NCDOT PROTECT Application, Priority 7

Summary

Project Title	US 701 Business (Madison Street) at Soules Swamp, Priority 7
Lead Applicant Name	North Carolina Department of Transportation (NCDOT)
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 *Only fill out the set of check boxes that corresponds to the type(s) of Resilience Grant that you are applying for.*	**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 destinations **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.
Project Area	The project is in Whiteville, North Carolina. Flood mitigation efforts are proposed along US 701 Business (Madison Street) between the Lee Street, Madison Street, and Franklin Street intersection and the Madison Street and Talbot Street intersection, crossing Soules Swamp. The project location consists of 2 components, Component 1 is located at 34.317147, -78.706151 and Component 2 is located at 34.315828, -78.706991. (**See attached Project Location Map**.) Whiteville, NC is the county seat of Columbus County. Madison Street is the ‘gateway’ to downtown, hosting retail and service businesses, as well as city government, county government, and the Chamber of Commerce/Tourism. On the south side of Soules Swamp, Madison Street

	is defined by 26 active local businesses (**see attached Project Context Map**) along the corridor including Jerry's Sandwich Shop, Penn's Grill, Candlewood Farms Coffee & Bakery, Town & Country Barbershop, Perfect Nail, Collier's Jewelers, Families Values Thrift Store, Mercantile on Madison, and Whiteville Family Pharmacy. Madison Street is the detour route when the only other north south route (US 701 Bypass) is closed due to accidents. It also provides an alternate route for travelers on weekends when seasonal traffic contributes to higher congestion levels on US 701 Bypass.
Amount of Funding Requested Under this NOFO	$10,840,000
Cost Share Requested	80% federal ($10,840,000), 20% non-federal ($2,710,000)
Total Project Cost	$13,550,000
Which type(s) of natural hazards does the project address?	Whiteville experiences recurring riverine and inland flooding of Soules Swamp causing inundation of Madison, Lee, and Franklin Streets, and the downtown Whiteville business district during hurricanes, tropical storms, and heavy rainfall events. Documented flooding has occurred numerous times throughout 2016, 2018, 2023, 2024, and 2025. Initial modeling based on FEMA's decoupled fluvial methodology and hydrographs representing the 25-, 50-, 100-, and 500-year events suggest that this roadway network will face flood-related closures approximately once every 5 years over the next three decades. As shown in the inundation maps (**see Inundation Analysis attachment**), the grant project would provide flood relief to dozens of properties including 26 currently active businesses. While no residential properties are located within this revised inundation zone, the significant reduction of threat of flood occurrence will help reduce costly risk for existing businesses. Further, it will increase the potential for redevelopment for other sites with the reduced risk of flooding.
Which transportation modes are addressed by the project?	Highway (including vehicle, freight, school buses, and bus transit), Emergency Response, Pedestrian/Bicycle US 701 Business carries approximately 12,500 vehicles per day and serves downtown businesses, freight movement, school transportation, on-demand transit, pedestrians, emergency responders, and travelers accessing Columbus Regional Healthcare.

	Madison Street has a roughly 4.8% truck percentage. While most of this is local freight movement, there are at least 26 active businesses located on the north and south sides of Soules Swamp that depend on this connection. School buses serving all four local schools use this route. The route is heavily used for travel to/from Whiteville High School (located on Lee Street). The location is also served by 'on demand' paratransit. The city of Whiteville is separated by Soules Swamp. The only two swamp crossings within the City's extra-territorial jurisdiction (ETJ) are US 701 Business (Madison Street) and US 701 Bypass (JK Powell). Highway Patrol, Police, Fire, and EMS are all located on the north side of Soules Swamp. As such, the ability to cross the swamp to serve residents and businesses on Whiteville's south side and adjacent areas (such as Brunswick) is critical. For police and fire, the most expedient route uses the Madison Street Bridge. The EMS and Highway Patrol tend to use US 701 Bypass. In addition, the only hospital located within the county (Columbus Regional Healthcare) is located northeast of the project area. Using Madison Street to Franklin Street to Jefferson Street is the most expedient route for residents in south Whiteville, particularly during times of heavy seasonal traffic on US 701 Bypass.

Project Description:

The North Carolina Department of Transportation (NCDOT) requests a PROTECT Resilience Improvement Grant to reduce recurring flooding at Soules Swamp along US 701 Business (Madison Street), Lee Street, and Franklin Street in downtown Whiteville, North Carolina (NC). Hurricanes, tropical storms, and heavy rainfall have repeatedly inundated the corridor and surrounding business district, causing roadway closures, property damage, and unreliable access between the northern and southern portions of the community.

The project will replace the existing Madison Street bridge, increase the crossing's hydraulic opening to approximately 180 feet with three 60-foot spans, and construct a new approximately 100-foot bridge opening along Lee Street with two 50-foot spans (**see attached Project Components Overview).** Related work will include raising portions of Lee Street approximately 1.25 feet near its low point, roadway reconstruction, drainage improvements, curb and gutter installation, a continuous concrete sidewalk, riprap and slope protection, utility coordination, traffic control, and erosion control. Preliminary two-dimensional hydraulic modeling indicates that the improvements would reduce inundation during the 25-, 50-, and 100-year events.

US 701 Business carries approximately 12,500 vehicles per day and serves downtown businesses, freight movement, school transportation, on-demand transit, pedestrians, emergency responders, and travelers accessing Columbus Regional Healthcare. The PROTECT investment would support eligible project development and construction costs needed to deliver the resilience improvements. The project will reduce roadway overtopping, flood damage, closure frequency/duration, and reliance on longer flood-susceptible detours

while protecting access to dozens of properties, including 26 businesses. NCDOT began project development in 2026. There have not been any incurred project costs to date.	
Attachments:	• NCDOT7-2026-PROTECT-Attachment1-Project Area Location Map.pdf • NCDOT7-2026-PROTECT-Attachment2-Project Area Context Map.pdf • NCDOT7-2026-PROTECT-Attachment3-Inundation Analysis.pdf • NCDOT7-2026-PROTECT-Attachment4-Components Overview.pdf • NCDOT7-2026-PROTECT-Attachment5-Letters of Support.pdf • NCDOT7-2026-PROTECT-Attachment6-Letter of Financial Commitment.pdf • NCDOT7-2026-PROTECT-Attachment7-Hazard Mitigation Plan.pdf • NCDOT7-2026-PROTECT-Attachment8-Detailed Budget.pdf • NCDOT7-2026-PROTECT-Attachment9-Benefit Cost Analysis.xlsx • NCDOT7-2026-PROTECT-Attachment10- Benefit Cost Analysis Narrative.pdf

I. Project Information

1	**Project Title**	US 701 Business (Madison Street) at Soules Swamp
2	**Project State**	North Carolina
3	**Project Location**	The proposed PROTECT project is in Whiteville, NC. Flood mitigation efforts are proposed along US 701 Business (Madison Street) between the Lee Street, Madison Street, and Franklin Street intersection and the Madison Street and Talbot Street intersection, crossing Soules Swamp. The project location consists of two components, the first located at 34.317147, -78.706151 and the second located at 34.315828, -78.706991. (See **attached project area location map** and "Project Area" in the Summary section for more information.)
4	**Which Census tract(s) does the project encompass?**	Madison Street Bridge Expansion (Soules Swamp) is in census tracts 9309 and 9310
5	**Is the project fully located in a Rural area?**	☒ Yes ☐ No The population of Whiteville according to 2020 census data is 5,216. The closest urbanized area is Wilmington, NC, 50 miles east.
6	**Is the project located in a base floodplain?**	☒ Yes ☐ No The project is located along the Soules Swamp in the Lumber River Basin. Whiteville, NC faces recurring flood risks from hurricanes and heavy rainfall events, with vulnerable neighborhoods experiencing repeated roadway overtopping, infrastructure disruptions, and property

		damage. The area is designated Zone AE floodway according to FEMA flood maps (Source Citation: 37047C_STUDY4). As shown in the inundation maps (**see attached Inundation Analysis**), this PROTECT investment would provide flood relief to dozens of properties including 26 businesses. While no residential properties would be impacted by the proposed project's revised inundation zone, the significantly reduced risk of flood occurrence will protect existing businesses and bolster the potential for redevelopment sites for other properties. Local and state plans have identified floodplain restoration, culvert upgrades, and nature-based flood mitigation strategies as priority actions to reduce future risk and improve community resilience. (**See attached Bladen + Columbus + Robeson Counties Regional Hazard Mitigation Plan.)** In addition, the 2023 *Whiteville Community Floodprint*[1] was completed through the collaboration of the City of Whiteville, the North Carolina Office of Recovery and Resiliency, and NC State University's Coastal Dynamics Design Lab. NC DPS reports that the team used hydraulic modeling and historical records and focused mitigation strategies on the downtown business district.
7	**Other Parties**	NCDOT is the sole applicant and will administer the award, procure construction, and provide contract oversight. Local governments, emergency-service providers, property owners, and other stakeholders will continue to receive construction and traffic-control information and will be engaged as beneficial.
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**	US 701 Business (Madison Street) is the primary north-south route through downtown Whiteville North Carolina and one of only two crossings of Soules Swamp within the City of Whiteville's extraterritorial jurisdiction. The corridor carries approximately 12,500 vehicles per day, including 4.8 percent truck traffic, and provides

[1] *Whiteville Community Floodprint: https://www.whitevillenc.gov/sites/default/files/uploads/whiteville-floodprint-may-2023.pdf*

		critical access for freight movement, school transportation, emergency response, Columbus Regional Healthcare, downtown businesses, and residents traveling between the northern and southern portions of the community. Whiteville's transportation network is highly vulnerable to recurring flooding associated with Soules Swamp. Flooding from hurricanes, tropical storms, and heavy rainfall has repeatedly affected Madison Street, Lee Street, Franklin Street, and the downtown business district, with documented events occurring in 2016, 2018, 2023, 2024, and 2025. When key intersections are inundated, traffic is diverted to the US 701 Bypass approximately 1.5 miles away, while larger flood events can require detours of approximately 20 miles. These closures delay emergency response, restrict access to jobs, schools, healthcare, and public services, and negatively affect downtown businesses. Project inundation mapping indicates the proposed improvements would reduce flood impacts to dozens of properties, including 26 active businesses. The project includes two coordinated components designed to improve hydraulic capacity and reduce roadway overtopping. Component 1 will replace the existing Madison Street bridge over Soules Swamp and increase the waterway opening. Component 2 will construct a new approximately 100-foot bridge opening on South Lee Street, raise the roadway at a low point, and modify drainage infrastructure. Together, these improvements will increase flood conveyance and enhance transportation system resilience without adding vehicular travel lanes. NCDOT Division 6 and the NCDOT Bridge Program have completed preliminary bridge and roadway concepts, hydraulic modeling, inundation mapping, and cost estimating. Modeling of 25-, 50-, 100-, and 500-year storm events found that the selected concept provides the greatest flood-reduction benefits among the alternatives evaluated, particularly during the 25- and 50-year events. In addition, a July 2026 inspection of Structure 230003 documented bridge condition concerns and hydraulic limitations that further support replacement of the existing crossing as part of a comprehensive resilience strategy.
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**	$10,840,000
2	**Other Federal Funding**	Estimated total of other Federal funding, excluding PROTECT Competitive Grant Program requested funding, in year-of-expenditure dollars: $0.00
3	**Non-Federal funding**	NCDOT will cover PE over 10% of the budget at 100% non-federal share. Source: NCDOT Bridge Funds or High Impact/Low-Cost Funds Amount: $2,710,000 **See attached Letter of Commitment.**
4	**Future Eligible Project Cost**	$13,550,000
5	**Previously incurred project costs (if applicable)**	Amount: $0.00
6	**Total Project Cost**	$13,550,000
7	**Grant Funds, Sources and Uses of Project Funds (Detailed Budget)**	☒ The budget is attached separately. The file is named: **NCDOT7-2026-PROTECT-Attachment8-Detailed Budget.pdf**
8	**Does the project involve the construction of new capacity?**	☐ Yes ☒ No No new travel-lane/vehicular capacity is being added. The project adds hydraulic (waterway opening) capacity only, to convey floodwaters. Present capacity is adequate.

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 project addresses a critical transportation asset that faces recurring and documented flood risk from riverine flooding associated with Soules Swamp and inland flooding associated with hurricanes, tropical storms, nor'easters, and extreme rainfall events. Flooding has repeatedly affected Madison Street, Lee Street, Franklin Street, and the surrounding downtown business district during major events including Hurricane Matthew (2016), Hurricane Florence (2018), Tropical Storm Idalia (2023), multiple severe rainfall events (2023 and 2024), and coastal storm impacts in 2025. Instances of Downtown Whiteville Flooding between October 2016 and October 2025 are included below:

- In 2016, Hurricane Matthew flooded businesses in Whiteville's central business district. WECT identified J.S. Mann's and a Families First thrift store on Madison Street among the businesses that sustained water intrusion. It also documented damage at Colliers Jewelers downtown. Business representatives reported approximately eight inches of water inside J.S. Mann's, about one foot inside the thrift store, and more than two feet inside Colliers Jewelers. These are reported depths inside buildings, not surveyed street elevations.[2]
- In 2018, Hurricane Florence again flooded downtown Whiteville businesses. The National Weather Service reported that floodwater from Soules Swamp in southern Whiteville reached as far north as Columbus Street. It documented more than four feet of water inside some businesses.[3]
- PBS NC reported several feet of water in downtown Whiteville on September 16 and documented the subsequent cleanup. The NWS business depth is not a uniform depth across downtown roads.[4]
- A heavy rainfall event on December 17, 2023, left streets blocked and businesses affected on December 18. Columbus County News reported water inside Family Dollar, Southern Tire and Murf's Pawn on Madison Street. It listed Frazier, Lee, Virgil, College, Maultsby, Canal, Calhoun and Franklin streets as blocked. The article reported more than 18 inches of water on Frazier Street around 10 a.m. and a 7.5-foot Soules Swamp gauge reading around 9:30 a.m. The gauge stage is not a roadway inundation depth.[5]
- A coastal storm flooded downtown Whiteville in October 2025. WECT reported that South Madison Street remained heavily flooded on October 13. Columbus County News documented flooding in the 900 and 1000 blocks of Madison Street and reported several feet of water on Franklin Street between the railroad and Madison Street for much of that Monday. In an October 13 city road update reported by WECT, Madison

[2] https://www.wect.com/story/33360342/downtown-whiteville-businesses-deeply-damaged-by-flood-waters/
[3] https://www.weather.gov/ilm/hurricaneflorence
[4] https://www.weather.gov/ilm/hurricaneflorence
[5] https://columbuscountynews.com/2023/12/storm-brings-flooding-to-columbus/

and Franklin Streets had reopened, while portions of Lee Street, West Virgil Street, Caldis Street and West Main Street remained closed. This was a city street-status report, not a finding that every listed segment had the same flood depth. [6]

These events have resulted in roadway closures, business interruptions, property damage, and reduced access throughout downtown Whiteville. Without intervention, the roadway network is expected to experience flood-related closures approximately every five years over the next three decades.

The transportation network's vulnerability is amplified by the limited number of crossings of Soules Swamp within the Whiteville area. Madison Street is one of only two available north-south crossings, making the corridor particularly sensitive to disruption. Flood-related closures reduce the community's ability to maintain access to emergency response services, health care, employment centers, schools, businesses, and government services. This limited redundancy reduces the corridor's adaptive capacity and magnifies the consequences of recurring flood events. Roadway damage from flooding has cost the City of Whiteville significantly over the years. Hurricane Florence required over $265K in repairs and Hurricane Matthew resulted in $261K in repairs.

The proposed project directly addresses these vulnerabilities by increasing hydraulic conveyance through replacement of the existing Madison Street crossing, construction of a new bridge opening at Lee Street, drainage improvements, roadway-profile modifications, and associated flood-mitigation measures. Hydraulic modeling utilizing FEMA's decoupled fluvial methodology demonstrates measurable reductions in flood elevations and inundation extents throughout the project area. These improvements will substantially reduce roadway overtopping and flood-related disruptions during frequently occurring storm events while improving the transportation system's ability to withstand, recover from, and adapt to future flood conditions.

The **attached BCA** quantified the transportation and infrastructure impacts of recurring flooding along the Madison Street corridor. Under existing conditions, roadway closures are estimated at approximately 10 hours during 25-year flood events, 12 hours during 50-year events, and 18 hours during 100-year events. The proposed project is expected to eliminate modeled roadway closures during the 25- and 50-year events, and it is expected to reduce closure duration during the 100-year event from 18 hours to 10 hours. Hydraulic modeling further indicates reductions in flood elevations ranging from approximately 0.82 to 0.99 feet during the 50-year event and 0.49 to 0.64 feet during the 100-year event. The BCA also estimates $578,807 in discounted avoided flood-related maintenance and repair costs over the analysis period. Project inundation mapping also indicates flood-relief benefits to dozens of properties, including 26 active businesses located within the downtown area.

[6] https://www.wect.com/2025/10/13/whiteville-begins-assessing-damage-after-noreaster-floods-streets-businesses/

Criterion #2: Criticality to American Families and Communities

US 701 Business (Madison Street) is the primary north-south route through downtown Whiteville and carries approximately 12,500 vehicles per day. The corridor supports daily travel for residents, employers, schools, local freight movement, on-demand transit service, pedestrians, and emergency responders. It serves as a critical connection between the northern and southern portions of Whiteville and provides direct access to downtown businesses, public facilities, government offices, and community services.

The project is particularly important for emergency access and public safety. Police, Fire, Highway Patrol, and Emergency Medical Services facilities are located north of Soules Swamp, while residents and businesses south of the swamp depend on reliable roadway access during routine operations and emergency situations. Madison Street also provides one of the most direct routes between southern Whiteville and Columbus Regional Healthcare, the only hospital located within Columbus County. Flood-related closures force emergency vehicles and the traveling public onto significantly longer routes, delaying critical response times and reducing transportation reliability.

The economic consequences of recurring flooding extend beyond transportation disruptions. Flooding has repeatedly affected downtown businesses and commercial properties, interrupting operations and damaging inventory and facilities. Following Hurricane Matthew in October 2016, several downtown businesses sustained significant flood damage, including Colliers Jewelers who reported more than two feet of interior flooding. Project inundation mapping indicates that the proposed improvements would provide flood relief to dozens of properties, including 26 businesses located within the downtown area. By reducing flood frequency, duration, and severity, the project will help preserve economic activity, maintain access to employment and services, and support continued investment in Whiteville's downtown business district.

When flooding occurs, north-south traffic is diverted to the US 701 Bypass approximately 1.5 miles away. During greater flood events, available alternate routes may extend approximately 20 miles via SR 1004 and NC 410. The proposed project will improve reliability of one of Whiteville's most important transportation connections, reducing vulnerability to network-wide disruptions and strengthening community resilience during future storm events.

The **BCA** demonstrates the critical role of this corridor in maintaining community connectivity during severe weather events. US 701 Business carries approximately 12,500 vehicles per day and serves as one of only two crossings of Soules Swamp within Whiteville. During flood events, roadway closures force travelers onto detours that add approximately 0.35 miles per trip during the 25- and 50-year flood events and approximately 22.79 miles per trip the 100-year flood events. By eliminating modeled closures during the 25- and 50-year events and reducing closure duration during the 100-year event, the project improves access reliability for residents, emergency responders, school transportation, local freight movement, and travelers accessing Columbus Regional Healthcare. The BCA quantified travel time savings, vehicle operating cost savings, safety benefits, and avoided flood-repair costs associated with maintaining corridor availability during storm events. These quantified benefits are in addition

to significant qualitative benefits related to uninterrupted emergency response, business continuity, and access to essential community services.

Criterion #3: Design Elements, including Addressing Core Infrastructure

The project incorporates resilience-focused design elements intended to improve transportation system performance over a projected 75-year service life. The proposed improvements include replacement of the existing Madison Street bridge, construction of a new bridge opening along Lee Street, roadway-profile modifications, drainage-system improvements, riprap and scour-protection measures, utility coordination, erosion-control measures, and installation of a continuous concrete pedestrian sidewalk across the project area. Together, these improvements will significantly increase hydraulic conveyance capacity and reduce roadway overtopping during storm events.

Project development is being guided by a calibrated two-dimensional hydraulic model utilizing FEMA's decoupled fluvial methodology and evaluating 25-, 50-, 100-, and 500-year storm events. The resulting analysis provides an evidence-based framework for determining roadway elevations, bridge openings, hydraulic countermeasures, and drainage improvements needed to reduce future flood risk. The analysis identified a preferred alternative consisting of the replacement of the Madison Street crossing in combination with a new Lee Street opening, which provided the greatest overall flood-reduction benefits within the study area.

The need for infrastructure improvements is evidenced by recurring flooding along the Madison Street corridor. During a heavy rainfall event in August 2023, portions of Madison Street in the downtown area were blocked, and traffic controls were extended through downtown to prevent wake that could cause additional damage to downtown businesses. This example of disruption highlights how increasingly frequent and intense rainfall events can disrupt mobility, and demonstrates the importance of infrastructure improvements that will maintain transportation system functionality/reliability.

The proposed improvements will strengthen both transportation resilience and user safety. Reconstructed approaches will provide more predictable roadway operations. Signage, pavement markings, guardrails, and other elements will be designed in accordance with the Manual on Uniform Traffic Control Devices and current NCDOT standards. Improved reliability and clearer roadway guidance will benefit families, caregivers, older drivers, persons with disabilities, school transportation, and emergency vehicles by reducing reliance on long, unfamiliar detour routes. The project will replace aging infrastructure, improve drainage performance, reduce flood exposure, address slope-protection concerns, and improve pedestrian accommodation with a continuous ADA-accessible concrete sidewalk. The current pedestrian accommodation consists of a concrete sidewalk along the west side of Madison Street to the existing structure, and a sidewalk on the structure itself. Beyond the existing structure, pedestrians are accommodated via an aging wooden walkway. However, the current pedestrian accommodations are closed due to poor conditions. The NCDOT will maintain the improved infrastructure in accordance with established bridge inspection, maintenance,

preservation, and asset-management practices, supporting long-term infrastructure performance and reliability.

The selected project configuration was informed by hydraulic modeling and economic analysis evaluating future flood conditions. The preferred alternative, consisting of replacement of the existing Madison Street bridge, construction of a new Lee Street flood-relief opening, roadway-grade modifications, and drainage improvements, demonstrated the greatest overall flood-reduction benefit among the alternatives evaluated. The **attached BCA** estimates approximately $578,807 in discounted avoided flood-related maintenance and repair costs and $462,674 in discounted residual asset value, reflecting the long-term infrastructure value of the proposed design. Model results indicating elimination of roadway closures during the 25- and 50-year events and reduced closures during the 100-year event directly informed the selection of bridge-opening sizes, roadway elevations, drainage improvements, and associated resilience features included in the project.

Criterion #4: Innovation

Innovation Through Bridge Bundling, Accelerated Delivery, and Advanced Resilience Design

The proposed project applies an innovative resilience-delivery approach by bundling multiple interconnected flood-mitigation improvements into a single coordinated project rather than addressing each crossing independently (Criterion 4(C)). The project combines replacement of the existing Madison Street bridge, construction of a new Lee Street flood-relief opening, roadway-grade modifications, drainage improvements, addition of a stream gauge, and associated resilience measures into one comprehensive investment designed to maximize system-wide flood-reduction benefits. By evaluating the corridor as an integrated hydraulic system rather than as individual assets, NCDOT can achieve greater resilience outcomes, reduce future construction disruptions, and improve the overall return on public investment.

The project also creates an opportunity for innovative project delivery through a potential design-build procurement approach (Criterion 4(C)). If selected, design-build delivery would allow design and construction activities to advance concurrently, improving coordination between hydraulic design, bridge engineering, roadway improvements, utilities, constructability reviews, and environmental commitments. This approach has the potential to accelerate project implementation, reduce procurement timelines, improve cost control, and facilitate earlier delivery of resilience benefits to the community. Design-build delivery would also provide flexibility for contractors and designers to optimize construction sequencing and minimize disruptions to businesses, emergency responders, school transportation, and the traveling public while maintaining compliance with all Federal requirements.

The need for a comprehensive solution is demonstrated by the recurring flooding throughout the Madison Street corridor. Between 2016 and 2026, downtown Whiteville experienced documented flooding and transportation system disruptions from multiple hurricanes, tropical storms, and heavy rainfall events, including Hurricanes Matthew and Florence, Tropical Storm Idalia, and several non-tropical events. The frequency and variety of these events highlights the potential benefits of a project approach that bundles multiple improvements into a coordinated resilience effort.

In addition, project development is supported by advanced two-dimensional hydraulic modeling utilizing FEMA's decoupled fluvial methodology and evaluation of 25-, 50-, 100-, and 500-year storm events (Criterion 4(B)). This analytical approach enables NCDOT to evaluate multiple improvement alternatives, quantify flood-reduction benefits, identify localized hydraulic impacts, and prioritize investments that provide the greatest resilience benefit for surrounding transportation infrastructure and adjacent properties. The combination of bridge bundling, accelerated delivery strategies, and advanced resilience analytics represents a forward-looking approach that can inform future flood-resilience projects across North Carolina.

Innovation Through Advanced Resilience Analytics and Decision Support

The proposed Madison Street Bridge improvements will build upon North Carolina's ongoing investment in next-generation resilience planning tools developed through the NC STRONG initiative. Through statewide advancements in flood forecasting, transportation vulnerability

assessment, and risk-based infrastructure planning, NCDOT is creating a data-driven framework for identifying, evaluating, and prioritizing resilience investments. The Madison Street Bridge project will benefit from these innovative capabilities by incorporating improved flood-risk analytics, transportation system vulnerability information, and predictive modeling tools into project development and design decision-making. Additionally, the 2D hydraulic modeling of the project area applies FEMA's newer decoupled fluvial methodology, separating riverine and rain-on-grid flooding for a more precise basis of design. By integrating locally identified flooding concerns with statewide resilience datasets and forecasting technologies, NCDOT can develop a more durable, future-ready solution that addresses both current flood hazards and evolving climate risks. This approach moves beyond traditional infrastructure replacement by using advanced analytical tools to optimize resilience outcomes, improve transportation reliability, and maximize the long-term return on public investment.

The **attached BCA analysis** provides measurable performance indicators that can be used to evaluate the bundled design and advanced hydraulic analysis: elimination of modeled closures during the 25- and 50-year events, an eight-hour reduction in the 100-year-event closure, reduced expected detour mileage and travel time, approximately $578,807 in discounted avoided repair costs, and approximately $462,674 in discounted residual value over the analysis period. These outcomes connect the integrated bridge, roadway, drainage, monitoring, and pedestrian improvements to resilience, reliability, and lifecycle performance.

IV. Project Readiness

Readiness: Technical Assessment

Resources to Deliver the Project

NCDOT will serve as the direct recipient, project owner, contracting agency, and construction administrator for the project. NCDOT will provide the experience and resources needed to effectively deliver the project. NCDOT Division 6 and the NCDOT Bridge Program have advanced the project beyond a conceptual need statement, establishing a technically defined project that can proceed into environmental review, geotechnical investigation, final hydraulic analysis, survey, and final design.

The mission of the NCDOT is "Connecting people, products and places safely and efficiently with customer focus, accountability and environmental sensitivity to enhance the economy and vitality of North Carolina." (North Carolina Department of Transportation, 2025) The NCDOT is overseen by the North Carolina Board of Transportation, which is charged with setting statewide policies and procedures as well as the distribution of funding. NCDOT's State Fiscal Year 2025 Revenue is $8,260,000,000 with 75 percent coming from state revenue sources (including motor fuel tax, DMV fees, and highway use tax on vehicle title transfers) and 25 percent from federal funding sources (North Carolina Department of Transportation, 2025). Even with investments like the proposed project, NCDOT has a backlog of project needs. The current North Carolina Statewide Transportation Plan identified a 37% funding gap to maintain the system, which grows to 50% to improve the system.

The NCDOT receives and manages Federal Highway Administration (FHWA) and some Federal Transit Administration (FTA) funding In accordance with federal legislation, NCDOT has a regularly updated State Transportation Improvement Program (STIP) that documents the scheduling and funding of projects statewide. The STIP covers a rolling 10-year horizon, with the first five years referred to as the delivery STIP and the second five years as the developmental STIP.

NCDOT will be responsible for managing, delivering, and reporting on all project work. NCDOT has the staff, experience, and established processes and policies to deliver projects of this scale. NCDOT has a proven track record of successfully administering federally-funded infrastructure and resilience projects; NCDOT is currently executing two projects awarded funds through the PROTECT grant program: improvements to US 74 at the Lumber River and a planning grant focused on NC 12 in Dare County. NCDOT is experienced at delivering federally-funded projects on time and within budget with all needed regulatory approvals.

Compliance with Federal Requirements
NCDOT will deliver the project in accordance with applicable Title 23 and Federal-aid requirements, including NEPA, applicable environmental permits, Buy America/Build America Buy America, competitive procurement, civil-rights requirements, and 2 CFR Part 200. The preliminary estimate includes survey, environmental and permitting, geotechnical work, design, construction engineering and inspection, traffic control, erosion control, and utility relocation, indicating that major delivery disciplines have been identified.

NCDOT routinely administers Federal-aid highway projects and has established procedures for procurement, consultant and contractor oversight, invoice review, change-order management, quality assurance, progress reporting, and grant closeout. Recent examples include: $25M in Wildlife Crossing (FY2024-2025), $110M for MEGA (FY2022), $100M for INFRA (FY2022), $3.6M in PROTECT grants (FY2023). NCDOT is also administering two NSLFTP grants $45M and $21.4M (FY2024 and FY2023, respectively).

Timely Project Delivery
The schedule for the project has been developed using NCDOT's Project Delivery Network as well as NCDOT's previous experience with the design-build project delivery method, helping account for potential contingencies including schedule impacts and supply chain disruptions. NCDOT also applies its Risk Management program for project delivery, which provides Project Managers with tools to assess projects from before initiation through completion. Tools as outlined in the Program guide and help develop plans for coordination, and team awareness as it relates to project objectives and mitigation should issues arise.

The schedule sets preliminary engineering to March–June 2027, design to June 2027–June 2028, environmental activities to March–June 2028, right-of-way and utility activities to June–December 2028, and construction to February 2029–August 2030. Existing systems, data, technical expertise, and contractual capabilities reduce start-up requirements and support timely initiation following award. The schedule provides for completion of project activities

within the proposed period of performance and obligation of PROTECT funds within the applicable Federal deadline.

Technical Feasibility
The hydraulic analysis evaluated multiple structural alternatives using FEMA's decoupled fluvial methodology and 25-, 50-, 100-, and 500-year inline hydrographs developed from the calibrated model. The analysis identifies the existing bridge plus an additional opening and Lee Street grade modification as the alternative providing the greatest flood-mitigation benefit to adjacent properties. Modeling shows the concept would reduce roadway overtopping and substantially reduce inundation in the project area, with the greatest benefits during the 25- and 50-year events; reductions during the 100-year event are more limited. The analysis also identifies localized downstream water-surface increases, which must be addressed and documented through final hydraulic design and permitting. The 2026 bridge inspection rated the deck, superstructure, and substructure 6 and documented cracking, spalling, railing distortion, sidewalk settlement, and slope-protection concerns. The proposed work is therefore a resilience improvement to an operating asset rather than an improvement for a immediate structural deficiency.

The technical analysis links the preliminary design directly to quantified performance. NCDOT's flood-closure worksheet estimates existing closures of 10, 12, and 18 hours for the 25-, 50-, and 100-year events, respectively. As noted in the **attached BCA analysis**, this project reduces these to zero, zero, and 10 hours. Hydraulic modeling indicates water-surface reductions of approximately 0.82 to 0.99 feet for the 50-year event and 0.49 to 0.64 feet for the 100-year event. These parameters provide a defined basis for final design, permitting, construction sequencing, and subsequent performance monitoring.

Readiness: Financial Completeness Assessment

Reasonable and Necessary Project Costs
The project’s estimated total cost is $13,550,000. NCDOT will provide $2,700,000 as the non-federal share and requests $10,840,000 in PROTECT funding investment. This represents a funding split of 20% NCDOT and 80% federal.

The project budget is based on the anticipated level of effort and costs necessary to complete the proposed activities. Costs are tied to defined project tasks and are detailed in the **attached Budget**. The structure estimate was prepared by the NCDOT Bridge Program using quantities for the replacement and new cored-slab structures and unit prices from recent NCDOT bid tabs. The Lee Street estimate was prepared by NCDOT Division 6 using quantities from the preliminary typical section and recent 2025-2026 Division 6 bid prices. The component estimates include construction, engineering, construction engineering and inspection, traffic control, erosion control, utility relocation, and other items necessary to deliver the proposed scope.

With NCDOT’s experience delivering similar projects, the organization’s detailed Project Delivery Network, and history of successfully administering and managing federally funded infrastructure projects, NCDOT has the proficiency necessary to complete all aspects

Complete Funding Package
The proposed project has an estimated total cost of $13.5 million. NCDOT is requesting $10.8 million in PROTECT funding and will provide the required $2.7 million non-Federal matching share. The non-Federal contribution will be provided through NCDOT funding sources identified in the **attached Letter of Financial Commitment**. Upon award, the project will have a complete funding package sufficient to advance the project through final design, permitting, right-of-way activities, utility coordination, and construction. A letter documenting NCDOT's commitment to providing the required non-Federal share is included as an attachment to the application.

Plan for Potential Cost Overruns
The current cost estimate includes $3,000,000 in contingency, equivalent to approximately 10 percent of the estimated base construction cost. This contingency provides the capacity to address reasonable changes in quantities, market conditions, and construction-related risks. NCDOT will update quantities and unit costs at key design milestones. The contingency level is consistent with budgeting/risk management at this stage of project development/delivery.

Potential cost increases will be managed through contingency allowances, regular estimate updates, and application of our proven project management approaches.

Future Inspection, Maintenance, and Preservation
NCDOT owns and maintains Structure 230003 and is identified as the maintenance-responsible agency in the inspection record. The project will be maintained in accordance with NCDOT State Asset Management Unit’s Comprehensive Maintenance Strategy. This includes the following approach to asset management. This includes the following activities:

- Maintenance: Regular spot repairs will be conducted, including vegetation removal, cleaning, and standard component repairs, so minor problems do not escalate. A biennial inspection will be incorporated to spot early signs of wear and tear.
- Preservation: The bridges will undergo periodic repainting and waterproofing. Additionally, the sealing or replacement of expansion joints will be carried out as required to preserve the bridges’ integrity.
- Rehabilitation: Deck and expansion joint replacements will be scheduled as necessary based on the findings from regular inspections. Scour remediation will be attended to, ensuring the bridges’ foundation remains solid.
- Reconstruction: While not immediately required, provisions will be made for potential future reconstruction elements, such as the full replacement of the deck, superstructure, or substructure as the bridges age over time.

Development-Phase Limitation
The project’s development-phase cost is estimated at $1,785,000, representing 13 percent of the total project cost. NCDOT will cover PE over 10% of the budget at 100% non-federal share, ensuring no more than 10 percent of the PROTECT award is used for development-phase activities.

Readiness: Permitting Risk Assessment
Environmental Review and Right-of-Way NCDOT routinely delivers federally funded transportation projects under established FHWA-NCDOT environmental review procedures. The project is anticipated to advance as a Categorical Exclusion (CE) and will be processed in accordance with NCDOT's environmental review procedures and applicable FHWA-NCDOT CE agreements. NCDOT's extensive experience delivering CE-level transportation projects supports efficient completion of environmental review, permitting, and project development activities. **Permits and Submerged-Land Authorization** Madison Street work would not increase the existing roadway-fill footprint. The preliminary Lee Street concept may create a limited wetland encroachment of less than approximately 5 feet. Hydraulic modeling indicates no modeled upstream rise cited by NCDOT, while the progress analysis identifies localized downstream increases of up to approximately 0.25 foot in the 50-year event and approximately 0.15 foot in the 100-year event near the new opening. Most right-of-way is owned by the City of Whiteville and is anticipated to be donated. The remaining ROW is owned by two separate private owners. The project budget has accounted for the purchase of that ROW. **Public Engagement and Unmitigated Risks** NCDOT recognizes the importance of coordination with local governments, emergency-response agencies, businesses, and community stakeholders throughout project development and delivery as outlined in NC's Statewide Public Involvement Plan[7]. Public engagement activities will be conducted during environmental review, preliminary design, and final design to inform stakeholders of project benefits, construction activities, potential traffic impacts, and project schedules. Special emphasis will be placed on coordinating with downtown businesses, property owners, emergency-response providers, and local government agencies because of the corridor's importance to community access and economic activity. Feedback received during public involvement activities will be considered as project design advances. At this time, NCDOT is not aware of any unresolved public controversy, pending litigation, or agency opposition that would materially affect project delivery.

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

[7] NCDOT Statewide Public Involvement Plan.pdf

☐ 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:

High-Risk Vulnerability and Consequences
The project addresses recurring flood vulnerability affecting US 701 Business (Madison Street), Lee Street, and Franklin Street at Soules Swamp. Without the project, these streets will continue to flood during events meeting or exceeding the 25-year event. The proposed additional bridge opening and Lee Street grade modification are modeled to eliminate or substantially reduce inundation during the 25- and 50-year events and reduce the extent of flooding during the 100-year event.

Flooding affects the primary downtown crossing of Soules Swamp and threatens reliable access between north and south Whiteville. Police, fire, EMS, and Highway Patrol facilities are located north of the swamp, while residents and businesses south of the swamp depend on the crossing for emergency response and access to Columbus Regional Healthcare. The project would also provide flood relief to dozens of properties, including 26 active businesses, supporting continued economic activity and redevelopment potential.

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:

Economic Prosperity and Community Continuity

The project would reduce recurring flood disruption to downtown Whiteville, where modeled benefits extend to dozens of properties and 26 active businesses. Whiteville is the county seat of Columbus County, which NC classifies as a Tier 1 county, the state's most economically distressed designation. Tier 1 counties are identified based on unemployment, median household income, population growth, and property tax base. Recent census-based data indicate that Whiteville's poverty rate is approximately 20.7%. This exceeds both the North Carolina poverty rate of 13% and the U.S. poverty rate of 12.5%. Nearly 27% of seniors in Whiteville are below the poverty line. Whiteville reports a median household income of approximately $31,167, substantially below Columbus County: approximately $49,442, North Carolina: approximately $72,388, and the United States: approximately $80,734.

By improving the reliability of Madison Street, Lee Street, and Franklin Street, the project would support continued business operations, access to employment and services, and redevelopment of properties facing a reduced flood threat.

Condition And Safety of Existing Infrastructure

The project reinvests in an existing State-maintained bridge and roadway network. Structure 230003 was built in 1961 and received condition ratings of 6 for the deck, superstructure, and substructure in the July 2026 inspection. The inspection documented cracking, spalling, railing distortion, sidewalk settlement, and slope-protection concerns. The project will replace the existing structure, add hydraulic opening, improve roadway grades and drainage, provide riprap slope protection, and replace the aging wooden pedestrian walkway with a continuous 5-foot concrete sidewalk.

Emergency Access and Resilience

The city of Whiteville is separated by two halves by Soules Swamp. The only two crossings of this swamp within the City’s ETJ are US 701 Business (Madison Street) and US 701 Bypass (JK Powell). Highway Patrol, Police, Fire, and EMS are all located on the north side of Soules Swamp meaning the ability to cross the swamp in service to the residents and businesses on the south side of Whiteville and adjacent areas (such as Brunswick) is critical. For police and fire, the most expeditious route is to use the Madison Street Bridge while EMS and Highway Patrol tend to use US 701 Bypass. In addition, the only hospital located within the county (Columbus Regional Healthcare) is located northeast of this area. Using Madison Street to Franklin Street to Jefferson Street is the most expedient route for residents in south Whiteville, particularly during times of heavy seasonal traffic on US 701 Bypass. Reducing roadway overtopping and flood-related closures will improve the reliability of this connection during severe weather.

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 *Completing a BCA* 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 not prioritized in a RIP. A BCA is attached. ☐ The applicant requests Resilience Improvement Grant funding, and the project is 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 *Completing a BCA* 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.