

Table of Contents

I. Project Description	1
Transportation Challenge.....	2
II. Project Location	2
III. Grant Funds, Sources and Uses of all Project Funding	4
IV. Selection Criteria	5
Primary Selection Criteria	6
Secondary Selection Criteria	8
Partnership	8
V. Project Readiness	9
Technical Feasibility.....	10
Project Schedule	10
Required Approvals	10
VI. Benefit Cost Analysis	11

List of Tables

Table 1: Estimated Non-Base Traffic Using Adjacent Roads (2019).....	2
Table 2: Summary of Urban and Rural Project Spending	4
Table 3: Sources and Uses of Funds for the iBRAGG Program (2019 \$ Million).....	5
Table 4: Evaluation Criteria Narrative Matrix.....	5
Table 5: NCDOT Project Delivery Performance.....	11
Table 6: Total Project Benefit Cost Analysis Results.....	13

List of Figures

Figure 1: Roads to be Transferred to NCDOT and Project Match	3
Figure 2: Examples of Road Conditions Around.....	6
Figure 3: Opportunity Zones in Project Vicinity	7
Figure 4: Consolidated Project Schedule Timeline	10

Application Information

Supplemental Materials are available online at: <https://connect.ncdot.gov/resources/BUILD2019-FB/Pages/default.aspx>

Contact Name: Steven Hulsey, PE

E-mail: shulsey@ncdot.gov

Telephone: 919 707 6634

Project Type: Capital Grant Request, Highway/Road, Rural

DUNS Number: 788142946

I. Project Description

The *improving Bragg Roads and Access for Greater Growth* Project (“iBRAGG” or “the Project” hereafter) will facilitate the rationalization of roadway maintenance in the vicinity of Fort Bragg, yielding long-term savings and improved safety and design for all travelers in the vicinity of Fort Bragg. The iBRAGG Project will reconstruct a set of roads located on the military reservation, but outside the gates of the secure area to bring them back to a state of good repair. (See Figure 1 in the Project Location section of this application) These roads were originally constructed by the military staff posted at the Fort and were intended for training use; in their current state, they do not meet North Carolina Department of Transportation (NCDOT) design specifications.

Upon confirmation that the roads have been repaired, they will be transferred to NCDOT for operation and maintenance, according to a Memorandum of Agreement signed by The U.S. Army Garrison (USAG) Fort Bragg North Carolina and the NCDOT. As part of the agreement, Fort Bragg will petition the NCDOT to add the roads to the State Highway System. This addition will be accomplished in accordance with NCDOT road addition procedures, which includes approval by the NCDOT Board of Transportation. Bringing the roads into a state of good repair is consistent with current state standards and is a condition of making the transfer.

The nation’s Global Response Force (GRF) is built for rapid response to unforeseen or, more specifically, unplanned operations. Selected Army airborne forces provide a large portion of the GRF, many of which are based at the Fort. Fort Bragg is home to the 82nd Airborne Division's 1st Brigade Combat Team (BCT) that is a nucleus of the GRF and the Army’s Special Forces team. As their GRF assignments are typically responses to suddenly manifested threats, longer term planning and mission-focused training exercises are rarely applied to prepare for GRF operations. These are highly trained military forces whose preparation for GRF assignments entails regularly implemented realistic exercises and habitual planning. The Fort Bragg BCT forces that support the GRF mission are “on-call” 24/7 and must remain ready to deploy within 18 hours. Training exercises recreate this scenario. As a result, travel movements around the Fort are a mix of: daily commuting to on-base

Project Eligibility

The iBRAGG Project will improve the road system surrounding Fort Bragg, which hosts a battalion of the nation’s Global Response Force. Although the roads are Federally owned at the time of application (Wayside Road is a current state-maintained road), ***the roads surrounding Fort Bragg will be maintained by the North Carolina DOT (NCDOT) once the roads have been improved and added to the state maintenance system by the Board of Transportation.***

The Fort Bragg Garrison and the NCDOT have signed a Memorandum of Agreement (MOA) that agrees to the transfer of roads. (A copy of the Memorandum is included with the Supplemental Materials provided with this application.) NCDOT has stipulated that the roads (see Figure 1) must be in a state of good repair in order for the Department to petition to add them to the state’s system and accept ownership responsibility for them. The agreement calls for NCDOT to perform the reconstruction. If the iBRAGG project were selected for award, it would provide the last needed resources to repair these roads and serve as the catalyst for the ownership transfer to move forward once the roads are improved.

employment, base residents leaving for off-base purposes, training exercises surrounding the secure perimeter, travel to support deployments and general Fayetteville travel that circulates around the base but is separate from base traffic.

Fort Bragg helps to anchor the Fayetteville economy. It is the largest U.S. Army base by population, serving a population of 52,280 active duty Soldiers, 12,624 Reserve Members and Temporary Duty students, 8,757 civilian employees, 3,516 contractors, and 62,962 active duty family members. There are 98,507 Army retirees and family members in the area. The base has an annual economic impact of nearly \$7 billion.

Transportation Challenge

Fort Bragg is a critical military facility, as well as an economic anchor for the Fayetteville metropolitan area. Over time, these two large economic centers are becoming more integrated through a shared labor pool, contracting, and coordination of public services and activities. As a result, the Project roads now carry more traffic than envisioned when they were constructed. Now they are used by the general public for non-base related travel, as well as for traffic to and from the base. Cut-through traffic, travel for which the base is neither an origin nor a destination, has grown in recent years as travelers use the surrounding roads to avoid nearby congested arterials. An estimate of this non-base traffic was developed for two nearby intersections. For both intersections below, the cut-through volume is shown, as well as the cut-through percentage of the intersection traffic.

Table 1: Estimated Non-Base Traffic Using Adjacent Roads (2019)

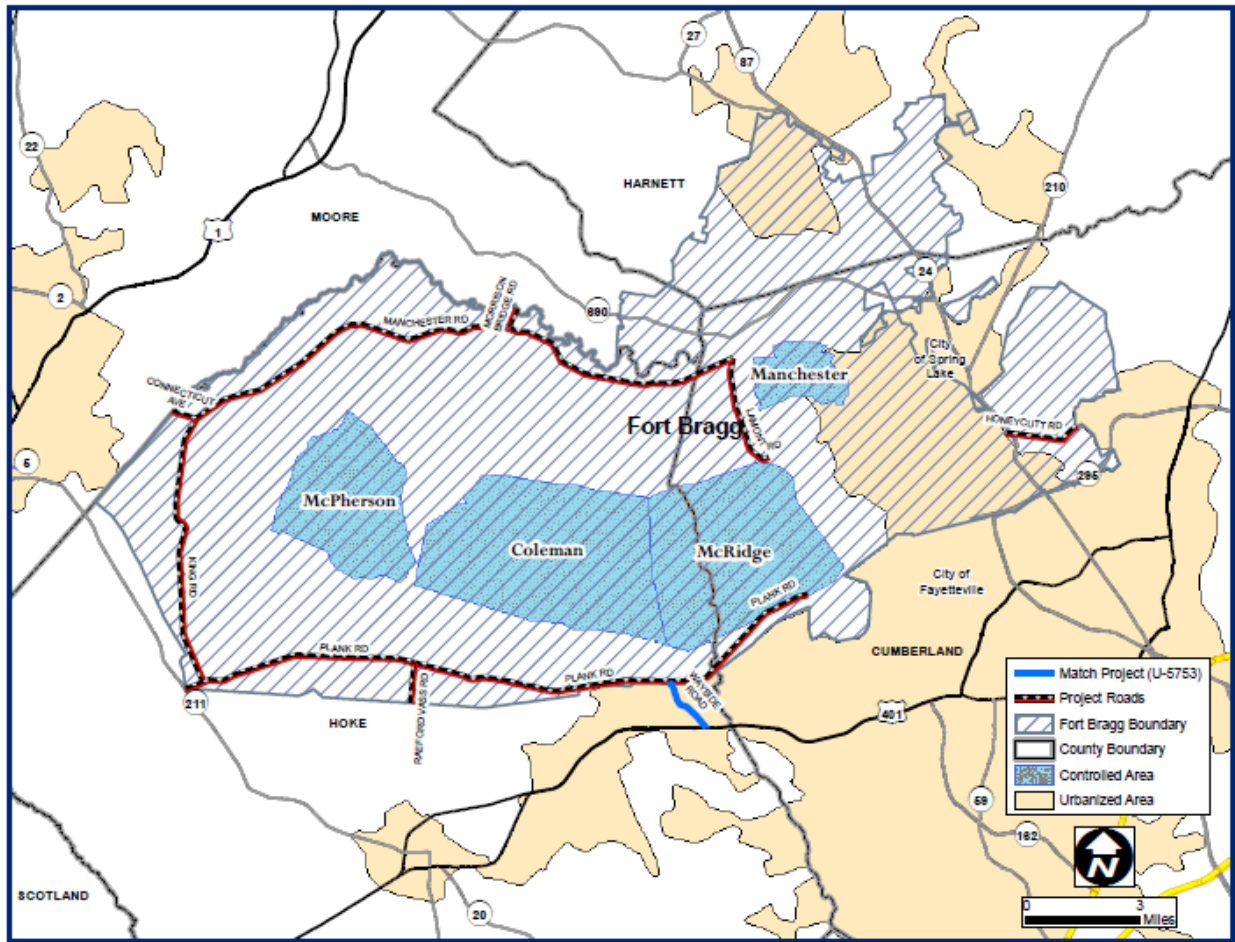
Intersection	AM	PM	13-hours	Movements Considered Cut-Through
Wayside Road and Plank Road	357 (22%)	335 (25%)	3253 (17%)	Left Out of and Right in to Wayside
Morrison Bridge Road and Manchester Road	35 (3%)	42 (4%)	327 (2%)	Right Out of and Left in to Morrison Bridge Road

As a consequence, a rising volume of travel, comprised of base-related and non-base related trips, are being made on poorly maintained roads that do not meet NCDOT's current standards. The transfer of maintenance responsibility to NCDOT shifts this activity to an agency that is better able to maintain the roads to a higher quality at a lower cost. Road quality in this instance is measured primarily in terms of safer design and smoother pavement that results in greater safety and less wear and tear on vehicles.

II. Project Location

Fort Bragg partially overlaps the Fayetteville urbanized area. As a result, some of the surrounding roads that comprise this Project also fall within the Fayetteville urbanized area, but the majority do not. The bulk of the Project cost is programmed for roads that fall outside of the urbanized area in the surrounding rural vicinity. As a result, following the NOFO guidance, the proposed iBRAGG project is rural. Figure 1 illustrates the relationship of Fort Bragg to the Fayetteville urbanized area and the location of each road segment included in the Project. Table 2 summarizes each road by its cost and location inside/outside of the urbanized area boundary.

Figure 1: Roads to be Transferred to NCDOT and Project Match



As shown in the map above, some of the Project roads touch or are adjacent to the Fayetteville urbanized area; others are in the surrounding rural area. Table 2 below summarizes each road by spending and show the total spending on rural components. As the total spending on rural components is 60 percent, the Project is submitted as a rural Project.

Table 2: Summary of Urban and Rural Project Spending

Route Name	Rural/Urban	Rural Funding	Urban Funding	Total Funding
Lamont Road	Rural	\$2,261,976	\$-	\$2,261,976
Manchester Road	Rural	\$8,442,683	\$-	\$8,442,683
King Road	Rural	\$4,194,965	\$-	\$4,194,965
Plank Road	Rural/Urban	\$9,496,371	\$992,856	\$10,489,227
Honeycutt Road	Rural/Urban	\$989,849	\$24,996	\$1,014,846
Morrison Bridge Road	Rural	\$93,151	\$-	\$93,151
Connecticut Avenue	Rural	\$126,013	\$-	\$126,013
Rae ford Vass Road	Rural	\$265,099	\$-	\$265,099
Wayside Road	Urban	\$-	\$16,137,000	\$16,137,000
Total		\$25,870,108	\$17,154,852	\$43,024,960
% Cost Rural				60%

III. Grant Funds, Sources and Uses of all Project Funding

The following section outlines the funding strategy for the iBRAGG Project. The estimated cost to reconstruct the roads and bring them to a state of good repair with modern design standards is \$43.0 million. The capital costs, sources, and uses of funds are summarized in Table 1 below. Details on the capital costs are provided in the Supplemental Materials provided with this application.

Previously incurred expenses: There are no previously incurred expenses.

Eligible project costs: The total estimated cost to complete the iBRAGG Project is just over \$43.0 million as detailed in Table 2.

The non-federal funds will be provided by NCDOT from the state funds from the Highway Trust funds.

- **Funding commitment:** Letters of funding commitment from NCDOT and Fort Bragg are provided in the Attachments for this application.
- **Federal matching funds:** Fort Bragg has committed \$2.4 million from the Army O&M Fund.
- **Budget for iBRAGG Project:** The budget is summarized in Table 3 below, identifying those sources that are non-federal, BUILD, and other federal as requested in the guidance.

NCDOT, on behalf of its Project partners, is requesting \$24,487,960 of BUILD capital funding. A non-federal match of \$16,137,000 is committed to the Project. Table 3 below provides a summary of the funding source, amount of committed or requested funds, and funding sources.

Table 3: Sources and Uses of Funds for the iBRAGG Program (2019 \$ Million)

Summary	Design	Right-of-Way	Utilities	Construction	Total	% of Total
Non-federal sources (NCDOT)	\$1,500,000	\$2,178,000	\$261,000	\$12,198,000	\$16,137,000	37.51%
BUILD	\$2,276,256	\$45,537	\$2,625,438	\$19,540,729	\$24,487,960	56.92%
Other Federal (Fort Bragg)	\$223,090	\$4,463	\$257,312	\$1,915,135	\$2,400,000	5.58%
Grand Total	\$3,999,346	\$2,228,000	\$3,143,750	\$33,653,864	\$43,024,960	100.00%

IV. Selection Criteria

The investments proposed in this BUILD application will generate a variety of benefits for local residents and businesses, travelers through the region, and North Carolina taxpayers. Some of these benefits can be quantified and captured in the BC analysis; many cannot. Before moving to a discussion of each of the long-term outcomes, Table 4 provides a summary overview of how the Project aligns with the evaluation criteria.

Table 4: Evaluation Criteria Narrative Matrix

Criteria	How the Project Satisfies the Criteria	
Primary	Safety	All of the roads will be reconstructed to current NCDOT design standards. There have been fatal accidents on some of the Project roads in the past.
	State of Good Repair	The maintenance of the roads around the base will transfer to NCDOT, which specializes in the design, operation, and maintenance of the state’s road system. Maintenance will be performed at lower cost and the roads will have higher quality.
	Economic Competitiveness	Fort Bragg is an anchor of the Fayetteville economy. Even so, by its nature it is a large block to public circulation due to the secure area. The Project roads are seeing growing use as the area surrounding the Fort becomes more economically connected to Fayetteville. In particular, non-base traffic is a growing percentage of traffic as the metro area develops around the Fort. Safe and reliable roads support this growth.
		Higher quality roads (smoother roads) reduce vehicle wear and tear.
		There are a number of Opportunity Zones within 20 miles of Fort Bragg.
	Environmental Sustainability	The improved travel times reduce emissions and improve local air quality.
Quality of Life	Safer and better roads improve the daily life for those living and working at or around Fort Bragg.	
Secondary	Innovation (Technologies)	Broadband will be installed in the ROW. It will support the connection to the state’s ITS system for variable message signs to manage traffic around the base, particularly in extreme conditions.
		The Project utilizes transportation infrastructure investment to accomplish more than just transportation; the addition of fiber optic cable to the crossings expands the availability of high-speed broadband and communications capability needed to run modern applications. There are a number of underserved areas surrounding the base and some internet providers have reached out to the base about adding capability.
	Innovation (Project Delivery)	NCDOT will utilize an innovative permitting option that expedites project delivery - US Army Corps of Engineers’ Regional General Permit 19820031 (GP 31).
		In early 2017, FHWA and NCDOT executed a Categorical Exclusion (CE) Checklist to help streamline project delivery.
Partnership	NCDOT will lead the Project delivery. The transfer is able to occur because of the state’s partnership with the Army Garrison at Fort Bragg. The Fort is a founding partner for the Project.	

Primary Selection Criteria

This section provides additional detail on the Project features that align with the 2019 BUILD program's Primary Selection Criteria.

Safety

The Project improves safety in several ways. First, the improved roads will be designed for modern standards and vehicles, reducing the potential for fatalities, injuries and crash costs. There have been a number of crashes on the Project roads, including run off the road types of crashes as drivers lose control. The improved design, the addition of ITS warning signs, and smoother pavement will all contribute to safer travel in the vicinity of Fort Bragg.

The addition of fiber optic capabilities to the roads allows the addition of warning devices and information signs, permitting drivers and those living nearby to have advance notice of changing conditions that require driver attention.

State of Good Repair

None of the existing Project roads were built for the level of use that they receive, nor do the design standards that NCDOT uses in the balance of the state's road system. With the transfer of ownership, the roads will be maintained to a higher standard of performance.

Figure 2: Examples of Road Conditions Around



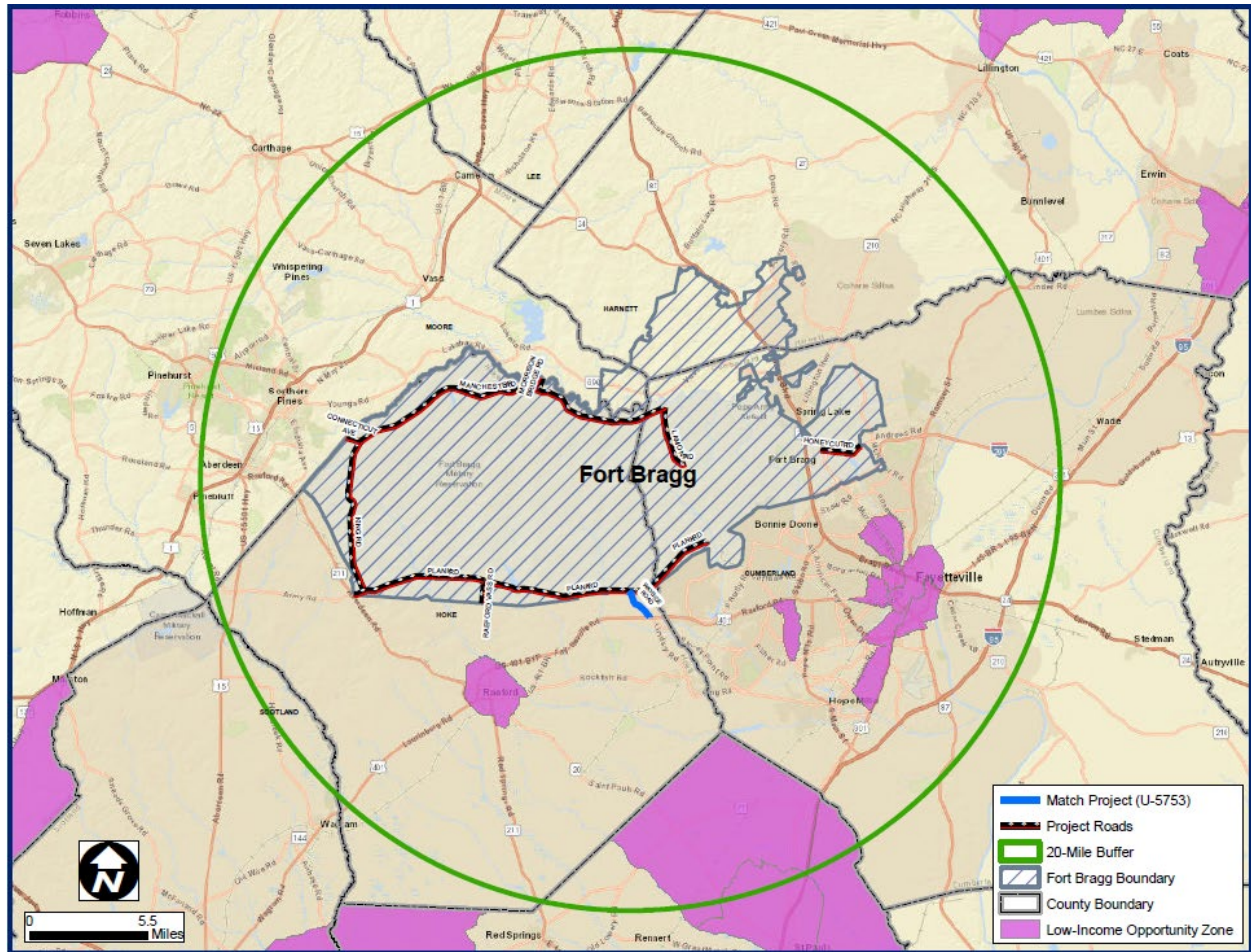
The photos shown above are taken on Plank Road, one of the Project roads. In this example, it shows the erosion along the road. This level of erosion was observed nearly everywhere, as most shoulders are not paved. Run off the road crashes have been noted in this area. As a consequence, there is no recovery room along parts of Plank Road. Given the existing degree of erosion, another heavy rain may undercut that portion of the road and cause a large pothole in the travel lane. Moreover, the improved pavement will reduce wear and tear on vehicles that use these roads daily, saving drivers operating costs.

Economic Competitiveness

Fort Bragg is an anchor of the Fayetteville economy. Economic impact data provided by the Fort report that the daily impact to the surrounding economy is \$18.9 million with an annual impact of \$6.9 billion (2018 dollars). Keeping the roads that support circulation to and around the base safe and in a state of good repair, supports the health of this critical economic and military asset.

Moreover, there are several Opportunity Zones within 20 miles of the base.

Figure 3: Opportunity Zones in Project Vicinity



Environmental Sustainability

To the degree that the improved roads accommodate travel time savings for users, emissions are reduced for autos and trucks.

Quality of Life

Safer and better roads improve the daily life for those living and working at or around Fort Bragg.

Secondary Selection Criteria

This section provides additional detail on the Project features that align with the 2019 BUILD program's Secondary Selection Criteria.

Innovation (Technical)

The addition of fiber along the reconstructed roadway allows variable message signs and warning devices to be tied into NCDOT's ITS system. But beyond this, it allows for greater cell and broadband coverage in the area surrounding the base. Several providers have expressed interest in serving this area.

AT&T has requested permission to install a cell tower near where Manchester Road becomes King Road. Fort Bragg has queried Verizon and Sprint to determine if there is any interest in cell tower along the training roads, but the other two providers have not responded. Currently, all three providers have been asking to add a significant number (upwards of 40 in some cases) of micro cell sites to enhance the telecommunications on Fort Bragg. Any cell towers along the training roads would require a broad band connection. In addition, Segra Group has reached out to Fort Bragg about maintaining and utilizing the fiber around the base.

Innovation (Project Delivery—Two Innovations)

General Permit 31

NCDOT will utilize an innovative permitting option that expedites project delivery - US Army Corps of Engineers' Regional General Permit 19820031 (GP 31). GP 31 is unique to North Carolina; it authorizes impacts to Waters of the US for "best-fit" widening projects without an impact threshold, providing an option for these projects that is more efficient than utilizing an individual permit. GP 31 relates specifically to NCDOT's Section 404/NEPA Merger Process.

Categorical Exclusion (CE) Checklist

In early 2017, FHWA and NCDOT executed a Categorical Exclusion (CE) Checklist to help streamline project delivery. NCDOT anticipates that 95 percent of all environmental documentation requirements can be met with this CE Checklist under this agreement. Based on the nature of the project and past experience, it is anticipated that the Project elements can be implemented under a categorical exclusion, except for two Environmental Assessments.

Partnership

The North Carolina Department of Transportation will deliver the Project. Fort Bragg is a funding partner.

North Carolina Department of Transportation

NCDOT is responsible for maintaining approximately 80,000 miles of roadways and 18,000 bridges and culverts across North Carolina, as well as supporting rail, aviation, ferry, public transit, bicycle and pedestrian transportation.



With an annual operating budget of about \$5.0 billion, the NCDOT is responsible for building and maintaining the State's transportation network. Federal funding accounts for a little over 20 percent of NCDOT's overall budget and about 45

percent of its construction budget, generated through the federal motor fuel tax and vehicle fees (mostly on trucks). NCDOT understands USDOT reporting requirements and maintains the records and accounting systems that will allow it to comply with USDOT's reporting and administration requirements.

The Department's role(s) for the Project includes:

- BUILD 2019 Discretionary Grant Applicant and Recipient responsible for administering the grant if selected for award
- Funding partner
- Responsible for maintenance of the roads following the transfer to the state system after Grant obligation and the road improvements are completed.
- Aids in ensuring efficient integration of the BUILD 2019 Project into the existing regional transportation network.
- Oversight of the capital project delivery

Fort Bragg Army Base

Fort Bragg equips, trains, rapidly deploys, and sustains full spectrum forces supporting combatant commanders from a community of Soldiers, families and civilians. It is home to the Airborne Division and Special Forces. These groups support the nation's Global Response Force that is built for rapid response to unforeseen or, more specifically, unplanned operations. Including active and reserve military, DOD and contract civilians, military family members and retirees, the Fort supports a population of over 280,000 (2018). The full military installation covers over 162,000 acres. In the fourth quarter of fiscal year 2018, Fort Bragg personnel completed over 7 million hours of training, 270 parachute jumps, and over 2,100 USAF sorties.



The Fort's role(s) for the Project includes:

- Current owner of the roads that will be transferred after obligation if selected for award
- Signatory to the memorandum of agreement transferring ownership of the Project roads
- Funding partner

V. Project Readiness

Should the Project be approved for BUILD grant funding, NCDOT is ready for obligation as soon as the necessary documentation can be executed. All proposed investments are located within an active roadway corridor, with no change in the existing land use. All Project roads except Wayside were part of the environmental clearance completed by the Fort. The documentation is provided with the Supplemental Materials. Wayside Road has undergone a preliminary screening and it is anticipated that the environmental work would be a CE.

Mitigation for environmental permits is facilitated by a Division of Mitigation Services. The 401/404 permitting requirements would be coordinated with the United States Army Corps of Engineers and the North Carolina Department of Environmental Quality. While the improvements will cross waterways, the proposed improvements would fall under requirements for a Regional General Permit 31 (described in the Innovation section).

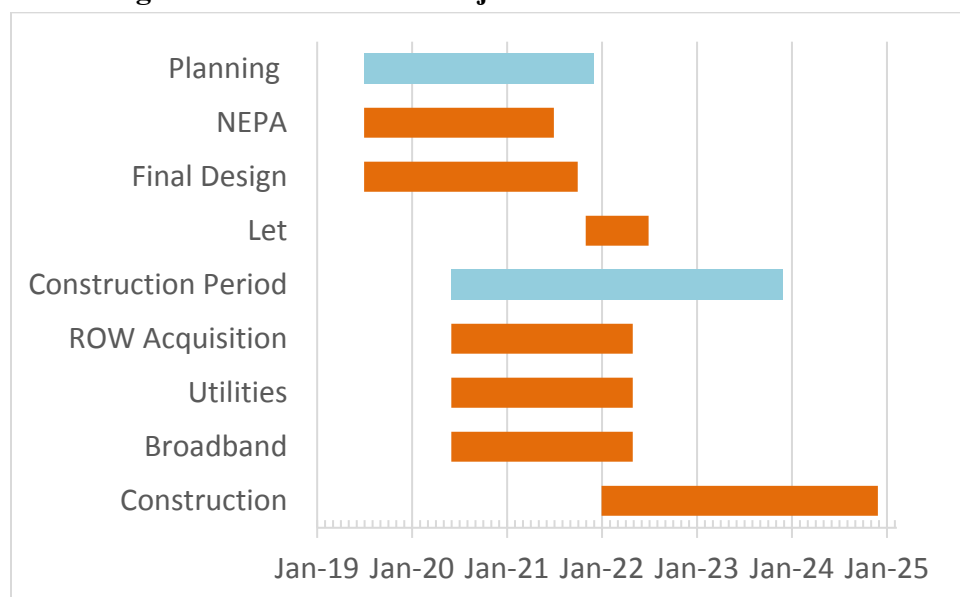
Technical Feasibility

The iBRAGG project is technically feasible. NCDOT has constructed thousands of roads with similar designs. The addition of broadband cable is an easy addition that does not require significant design changes to the typical road that NCDOT constructs. Road construction and maintenance is NCDOT’s mission; it is not Fort Bragg’s mission—that is the motivation for making the transfer and seeking BUILD grant funding to allow the transfer to take place.

Project Schedule

Figure 4 depicts the project schedule. Upon notice of award, NCDOT and Fort Bragg can undertake the transfer. The Project roads would then be in NCDOT ownership and obligation and execution of the documents required by the Department of Transportation could take place. The memorandum of agreement is already signed that agrees to the transfer and sets the conditions. The project can get underway immediately with construction completed by the end of 2024, well in advance of the program deadline of September 30, 2026 outlined in the Notice of Funding Opportunity. As noted in Figure 1, the roads can be built concurrently. This ability to “squeeze” the schedule helps to offset project risk.

Figure 4: Consolidated Project Schedule Timeline



Required Approvals

Environmental Permit and Reviews

All but one of the Project roads in this grant application were included in the completed Environmental Document undertaken by Fort Bragg. The remaining Project road, Wayside Road, has been screened and it is anticipated that this would be a CE, though the final decision would be made by the federal agency overseeing the document.

To comply with the National Environmental Policy Act (NEPA), the projects will be processed as Categorical Exclusions (CE) using the Programmatic Agreement between the Federal Highway Administration, North Carolina Division and the North Carolina Department of Transportation Regarding the Processing of Actions Classified as Categorical Exclusion for

Federal-Aid Highway Projects signed on January 27, 2017. Wayside Road is anticipated to be Type II CE's, which authorizes NCDOT to approve the documents without additional Federal Highway Administration coordination or approval.

State and Local Approvals

No legislative approvals are required to reconstruct the Project roads or add broadband to the Project Area. Of note, the memorandum of agreement that governs the road transfer has already been negotiated and signed by both Fort Bragg and NCDOT.

North Carolina's State Broadband Plan has the "overarching goal for every North Carolinian to have affordable access to broadband service - wireline or wireless - if they so choose, by June 2021." The iBRAGG Project directly supports that objective.

Federal Transportation Requirements

Beyond the NEPA process described above, there are no federal requirements affecting state or local planning for this Project.

Assessment of Project Risks and Mitigation Strategies

The NCDOT has completed work similar to the proposed Project and experienced no procurement delays of any significance. The Project site is currently utilized for highway purposes and is situated within an active transportation corridor, reducing many potential risks.

NCDOT tracks Construction Project Delivery in terms of budget and schedule as part of its own performance metrics. The 2018 Annual Report on Performance describes the outcomes for the 2017-2018 fiscal year and the prior year comparator—the most recent data available Project delivery metrics are on page 13 of the report. Table 5 illustrates that the Department met its target. The NCDOT is familiar with federal funding obligation and construction procedures.

Table 5: NCDOT Project Delivery Performance

Performance Measure	How NCDOT Measures It	Target	Previous Result (Fiscal Year 2016-2017)	Current Result (Fiscal Year 2017-2018)	Target Met
Construction Projects—On Schedule	Percentage completed on schedule	More than 90%	90%	92%	✓
Construction Projects—On Budget	Total budget overrun on completed projects	Less than 5%	3.4%	-0.3% (came in below budget)	✓

Source: 2018 NCDOT Annual Report on Performance, January 2019

VI. Benefit Cost Analysis

The Project construction anticipates completion in 2024. To capture a full 30 years of operation for each project, a benefits period of 2024-2054 was selected. The exhibit below summarizes the discounted value of the benefits and costs of the total Project during the 31-year analysis period. Taken in total across all Project roads and using a 7 percent discount rate, the benefits and residual savings provide over \$35.7 million dollars of net benefits over the analysis period. Compared to a similarly discounted cost estimate, the Benefit Cost (BC) Ratio for the total Project is 2.09. This estimate includes the disbenefit of construction disruption.

For details on the BCA and the methodologies used, please see the technical memorandum and BCA workbook included as Attachments and in the Supplemental Materials (<https://connect.ncdot.gov/resources/BUILD2019-FB/Pages/default.aspx>).

Table 6: Total Project Benefit Cost Analysis Results

	31 Year Benefits Period (2024-2054)
	Values stated in 2017 \$ Million
	Discounted at 7%
Costs	
Capital Costs	\$32.7
Total Costs	\$32.7
Benefits	
Safety	
Reduced Highway Fatalities and Crashes	\$26.2
Sub-Total Safety Benefits	\$26.2
Economic Competitiveness	
Delays During Construction	-\$6.1
Travel Time Savings	\$39.2
Truck Operating Savings	\$1.9
Vehicle Maintenance Savings	\$5.5
Sub-Total Economic Competitiveness	\$40.5
State of Good Repair	
Residual Value	\$1.6
Resilience Repair Cost Savings	\$3.3
Sub-Total State of Good Repair	\$4.9
Environmental Sustainability	
Emissions Savings (auto)	\$0.07
Emissions Savings (truck)	\$0.04
Sub-Total Environmental Sustainability	\$0.1
Quality of Life	
Fiber Benefit	\$7.4
Sub-Total Quality of Life	\$7.4
O&M Costs	-\$10.7
Net O&M	-\$10.7
Total Benefits	\$68.4

BC Ratio	2.09
Net Benefits	\$35.7