

2024-2026 Wildlife Crossing Pilot Program

COYOTE SPRINGS WILDLIFE CROSSINGS



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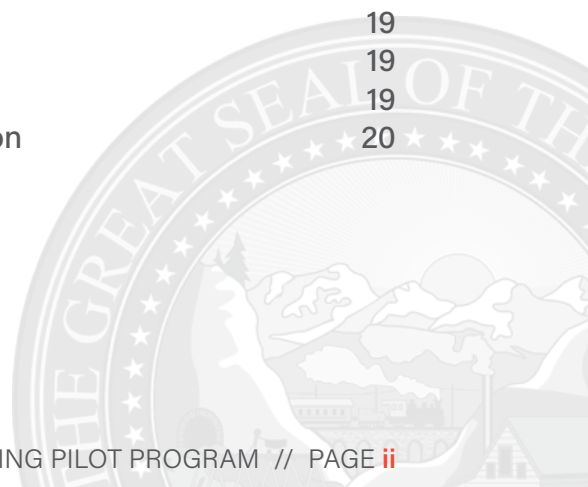
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All appendices are available on www.dot.nv.gov/coyotespringstortoisecrossings.

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Basic Project Information

1.1 PROJECT DESCRIPTION

The Nevada Department of Transportation (NDOT) is applying for the Wildlife Crossings Pilot Program (WCPP) 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 critical habitat conservation areas essential to the recovery of the federally protected Mojave desert tortoise.

The Mojave desert tortoise, *Gopherus agassizi*, 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.

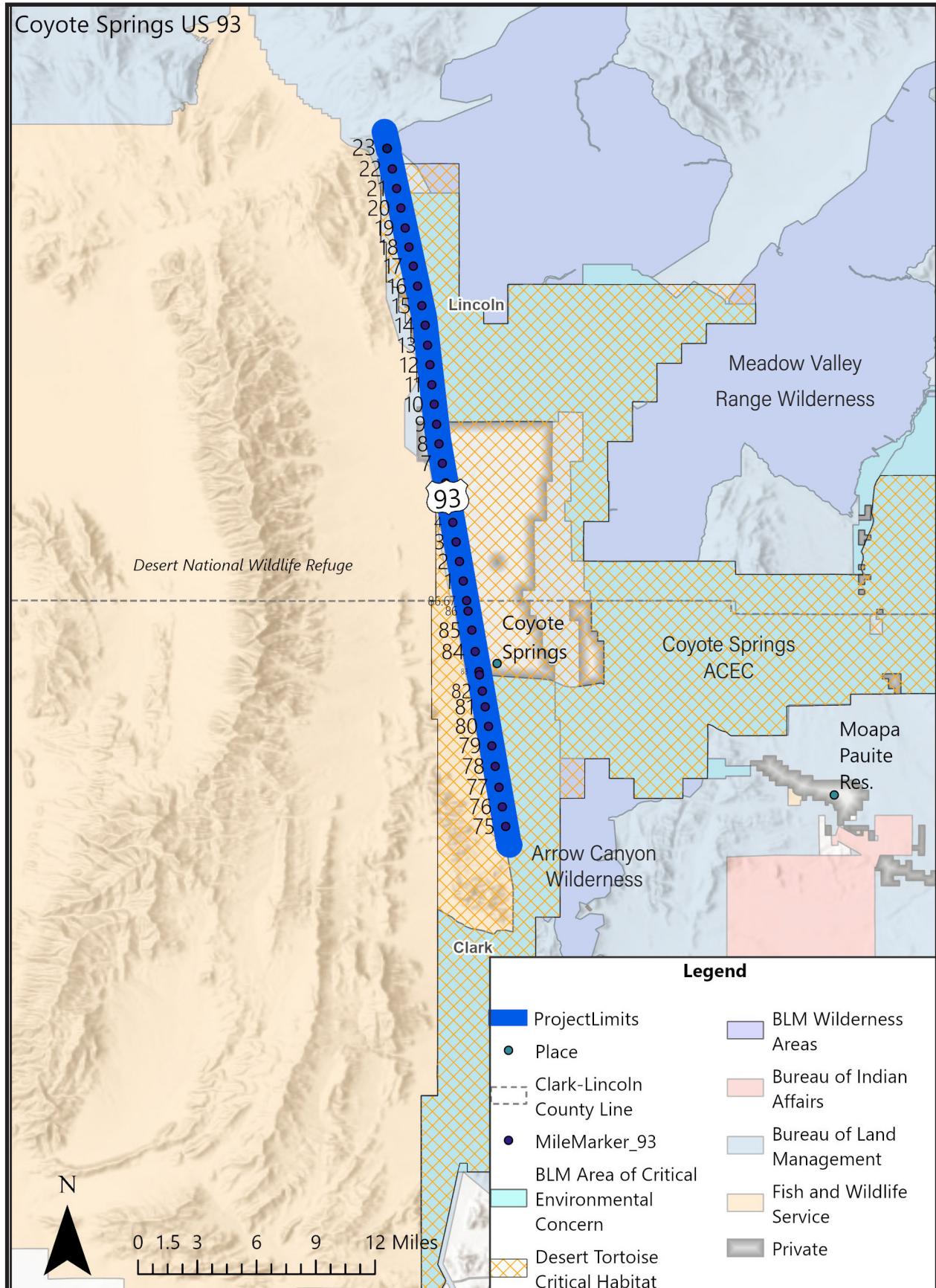
Desert tortoises occupy a variety of habitats, from flats and slopes dominated by creosote brush scrub to rocky slopes in blackbrush and Joshua tree woodlands. Throughout most of the Mojave Desert, tortoises commonly occur on sloping terrain with loamy soils and sparse cover of low-growing shrubs. Most 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 tortoise crossings and barrier fencing should be installed and maintained along highways in desert tortoise habitats to avoid population fragmentation and tortoise mortality.

The proposed project will enhance driver safety while also protecting an endangered species. Driver avoidance of or a collision with a desert tortoise at high speeds can result in severe crashes, especially given the rural nature of the corridor.

Final Highway Section

The Coyote Springs Tortoise Crossings project 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.

1.2 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 eliminates 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 (MOG) 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.

1.3 SAFETY

Each year in Nevada, vehicle collisions with 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 go unreported to authorities, pointing to a potentially higher number of incidents. Near-accidents, attempts to avoid hitting small animals, and pedestrians moving wildlife off of the roadway pose risks not considered in general vehicle-wildlife interactions.

Vehicle-Wildlife Interactions

Vehicle-wildlife interactions are defined in terms of danger to human safety and property damage potential. This has resulted in an underappreciation of the safety risks associated with small animal-vehicle collisions.

These risks directly impact human safety in ways that cannot always be quantified but still need to be addressed. Fencing and crossings projects should be a top priority for FHWA in areas of designated critical habitat for both survival of the species and safety of motorists.

1.3.1 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 (scavenged), which can be substantial due to the harsh realities that predators face in the desert.

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 days 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.



Tortoise carcass on Southern Nevada roadway.

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 at least 156 vehicle-wildlife interactions

resulting in the 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).

Because vehicle-wildlife interactions with small animals are underreported, having a number derived from statistical analysis offers an opportunity to consider the reality of vehicle-wildlife interactions in the corridor. Furthermore, it provides insight into the number of non-reported incidents or seemingly non-animal-related incidents in the corridor and the real threat to human safety resulting from wildlife on the roadways.

1.4 INVESTMENT CONTEXT

Typically, tortoise exclusion fencing and crossings are installed as a part of a highway improvement project. NDOT does not currently have additional 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.

1.5 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.

1.6 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).

NDOT is experienced and qualified to execute and manage Federal grants. NDOT is currently in the process of executing a grant agreement with the Federal Railroad Administration for the BrightlineWest project.

NDOT has the experienced staff and resources to fulfill the responsibilities of managing an awarded Federal 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 grant application and this 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 crossings in priority areas where human safety and wildlife conservation are paramount.

1.7 PROJECT COMPONENTS

The Coyote Springs Wildlife Crossings project is a stand-alone fencing and crossings project with no additional project components. Due to the linear and independent nature of the project, the project could be phased, resulting in smaller construction projects and initial funding to begin the project.

TWO

Budget Narrative

NDOT staff developed planning level project cost estimates that include NEPA and design, construction, and post-construction activities. This detailed estimate provides certainty in determining the need for both federal and state/local matching funds. No right-of-way costs are anticipated as part of the project since all work will be done within State-owned US 93 right-of-way. Equipment costs

are considered part of the construction costs since the project will be placed out for bid per Nevada Revised Statutes. NDOT developed these costs based on the most recently available awarded contract costs with similar work elements, standard NDOT percentages, and typical costs for activities such as NEPA and design and post-construction monitoring. Table 1 provides the anticipated cost breakout by activities and allowable costs. No ineligible costs are anticipated.

Table 1. Anticipated Project Costs

Cost Classification	Total Cost	Non- Allowable Cost	Total Allowable Cost
Administrative and Legal	\$50,000	-	\$50,000
Land, Structures, Rights-of-Way, & Appraisals	-	-	-
Relocation Expenses & Payments	-	-	-
Architectural & Engineering Fees	\$450,000	-	\$450,000
Other Architectural & Engineering Fees	\$500	-	\$500
Project Inspection Fees	\$2,326,200	-	\$2,326,200
Site Work	\$24,090	-	\$24,090
Demolition & Removal	\$163,800	-	\$163,800
Construction	\$14,157,113	-	\$14,157,113
Equipment	-	-	-
Miscellaneous ²	\$225,000	-	\$225,000
Subtotal	-	-	-
Contingencies	\$763,589	-	\$763,589
Subtotal	-	-	-
Project (Program) Income	-	-	-
Total Project Costs	\$18,160,292	-	\$18,160,292
Federal Funding			
Federal Assistance	94.89% ¹	\$18,160,292 x 0.9489	\$17,232,301

1 - Federal assistance per FHWA notice N 4540.12, March 12, 1992 - Sliding Scale Rates of Federal-aid Participation in Public Lands States Rates for Projects not on Interstate System (80% Federal/20% State)

2- Post-construction monitoring and public outreach

2.1 FEDERAL FUNDS

NDOT developed a detailed funding scenario utilizing a combination of WCCP Grant funds, State funds, local funds from Clark and Lincoln Counties, and private funding to finance the proposed project while meeting matching fund requirements fully. While the NOFO does state 20% local match is required, under 23 U.S.C. 120(a) and (b), the State of Nevada is authorized an upward adjustment based on a higher ratio of designated public lands area. Based on FHWA Notice N 4540.12, Table 1 from March 12, 1992, for an 80% Federal/20% State match NDOT is only required to provide a 5.11% match with 94.89% Federal funds. NDOT is requesting a WCCP grant in the

amount of \$16,835,292 and other Federal funds of \$200,000 and will provide a 7.3% matching amount of \$1,325,000 for a total project budget of \$18,160,292. The BLM will contribute the \$200,000 of other Federal funds for post-construction monitoring activities, which will last three years after construction. These BLM funds will come from Section 7 Mitigation Fees. State funding of \$1 million will come from the Nevada State funds, \$200,000 from Clark County's Section 7 Mitigation Fees, and \$75,000 from Lincoln County's Section 10 funds. In addition to public funding, the Coyote Springs development will provide private funds of \$50,000 for construction activities, which may be in-kind construction activities.

Table 2. Summary of Federal and Match Funding

Activity	Federal Funds				Matching Funds		
	WCCP Grant	Other Grant Awards	Federal Formula Funds	Other Federal Funds	State	Local	Other
NEPA & Design	\$0	\$0	\$0	\$0	\$500,000 ¹	\$0	\$0
Construction	\$16,260,292	\$0	\$0	\$0	\$500,000 ¹	\$250,000 ^{2&5}	\$50,000 ⁴
Post-Construction Monitoring	\$0	\$0	\$0	\$200,000 ³	\$0	\$25,000 ²	\$0
Funding Totals	\$16,260,292	\$0	\$0	\$200,000	\$1,000,000	\$275,000	\$50,000
% of Overall Funding	\$16,835,292 (92.7%)				\$1,325,000 (7.3%)		

1 - Nevada State Funds

2 - Clark County Section 7 Mitigation Fees

3 - Bureau of Land Management Section 7 Mitigation Fees

4 - Coyote Springs private contribution or in-kind construction activities

5 - Lincoln County Section 10 Funds



2.2 DETAILED BUDGET

Table 3 provides a summary of the anticipated project component-specific funding. NDOT will utilize \$200,000 in Federal funding from BLM for three years of post-construction monitoring. The only other potential federal funding would be from this WCCP Grant. Nevada State funds will be utilized to fully fund the NEPA, Preliminary Design, and Administration/Legal, which are projected to be \$500,000. Construction activities would be funded by Nevada State funds (\$500,000), private funding, in-kind services, by the Coyote

Springs development group (\$50,000), Clark County Section 7 Mitigation Fees (\$175,000), and Lincoln County Section 10 funds (\$75,000). The proposed WCCP grant funds of \$16,835,292 would cover the remaining required funding. Following construction, the project would enter a three-year post-construction monitoring program. For this component, \$25,000 would become available from Clark County Section 7 Mitigation Fees (local matching funds) and \$200,000 from BLM Section 7 Mitigation Fees (other Federal funds), resulting in an additional \$225,000.

Table 3. Summary of Project Component Funding

	Anticipated Dates	Non-Federal (Matching Funds)	WCCP Grant	Other Federal Funds
NEPA & Design/Admin & Legal	Dec 2023 to Dec 2024	\$500,000 ¹ (2.8%)	\$0	\$0
Construction	Jan 2025 to Dec 2025	\$800,000 ^{1,4,&5} (4.4%)	\$16,635,292 (91.6%)	\$0
Post-Construction Monitoring	Jan 2026 to Dec 2029	\$25,000 ² (0.1%)	\$0	\$200,000 ³ (1.1%)
Total Funding Value	-	\$1,325,000	\$16,260,292	\$200,000
% of Overall Funding	-	7.3%	91.6%	1.1%

1 - Nevada State Funds

2 - Clark County Section 7 Mitigation Fees

3 - Bureau of Land Management Section 7 Mitigation Fees

4 - Coyote Springs private contribution or in-kind construction activities

5 - Lincoln County Section 10 Funds



2.3 GRANT FUNDS AND SOURCES/ USES OF PROJECT FUNDS

Table 1 provides a breakdown of the project costs outlined in Standard Form 424. The following is a brief description of each element identified:

- **Administrative and Legal.** Element components include general project administration such as agreement services, financial management, and legal support for construction contracts and other interlocal agreements.
- **Land, Structures, Rights-of-Way, Appraisals, and Relocation Expenses and Payments.** No right-of-way acquisitions or relocations are planned as part of the proposed project.
- **Architectural and Engineering Fees.** Element components include preparing environmental studies and documentation to obtain NEPA clearance and the preliminary and final design services to provide final construction contract documents.
- **Other Architectural and Engineering Fees.** Primary component of the item would be conducting a partnering workshop with resource agencies and major project stakeholders.
- **Project Inspection Fees.** Work associated with this element includes construction engineering inspection and materials testing to ensure the contractor meets the construction contract and permitting requirements. This work also includes biological monitors during construction.
- **Site Work.** This element would include dust control and providing Best Management Practices (BMPs) for construction stormwater. These elements would be early action activities and go throughout project completion.

- **Demolition and Removal.** Components of this work include clearing and grubbing, along with the removal of existing right-of-way fencing.
- **Construction.** Components of this element will include new construction activities, including new fencing, revegetation, cactus salvaging, and treatment of culvert inlets and outlets to allow for safe tortoise passage. In addition, traffic control and mobilization activities are included in this cost element.
- **Equipment.** No specific equipment costs are identified. Equipment costs would be part of the construction costs since the project will be an open public bid utilizing contract-specific bid items.
- **Miscellaneous.** These costs include post-construction monitoring and public outreach. Post-construction monitoring will occur for three years after construction to determine the effectiveness of the project and develop lessons learned. Public outreach will occur during design, through construction, and during the post-construction monitoring phase to educate the public on the project, the project's goals, and highlight that the project funding came from multiple sources, with a significant portion from the WCCP Grant.

Table 4 summarizes funding sources (including the requested WCCP Grant funds) for the significant project delivery items, funding amounts, percentage of funding amounts, and non-federal funding matches. All funds outside the WCCP grant funds will be available and committed based on those timelines identified in Table 3 (See Appendix 2 for commitment letters).

Table 4. Summary of Funding Sources for Major Project Delivery Items

Funding Source	Total Proposed Funding	Percentage of Overall Costs
NDOT	\$1,000,000	5.5%
Clark County	\$200,000	1.1%
Lincoln County	\$75,000	0.4%
Private	\$50,000	0.3%
Total Match Funding	\$1,700,000	7.3% (5.11% min)
BLM	\$200,000	1.1%
WCCP Grant	\$16,260,292	91.6%
Total Project Cost	\$18,160,292	

2.4 FUNDING OPTIONS

The proposed budget includes \$763,589 (4.2%) of contingency in the construction funding budget to cover unanticipated cost increases. The only project funding limitations would be the \$200,000 each from Clark County and BLM. These funding contributions will come from Section 7 Mitigations fees and can only be used for post-construction monitoring. Since the proposed project is heavily dependent on the WCCP grant award, no activities are anticipated to begin until notification and obligation of the award. If successful in the grant opportunity, NDOT would request that NEPA and Preliminary Design activities begin between notification and obligation; however, if the request is denied, NDOT would hold these activities until the obligation to avoid changing local match percentages as identified.

NDOT has identified potential scalable options depending on available funding from the WCCP grant. Scaled options include constructing the project in segments, with the 11 miles in Clark County recommended as the first segment for construction. The estimated per-mile cost of the project is approximately \$534,126. An initial estimate for this 11-mile segment would be approximately

\$5,875,389 and an approximate minimum amount necessary to complete the required components. If successful in the grant opportunity, NDOT could scale the project scope based on the available funding and grant commitment.



Project Merit Criteria

3.1 PRIMARY MERIT CRITERIA

3.1.1 Criterion 1.1 Reduction of Wildlife Vehicle Collisions

The Coyote Springs Wildlife Crossings project would significantly reduce vehicle collisions with Mojave desert tortoises (a protected threatened species), other small animals (including coyotes, kit foxes, gray foxes, badgers, ringtails, bobcats, skunks, kangaroo rats, kangaroo mice, pocket mice, pack rats, and ground squirrels), reptiles (such as lizards and snakes), and arthropods (scorpions and tarantulas) in Southern Nevada. Currently, tortoise barrier fencing extends along US 93 from I-15 to the southern limit of this project at MP 75.24 in Clark County. The project's 34-mile segment of US 93 is the last remaining segment bisecting the Mojave desert tortoise critical habitat in Nevada to remain unfenced and without protected crossings. Frequent tortoise-vehicle collisions pose a significant threat to both human safety and this tortoise population.

US 93 is an existing two-lane (one lane in each direction) rural highway beginning at I-15 and heading north. The Coyote Springs Wildlife Crossings project is a stand-alone project and there are no transportation improvements are planned for this segment of US 93 in the near future. One of the objectives of the National Roadway Safety Strategy is to provide safer roads. However, providing safer roads in rural areas requires unique design considerations that coincide with the concerns of an area (e.g., minimizing vehicle-wildlife collisions). The Coyote Springs Wildlife Crossings project is uniquely designed to reduce overall vehicle-wildlife collisions and protect a threatened species while improving safety for US 93 roadway users by installing fencing and crossings to keep wildlife off the roads.

One of NDOT's Performance Measures is to Reduce Fatal and Serious Injury Crashes which aligns with the reporting requirements of the FHWA and National Highway Traffic Safety Administration's (NHTSA) goals. Our team has performed a traffic safety analysis to estimate the number of fatal, injury, and PDO crashes on similar Nevada corridors. Vehicle-wildlife collision data was used to calculate crash frequency per mile along US 93, US 95, SR 164, SR 160, and SR 159. This data was then used to estimate approximately 82 crashes per year being prevented through the incorporation of this project. While NDOT agrees with the FHWA's Safe System Approach (that deaths and serious injuries are unacceptable), roadway users will inevitably make mistakes that can lead to crashes. It will therefore be necessary for the road system to be planned, designed, and operated to be forgiving of human mistakes so that serious injury outcomes are less likely.

The Coyote Springs Desert Wildlife Management Area (DWMA) is comprised of the Desert National Wildlife Refuge, Coyote Springs Investment Group, and Coyote Springs Area of Critical Environmental Concern (ACEC) and is almost entirely suitable habitat for the desert tortoise. The Coyote Springs Investment Group is a planned development of 40,000 acres adjacent to US 93 and north of SR 168. This privately owned land is surrounded by BLM ACEC and Wilderness Areas. While Coyote Springs Investment Group has planned development for over two decades, the only infrastructure is a golf course that opened in 2008. Residential development has yet to occur, however, the golf course has not shortage of visitors, with over 30,000 rounds of golf played in 2021. If the development of the Coyote Springs Master Planned Community proceeds, the Coyote Springs Wildlife Crossings project will be even more critical because it will provide protection and

connectivity for wildlife on either side of the development (thus ensuring that the valley's population remains healthy) and for tortoises moving away from the development (tortoises whose home ranges have been impacted and are seeking new home ranges will be more likely to attempt crossing the highway), while also protecting the safety of motorists using the roadway.



US 93 at MP 75.

Currently, tortoise barrier fencing extends along US 93 from I-15 to the southern limit of this project at MP 75.24 in Clark County. Desert tortoises, other small animals, reptiles, and arthropods have been documented in this segment and are anticipated to begin using the crossings within three months to a year after construction. However, the tortoise barrier fencing is immediately effective. Effectiveness monitoring conducted by USFWS in 2010 for the southern segment of US 93 suggests that the fence eliminates 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). Long-term maintenance of the tortoise crossings and fencing is crucial to the continued effectiveness of the project. Regular inspections of tortoise fencing and crossings would occur, particularly after storm events, to identify locations where maintenance is needed.

3.1.2 Criterion 1.2 Improvement of Terrestrial and Aquatic Habitat Connectivity

The Coyote Springs Wildlife Crossings project is surrounded by designated critical habitat for the desert tortoise, with US 93 bisecting the Coyote Springs Desert Wildlife Management Area (DWMA). The Coyote Springs DWMA is comprised of the Desert National Wildlife Refuge (DNWR), Coyote Springs Investment (private development), and Coyote Springs ACEC and is an almost entirely suitable desert tortoise habitat. Increased human activities may introduce serious threats to the future viability of desert tortoise populations.



ACEC and Associated Signage.

To the west of the project corridor lies the Desert National Wildlife Refuge. The Desert National Wildlife Refuge was founded in 1936, and today, it is the largest wildlife refuge outside of Alaska. The refuge is home to over 500 species of plants, over 320 species of birds, 52 species of mammals, and 32 species of reptiles, including the desert tortoise.

To the east of US 93 lies the Arrow Canyon Wilderness, part of the National Wilderness Preservation System managed by the Bureau of Land Management. The Arrow Canyon Wilderness area is comprised of 27,530 acres of Mojave Desert habitat for a variety of wildlife species. The Meadow Valley Range Wilderness area is over 123,000 acres of wilderness located east of US 93 and north of the Arrow Canyon Wilderness.

Corridor of Protection

This project would connect the wilderness areas and the wildlife refuge wilderness, resulting in a corridor of protection for the desert tortoise and other wildlife.

Male desert tortoises have significantly larger, more variable home ranges and move greater distances than females. The reported minimum home ranges for males and females are 7.74 hectares (ha) to 46.03 ha and 5.85 ha to 13.62 ha, respectively. Road infrastructure is a barrier to desert tortoise populations due to road mortality, collection, and avoidance. Highway crossing attempts by tortoises are expected to result in mortality (40% of attempts), deflection (59% of attempts), or transmission (1% of attempts). Barrier fencing and associated crossings will stop the road mortality, that for adult tortoises in particular, is depleting the population, and will allow for sustainable annual adult survival rates.

The project would greatly benefit the desert tortoise by constructing barrier fencing and 61 crossings in the corridor. Studies have shown that crossings and barrier fencing can mitigate desert tortoise habitat fragmentation due to highways and paved roads.

3.2 SECONDARY MERIT CRITERIA

3.2.1 Criterion 2.1 Leveraging Investments

NDOT intends to utilize dedicated non-Federal contributions to provide matching funds. NDOT has committed \$1 million in funds for NEPA, design, administration, legal, and construction activities. These funds will come from the State's General Highway Fund. In addition, Clark and Lincoln County are committed to providing \$275,000 in funds from their Section 7 and Section 10 (respectively) Mitigation Fees.

Additionally, \$200,000 in post-construction monitoring funds are coming from BLM. NDOT is also working with the nearby development of Coyote Springs. Coyote Springs Investment Group is committing to provide \$50,000 to the project's construction efforts.

If the grant is awarded, NDOT will contribute \$500,000 to begin the project's NEPA and design efforts. These funds are anticipated to be obligated in Fiscal Year (FY) 2025 once the WCCP grant agreement is established or if the USDOT approves NDOT's request for approval to use these matching funds before a signed grant agreement is completed. NDOT would obligate an additional \$500,000 in FY27 as the project moves into construction. In addition, the \$50,000 Coyote Springs contribution would be provided for construction activities. Finally, the \$275,000 from Clark County and Lincoln County would be obligated in FY26 and FY27 to aid in construction and post-construction monitoring activities. While a non-matching federal contribution, BLM would provide \$200,000 in project funding for post-construction monitoring activities in FY 2027 through FY30. Commitment correspondence from these respective groups is provided in Appendix 2. Table 3.1 provides a summary of the timing of the leveraged investments being provided for the project.

Table 3.1 *Timing Summary*

Source	Funding Amount	Obligation Timing
NDOT	\$1,000,000	FY 25 & FY 26
Clark County	\$200,000	FY 25 & FY 26
Lincoln County	\$75,000	FY 26
Coyote Springs (Private)	\$50,000	FY 26
BLM (Non-Matching Federal)	\$200,000	FY 27 through FY 30

3.2.2 Criterion 2.2 Economic Development and Visitation Opportunities

Economic development from the Coyote Springs Wildlife Crossings project would be limited to the expenditures associated with construction. While there would not be an immediate impact on economic development, the project would provide safe access for desert tortoises and other animals across US 93 as areas such as Coyote Springs incur development.

The corridor's primary use as a commuting, visitor, and freight movement roadway provides a unique opportunity for visitors and residents. The visitors to the project area are drawn to two main attractions – the Desert National Wildlife Refuge and the Coyote Springs Golf Club. Access to the DNWR is available from two locations in the project area – Mormon Well Road, approximately two miles south of SR 168 at mile marker 80 in Clark County, and mile marker 32 in Lincoln County. The Coyote Springs Golf Club is a destination golf club attracting visitors from throughout the southwest. Through the post-construction public outreach process, the team would educate Southern Nevada residents on the significance of the project.

Long-term economic growth and other broader economic fiscal benefits are less obvious than some roadway projects, though they still exist. By implementing barrier fencing and crossings, this project will prevent vehicle-wildlife collisions and costly incidents caused by avoiding Mojave desert tortoises and other small animals.

3.2.3 Criterion 2.3 Innovation

In addition to greatly reducing road mortality and facilitating habitat connectivity, the Coyote Springs Wildlife Crossings project will provide a test bed for innovative fence-end turnback

designs. Turnbacks redirect tortoises away from gaps in the fence associated with open routes and road access. Fence gaps were historically closed with either cattleguards or I-beam steel tortoise guards. Unfortunately, the effectiveness and safety of such guards decline rapidly after installation due to insufficient maintenance, which results in guards that do not work as intended or, worse, creating a potential tortoise trap. Additionally, these guards are exorbitantly expensive and only produced by a few companies, thus requiring long-distance transport. USFWS believes that identifying an optimal turnback design will increase fence effectiveness and reduce installation and maintenance costs.



Drainage Structure/Crossing and Fencing.

Fence and crossings designs are already well-established, so innovation will focus on turnback designs. NDOT has partnered with USFWS to develop three advanced turnback designs. The three proposed innovative designs range in size but are all intended to guide the tortoise back to its habitat and away from the fence and road gap. The largest proposed design incorporates two potential redirection "ramps," while the smaller designs have a single redirection ramp. The smaller designs, however, have a much smaller footprint and thus reduced cost and environmental disturbance. USFWS will utilize the data collected from this project to describe the costs and benefits of each proposed design for development of formal guidance applicable to turnback design recommendations.

Due to the nature and scope of the Coyote Springs Wildlife Crossings project, it is anticipated that a standard project delivery of design-bid-build would be followed. It is unlikely that the challenges associated with design-build or CMAR would be utilized for a project of this scale. NDOT has worked closely with Clark County, Lincoln County, and the private Coyote Springs Investment Group to identify and secure innovative funding sources for this project. Additionally, NDOT has established partnerships with USFWS and BLM for postconstruction monitoring utilizing innovative remote sensing camera technology.

3.2.4 Criterion 2.4 Education and Outreach

Every transportation decision affects somebody. Residents, businesses, freight movement, and visitors all rely on the US 93 transportation network and have a stake in the transportation decision process. NDOT is committed to engaging all impacted populations in the transportation decision-making process through a variety of methods.

In Nevada, numerous agencies and partners are working together to provide wildlife crossings in areas with high wildlife-vehicle collisions. Public education is a critical part of these improvements. Outreach efforts will focus on public education about wildlife-vehicle interactions, the effects of habitat fragmentation on desert tortoises, and the benefits of tortoise crossings.

NDOT has established relationships with Clark County Desert Conservation Program and Tortoise Group. Clark County Desert Conservation Program's Mojave Max Program has been educating the public about desert tortoises since 1995. Tortoise Group's Road Warriors program will provide volunteers to inspect this project's tortoise fencing and crossings post-construction. NDOT will work with these organizations and USFWS to

promote Desert Tortoise Week in addition to a significant social media campaign, project website, in-person events, and press releases.

Citizen science has become a valuable tool for wildlife conservation and management. Tortoise Group's Road Warriors Roadkill Observation and Data Systems (ROaDs) data collection app is a useful tool that will be promoted to encourage the public to report road mortality data and animal observations.

Detailed public involvement and education plans will be developed as the project progresses through the design and development process. NDOT's Initial Public Outreach Plan included as Appendix 5.

3.2.5 Criterion 2.5 Monitoring and Research

Post-construction monitoring is an essential part of the Coyote Springs Wildlife Crossings project. Post-construction monitoring will consist of known best practices utilizing trail cameras in culverts to assess their use by desert tortoises. The Bureau of Land Management (BLM) has previously used this method to document culvert use on other projects in the area. While previous camera projects cataloged the use of culverts by tortoises, this monitoring will demonstrate the effectiveness of road mortality prevention by providing connectivity for tortoise populations. Furthermore, monitoring will allow the team to assess how long it will take for tortoises to adjust to the new fence and use the associated culverts to cross the highway.

A large number of photographs will be generated through this camera monitoring system. Due to the anticipated volume of pictures, manual sorting and identification will not be feasible. However, artificial intelligence will be used to identify tortoises in the captured photographs. Clark County has

previously used this method of monitoring with great success.



Example of a photo obtained by a BLM monitoring camera.

As described in Criterion 2.3, USFWS intends to use this project to research the most effective and cost-efficient turnback design before issuing an official agency design recommendation. NDOT's partnerships with BLM and USFWS will allow this project to further identify best practices in tortoise crossing and turnaround design and implementation. It is anticipated that an annual monitoring report will be provided to NDOT from BLM with the annual data and results for the length of the monitoring period.

3.2.6 Criterion 2.6 Survival of Species

The Coyote Springs Wildlife Crossings project would benefit the Mojave desert tortoise, which was listed by USFWS as a federally threatened species in 1990. The desert tortoise is a state of Nevada State-Protected species and a Species of Conservation Priority state priority species. The US Forest Service Region 4 also lists the desert tortoise as threatened.

This project would significantly benefit the Mojave desert tortoise by constructing 61 crossings and fencing along the 34-mile segment of US 93 through critical habitat. Numerous studies have been conducted to determine the effectiveness of barrier

fencing and crossings, and are included in Appendix 4, available on the Coyote Springs Wildlife Crossings website at www.dot.nv.gov/coyotespringstortoisecrossings. Without wildlife crossings and barrier fencing, this project area will continue to be a threat to the Mojave desert tortoise and the long-term survival of the species.



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Project Readiness

4.1 TECHNICAL FEASIBILITY

NDOT has implemented approximately 500 miles of tortoise fencing in Nevada and installed 29 tortoise crossings (with 70 more planned by 2026), equipping their staff with the required technical expertise to deliver this project successfully. In addition to following Best Management Practices in coordination with USFWS, NDOT has used this experience to establish policies and procedures for developing and implementing wildlife crossing projects. Standards for tortoise crossings include using backfilling rip rap with native material to fill in cracks and voids to be safer for tortoises and installing tortoise sidewalks (made of reinforced concrete or compacted soil) on either side of any rip rap.

NDOT has documented sightings of desert tortoises using their implemented crossings and have noted that they are effective in preventing tortoise mortality and providing safer connectivity across their range.

The project cost estimate is well thought out, involving input from many NDOT disciplines

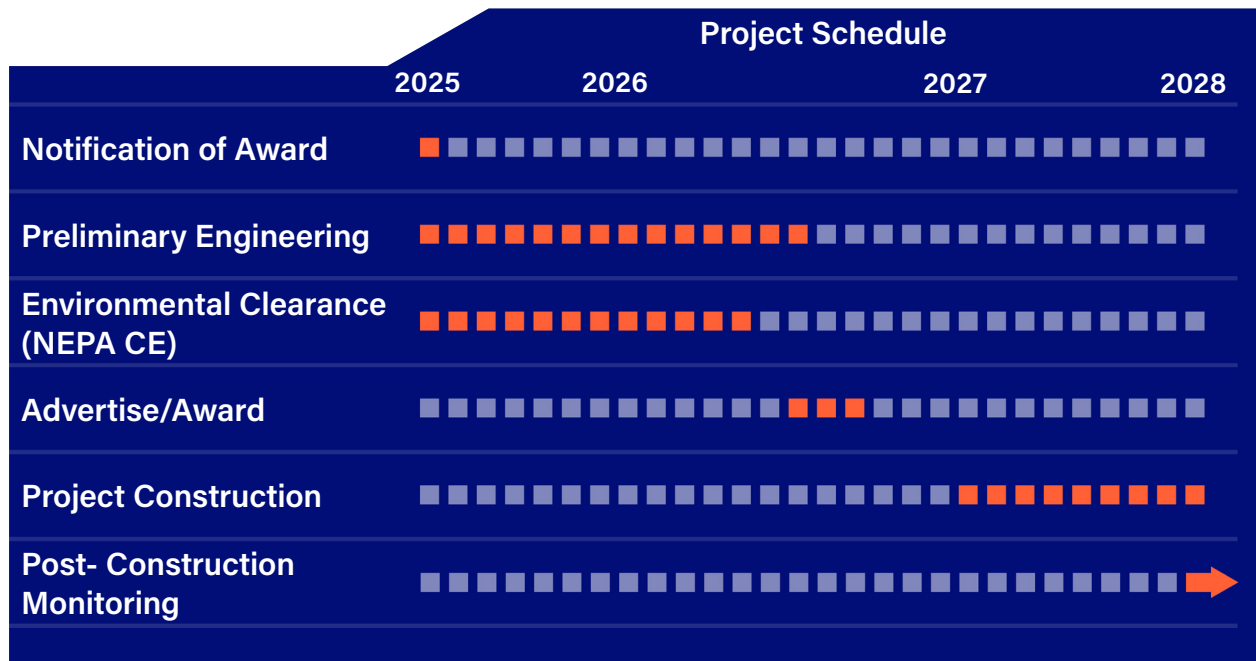
such as Constructability, Environmental, Traffic, and other agencies like USFWS and BLM. It was made to be as detailed and accurate as possible and was developed using NDOT's current pricing information.

4.2 PROJECT SCHEDULE

The preliminary reviews and project design for the Coyote Springs Wildlife Crossings project will begin immediately upon the award of the grant funding. NDOT is prepared to obligate construction funding, including WCCP Grant funds within 24 months of the award.

The project would not require additional right-of-way or real property acquisition, which can involve considerable time and effort. Therefore, project design and preliminary engineering will be straightforward. There would also be no associated impacts on the project schedule or disruption to community cohesion.

All necessary activities will be completed in a timely manner to allow for obligation of funds as required by the grant agreement. Any unexpected delays would not result in funds expiring before the obligation date.



4.3 REQUIRED APPROVALS

4.3.1 Environmental Permits and Review

NEPA compliance will be completed using an FHWA Categorical Exclusion (CE) in accordance with 23 CFR 117(c)(8). BLM is currently preparing NEPA clearance for tortoise fencing throughout southern Nevada and relevant data from their clearance will be adopted to support this project's CE. All Section 106 compliance work or other consultations completed by other federal agencies will be adopted to support the CE. Section 7 consultation for the desert tortoise with USFWS could take up to 135 days. However, since the agency has been an active participant in the project development phase, the consultation is anticipated to be completed in less time.

Though the project is in a rural location with no adjacent residents, public outreach will still be a significant component of this project. Public outreach efforts will focus on public education about wildlife-vehicle interactions, the effects of habitat fragmentation on desert tortoises, and the benefits of tortoise crossings. NDOT will utilize a significant social media campaign, a project website, in-person events, and press releases to educate and inform the public. Public support and involvement are critical to ongoing conservation efforts beyond the scope of this project.

NDOT has identified several local agencies and organizations to partner with for outreach efforts, such as Tortoise Group and Clark County Desert Conservation Program (DCP). Clark County DCP's Mojave Max program has been educating the public about desert tortoises since 1995. NDOT will work with USFWS to promote Desert Tortoise Week via social media and other public events. Tortoise Group's Road Warriors program will provide

volunteers to inspect the project tortoise fence and crossings at regular intervals.

Tortoise Group

Tortoise Group is a non-profit organization educating and advocating for the protection and well-being of the desert tortoise since 1982. Their Road Warriors volunteers will focus their time and efforts on monitoring this segment of US 93 for tortoise sightings and post-construction monitoring of tortoise crossings and fencing.

4.3.2 State and Local Approvals

Ongoing coordination with Clark and Lincoln Counties will be necessary throughout project development. Coordination with the local field offices for BLM and USFWS would occur in regulation during the NEPA process, project construction, and post-construction monitoring.

Additionally, the project has broad public support, as documented in the Letters of Support included in Appendix 1.

4.3.3 Federal Transportation Requirements Affecting State and Local Planning

The Statewide Transportation Improvement Program (STIP) is a four-year, fiscally constrained and prioritized planning document that addresses the multimodal needs of Nevadans. The Coyote Springs Wildlife Crossings project is not currently listed in the STIP. However, NDOT will amend the current STIP following the established modification and amendment process if grant funds are awarded for the project.

4.3.4 Assessment of Project Risks and Mitigation Strategies

The Coyote Springs Wildlife Crossings project is a very low-risk yet high-reward project. The

process for designing and installing tortoise fencing and crossings is straightforward and a process that NDOT is familiar with. Additionally, tortoise fencing and crossings have been documented as incredibly effective at reducing tortoise mortality. Since there are no associated roadway improvements included in this project, environmental clearance is very clear-cut. Many federal, state, and local agencies and organizations support this project. The project is located in designated critical desert tortoise habitat, which is a priority area to provide barrier fencing and crossings. The most significant risk to the success of this project is funding. Awarding these grant funds would allow this project to proceed, greatly benefiting southern Nevada's Mojave desert tortoise population recovery efforts and improved roadway safety for motorists on US 93.



Young tortoise on roadway in the project area.



Selection Considerations

5.1 SAFETY

US 93 is an existing two-lane (one lane in each direction) rural highway beginning at I-15 and heading north. The Coyote Springs Wildlife Crossings project is a stand-alone project and there are no transportation improvements planned for this segment of US 93 in the near future. One of the objectives of the National Roadway Safety Strategy is to provide safer roads. However, providing safer roads in rural areas requires unique design considerations that coincide with the concerns of an area (e.g., minimizing vehicle-wildlife collisions). The Coyote Springs Wildlife Crossings project is uniquely designed to reduce overall vehicle-wildlife collisions and protect a threatened species while improving safety for US 93 roadway users by installing fencing and crossings to keep wildlife off the roads.

Only considering the obvious safety risks and damages associated with large vehicle-wildlife collisions dismisses the risks to human safety that are associated with the unique circumstances of smaller animals and a known threatened species. While the project is focused around the Mojave desert tortoise, other animals such as coyotes, rabbits, and other mid-size animals that could create a higher potential for vehicle damage or high-speed avoidance maneuvers are expected to also use the crossings. Near-accidents, attempts to avoid hitting small animals, and attempts to move animals off the roadway pose risks not considered in general vehicle-wildlife interactions. These risks directly impact human safety in ways that cannot always be quantified, but still need to be addressed.

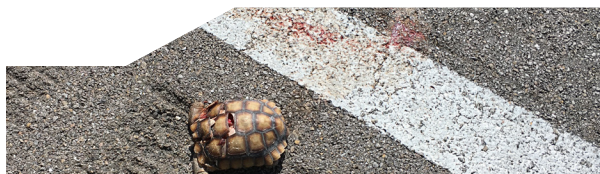
Near accidents and dangerous/illegal roadway behavior to avoid small animals are not always reported and therefore hard to track. It is

estimated that at least 50% of these incidents are not reported because they most often only cause minor injuries or property damage only crashes. However, data from the CDC and NEISS-AIP demonstrate that incidents with wildlife do not need to be direct vehicle-wildlife collisions to pose a threat to human safety. Avoidance of small animals, such as the Mojave desert tortoise, can cause drivers, especially in smaller cars, to depart the roadway onto gravel and steep slopes and/or over correct in an attempt to recover control over their vehicle, creating the possibility of a severe or fatal crash. Furthermore, near-miss incidents, run off road crashes, and roadway departures can be exacerbated by sudden braking and swerving that often happens when drivers attempt to avoid hitting animals on roadways. Given the possible adverse safety impacts that result from animals being on the road, it is imperative that consideration for vehicle-wildlife collisions extends to indirect impacts as well. 34% of rural fatalities are caused by roadway departure crashes, and as demonstrated, though under reported, indirect vehicle-wildlife incidents can result in degraded safety within a corridor. 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.

Good Samaritans attempting to move animals from roadways across the United States have been hit by vehicles resulting in injuries and even death. Given the threatened species status of the Mojave desert tortoise, NDOT is concerned that individuals trying to help the species are making themselves vulnerable to incidents on the roadway. While the barrier fencing and crossings are intended to keep animals off the roadways, they will also prevent drivers from becoming pedestrians on roadways without pedestrian safety features (and on a roadway with an average speed limit

of 65), therefore, reducing the risks of potential pedestrian-vehicle collisions. Additionally, these individuals may also unintentionally disrupt the flow of traffic, negatively affecting commuters, tourists, and freight movement. Though there is not data directly detailing the impacts of traffic caused by individuals seeking to remove animals from the roadway, research demonstrates an increased risk for safety that coincides with increase in traffic.

One of NDOT's Performance Measures is to Reduce Fatal and Serious Injury Crashes which aligns with the reporting requirements of the FHWA and National Highway Traffic Safety Administration's (NHTSA) goals. Our team has performed a traffic safety analysis to estimate the number of fatal, injury, and PDO crashes on similar Nevada corridors. Vehicle-wildlife collision data was used to calculate crash frequency per mile along US 93, US 95, SR 164, SR 160, and SR 159. This data was then used to estimate approximately 82 crashes per year being prevented through the incorporation of this project. While NDOT agrees with the FHWA's Safe System Approach (that deaths and serious injuries are unacceptable), roadway users will inevitably make mistakes that can lead to crashes. It will therefore be necessary for the road system to be planned, designed, and operated to be forgiving of human mistakes so that serious injury outcomes are less likely.



Tortoise carcass on a Southern Nevada roadway.

5.2 CLIMATE CHANGE AND SUSTAINABILITY

The impacts of climate change are expected to degrade some habitats while potentially

improving others. To facilitate movement between degraded and improved habitats, the Coyote Springs Wildlife Crossings project would provide 61 tortoise crossings that ensure safe passage under US 93, plus over 68 miles of tortoise exclusion fencing to direct tortoises toward crossings and prevent road mortality. Installing tortoise crossings will allow the desert tortoise population in this area to maintain genetic connectivity and extensive average home range areas.

Additionally, these crossings will provide the opportunity for demographic rescue and thus higher population viability. Implementing tortoise fencing with wildlife crossings may help reduce potential adverse environmental impacts. Numerous studies have been conducted to determine the effectiveness of barrier fencing and crossings, and are available on the Coyote Springs Wildlife Crossings website at <https://www.dot.nv.gov/safety/engineering-safety-improvements/wildlife-safety-overpasses-underpasses/coyotespringstortoisecrossings>. Without wildlife crossings and barrier fencing, this project area will continue to be a threat to the Mojave desert tortoise and the long-term survival of the species, which is a critical natural environmental resource.

Proactive Approach

NDOT is also proactively addressing infrastructure resiliency relative to the effects of climate change.

NDOT recently developed actionable recommendations to develop a statewide plan to advance resiliency due to future unplanned disruptions/emergencies, including strategies for emergency preparedness across a broad set of disruption categories.

5.3 EQUITY

The project is located in rural southern Nevada, with no communities immediately adjacent to the project. The Desert National Wildlife Refuge is located to the west of US 93. To the east of US 93, in Lincoln County, the project area is included as part of the Caliente Census County Division (CCD), according to US Census Bureau data. The median income of Caliente CCD is \$38,750, which is less than the Nevada median income of \$66,274. Twenty-nine percent of the population within Caliente CCD is 65 years or older, compared to only 16.5 percent of the state of Nevada over age 65.

Due to the project's remote and rural nature, the project's quality of life benefits differ from those in a highly congested urban area though still improving and benefitting a rural, isolated area of Nevada. The Coyote Springs Wildlife Crossings project will provide the system's users with a safer highway corridor, reducing potential injury crashes and overall disruption to well-being through the pain and financial burden placed on those involved.

5.4 WORKFORCE DEVELOPMENT, JOB QUALITY, AND WEALTH CREATION

NDOT plans for and provides trainee hours on available projects to expose the workforce to multiple disciplines and development.

NDOT has a long-standing reputation for providing opportunities for workforce development, job quality, and wealth creation. As required by NRS and other federal requirements, this project will be procured through an open, low-bid process. The contract requirements will include prevailing wage consisting of local Davis-Bacon prevailing wage requirements. This provides an equal playing field for unionized contractors to be competitive with non-unionized contractors

and guarantees workers will be compensated equally. In addition, NDOT will provide trainee hours on this project which offer opportunities for less-experienced workers to hone their crafts while providing a fair bidding situation amongst all interested contractors. The project will also provide opportunities for disadvantaged and minority business owners. Before construction contract bidding, NDOT Title VI and Civil Rights division will work with the FHWA and USDOT to establish a DBE/Minority/SBE percentage goal for the project, which the contractors must achieve or provide good-faith documentation to be deemed responsive. Finally, the project lies within the rural area of Clark County, Nevada, and within close proximity to the Moapa Indian Reservation and associated Moapa Band of Paiute Indians, providing nearby potential training and employment opportunities for their tribe and other local rural residents.

