

Wake County Bridge 371 Flood Mitigation and Resilience Project NCDOT#3 – 2026 PROTECT



Prepared for the U.S. Department of Transportation
Office of the Secretary
FY 2026 Promoting Resilient Operations for Transformative, Efficient, and Cost Saving
Transportation (PROTECT)
Submitted by North Carolina Department of Transportation

Summary

Project Title	Wake County Bridge 371 Flood Mitigation and Resilience Project
Lead Applicant Name	North Carolina Department of Transportation
Lead Applicant Type	Select from the below statutory eligible applicants: ☒ A State or political subdivision of a State. ☐ A metropolitan planning organization. ☐ A unit of local government. ☐ A special purpose district or public authority with a transportation function, including a port authority. ☐ A federally recognized Indian Tribe (as defined in Section 207(m)(1)). ☐ A Federal land management agency that applies jointly with a State or group of States. ☐ A multi-State or multijurisdictional group of entities described above.
Type of Grant(s)	☒ Resilience Improvement ☒ Community Resilience and Evacuation Route ☐ At-Risk Coastal Infrastructure
Eligible Activities	Resilience Improvement Grants (23 United States Code (U.S.C.) § 176(d)(4)(A)(ii)): ☒ Resurfacing, restoring, rehabilitating, replacing, improving, or realigning a facility eligible for assistance under this program (see eligible facilities in the row below). ☐ Incorporating natural infrastructure. ☒ Upgrading existing surface transportation facilities to meet/exceed FHWA design standards. ☒ Installing flood mitigation measures. ☐ Strengthening rainwater removal systems. ☐ Upgrading or installing structural stormwater controls. ☐ Constructing a resilience project that addresses vulnerabilities described in the Resilience Improvement Plan (RIP) in your jurisdiction. ☐ Relocating roadways in a base floodplain. ☐ Stabilizing slide areas or slopes. ☐ Installing riprap. ☒ Lengthening or raising bridges.

	☒ Increasing size or number of drainage structures. ☐ Installing seismic retrofits on bridges. ☐ Adding scour protection on bridges. ☒ Adding scour, stream stability, coastal, and other hydraulic countermeasures, including spur dikes. ☐ Implementing vegetation management in the right-of-way. ☐ Installing any other protective features, including natural infrastructure. Community Resilience and Evacuation Route Grants (23 U.S.C. § 176(d)(4)(B)(ii)): ☒ Constructing a Resilience Improvement project under 23 U.S.C. § 176(d)(4)(A)(ii) that will improve an evacuation route. ☒ Restoring or replacing an evacuation route to ensure it can provide safe passage and/or making improvements to reduce the risk of damage to evacuation routes (e.g., steps to protect routes from mud, rock, or other debris slides). ☐ Expanding capacity of evacuation routes. This includes installation of communications and intelligent transportation systems, counterflow measures, and shoulders. ☐ Constructing new or redundant evacuation routes. ☐ Acquiring evacuation route or traffic incident management equipment/signage ☐ Constructing a project that will ensure access or service to critical destinations¹ At-Risk Coastal Infrastructure Grant (23 U.S.C. § 176(d)(4)(C)(iii)): ☐ Strengthening, stabilizing, hardening, elevating, relocating, or otherwise enhancing the resilience of highway and non-rail infrastructure that are subject to, or face increased long-term future risks of, a weather event, a natural disaster, or changing conditions. Infrastructure includes: bridges, roads, pedestrian walkways, bicycle lanes, and associated infrastructure, such as culverts and tide gates to protect highways.
--	---

¹ “Critical destinations” could include hospitals and other medical or emergency service facilities, major employers, critical manufacturing centers, ports and intermodal facilities, utilities, and Federal facilities. See 23 U.S.C. § 176(d)(4)(B)(ii).

Long-Term Infrastructure Cost Reduction	For At-Risk Coastal Infrastructure Grant applications only ☐ The proposal will reduce long-term infrastructure costs by avoiding larger future maintenance or rebuilding costs. Documentation: N/A
Project Area	Wake County, North Carolina, Holly Springs New Hill Road (SR 1152) at Bridge No. 371 near Holly Springs and the Harris Nuclear Power Plant area
Amount of Funding Requested Under this NOFO	\$14,777,777
Cost Share Requested²	65.67%
Total Project Cost	\$22,503,500
Which type(s) of natural hazards does the project address?	Flooding
Which transportation modes are addressed by the project?	Highway/Motorized vehicles
Project Description:	
Wake County Bridge 371 Flood Mitigation and Resilience Project (Project) is located on Holly Springs New Hill Road (SR 1152) in Wake County, North Carolina, and serves as a critical east-west connection between US 1 and NC 55. The bridge and roadway approaches experience recurring flooding associated with the White Oak Creek floodplain, resulting in roadway overtopping, temporary closures, emergency-response challenges, and disruptions to travelers, businesses, school transportation, and emergency operations. North Carolina Department of Transportation (NCDOT) proposes replacing or improving the existing bridge and elevating approximately 2,000 feet of adjacent roadway while incorporating drainage and hydraulic improvements to reduce flood vulnerability and improve long-term resilience. The corridor serves an important emergency access and evacuation route associated with the Harris Nuclear Power Plant and provides access to a rapidly growing area of Wake County. The project will reduce flood-related closures, improve transportation system reliability, maintain evacuation route functionality, and provide a safer and more resilient crossing for approximately 7,900 daily users. The proposed improvements will strengthen the corridor's ability to withstand and recover from not just severe weather events, but also routine weather events. Wake 371's low profile means that even seasonal rains cause overtopping and closures	

on a regular basis. Thus, these improvements maintain connectivity for residents, businesses, schools, emergency responders, and other critical community destinations, further preventing frequent closures caused by rainfall. PROTECT funding will support construction and utility relocation activities necessary to implement these resilience improvements.

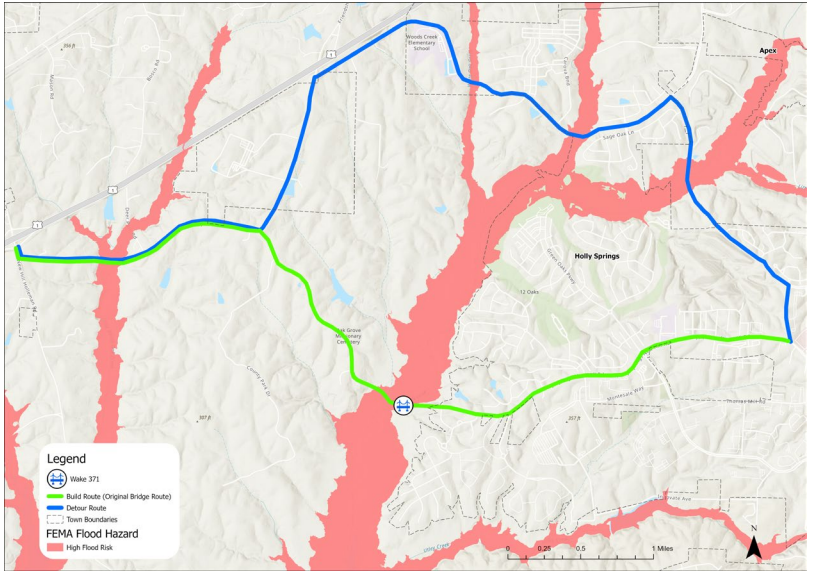
For additional information, please visit the supplemental materials site:

<https://connect.ncdot.gov/resources/PROTECT2026-Bridge371/Pages/default.aspx>

Attachments:	Attachment A: Wake 371 PROTECT Cost Estimate Attachment B: CMRA Flooding Report for Wake County Attachment C: FEMA Floodplain Map Attachment D: Harris Nuclear Plant Emergency Preparedness Information Attachment E: Wake County School Transportation Information Attachment F: Structure Safety Report, Routine Element Inspection Attachment G: Structure Safety Report, Underwater Inspection Attachment H: Load-Rating Calculations and Rating Summary Attachment I: Holly Springs Fire Department Incident Reports Attachment J: Town of Holly Springs NCEM Previous Grant Submittal- Bridge 371 Replacement Attachment K: 2026 Project Evaluation – Wake 371 BCA Calculations BCA Narrative Financial Commitment Letter Letters of Support
---------------------	---

I. Project Information

1	Project Title	Wake County Bridge 371 Flood Mitigation and Resilience Project
2	Project State	North Carolina
3	Project Location	Wake County Bridge No. 371 is located on Holly Springs New Hill Road (SR 1152) in Wake County, North Carolina, approximately 1,000 feet west of Holly Springs and near the Harris Nuclear Power Plant area. The bridge crosses White Oak Creek, and flooding associated with the White Oak Creek floodplain affects the roadway corridor, contributing to

		recurrent roadway overtopping and closures. A project location map is included as an attachment. Latitude/Longitude: 35.655492, -78.891840 
4	Which Census tract(s) does the project encompass?	Census Tracts: 532.08
T5	Is the project fully located in a Rural area?³	☐ Yes ☒ No
6	Is the project located in a base floodplain?	☒ Yes ☐ No Portions of the project are located within the White Oak Creek floodplain. The proposed improvements are intended to reduce flood vulnerability through elevating the roadway, drainage improvements, and enhanced hydraulic performance.
7	Other Parties	N/A

³ For purpose of this notice, the PROTECT Competitive Grant Program defines a rural area as any area outside of an Urbanized Area with a population over 200,000. (23 U.S.C. § 176(d)(5)(H)(ii)). Applicants can use the FHWA HEPGIS maps of MPO and 2020 Census Urban Areas to find this information: <https://hepgis-usdot.hub.arcgis.com/apps/72bcd861285c423c9d4aec6b8e48a496/explore>.

8	Eligible Facility Type	Select from list below (check all that apply): ☒ Highway project eligible for assistance under Title 23; ☐ Public transportation facility or service eligible for assistance under chapter 53 of Title 49; ☐ Facility or service for intercity rail passenger transportation (as defined in Section 24102 of Title 49); or ☐ Port facility, including a facility that: a. Connects a port to other modes of transportation; b. Improves the efficiency of evacuations and disaster relief; or c. Aids transportation. (23 U.S.C. § 176(d)(5)C).
9	Project Background	Wake County Bridge No. 371 was constructed in 1961 and serves as a critical transportation connection between US 1 and NC 55. The bridge and roadway approaches experience recurring flooding from the White Oak Creek floodplain, resulting in roadway overtopping, closures, stranded motorists, and emergency response concerns. The corridor also serves as an emergency access and evacuation route for the Harris Nuclear Power Plant. The proposed project includes replacement or improvement of Wake County Bridge No. 371, elevating approximately 2,000 feet of roadway, and drainage and hydraulic improvements designed to reduce flood vulnerability and improve transportation-system resilience. Previously incurred project costs included planning and preliminary engineering activities totaling approximately \$41,307.
10	Is the proposed project prioritized on a RIP developed in accordance with 23 U.S.C. § 176(e)?	☐ Yes ☒ No
11	Has a RIP been incorporated into an applicable State DOT or MPO long range transportation plan?	☒ Yes ☐ No North Carolina Department of Transportation – Here is the link: https://www.ncdot.gov/initiatives-policies/Transportation/transportation-resilience/Documents/resilience-plan.pdf

II. Budget and Funding

1	PROTECT Competitive Grant Program Request Amount	\$14,777,777	
2	Other Federal Funding	\$0	
3	Non-Federal funding	\$7,725,723	
		Source	Amount
		NCDOT Detail Fund 390115B (State Appropriation Division 5)	\$7,725,723
4	Future Eligible Project Cost	\$22,462,193	
5	Previously incurred project costs (if applicable)	\$41,307.37	
6	Total Project Cost	\$22,503,500	

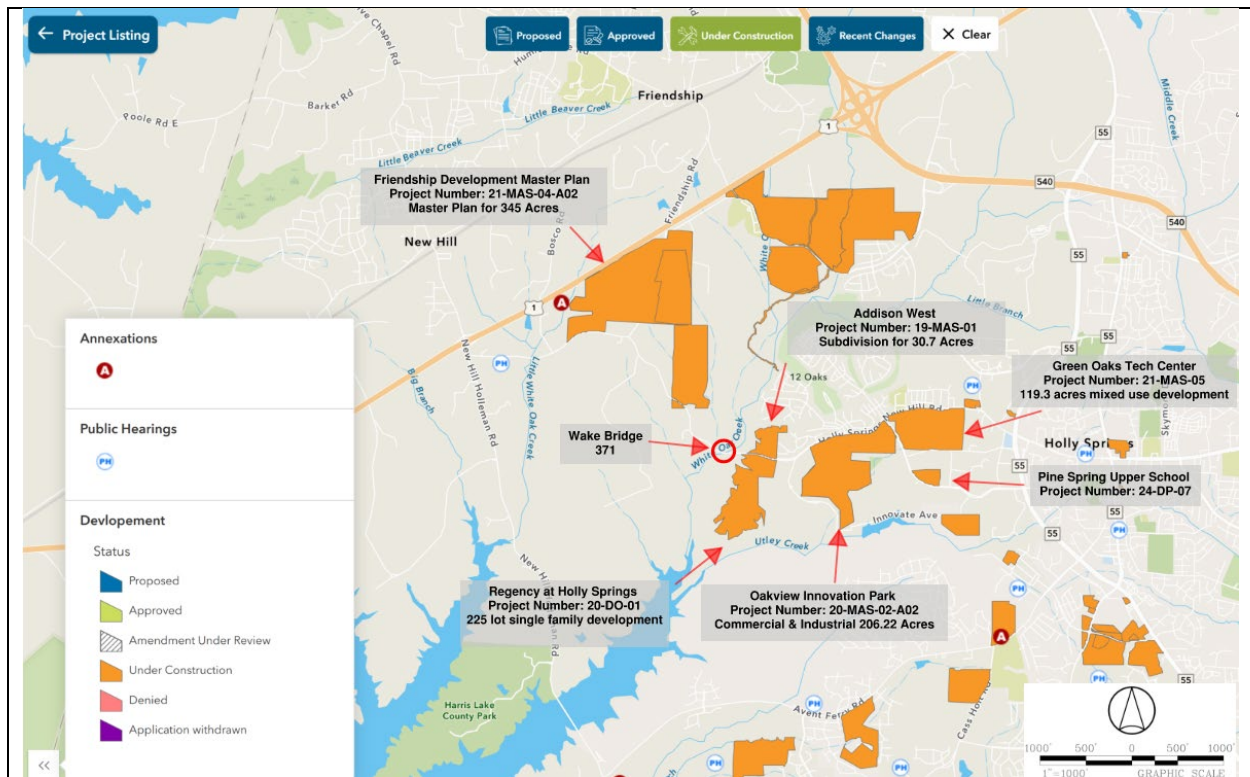
7	Grant Funds, Sources and Uses of Project Funds (Detailed Budget)	☒ A detailed budget is attached separately. The file is named: Attachment A – Wake 371 PROTECT Cost Estimate		
		Phase	Cost	Source
		PE	\$2,327,500	NCDOT Detail Fund 390115B
		Right-of-Way	\$266,000	
		Utility Relocation	\$5,132,223	
			\$1,477,777	PROTECT Grant (10%)
		Construction	\$13,300,000	PROTECT Grant (90%)
		<i>Miscellaneous</i>	<i>\$3,466,511</i>	
		<i>Earthwork</i>	<i>\$1,410,000</i>	
		<i>Drainage</i>	<i>\$610,000</i>	
		<i>Pavement (Asphalt)</i>	<i>\$1,458,760</i>	
		<i>Erosion Control</i>	<i>\$800,000</i>	
		<i>Traffic Control</i>	<i>\$352,500</i>	
		<i>Structures</i>	<i>\$3,307,229</i>	
		<i>Utility Construction</i>	<i>\$55,000</i>	
	<i>Escalation/ Contingency</i>	<i>\$1,840,000</i>		
8	Does the project involve the construction of new capacity?	☐ Yes ☒ No		
9	Does the project involve development phase activities, including planning, feasibility analysis, revenue forecasting, environmental review, preliminary engineering and design work, and other preconstruction activities described under 23 U.S.C. § 176(d)(5)(F)(i)?	☒ Yes ☐ No		

10	Has the applicant submitted previous applications for Federal funding for this project?	☐ Yes ☒ No
----	--	--

III. Merit Criteria

In the space below, describe how the project will meet the merit criteria and the associated objectives as found in Section F of the FYs 2024 through 2026 PROTECT Competitive Grant Program NOFO. Where appropriate, reference attachments or other sections of the application. Expand the response blocks as needed but limit the length of the merit criteria section of the application to eight total pages in length.

Criterion #1: Vulnerability and Risk
The Wake County Bridge 371 Flood Mitigation and Resilience Project (Project) addresses significant current and future vulnerabilities in a critical White Oak Creek transportation crossing that routinely experiences road closures due to flooding. This route is especially important to the community, as it serves an average annual daily traffic (AADT) of up to 7,900 vehicles, with a significant increase in traffic volumes anticipated due to seven major developments currently planned and under construction in the area, as shown in the graphic below.

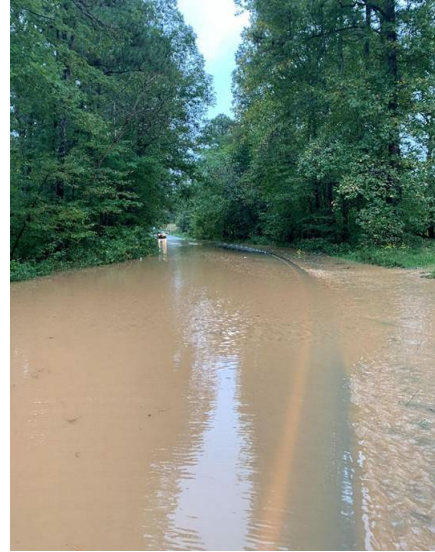


Construction activity shown in orange around Wake County Bridge 371

If no improvements are made to the bridge, the resulting consequences will lead to continued and regularly occurring road closures, delays in emergency response, mounting repair costs, disruption for daily commuters during routine precipitation events, and ultimately endangerment to the surrounding community who rely on this crossing during an evacuation, especially for the nearby Harris Nuclear Power Plant. The bridge floods to depths of six to eight feet and does so often enough that permanent barricades are staged at the crossing. The

following are some of the recent and worst flooding events that have directly affected this crossing:

- **April 2017:** Severe weather led to standing water overtopping the roadway between Cateswood Court and Stonender Way, prompting immediate police barricades.
- **September 2018 (Hurricane Florence):** Widespread tropical rainfall pushed area creeks past their banks, making the Holly Springs New Hill Road bridge at White Oak Creek impassable.
- **August 2020:** Tropical and heavy seasonal storms triggered localized overtopping, closing the corridor between Cedar Wren and Cateswood Court.
- **November 2020:** Heavy downpours forced municipal closures across multiple spots, including the White Oak Creek crossing on Holly Springs New Hill Road.
- **October 2022:** Heavy precipitation caused localized overflow at White Oak Creek, resulting in standard barricade deployment and temporary road shutdowns.
- **September 2024:** Local police responded multiple times overnight after motorists drove past closure markers, leading to vehicles becoming stranded in deep water along Holly Springs New Hill Road.
- **July 2026:** Flash flooding from heavy rain forced the temporary closure of Holly Springs New Hill Road at White Oak Creek between Cateswood Court and Stonender Way before conditions improved and the road reopened.



Flooding on Wake County Bridge

Constructed in 1961, Wake County Bridge No. 371 is approximately 61 feet long and has a roadway width of approximately 24 feet. NCDOT inspections document deterioration affecting the bridge's substructure and superstructure, including concrete spalling, exposed prestressing strands, deteriorated timber elements, and load capacity constraints. These conditions increase the importance of replacing the aging structure before additional deterioration results in further restrictions or loss of service. When considered with the corridor's recurring flood exposure, the condition of the bridge compounds the risk of disruption along a critical emergency access and evacuation route.

According to the Climate Mapping for Resilience & Adaptation (CMRA) Assessment Tool managed by the National Oceanic and Atmospheric Administration's (NOAA), Wake County will continue to experience an average of 11 days with a total precipitation of more than two

inches each year, with a projected increase of 12 days between 2041 and 2070 (Attachment B – CMRA Flooding Report for Wake County). The area will also see one day of precipitation of more than three inches between 2041-2070 when previously this did not occur (Attachment B). Furthermore, the area where the bridge is located is a high-risk flood area, as noted in the Federal Emergency Management Agency’s (FEMA) Flood Map (Attachment C).

Severe storms and flooding may occur concurrently with other emergencies, increasing the importance of maintaining reliable evacuation and emergency response access. The corridor is located within the Harris Nuclear Power Plant Emergency Planning Zone and is identified as part of the associated evacuation network. A flood-related closure of the crossing can divert evacuees and emergency responders to a reported 6.5-mile detour, increasing travel time and concentrating traffic on alternate routes during an emergency.

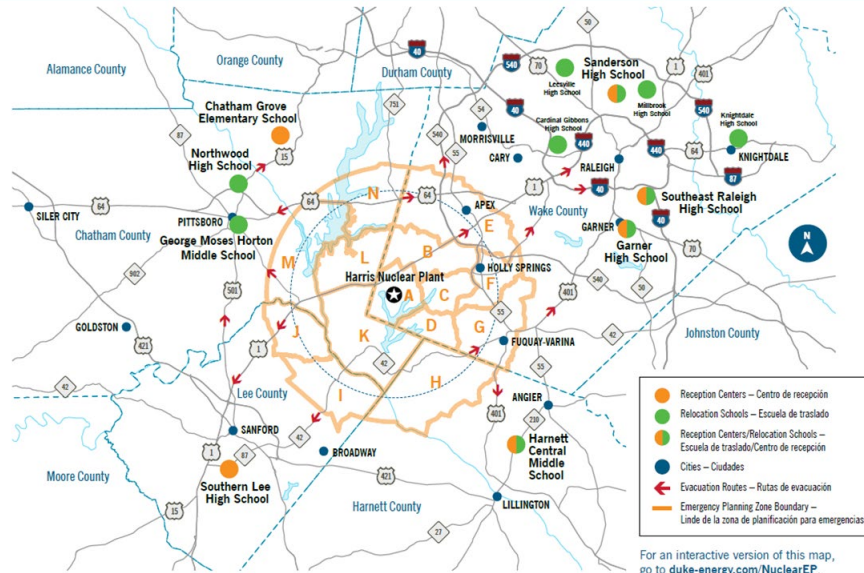
The corridor also supports emergency access to Woods Creek Elementary School, surrounding residential development, industrial facilities, and pharmaceutical research and manufacturing facilities. The Holly Springs Fire Rescue Department has identified Wake County Bridge No. 371 as one of two primary routes used by fire and emergency medical services to access the school and nearby subdivisions. Replacing the bridge with a flood-resilient structure will protect the communities that rely on this corridor while maintaining a reliable evacuation and emergency access route. Improvements will substantially increase the local transportation system's adaptive capacity by replacing the vulnerable structure with a modern bridge specifically designed to withstand identified site hazards and maintain traffic operations following routine and extreme flooding events.

Criterion #2: Criticality to American Families and Communities

Regionally, Wake County Bridge 371 serves as a critical evacuation route for North Carolina residents living in Holly Springs and surrounding areas, including those near the Harris Nuclear Power Plant. As demonstrated in the Harris Nuclear Power Plant 2027 Emergency Preparedness Information Plan and the Wake County Emergency Management Plan, this bridge is located within a designated Emergency Planning Zone and is identified as a Primary Evacuation Route, directing citizens to a larger arterial during emergencies (Attachment D).

Harris Nuclear Plant | Emergency Planning Zones, Reception Centers and Relocation Schools

Planta Nucleoeléctrica Harris | Zonas de planificación para emergencias, Centros de recepción y Escuelas de traslado



Harris Nuclear Power Plant – Emergency Planning Zone Boundary

According to the 2013 Local Schools Input Form (Attachment E), six daily trips were made to five schools along the corridor, serving about 500 students from the adjacent neighborhood. As of 2026, the number of daily bus trips crossing the bridge has increased to 24. With the expansion of new single-family home developments in the vicinity, the ridership and bus bridge crossings are expected to rise. This bridge replacement is significant for school buses due to their maneuverability and the current design constraints on Holly Springs New Hill Road. If there are flood closures, buses must find a new route, and transportation staff must carefully identify safe and approved alternatives, which can make rerouting more complicated than simply finding another nearby road. In many cases, alternative turnaround locations require prior evaluation and approval to ensure they meet safety requirements for bus operations. In many situations, the closest bus turnaround could be a significant distance from a closure.

Criterion #3: Design Elements, including Addressing Core Infrastructure

As part of this project, the NCDOT proposes replacing Wake County Bridge 371 over White Oak Creek on Holly Springs New Hill Road (SR 1152) since it is now approaching the end of its service life. The current conceptual scope includes a 125-foot-long, 49-foot-wide bridge with a barrier-separated multiuse path, raised roadway approaches, and drainage improvements. The estimated total project cost is \$22,503,500. The project addresses structural deterioration and recurring flooding. A temporary bridge and on-site detour will maintain corridor access during replacement construction. A routine inspection (Attachment F) conducted in December 2024 for NCDOT documented concrete spalling with exposed prestressing strands and decay in the timber abutments and wing walls. The inspection assigned the bridge's substructure a condition rating of 4. FHWA classifies this rating as Poor, reflecting advanced deterioration, section loss, spalling, or scour. An underwater inspection (Attachment G) from December 2024 documented timber pile decay extending above and below the waterline. A load rating analysis (Attachment H) from February 2026 identifies timber Pile 4 as the structural member controlling the bridge's load carrying capacity. Continued deterioration of the timber supports could further reduce the weight the bridge can safely carry, potentially requiring additional load restrictions or closure if safe operation can no longer be maintained. Additionally, delamination, spalling, and efflorescence/rust have been identified in the prestressed concrete channels in the superstructure. Once the strands within the superstructure are exposed to the elements and begin to separate and fray, the superstructure becomes unrepairable, resulting in bridge closure. The inspection report helps NCDOT determine the optimum time for replacement.

Furthermore, a total of five out of nine incident reports from 2020 to 2024 (Attachment I), prepared by the Holly Springs Fire Department, document motorists stranded on the flooded roadway requiring rescue operations. A resilience project (Attachment J – Holly Springs New Hill Road Bridge 371 Replacement) proposed by the Town of Holly Springs also identifies flooding west of the bridge during minor rainfall events. When flooding closes the roadway, school buses and emergency vehicles cannot use the crossing and must follow alternate routes, potentially increasing school travel times and delaying emergency response. Holly Springs' earlier proposal identified importing embankment materials to raise the roadway elevation and replacing or upsizing existing storm drainage cross pipes to convey runoff from the 25-year storm without overtopping. Related improvements will enhance the bridge's reliability, especially for school transportation and emergency access. Combining structural enhancements to the bridge and its roadway approaches will also help reduce flood risk.

NCDOT will maintain the replacement bridge and roadway approaches throughout their anticipated service lives. Periodic structural inspections, applicable underwater inspections, and post-flood inspections, as warranted by conditions, will identify deterioration, settlement, erosion, scour, and damage requiring corrective action. Maintenance will include drainage cleaning and debris removal; pavement and shoulder repairs; upkeep of approach fills and erosion protection; vegetation maintenance; structural preservation and repairs; and replacement of renewable components. NCDOT will also maintain guardrails, barriers, signs, and pavement markings and upgrade hydraulic design standards. These activities will preserve drainage capacity and sustain the reliability of the crossing and its raised approaches. Future maintenance is anticipated to be supported through NCDOT's bridge and highway maintenance programs using State Highway Fund resources, subject to annual allocations. Maintenance responsibilities and funding for the multiuse path and connecting sidewalks will be documented in a maintenance agreement with the appropriate local government.

New signing and pavement markings will identify travel lanes, roadway edges, temporary traffic transitions, and connections to the barrier-separated multiuse path. Directional signs and coordinated evacuation route signage will help residents and emergency traffic navigate the corridor. Sidewalk connections will incorporate accessible grades, cross slopes, and curb ramps where needed. The separated path will provide dedicated space for pedestrians and bicyclists, while clear signs and predictable traffic arrangements will support travel for families and people with disabilities. Reduced flood-related closures and continued access during construction will also support dependable school transportation and emergency access.

Criterion #4: Innovation

NCDOT has confirmed that the final design will evaluate current and projected rainfall conditions. The design team proposes using the North Carolina State Climate Office's [RainDROP](#) tool—the Rainfall, Intensity, Duration and Return for Observations and Projections Tool—to incorporate future extreme rainfall estimates into the design of Wake County Bridge 371. This approach would supplement historical design rainfall with projections of conditions the crossing could experience during its anticipated service life.

RainDROP uses the National Oceanic and Atmospheric Administration (NOAA) Atlas 14 Precipitation Frequency Estimates, which describe rainfall amounts for storms of different durations and frequencies. It applies climate-model-derived scaling factors under two future scenarios, RCP4.5 and RCP8.5, to estimate rainfall for midcentury (2040–2069) and late century (2070–2099). For Wake County Bridge 371, the proposed rainfall runoff analysis would use historical and projected rainfall estimates to evaluate flows reaching the bridge and roadway drainage. Those flows would then support two-dimensional hydraulic modeling to evaluate floodwater elevations, flow directions, velocities, and roadway overtopping. The hydraulic modeling approach would draw on the techniques documented from similar NCDOT projects and will be adapted to Wake 371's watershed and crossing configuration.

The proposed approach would integrate construction access planning with long-term resilience design. A temporary bridge and on-site detour would preserve corridor access while the permanent bridge and raised approaches are constructed. Evaluating both crossings under current and projected rainfall conditions would help identify flood vulnerabilities during construction and future operations. Results would guide roadway elevations, drainage capacity, and erosion and scour protection, supporting continued access during replacement and a more reliable permanent crossing throughout its anticipated service life.

IV. Project Readiness

Readiness: Technical Assessment

NCDOT has organizational capacity, staffing, and technical experience to deliver the Project. NCDOT manages one of the nation's largest State transportation programs and employs approximately 70 project managers statewide, supported by dedicated roadway, structures, hydraulics, geotechnical, environmental, right-of-way, utilities, construction, cultural resources, and grant management staff. Division 5 has successfully delivered complex bridge, roadway, and resilience projects requiring extensive environmental coordination, right-of-way acquisition, and stakeholder engagement.

NCDOT has developed a comprehensive project schedule that addresses final design, environmental review and permitting, right-of-way acquisition, utility relocation, grant obligation, procurement, and construction. The current schedule anticipates completion of environmental approvals in early 2029, completion of final plans and specifications in 2029, and obligation of FY 2026 PROTECT funding prior to the statutory September 30, 2029 obligation deadline. Construction is anticipated to begin following completion of right-of-way and utility activities and conclude with opening of the improved facility in 2032.

NCDOT will actively manage environmental, permitting, utility, right-of-way, and construction risks through established project-delivery procedures and ongoing coordination with resource agencies and stakeholders. Based on the current schedule, identified funding sources, completed project-development activities, and NCDOT's demonstrated delivery experience, the project is well positioned to meet PROTECT obligation requirements and advance to implementation within the anticipated project delivery timeframe.

Milestone/Project Phase	Start Date	End Date
Design Phase	March 2027	July 2029
Preliminary Engineering (30%)	March 2027	December 2027
Prepare Final Plans and Specifications	January 2028	June 2029

Plans and Specifications Issued for Construction	July 2029	July 2029
Environmental Permitting	April 2028	January 2029
Prepare NEPA Documentation	April 2028	October 2028
Submit NEPA BA	October 2028	November 2028
Submit NEPA to FHWA and NCDOT for review	November 2028	November 2028
NEPA Approved by FHWA and NCDOT	December 2028	January 2029
Right of Way	April 2027	September 2030
Prepare Right of Way Need Plan	April 2027	October 2028
Prepare ROW Exhibits and Legal Descriptions	November 2028	December 2028
Prepare ROW Appraisals	January 2029	May 2029
Acquire ROW	June 2029	July 2030
Submit ROW for NCDOT Certification	August 2030	August 2030
NCDOT Certifies ROW	September 2030	September 2030
PROTECT Grant Obligation	March 2029	September 2029
Construction (PROTECT Project Activities)	October 2030	September 2032
NCDOT Issues NTP to Contractor for Construction	October 2030	October 2030
Demolition Phase	May 2031	June 2031
Construct New Bridge	July 2031	March 2032
Construction Intersection and Upland Finishes	April 2032	August 2032
Open to Traffic	September 2032	September 2032
Readiness: Financial Completeness Assessment		
The Project has a complete funding plan that identifies the anticipated costs and funding sources for preliminary engineering, right-of-way, utility relocation, and construction. Total project costs are estimated at \$22,503,500, including a \$14,777,777 PROTECT Competitive Grant request and \$7,725,723 in non-Federal NCDOT funding. No other Federal funds are included in the funding plan. NCDOT has identified non-Federal funding through NCDOT Detail Fund 390115B. These sources will support preliminary engineering, right-of-way, and a substantial portion of utility relocation. PROTECT funds will support eligible utility relocation and construction costs. The following table presents the project's sources and uses:		

Sources and Uses of Project Funds

Phase	Cost	Source	%
PE	\$2,327,500	NCDOT Detail Fund 390115B	10%
Right-of-Way	\$266,000	NCDOT Detail Fund 390115B	1%
Utility Relocation	\$5,132,223	NCDOT Detail Fund 390115B	23%
	\$1,477,777	PROTECT Grant (10%)	6%
Construction	\$13,300,000	PROTECT Grant (90%)	59%

The requested PROTECT funding will support the project's implementation activities. Approximately 90 percent of the request will support construction, while approximately 10 percent will support eligible utility relocation:

Use of PROTECT Funds

Phase	Funding	% of PROTECT Grant
PROTECT-Funded Construction	\$13,300,000	90%
PROTECT-Funded Utility Relocation	\$1,477,777	10%
PROTECT Funding Total	\$14,777,777	100%

The project budget is supported by the separate detailed cost estimate which identifies costs by phase and major construction category (Attachment A – Wake 371 PROTECT Cost Estimate). The estimate includes roadway, drainage, structures, earthwork, pavement, erosion control, traffic control, utility work, escalation, and contingency. The inclusion of escalation and contingency allowances addresses potential cost uncertainty and supports the reasonableness of the overall funding request. The existing budget form identifies these cost categories and the separate detailed estimate.

NCDOT has identified the anticipated funding required to complete the proposed project scope and does not rely on unidentified Federal funding. The phase-level budget identified non-Federal sources through a detailed cost estimate and allocated PROTECT funds to eligible implementation activities to demonstrate the project's financial completeness and readiness to advance if selected for funding.

Readiness: Permitting Risk Assessment

Wake County Bridge 371 received a Programmatic Categorical Exclusion under the National Environmental Policy Act (NEPA) on March 16, 2017. That approval evaluated an earlier replacement design using an off-site detour. The current scope includes raised roadway approaches, a barrier-separated multi-use path, and a temporary on-site bridge and detour. An updated environmental consultation is needed to determine whether the existing approval

remains valid for these changes and whether additional review or revised environmental commitments are required.

A Project Evaluation from September 2026 (Attachment K) identifies Harris Game Land, a Natural Heritage Program Managed Area, and potential impacts to nearby transmission lines. These constraints will inform the permanent alignment, temporary crossing, construction limits, and utility relocation. Coordination with Duke Energy and the appropriate resource agencies will establish opportunities to avoid or minimize impacts and determine whether a Section 4(f) review applies.

Permit requirements will be established using the current construction footprint and, depending on the resulting stream and wetland impacts, the project may require a Section 404 permit from the U.S. Army Corps of Engineers and Section 401 water quality certification from the North Carolina Division of Water Resources. Hydraulic coordination with the North Carolina Floodplain Mapping Program will determine applicable floodplain approvals, including whether a Conditional Letter of Map Revision and subsequent Letter of Map Revision are needed. Erosion and sediment control requirements will also be addressed before construction.

NCODT has made great progress in coordinating with local planners, school transportation staff, and emergency responders. Their concerns included school bus detours, emergency response delays, and continuity of the Harris Nuclear Power Plant evacuation route. The 2017 environmental process also invited affected property owners to comment. Project commitments required notification of Wake County Schools, Wake County Emergency Medical Services, and Duke Energy at least one month before a road closure to allow school bus rerouting, reassignment of emergency response units, and adjustments to the evacuation route.

The proposed on-site detour addresses the access concerns documented in the community assessment by maintaining corridor access during construction. Updated coordination with these organizations will confirm temporary traffic arrangements and identify any remaining service disruptions. Outreach to affected property owners will address the revised construction footprint and property impacts.

Based on currently available information, no known fatal flaws have been identified, and permitting risk is considered manageable and compatible with the project's ability to meet PROTECT obligation and delivery requirements.

V. Statutory and DOT Selection Priorities

In the space below, describe how the project will meet the selection priorities in Section F of the FYs 2024 through 2026 PROTECT Competitive Grant Program NOFO. Where appropriate,

reference attachments or other sections of the application. Expand the response blocks as needed but limit the length of the statutory and DOT selection priorities section of the application to three total pages in length.

Statutory Selection Priorities
For Resilience Improvement Grants: ☒ The benefits of the eligible activity proposed to be carried out by the eligible entity exceed the costs of the activity (as demonstrated by the economic analysis); and ☒ There is a need to address the vulnerabilities of surface transportation assets of the eligible entity with a high risk of, and impacts associated with, failure due to the impacts of weather events, natural disasters, or changing conditions, such as sea level rise, wildfires, and increased flood risk; or ☐ The eligible activity is included in a RIP as described by 23 U.S.C. 176(e)(2). ☐ None of the above apply to the project.
For Community Resilience and Evacuation Route Grants: ☒ The activities are cost-effective (as demonstrated by the results of the economic analysis), taking into account: (1) current and future vulnerabilities to an evacuation route due to future occurrence or recurrence of emergency events that are likely to occur in the geographic area in which the evacuation route is located; and (2) projected changes in development patterns, demographics, and extreme weather events based on the best available evidence and analysis. ☐ None of the above apply to the project.
Statutory Selection Priorities: The Wake County Bridge 371 Flood Mitigation and Resilience Project (Project) satisfies the statutory priority for addressing vulnerable surface transportation assets. The project addresses reoccurring flooding along the Holly Springs New Hill Road (SR 1152) corridor, where flooding has led to roadway overtopping, temporary closures, stranded motorists, and emergency response challenges. Flooding in the White Oak Creek floodplain affects the roadway and bridge approaches, reducing transportation system reliability and increasing vulnerability during routine and severe weather events. At this time, the existing bridge structure has been assigned code “T” by NCDOT, meaning it is being shored (i.e. temporarily supported by support structures). These supports are unlikely to last when faced with frequent flooding events stretching into the future. The project will replace or improve the bridge and elevate approximately 2,000 feet of flood-prone roadway while incorporating drainage and hydraulic improvements designed to reduce flood-related vulnerability and improve the corridor's ability to maintain and recover transportation operations following extreme weather events.

The Project also satisfies the statutory priority for Community Resilience and Evacuation Route Grants. Wake County Bridge 371 serves an important emergency access and evacuation function for the Harris Nuclear Power Plant and provides a critical east-west connection between US 1 and NC 55. NCDOT has identified the corridor as part of the emergency evacuation network associated with the Harris Nuclear Power Plant, and reliable public access along the route is an important component of regional emergency-preparedness planning. During flood-related closures, travelers and emergency responders face a reported 6.5-mile detour, reducing access reliability and potentially affecting emergency response and evacuation operations. By improving the resilience of this flood-prone crossing, the project will strengthen the reliability of an important evacuation route serving a growing area of Wake County while supporting community resilience and public safety.

The NC Capital Area Metropolitan Planning Organization (CAMPO) has identified Holly Springs New Hill Road, the roadway on which Wake County Bridge No. 371 is located, for future corridor improvements, providing independent regional evidence of continued population and employment growth in the project area. As traffic demand increases, maintaining a reliable and flood-resilient crossing will become increasingly important for daily mobility, emergency access, and evacuation planning associated with the Harris Nuclear Power Plant.

The project's economic analysis demonstrates that the proposed improvements are cost-effective, and that discounted benefits exceed discounted costs. The current analysis reports a benefit-cost ratio (BCR) of 5.13, approximately \$53 million in discounted benefits, and a net present value (NPV) of approximately \$42 million. Benefits include avoided detour travel and vehicle operating costs, improved transportation reliability, reduced flood-related disruption, safety benefits, and improved emergency response and evacuation route reliability. The analysis also considers future flood risk, continued growth within the corridor, and the importance of maintaining reliable access to communities, businesses, emergency services, and the Harris Nuclear Power Plant evacuation network.

DOT Selection Priorities

- ☒ The project supports critical infrastructure for industries of national interest.
- ☐ The project would contribute to promoting economic prosperity in communities, including rural areas and Tribal communities.
- ☒ The project prioritizes improvement of the condition and safety of existing transportation infrastructure, particularly infrastructure with high cost of failure, such as bridges with lengthy detours, impacts to critical corridors, or failures that will cause economic disruption.
- ☒ The project demonstrates an ability to meet PROTECT Competitive Grant Program obligation deadlines.
- ☐ The project improves access to national security and defense facilities or facilitate movement of military cargo or personnel.

- ☐ The project will reduce roadway traffic congestion.
- ☐ The project repurposes existing specialized travel lanes for bicycles, buses, or pedestrians for general purpose use by all motor vehicles, including single-occupant motor vehicles, and the applicant demonstrates the repurposing will meet the PROTECT program purpose, will reduce congestion on the facility, will utilize 40 percent or less of requested PROTECT funds for adding capacity consistent with 23 U.S.C. 176(d)(5)(G)(i)(I), will address safety consistent with the merit criteria described in Section F of the NOFO, and will comply with applicable federal requirements, including the Clean Air Act and criteria under 23 U.S.C. 217(e).
- ☐ None of the above apply to the project.

DOT Selection Priorities:

The Project supports economic prosperity and transportation reliability by improving a critical east-west connection between US 1 and NC 55 in a rapidly growing area of Wake County. The corridor serves residents, businesses, schools, emergency responders, and major employment centers, including nearby industrial, research, and manufacturing facilities. When flooding closes the corridor, travelers and emergency responders face a reported 6.5-mile detour, resulting in increased travel time, reduced reliability, and disruption to daily community and economic activity.

The Project also prioritizes improving existing transportation infrastructure that has failed and poses significant safety and operational consequences. Flooding in the White Oak Creek floodplain has led to recurring roadway overtopping, temporary closures, stranded motorists, and emergency response challenges. In addition, the existing bridge has documented structural deficiencies, including poor-condition components, exposed prestressing strands, deteriorated timber elements, and load capacity constraints. As the only crossing along this segment of the corridor, the closure affects daily travel, emergency operations, school transportation, and access to surrounding residential and employment areas.

The proposed project will improve Wake County Bridge 371 and elevate approximately 2,000 feet of flood-prone roadway, incorporating drainage and hydraulic improvements to enhance resilience and reduce vulnerability to future flooding. These improvements will reduce the likelihood and consequences of flood-related closures, strengthen the reliability of emergency response and evacuation routes, and improve safety and the resilience of the transportation system for the approximately 7,900 vehicles that use the corridor each day.

The corridor also serves an important emergency access and evacuation function for the Harris Nuclear Power Plant and supports reliable access to critical energy infrastructure. By improving the resilience of this flood-prone crossing, the project will help maintain continuity of transportation access during extreme weather events while reducing disruption to residents, workers, businesses, emergency services, and other critical community destinations.

VI. Benefit-Cost Analysis

Resilience Improvement Grant 23 U.S.C. § 176(d)(5)(E)(ii)(I)	BCA is required for the project to be prioritized, unless the project is prioritized in a RIP. (see <i>Completing a BCA</i> below) Please check the appropriate box: ☐ The applicant is not requesting Resilience Improvement Grant funds. ☒ The applicant requests Resilience Improvement Grant Funding, and the project is <u>not</u> prioritized in a RIP. A BCA is attached. ☐ The applicant requests Resilience Improvement Grant funding, and the project is <u>is</u> prioritized in a RIP. ☐ The application is from a federally recognized Indian Tribe that is requesting Resilience Improvement Grant funds but is opting to provide raw data with its application to support the need for a project, without additional BCA*. The raw data is attached.
Community Resilience and Evacuation Route Grant 23 U.S.C. § 176(d)(5)(E)(ii)(II)	BCA is required for the project to be prioritized. (see <i>Completing a BCA</i> below) Please check the appropriate box: ☐ The applicant is not requesting Community Resilience and Evacuation Route Grant funds. ☒ The applicant requests Community Resilience and Evacuation Route Grant funding, and a BCA is attached. ☐ The application is from a federally recognized Indian Tribe that is requesting Community Resilience and Evacuation Route Grant funds but is opting to provide raw data with its application to support the need for a project, without additional BCA.* The raw data is attached.
At-Risk Coastal Infrastructure Grant 23 U.S.C. § 120(g)	BCA is not required, but applications must demonstrate that the project will reduce long-term infrastructure costs by avoiding larger future maintenance or rebuilding costs. Please check the appropriate box: ☒ The applicant is not requesting At-Risk Coastal Infrastructure Grant funds. ☐ The applicant requests At-Risk Coastal Infrastructure Grant funding and provides a demonstration of such long-term infrastructure cost reductions in the project application Summary section.

* Federally recognized Indian Tribe applicants for all PROTECT Resilience Grants may opt to provide raw data with their application to support the need for a project, without additional BCA (see *Alternatives to a BCA* below).

Completing a BCA

Review in detail NOFO Sections D and F and DOT's BCA Guidance (<https://www.transportation.gov/mission/office-secretary/office-policy/transportation-policy/benefit-cost-analysis-guidance>) to understand how to conduct and document a BCA.

The materials provided must include (see NOFO Sections D and F for more information):

- 1. A narrative that describes the overall project;*
- 2. An unlocked BCA spreadsheet document that uses calculations to estimate a benefit-cost ratio so that reviewers can see how the inputs are used; and*
- 3. A BCA Memo that details the sources of values used and explains the methods used to calculate the benefit-cost ratio.*

The spreadsheets and technical memos must present the calculations in sufficient detail and transparency to allow the analysis to be reproduced by FHWA evaluators.

Alternatives to a BCA

A federally recognized Indian Tribe may elect to provide raw data with its application to support the need for a project, without additional analysis. The narrative must include:

- Clear identification of the problem to be solved by the project (e.g., asset risk).*
- Estimation of the costs of the proposed project.*
- Current and projected future asset use (e.g., vehicle miles traveled, ridership, freight movement).*
- Projection of the expected impacts of the project.*