

Franklin 99 Bridge Resilience Improvement Project NCDOT #8 – 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	Franklin 99 Bridge Resilience Improvement 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. <i>(Note: if yes, explain how existing evacuation routes are not sufficient to adequately facilitate evacuations)</i> ☐ Constructing new or redundant evacuation routes. <i>(Note: if yes, explain how existing evacuation routes are not sufficient to adequately facilitate evacuations)</i> ☐ 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.
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.

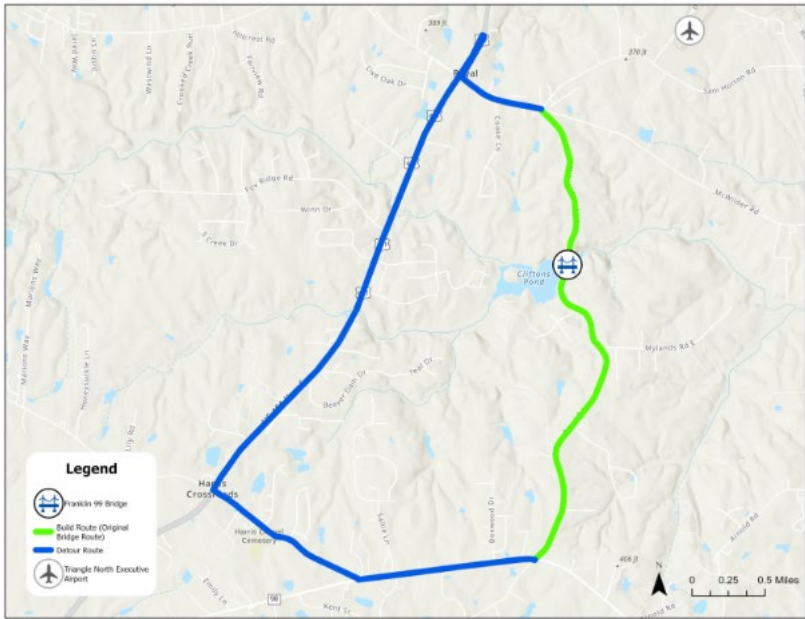
¹ “Critical destinations” could include hospitals and other medical or emergency service facilities, major employers, critical manufacturing centers, ports and intermodal facilities, utilities, and Federal facilities. See 23 U.S.C. § 176(d)(4)(B)(ii).

	Documentation: • <i>N/A</i>
Project Area	North Carolina, Clifton Pond Road (SR 1103) over Crooked Creek in Franklin County
Amount of Funding Requested Under this NOFO	\$13,944,000
Cost Share Requested²	80%
Total Project Cost	\$17,430,000
Which type(s) of natural hazards does the project address?	Potential dam failure; high-flow and overtopping conditions; flooding and inundation; erosion and scour; severe storms and extreme precipitation; and associated transportation closure and access disruption.
Which transportation modes are addressed by the project?	Highway, roadway, pedestrian
Project Description:	
The Franklin 99 Bridge Resilience Improvement Project (Project) will replace Bridge No. 99 on Clifton Pond Road (SR 1103) over Crooked Creek in Franklin County, North Carolina, and relocate the roadway to a new western alignment farther from the Upper Clifton Pond Dam. The existing bridge, constructed in 1969, is classified as Poor and is currently posted at 7 tons, preventing fire apparatus, school buses, and other heavy vehicles from using the crossing. The bridge is located immediately adjacent to two historic stone masonry dams constructed in the 1830s as part of the Clifton Mill complex. Dam condition, stability, breach, hydraulic, and vibration studies have documented overtopping risks, flood hazards, and transportation vulnerabilities associated with the existing bridge location. PROTECT funds will be used to construct the replacement bridge, roadway approaches, drainage improvements, retaining walls, erosion-control measures, traffic-control features, temporary construction access, and removal of the existing bridge. The selected alternative reduces long-term transportation exposure to dam-related hazards by separating the crossing from the high-risk dam environment while maintaining reliable access for residents, emergency responders, school transportation providers, and businesses. The project serves approximately 1,500 structures and nearly 4,000 residents and preserves a critical north-south transportation connection within rural Franklin County. North Carolina Department of Transportation (NCDOT) previously evaluated 11 alternatives and completed substantial geotechnical, hydraulic, dam safety, environmental, cultural resource, and stakeholder coordination activities. Previously incurred project development costs total approximately \$984,199.83. For additional information, please visit the supplemental materials site: https://connect.ncdot.gov/resources/PROTECT2026-Bridge99/Pages/default.aspx	
Attachments:	Attachment A: Franklin 99 PROTECT Cost Estimate

² See NOFO Section C.2 for Cost Sharing or Matching information.

	Attachment B: Clifton Pond Dam Review Attachment C: Bunn Rural Fire Association Letter Attachment D: Triangle North Executive Airport Technical Report Attachment E: Bridge Removal or Closure Evaluation Attachment F: Fire Station Service Area Map Attachment G: EMS & Schools Meeting Minutes Attachment H: Phase 1 Summary Report – Assessment of Clifton Pond Dams Attachment I: Phase 2 Summary Report – Dam Condition Evaluation of the Clifton Pond Dams Attachment J: Topographic Survey and Bathymetry of Clifton Pond Dams Attachment K: Cultural Resource Update Meeting Minutes Attachment L: Bridge Inspection Reports Attachment M: Bridge Crash Analysis Benefit-Cost Analysis Calculations Benefit-Cost Analysis Narrative Financial Commitment Letter Letters of Support
--	---

I. Project Information

1	Project Title	Franklin 99 Bridge Resilience Improvement Project
2	Project State	North Carolina
3	Project Location	 Bridge No. 99 carries Clifton Pond Road (SR 1103) over Crooked Creek in Franklin County, North Carolina, approximately 10 miles southwest of Louisburg. The project

		includes the bridge crossing, roadway approaches, and a southern realignment farther from the Upper Clifton Pond Dam. <i>Latitude/Longitude: 36.000288948659815, -78.34726358563938</i>
4	Which Census tract(s) does the project encompass?	Census Tract: 606.02
5	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 Crooked Creek floodplain near Clifton Pond. NCDOT will implement flood-risk mitigation components of the Tar River Regional Hazard Mitigation Plan through improvements to bridge and approach elevations, drainage, and embankment stability.
7	Other Parties	N/A
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	Franklin County Bridge No. 99 was constructed prior to 1969 and carries Clifton Pond Road over Crooked Creek adjacent to the Clifton Pond Dams. These historic stone masonry dams are part of the Clifton House and Mill Site, a property listed in the National Register of Historic Places. Engineering analyses identify limited capacity for the dams to convey storm flows without overtopping their abutments and deficiencies in the lower dam's stability under flood loading, creating potential risks to roadway access during heavy rainfall and dam-related flooding. Significant bridge deterioration has also resulted in a seven-ton

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>.

		load restriction, preventing heavy emergency vehicles and school buses from crossing. Before advancing preliminary design of the selected alignment west of the existing crossing, NCDOT evaluated 11 alternatives and advanced two for further consideration. The proposed project includes a two-lane bridge approximately 515 feet long, improved roadway approaches, drainage and stabilization measures, and removal of the existing bridge to improve transportation resilience while limiting construction impacts to the historic dams. Completed engineering investigations, surveys, and stakeholder coordination have informed project development. Previously incurred project costs totaled approximately \$984,199.83.
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

II. Budget and Funding

1	PROTECT Competitive Grant Program Request Amount	\$13,944,000	
2	Other Federal Funding	\$0	
3	Non-Federal funding	\$3,486,000	
		Source	Amount
		NCDOT Detail Fund 390115B (State Appropriation Division 5)	\$3,486,000
4	Future Eligible Project Cost	\$16,445,800	
5	Previously incurred project costs (if applicable)	\$984,199.83	
6	Total Project Cost	\$17,430,000	

7	Grant Funds, Sources and Uses of Project Funds (Detailed Budget)	☒ A detailed budget is attached separately. The file is named: Attachment A – Franklin 99 PROTECT Cost Estimate		
		Phase	Cost	Source
		PE	\$2,450,000	NCDOT Detail Fund 390115B
		Right-of-Way	\$700,000	
		Utility Relocation	\$280,000	
		Construction	\$14,000,000	(See Below)
		<i>Miscellaneous</i>	\$56,000	NCDOT Detail Fund 390115B
			\$2,358,068	
		<i>Earthwork</i>	\$597,500	PROTECT Grant
		<i>Drainage</i>	\$210,000	
		<i>Pavement (Asphalt or Concrete)</i>	\$502,240	
		<i>Guardrail</i>	\$59,500	
		<i>Erosion Control</i>	\$294,500	
		<i>Signing</i>	\$9,000	
		<i>Traffic Control</i>	\$187,500	
		<i>Structures</i>	\$7,236,673	
		<i>Walls</i>	\$518,020	
		<i>Escalation/Contingency</i>	\$1,971,000	
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

Criterion #1: Vulnerability and Risk

The Franklin 99 Bridge sits between two historic stone masonry dams on Cliftons Pond in Franklin County, North Carolina. The bridge faces a compounding set of transportation, hydrologic, and dam-related risks that can result in loss of critical transportation access, infrastructure damage, and downstream public safety consequences. Both dams are aging masonry stone structures constructed in the 1830s as part of the historic Clifton Mill complex, and NCDOT has documented that their condition makes them vulnerable to overtopping or failure under high-flow conditions. As mentioned in Attachment B – Clifton Pond Dam Review, the model study concluded that 50-year, 50-year breach, 100-year, 100-year breach, 1/3 PMP, and 1/3 PMP breach storm events cause overtopping depths that would be considered in a High Danger Zone. Dam failure is one of the hazards named in the PROTECT program purpose, and this project addresses it directly.

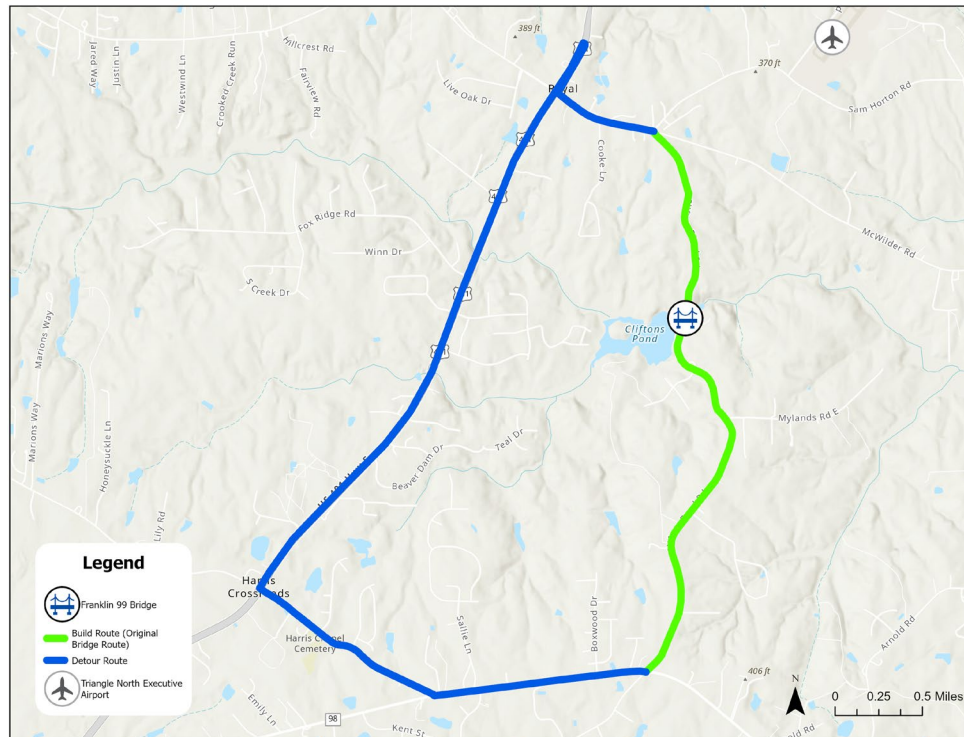
The recently completed widening of US-401 is expected to support continued growth in the area. According to Chief Matthew Strawbridge of the Bunn Fire Department (Attachment C – Bunn Rural Fire Association Letter), approximately 1,500 structures and nearly 4,000 residents rely on the Clifton Pond Road corridor, and those numbers are expected to increase as development continues along the US-401 corridor.

The bridge has limited adaptive capacity because the risks at this location extend beyond deterioration of the transportation asset itself. NCDOT inspections document significant structural deterioration and an existing load restriction, but the bridge's proximity to the Upper Clifton Pond Dam creates additional constraints that prevent conventional rehabilitation from adequately addressing the site's vulnerability. Engineering evaluations concluded that rehabilitation is not a feasible long-term solution, while replacement at the existing location would continue to place transportation infrastructure immediately adjacent to the dam system. In addition, replacing the bridge in place would bring the privately owned dam into NCDOT right-of-way, creating additional ownership, maintenance, and long-term risk management concerns. The surrounding National Register-listed Clifton House and Mill Site and documented archaeological resources further constrain available alternatives. As a result, relocation of the crossing is necessary to meaningfully reduce transportation risk and improve long-term resilience.

The bridge has no adaptive capacity. There is no redundant structure at this crossing. The nearest detour is northbound and southbound detours of approximately 5.1 and 5.7 miles, respectively, averaging 5.4 miles (shown below), and a planned airport expansion will close another nearby road, which removes the one alternative that would otherwise soften a closure. The Triangle North Executive Airport Master Plan identifies the future closure of Sam Horton Road and realignment of Airport Road as planned improvements. These changes would further

reduce local roadway redundancy and increase the importance of maintaining a reliable crossing at Bridge No. 99. According to Attachment D – Triangle North Executive Airport Technical Report, the airport currently supports approximately 230 jobs, \$9.1 million in payroll, and \$24.2 million in annual economic output. The project also exceeds available NCDOT resources and falls outside the Department's traditional bridge program, so no dedicated funding path exists to address the problem before failure or closure occurs.

Figure 1: Northbound and Southbound Detours Around Bridge Location



The transportation risk is amplified because the bridge and dam systems function as an interconnected infrastructure system. Continued deterioration of the bridge creates operational and safety concerns, while construction, heavy loading, vibration, or future hydrologic events may affect the adjacent dam structures. Conversely, overtopping, instability, or breach of either dam could damage transportation infrastructure, interrupt emergency access, isolate residents, and disrupt movement throughout the corridor. This relationship means failure of either asset could affect the performance of the other, making Franklin 99 fundamentally different from a conventional bridge replacement project.

The consequences are severe because failure of either the bridge or the adjacent dam structures could disrupt emergency access, isolate residents, damage critical transportation infrastructure, and create downstream public safety and economic impacts. A dam breach could result in

downstream flooding, threaten residents and property, disrupt emergency response operations, and damage transportation infrastructure. A permanent bridge closure, whether caused by structural deterioration or a decision to protect the adjacent dams, would eliminate a critical north-south connection used by emergency responders and local residents. According to the Bunn Rural Fire Association, approximately 1,500 structures and nearly 4,000 residents rely on this corridor. The affected area includes homes, schools, daycares, churches, businesses, Triangle North Executive Airport, and mutual aid service areas supported by both the Bunn and Youngsville fire departments.

Criterion #2: Criticality to American Families and Communities

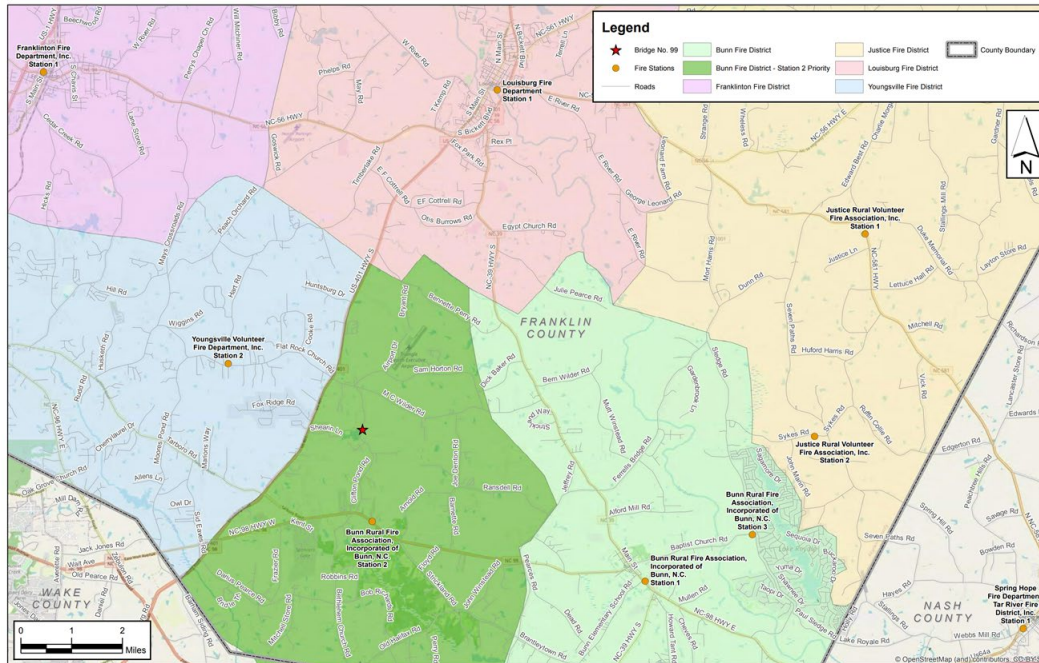
According to Attachment E- Bridge Removal or Closure Evaluation, Franklin Bridge No. 99 is critical to the continued operation of local emergency, school, household, and business access. The crossing serves approximately 810 vehicles per day and is a primary north-south connection for the Bunn and Youngsville fire service areas. Its loss would require use of detours averaging approximately 5.4 miles (5.1 miles northbound and 5.7 miles southbound), increasing travel times for residents, businesses, school transportation providers, and emergency responders.

According to the Bunn Rural Fire Association, approximately 1,500 structures and nearly 4,000 residents rely on transportation access provided by this corridor. The bridge also supports mutual aid coordination between the Bunn and Youngsville fire districts, increasing its importance during emergency response events and severe weather incidents. See Attachment C – Bunn Rural Fire Association Letter and Attachment F – Fire Station Service Area Map.

The bridge replacement is also critical for school transportation. During coordination with Franklin County Schools (Attachment G - EMS Schools Meeting Minutes), transportation staff reported that Clifton Pond Road has been designated a “non-travel” road because of bridge conditions, roadway geometry, and the lack of suitable bus turnaround locations. Prior to the bridge closure, one bus route used Clifton Pond Road daily, and two additional routes used the corridor as a cut-through connection. The closure added approximately 20 minutes to the primary affected route. Because full-size school buses weigh at least 15 tons and the bridge is posted at 7 tons, school buses cannot use the crossing. If new students move onto Clifton Pond Road, conventional bus service currently cannot be provided directly along the roadway.

The bridge supports emergency operations and economic activity. The 5.4-mile detour lengthens travel for fire and EMS units, which delays response to the station's service area. The airport expansion compounds this effect by removing the alternate road serving the station. Beyond emergency response, closure would disrupt residents' commuting patterns and add cost and delay for local commerce, freight, and service deliveries.

Figure 2: Fire Stations Near Bridge Location



Closure of the crossing could also increase costs borne by residents and businesses. According to the Bunn Rural Fire Association, increased travel distances and reduced emergency access efficiency could affect fire protection service delivery and contribute to higher insurance costs within portions of the service area. This impact further demonstrates the community-wide consequences associated with long-term loss of the crossing. See Attachment C – Bunn Rural Fire Association Letter.

Criterion #3: Design Elements, including Addressing Core Infrastructure

The project will replace Bridge No. 99 over Crooked Creek and improve the roadway approaches along Clifton Pond Road on a new alignment west of the existing crossing. The selected alignment should be identified consistently throughout the application. The replacement bridge, profile, roadway grading, drainage improvements, reinforced approach fills, approach slabs, retaining wall, and erosion controls will address structural deterioration, approach stability, and flood-related access risks. The project is designed to provide a durable transportation connection with an anticipated service life of 75 years, supported by routine maintenance and periodic replacement of renewable components.

The most significant resilience feature of the project is relocation of the crossing away from the Upper Clifton Pond Dam. Unlike alternatives that maintain transportation infrastructure immediately adjacent to the dam system, Preferred Alternative 6A reduces future exposure to dam-related hazards, construction vibration risks, stability concerns, emergency repairs, and operational conflicts associated with the existing bridge location. The selected alignment addresses the root cause of the corridor's vulnerability by separating a critical transportation asset from the high-risk dam environment identified through the Phase 1 and Phase 2 Clifton

Pond Dam evaluations. This approach provides a long-term resilience benefit that cannot be achieved through bridge rehabilitation or replacement at the existing location.

The existing bridge has significant deterioration in its steel members and support caps, including widespread section loss, and is posted at 7 tons. NCDOT's Structures Management Unit conducted a routine element inspection on January 22, 2026 (Attachment L).

The Phase 1 engineering report establishes baseline dam conditions and vibration levels to inform construction planning near the historic masonry dams (Attachment H – Phase 1 Summary Report _ Assessment of Clifton Pond Dams_2024). Phase 2 builds on these findings with dam stability, hydrologic, hydraulic, and breach analyses that identify flood hazards and construction constraints relevant to the replacement crossing (Attachment I – Phase 2 Summary Report_Dam Condition Evaluation of the Clifton Pond Dams). These evaluations incorporate topographic and bathymetric surveys documenting ground elevations, dam geometry, and underwater pond contours to support stability calculations and flood modeling (Attachment J - Topographic Survey and Bathymetry of Clifton Pond Dams_2025).

Data used to inform the Phase 2 hydrologic and hydraulic analyses include NOAA Atlas 14 precipitation estimates, North Carolina terrain data, National Land Cover Database information, and NRCS soil data. These inputs support HEC-HMS and HEC-RAS modeling of storm flows and downstream inundation under non-breach and dam breach scenarios, including 50-year, 100-year, and one-third probable maximum precipitation events. These findings provide hazard information for additional hydraulic analysis of the replacement crossing and approaches on the selected alignment. The proposed analysis will evaluate current flood conditions and test sensitivity to higher rainfall and runoff to inform design for potential future conditions.

The hydraulic findings will guide proposed elevations and drainage capacity to reduce flood exposure and access disruptions. Permanent drainage will collect and convey roadway runoff to discharge locations designed to limit erosion and protect approach fills and material beneath the approach slabs. Seeding and mulching will establish vegetation on disturbed slopes and roadside areas to reduce soil loss. Properly compacted reinforced approach fills, and the retaining wall will support embankment stability, while approach slabs will limit the effects of differential settlement and provide a smoother transition between the roadway and bridge.

The new alignment provides greater separation between transportation infrastructure and the historic dam system, reducing both long-term operational risk and construction-related exposure. Work near the dams, including removal of the existing bridge, will require construction controls informed by Phase 1 and Phase 2 evaluations. Construction planning will evaluate low-vibration demolition and excavation methods, vibration and movement monitoring, and thresholds for modifying or stopping work. These measures will limit disturbance to the stone masonry structures during bridge removal and construction.

The replacement bridge will address the structural deficiencies that resulted in the 7-ton load restriction. Its improved load capacity will restore access for heavy emergency vehicles and school buses currently prohibited from crossing, reducing detour delays that affect emergency response and school transportation. The wider crossing and improved approaches will provide additional space for opposing traffic, with roadway shoulders of at least four feet anticipated, subject to final design. New guardrail, end treatments, concrete barrier and steel beam guardrail will protect vehicles at roadway edges. These features will improve infrastructure conditions, travel safety, and reliability.

New signing and pavement markings will identify travel lanes, roadway edges, and connections to Clifton Pond Road. Advance warnings, together with regulatory and advisory signs, will help residents and other motorists anticipate curves and roadway transitions. Design development will support reliable access for residents, emergency responders, school transportation providers, commercial vehicles, and travelers using accessible vehicles. Improved roadway geometry, shoulders, signage, and pavement markings will enhance safety, accessibility, and reliability while reducing the transportation disruptions currently associated with the existing crossing.

Criterion #4: Innovation

The Project's primary innovation is its risk-avoidance design strategy. Rather than reconstructing transportation infrastructure within the high-risk environment immediately adjacent to the Upper Clifton Pond Dam, the project relocates the transportation corridor to reduce long-term exposure to dam related hazards, construction risks, and transportation disruptions. The selected alignment reflects a multi-disciplinary approach that integrates transportation resilience, dam safety, cultural resource protection, constructability, and long-term asset management.

The Project also proposes low-vibration excavation and demolition techniques, combined with monitoring of those actions, to protect the historic stone masonry dams near Bridge No. 99. Non-detonating propellants generate lower vibration levels than conventional detonating explosives. Recommended options include hydraulic splitting, expansive chemical grouts, diamond-wire cutting, and non-detonating rock fracturing techniques. Vibration and masonry movement monitoring will provide action and shutdown thresholds, so crews can modify or stop work when measurements indicate potential damage. This approach is intended to prevent construction-related damage that could weaken the dams and contribute to flooding of downstream assets. It will complement the permanent resilience improvements described in Criterion 3 and support reliable transportation access throughout the replacement crossing's anticipated service life.

The proposed delivery approach combines phased construction on the new alignment with site-specific contract provisions for vibration control, monitoring, and emergency response. The replacement bridge will be constructed before a short-term off-site detour is used for roadway tie-ins. Subject to the existing bridge's condition, this sequence will maintain access during portions of construction and concentrate detour use within the tie-in period. Incorporating construction limits, monitoring procedures, response thresholds, and emergency-

response protocols into the contract will connect work requirements directly to the site's identified risks. These innovations respond to the unusual combination of bridge deterioration, flood exposure, dam-safety constraints, and historic resource considerations at the project site. Together, they will improve reliability, reduce the risk of structural failure during construction, and protect the long-term resilience of this critical transportation connection.

The dam evaluation (Attachment I) supports the use of low-vibration methods and monitoring because the upper dam is immediately adjacent to the existing bridge and is vulnerable to construction vibration; the report also describes controlled dewatering, flow diversion, and construction emergency planning as risk-reduction measures.

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.

Before advancing the preliminary design of the replacement alignment, NCDOT evaluated 11 alternatives and advanced two potential solutions for further consideration. Completed geotechnical investigations, topographic and bathymetric surveys, and dam condition, vibration, stability, and flood analyses establish site constraints and inform the replacement design and construction methods. Additional bridge hydraulic analysis and final design will establish elevations, foundations, and construction requirements.

Importantly, the project's highest-risk technical uncertainties have already been evaluated through completion of geotechnical investigations, topographic and bathymetric surveys, dam-condition evaluations, dam stability analyses, breach modeling, flood analyses, archaeological studies, historic architecture reviews, endangered species coordination, aquatic resource reviews, tribal coordination, and alternatives analysis. These completed activities significantly reduce project development risk and provide a strong technical foundation for final design, permitting, and construction.

NCDOT will deliver the project in compliance with applicable Federal requirements for environmental review, procurement, right-of-way acquisition, construction, and grant

administration. Environmental commitments and permit conditions will be incorporated into the final plans, specifications, and construction contracts.

The State has developed a comprehensive project delivery schedule addressing final design, environmental review, permitting, right-of-way acquisition, utility coordination, grant obligation, and construction. The schedule reflects the current project development status and incorporates time for regulatory review, stakeholder coordination, and technical risk management. Because substantial technical investigations and alternative evaluations have already been completed, the project can advance efficiently into final design and environmental clearance. NCDOT will actively track schedule-critical activities and implement risk mitigation measures to maintain compliance with PROTECT obligation requirements.

NCDOT is committed to obligating funds before the applicable PROTECT deadline and completing the project within the program's anticipated 1–4-year period of performance. The proposed schedule is:

Milestone/Project Phase	Start Date	End Date
Design Phase	April 2025	December 2029
Preliminary Engineering (30%)	April 2025	March 2029
Prepare Final Plans and Specifications	March 2029	August 2029
Plans and Specifications Issued for Construction	August 2029	December 2029
Environmental Permitting	January 2028	December 2029
Prepare NEPA Documentation	January 2028	June 2029
Submit NEPA BA	June 2029	August 2029
Submit NEPA to FHWA and NCDOT for review	August 2029	August 2029
NEPA Approved by FHWA and NCDOT	November 2029	December 2029
Right of Way	January 2026	December 2029
Prepare Right of Way Need Plan	January 2026	December 2028
Prepare ROW Exhibits and Legal Descriptions	November 2028	December 2028
Prepare ROW Appraisals	February 2029	April 2029
Acquire ROW	April 2029	December 2029
Submit ROW for DOT Certification	December 2029	December 2029
NCDOT Certifies ROW	December 2029	December 2029
PROTECT Grant Obligation	January 2027	July 2029
Construction (PROTECT Project Activities)	March 2030	September 2031
NCDOT Issues NTP to Contractor for Construction	February 2030	February 2030
Demolition Phase	April 2030	May 2030
Construct New Bridge	September 2030	August 2031

Construction Intersection and Upland Finishes	April 2030	September 2031
Open to Traffic	September 2031	September 2031

The work that has already been completed includes archaeological studies; historic architecture studies; endangered species review; bat assessment; mussel survey; aquatic survey; rockline investigation for potential alignments; Phase I dam vibration monitoring, precondition and bathymetric survey; Phase II dam condition survey with dam breach analysis; preliminary design alignment concepts; stakeholder meetings; dam abutment investigation; underwater dam investigation; Stage 1 intermodality evaluation; and Catawba Nation tribal coordination.

The urgency described in the Criticality and Vulnerability sections is reinforced by the completed dam condition, dam stability, and breach evaluation studies. These studies document long-term transportation vulnerability associated with the bridge's location adjacent to the historic Clifton Pond dam system and support the need to implement the preferred resilience alternative before additional deterioration or future hydrologic events further increase transportation risk.

Readiness: Financial Completeness Assessment

The total estimated cost of the Project is \$17.430 million. NCDOT is requesting \$13.944 million in PROTECT Competitive Grant Program funding, representing 80 percent of total eligible project costs, and will provide the required 20 percent non-Federal match (\$3.486 million). The non-Federal match will be provided through committed State funding sources, specifically NCDOT Detail Fund 390115B. Funding from this source has been identified and allocated for project delivery.

Phase	Cost	Source	%
PE	\$2,450,000	NCDOT Detail Fund 390115B	14%
Right-of-Way	\$700,000	NCDOT Detail Fund 390115B	4%
Utility Relocation	\$280,000	NCDOT Detail Fund 390115B	2%
Construction	\$56,000	NCDOT Detail Fund 390115B	0%
	\$13,944,000	PROTECT Grant Funding	80%

The Project budget is based on NCDOT planning-level cost estimates developed using detailed construction quantities, unit cost assumptions, and recent project cost data. The estimate includes bridge replacement, roadway approaches, retaining walls, drainage improvements, traffic control, temporary construction access, demolition and removal of the existing bridge, engineering allowances, and contingency costs. Preliminary Engineering, Right-of-Way, and Utility Relocation costs were developed using NCDOT cost estimating factors and project-specific information available during alternative development and project evaluation.

The identified funding sources are sufficient to support all project phases and demonstrate NCDOT's financial commitment to project delivery. The requested PROTECT funds and committed State match will fully fund the currently anticipated scope, allowing the project to

advance through final design, right-of-way acquisition, utility coordination, permitting, and construction without relying on unidentified future funding sources. Should project costs increase during final design, NCDOT will evaluate available State transportation funding programs and project delivery strategies to maintain project implementation.

NCDOT has established funding commitments for the non-Federal share and has completed substantial planning, engineering, environmental, hydraulic, dam safety, and project development activities. As a result, the project has a complete and financially achievable funding plan that supports timely obligation of Federal funds and successful delivery of the proposed resilience improvements in accordance with PROTECT program requirements.

Readiness: Permitting Risk Assessment

NEPA REVIEW

NCDOT anticipates completing the National Environmental Policy Act review through a Categorical Exclusion, subject to FHWA's determination. Attachment K - Cultural Resource Update Meeting, identified this anticipated pathway and the need to evaluate effects on historic resources if Federal funding is used. Bridge No. 99 is located within the Clifton House and Mill Site, a property listed in the National Register of Historic Places (FK0024). NCDOT will assess the selected alternative effects on historic architecture, archaeological resources, and the historic landscape as preliminary plans are advanced. NCDOT will coordinate the selected alignment's right-of-way boundaries, cut-and-fill limits, construction access, and utility impacts with its Cultural Resources staff and the North Carolina State Historic Preservation Office.

APPROVALS

USACE authorization is an anticipated permitting need. NCDOT will confirm the applicable Section 404 authorization and Section 401 water quality certification requirements with the U.S. Army Corps of Engineers and the North Carolina Department of Environmental Quality based on the project's aquatic resource impacts. Final design and agency coordination will also establish applicable riparian buffer, floodplain, stormwater, and erosion control requirements. Permit preparation and review will account for the replacement of crossing, temporary construction access, and existing bridge removal. The schedule will allow for agency comments and required mitigation before affected construction activities begin.

Public Engagement

NCDOT met with fire service providers in April 2025 and with EMS and school transportation officials on May 5, 2025. These activities documented concerns about emergency response, mutual aid, school transportation, and continued community access, and they informed the decision to pursue a replacement crossing rather than permanent closure.

Delivery Risks

NCDOT has identified the project's primary delivery risks, including historic resource consultation, archaeological evaluations, property acquisition, utility relocation, aquatic

resource permitting, and construction adjacent to the historic Clifton Pond dam system. Because these risks have been identified early, mitigation strategies have already been incorporated into project development activities and schedule planning. These strategies include early SHPO coordination, environmental review, utility coordination, right-of-way planning, dam condition evaluations, vibration control planning, construction monitoring requirements, and emergency response procedures associated with work near the historic dams.

V. Statutory and DOT Selection Priorities

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 Project supports economic activity in a growing part of Franklin County. With the widening of US-401 recently completed, the corridor is expected to experience rapid growth in housing, employment, and commercial activity. The bridge is part of the local network that connects growing areas near US-401. A permanent closure would divert traffic onto a 5.4-mile detour and, with the airport expansion closing another nearby road, onto fewer remaining routes, increasing delay and congestion on those roads. Keeping the bridge in service protects the access that the area's growth depends on. A permanent closure would disrupt commuting patterns for residents, add delay and cost for local businesses, and lower the area's attractiveness for investment.

The bridge replacement is a cost-effective investment in the resilience of a critical transportation asset. The Project's economic analysis demonstrates that its benefits exceed its costs, with a benefit-cost ratio of 5.02, approximately \$30,812,945 in discounted benefits, and a net present value of approximately \$24,673,501. The replacement will provide substantial long-term benefits through restored mobility, reduced travel time and vehicle operating costs, enhanced safety, and reduced risk of prolonged transportation disruption. The project is a reinvestment in an existing asset, not new capacity.

NCDOT has structured the project to meet the PROTECT obligation deadlines. As described in the Technical Assessment, alternatives have been evaluated, two have been advanced to support coordination with SHPO and the adjacent property owner, and NCDOT has identified the environmental, permitting, and design steps required before obligation. Matching funds are identified in the Financial Completeness section.

This vulnerability cannot be addressed through ordinary maintenance or through NCDOT's traditional bridge program. As noted in the project scope, in-place replacement and heavy vehicle use could each affect the adjacent dams. The project exceeds available NCDOT resources, so PROTECT funding is the path to addressing the risk before a failure occurs.

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 advances DOT Selection Priorities by promoting economic prosperity in a rural community, improving the condition and safety of transportation infrastructure with a high cost of failure, and demonstrating readiness for timely implementation. The bridge serves approximately 1,500 structures and nearly 4,000 residents, along with schools, daycares, businesses, emergency-service providers, and the service area of Triangle North Executive Airport. Closure of the crossing would reduce access reliability, increase travel times and transportation costs, and disrupt economic activity throughout this growing portion of Franklin County.

The Project also prioritizes improvement of an existing transportation asset whose failure would have significant public safety and economic consequences. Bridge No. 99 is located immediately upstream and downstream of historic, hand-stacked, stone masonry dams that have been identified through dam condition, stability, and breach analyses as vulnerable to overtopping and failure under severe hydrologic conditions. Unlike a typical bridge replacement project, the bridge and dam system function as an interconnected risk environment. A failure of either dam could threaten downstream residents, transportation infrastructure, emergency access, and community connectivity. The project addresses these risks by replacing the deteriorated bridge and relocating the crossing farther from the Upper Clifton Pond Dam through Preferred Alternative 6A, reducing long-term exposure to dam related hazards while restoring reliable access for emergency responders, school transportation, residents, and businesses. The Project also eliminates the operational impacts associated with the current 7 ton load restriction and avoids a detour of approximately 5.4 miles.

The Project further demonstrates the ability to meet PROTECT obligation deadlines. NCDOT has completed substantial project development activities, including bridge inspections, alternatives analysis, geotechnical investigations, topographic and bathymetric surveys, dam condition evaluations, stability analyses, hydrologic and hydraulic modeling, cultural resources coordination, and stakeholder outreach. NCDOT evaluated 11 alternatives and identified Preferred Alternative 6A for advancement. These completed studies have significantly reduced project delivery risk and established a strong technical foundation for final design, permitting, right-of-way acquisition, utility coordination, and construction. NCDOT anticipates obligating funds before the applicable PROTECT deadline and delivering the project within the program's period of performance.

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.*