



The North Carolina Department of Transportation (NCDOT) seeks \$1.2 million from the US Department of Transportation (USDOT) for the Wildlife Fencing Improvements to Protect Wildlife & Vehicles Along US 64 (64 SAFETY) project. 64 SAFETY proposes to improve existing wildlife fencing that channels wildlife to underpasses along US 64 in Washington County. The fencing modifications will reduce exposure to wildlife vehicle collisions (WVCs) in an area with the critically endangered red wolf (*Canis rufus*) as well as black bear (*Ursus americanus*) and white-tailed deer (*Odocoileus virginianus*) populations. NCDOT will provide a \$300,000 match from NCDOT Division maintenance funds.

US 64 is the main east-west corridor connecting northeastern North Carolina to I-95 and the rest of the state. There are few reasonable detour routes in this area, so WVCs can cause significant delays to freight and the traveling public. Within the 64 SAFETY project area, Washington County is rural and is classified by USDOT as both an Area of Persistent Poverty (APP) and Historically Disadvantaged Community (HDC) for 2019 US Census Tract 9501. The area meets USDOT's stated Justice40 goals.

Based on coordination with the North Carolina Wildlife Resources Commission (NCWRC), NCDOT constructed three large bridge underpasses with 10-foot chain-link fencing in 2005 as part of the larger US 64 relocation project. The underpasses reduced impacts from the new location highway bisecting core black bear habitat and potential risk to the experimental red wolf population. NCWRC used its continuing research in the area to place the crossings. The project represented a first-of-its-kind habitat connectivity investment in North Carolina.

While the integrity of this nearly 20-year-old fencing remains, wildlife are using gaps under the fencing and over drainages to access US 64. Because of this, WVCs remain a frequent occurrence along the highway. In the past 18 years, NCDOT records indicate there have been 442 reported WVCs on US 64 in Washington County. However, it should be noted that most WVCs are not reported, particularly those that do not result in property damage or injury. Data from the Virginia Department of Transportation (VDOT) found that crash reports underreported WVCs by a factor of 8.5 (VDOT, 2017). Using this factor, over 3,700 WVCs are estimated to have taken place on US 64 during that timeframe.

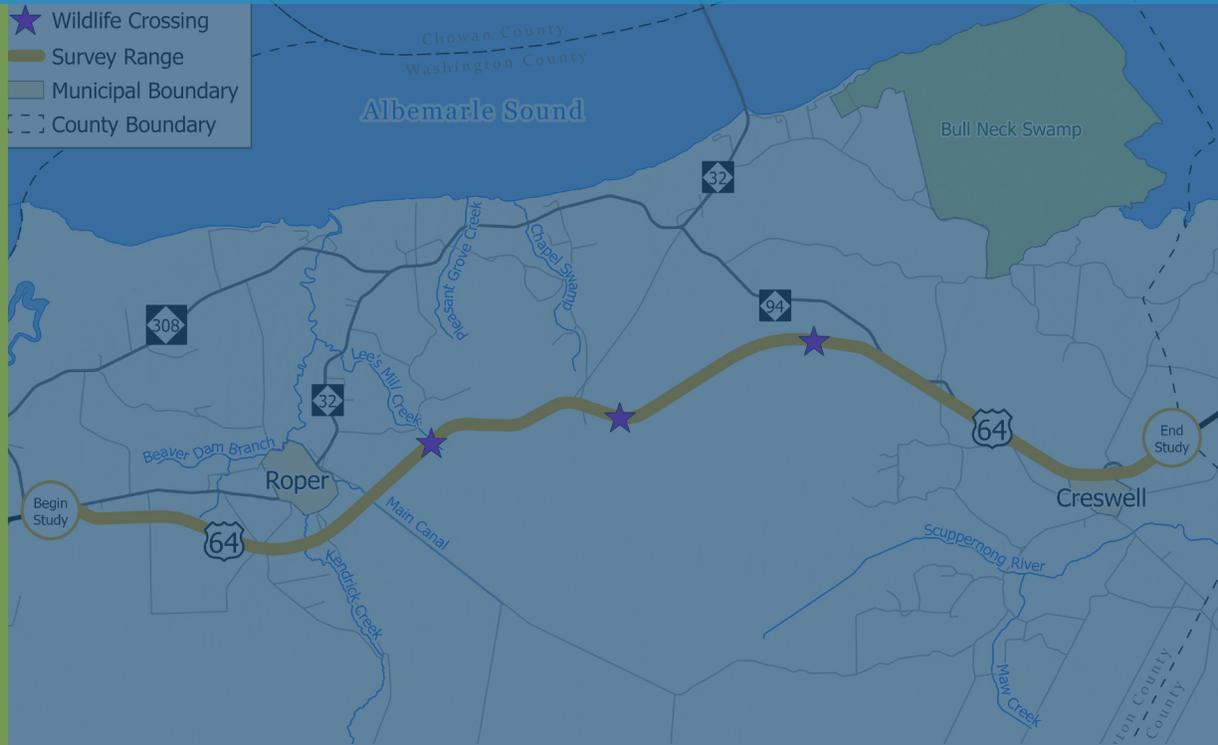
Improving the existing US 64 fencing to today's standards would be a cost-effective means of reducing WVCs. Proposed improvements primarily consist of adding fence aprons and/or berms to restrict access under the fence. The proposed project could be completed within 1 year. Extrapolating NC Highway Patrol WVC data from other corridors with more recent fencing projects suggests that the 64 SAFETY project could reduce the number of WVCs by more than 75 percent. In addition, the on-going research in this corridor will provide solid documentation of this pilot project that can be used in coastal regions throughout the United States.



NORTH CAROLINA WCPP APPLICATION

July 2023

- ★ Wildlife Crossing
- Survey Range
- ▭ Municipal Boundary
- - - County Boundary



BLACK
BEAR



RED
WOLF

Wildlife Fencing Improvements to Protect Wildlife & Vehicles Along US 64

US 64, WASHINGTON COUNTY (64 SAFETY)



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APPENDIX - SUPPLEMENTAL MATERIALS

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PROJECT DESCRIPTION

The North Carolina Department of Transportation (NCDOT), with support from North Carolina Wildlife Resources Commission (NCWRC), seeks USDOT funding under the Wildlife Crossings Pilot Program (WCPP) for the Wildlife Fencing Improvements to Protect Wildlife & Vehicles Along US 64 (64 SAFETY) project in Washington County, NC.



The 64 SAFETY project is approximately 7 miles along US 64 from just west of the Town of Roper to just east of the Town of Creswell in Washington County, NC. In 2005, US 64 was constructed on new location and included three underpasses that were installed within the project corridor along with fencing to help channel wildlife towards these safer crossing structures. Due to vegetation growth, gaps at the bottom of the fence, and fencing limitations in wetlands and streams, the fencing is underperforming at channeling wildlife to existing underpasses. 64 SAFETY will retain existing fence infrastructure to the extent practicable and upgrade the fence to reduce wildlife vehicle collisions (WVCs) and provide habitat connectivity for species including the critically endangered red wolf (*Canis rufus*), black bear (*Ursus americanus*), white-tailed deer (*Odocoileus virginianus*), and other smaller animals.

The cost of installing three wildlife underpasses and associated fencing for the highway project was approximately \$3.6 million. These were the first wildlife crossings to be



designed and constructed in North Carolina. Advances in our understanding of wildlife crossings has shown that improvements to the existing fence infrastructure would greatly reduce WVCs.

Based on crash data from NCDOT, over 440 WVCs on US 64 were reported between January 2005 and March 2023. Of those, over 80 percent were night crashes. All reported crashes indicated property damage, which would correlate to large animal (e.g. bear, deer, wolf, et al) collisions. Therefore, it is likely that it undercounts the total number of wildlife crashes along the corridor by leaving out smaller mammals.

The US 64 Corridor within Washington, Tyrell, and Dare Counties has been extensively studied over many years by State agencies, universities, and other organizations. The North Carolina Wildlife Federation (NCWF) has partnered with NCWRC and NCDOT to monitor highway underpasses for wildlife use using camera traps. This group has enabled additional research by the University of North Carolina at Wilmington to evaluate when and how wildlife are using existing underpasses. Data exists from both before and after installation of the fencing in 2005 and includes an in-depth assessment 15 years post installation. This research is included in the [Appendix](#).



BEAR CUB USING US 64 UNDERPASS CROSSING (NCWRC)

The US 64 corridor is home to numerous species, including red wolf, black bear, white tailed deer, bobcat (*Lynx rufus*), coyote (*Canis latrans*), wild boar (*Sus scrofa*), and raccoon (*Procyon lotor*). A roadkill survey in adjacent Tyrrell County in 2011 found over 130 species. Improvements to fencing as part of 64 SAFETY will benefit not only larger mammals but many smaller animals as well.



PROJECT INFORMATION

PROJECT NAME	Wildlife Fence Improvements to Reduce Wildlife & Vehicle Collisions Along US 64 (64 SAFETY)
WCPP REQUESTED AMOUNT	\$1,200,000 (YOE)
TOTAL PROJECT COST	\$1,500,000 (YOE)

ELIGIBILITY CRITERIA

Who is the Eligible Applicant?	NC Department of Transportation (NCDOT)
Is there an Eligible Partner?	No
Indicate the amount, type, and source(s) of the standard 20% non-Federal match under 23 U.S.C. 120(b).	NCDOT Division Maintenance Funds \$300,000
Eligible Project Type	Construction project, including all activities that lead to a built project.
Consultation with the State DOT	No consultation because we are the State DOT
State(s) and/or Tribal land in which the project is located	NC
Lead Applicant	NCDOT

LOCATION INFORMATION

Location of project area	US 64, from just west of Roper to just east of Creswell, in Washington County, NC
US Census FIPS Code (2019)	Census Tract 9501
Geographic Coordinates	35.881170, -76.587162 35.903882, -76.456131
Is the project located in an urban area or rural area?	Rural
Is the project located (entirely or partially) in federally designated community development zone?	No. For all federally designated community development zones.
Is the project area located on a federally recognized Indian Tribe land?	No.
Congressional district(s)	NC US District 1

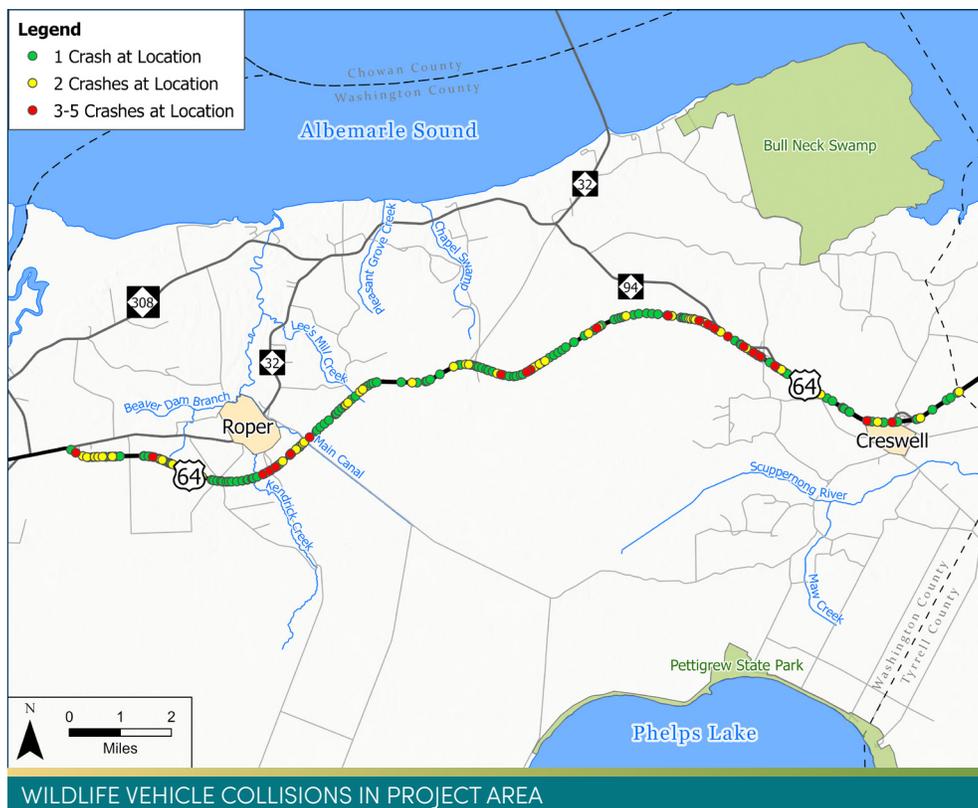
PROJECT COSTS

WCPP Requested Amount	\$1,200,000 (YOE)
Estimated Total of Other Federal Funding	\$0
Estimated Non-Federal Funding	NCDOT Division Maintenance Funds \$300,000 (YOE)
Future Eligible Project Cost	\$1,500,000 (YOE)
Previously Incurred Project Costs	\$0
Total Project Cost	\$1,500,000 (YOE)

PROJECT MERIT CRITERIA

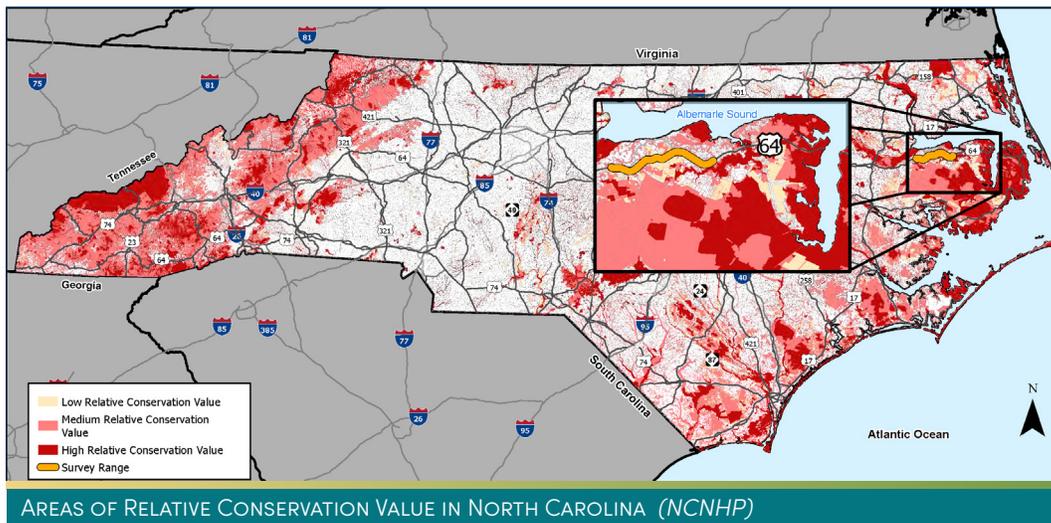
CRITERION 1.1: WILDLIFE VEHICLE COLLISIONS

The project contributes to the Wildlife Vehicle Collisions (WVCs) criterion by providing more effective wildlife exclusion fencing and wildlife crossing options along the 64 SAFETY corridor. A crash analysis of 18 years, ending in May 2023, determined that 442 WVCs were reported. Practices to channel wildlife to better crossing locations using fences have improved significantly since 2005. Wildlife fencing and underpasses installed along the I-140 corridor, west of Wilmington, NC, have been found to reduce the average WVC rate to 0.15 WVCs per year per mile. Data from the Virginia Department of Transportation (VDOT) found that a correction factor of 8.5 was needed to correctly estimate the number of WVCs in a given area (VDOT, 2017). Revising the I-140 WVC rate using the VDOT factor, yields a WVC rate of 1.28. Based on the current AADT for US 64 in Washington County, the current crash rate is 0.91 WVCs per mile per year (projected as 7.74 using VDOT data). It is estimated that upgrading the fencing in this habitat would reduce WVCs to a rate similar to that found on I-140, west of Wilmington.



CRITERION 1.2: TERRESTRIAL & AQUATIC HABITAT CONNECTIVITY

The project contributes to the Terrestrial and Aquatic Habitat Connectivity criterion by improving critical connections to relatively undisturbed habitat. As shown in the figure, the US 64 corridor from Washington County to the North Carolina Outer Banks includes some of the largest area of medium and high conservation habitat in North Carolina. Maintaining connectivity in this area is of critical importance to preserve species diversity.



To the south of US 64 is Pettigrew State Park, wildlife preserves, the Scuppernong River and Phelps Lake in Washington and Tyrrell Counties. Pettigrew State Park covers almost 6,000 acres and includes an old-growth forest of sweet gum, bay trees, persimmon, cypress, and Atlantic white cedars. Much of the land surrounding the park is in agricultural use, but still provides habitat opportunities. North of US 64, land use has a similar pattern of largely agricultural use. However, in the northeastern corner of Washington County, adjacent to the Albemarle Sound, is the Bull Neck Swamp Research Forest. North Carolina State University owns this 6,000-acre tract of coastal wetlands, which includes 7 miles of undisturbed shoreline. Maintenance of the Research Forest is funded through black bear and deer hunting licenses and periodic timber sales. The tract also includes 185 acres of Atlantic white cedar and almost 800 acres of wetland habitat.

A portion of Pocosin Lakes National Wildlife Preserve (PLNWP) is located on US 64 just east of the Washington County line. The refuge conserves a rare type of wetland habitat, known as “pocosin,” derived from a Native American word meaning “swamp on a hill.” The refuge encompasses over 100,000 acres dispersed over Washington, Tyrrell, and Hyde Counties. More than 100,000 ducks, geese, and swans congregate on the refuge in winter, and the refuge supports one of the densest populations of black bear ever reported. The refuge is the site of one of the country’s largest wetland restoration

projects, restoring natural hydrology to the pocosin peatlands. Funneling wildlife to the underpass crossings of US 64 will allow species to access extensive high quality habitat areas, maintaining a strong gene pool for area species.

CRITERION 2.1: LEVERAGING INVESTMENTS

The project contributes to the Leveraging Investments criterion by building on current and previous work to reduce WVCs. As stated previously, the 2005 infrastructure currently in place can be upgraded with relatively little cost. Additional work is in progress to replace the Alligator River Bridge in Tyrrell County. NCDOT STIP Project HB-0001, replacement of the US 64 bridge over the Alligator River, is currently scheduled to let for construction in July 2024. This bridge replacement was part of a larger US 64 planning effort east of the Washington County crossings. That planning included three research projects and coordination that resulted in the identification and agreement to incorporate 73 wildlife crossing structures into future projects. The Alligator River Bridge project, which received INFRA grant funding in 2023, includes installing wildlife crossing areas underneath both ends of the bridge, as well as two wildlife underpasses and associated fencing along US 64.

As part of the overall construction of US 64 on new location in 2005, NCDOT installed the wildlife crossing underpasses and fencing at a cost of \$3.6 million (2005 dollars, approximately \$4.7 million in 2021 dollars). These previous costs will be augmented by \$300,000 in NCDOT funds as a project match to the funds sought through the WCPP.

NCDOT and NCWRC signed a Memorandum of Understanding (MOU) in April 2023 that outlines specific procedures for integrating project planning and coordination; public safety; maintenance and expansion of habitat connectivity and wildlife habitat conservation; inventory, monitoring, and biological studies; reducing impacts to WVCs; and information and education. Under the MOU, the agencies will:

- Cooperatively seek to make highways less hazardous for wildlife and lessen the impact highways have on important habitats and ensure maximum benefit and consideration for mitigation efforts that promote wildlife habitat conservation and connectivity.
- Further develop methods for evaluating the success of wildlife mitigation measures, including monitoring crossing structures and fences to determine their effectiveness in facilitating wildlife passage.
- Create a WVC data collection tool that will be made jointly available for encouraged use and contribution by both agencies (and possibly others) for traffic safety and conservation project evaluations.



DEER CROSSING UNDER FENCE (NCWRC)



- Develop effective and efficient passage structures and associated barriers for various species of wildlife to make highways less hazardous for motorists and wildlife while minimizing effects of habitat fragmentation.
- Jointly develop a “Wildlife Passage Guidance” document that will aid in the familiarity and incorporation of standard prescriptions for highway projects.
- Work together to investigate avenues to minimize highway impacts to federally listed and other sensitive species, and their habitats.
- Cooperate during transportation long-range planning, project development, and operations. allowing NCWRC to provide substantive wildlife resource recommendations to NCDOT.
- Utilize our mutual understanding of each agency’s missions, goals, and objectives to seek opportunities and funding for cooperative projects and activities dealing with highway/wildlife issues.

64 SAFETY represents both agencies commitment and investment in accomplishing several goals established by the MOU.

CRITERION 2.2: Economic Development & Visitation Opportunities

The project contributes to the Economic Development and Visitation Opportunities criterion by improving the flow of goods through a Strategic Transportation Corridor (Corridor M) while preserving and expanding critical wildlife corridors. According to NCDOT’s Eastern NC Regional Freight Mobility Plan (NCDOT, 2020), 5,000 trucks per day access US 64 in eastern North Carolina. Of the more than 440 WVCs reported in this stretch of US 64, crashes involved one semi-trailer, one truck trailer, 27 vans, 66 pickups, and 9 light trucks. In addition to these crashes, which have the potential for direct effects to wildlife and vehicles, all animal crashes tend to slow traffic. All WVCs on US 64 are shown in the figure. Further, the absence of practicable detour routes leaves few options when crashes block US 64.

Information on the project and the importance of preserving wildlife connections will be shared with Pettigrew State Park, which operates a visitor center and hosts approximately 70,000 visitors per year.

The black bear has a special place in eastern North Carolina communities. Just west of the 64 SAFETY corridor, the Town of Plymouth hosted its 9th annual NC Black Bear Festival in 2023. The Washington County Travel & Tourism Authority states that the mission of the festival is to “Celebrate the fact that Eastern North Carolina has the world’s largest black bears and the highest black bear densities; and to educate people about these magnificent animals.”



Criterion 2.3: Innovation

The project contributes to the Innovation criterion by tracking species' movements through coastal lowland habitat both before and after the wildlife crossings were installed in 2005. UNC Wilmington has collected extensive data on how wildlife have interacted with US 64. With 64 SAFETY, real-time data will also be generated that documents the degree to which improvements channel wildlife to the three underpasses.

Criterion 2.4: Education & Outreach

The project contributes to the Education and Outreach criterion by providing both academic and general public audiences the opportunity to learn about wildlife corridors and wildlife crossing infrastructure. In general, tourists who venture to the Outer Banks have a keen interest in the natural world. Visitors treasure the wild horses at Corolla and Shackleford Banks, traveling to the Nags Head Woods Preserve, which hosts more than 150 species of birds and numerous other wildlife species, and many of the other preserved areas that allow visitors to interact with the natural world more closely. In addition to these locations, information stations and kiosks may also be provided at rest areas and the Alligator River and Pea Island National Wildlife Refuge visitor centers. As noted in Criterion 2.2, a further opportunity for collaboration may also occur in conjunction with the NC Black Bear Festival.

Criterion 2.5: Monitoring & Research

The project contributes to the Monitoring and Research criterion by continuing the long-standing research along the corridor. Multiple research papers, included in the



BEAR CROSSING UNDER FENCE (NCWRC)



CANIS SP. CROSSING UNDER FENCE (NCWRC)

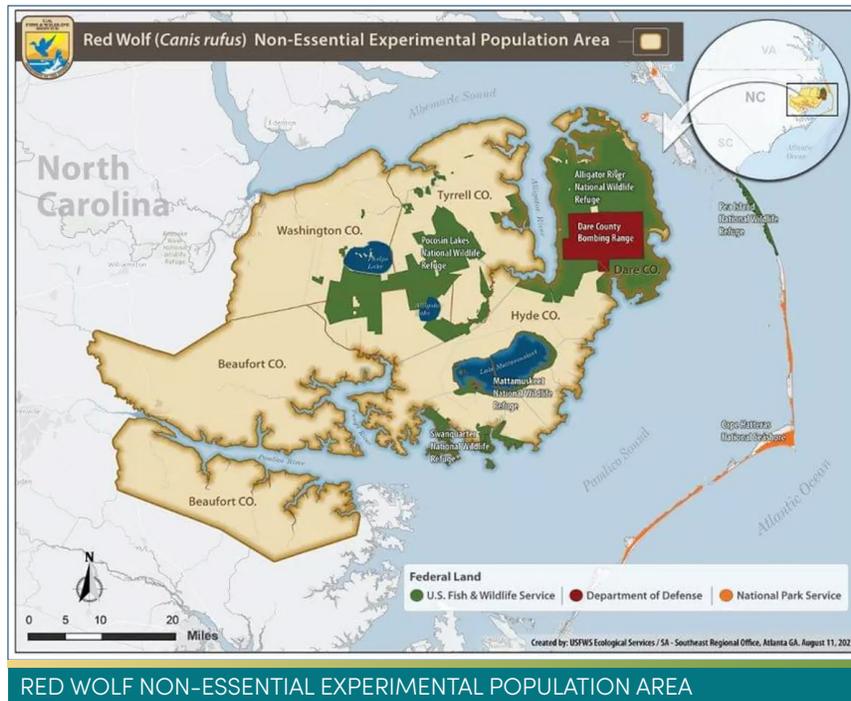
Appendix, have been prepared both before and after construction of the initial fencing was installed in 2005. With the proposed improvements, documentation gathered post-installation will provide critical data that will further the state of knowledge on how to

manage coastal wildlife corridors. Data from the 64 SAFETY pilot project will provide crucial data and may serve to support or refute the extent to which data from I-140 and VDOT can be used to justify future fencing projects.

Criterion 2.6: Survival of Species

The project contributes to the Survival of Species criterion by improving crossing opportunities and expanding habitat for the endangered red wolf. The Red Wolf Recovery Program seeks to restore a sustainable wild red wolf population in eastern North Carolina. Recovery efforts for the red wolf were updated in 2021, following the previous revision in 1990. The North Carolina population of red wolves is derived from a source population in Texas and Louisiana, which were used to develop a captive population. The initial efforts in North Carolina began in 1987. As shown below, the range for the red wolf in Washington County extends to the Phelps Lake area.

Because wolves are a wide-ranging species, limiting WVCs that may include this species is of utmost importance to their survival. Due to WVCs and mortality of species, there are currently 15 wolves with ID collars and an estimated total population of 23 to 25 individuals. Efforts will continue to augment the wild population with captively bred stock (currently there are 278 wolves in captivity) to stabilize the east coast population.





PROJECT READINESS

Technical Assessment

ADMINISTRATION

NCDOT will administer the grant.

PROJECT PROGRAMMING

64 SAFETY 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.

PROJECT 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 our projects. Following our [Statewide Public Involvement Plan](#) and in coordination with our Public Involvement Team and Communications Office, a comprehensive 64 SAFETY Public Involvement Plan (PIP) will be developed. The PIP will identify opportunities to educate the public on the purpose and need for the 64 SAFETY 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.

PROJECT SCHEDULE

Upon funding award, for 64 SAFETY, NCDOT is prepared to move quickly toward implementation. No right of way acquisition is anticipated for 64 SAFETY. NCDOT, in coordination with NCWRC, has already identified the locations and materials for fencing improvements. As these are improvements to existing fencing, no further design is needed. Construction is anticipated to begin within 6 months of receiving funding and would be complete within 1 year.

AWARD RECEIVED



64 SAFETY is not anticipated to have jurisdictional impacts and every effort will be made to continue to avoid and minimize impacts. If stream or wetland impacts are identified, NCDOT will acquire the necessary permits from the appropriate regulatory agencies. Further, the potential federal listing of tricolored bat (*Perimyotis subflavus*) under the Endangered Species Act, which is anticipated to occur in late 2023, will not affect the project schedule. NCDOT is developing a programmatic consultation for the species in coordination with the FHWA, the US Army Corps of Engineers, and the US Fish and Wildlife Service.



Environmental Review and Permitting Risk

NCDOT has already begun environmental review and regulatory coordination for 64 SAFETY as part of this application. The NEPA process for the project will begin within 1 month of receiving funding award and will be completed within 6 months. NCDOT anticipates that this project will be classified as a Categorical Exclusion (CE) based on its current Programmatic Agreement with Federal Highway Administration (FHWA) for CEs.

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. 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.

ADMINISTRATIVE PRIORITIES

Safety

Our proposed construction of wildlife fencing on US 64 is completely aligned with the National Roadway Safety Strategy, given the strong emphasis in our project for reducing the number of dangerous, potentially lethal crashes between vehicles and large-bodied wildlife. See Criteria 1.1 above. A properly designed system of wildlife fencing can be expected to reduce wildlife vehicle collisions by as much as 90 percent, making this one of the more effective and efficient highway safety interventions available.

Climate Change and Sustainability

The construction of wildlife fencing on US 64 would promote the climate resilience of the entire North Carolina Pocosin Ecosystem. 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 increased greenhouse gas emissions. Finally, the project will assist in the preservation of the endangered red wolf.

Equity

The proposed work on the I-26 corridor will promote urban-rural equity by marking a substantial investment in highway safety in rural Washington County NC, which is both an Area of Persistent Poverty (APP) and an Historically Disadvantaged Community (HDC), meeting USDOT's stated Justice40 goals. By reducing crashes, the crossing



projects 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 a bear, deer, or red wolf.

Workforce Development, Job Quality, and Wealth Creation

Installation of wildlife fencing will bring economic benefits to the area. The construction project will last at least six months, bringing opportunities to local workers and revenue to the restaurants, hotels, and other businesses that will benefit from the construction activities. This will promote wealth creation in the area. In addition, NCDOT has a legislatively mandated Disadvantaged Business Program to ensure disadvantaged businesses have the opportunity to do business with the Department. The N.C. Department of Administration administers the Historically Underutilized Business Program to promote economic opportunities for historically underutilized businesses in state government contracting and procurement.