



## VI. PROJECT READINESS

### PROJECT DESCRIPTION

The North Carolina Department of Transportation (NCDOT) seeks \$156 million in Multimodal Project Discretionary Grant (MPDG), INFRA or Mega, funds to maintain the project schedule for the shovel ready 321 CONNECT (Calibrating Our National Network to Encourage Commerce and Tourism) project between Gastonia and Lenoir, North Carolina. The funding will allow NCDOT to move forward with 2024 - 2033 State Transportation Improvement Program (STIP) project U-4700. Due to costs, the project has been split into multiple construction phases. U-4700A will improve US 321 from US 70 to US 321 Business in Hickory and is the only funded phase in the current STIP. MPDG funds will allow for the construction of NCDOT STIP project U-4700A, which has already been delayed due to escalating materials costs, to move forward. MPDG funding will allow NCDOT to construct critically needed improvements to US 321 in this western Piedmont area, including the replacement of two aging, functionally obsolete bridges over the Catawba River. MPDG funding will also allow the installation of broadband from Gastonia in Gaston County to Lenoir in Caldwell County, addressing critical educational and commercial needs.

### ENVIRONMENTAL RISKS

The 321 CONNECT project can begin construction within the designated timelines for the INFRA program. The Environmental Assessment for U-4700 was finalized in February 2016 and the FONSI was completed in Fall 2017. Final Designs were completed in 2018 and included hydraulic analysis, traffic work, hazardous material site assessments and geotechnical investigations. Partial right of way (ROW) acquisition was initiated in 2019. Construction costs for the project were updated in January 2023. The current schedule for construction of U-4700A is 2026.

Broadband installation for 321 CONNECT can be processed through a Categorical Exclusion and the vast majority of the work will be within existing NCDOT ROW. NCDOT has extensive experience in moving through the environmental documentation, permitting

(if needed) and construction process on multiple broadband installation projects.

U-4700 participated in NCDOT's NEPA/Section 404 Merger Process. Under this process, NCDOT meets with resource agency representatives at key points during project development to reach concurrence on:

- Purpose and Need and Study Area Defined
- Detailed Study Alternatives Carried Forward
- Bridging Decisions and Alignment Review
- Least Environmentally Damaging Practicable Alternative
- Avoidance and Minimization Measures
- Hydraulic Design Review
- Permit Drawing Review

The Merger Process is designed to provide increased coordination with the goal of expediting permitting. No outstanding concerns have been identified that could impact project permitting. NCDOT has developed a project commitments dashboard which ensures that commitments made during project development are tracked and followed during and after construction.

As discussed in the Requirements document, NCDOT has developed a comprehensive schedule for 321 CONNECT. The Department is confident not only of initiating construction activities within 18 months of funding obligation, but also of delivering this complex project completely in FY 2030.

### TECHNICAL CAPACITY

NCDOT has a long history of successful project delivery. The final roadway designs are included in the application as [supplemental materials](#). The financial plan, as discussed in Requirement V, is in place. NCDOT has successfully delivered many USDOT grant projects and is in the process of finalizing contracts for the I-85 FUTURES and STERLING projects, which were awarded MPDG funds in 2023. The Department is in the process of completing multiple large-scale projects including the federal major project I-26 Widening (STIP Projects I-4400/I-4700). NCDOT has the project experience, delivery capacity and PEF and contracting staff to take on this important assignment.



CAPITAL COSTS	\$265,445,000
PROJECT COSTS (NPV 2021)	\$156,456,544
TOTAL NET BENEFIT	\$443,487,245
TOTAL NET BENEFIT (NPV 2021)	\$239,299,697
BENEFIT-COST RATIO	1.53

### TECHNICAL REQUIREMENTS

As detailed in the technical requirements section of this application, the 321 CONNECT project meets all of the statutory selection requirements for the INFRA and Mega programs, including:

- **Generates national and regional economic, mobility, and safety benefits.** US 321 CONNECT will improve US 321, which is part of the National Highway System and is classified as a North Carolina Strategic Transportation Corridor (Corridor D). Corridor D connects I-85 and I-40 to northwestern North Carolina (the Boone area and points north and west). The facility is an important freight and tourism corridor.
- **Is cost effective.** As shown by the project benefits/cost ratio, the project’s benefits substantially exceed the expenditure of funds. Please refer to the BCA information for greater detail.
- **Contributes to all of the Section 150 goals:**
  - **Safety:** 321 CONNECT will improve safety and reduce fatalities for both vehicles as well as bicyclists and pedestrians.
  - **Infrastructure condition:** 321 CONNECT will replace structurally deficient bridges with new structures that fully meet current design standards and are anticipated to require minimal maintenance for the next 50 years. In addition, the proposed ITS installation provided by 321 CONNECT is designed to accommodate the future needs of automated/connected vehicles without the need for costly upgrades. The project will also install badly needed drainage improvements.
- **Congestion reduction:** Based on the National Transportation Dashboard Mobility Indicator, the 219 miles of National Highway System roadways in the Hickory Urban Area experienced 1,356 hours of truck delay in 2022. The dashboard estimates that in 2022, the cost of congestion for the Hickory Urban area was over \$21.8 million. It is anticipated that 321 CONNECT will improve level of service for US 321 through the project corridor.
- **System reliability:** 321 CONNECT will provide up-to-date infrastructure and reduce system congestion, allowing the traveling public to have a more reliable transportation network.
- **Freight movement and environmental stability:** 321 CONNECT will construct more sustainable bridges over the Catawba River, will install a flood gauge on Frye Creek, and upgrade drainage structures along the US 321 corridor. NCDOT Divisions 11 and 12 encourage the use of recycled asphalt, recycled concrete as aggregate material, and warm mix asphalt as appropriate. As noted in Infrastructure Condition, the project will update drainage infrastructure along the facility, preparing the corridor.
- **Reduced project delivery delays:** Funding 321 CONNECT will ensure NCDOT can deliver the U-4700A project as scheduled, as the risk of delay due to escalating materials costs will be mitigated.
- **Has completed preliminary engineering and NEPA documentation.** The 321 CONNECT project can begin construction within the designated timelines for the INFRA program. The Environmental Assessment for U-4700 was finalized in February 2016 and the FONSI was completed in Fall 2017. ROW designs were completed in 2018 and included hydraulic and utility design, work zone traffic control, hazardous material site assessments, and geotechnical investigations. Partial right of way (ROW)



acquisition was initiated in 2019. Construction costs for the project were updated in January 2023. Construction Let (contract award) for U-4700A is programmed for 2026.

Broadband installation for 321 CONNECT can be processed through a Categorical Exclusion and the vast majority of the work will be within existing NCDOT ROW. NCDOT has extensive experience in moving through the environmental documentation, permitting (if needed) and construction process on multiple broadband installation projects.

It should also be noted NCDOT has worked

extensively with resource agencies to ensure the project can be rapidly permitted. For example, because the northbound bridge over the Catawba River will be maintained and converted to a bicycle pedestrian facility, NCDOT has agreed that the replacement bridges will match the current span dimensions in the river. While this increases the overall cost of the project, it will ensure a consistent pier spacing that will match boater expectations as they cross under the three bridges.

- **Has a budget that includes stable funding sources and contingencies.** Project U-4700A is included in the current NCDOT STIP.

TABLE 2. 321 CONNECT Future Eligible Costs				
ITEM	STATE FUNDS	OTHER FEDERAL FUNDS	MPDG FUNDS	TOTAL FUNDS
<b>U-4700A</b>				
Roadway	\$26,000,359	\$27,055,590	\$75,981,956	\$129,038,000
Structures	\$17,674,251	\$17,711,796	\$52,329,986	\$87,716,000
Contingency (16%)	\$7,001,109	\$7,015,981	\$20,728,909	\$34,746,000
Total	\$50,675,719	\$51,783,368	\$147,040,852	\$251,500,000
<b>Flood Gauge</b>	\$22,500		\$22,500	\$45,000
<b>Broadband &amp; ITS Installation</b>				
Fiber	\$3,891,280		\$3,891,280	\$7,782,560
DMS	\$600,000		\$600,000	\$1,200,000
Cameras	\$275,000		\$275,000	\$550,000
5-Year O&M Costs	\$495,808		\$485,808	\$991,616
Program Costs	\$789,313		\$789,313	\$1,578,626
Contingency (15%)	\$907,710		\$907,710	\$1,815,420
Total	\$6,959,111		\$6,959,111	\$13,963,222
<b>Combined Total</b>	<b>\$57,657,330</b>	<b>\$51,783,368</b>	<b>\$156,000,000</b>	<b>\$265,463,160</b>



ROW purchased to date have utilized GARVEE bond funding. As noted in the Project Budget, contingencies are provided for both the roadway and broadband components of the project.

- **Has a defined need** for both the 321 CONNECT construction of U-4700A (to ensure project can be constructed as currently scheduled) as well as the broadband component, which cannot move forward without MPDG funding. 321 CONNECT would significantly advance the construction timeline of U-4700A. Costs have continually risen for the project based on materials costs as well as site constraints for ROW in Hickory, replacement of a Norfolk Southern railroad bridge over US 321, the costs of the grade separation over the Caldwell County Railroad (CWCY) line just south of the Catawba River, and the need to replace both bridges over the Catawba River. Any advancement of the project will provide the benefits described more quickly and will reduce maintenance needs for the bridges and other parts of the corridor.

In addition, without MPDG funding, the proposed ITS and broadband installation cannot proceed. Pushing off these necessary improvements will not only delay immediate safety improvements, it will ensure that the ultimate needed upgrades of the US 321 corridor to implement automated/connected vehicle infrastructure will be even more costly.

- **Can begin construction within 18 months of funding obligation.** The 321 CONNECT project has completed ROW design and is ready to finalize ROW acquisition and permitting. Construction will begin within the allotted timeline.

TABLE 3. PROJECT SCHEDULE	
Month 0	MPDG Funding Obligated
<b>U-4700A</b>	
Month 6	Permitting Complete
Month 12	Letting Complete
Month 16	Construction Initiation
Year 6	Construction Completion
<b>Broadband ITS</b>	
Month 6	Documentation/Permitting
Month 12	ITS Letting
Year 3	ITS Completion

- **NCDOT has the legal, financial, and technical capability to carry out the project.** NCDOT has a long history of successful project delivery. The ROW plans are included in the application as [supplemental materials](#). The financial plan, as discussed in Requirement V, is in place. NEPA documentation is complete and the risks of the project are clearly defined and have been mitigated. NCDOT has successfully delivered many USDOT grant projects and is in the process of finalizing contracts for the I-85 FUTURES and STERLING projects, which were awarded MPDG funds in 2023.



- **Includes a data collection plan if selected as a Mega project.** The proposed data collection plan is included in the application. If selected for a Mega award, NCDOT will provide detailed information throughout the life of the grant on the project costs, the progress of the proposed broadband and ITS installation, and the integration of the project with the Hickory Trail network. In addition, the following information will be gathered and reported:

#### *Measure — Travel Time Savings*

- **Description:** Travel time savings for traffic measured during daily peak and off-peak traffic
- **Outcome Criterion:** Quality of Life
- **Measurement Frequency:** Quarterly
- **Measurement Location:** US 321 at US 70 to US 321 at Business 321 intersection
- **Projected Outcome:** Improved travel times

#### *Measure — Bridge Condition Rating*

- **Description:** The condition report of the bridges based on Bridge Inspection Reports
- **Outcome Criterion:** State of Good Repair
- **Measurement Frequency:** Biennial
- **Measurement Location:** US 321 northbound and southbound bridges over the Catawba River
- **Project Outcome:** Structures that are not rated as structurally deficient or functionally obsolete.

Supplemental Materials can be found on the [321 CONNECT website](#).