



North Carolina
WCPP Application
September 2024



RED
WOLF



BLACK
BEAR



DEER



Photo Credit: Kerri Murphy

Red Wolf Essential Survival Crossings Under Evacuation Route (RESCUER)

Alligator River National
Wildlife Refuge (ARNWR)
US 64, Dare County



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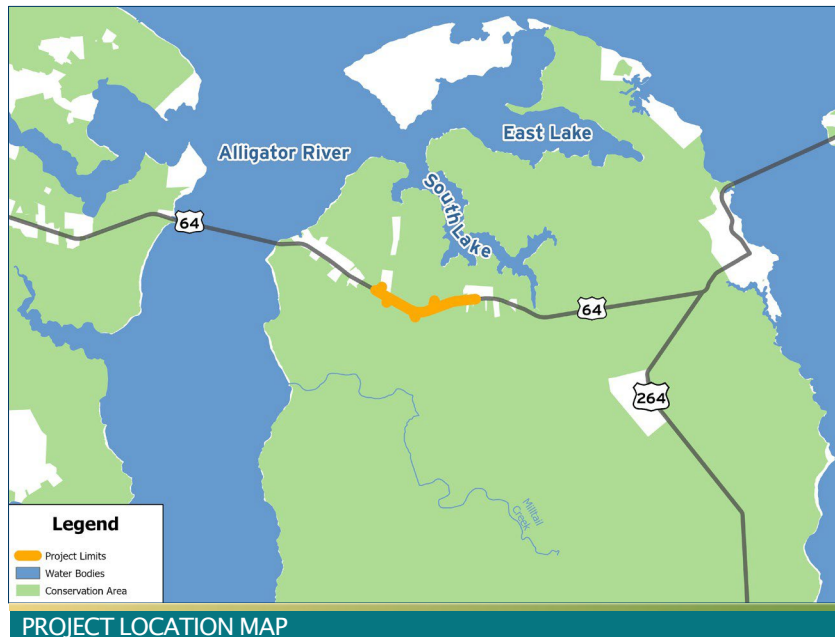
SUPPLEMENTAL MATERIALS

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BASIC PROJECT INFORMATION

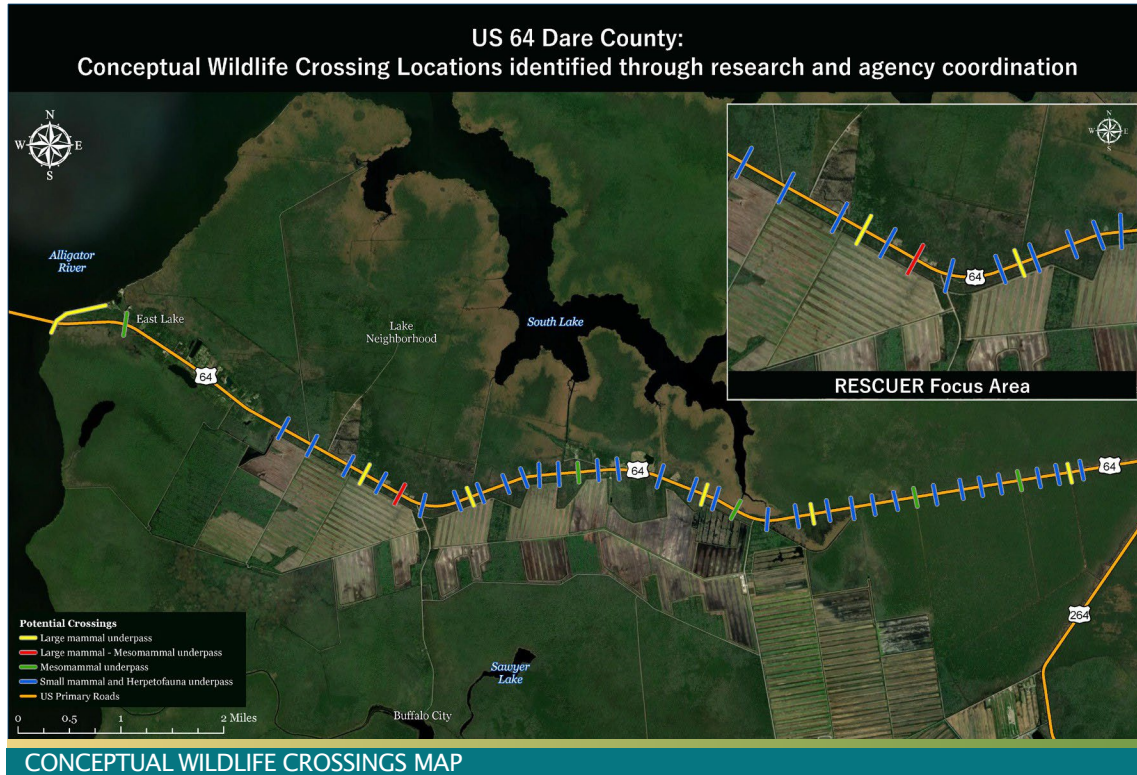
The North Carolina Department of Transportation (NCDOT), with support from US Fish and Wildlife Service (USFWS) – [Red Wolf Recovery Program](#) and Alligator River National Wildlife Refuge (ARNWR), and North Carolina Wildlife Resources Commission (NCWRC), seeks \$25 million in USDOT funding under the Wildlife Crossings Pilot Program (WCPP) for Wildlife Crossings on US 64 within the ARNWR in Dare County, NC to support the Red Wolf Recovery Program, and reduce wildlife vehicle collisions while increasing habitat connectivity across the refuge. These agencies are also partnered with numerous stakeholders and non-government organizations (NGOs) to help deliver a project that balances the transportation, safety, and wildlife interests of all involved parties.



Project Description

The Red Wolf Essential Survival Crossings Under Evacuation Route (RESCUER) project proposes to reduce wildlife vehicle collisions (WVC) and improve habitat connectivity for the entire length of US 64 within the ARNWR. This project is critical for the continued existence of the only wild population of the critically endangered Red Wolves¹ in the world. Over the last 10 years vehicle strike mortalities are the leading cause of mortality in Red Wolves. Installing wildlife fencing to reduce WVCs along with multiple wildlife underpass structures to provide habitat connectivity for species including the critically endangered Red Wolf, black bear, white-tailed deer, mesomammals, small mammals, and herpetofauna is an essential mitigation measure to address impacts from US 64 through ARNWR. Specific to this funding opportunity, this first phase addresses one of the WVC hotspots and is a main area of concern along US 64 identified by both Huijser and Begley (2023) based on all Red Wolf vehicle strike mortality data and previous WVC studies conducted on US 64.

1 The capitalization of Red Wolf is an acknowledgement of the cultural importance of the species to some Native American Tribes and their belief that Red Wolves are our equal.



Project History

The USFWS established the ARNWR in 1984 to “protect the rare pocosin wetlands and their associated wildlife”. There is a long history of wildlife conservation in northeastern North Carolina. ARNWR was the 7th refuge established by USFWS in the current 9-refuge Coastal North Carolina National Wildlife Refuges Complex; the first 3 refuges in the region were established in the early 1930’s. Prior to 1984, the land occupied by ARNWR was privately owned for nearly 200 years, with most of the interest in timber production, farming, and peat mining. Development of the peninsula has generally been unsuccessful due to a variety of factors, including its remoteness, high water table, and difficult organic soils. Fortunately, these same environmental conditions allow a wide variety of wildlife to thrive.

The east-west road corridor across the peninsula now known as US 64 predates 1938; at that time, the corridor relied on toll ferries to cross the Alligator River and Croatan Sound, and the road was likely built to support regional trade like moonshine and timber. The first bridge over the Alligator River opened in 1962, connecting the mainland to the Albemarle peninsula and the Outer Banks via what is now US 64.

In 1999, NCDOT initiated a feasibility study to address widening 27 miles of US 64 between Columbia and Manns Harbor, including a new bridge over the Alligator River in Tyrrell and Dare counties (NCDOT R-2544 and R-2545). The study included the section of US 64 included in this project proposal as well as the entire US 64 corridor within the peninsula (which will be part of future phases of RESCUER). In 2002, NCDOT prepared a Feasibility Study, but the project was postponed pending a revised hurricane evacuation



model. In 2007, NCDOT reinitiated the project and held an environmental resource and regulatory agency Scoping Meeting as well as conducted a Public Officials Meeting and a Citizens Informational Workshop. The workshop was attended by approximately 40 persons, primarily from the East Lake community who commented that animal collisions were a problem. Next, the project went through NCDOT's Merger Process with the US Army Corps of Engineers (USACE) as the lead federal agency, and a Draft Environmental Impact Statement (EIS) was completed in 2012. From 2012 to 2018, when the Final EIS was finalized, many additional NEPA-related activities were achieved including: agreement on a Least Environmentally Damaging Practicable Alternative (LEDPA), consultation with the USFWS and National Marine Fisheries Service (NMFS) on impacts to federally listed species, additional public outreach, and development of a wildlife crossing program to mitigate wildlife impacts through the creation of a Wildlife Crossing Planning Team.

The Wildlife Crossing Planning Team met numerous times between August 2012 and May 2014. Agencies on the team included USFWS, NCWRC, and the USACE, as well as numerous NCDOT technical experts (Roadway Design, Environmental Analysis, Right-of-Way, and Hydraulics). This Team met to discuss the crossing locations/sizes, but also general wildlife crossing issues including fencing, canal crossings, and minimization efforts to reduce impacts to coastal wetlands and Refuge resources.

USACE, in association with NCDOT, completed formal consultation under Section 7 of the Endangered Species Act (ESA) for the Red Wolf and red-cockaded woodpecker. The primary conservation measure associated with the Red Wolf was the Wildlife Crossing Program.

While NCDOT was completing the NEPA process for R-2544 and R-2545, the NC General Assembly passed the Strategic Transportation Investments law, establishing the Strategic Mobility Formula for data-driven scoring and local input to prioritize program needs. The process, known as Strategic Prioritization, is used to develop our 10-year State Transportation Improvement Program (STIP) funding. Based on the constraints of this process and other needs within this region, these projects were not funded through several iterations and have since been removed from the STIP entirely.

Therefore, the only way for NCDOT to begin building these crucial wildlife underpasses along US 64 in the near future is through this funding opportunity.

Project Location

This first phase of RESCUER is approximately 2.5 miles along US 64 from just east of the community of East Lake to just west of Robertson Landing Road (SR 1169) on the Albemarle Peninsula in Dare County, NC, which is a rural area. The majority, approximately 160,000 acres, of the peninsula is occupied by the ARNWR. The remainder of the peninsula is held privately and occupied by communities such as East Lake or is held in public trust, like the Dare County Bombing Range. The Albemarle Peninsula is bounded on three sides by the Alligator River, Albemarle Sound, and Croatan Sound.

US 64 offers direct west to east access across the peninsula to Manns Harbor and the



Outer Banks. The US 64 bridge over the Alligator River (2022 MPDG award) is the only access to US 64 from the west. US 264 follows a south to north route along the east side of the peninsula intersecting US 64 just west of Manns Harbor. While there are other private and public roads within the peninsula, US 64 and US 264 are the only public roads connecting the peninsula to other locations. Consequently, US 64 is a primary travel route for residents, commuters and tourists to the Outer Banks and is a designated Hurricane Evacuation route. Per 2023 Average Annual Daily Traffic (AADT), counts for the project length are 5,300 vehicles per day (vpd) on weekdays. During the summer months (June to August), when tourists flock to the area, weekday traffic counts increase to approximately 6,600 vpd (2023, Streetlight Data). On the weekends, these numbers increase to 7,300 vpd and 11,800 vpd during the summer months.

TRIBAL LAND

This project is not located on land belonging to a federally recognized Indian Tribe. However, the Tuscarora Nation of North Carolina, a ~~federally recognized tribe~~¹, has provided a strong letter of support for the project (Appendix B).

The Red Wolf was and is an animal of cultural importance to many Native American Tribes. For example, the Red Wolf is one of the most important cultural icons of the Cherokee Nation and the Cherokee People. Foundational to origin stories and the clan system, the Red Wolf is considered an equal who lived in symbiotic relationship with Cherokee People. The Cherokee Nation and USFWS have collaborated on a film titled “Waya: Saving Our Red Grandfather” to be released in 2024.

RURAL OR URBAN DESIGNATION

This project is in a Rural area as designated by the U.S. Census Bureau.

COMMUNITY DEVELOPMENT ZONE

RESCUER is located in Census Tract 9705.01, a federally designated Opportunity Zone. North Carolina’s federally designated Opportunity Zone eligibility is based on 2011-2015 Census American Community Survey (ACS) data. Eligibility is determined by a Census Tract having either Median Family Income at or below 80 percent of Area Median Income or a Poverty Rate of 20 percent or greater. Census Tract 9705.01 is a low-income community, with a median household income of \$40,972 (2011-2015 ACS data).

This project is not located in any other federally designated community Development zones.

Lead Applicant

NCDOT is the Eligible Applicant and project lead. NCDOT has a long history of successful project delivery. NCDOT has provided detailed cost and schedule information in this application and additional information on the basis for the cost and schedule is included

¹ This attribution was inadvertently added to the original text. NCDOT is aware that the Tuscarora Nation of NC is neither a federally nor state-recognized tribe and apologizes for the mistake.



in the supplemental materials. The financial plan is in place. NCDOT has successfully delivered many USDOT grant projects and is currently working on several grant-funded projects, including the I-85 FUTURES and STERLING projects, which were awarded MPDG funds in 2023. In addition, North Carolina has a strong reputation for prudent use of federal highway funding. The state formed its State Highway Commission (now NCDOT) in 1915. Both have successfully managed projects receiving Federal-Aid Highway program since the passage of the Federal Aid Road Act of 1916, through many changes and reauthorizations.

NCDOT is guided by its Strategic Plan and the North Carolina Division Business Plan. Based on 2023 data, [NCDOT manages approximately \\$1.4 billion per year in Federal-Aid Funds](#).

NCDOT will administer the grant. Contract development will occur through coordination by NCDOT's Federal Grants Manager in the Office of Strategic Initiatives & Program Support with the Programs Management Office, the Environmental Policy Unit, and the Division of Highways Chief Engineer's Office.

OTHER PARTIES

The NCDOT has worked very closely with the USFWS Red Wolf Recovery Program and ARNWR as well as the NCWRC regarding the scope, schedule, and budget for RESCUER as well as this phase of RESCUER. Both resource agencies are partners in this application.

As documented in the Project History, NCDOT has worked closely with both agencies regarding wildlife crossings on this section of US 64 dating back to the 1990's. The agencies have also worked closely on other Red Wolf related issues and activities such as mobile electronic message boards, expedited roadkill removal and dispersal, and permanent signage.

NCDOT has a strong commitment to agency coordination as documented in the: [2019 NCDOT-FHWA CE Agreement](#), [2023 Section 404/NEPA Merger Process](#), [NCDOT NCWRC MOU](#), the [2020 Section 106 Programmatic Agreement](#) as well as four [Endangered Species Act Section 7 Programmatic Agreements](#) that cover a combined total of eight federally protected species.

BUDGET NARRATIVE

Total Project Costs

The total project cost of this phase of RESCUER is \$31,250,000 with NCDOT requesting \$25,000,000 from the WCPP and the non-federal matching funds of \$6,250,000 will be provided through a combination of General Funds and private donations. NCDOT has determined the project will have the following phases and costs: design plans and NEPA documentation (\$250,000), construction (\$26,700,000), education and outreach (\$100,000), and monitoring and reserach (\$100,000) for a total cost of \$27,150,000. Adding 15% for construction engineering and inspections as well as contingencies results



in a total project cost of \$31,222,500.

NON-FEDERAL SHARE

On May 30, 2024, the Center for Biological Diversity, Wildlands Network, and coalition partners launched a public fundraising campaign to raise \$2 million dollars to match an anonymous donor pledge of \$2 million dollars to fund wildlife crossings across US 64 for critically endangered Red Wolves. Based on information provided by the Center, almost \$1 million dollars in donations and funding commitments have been received from 5,818 gifts. The project has been widely supported from a broad constituency with over 5,800 donations of \$100 or less, over 540 donations between \$101 and \$1,000, and 24 donations greater than \$1,000. While donors from across the U.S. have supported the campaign, 7% of the campaign's donors and 58% of the funding secured so far is from North Carolina donors. The campaign has several larger proposals under consideration by North Carolina as well as nationally based foundations. The Center has extended the campaign past the current deadline and plans for additional future campaigns to assist in leveraging the full potential of this grant opportunity to help save the critically endangered Red Wolf (see Appendix B for NGO LOSs).

The NCDOT Executive Grants Committee has committed to providing the remaining matching funds for this project, if awarded, through NCDOT's General Maintenance Reserve Fund which is funded through the State Highway Fund. State Highway Fund Revenues for the Highway Fund are generated from the state motor fuels tax and DMV fees. The Highway Fund primarily supports projects that maintain the state's existing transportation system. This includes general maintenance, roadside environmental activities, resurfacing highways, replacing bridges, paving unpaved secondary roads, and state aid to municipalities. Funds are distributed across North Carolina based on need.

OTHER FEDERAL FUNDS

There are no additional federal funds currently directed allocated for this project.

However, the USFWS Red Wolf Recovery Program will be providing in-kind contributions through continuing extensive monitoring of Red Wolves and coyotes within the project area through conducting trapping, radio collaring and using radio telemetry tracking before, during, and post-construction. The Red Wolf Recovery Program will also continue to employ multiple remote sensing cameras on ARNWR within the project area to monitor all wildlife use. Additionally, the Red Wolf Recovery Program will continue to contribute to the final planning and construction of this project as well as the implementation of an appropriate post construction monitoring plan that will assess the success of the wildlife crossing structures.

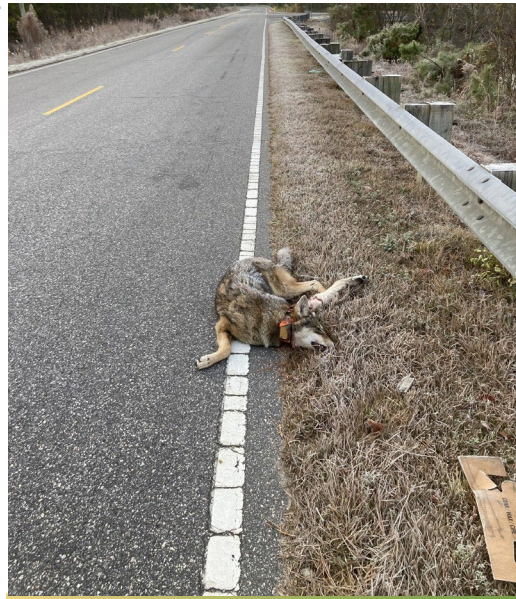
An additional project that will have in-kind contribution aspects involves a partnership between the USFWS Red Wolf Recovery Program and the U.S. Geological Survey on a project designed to quantify potential effects of socio-environmental conditions and configuration on red wolf movement and connectivity in a mosaic landscape. To support

species recovery, Red Wolf populations require access to sufficient habitat, and in doing so, they navigate a diverse landscape of anthropogenic and environmental risks and resources. Among other factors, such as continued urbanization, this project would consider additional human-related risk factors, such as proximity to roads for vehicle strike risk. The project is currently scheduled to begin in 2025 and end in 2028, which could provide valuable pre-construction information as well as the effects during and potentially after construction.

PROJECT MERIT CRITERIA

Criterion 1.1: Reduction of Wildlife Vehicle Collisions

This project is critical for the continued existence of the only wild population of Red Wolves in the world. The section of US 64 prioritized in this proposal is immediately adjacent to some of the best and most important habitat for Red Wolves on ARNWR, particularly as the Red Wolf population grows. On their assessment of the impact of roads and traffic on the Red Wolf, Huijser and Begley (2023) noted that from 1987 through 2022, there were 91 recorded Red Wolf road mortalities. Of those, 78 could be tied to the locations of paved roads. The section of US 64 that bisects the ARNWR in Dare County accounted for over 24 percent of the total Red Wolf road mortalities. There have been 3 additional Red Wolf vehicle strike mortalities along this section of US 64 since that report.



Red Wolf Vehicle Strike on US 64 (USFWS)

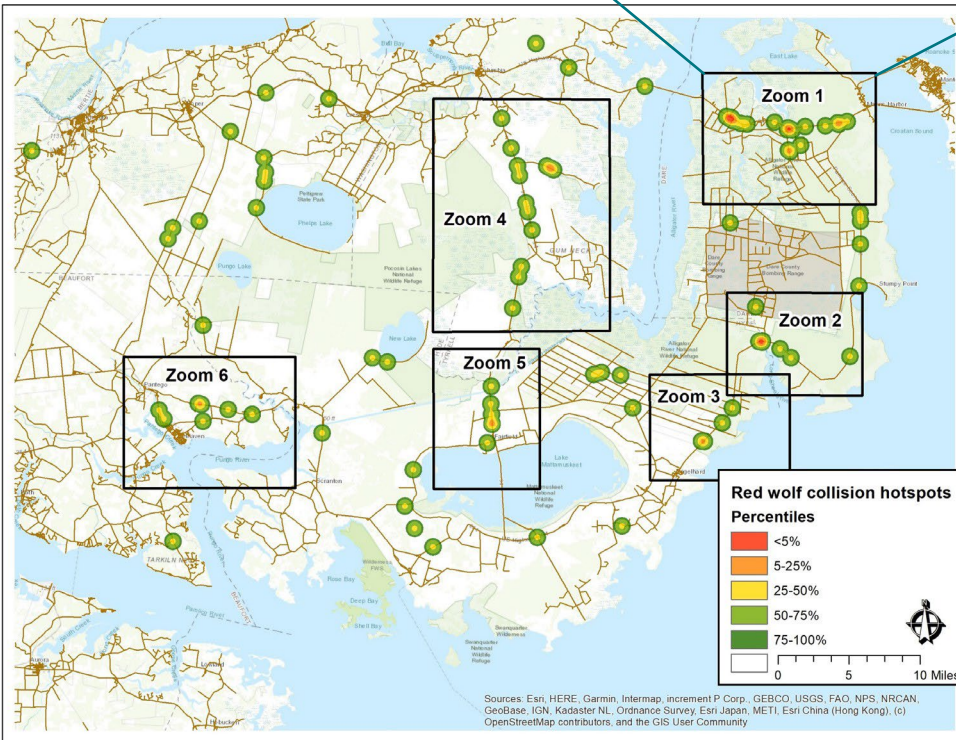
The USFWS Red Wolf Recovery Program routinely monitors all known wild Red Wolves through the use of radio collars (VHF and GPS), remote sensing cameras, ground tracking, aerial telemetry, etc. Mortalities are detectable during monitoring as radio collars are equipped to send mortality signals. Additionally, radio collars are equipped with a metal tag for the Red Wolf Hotline to report a mortality directly. Consequently, the mortalities of all known Red Wolves are detected. Mortality reports are completed for all Red Wolf mortalities. The majority of mortalities and all mortalities of the last 5 years were necropsied to confirm the cause of death. USFWS documented 19 Red Wolf mortalities from vehicle strikes on the section of Highway 64 running through ARNWR. Six of the 19 vehicle strike mortalities or 32 percent, occurred in the last 5 years, and three of those occurred within the last year (2023-2024). Two of the three mortalities in the last year were breeding males actively assisting in raising litters at the time of mortality. One litter was subsequently lost following the death of the breeding male.

Additionally, based on monitoring of the Red Wolf population over the last 5 years, a minimum of 15 Red Wolves have been detected on US 64 or north of US 64 indicating

that they had crossed it. Of those 15 Red Wolves, 7 are known WVC mortalities on US 64 and another is a suspected WVC on US 64. Four of the 15 were intentionally captured by USFWS while north of US 64 and relocated from the area. One of the Red Wolves that has been tracked north of US 64 during Summer 2024 is still alive on the landscape and their existing home range is in very close proximity to the section of US 64 proposed for wildlife crossings in this proposal.



Zoom 1: Huijser & Begley



US 64 through ARNWR Kernel Density Hotspot Percentiles for Red Wolf-Vehicle Collisions, 1987-2022 (Huijser and Begley 2023). The Area within the “Zoom 1” Rectangle Encompasses this Phase of the Project.

WVC on US 64 are not limited to those involving Red Wolves. Black bear and white-tailed deer are the most commonly reported WVC species, resulting in significant harm to humans and vehicles. Based on reported crash data from NCDOT, 45 WVC on this



section of US 64 were reported between 1990 and 2024. Of the 45 crashes, 43 involved bears, one involved a deer, and one the officer did not specify.

A previous study examining the potential wildlife effects of widening US 64 conducted a roadkill survey, which reported 15 black bears, 8 white-tailed deer, and 1 Red Wolf mortality from 2008 to 2011. The survey also recorded 57 opossums, 49 raccoons, and eight other mid-sized mammals and 82 small mammals, including three star-nosed moles, which are a North Carolina Species of Concern. The survey noted over 7,000 amphibian and 4,000 reptile mortalities. In [May 2014](#), police reported that a minivan heading west on US 64 near East Lake struck and killed an alligator. The male alligator weighed over 670 pounds and was almost 12 feet long.

Data from neighboring Virginia Department of Transportation (VDOT) found that a correction of up to 8.5 was needed to correctly estimate the number of WVC in a given area (VDOT, 2017). Therefore, actual WVC occurring on this section of US 64 are likely significantly higher.

Huisjer and Begley stated that properly installed wildlife fencing could reduce direct roadway large mammal mortality by at least 80 percent, and “immediate wildlife fencing along US Hwy 64 and parts of US Hwy 264 may be what is needed for the immediate survival of the few remaining Red Wolves (situation in 2022-2023).” However, wildlife fencing alone would not allow for habitat connectivity and the natural dispersal of multiple wildlife species. The addition of suitable crossing structures within the fenced area would further reduce wildlife mortality by enhancing critical habitat connectivity.

The US 64 corridor is home to numerous species, including Red Wolf, black bear, white-tailed deer, bobcat, and coyote, as well as many other mesomammals, small mammals and herpetofauna. A roadkill survey in adjacent Tyrrell County in 2011 found over 130 species. Improvements will benefit not only larger mammals but many smaller animals as well.

Criterion 1.2: Terrestrial and Aquatic Habitat Connectivity

The Albemarle peninsula of North Carolina has immense conservation value that can be seen in the vast investment in land conservation. There are four National Wildlife Refuges, multiple National Park Service units (national seashore, national monument, etc.), one state park, multiple tracts of state owned NCWRC game lands, and multiple tracts in private conservation along the US 64 corridor.

US 64 provides the only direct east west access in this region. Since the early 1990’s, studies in the three eastern most counties (Washington, Tyrrell, and Dare) have looked at highway improvements and the potential impacts the highway would have on fisheries and wildlife in the region. That continued investment has included eight research projects and years of monitoring wildlife movements, wildlife interactions along the highway corridor, and wildlife use of existing underpass structures. Through that research and monitoring the need for improved highway permeability has been documented in all three counties.



The RESCUER project focuses on US 64 in Dare County through the ARNWR. This portion of the US 64 corridor has been the subject of several of the aforementioned research projects. In reviewing vast amounts of data (including successful crossings and roadkill), NCDOT and our partners have identified 41 locations and structure types to improve highway permeability.

As an existing two-lane facility, a percentage of wildlife are successfully able to cross this portion of US 64. However, a few key aspects in this region show why, as a two-lane facility, connectivity improvements are needed. This region has been shown to have the highest black bear densities on the east coast leading to multiple WVC involving black bear every year. The substantial wetlands and open water provide excellent habitat for many species of reptiles and amphibians with nesting or wintering habitat potentially on the other side of the roadway. Alarming numbers of roadkill herpetofauna have been documented in US 64 research projects. Several of those species are Species of Greatest Conservation Need as identified in the [NC Wildlife Action Plan](#).

Connectivity is a useful lens for understanding how the landscape facilitates or impedes Red Wolf movement. Connections across different land uses provide opportunities for individuals to access resources and adapt to changing conditions; functionally connected areas can also support dispersal and gene flow that are necessary for healthy populations. Characterizing the network of physical connectivity among different land uses can help determine where there is sufficient area available for Red Wolves, as Red Wolves navigate a mosaic of land uses within their range. Environmental changes to the landscape, such as increased human development including roads, are potential risks to fragment the habitat and affect connectivity. Red Wolves also live in a highly varied anthropogenic landscape, with different risk factors associated with people. The spatial distribution of social and environmental features on the landscape, therefore, are important considerations for Red Wolf movement connectivity.

There are currently 16 known Red Wolves in the wild. In recent years, WVC have been the number one cause of mortality and the need to reduce that mortality factor is addressed in the [Revised Recovery Plan for the Red Wolf](#) (September 2023). The most effective means to reduce vehicle strike mortality of Red Wolf is to install appropriate wildlife fence along US 64; however, installation of wildlife fencing alone would increase the level of habitat fragmentation to an unacceptable degree in such a conservation rich area. Fencing without crossing structures is rarely a sound conservation measure and this is reiterated in the Huijser and Begley report. The report states: “However, if wildlife crossing structures are not an integral part of the mitigation measures, other species may suffer, and for the long-term conservation of the Red Wolf, habitat connectivity is essential...”

By incorporating multiple underpass structures of various sizes that accommodate large mammals, NCDOT and its partners will improve safe wildlife passage to adjacent habitats, but more importantly maintain habitat connectivity that is complemented by wildlife fencing.

One problem is the scale to which these mitigation measures need to be implemented. Fencing with crossing structures is not an inexpensive mitigation measure, and these



need to be installed throughout US 64 in Dare County. This is a complex landscape with wetlands, canals, refuge access points, rural land uses, and the need to maintain regional mobility; NCDOT has considered these aspects when designing and estimating our project costs. The unfortunate conclusion is only a portion of US 64 can be funded through a single grant application. What is proposed only represents a fraction of the mitigation need. However, NCDOT and our partners concur that it represents the most immediate needs based on our collective research and monitoring.

Criterion 2.1: Leveraging Investments

NCDOT's investment in reducing WVC and increasing habitat connectivity in this region of NC began in 2005 when a section of US 64 in Washington County was constructed on new location and included three wildlife underpasses to improve habitat connectivity along the corridor. ([NCDOT STIP R-2548](#)). Additionally, the [Bridge replacement](#) (NCDOT STIP HB-0001) is expected to begin construction in 2025 and includes two large mammal underpasses as well two mesomammal underpasses (See Appendix A). This bridge replacement was originally part of a larger US 64 planning effort (NCDOT STIP R-2544 and R-2545) that included 3 research projects and coordination that resulted in the identification and agreement to incorporate 73 wildlife crossing structures into those future projects, including those that will be installed under this phase of RESCUER.

Additionally, as previously mentioned, Wildlands Network, the Center for Biological Diversity, and coalition partners launched a public campaign to raise \$2 million dollars to match an anonymous donor pledge of \$2 million dollars to fund wildlife crossings across US 64 for critically endangered Red Wolves. Based on information provided by the Center, almost \$1 million dollars in donations and funding commitments have been received from 5,818 gifts. The project has been widely supported from a broad constituency with over 5,800 donations of \$100 or less, over 540 donations between \$101 and \$1,000, and 24 donations greater than \$1,000. The Center has extended this campaign past the current deadline and plans for additional future campaigns to assist in leveraging the full potential of this grant opportunity to help save the critically endangered Red Wolf.

Criterion 2.2: Economic Development and Visitation Opportunities

Several Dare County Census Tracts (# 37055970601 and 37055970602) as well as neighboring Tyrrell County Tract #37177960100, Hyde County Tract #37095920100, and Washington County Tract #37187950100 are identified as overburdened and underserved disadvantaged populations per the Council for Environmental Quality (CEQ) Climate and Economic Justice Screening Tool (CEJST).

Tourism is a key to the Dare County economy, accounting for 45% of the County's employment, with the Outer Banks beaches and wildlife refuges being two of the primary tourist attractions. In 2023, visitor spending contributed [\\$2.15 billion](#) to the Dare



County economy. ARNWR staff and volunteers offer regular wildlife tours, educational programs and wildlife dependent recreation. Wildlife dependent recreation includes hunting, fishing, environmental education, interpretation, photography and wildlife observation. Most of the visitation to the Refuge, which totaled over 1/2 million this fiscal year, is focused primarily on wildlife observation and photography. One of the most popular programs/trips during the annual Wings Over Water Festival is to ARNWR to see black bears and hear the howl of Red Wolves; the festival draws thousands of birders and wildlife watchers each year to this prime stretch of the Atlantic Flyway. USFWS data shows expenditures on wildlife watching alone nationwide in 2022 was over 250 billion dollars with trip related expenses such as food, gas, lodging, charters, transportation and guides comprising over 42 billion dollars (US DOI, USFWS 2022). The refuge and its wildlife are regularly features in local media such as the Coastland Times, regional publications such as [Our State](#) magazine, national media such as the Washington Post and international websites like the [International Wolf Center](#).

As the Red Wolf population stabilizes and grows, it will continue to have a positive economic impact on the region. Several studies (USFWS, 1994, USFWS, 2000, Duffield et al., 2006, Duffield & Neher, 2019 and Huijser et al., 2022) note the value of preserving endangered large animals. As stated in Huijser and Begley, *“For large mammals that are endangered and considered charismatic by the public, an individual animal may be valued at several tens of thousands up to several million dollars.”* The passive value of Red Wolves could be comparable to the value of gray wolves in Yellowstone National Park where they were valued at about \$2 million per individual (Duffield et al 2006).

Since the announcement on social media of the wild litter of Red Wolves born on ARNWR in April 2022, the first wild litter in 4 years, there has been a marked increase in the amount of visitation to the ARNWR for the purpose of viewing Red Wolves. Visitation to ARNWR has increased in general post-COVID as well. Increased visitors to ARNWR would be expected to increase economic benefit to the local communities with services such as gas, lodging, groceries, restaurants and local outfitters and guides. A survey conducted by USFWS in 2011, asked visitors about the time and money they spent when visiting ARNWR. On average, visitors spent \$38 per person each time they visited. By substantially aiding the stabilization and growth of the Red Wolf population and maintaining safe access to ARNWR, while also increasing the safety of all wildlife and visitors, RESCUER is a cost-effective way to directly benefit the economy of eastern North Carolina.

Criterion 2.3: Innovation

As mentioned earlier this is a complex landscape. Minimizing project impacts, limiting traffic disruptions, and minimizing cost to effectively improve as many miles of US 64 as possible is the goal of all parties. Therefore, additional innovative strategies such as using structural plate arch pipes that can be installed faster, provide the necessary vertical clearance but with less fill material than a bridge structure will be utilized.

Additionally, NCDOT intends to perform a [Value Management Study](#) immediately post-award to find the most cost-effective and expedited construction methods that meet the



Highway Sign Placed by Red Wolf Recovery Program on US 64 through ARNWR

needs of the project.

With vehicle strike mortalities being the primary cause of mortality for Red Wolves over the last 10 years, the Red Wolf Recovery Program and its many partners, in lieu of the preferred wildlife crossings, have implemented various methods to try and reduce vehicle strike mortalities. In 2021 and through a permit with NCDOT, the Red Wolf Recovery Program along with the Red Wolf Coalition and North Carolina Wildlife Federation purchased 6 large, mobile, electronic highway message boards to place along highways

in areas where monitoring indicates Red Wolf use in close proximity to the highway and/or places where they routinely cross. The highway signs display a message of “Endangered Red Wolf Crossing, Drive With Caution”. The intention is to effectively place the signs as Red Wolf movements shift and remove the signs once there is no active Red Wolf use in a particular area. However, it is important to note that based on monitoring, the highway signs on the section of Highway 64 through ARNWR have not been moved since placement approximately 3 years ago due to continuous use of that area by Red Wolves and the ongoing threat of WVC in that area.

The Red Wolf Recovery Program also started placing orange reflective material on the radio collars of Red Wolves to make them more visible along roadways at night. Evidence suggests based on our own monitoring and including information from local law enforcement that it has made them more visible. The Red Wolf Recovery Program is also working with engineering students and professors at North Carolina State University to develop a radio collar that could have flashing LED lights when they are in close proximity to the highway. The Red Wolf Recovery Program is also exploring the potential for installing cameras in known crossing areas that will trigger flashing lights along the highway when wildlife is about to cross in coordination with several NGOs.

It should also be noted that there are indications based on comments made directly to USFWS personnel and on social media posts that some amount of Red Wolf vehicle strike mortalities may be intentional based on opportunity. In those cases, appropriate wildlife crossings as proposed in this phase of RESCUER that allow Red Wolves to avoid the road surface will likely be the only effective way at reducing vehicle strike mortalities.

Criterion 2.4: Education and Outreach

Once funding is awarded, NCDOT, USFWS, and NCWRC will collaborate on education and outreach. The USFWS Red Wolf Recovery Program and ARNWR have several long-established avenues for education and outreach within the local communities and in the tourism industry. While wildlife conservation is the basis for the National Wildlife Refuge System, leadership on the recovery and conservation of our nation’s imperiled species through Endangered Species Act implementation is a primary initiative of the USFWS Ecological Service Program.

U.S. Fish & Wildlife Service

Welcome to Red Wolf Country

The only population of the world's most endangered wolf lives right here in eastern North Carolina

Running Wild Media

Enjoy your stay in red wolf country. For their safety and for yours when driving, please follow these important tips:

Watch for Red Wolves!
Most are wearing orange collars.

Watch the Road!
Vehicle strikes are a major threat to red wolves. Look for highway signs, this means that red wolves are in the area. However, red wolves can potentially cross roads throughout the area at any time.

Help keep red wolves safe
Please always be aware when driving, especially on Highways 64, 264, and 94.

Ways You Can Help
Eve Turek

Learn about red wolves at any of the three Visitor Centers in the area
Wolves are often misunderstood. Educating yourself, and others, about the uniquely wonderful red wolf – the only wolf endemic to the U.S. – can be very rewarding.

On your trip, please visit the Red Wolf Center and Pocosin Lakes Visitor Center in Columbia, NC, or the Gateway Visitors Center in Manteo, NC. Don't forget to share what you learned!

Visit the area's National Wildlife Refuges
Visiting Alligator River National Wildlife Refuge or Pocosin Lakes National Wildlife Refuge is a great way to get a chance see a rare red wolf in the only existing wild population while also supporting the local communities and counties (e.g., lodging, food, and other area businesses).

Share your photos and report any unusual sighting
Help spread the love of this incredible species by sharing photos and videos you responsibly take of them in the wild! Photos can help us in our outreach and are also a good way for us to assess the health of individuals and determine pairings. However, please keep in mind that the enthusiasm of seeing or photographing a rare species can put them at risk. Keeping a minimum of 100 yards from red wolves helps keep them wild. Never pursue red wolves for up close photos. Please do not remain with an animal for a long time, as your presence may disrupt their normal behavior.

Help keep red wolves safe: please report any suspected or unusual sightings, an injured or dead red wolf, or any suspicious behavior to the Red Wolf Hotline at the number or e-mail address provided below.

Contact us!
Red Wolf Hotline: 1-855-4WOLVES
redwolf@fws.gov
fws.gov/project/red-wolf-recovery-program
facebook.com/redwolfrecoveryprogram

USFWS RED WOLF COUNTRY BROCHURE (USFWS)

The ARNWR mission includes an acknowledgement of the “growing responsibility to reach out to local and national communities about the refuge’s importance as a valuable piece of the puzzle that connects all wildlife habitats together”. Additionally, the Recovery Vision, per the Revised Recovery Plan for the Red Wolf (2023), states that



“wild and free Red Wolves will coexist with humans... through conservation activities, the public’s trust and engagement, and aligned policies among all involved with Red Wolf recovery”.

This grant award funding for education and outreach will assist with accomplishing ARNWR’s mission as well as with progress towards the Red Wolf Recovery Vision by improving public engagement through increased public understanding and eventually public trust in both the USFWS and the recovery effort.

The Red Wolf Recovery Program has an extensive outreach program in eastern North Carolina including public meetings, direct contacts with landowners throughout the Eastern North Carolina Red Wolf Population (ENC RWP), brochures, public displays, etc. regarding Red Wolves and their management. Outreach includes ways to decrease human caused mortality, particularly gunshot and vehicle strike mortalities. In 2023, the Red Wolf Recovery Program produced a brochure titled “Welcome to Red Wolf Country” with the focus of the brochure geared towards reducing vehicle strike mortalities. The brochure is available online and printed versions are supplied by the USFWS to all rest areas and visitor centers within the ENC RWP area. Additionally, attempts are being made for the brochure to be included with all vacation rental reservation materials for the Outer Banks since a large percentage of Outer Banks visitors reach their destination via US 64.



The Red Wolf Center located just off US 64 outside of Columbia, NC, is a public education center that houses Red Wolf displays, provides programs on Red Wolves, and has a live Red Wolf pair in a viewing enclosure open to the public. The Red Wolf Center is a collaborative effort between the USFWS, the North Carolina Wildlife Federation and the National Wildlife Refuge Association. The Red Wolf Center also offers Red Wolf educational talks to school and other groups. In 2023, through collaboration between the Red Wolf Recovery Program, Pocosin Lakes National Wildlife Refuge, multiple NGOs led by Champions for Wildlife, local civic groups, volunteers and supported by the Town of Columbia and Tyrrell County, a mural of Red Wolves was painted on the entire outside of the Red Wolf Center. Visitation has continued to increase, it has become a regular environmental education destination for people traveling through Columbia on US 64, and the town has talked about adding it to the bus route for visitors coming off a potential new passenger ferry to the town.



Additionally, there are Red Wolf displays at the Pocosin Lakes National Wildlife Refuge (PLNWR) Visitor Center in Columbia, NC and the Coastal North Carolina National Wildlife Refuges Visitor Center in Manteo, NC. Rest areas in Manteo, NC, Plymouth, NC and Washington, NC also have Red Wolf outreach displays. Throughout the summer months, ARNWR leads Friday night Red Wolf talks that end with visitors driving with staff through ARNWR to look for red wolves and other wildlife.

In the last couple of years, the USFWS has renewed its effort to recover the Red Wolf and revitalized the program. While USFWS will continue to rely on proven wildlife management techniques that have demonstrated success and explore innovative approaches to challenges the program and species face, this revitalization focuses on collaborative conservation, emphasizing the need for and importance of community and partner engagement, including increasing communications and transparency in all USFWS actions. This approach is critical to building trust, reducing anthropogenic threats, and addressing values so that USFWS can obtain the social acceptance needed so that biological targets can be met.

The USFWS is improving community engagement and advancing the integration of social science into conservation of the Red Wolf while working to change the way it operates and engages with both internal and external partners and the community.

Part of this change is being implemented through a conflict transformation effort being led by [Constructive Conflict LLC](#). The USFWS Red Wolf Recovery Program contracted Constructive Conflict (Francine Madden) to address the destructive conflict (same-side and oppositional) surrounding Red Wolves and transform that energy to collaboration and progress. This includes engaging multiple dialogue and decision-making processes to reconcile relationships, align individuals and groups toward shared goals and begin shared problem-solving and decision-making at multiple levels.

Once awarded funding, NCDOT and its partners will begin working to educate the public on the RESCUER project's wildlife underpasses and associated fencing. RESCUER will be featured prominently in future outreach materials and tours provided on ARNWR, PLNWR, as well as at the Red Wolf Center and during outreach conducted by the Red Wolf Recovery Program. The public will be provided with an excellent opportunity to understand the importance of wildlife fencing, wildlife underpasses, the need to ensure habitat connectivity, and respect for wildlife corridors, as well as the significant role they play in reducing mortalities of one of the most endangered species in the U.S.

Additionally, due to the ongoing collaboration and coordination with several non-profit organizations including the North Carolina Wildlife Federation, Red Wolf Coalition, Defenders of Wildlife, Center for Biological Diversity, Wildlands Network, and the larger coalition that has formed, there will be many other avenues explored regarding both education and outreach.

Criterion 2.5: Monitoring and Research

Once awarded funding, NCDOT, USFWS, and NCWRC will collaborate on monitoring and research efforts that will be associated with this grant. However, the project



partners are engaged in on-going monitoring and research in the region. The USFWS Red Wolf Recovery Program collars all adult and subadult Red Wolves with orange collars and actively tracks their movements on a routine basis using GPS and VHF radio collars. Additionally, the Red Wolf Recovery Program tracks their movements, health and other general information, such as pairings, using over 50 remote sensing cameras throughout the ENC RWP on both public lands and private lands with landowner permission. All mortalities are documented and sent for necropsy to officially determine the cause of death.



Red Wolf Being Fitted with Radio Collar by USFWS

The Red Wolf Recovery Program, its many partners, researchers and academia have conducted an extensive amount of past and ongoing research studies to better understand Red Wolves, their life history, causes of mortality and the ecosystem in eastern North Carolina. Research and intensive monitoring of the Red Wolf population will continue after implementation of this project.

Multiple studies on ARNWR have tracked the movements of bears and other wildlife pre-construction. Additionally, researchers have regularly documented wildlife that

have been killed on US 64. Years of WVC data will allow a definitive evaluation of the degree to which the installed fencing and wildlife crossings decrease WVCs in this area. Post construction, a formal monitoring plan will be implemented to determine wildlife underpass usage. These efforts will provide an in-depth evaluation of how wildlife utilize the crossings.

Criterion 2.6: Survival of Species

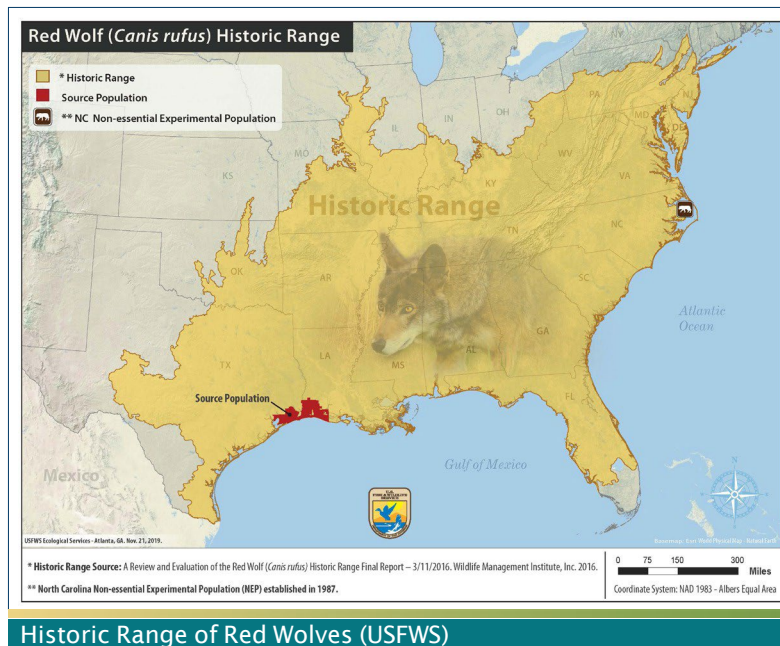
This project will substantially improve safe highway crossing opportunities for the critically endangered Red Wolf within the area with the only wild population of Red Wolves in the world. Red Wolves are the only wolf species endemic to the United States and were once common throughout the entire southeast.

The Red Wolf was first listed in 1967 as “threatened with extinction” under the Endangered Species Preservation Act of 1966 and is currently listed as an “endangered species” under the Act. It is a distinct canid species (National Academies of Sciences, Engineering, and Medicine 2019) native to North America. Historically, it ranged from southeastern United States, westward to the Edwards Plateau in Texas, north to the lower Midwest (i.e., southeastern Missouri and southern Illinois) and east into southern Pennsylvania and extreme southeastern New York (Wildlife Management Institute 2016).

Though once common throughout its range, Red Wolf populations were decimated by the early 20th Century as a result of intensive predator control programs and habitat

degradation and alteration (USFWS 1990). By 1972, the range of the Red Wolf was limited to a small coastal area in southeast Texas and southwest Louisiana (Riley and McBride 1972).

To prevent extinction of the species, the USFWS established a formal recovery program in 1973 and began trapping individuals along the coastal region of the Texas-Louisiana border to establish a Red Wolf captive breeding program, with the intention of returning the species to areas within its historic range (USFWS 1990). In 1980, Red Wolves were officially declared extinct in the wild.



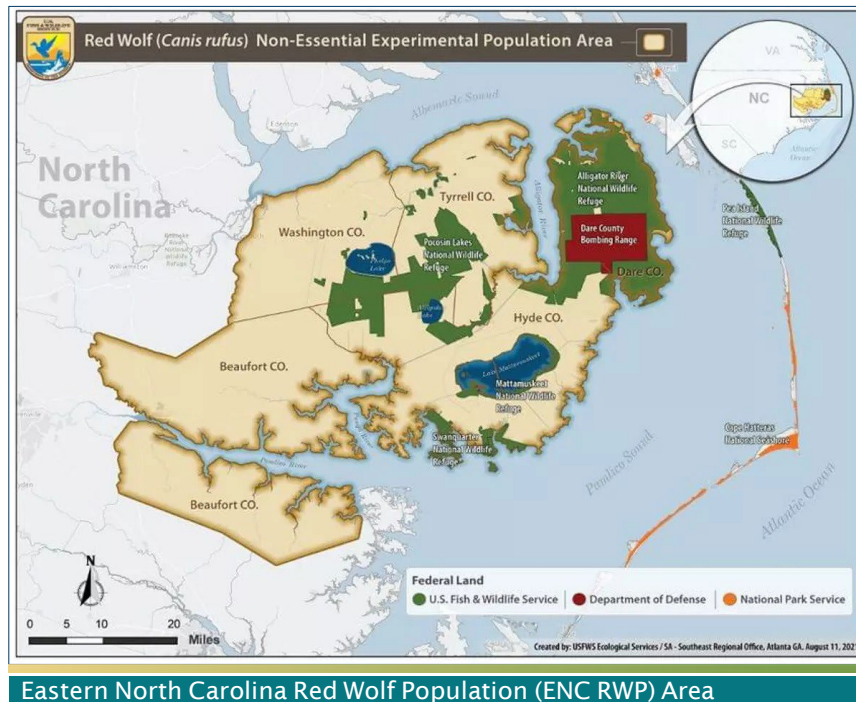
The captive breeding program, known today as the Red Wolf SAFE (Savings Animals From Extinction) Program operating under the Association of Zoos and Aquariums (AZA), currently consists of 52 zoos and wildlife conservation centers across the country with a population of approximately 292 wolves. The Red Wolf SAFE program focuses the collective expertise and leverages their massive audiences to save species. The Red Wolf SAFE program’s goal is to support conservation efforts for this species by maintaining a healthy and viable population of Red Wolves under human care, growing education and awareness efforts, and aiding research vital to supporting recovery and management.

Captive breeding saved the Red Wolf from extinction and is an essential component of Red Wolf recovery at great financial expense and effort by the zoo and wildlife conservation centers involved. Although captive Red Wolves are located throughout the country at different Red Wolf SAFE facilities, they are managed as a single population. They are routinely transferred among the facilities to breed according to genetic management objectives to help maintain the health and diversity of an increasing population. The Red Wolf Center, discussed above, is one of the Red Wolf SAFE facilities.

In the mid-1980’s and once there was a growing Red Wolf population in these facilities, it was decided that it was time to reintroduce Red Wolves to the wild. The Albemarle Peninsula region of northeastern North Carolina was chosen for many reasons,

including the presence of the newly established ARNWR, the rural nature of the area, the somewhat limited road densities, the peninsula nature of the area that would potentially naturally limit migration in and out of the area and the lack of the presence of coyotes at that time.

In 1987, 4 pairs of Red Wolves were released into the wild on ARNWR. As the population grew, the area now known as the Eastern North Carolina Red Wolf Population (ENC RWP) was expanded and includes public and private lands across 5 counties (Beaufort, Dare, Hyde, Tyrrell and Washington) for a total of approximately 1.7 million acres. By 2012, the population had grown to about 120 Red Wolves spread throughout that area. However, due to multiple reasons, including the increased presence of coyotes leading to increased conflicts between landowners and canids in the area leading to increased gunshot mortality, court challenges, a suspension of many Red Wolf management activities by the USFWS (e.g., releases, pup fostering, translocation, coyote sterilization) while reviews of the Red Wolf Recovery Program were ongoing, and many other reasons, the population began to drop until it reached a low of 7 known Red Wolves in the wild in 2020 with no breeding pairs.



In 2019, Red Wolf management activities were resumed within the ENC RWP with the translocation of a male Red Wolf from the St. Vincent National Wildlife Refuge, a Red Wolf island propagation site off the Gulf Coast of Florida. In 2022 the Department of the Interior and the USFWS officially announced a recommitment to the recovery of Red Wolves in eastern North Carolina and other areas in the southeast within the historic range. In 2021, releases of Red Wolves into the wild born in the SAFE population resumed. And in 2022, the first Red Wolf litter was born in the wild since 2018. The population is beginning to grow and there have been litters born in the wild each of the last 3 years.



Since 2019, management actions have slowed the decline, and the population has experienced an increase. However, the population is at risk of extirpation due to low resiliency associated with high mortality rates, risks due to demographic stochasticity characteristic of small population size, and low redundancy and representation associated with a single wild population. The population is currently 16 known Red Wolves in the wild, which is the number of adult and subadult Red Wolves that are radio-collared and monitored on a regular basis and known to be alive out on the landscape. The estimated total population is approximately 17-19 Red Wolves in the ENC RWP. Annual release plans focus on continuing to pup foster whenever possible to increase the population numbers and genetic diversity by placing pups born in the SAFE population into a wild den when they are less than 2 weeks old, and attempting to create additional breeding pairs in the wild by pairing unpaired wild Red Wolves with each other or pairing a wild Red Wolf with a Red Wolf from the SAFE population.

In September 2023, the USFWS published the Revised Recovery Plan for the Red Wolf which includes recovery actions to be taken in North Carolina to recover the species. Recovery Action 15 says to “Implement and monitor strategies to reduce vehicle strikes in the ENC RWP to achieve the target 50% reduction of mortality, as detailed in Miller et al. 2023 PVA, to facilitate an increase in the Red Wolf population.” Parties listed to collaborate with to achieve this recovery action include NCDOT and NCWRC. The next step in the recovery planning process is the development of the Recovery Implementation Strategy which is currently underway and includes specific actions and activities for the ENC RWP, including activities related to reducing vehicle strike mortalities, such as pursuing opportunities for infrastructure changes.

In the 37 years since reintroduction, human caused mortality (primarily gunshot and vehicle strikes) has been the largest cause of mortality in the wild. The average age of mortality for Red Wolves that die of natural cause is around 9 years old, but when human caused mortality is factored in the average age of mortality is less than 4 years old. Human caused mortality, particularly to one of the breeding pair of Red Wolves or from an established pack, is highly disruptive and can lead to a significant loss of reproduction success and the ability of a pack to maintain a territory. This is exacerbated at low population numbers, such as currently exist, because the availability of a suitable Red Wolf mate to replace the Red Wolf that died is extremely limited.

Vehicle strike mortalities are the second leading cause of mortality since reintroduction. However, over the last 10 years, vehicle strike mortalities have increased and are the leading cause of mortality of Red Wolves. Highway 64 runs through a large portion of the ENC RWP and is the site of the majority of Red Wolf vehicle strike mortalities, especially in recent years. The stretch of Highway 64 that runs through Alligator River National Wildlife Refuge is particularly problematic for Red Wolves because it is a narrow, two-lane highway with limited shoulders, canals on one or both sides and is immediately adjacent to the best Red Wolf habitat on the refuge. Because of its proximity to an area that represents one of the strongholds of the Red Wolf population and releases, as well as the physical nature of that stretch of highway, it has resulted in a significant number of red wolf mortalities over the years, including 19 total, 6 within the last 5 years and 3 within the last year. Two of the ones within the last year were of



breeding males that were raising a litter of pups, one of which the litter was abandoned after the mortality of the male on Highway 64.

Given the status regarding the recovery of Red Wolves, their management and the current threats to this highly endangered species, including vehicle strike mortalities as a primary cause of mortality, the RESCUER project is a critical component of ensuring their continued long-term survival and persistence on the landscape for the only wild population of Red Wolves.

PROJECT READINESS

Technical Feasibility

The project area was included in earlier planning for a larger US 64 improvement and widening project. Those planning efforts identified the location and general sizing for the wildlife mitigation measures included in this phase of RESCUER. This project has continued earlier coordination with detailed discussions about the construction approach and complexities found in the project area. With multiple constructed wildlife underpasses in eastern NC, it is known that the necessary fill material is a significant factor in the cost of the overall project. Additionally, with no off-site detour and as a 2-lane main arterial route for tourist and hurricane evacuation it is necessary to maintain traffic with limited lane closure; therefore, constructing onsite detours was also included. Project cost estimates were derived from an express design completed to attain material quantities (see Appendix A). Taking quantities from the express design, NCDOT used regional expertise (Division 1 staff) to estimate total project construction cost. The cost proposal also includes an additional 15 percent for contingencies including but not limited to construction engineering and inspection costs. If project costs begin to exceed estimates, adjustments will be made to stay within budget or NCDOT will investigate opportunities to provide additional funding to complete the project as proposed.

Project Schedule

Upon funding award, NCDOT is prepared to move quickly toward implementation. No right of way acquisition is anticipated. NCDOT, in coordination with USFWS's Red Wolf Recovery Program and ARNWR and the NCWRC, have worked together on the development of the scope of this phase of RESCUER and do not anticipate any delays regarding implementation. The final design and NEPA compliance and documentation phases are anticipated to begin within 1 month of receiving funding and would be complete within 1 year.

State and Local Approvals

RESCUER is not programmed in the State Transportation Improvement Program, Albemarle Rural Planning Organization (ARPO) Long-Range Transportation Plan, or



the State Long Range Transportation Plan. However, NCDOT has the ability to process a STIP amendment prior to obligation of funds.

NCDOT and its partners have provided ample interagency coordination that will help to expedite any state-level permitting. No local approvals will be necessary at a city/county level.

Assessment of Project Risks and Mitigation Strategies

NCDOT does not anticipate any risks due to the partnership with the USFWS Red Wolf Recovery Program and ARNWR; our longstanding partnership with the NCWRC will also help to mitigate any concerns with stakeholders.

NCDOT and NCWRC signed a Memorandum of Understanding ([MOU](#)) in April 2023 to cooperatively and collaboratively work together on project planning and coordination; public safety; maintenance and expansion of habitat connectivity and wildlife habitat conservation; inventory, monitoring, and biological studies; impacts to wildlife due to vehicles; and information and education. (See Appendix B for MOU)

An intra-agency working group was established to accomplish these goals shortly after the MOU was signed. It recently released the [NCWRC-NCDOT Wildlife Passage Guidance](#) (See Appendix B). The Guidance document will assist transportation planners and engineers, local and regional transportation planning organizations, other government and resource agencies, and non-profit organizations with wildlife passage planning and design based on the over twenty years of experience that NCDOT and NCWRC have in this field in NC.

Additionally, NCDOT intends to perform a [Value Management Study](#) immediately post-award to find the most cost-effective and expedited construction methods that meet the needs of the project.

Environmental Permits and Reviews

NATIONAL ENVIRONMENTAL POLICY ACT

NCDOT has already begun environmental review and regulatory coordination for RESCUER as part of this application. The NEPA process for the project will begin within 1 month of receiving funding and will be completed within 1 year. NCDOT anticipates that this project will be classified as a Categorical Exclusion (CE) based on NCDOT's current Programmatic Agreement with Federal Highway Administration (FHWA) and will provide NEPA compliance for all applicable federal agencies.

The NCDOT has designated liaisons within all necessary regulatory agencies who are assigned to work specifically on NCDOT projects. The project will take place entirely within existing NCDOT right of way or within the ARNWR. It is unlikely that there are utility conflicts in the project area, however, coordination can begin as soon as funding is announced if any are found to exist. Potential regulatory and permitting concerns have been addressed through early coordination in the site selection process and designated



liaisons within the regulatory agencies will ensure streamlined coordination and timely issuance of permits. NCDOT does not anticipate any right-of-way acquisitions for this phase of RESCUER. NCDOT intends to work with the ARNWR to acquire the necessary easements for construction access as well as wildlife fencing and crossing installations.

PUBLIC INVOLVEMENT

NCDOT acknowledges the importance of its obligation to provide robust public involvement throughout the decision-making process and project implementation across the state. These efforts, as directed by NCDOT, are critical to the success of our projects. Following our [Statewide Public Involvement Plan](#) and in coordination with our Public Involvement Team and Communications Office, a comprehensive Public Involvement Plan (PIP) will be developed for the Project. The PIP will identify opportunities to educate the public on the purpose and need for the Project as well as education on wildlife in the region and wildlife corridors and crossings. Public engagement opportunities may include meetings, stand-alone kiosks at rest areas and visitor centers, and participation at area events.

The USFWS's Red Wolf Recovery Program focuses on collaborative conservation, emphasizing the need for and importance of community and partner engagement, including increasing communications and transparency in all our actions, particularly with respect to reducing anthropogenic threats. The Red Wolf Recovery Program is continuing to conduct direct communications with landowners and stakeholders, including routinely calling landowners when Red Wolves are known to be using their property during monitoring and engaging with the public in a variety of ways, including public meetings to discuss Red Wolves and their management. Discussions related to reducing vehicle strike mortalities of Red Wolves have been and will continue to be a topic of discussion during interactions with the public.

The Red Wolf Recovery Program is also currently working with [Constructive Conflict LLC](#) on conservation conflict transformation, as discussed in Section 2.4, using them as a third-party neutral to engage with the community and other groups involved with Red Wolves to reconcile relationships, align individuals and groups toward shared goals and begin shared problem-solving and decision-making at multiple levels. As part of the initial stages of the process, Constructive Conflict has held several public meetings throughout the ENC RWP to discuss Red Wolves and their management without USFWS personnel present. Those meeting discussions are attendee driven but human-caused mortalities of Red Wolves, including vehicle strike mortalities and wildlife crossings, have been discussed.

There is extensive public support not just locally but nationwide to save the critically endangered Red Wolves from going extinct in or disappearing from the wild. In recent years, USFWS has received more than 90,000 comments regarding the species.



SELECTION CONSIDERATIONS

Safety

This project is completely aligned with the National Roadway Safety Strategy, given the project's strong focus on reducing the number of dangerous, potentially lethal crashes between vehicles and bear, Red Wolves, and deer. (See Criteria 1.1) The combination of cost-effective underpass placement and a properly designed system of wildlife fencing can be expected to reduce wildlife vehicle collisions by as much as 90 percent, making this an extremely effective and efficient highway safety intervention project. NCDOT intends to build off of our 20+ year history of design, construction and installation of crossings and fencing to ensure a successful safety strategy.

Climate Change and Sustainability

The project would promote the resilience of the entire Dare County mainland peninsula. Installation of the wildlife underpasses will require raising the grade of the road which will be beneficial for both motorists and wildlife during extreme weather events. According to the USDOT Equitable Transportation Community Explorer, anticipated changes in extreme weather is 100% for the project area. Improving habitat connectivity will increase the ability of species to seek shifting microclimates that are suitable as the climate changes. See Criteria 1.2 for more information on how the project reduces barriers between high quality habitat areas. Also, by reducing major crashes involving large mammals, the project will also serve to reduce WVC related traffic congestion and the associated increased greenhouse gas emissions.

Equity

The proposed work on the US 64 corridor will promote urban-rural equity by marking a substantial investment in highway safety in rural Dare County. By reducing crashes, the proposed wildlife crossings and fencing will promote the livelihood and prosperity of rural residents who can least afford the property damage and health care implications of a high-speed collision with medium to large-bodied animals such as Red Wolves, bear, and deer.

The project area was evaluated using the Climate and Economic Justice Screening Tool (CEJST). It should be noted that a large part of the project area is made up of the Alligator River National Wildlife Refuge. Census Tract 37055970501 in Dare County has a population of just over 1,070 people and is not listed as an Historically Disadvantaged Community (HDC). However, there are noted environmental risk factors. The project area is rated in the top 95th percentile for agriculture loss rate, the top 98th percentile for building loss rate, and the top 98th percentile for population loss rate. The area is also at substantial risk from fires and floods, ranking in the top 98th percentile for projected flood risk and in the top 86th percentile for projected wildfire risk. These risks highlight the need for increased habitat connectivity to escape emergency situations. Additionally, the Centers for Disease Control's (CDC) [Social Vulnerability Index](#) rates



mainland Dare County in the highest quartile for social vulnerability due primarily to the residents' socioeconomic status and household characteristics.

There are also workforce development concerns in the area. The project area is in the top 63rd percentile for linguistic isolation and 18 percent of the population lacks a high school diploma. These factors highlight the need for workforce development in the area and their reliance on safe and dependable regional transportation for employment.

Workforce Development, Job Quality, and Wealth Creation

NCDOT has established a Disadvantaged Business Enterprise (DBE) program to address ongoing discrimination and the continuing effects of past discrimination in transportation markets nationwide. This program will be used in all aspects of project letting.

In accordance with 49 CFR Part 26 and the Special Provisions, NCDOT has established goals for participation of DBEs in USDOT-assisted contracts, as well as State-assisted contracts. The Triennial Goals are set as follows:

- 2020 – 2022 Triennial DBE Goal for Federal Transit Administration - 1.9%
- 2021 – 2023 Triennial DBE Goal for Federal Aviation Administration - 8.9%
- 2021 – 2023 Triennial Combined Goal for NCDOT Division of Aviation (state funded projects) - 10.7%
- 2022 – 2024 Triennial DBE Goal for FHWA - 13.0%
- 2019 – 2021 Triennial Combined Goal for NCDOT (state funded projects) - 12.3% (revising soon).

On July 19, 2024, [NCDOT reported](#) that for a third straight year, the Department awarded a record amount of funding to small businesses. “NCDOT awarded nearly \$65.4 million to small business enterprises (SBEs) through contracts under \$1 million in the 2024 fiscal year, generating a 35 percent increase over the previous record of about \$48.4 million in 2023 and double the target of \$28 million.”

NCDOT is also committed to improving the depth of the transportation talent pool. Through the NCDOT Office of Civil Rights (OCR), the Department offers an On-the-Job Training (OJT) program. As of 2021, the OJT program included:

- 103 participating contractors
- 33 contractors with an assigned trainee goal
- 5 contractors without an assigned trainee goal
- 111 trainees enrolled.

The Department operates Accelerated Boot Camps (ABCs), which are accelerated, two-week versions of the Highway Construction Trades Academy (HCTA), in NCDOT's 14 Divisions as well as full, six-week versions of the program. HCTAs and ABCs are customized to the local area and are designed to train participants and connect the



talent pipeline to new employment. Currently, typical subjects may include:

- Construction math
- OSHA 10, CPR/First Aid
- Flagger certifications
- Introduction to Earthmoving and Heavy Equipment Training
- Introduction to Commercial Driver's License (CDL).

Participants in OJT or HCTAs can receive Advanced Highway Skills Training (AdT) in current/developing needs areas. This includes bridgework, disaster recovery, EV charging station installation, and CDL for women. The Department is actively examining expansion of these programs to include additional subjects, including broadband installation and maintenance.

NCDOT's OCR will explore the possibility of providing HCTA, ACTs, and/or AdTs in the Division during construction. The Department will encourage the use of DBE firms as part of the letting/administration process.