/feral animals result in more than 500 reported crashes, costing the public over \$19 million and killing an estimated 5,032 animals. Research estimates that more than 50% of such collisions can go unreported to authorities, pointing to a potentially higher number of animal-related incidents. Though vehicle collisions with small animals may not seem to pose significant risks to human safety, near-accidents and attempts to avoid hitting small animals pose risks not considered in general vehicle-wildlife interactions.

Vehicle-Wildlife Interactions

The importance of vehicle-wildlife interaction is typically defined in terms of danger to human safety and property damage potential. This has resulted in a preoccupation with large animal vehicle-wildlife interaction minimization and avoidance and an underappreciation for the impacts associated with small animal vehicle-wildlife interactions.

Avoiding small animals can cause drivers, especially in smaller cars, to depart the roadway onto gravel and steep slopes, creating a reasonable potential for a severe crash. In addition, the remote area and harsh summer climate can create additional human health

concerns in the event of a crash, resulting in an inoperable vehicle.

Nevertheless, according to Subsection 7(a)(1) of the Endangered Species Act of 1973, "Federal agencies are required, in a reiteration of Congress' policy, to promote the conservation of endangered and threatened species." Based on this statute, the Federal Highway Administration (FHWA) is responsible for the conservation of and avoiding impacts to listed species, regardless of whether human safety and expense are a factor. Furthermore, tortoise populations are not expected to achieve a stable population expansion rate in the presence of unfenced roads (Peaden 2017). Stabilizing population expansion rates is a quintessential first step toward Mojave desert tortoise recovery and conservation. Desert tortoise fencing and crossings projects should be a top priority for FHWA in areas of designated critical habitat.

1.2.1 Carcass Counts

Counting the number and mapping the location of tortoise carcasses associated with a road segment is a necessary first step in assessing mortality related to tortoise-vehicle interactions. However, such counts and mapping exercises will likely miss the high number of tortoise carcasses moved by scavengers, which can be substantial due to the harsh realities that predators face.



Tortoise carcass on Southern Nevada roadway.

In statistical terms, the concept of what proportion of the target items are observed is called detection probability, and can be used to correct imperfect detection. For example, under controlled conditions, juvenile tortoise carcasses were scavenged on average 1.05

hours after placement (95% CI 0.79 and 4.99 days, USFWS unpublished data). Consequently, a return interval of approximately 12 hours is necessary to census tortoise carcasses, and a return interval of once per week could miss as much as 86% of potential tortoise carcasses.

Given the lack of formal surveys for tortoise road mortality, carcasses, and the dangers associated with documenting such, it is the USFWS' opinion that each mile of road is, at best, surveyed once monthly, meaning that at best approximately 3.2% of all tortoise road mortalities are encountered and documented. Assuming accuracy, a correction factor of approximately 97% can be applied to tortoise carcass observation rates. In other words, if ten tortoise carcasses are found over a number of years, then approximately 312.5 tortoise carcasses resulted from road mortality. NDOT collected data from 2005 to 2023 and recorded five tortoise carcasses in the project area. Based on the statistical analysis described above, it is estimated that there have been 156 road mortalities of tortoises in the last 18 years in the project area, approximately 8.68 tortoises per year (or 0.25 tortoise per mile or 0.15 tortoise per kilometer).

It can be assumed this is a conservative estimate relative to the tortoise mortalities per year of 2.4 per kilometer, as reported by Boarman and Sazaki (1996) (see Appendix 4).

1.3 INVESTMENT CONTEXT

Typically, fencing and crossings are installed as a part of a highway improvement project. NDOT does not currently have infrastructure improvements planned within the project area.

Stand-alone Project

The Coyote Springs Wildlife Crossings project would be a stand-alone fencing and crossings project with no associated highway improvements.

1.4 URBAN/RURAL

The project is located in a rural area as defined by 23 USC 101(a)(25). The project is not located within any of the four federally designated community development zones.

1.5 PROJECT PARTIES

NDOT is responsible for the planning, construction, and maintenance of more than 5,400 miles of highway and more than 1,000 bridges in Nevada. This responsibility is distributed across three individual Districts that manage maintenance and operations. NDOT will be the award recipient responsible for administering and delivering the project. NDOT has extensive experience with the receipt and expenditure of Federal transportation funds, with an annual budget of \$800 million, of which an average of \$400 million is from Federal sources. NDOT also has experience managing, overseeing, and reporting on discretionary grant funding (e.g. the Pyramid Highway Phase 1 BUILD Grant).

This project is located within NDOT District 1, which covers the entirety of southern Nevada, including Clark and Lincoln Counties. The Bureau of Land Management (BLM), USFWS, Clark County, and Lincoln County have been active in developing this application and project.

As part of an ongoing effort to provide safe roadways, NDOT has partnered with FHWA, USFWS, and the Nevada Department of Wildlife (NDOW) to install wildlife safety crossings. Numerous agencies and partners are working to install additional crossings in areas shown by research to have high vehicle-animal collision rates.