

### Subapplicant information

Name of federal agency **FEMA**  
 Type of submission **Application**

### POLICE DEPARTMENT

467 HAY ST  
 FAYETTEVILLE, NC 28301 United States

State	DUNS #	EIN #
NC	040031700	566001226

Subapplicant type **Local Government**  
 Is the subapplicant subject to review by Executive Order 12372 Process? **No - Not selected**  
 Is the subapplicant delinquent on any federal debt? **No**

### Contact information

#### Subrecipient Authorized Representative (SAR)

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#### Point(s) of contact

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### Community

Please provide the following information. If the Congressional district number for your community does not display correctly, please contact your State NFIP coordinator.

#### Add Communities

Please find the community(ies) that will benefit from this mitigation activity by clicking on the Find communities button. If needed, modify the Congressional District number for each community by entering the updated number under the U.S. Congressional District column for that community. When finished, click the Continue button.

NOTE: You should also notify your State NFIP coordinator so that the updated U.S. Congressional District number can be updated in the Community Information System (CIS) database.

Community name	County code	CID number	CRS community	CRS rating	U.S. Congressional District
FAYETTEVILLE, CITY OF	051	370077	N		7, 9

Please provide any additional comments below (optional).

**Attachments**

Filename	Date uploaded	Uploaded by	Label	Description	Action
<a href="#">Fayetteville NC Russell-Person St Bridge and Stream Improvement Project - Technical Scoring Support revised 1.pdf</a>	01/19/2023	jonathan.trimble@arcadis.com	Community Attachments	Technical Scoring Summary Document	

**Mitigation plan**

Please provide your plan information below.

Is the entity that will benefit from the proposed activity covered by the current FEMA approved multi-hazard mitigation plan in compliance with 44 CFR Part 201? **Yes**

**Please provide plan detail**

Plan name	Plan type	Plan approval date
Cumberland Hoke Regional Hazard Mitigation Plan	Local Multijurisdictional Multi-Hazard Mitigation Plan	06/22/2021

**Proposed activity description**

The RUSSELL-PERSON ST BRIDGE AND STREAM IMPROVEMENT PROJECT aims to provide an additional level of protection to residential and non-residential properties within Fayetteville by mitigating flooding in the areas around Blounts Creek. Mitigation will also reduce or eliminate roadway loss of function throughout the benefitting area and protect emergency access to areas of historic flooding. The project will provide community-wide benefits through use of nature-based solutions and alignment with planned expansion of the City's trail network. The combined bridge and stream improvements will enhance drainage and increase storage capacity within the floodplain to reduce risk for vulnerable community members and the City of Fayetteville as a whole (Attachment 2 – Watershed Masterplan Solutions For Blounts Creek). The bridge replacement portion of this project will include the replacement of the Person St. bridge and the Russell St. bridges as well as the replacement of the CSX railroad bridge that runs between the Russell St. bridges. The replacement work will also include stream enhancements and stream restoration along approximately 4000 ft of Blounts Creek to enhance floodplain management. The mitigation activities performed are anticipated to provide a 100-year level of protection for 270 structures and will reduce the severity of the 100-year event for the remaining 235 impacted structures. Although design plans and the approval process is ongoing, this project will accommodate the potential extension of the Blounts Creek Trail (Attachment 3), and include tie-ins to the City's innovative greenstreet corridor (Attachment 9) along Person St, directly west of the project. The stream enhancement work will also include nature-based elements, including the use of native, riparian-adapted species for replanting during streambank stabilization. Much of the residential population that will benefit from the bridge replacements and potential greenway expansions is part of vulnerable community groups. This project not only serves to protect these residents, nearby public housing, elderly, and disabled residents as well as other historically-marginalized communities, but will also connect nearby neighborhoods to existing and planned public space. Furthermore, the use of nature-based elements within the project will have not only environmental, and aesthetic benefits, but will also provide additional risk reduction benefits through mitigation of extreme heat by reducing the heat-island effect within the City. The City will coordinate with various departments, and outside organizations including NCDOT and CSX to align on design of their respective assets that will be modified. Design will also coordinate with the Fayetteville Area Metropolitan Planning Organization (FAMPO) and the City's own Transportation and Parks Departments to ensure connectivity and design compatibility with existing infrastructure. Finally, annual outreach meetings open to the general public, and targeted stakeholder meetings will ensure that citizen feedback is incorporated throughout the process and into final design. Any risk of adverse impacts associated with construction will be communicated clearly and minimized to the greatest extent possible.

Please provide any additional comments below (optional).

Fayetteville has formally adopted Cumberland County's 2021 Hazard Mitigation Plan (see excerpts in Attachment 1 – 2021 Cumberland Hoke Regional Hazard Mitigation Plan). The proposed project is consistent with the 2021 Plan's Goal 1: "Protect properties and natural resources that are at risk of damage due to hazards and undertake cost-effective mitigation measures to minimize losses," and Goal 2: "Reduce vulnerability of Cumberland County, Hoke Counties and their municipalities to all hazards for existing development, future development, redevelopment and infrastructure."

**Attachments**

Filename	Date uploaded	Uploaded by	Label	Description	Action
<a href="#">ATTACH~1.PDF</a>	11/18/2022	jonathan.trimble@arcadis.com	Mitigation Plan Attachments	2021 Cumberland Hoke Regional Hazard Mitigation Plan Excerpts	

**Scope of work**

The project Scope of Work (SOW) identifies the eligible activity, describes what will be accomplished and explains how the mitigation activity will be implemented. The mitigation activity must be described in sufficient detail to verify the cost estimate. All activities for which funding is requested must be identified in the SOW prior to the close of the application period. FEMA has different requirements for project, planning and management cost SOWs.

Subapplication title (include type of activity and location)

**Fayetteville, NC - Person & Russell St Bridge and Stream Improvement Project**

**Activities**

Primary activity type

**Flood control**

Primary sub-activity type

**Stormwater management**

Primary sub-activity type

**Stormwater management**

Secondary activity type (Optional)

**Flood control**

Secondary sub-activity type

**Floodplain and stream restoration**

Tertiary activity type (Optional)

Geographic areas description

Fayetteville is the largest city in Cumberland County, North Carolina, and is most notably home to Fort Bragg, a major U.S. Army installation. Strategically located in the Upper Coastal Plains section of North Carolina, it is distinctively known as the "Sandhills". The incorporated area of the City of Fayetteville is approximately 148 square miles, however, approximately 54 square miles of the City consist of land within Fort Bragg. Since the area of Fort Bragg is excluded from local oversight, the remaining area of approximately 94 square miles falls under the authority of the City. This massive area contains complex natural and built water systems that both provide and control water flows throughout Fayetteville. As part of the City's Municipal Separate Storm Sewer System (MS4), the stormwater system is composed of curbs, gutters, catch basins, culverts, pipes, and ditches that collect and convey stormwater for discharge to receiving streams. There are an estimated 576 miles of storm drainpipe and 22,115 catch basins and drop inlets located throughout Fayetteville. Within the County, there are thirty dams forming lakes or ponds. Nearly 75,000 acres of the land within the County is in the 100-yr or 500-yr special flood hazard area. The geography and topography of the city makes this region particularly vulnerable to pluvial and, often, fluvial flooding. There are several significant natural flowing bodies of water including the Carver's Falls on Carver Creek- a tributary of the Cape Fear northeast of the city limits, as well as the Blounts Creek which flows through Fayetteville into the Cape Fear River Basin and empties into the Atlantic Ocean. Although the natural alignment of many receiving streams has been altered over the past century, many of the stream banks remain

mostly vegetated. Stream banks that were armored with riprap as a result of previous stream bank stabilization efforts are currently allowed to re-vegetate naturally. Because of this unique water system, much of the City is at risk of flooding due to extreme precipitation events and overtopping of local rivers, creeks, and streams. There is clear evidence that storm events are becoming stronger and happening more frequently, thus placing regions with extensive watersheds at increased risk of future flooding. In 2016, flooding as a result of Hurricane Matthew led to the Fayetteville Fire Department carrying out water rescues of more than 100 people directly within the benefitting area of this project (Qualitative Criterion 1 – Risk Reduction). Climate-related changes are expected to bring warmer temperatures that are predicted to escalate the intensity of these storm events, therefore pushing the City's aging infrastructure to the brink and challenging its ability to reliably operate during extreme conditions. The proposed RUSSELL-PERSON ST BRIDGE AND STREAM IMPROVEMENT PROJECT aims to prevent and mitigate these future hazards, while also providing additional protection to the various disadvantaged communities within the project area as well as low-lying portions of the city as a whole. Fayetteville consists of a diverse population of approximately 208,778 residents. While the County itself already scores relatively high on the CDC Social Vulnerability Index (SVI) (0.9338), the project area is primarily located within Census Tract 2 and 38 having even higher SVI scores of 0.9977 and 0.9398 respectively, indicating that a significant portion of the city's population is unable to adequately prepare for and respond to the stress of hazardous events including natural disasters. With nearly 19% of the total population at or below the poverty line and approximately 12% of the population identified as disabled, these are just some of the populations that will be most affected by current flood hazards. Widespread flooding to residential homes, particularly in vulnerable locations, will continue to be a major threat if not addressed adequately. The area being mitigated by the proposed project encompasses mixed residential, commercial, and industrial zoned properties at the eastern edge of Fayetteville between Person Street and Gillespie Street, along Blounts Creek, immediately west of the Cape Fear River. As the City is expected to experience higher quantities of rain in shorter durations of time, new challenges will arise to test the City's stormwater management systems. This area specifically remains vulnerable to extreme precipitation events that cause overtopping of Blounts Creek and threaten residential, and non-residential structures, as well as several surface streets and a rail line. The urgency and necessity of upgrading existing infrastructure is critical to protecting and ensuring residential and commercial properties are resilient and can withstand these flood and climate change impacts.

**Community lifelines**

Primary community lifeline	<b>Food, water, shelter</b>
Primary sub-community lifeline	<b>Shelter</b>
Secondary community lifeline (optional)	<b>Safety and security</b>
Secondary sub-community lifeline	<b>Community safety</b>
Tertiary community lifeline (optional)	<b>Transportation</b>
Tertiary sub-community lifeline	<b>Highway/roadway/motor vehicle</b>

**Hazard sources**

Primary hazard source	<b>Flooding</b>
Secondary hazard source (optional)	<b>Severe storm</b>
Tertiary hazard source (optional)	
Is this a phased project?	<b>Yes</b>
Are you doing construction in this project?	<b>Yes</b>

Percentage of population impacted

41.8

Provide detailed description of population impacted

The population impacted by the RUSSELL-PERSON ST BRIDGE AND STREAM IMPROVEMENT PROJECT includes Fayetteville residents residing within the 384 residential structures impacted by flooding, as well as employees and users of the additional 192 non-residential structures impacted. Using the average persons per household for the City of Fayetteville of 2.39 persons, an estimated 917 residents of mitigated structures will benefit from the project. Furthermore, reduced flooding on Person St, Russell St, Campbell Ave, Robeson St, Raeford Rd, Whitfield St, and Gillespie St among others will provide long-term health and safety benefits to those making the combined 86,400 average daily trips. Assuming each trip represents a single person, the total number of persons impacted by the project, including residents, is approximately 87,317, or 41.8% of the population. Much of the residential population that will benefit from the project are part of vulnerable community groups. This project serves to protect nearby public housing, thus further benefitting disadvantaged community members including renters, elderly, and disabled residents as well as other historically marginalized communities. Of the 576 structures impacted, 450 structures, including 384 residential structures, are within tracts 2 and 38; Census Tracts designated as disadvantaged according to the Federal Government's Justice-40 criteria. Of those same 576 structures, 501 structures, including 314 residential structures are located within Census Tracts 2, 6, 17.01, and 38 all with CDC Social Vulnerability Index (SVI) scores above 0.80, all but one of which is above 0.93. An additional structure located in Census Tract 21 with an SVI score of 0.71 will also benefit. Looking more closely at Census Tracts 2 and 38, where most of the project benefits will be realized, further supports the benefits to vulnerable community members. In Census Tract 2, 76% of the population identifies as Black or African American, 1% as American Indian and Alaska Native, 1% as Asian, 7% as some other race, and 3% as two or more races. Additionally, 8% identify as being of Hispanic or Latino ethnicity, 79% are renters, and 58% had incomes below the poverty level, with the median household income being \$16,915. In Census Tract 38, 71% of the population identifies as Black or African American, 4% as American Indian and Alaska Native, 3% as some other race, and 4% as two or more races. A further 4% identify as being of Hispanic or Latino ethnicity, 53% are renters, and 25% had incomes below the poverty level, with the median household income being \$22,464. Additional information for the remaining Census Tracts can be found in Attachment 2 - Population Impacted Supporting Documentation. These indices demonstrate that significant portions of the city's population are unable to adequately prepare for or respond to the stress of hazardous events including natural disasters. With nearly 19% of the total population at or below the poverty line and approximately 12% of the population identified as disabled, these are just some of populations that will be most affected by current flood hazards. Widespread flooding to residential homes, particularly in vulnerable locations, will continue to be a major threat if not addressed adequately. In addition to the benefitting populations outlined above, the project will protect public housing located at 230 Lincoln Dr, and 422 Alfred St, further benefitting disadvantaged community members. Nature based elements of the project will also provide additional community-wide benefits through water quality improvements to Blounts Creek and the Cape Fear River Basin, one of the largest watersheds in the State of North Carolina. Alignment with the City's planned trail improvements will also provide community-wide benefits and promote greater access for residents in the Census Tracts outlined above. A portion of the project is expected to impact traffic flow for residents and travelers around the Russell and Person St bridges. The City is committed to clear communication of these impacts through online notices, and stakeholder engagement meetings that will provide advanced notice of the work being conducted and solicit feedback from concerned parties. Temporary traffic control will be put in place and work will be ordered so as to minimize road closures as well as any other adverse traffic conflicts. Overall, the project itself will not have adverse impacts on residents of the City, and every feasible effort to minimize adverse impacts during construction will be pursued. See Qualitative Criterion 4 - Population Impacted for more detail.

Provide a clear and detailed description of your proposed activity

The need for the RUSSELL-PERSON ST BRIDGE AND STREAM IMPROVEMENT PROJECT is driven by the identified impacts and damages of past and predicted flooding in and along Blounts Creek. The area has seen significant impacts from past events, with records indicating more than 100 water rescues were performed by the Fayetteville Fire Department as a result of Hurricane Matthew (Qualitative Criterion 1 – Risk Reduction). The flooding and stream erosion in the project area impacts residential and non-residential structures, as well as transportation networks in the form of road and railway

flooding. This project involves four primary components: 1) the replacement of the Person St. bridge over Blounts Creek with a longer bridge and roadway approaches, 2) the replacement of the Russell St. bridges (East bound and West bound) with a longer bridge and roadway approaches, 3) the replacement of the CSX railroad bridge that runs between the Russell St. bridges with a longer structure, 4) stream enhancements for floodplain management and stream restoration using native riparian-adapted species along approximately 4,000-ft of Blounts Creek (Attachment 2 – Watershed Master Plan Solutions for Blounts Creek). The proposed Person St. Bridge improvements will entail expanding the bridge opening from 50-ft to 70-ft in length. Similar improvements will take place for the Russell St. Bridges including the CSX railroad bridge running parallel to Russell St. The Russell St. Bridge will be upgraded from 100-ft to a 120-ft, 3-span structure with the railroad bridge also being sized accordingly to 120-ft. These improvements will reduce risk by providing greater openings for stormwater drainage through Blounts Creek and contribute to significant flood elevation reductions upstream of the project. The roughly 4,000 ft of stream enhancement starting approximately 300-ft downstream of the Person St. crossing and ending at the downstream side of South Cool Spring St will further enhance the benefits of this project. Benching of the stream-bank will expand floodplain capacity while bank stabilization, including the use of native plantings, will restore eroding banks that threaten the nearby greenway-trail. The combination of these efforts is expected to result in an estimated 5-ft reduction in flood elevation just upstream of Russell St. and over \$50M in mitigation benefits (Attachment 12 – BCA Methodology). The City of Fayetteville's goal is to promote community resilience by mitigating the impacts of flood risk, reduce flooding conditions in the area around Blounts Creek, stabilize erodible banks that negatively contribute to water quality impacts, and provide an opportunity for connectivity/added amenity to residents and businesses by aligning with plans for a potential Greenway extension (Attachment 3 – Center City Parks and Trails Master Plan). The project will also tie into the City's innovative greenstreet corridor (Attachment 9 – Person Street Green Infrastructure Monitoring Report) located along the portion of Person St. directly west of the project. The green street includes elements such as silva cells, permeable pavers, and bio-infiltration, as well as native plantings. That project has not only provided water quality benefits for Blounts Creek but also helps to improve air-quality and mitigate the heat-island effect through "greening" of the urban environment. As design is finalized, the City will seek to incorporate these same elements within the limits of construction for the bridgework and tie into this existing infrastructure to create a green infrastructure system that both protects and enhances the area. The project scope of work consists of methods and best practices that have been used by the City of Fayetteville in the past and have been proven successful to mitigate flood related damages and losses. The City of Fayetteville chose this design after review of several alternatives. The proposed project was considered the best alternative as it is the least intrusive to the community and provides the greatest level of environmental protection and community-wide benefits at the least cost.

How will the mitigation activity be implemented?

The process of implementing the RUSSELL-PERSON ST BRIDGE AND STREAM IMPROVEMENT PROJECT includes procurement, planning, and outreach strategies, including close coordination with local partners. The City has a dedicated staff led by Assistant Public Services Director - Engineering, Byron Reeves, PE, CFM with extensive experience in implementing and managing stormwater projects. City staff will also be supported by contractors for design and construction. Contractors will be procured in accordance with federal and state regulations. Cost and schedule will be managed judiciously by this expert team to ensure a successful, on time, and on budget implementation of this project. The City of Fayetteville proposes to implement the project in two phases in accordance with FEMA guidelines on phased projects. Phase 1 will complete the evaluation of construction constraints, surveying, and finalize engineering and permitting. Permits will be obtained through the public services department. Various permits will be required for the implementation of the project. It is anticipated that this will include, but is not limited to, a NCDEQ Erosion and Sediment Control Permit, a USACE 404 permit, and a NCDEQ 401 permit. Once Phase 1 is complete, the project team will reproduce a benefit-cost analysis (BCA) to ensure the project remains both technically and fiscally feasible before initiating Phase 2. Upon completion of Phase 1 deliverables and approval from FEMA, Phase 2 will consist of acquisition of equipment and materials, project construction, and grant closeout. Specific construction tasks include staking, clearing and grubbing, channel excavation, replanting with native plants, grading, pipe installation, debris removal, utility conflict resolution, temporary traffic

control, and erosion control and dewatering. **PROCUREMENT** The City is taking advantage of procurement processes which keeps contingency costs down and keeps a tight schedule. The City is planning to involve the contractor early in the process, optimizing design for cost and schedule. The City is fully aware of and complies with the provisions for non-federal entity contracts under federal award. The procurement plan aligns with the eligible methods of procurement in accordance with federal regulations including but not limited to 2 C.F.R. §§ 200.317 – 200.326. **PLANNING PROCESSES AND OUTREACH ACTIVITIES** Fayetteville aims to have the planning process be inclusive and flexible, and include outreach meetings specifically about the proposed project that will take place. The City is committed to an effective outreach effort coupled with this project, including coordination with the various partners. The details of the proposed project have already been shared on the City's website, along with flood preparedness, resilience, and mitigation information, enhancing the community's resilience by educating the public about the natural hazard risks they face. During the project implementation, the City will conduct two meetings annually for the general public as well as targeted meetings to promote stakeholder engagement and build off of previous efforts conducted as part of the City-Wide Watershed Master Planning effort. (Attachment 2 – Watershed Masterplan Solutions for Blounts Creek). Information about the project and notices of meetings will be provided using a wide range of media including print, radio, and television. Fayetteville also maintains a Stormwater Advisory Board (SWAB), which is an appointed citizen panel to review and comment on the City's stormwater programs, hosts a flood awareness map, and has an ongoing flood awareness campaign aimed at communicating results, and goals of the Watershed Master Plan and other projects. **REALISTIC COST ESTIMATES AND SCHEDULE** The project costs have a significant level of detail and identify all needed components. Costs for major components of the project have been determined based on experience with similar projects, discussions with manufacturers, and adjusted for recent price fluctuations driven by COVID-19 and inflation. The schedule is realistic based on construction activities to be completed and anticipated durations. The project tasks within the schedule are realistic and specific yet allow for flexibility to adjust for potential changes, including a buffer to allow for unforeseen delays during construction. However, proactive project management will ensure that the project is successfully implemented. The project team has tailored a strategy to initiate, plan, execute, and control the project scope, schedule, and budget, ensuring effective communication and reporting throughout the grant implementation process. Should funding be awarded, the City will work with the State and FEMA to adjust the schedule and to be flexible as needed to adapt to changing circumstances. **MONITORING STRATEGIES REPORTING TO THE STATE OF NORTH CAROLINA ON GRANT PROGRESS** The City understands how critical state and federal level guidance and reporting requirements can be during project development, implementation, reimbursement, and closeout. The City designated Project Manager (PM) for the project will manage communication between the local, state, and federal levels. Understanding federal guidelines is a necessary component for being able to navigate projects through FEMA policy and regulation requirements. **QUALITY ASSURANCE / QUALITY CONTROL PROCESS** The City of Fayetteville and the contractor will ensure accurate data on program performance to make sound policy and management decisions and maintain credibility with FEMA, the public, and the state of North Carolina. Accurate data is critical for ensuring consistently high-quality deliverables with low levels of error, allowing spokespersons to communicate data to outside entities with ease. The City and the contractor will work with all involved stakeholders to ensure a rigorous Quality Assurance/Quality Control (QA/QC) process is implemented and maintained throughout the life of the project. **FINANCIAL MANAGEMENT AND CONTRACT ADMINISTRATION** The City of Fayetteville and the contractor will deploy systems, processes, policies, and procedures that integrate financial discipline, data management, and innovative technology to support sound project management, audit compliance, and enhanced financial performance, across all phases of the funding lifecycle. **TECHNICAL AND MANAGERIAL STAFF** The project will be supported by staff within the City of Fayetteville Stormwater Department within the Engineering Division, of the Public Services Department and headed by the Assistant Public Services Director - Engineering, Byron Reeves, PE, CFM. Byron holds a degree in Environmental Engineering from North Carolina State University and has served the City of Fayetteville for over seven years. Prior to his time at the City Byron served for nearly seven years as an Environmental Engineer with the North Carolina Department of Environment and Natural Resources, and his extensive experience will be utilized to ensure successful project completion. Byron will be supported by

Describe how the project is technically feasible and will be effective in reducing the risk by reducing or eliminating damage to property and/or loss of life in the project area. Please include engineering design parameters and references to the following: preliminary schematic or engineering drawings/design; applicable building codes; engineering practices and/or best practices; level of protection (e.g., life safety, 100-yr flood protection with freeboard, 100-yr wind design, etc.):

a highly skilled staff that includes stormwater engineers, stormwater inspectors, and staff from Traffic Services, Real Estate, and Construction departments. Staff from the Engineering Division will also be supplemented by expert contractors skilled in stormwater system design verified through the procurement process. The combination of the City team and hired contractor(s) will provide a mix of stormwater experts with local knowledge and third-party perspective. This combination will result in a high-quality project shaped and informed by local conditions and national best practices alike. See Qualitative Criterion 3 – Implementation Measures for more information.

The proposed RUSSELL-PERSON ST BRIDGE AND STREAM IMPROVEMENT PROJECT is technically feasible and reduces risk through the improvement of the single structure at Person St., the dual roadway structures at Russell St., the replacement of the CSX railroad bridge at Russell St., and the enhancements and restoration of approximately 4000-ft of Blounts Creek (Attachment 2). The mitigation designs, specifications, and installations performed will protect 505 structures providing a 100-year level of protection for 270 structures, and greatly reducing the severity of the 100-year event for the remaining 235 impacted structures. The project will also reduce impacts around seven roadways, eliminating impacts from the 100-year event for three of them. Flood elevations just upstream of Russell St. are modeled to be reduced by 5-ft for the 100-year event and as much as 3-ft for the 25-year event. Work will be conducted in accordance with all relevant codes, standards, guidelines and regulations while employing innovative mitigation strategies and bringing nature-based design green infrastructure into the forefront. **RISK REDUCTION/RESILIENCY EFFECTIVENESS:** Current flooding and proposed design are based on Hydraulic & Hydrologic (H&H) modeling utilizing HEC-HMS software to calculate runoff values for the 24-hour design rainfall events using meteorologic data obtained from NOAA Atlas 14, Vol 2, Ver 3. The outputs included runoffs for the 2-year, 5-year, 10-year, 25-year, 50-year, and 100-year at key locations. The runoffs at the key locations were utilized to create the steady flow data for the hydraulic model in HEC-RAS software. The existing conditions hydraulic model was created, using both surveyed and lidar data as well as existing models, to determine both the magnitude of the existing flooding and the potential factors that exacerbate existing flooding. The results of the existing model were used to create rasters using RASMapper to show the buildings, roads, and land currently impacted by flooding of Blounts Creek. Observing the existing model, several proposed models were created addressing situations that were deemed to play a significant role in the existing flooding of Blounts Creek. Rasters were created from the proposed model results and compared to the existing rasters to see the impact each solution had on reducing flooding issues. Of the multiple proposed solutions, it was determined that addressing the lack of flow area under the Russell and Person bridges and the lack of flow area and storage between Person and S. Cool Springs would provide the greatest impact on existing flood risk. **ROADWAY DESIGN:** Right-of-way and construction plans for the proposed bridge replacements will be prepared according to the “Guidelines to be used by Consultants for Producing Roadway Plans” and shall consider in its design complete streets concepts wherever applicable. **HYDRAULIC DESIGN:** Hydraulic design will be done in accordance with the 2022 NCDOT Guidelines for Drainage Studies and Hydraulic Design and City of Fayetteville guidelines. These guidelines include standards for field review, data collection, and development of a Bridge Survey Report (BSR) for the bridge structures within the project limits. The approach drainage will be included in PGDs and a spread analysis will be performed. Development of Special Floodplain Compliance (SFC) documentation will be done in accordance with NCDOT guidance, including a FEMA no-rise analysis. **SEDIMENT & EROSION CONTROL:** The project design will specify erosion control measures that minimize erosion and prevent off-site sedimentation during construction of the Project. The design will be in accordance with the requirements of the North Carolina Department of Environmental Quality (NCDEQ), Erosion and Sediment Control Planning Design Manual and the NCDOT Erosion & Sediment Control Design & Construction Manual. **TRANSPORTATION MANAGEMENT PLANS:** Traffic management plans will indicate the temporary traffic control patterns and devices that are to be implemented during construction. The plans will include construction phasing, road closures, general notes, and lane closures necessary to construct the project. Special consideration will need to be given to the sequencing of construction of each bridge and how they will be phased. **BRIDGE and TRACK DESIGN:** Upon the completion of the Final 90% Bridge Design Plans and draft project special provisions, including comments received from NCDOT and the City, bridge and track design will

advance to 100% plans. These plans will remain in accordance with the latest AASHTO LRFD Bridge Design Specifications and SMU Design Manual, AREMA guidance, CSX design criteria, and the NCDOT Structures Management Unit Design Manual. **STREAM STABILIZATION, ENHANCEMENT, AND RESTORATION DESIGN:** This project shall provide innovative, stream restoration and stabilization designs for a portion of Blounts Creek approximately 4000-ft in length starting approximately 300-ft downstream of the Person St. crossing and ending at the downstream side of South Cool Spring St. This project will determine changes in the watershed that may be influencing channel characteristics and employ a wide variety of field activities or site surveys beyond those conducted during the previously conducted Blounts Creek Watershed Master Plan. A licensed surveyor will conduct a detailed survey and analysis of the restoration site, including mapping aquatic features within the project area, and a formal waters and wetlands delineation necessary to support regulatory permitting will be completed. As needed, the project will map plant diversity and plant communities, collect any necessary soil samples, and complete pebble count surveys. Innovation in proposed stream morphology and ecology will be derived from a combination of local meander geometry analysis and proposed bank-full dimensions, while effectively incorporating the impairments and instability identified in the existing conditions assessment. Bank stabilization will bring nature-based design to the forefront of this project through a mix of native trees, shrubs, and herbaceous vegetation. The root structures of the vegetation will stabilize the soil, and, when space is available, a bench floodplain will be built into the streambank to disperse flows. This bench will serve as a riparian area that can be periodically inundated during high rainfall seasons, or withstand a drought during the dry season. In other areas, the channel banks will be laid back to the maximum extent possible, and protected from undercutting due to lower velocity flows through the use of native or localized vegetation. Modeling results show that, in some situations, vegetation alone is adequate bank protection from expected shear stress. The design team will develop a native planting plan that provides aesthetic benefits, as well as directly addresses ecological functions within the riparian ecosystem. The native planting plan will be based upon existing species located within the project area, as well as reference communities in less disturbed riparian corridors. The planting plan will specify species and container sizes that are commercially available within the region. Finally, ancillary benefits will include improved conditions for some of the City's most vulnerable minority and low-income populations, potential economic opportunity as additional businesses can locate in the project area, and water quality benefits derived from the restored stream channel. They will also include avoided public health impacts including avoided injury and/or death, as well as social benefits derived from avoided mental stress and anxiety, and lost wages along with ecosystem services benefits provided by nature-based elements of the project. See Qualitative Criterion 1 – Risk Reduction for more details.

Who will manage and complete the mitigation activity?

The City of Fayetteville Stormwater Division, under the direction of the City's Assistant Public Services Director-Engineering, will manage and complete the mitigation activities, leveraging experience from previous projects to ensure the project is completed within the proposed budget and schedule (see Attachment 5 for a comprehensive list of completed capital improvement projects). The successful completion of these prior projects demonstrates that the City has the capacity to effectively implement and administer this proposed project that will protect additional homes commercial structures from flooding. If this project is approved for funding, the City's Assistant Public Services Director -Engineering and the City's lead Stormwater Engineer will serve as the project primary points of contact and will coordinate with project managers and outreach coordinators to oversee the implementation and ensure compliance with the approved scope, schedule, budget, and all applicable federal, state and local regulations. Coordination for environmental reviews and permitting will be conducted with the appropriate regulatory agencies to ensure the project complies with local, State, and Federal regulations. The City will coordinate with NCDOT for the RR bridge replacement and CSX Transportation on the rail crossing for the design and construction process including permitting and engineering. The City will also consult and work closely with ACOE, FEMA, NCDEQ (DEMLR, DWR), U.S. Fish & Wildlife and NCDOT for all other required permitting, mapping, and plan updates. In addition, the City will leverage extensive experience in managing federal grants to ensure all FEMA requirements are met, including the regular submission of requests for reimbursement and quarterly reports, monitoring, and records retention; in fulfillment of most of the activities discussed in the Stormwater Quality Management Program Plan

Will the project address the hazards identified and what risks will remain from all hazards after project implementation (residual risk)?

(Attachment 4). Grant management will be led by the City's lead Assistant Public Services Director - Engineering, who has extensive federal grant management experience. All third-party consultants engaged in the project will be procured in compliance with 2 CFR 200 cost principles. Grant management will be completed in close coordination with the BRIC/FMA Lead for the North Carolina Department of Public Safety - Division of Emergency Management, Hazard Mitigation.

The proposed project directly addresses the risk of flooding and consequent damages starting at the 5-yr event and increases across greater flood events. The project will eliminate flood risk for 270 structures impacted by the 100-year storm event and greatly reduce risk for the remaining 235 impacted structures. The project will also address the risk of roadway flooding, eliminated overtopping risk from 3 of 7 roads at risk of overtopping during the 100-year event. Furthermore, nature-based elements of the project have the ancillary benefit of addressing risk of extreme heat through mitigation of the heat-island effect (Qualitative Criterion 1 – Risk Reduction). Residual risk remains for certain structures and for the most extreme storm events. Although the City wishes to see complete elimination of risk, and is taking steps toward that goal, events greater than the 100-year event still represent residual risk following implementation of the project. However, modeling indicates a substantial reduction in flood elevations and damages under future conditions if this project is implemented (Attachment 2 – Watershed Master Plan Solutions for Blounts Creek). Please refer to Attachment 12 – BCA Methodology, and Qualitative Criterion 1 – Risk Reduction for more detail.

Does the mitigation activity incorporate nature-based solutions?

Yes

When will the mitigation activity take place?

The City of Fayetteville has contracted an Architectural and Engineering (A/E) firm to begin the engineering and design process. The project schedule accounts for 35% completion of engineering and design within the pre-award period assuming, the project is selected and a notification of award date of September 2023. This work is critical to complete before the notice of award to maintain the project schedule and prevent delays if the notice of funding award is received from FEMA. If the City receives a notification of grant funding and a grant agreement is executed, it is expected that the complexity of this infrastructure project will require a period of performance of approximately 60 months. Phase 1 will continue progressing design to 100% completion before initiating implementation of the project. Construction will not begin until all Phase 1 deliverables are provided to FEMA and a notice to proceed to Phase 2 is in place. The construction contractor will be responsible to procure construction materials in compliance with all Build America, Buy America (BABA) requirements and any additional necessary regulatory measures. The City is aware of the temporary inconveniences that may occur during construction, including noise and temporary traffic control. Phase 2 is expected to begin August of 2025 and closeout August 2028, of which, construction is anticipated to take place over the course of 34 months. Finally, the grant closeout is expected to take approximately 3 months. Overall, the Russell-Person St. Bridge and Stream Improvement Project is expected to be complete in August 2028 and will require use of the allowed period of performance extensions. Please see Attachment 6 for the project schedule.

Explain why this project is the best alternative. What alternatives were considered to address the risk and why was the proposed activity considered the best alternative?

The project development team evaluated several alternatives to the proposed project. Option #1: Incorporate an upstream culvert diversion to draw flow from Blounts Creek and, convey the flow via a piped municipal system directly to the Cape Fear River. The construction of approximately 1.5 miles of large or multi-barrel culverts would be cost-prohibitive in addition to being incredibly intrusive to the local community. Although flooding would be considerably reduced, the construction would be lengthy, as there are many horizontal and vertical utility conflicts that would require navigating. Furthermore, the installation process would significantly impact local residents and business patrons along with failing to provide any nature-based or community-wide benefits beyond flood reduction. Option #2: The existing dam upstream of Blounts Creek has previously breached. The project team evaluated retrofitting the dam and bringing it back online. Although this would have mitigated the flooding, the breached dam has created a beautiful and vital wetland. Bringing the dam back online would destroy the wetland ecosystem that has been created and cause unacceptable adverse environmental impacts to the area. Option #3: No Action Alternative. Fayetteville is a growing city with significant growth occurring downtown, which is located in the middle of the Blounts Creek watershed. Because of this expansion, additional pressure is being added to

the already stressed system. It is anticipated that flooding will worsen as new developments, which drain into Blounts Creek, continue to increase along with increased impacts from climate change. Water quality of Blounts Creek will also deteriorate due to eroding stream banks, ultimately impacting the Cape Fear River. The proposed project was considered the best alternative because among the options, it is the least intrusive to the community while still providing significant mitigation benefits. Furthermore, the project provides the greatest level of environmental protection, and opportunity for enhancements that will benefit the community at large.

Please identify the entity that will perform any long-term maintenance and provide a maintenance, schedule and cost information. The subapplicant or owner of the area to be mitigated is responsible for maintenance (including costs of long-term care) after the project is completed?

The majority of the maintenance for this project will be the primary responsibility of the City's Street Maintenance Division and the Environmental Services Department, in coordination with the Fayetteville Stormwater Division. NCDOT and CSX will be responsible for portions of the long-term operations and maintenance related to bridges and/or rail crossings impacted by the proposed project. NCDEQ will be the primary responsible agency for maintenance activities related to the Construction Site Runoff Control program. For impacts to the existing Greenway including extended the footprint, maintenance will be the responsibility of the City's Parks Department. The City will conduct inspections to ensure stormwater control measures and the storm sewer system (including catch basins, the conveyance system, and structural stormwater controls) are monitored and implemented adequately, as outlined in the Maintenance Agreement (Attachment 7), and tracked consistently through the computerized database. Maintenance for stormwater infrastructure will be performed annually while maintenance for the bridge structures will occur on a biennially basis. All Maintenance and preventative maintenance activities will be documented and conducted based on industry best practices and policies and procedures established by the City. Maintenance costs for the project are estimated at \$107, 806 annually. These costs include maintenance activities for both the grey and green infrastructure elements of the project and will be performed beyond duration of grant period through the anticipated useful life of 50-years for the drainage systems, roads, and bridges. Maintenance and improvements are funded by stormwater utility fees collected within the City. Ongoing improvements will include channel stabilization, general channel maintenance to reduce erosion and maximize pollution reduction capabilities, safety improvements, stream habitat enhancement, and repair of flooding problems associated with stormwater generated from public streets. The Stormwater Quality Management Program Plan's Section 7.5 (Attachment 4) states that prior to issuance of a permit for the construction of the improvements, an Operation and Maintenance Agreement must be submitted, approved, and executed. The guidelines for developing and implementing a maintenance plan will be followed. Please see Attachment 5 for details on Fayetteville's successfully completed Stormwater Capital Improvement Projects (SWCIP).

Additional comments (optional)

Community Engagement and Outreach - The outreach strategy for this project includes an inclusive and flexible approach that will serve to enhance the community's resilience by educating the public about the natural hazard risks they face. During the project implementation, the City will conduct two meetings annually for the general public as well as targeted meetings to promote stakeholder engagement and build off of previous efforts conducted as part of the City-Wide Watershed Master Planning effort. Information about the project and notices of meetings will be provided using a wide range of media including print, radio, and television. Fayetteville also maintains a Stormwater Advisory Board (SWAB), which is an appointed citizen panel to review and comment on the City's stormwater programs, hosts a flood awareness map, and has an ongoing flood awareness campaign aimed at communicating results, and goals of the Watershed Master Plan and other projects - which will all be incorporated into the outreach strategy for this project.

**Attachments**

Filename	Date uploaded	Uploaded by	Label	Description	Action
<a href="#">Attachment 2 - Watershed Masterplan Solutions for Blounts Creek.pdf</a>	01/06/2023	jonathan.trimble@arcadis.com	Scope of Work Attachments	Attachment 2 - Watershed Masterplan Solutions for	

Filename	Date uploaded	Uploaded by	Label	Description	Action
				Blounts Creek by Priority Sub-basins	
<a href="#">QualitativeCriterion_3_ImplementationMeasures.pdf</a>	01/06/2023	jonathan.trimble@arcadis.com	Scope of Work Attachments	Qualitative Criterion 3 - Implementation Measures	
<a href="#">Attachment 3 - Center City Parks and Trail Master Plan.pdf</a>	01/06/2023	jonathan.trimble@arcadis.com	Scope of Work Attachments	Attachment 3 - City Center Parks and Trails Masterplan	
<a href="#">Attachment 4 - Stormwater Quality Management Program Plan.pdf</a>	01/06/2023	jonathan.trimble@arcadis.com	Scope of Work Attachments	Attachment 4 - Stormwater Quality Management Program Plan	
<a href="#">Attachment 6 - Project Schedule.pdf</a>	01/06/2023	jonathan.trimble@arcadis.com	Scope of Work Attachments	Attachment 6 - Project Schedule	
<a href="#">QualitativeCriterion_5_OutreachActivities.pdf</a>	01/06/2023	jonathan.trimble@arcadis.com	Scope of Work Attachments	Qualitative Criterion 5 - Community Engagement and Outreach Activities	
<a href="#">Attachment 5- Completed Stormwater Capital Improvement Projects.pdf</a>	01/06/2023	jonathan.trimble@arcadis.com	Scope of Work Attachments	Attachment 5 - Completed Stormwater Capital Improvement Projects	
<a href="#">QualitativeCriterion_2_Future_Conditions.pdf</a>	01/06/2023	jonathan.trimble@arcadis.com	Scope of Work Attachments	Qualitative Criterion 2 - Climate Change and Other Future Conditions	
<a href="#">QualitativeCriterion_4_PopulationImpacted.pdf</a>	01/06/2023	jonathan.trimble@arcadis.com	Scope of Work Attachments	Qualitative Criterion 4 - Population Impacted by Census Tract and SVIs	
<a href="#">Attachment 7 - Maintenance Agreement.pdf</a>	01/06/2023	jonathan.trimble@arcadis.com	Scope of Work Attachments	Attachment 7 - Maintenance Agreement	
<a href="#">QualitativeCriterion_1_RiskReduction.pdf</a>	01/06/2023	jonathan.trimble@arcadis.com	Scope of Work Attachments	Qualitative Criterion 1 - Risk Reduction/Resilience Effectiveness	

## Schedule

Specify the work schedule for the mitigation activities.

### Add tasks to the schedule

Please include all tasks necessary to implement this mitigation activity; include descriptions and estimated time frames.

<p><b>Task Name</b> Pre Award - 0 - 35% Design Completion</p>	<p><b>Start Month</b> 1</p>	<p><b>Task Duration (in Months)</b> 1 months</p>
<p><b>Task Description</b> Pre Award period completion of 35% design. 8-month duration prior to notice of award. Completion of this task (35% design) will also serve as the Go-No-Go Milestone for the project</p>		
<p><b>Task Name</b> Pre Award - CSX/NCDOT Coordination</p>	<p><b>Start Month</b> 1</p>	<p><b>Task Duration (in Months)</b> 1 months</p>
<p><b>Task Description</b> Coordination with CSX Transportation and NCDOT to align design of project elements. 11-month duration prior to notice of award.</p>		
<p><b>Task Name</b> Pre-Award - Environmental and Regulatory Agency Consultations</p>	<p><b>Start Month</b> 1</p>	<p><b>Task Duration (in Months)</b> 1 months</p>
<p><b>Task Description</b></p>		

	Initiate environmental and regulatory agency consultation with relevant local, state, and federal entities. 8-month duration prior to notice of award.	
<b>Task Name</b> Phase 1 - Notice of Award and Execution of Subrecipient Agreement	<b>Start Month</b> 1	<b>Task Duration (in Months)</b> 2 months
	<b>Task Description</b> Notice of Award from FEMA and State/Federal grant agreement execution	
<b>Task Name</b> Phase 1 - CSX/NCDOT Coordination Continued	<b>Start Month</b> 2	<b>Task Duration (in Months)</b> 21 months
	<b>Task Description</b> Continued design coordination with CSX and NCDOT for bridgework.	
<b>Task Name</b> Phase 1- Environmental and Regulatory Agency Consultations Continued.	<b>Start Month</b> 2	<b>Task Duration (in Months)</b> 7 months
	<b>Task Description</b> Ongoing environmental and regulatory coordination with relevant local, state, and federal entities	
<b>Task Name</b> Phase 1 - Permitting	<b>Start Month</b> 9	<b>Task Duration (in Months)</b> 14 months
	<b>Task Description</b> Obtain relevant permits.	
<b>Task Name</b> Phase 1 - Utility Coordination	<b>Start Month</b> 5	<b>Task Duration (in Months)</b> 18 months
	<b>Task Description</b> Coordinate and resolve relevant utility conflicts	
<b>Task Name</b> Phase 1 - Easement and Real Estate Coordination	<b>Start Month</b> 2	<b>Task Duration (in Months)</b> 21 months
	<b>Task Description</b> Identification and coordination of any necessary easements.	
<b>Task Name</b> Phase 1 - 35-70% Design Completion	<b>Start Month</b> 2	<b>Task Duration (in Months)</b> 10 months
	<b>Task Description</b> Phase 1 - 35-70% Design Completion	
<b>Task Name</b> Phase 1 - 70-90% Design Completion	<b>Start Month</b> 12	<b>Task Duration (in Months)</b> 7 months
	<b>Task Description</b> Phase 1 - 70-90% Design Completion	
<b>Task Name</b> Phase 1 - 90-100% Design Completion	<b>Start Month</b> 19	<b>Task Duration (in Months)</b> 4 months
	<b>Task Description</b> Phase 1 - 90-100% Design Completion	
<b>Task Name</b>	<b>Start Month</b>	<b>Task Duration (in Months)</b>

Phase 1 - Submission of Phase 1 Deliverables and NTP to Phase 2	23	1 months	<b>Task Description</b> Submission of Phase 1 Deliverables and NTP to Phase 2
<b>Task Name</b> Phase 2 - Procurement of Construction Contractor	<b>Start Month</b> 24	<b>Task Duration (in Months)</b> 4 months	<b>Task Description</b> Procurement of Construction Contractor
<b>Task Name</b> Phase 2 - CSX/NCDOT Coordination (Cont.)	<b>Start Month</b> 24	<b>Task Duration (in Months)</b> 34 months	<b>Task Description</b> Ongoing design coordination with CSX and NCDOT for bridgework
<b>Task Name</b> Phase 2 - Construction	<b>Start Month</b> 28	<b>Task Duration (in Months)</b> 30 months	<b>Task Description</b> Construction of project.
<b>Task Name</b> Phase 2 - Project Closeout	<b>Start Month</b> 57	<b>Task Duration (in Months)</b> 3 months	<b>Task Description</b> Close out of project and grant reporting.

Estimate the total duration of your proposed activities (in months). **60**

**Proposed project start and end dates**

Start Date **2023-08-01**  
End Date **2028-08-31**

**Introduction**

**Project location**

Provide a detailed description of the proposed project's location.

The Person St Bridge is located on Person St between S Kennedy St and B St while the Russell St Bridge is on Russell St between Wayde St and Old Wilmington Rd. The 4,000 linear feet of stream enhancement work starts from Blounts Creek at S. Cool Spring St to downstream of Person St. The area being mitigated encompasses mixed residential, commercial, and industrial zoned properties at the eastern edge of Fayetteville between Person Street and Gillespie Street, along Blounts Creek, immediately west of the Cape Fear River. This section of the city specifically remains vulnerable to extreme precipitation events that cause overtopping of Blounts Creek and threaten residential, and non-residential structures, as well as several surface streets and a rail line. The unique water system that runs directly through the city has put much of the project area at risk to pluvial and, often, fluvial flooding. The urgency and necessity of upgrading existing infrastructure is critical to protecting and ensuring residential and commercial properties are resilient and can withstand these flood and climate change impacts. The proposed project will prevent and mitigate against future flood hazards up to the 100-year level of protection and will reduce the severity of the 100-year event within the project area, and thus providing additional protection specifically to the various disadvantaged communities within the project area. See Attachment 8 – Project Location Maps for more Detail.

Latitude **35.047971**  
Longitude **-078.871818**

**Attachments**

Filename	Date uploaded	Uploaded by	Label	Description	Action
<a href="#">Attachment 8 - Project Location Maps.pdf</a>	01/06/2023	jonathan.trimble@arcadis.com	Project Location Attachments	Attachment 8 - Project Location Maps	

**Project benefiting area**

Provide a detailed description of the proposed project's benefiting area.

The primary project benefiting area includes residential and non-residential areas of seven (7) census tracts within the City of Fayetteville, North Carolina. The Census Tracts benefiting include tracts 2, 6, 7.01, 7.02, 17.01, 21, and 38. The benefiting area is primarily located adjacent to Blounts Creek in the areas that will see reduced flooding, and directly to the 576 structures that will see reduced impacts from 100-year storms and lesser events. Additional benefits from reduced roadway flooding and impacts to the CSX rail line will also convey beyond the project's direct benefiting area to users of these transportation corridors including along Person St, Russell St, Campbell Ave, Robeson St, Raeford Rd, Whitfield St, and Gillespie St. Further benefits will convey to the Cape Fear River Basin downstream of the project through water quality improvements provided by nature-based and green infrastructure elements of the project.

**Attachments**

Filename	Date uploaded	Uploaded by	Label	Description	Action
<a href="#">Attachment 8 - Project Location Maps.pdf</a>	01/06/2023	jonathan.trimble@arcadis.com	Location project benefiting area Attachments	Attachment 8 - Project Location Maps	
<a href="#">QualitativeCriterion_4_PopulationImpacted.pdf</a>	01/06/2023	jonathan.trimble@arcadis.com	Location project benefiting area Attachments	Qualitative Criterion 4 - Overview of Population Impacted via Census Tracts and Respective SVIs in Project Area	

**Project impact area**

Provide a detailed description of the proposed project's impact area.

The project's impact area is concentrated around Blounts Creek extending from approximately 300-ft downstream (North) of the Person St crossing for approximately 4,000-ft upstream to the downstream side of the South Cool Spring St. Further impacts will be concentrated around the Person St and Russel St bridges located roughly one-half mile east of Downtown Fayetteville. The impact area is a mix of residential and non-residential buildings and includes privately owned and City-owned properties. The Blounts Creek Trail a greenway running parallel to Blounts Creek may also be impacted as part of the stream improvements. Finally, the project will have impacts to traffic along Russel and Person St which will be minimized through deployment of traffic control measures. Overall the City will seek to minimize impacts to all of these areas to the greatest extent feasible.

**Attachments**

Filename	Date uploaded	Uploaded by	Label	Description	Action
<a href="#">Attachment 8 - Project Location Maps.pdf</a>	01/06/2023	jonathan.trimble@arcadis.com	Location project impact area Attachments	Attachment 8 - Project Location Maps	

Filename	Date uploaded	Uploaded by	Label	Description	Action
<a href="#">Attachment 2 - Watershed Masterplan Solutions for Blounts Creek.pdf</a>	01/06/2023	jonathan.trimble@arcadis.com	Location project impact area Attachments	Attachment 2 - Watershed Masterplan Solutions for Blounts Creek from Analysis of Primary and Secondary Drainage Systems in High Priority Sub-basins	

### Project site inventory

Does this project subapplication propose to mitigate a property/structure(s)? ( **No** )  
 Examples: residential home, commercial building, bridge, fire station, levee, pumping station, wastewater treatment plant, telephone pole, electric line, etc.)

Please [download the excel template](#), and then fill out the template with building or infrastructure data.

### Budget

Budget cost estimate should directly link to your scope of work and work schedule. You must add at least one item(s) greater than 0 for your cost estimate. As necessary, please adjust your federal/non-federal cost shares, and add the non-federal funding source(s) you are planning to use this project. Once you have completed this section, please click the Continue button at the bottom of this page to navigate to the next section.

#### Add budget cost types and item(s)

First, click the Add cost type button below to add cost type cost estimate and then click the Add item(s) button to add the item(s) for the cost estimate.

**Grand total: \$21,561,225.00**

#### Budget type: Construction

▶ <b>Cost type: Cost estimate</b>	<b>\$20,534,500.00</b>
▶ <b>Cost type: Management cost</b>	<b>\$1,026,725.00</b>

Program income (optional)

### Cost share

Cost share or matching means the portion of project costs not paid by federal funds.

#### Proposed federal vs. non-federal funding shares

Hazard mitigation assistance (HMA) funds may be used to pay up to 75% federal share of the eligible activity costs. Building Resilient Infrastructure and Communities (BRIC) and small impoverished communities may be eligible for up to 90% federal share. Flood Mitigation Assistance (FMA) and severe repetitive loss (SRL) properties may be eligible for up to 100% federal share. Repetitive loss (RL) properties may be eligible for up to 90% federal share.

<a href="#">Is this an Economically Disadvantaged Rural Community?</a> This determines your federal/non-federal share ratio. No		% Percentage	\$ Dollar amount
	<b>Proposed federal share</b>	<b>71.43</b>	<b>15400875.00</b>
	<b>Proposed non-federal share</b>	<b>28.57</b>	<b>6160350.00</b>
		Based on total budget cost: <b>\$21,561,225.00</b>	

**Non-federal funding sources here**

That portion of the total costs of the program provided by the non-federal entity in the form of in-kind donations or cash match received from third parties or contributed by the agency. In-kind contributions must be provided and cash expended during the project period along with federal funds to satisfy the matching requirements.

Funding source	Funding amount	% Non-federal share by source
▶ Funding source: City of Fayetteville Stormwater Enterprise Funds	100.00%	\$6,160,350.00

Please provide any additional comments below (optional).

**Attachments**

Filename	Date uploaded	Uploaded by	Label	Description	Action
<a href="#">Attachment 12 - Project Cost Estimate.pdf</a>	11/18/2022	jonathan.trimble@arcadis.com	Budget Attachments	Attachment 12 - Schematic Design Cost Estimate Summary	
<a href="#">Attachment 13 - Local Cost Share Commitment Letter.pdf</a>	11/18/2022	jonathan.trimble@arcadis.com	Budget Attachments	Attachment 13 - Local Cost Share Commitment Letter from City	

**Cost-effectiveness**

**How was cost-effectiveness determined for this project?**

- BCA completed in FEMA's BCA toolkit  
Subapplicant must attach supporting documentation.
- Pre-calculated benefits
- Substantial damage in special flood hazard area
- Other BCA methodology approved by FEMA in writing
- Not applicable  
Please explain why this project is not applicable.

Please explain why this project is not applicable.

What are the total project benefits? (\$)	<b>52238793</b>
What are the total project cost? (\$)	<b>23049028</b>
What is the benefit-cost ratio (BCR) for the entire project?	<b>2.26</b>
Was sea level rise incorporated into the flood elevations in the BCA?	<b>No</b>
Were environmental benefits added to the project benefits?	<b>Yes</b>
Were social benefits added to the project benefits?	<b>Yes</b>

Please provide any additional comments below (optional).

**Project benefits and costs provided represent analysis conducted with the standard 7% discount rate. It should, however, be noted that the project does qualify for use of the 3% discount rate in line with FEMA's Alternative Cost Effectiveness memorandum. At this alternative rate the project would result in \$84,676,156 in project benefits at a cost of \$24,335,048, arriving at a BCR of 3.48.**

**Attachments**

Filename	Date uploaded	Uploaded by	Label	Description	Action
<a href="#">Russell_PersonSt_BCA_Toolkit_ProjectsExport.zip</a>	01/06/2023	jonathan.trimble@arcadis.com	Cost Effectiveness Attachments	Benefit-Cost Analysis Toolkit export document and results for project	
<a href="#">Attachment 12 - BCA Methodology.pdf</a>	01/06/2023	jonathan.trimble@arcadis.com	Cost Effectiveness Attachments	Benefit-Cost Analysis Technical Memorandum on applied BCA methodology for project	
<a href="#">Attachment 12A - BCA Toolkit.xlsx</a>	01/06/2023	jonathan.trimble@arcadis.com	Cost Effectiveness Attachments	Benefit-Cost Toolkit Calculator v6.0.0. outputs summary spreadsheet for project	

## Environmental/Historic Preservation (EHP) Review Information

### Introduction

An environmental/historic preservation review is required for all activities for which FEMA funds are being requested. FEMA will complete this review with the assistance of both the state or tribal government and the local applicant. It is important that you provide accurate information. If you are having problems completing this section, please contact your application point of contact.

### A. National Historic Preservation Act - Historic Buildings and Structures

1. Does your project affect or is it in close proximity to any buildings or structures 50 years or more in age? **Yes**

**Please confirm that you have provided the information listed below by selecting each check box. (If you have not provided these documents in any other section of the application, please attach the required documents below.)**

- The property address and original date of construction for each property affected (unless this information is already noted in the Properties section).
- A minimum of two color photographs showing at least three sides of each structure (Please label the photos accordingly).
- A diagram or USGS 1:24,000 scale quadrangle map displaying the relationship of the property (s) to the project area.

**To help FEMA evaluate the impact of the project, please indicate below any other information you are providing. (optional)**

- Information gathered about potential historic properties in the project area, including any evidence indicating the age of the building or structure and presence of buildings or structures that are listed or eligible for listing on the National Register of Historic Places or within or near a National Register listed or eligible historic district. Sources for this information may include the State Historic Preservation Officer, and/or the Tribal Historic Preservation Officer (SHPO/THPO), your local planning office, historic preservation organization, or historical society.
- Consideration of how the project design will minimize adverse effects on known or potential historic buildings or structures, and any alternatives considered or implemented to avoid or minimize effects on historic buildings or structures. Please address and note associated costs in your project budget.
- For acquisition/demolition projects affecting historic buildings or structures, any data regarding the consideration and feasibility of elevation, relocation, or flood proofing as alternatives to demolition.
- Attached materials or additional comments.

Please provide an explanation and any information about this project that could assist FEMA in its review. (optional)

**There are five 50-year or older buildings within 100-ft of the project area as shown on Attachment A2 – Structures within 100-ft of Project Area Photolog. However, this project will not impact the structures nor the historic integrity of the area. All structures are at least 20-ft away from the anticipated boundary of ground disturbance. The Fayetteville Downtown Historic District is adjacent to the project area, however, the District and buildings recognized by the National Register of Historic Places are at least 1,300-ft away from the project area, as displayed on Attachment A3 – National Register Historic Sites Map. The closest historic property listed on Attachment A4 – NC Historic Preservation Office Map is 350-ft away and the closest National Register and local landmark on the map is at least 1,400-ft away from the project area. Examples of historic properties that are close to the project area are displayed in Attachment A5 - NCHPO Structures Photolog.**

Please provide an explanation and any information about this project that could assist FEMA in its review.

**Attachments**

Filename	Date uploaded	Uploaded by	Label	Description	Action
<a href="#">AT8026~1.PDF</a>	11/18/2022	jonathan.trimble@arcadis.com	closeProximityTo50YearOldBuilding.attachmentIds	Attachment A1 - USGS 1:2400 Scale Map	
<a href="#">ATTACH~4.PDF</a>	11/18/2022	jonathan.trimble@arcadis.com	closeProximityTo50YearOldBuilding.attachmentIds	Attachment A2 - Structures within 100-ft of Project Area Photolog	
<a href="#">ATTACH~3.PDF</a>	11/18/2022	jonathan.trimble@arcadis.com	closeProximityTo50YearOldBuilding.attachmentIds	Attachment A3 - National Register of Historic Sites Map	
<a href="#">ATBAFA~1.PDF</a>	11/18/2022	jonathan.trimble@arcadis.com	closeProximityTo50YearOldBuilding.attachmentIds	Attachment A4 - NC Historic Preservation Office Map	
<a href="#">AT153A~1.PDF</a>	11/18/2022	jonathan.trimble@arcadis.com	closeProximityTo50YearOldBuilding.attachmentIds	Attachment A5 NCHPO Structures Photolog	
<a href="#">ATTACH~2.PDF</a>	11/18/2022	jonathan.trimble@arcadis.com	closeProximityTo50YearOldBuilding.attachmentIds	Attachment A6 - Coordination Letter to SHPO	

**B. National Historic Preservation Act - Archeological Resources**

Does your project involve disturbance of ground? **Yes**

**Please confirm that you have provided the information listed below by selecting each check box. (If you have not provided these documents in any other section of the application, please attach the required documents below.)**

- A description of the ground disturbance by giving the dimensions (area, volume, depth, etc.) and location.
- The past use of the area to be disturbed, noting the extent of previously disturbed ground.
- A USGS 1:24,000 scale or other site map showing the location and extent of ground disturbance.

**To help FEMA evaluate the impact of the project, please indicate below any other information you are providing. (optional)**

- Any information about potential historic properties, including archeological sites, in the project area. Sources of this information may include SHPO/THPO, and/or the Tribe's cultural resources contact if no THPO is designated. Include, if possible, a map showing the relation of any identified historic properties to the project area.
- Attached materials or additional comments.

Please provide an explanation and any information about this project that could assist FEMA in its review. (optional)

**The construction of this project will inevitably result in ground disturbance. The extent and dimensions of the anticipated ground disturbance are provided in Attachment B1 – Ground Disturbance Map. Analysts utilized Attachment B3 – NC Historic Preservation Office Map to conduct a desktop review of potential archaeological sites in the project area. The map indicates there are no archeological site that would be impacted or disturbed by the implementation of this project**

Please provide an explanation and any information about this project that could assist FEMA in its review.

**Attachments**

Filename	Date uploaded	Uploaded by	Label	Description	Action
<a href="#">ATTACH~1.PDF</a>	11/18/2022	jonathan.trimble@arcadis.com	involveDisturbanceOfGround.attachmentIds	Attachment B4 - Coordination Letter to SHPO	
<a href="#">ATTACH~3.PDF</a>	11/18/2022	jonathan.trimble@arcadis.com	involveDisturbanceOfGround.attachmentIds	Attachment B2 - USGS 1:24000 Scale Map Fayetteville	
<a href="#">ATTACH~2.PDF</a>	11/18/2022	jonathan.trimble@arcadis.com	involveDisturbanceOfGround.attachmentIds	Attachment B3 - NC Historic Preservation Office Map	
<a href="#">ATTACH~4.PDF</a>	11/18/2022	jonathan.trimble@arcadis.com	involveDisturbanceOfGround.attachmentIds	Attachment B1 - Ground Disturbance Map	
<a href="#">ATF431~1.PDF</a>	11/18/2022	jonathan.trimble@arcadis.com	involveDisturbanceOfGround.attachmentIds	Attachment B4 - Existing Condition Photolog	

**C. Endangered Species Act and Fish and Wildlife Coordination Act**

1. Are federally listed threatened or endangered species or their critical habitat present in the area affected by the project? **No**

**Please confirm that you have provided the information listed below by selecting each check box. (If you have not provided these documents in any other section of the application, please provide the required documents either through attachment and/or comment box below.)**

Information you obtained to identify species in or near the project area. Provide the source and date of the information cited.

**To help FEMA evaluate the impact of the project, please indicate below any other information you are providing. (optional)**

Any request for information and associated response from the USFWS, the National Marine Fisheries Service (NMFS) (for affected ocean-going fish), or your State Wildlife Agency, regarding potential listed species present and potential of the project to impact those species.

Attached materials or additional comments.

Please provide an explanation and any information about this project that could assist FEMA in its review. (optional)

Please provide an explanation and any information about this project that could assist FEMA in its review.

2. Does your project remove or affect vegetation? **Yes**

**Please confirm that you have provided the information listed below by selecting each check box. (If you have not provided these documents in any other section of the application, please provide the required documents either through attachment and/or comment box below.)**

Description of the amount (area) and type of vegetation to be removed or affected.

A site map showing the project area and the extent of vegetation affected.

Photographs or digital images that show both the vegetation affected and the vegetation in context of its surroundings.

**To help FEMA evaluate the impact of the project, please indicate below any other information you are providing. (optional)**

Attached materials or additional comments.

Please provide an explanation and any information about this project that could assist FEMA in its review. (optional)

**The project will remove and disturb existing vegetation within the project area. Most of the vegetation which will be removed consists of invasive shrubs and grasses that can be found along riparian areas. The vegetation**

which is replanted as a result of this project will be native species to help restore the natural function and ecological system along Blounts Creek. A photolog of the existing vegetation can be found in Attachment C4 – Vegetation and Waterbody Photolog.

Please provide an explanation and any information about this project that could assist FEMA in its review.

3. Is your project in, near (within 200 feet), or likely to affect any type of waterway or body of water? **Yes**

**If Yes, and project is not within an existing building, you must confirm that you have provided the following: (If you have not provided these documents in any other section of the application, please attach the required documents below.)**

- A USGS 1:24,000 scale quadrangle map showing the project activities in relation to all nearby water bodies (within 200 feet).
- Any information about the type of water body nearby including: its dimensions, the proximity of the project activity to the water body, and the expected and possible changes to the water body, if any. Identify all water bodies regardless whether you think there may be an effect.
- A photograph or digital image of the site showing both the body of water and the project area.

**To help FEMA evaluate the impact of the project, please indicate below any other information you are providing. (optional)**

- Evidence of any discussions with the US Fish and Wildlife Service (USFWS), and/or your State Wildlife Agency concerning any potential impacts if there is the potential for the project to affect any water body.

Please provide an explanation and any information about this project that could assist FEMA in its review. (optional)

**The North Carolina Wildlife Resources Commission (NCWRC) has been notified of this project and consulted for potential impacts and permits that will be required for the implementation of this project. Please find Attachment C4 – Vegetation and Waterbody Photolog for further review.**

**Attachments**

Filename	Date uploaded	Uploaded by	Label	Description	Action
<a href="#">ATTACH-3.PDF</a>	11/18/2022	jonathan.trimble@arcadis.com	endangeredSpecies.attachmentIds	ATTACHMENT C5 – Coordination Letter To NCWRC	
<a href="#">ATTACH-4.PDF</a>	11/18/2022	jonathan.trimble@arcadis.com	endangeredSpecies.attachmentIds	ATTACHMENT C1 – Critical Habitats for Threatened and Endangered Species	
<a href="#">ATTACH-2.PDF</a>	11/18/2022	jonathan.trimble@arcadis.com	endangeredSpecies.attachmentIds	ATTACHMENT C2– Ground Disturbance Map	
<a href="#">AT9B14~1.PDF</a>	11/18/2022	jonathan.trimble@arcadis.com	endangeredSpecies.attachmentIds	ATTACHMENT C4 – Vegetation and Waterway Photolog	
<a href="#">ATTACH-1.PDF</a>	11/18/2022	jonathan.trimble@arcadis.com	endangeredSpecies.attachmentIds	ATTACHMENT C3 – USGS 1:24000 Scale Map NC Fayetteville	

**D. Clean Water Act, Rivers and Harbors Act, and Executive Order 11990 (Protection of Wetlands)**

1. Will the project involve dredging or disposal of dredged material, excavation, adding fill material or result in any modification to water bodies or wetlands designated as 'waters of the U.S.' as identified by the US Army Corps of Engineers or on the National Wetland Inventory? **Yes**

**Please confirm that you have provided the information listed below by selecting each check box. (If you have not provided these documents in any other section of the application, please attach the required documents below.)**

- Documentation of the project location on a USGS 1:24,000 scale topographic map or image.
- A copy of a National Wetlands Inventory map or other available wetlands mapping information.

**To help FEMA evaluate the impact of the project, please indicate below any other information you are providing. (optional)**

- Request for information and response letter from the US Army Corps of Engineers and/or state resource agencies regarding the potential for wetlands, and applicability of permitting requirements.
- Evidence of alternatives considered to eliminate or minimize impacts to wetland.
- Attached materials or additional comments.

Please provide an explanation and any information about this project that could assist FEMA in its review. (optional)

The project development team evaluated several alternatives and ultimately selected the alternative that provided the greatest level of protection against flooding while also fostering environmental enhancement. Other alternatives considered could have resulted in wetland ecosystem destruction, water quality degradation, and/or high rates of erosion along Blounts Creek. The selected alternative is not expected to alter the course of Blounts Creek, rather, it is expected to restore wetland natural functions within the project area. The US Army Corps of Engineers (USACE) has been consulted to identify potential impacts and permits which may be required, as provided in Attachment D2 – Coordination Letter to USACE.

**Attachments**

Filename	Date uploaded	Uploaded by	Label	Description	Action
<a href="#">ATTACH~3.PDF</a>	11/18/2022	jonathan.trimble@arcadis.com	waterBodyOrWetlandModification.attachmentlds	ATTACHMENT D2 – National Wetlands Inventory Map	
<a href="#">ATTACH~1.PDF</a>	11/18/2022	jonathan.trimble@arcadis.com	waterBodyOrWetlandModification.attachmentlds	ATTACHMENT D1– USGS 1:24,000 Scale Map NC Fayetteville	
<a href="#">ATTACH~2.PDF</a>	11/18/2022	jonathan.trimble@arcadis.com	waterBodyOrWetlandModification.attachmentlds	ATTACHMENT D3 – Coordination Letter to USACE	

**E. Executive Order 11988 (Floodplain Management)**

1. Does a Flood Insurance Rate Map (FIRM), Flood Hazard Boundary Map (FHBM), hydrologic study, or some other source indicate that the project is located in or will affect a 1% annual chance floodplain, a 0.2% annual chance floodplain, a regulatory floodway, or an area prone to flooding?

**Yes**

Please explain in the text box below and/or provide any documentation to identify the means or the alternatives considered to eliminate or minimize impacts to floodplains (See the 8 step process found in 44 CFR Part 9.6.) to help FEMA evaluate the impact of the project:

**Multiple alternatives were evaluated in the consideration of this project. Ultimately the City selected the project will provide the greatest benefit with minimal impacts. The direct and indirect impacts to the floodplain and wetlands area have been evaluated in the consideration of this project. It is a top priority of the City to continue to address these impacts, minimize any adverse impacts, and identify opportunities to further benefit the floodplain and wetlands throughout the design of the project. The project and impacts will be reviewed throughout the implementation and post-implementation phases of the project. The City will incorporate best practices into the project.**

Please provide an explanation and any information about this project that could assist FEMA in its review. (optional)

**The Cumberland County Engineering Division administers the Flood Damage Prevention Ordinance that regulated development within the floodplain in the County. As such, the City has consulted the Engineering Division to identify potential impacts and permits which may be required for the implementation of the project (Attachment E1 – Letter to the Floodplain Manager). The project area is provided on a flood insurance rate map (FIRM) in Attachment E2 - FIRM for review.**

2. Does the project alter a watercourse, water flow patterns, or a drainage way, regardless of its floodplain designation? **Yes**

**If Yes, please indicate below any other information you are providing to help FEMA evaluate the impact of the project:**

- Hydrologic/hydraulic information from a qualified engineer to demonstrate how drainage and flood flow patterns will be changed and to identify down and upstream effects.
- Request for information and response letter from the state water resource agency, if applicable, with jurisdiction over modification of waterways.
- Attached materials or additional comments.

Please provide an explanation and any information about this project that could assist FEMA in its review. (optional)

**The proposed project is one of the solutions from Blounts Creek Watershed Study presented as Attachment E3 – H&H Analysis Overview. Proposed solution has potential to increase water surface elevations and velocity downstream with increase in bridge opening which will be handled with stream design to maintain channel stability.**

**Attachments**

Filename	Date uploaded	Uploaded by	Label	Description	Action
<a href="#">ATTACH-3.PDF</a>	11/18/2022	jonathan.trimble@arcadis.com	affectToPercentAnnualChanceFloodplain.attachmentIds	ATTACHMENT E1 – Letter to the Floodplain Manager	
<a href="#">ATTACH-2.PDF</a>	11/18/2022	jonathan.trimble@arcadis.com	affectToPercentAnnualChanceFloodplain.attachmentIds	ATTACHMENT E3 – H&H Analysis Overview	
<a href="#">ATTACH-1.PDF</a>	11/18/2022	jonathan.trimble@arcadis.com	affectToPercentAnnualChanceFloodplain.attachmentIds	ATTACHMENT E2 – Flood Insurance Rate Map	

**F. Coastal Zone Management Act**

1. Is the project located in the state's designated coastal zone? **No**

**G. Farmland Protection Policy Act**

1. Will the project convert more than 5 acres of prime or unique farmland outside city limits to a non-agricultural use? **No**

**H. Resource Conservation and Recovery Act (RCRA) and Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (Hazardous and Toxic Materials)**

1. Is there a reason to suspect there are contaminants from a current or past use on the property associated with the proposed project? **Not known**

Please provide an explanation and any information about this project that could assist FEMA in its review.

**The proposed action involves with bridge improvements on Russell Street and Person Street. There is no known reason to suspect contaminants resulting from previous or current land uses at the project location.**

2. Are there any studies, investigations, or enforcement actions related to the property associated with the proposed project? **No**

3. Does any project construction or operation activities involve the use of hazardous or toxic materials? **No**

4. Do you know if any of the current or past land-uses of the property affected by the proposed project or of the adjacent properties are associated with hazardous or toxic materials? **Yes**

**If Yes, please indicate below any other information you are providing to help FEMA evaluate the impact of the project: (If you have not provided these documents in any other section of the application, please attach the required documents below.)**

- Comments and any relevant documentation.
- Results of any consultations with state or local agency to obtain permit with requirements for handling, disposing of or addressing the effects of hazardous or toxic materials related to project implementation.
- Attached materials or additional comments.

Please provide an explanation and any information about this project that could assist FEMA in its review. (optional)

**The United States Environmental Protection Agency (EPA) Cleanups in My Community Maps provides maps and known information regarding brownfield sites. Analysts used this tool to identify brownfield sites that are in proximity to the project area. The results are provided in Attachment H1 – Fayetteville, NC Cleanups Map. The City will seek proper consultation to address these neighboring sites and will use best practices to avoid interfering with any contaminated areas.**

**Attachments**

Filename	Date uploaded	Uploaded by	Label	Description	Action
<a href="#">ATTACH-1.PDF</a>	11/18/2022	jonathan.trimble@arcadis.com	resourceConservationRecovery.attachmentIds	ATTACHMENT H1 – Fayetteville, NC Cleanups Map	

**I. Executive Order 12898, Environmental Justice for Low Income and Minority Populations**

1. Are there low income or minority populations in the project's area of effect or adjacent to the project area? **Yes**

**If Yes, you must confirm that you have provided the following either in the text box below or by attachment: (If you have not provided these documents in any other section of the application, please attach the required documents or provide the description below.)**

- Description of any disproportionate and adverse effects to these populations.

**To help FEMA evaluate the impact of the project, please indicate below any other information you are providing. (optional)**

- Description of the population affected and the portion of the population that would be disproportionately and adversely affected. Please include specific efforts to address the adverse impacts in your proposal narrative and budget.
- Attached materials or additional comments.

Please provide an explanation and any information about this project that could assist FEMA in its review. (optional)

**Although there are three public housing units in close proximity as shown in Attachment I1 – HUD Resource Map, the residents will not be directly impacted by construction. There will be at a minimum 1 general public meeting and 1 stakeholder meeting each year during the planning phase.**

**Attachments**

Filename	Date uploaded	Uploaded by	Label	Description	Action
<a href="#">ATTACH-1.PDF</a>	11/18/2022	jonathan.trimble@arcadis.com	lowIncomeMinority.attachmentIds	ATTACHMENT I2 – 2020 Social Vulnerability Index Map	

Filename	Date uploaded	Uploaded by	Label	Description	Action
<a href="#">ATTACH-2.PDF</a>	11/18/2022	jonathan.trimble@arcadis.com	lowIncomeMinority.attachmentlds	ATTACHMENT I1 – HUD Resource Map	

### J. Other Environmental/Historic Preservation Laws or Issues

1. Are there other environmental/historic preservation requirements associated with this project that you are aware of? **No**
2. Are there controversial issues associated with this project? **No**
3. Have you conducted any public meeting or solicited public input or comments on your specific proposed mitigation project? **No**

### K. Summary and Cost of Potential Impacts

Having answered the questions in parts A. through J., have you identified any aspects of your proposed project that have the potential to impact environmental resources or historic properties? **Yes**

**If Yes, you must confirm that you have provided the following: (If you have not provided these documents in any other section of the application, please attach the required documents below.)**

- Evaluated these potential effects and provided the materials required in Parts A through J that identify the nature and extent of potential impacts to environmental resources and/or historic properties.
- Consulted with appropriate parties to identify any measures needed to avoid or minimize these impacts.
- Considered alternatives that could minimize both the impacts and the cost of the project.
- Made certain that the costs of any measures to treat adverse effects are realistically reflected in the project budget estimate.

Please enter your comments below. (optional) : (Please indicate why in the text box below and any information about this project that could assist FEMA in its review).

**The City is aware of the environmental and historic preservation elements that may be impacted as a result of this project. However, the project will result in net benefit to the environmental and historic quality within the project area. The City is pro-active in the coordination approach and has started to coordinate with regulatory agencies for consultations and concurrences. Coordination with regulatory agencies and the public will occur throughout the project schedule to foster collaboration throughout the lifetime of the project.**

#### Attachments

Filename	Date uploaded	Uploaded by	Label	Description	Action
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### Evaluation

- Is the applicant participating in the [Community Rating System \(CRS\)](#)? **No**
- Is the applicant a [Cooperating Technical Partner \(CTP\)](#)? **No**
- Was this application generated from a previous FEMA HMA Advance Assistance or Project Scoping award or any other federal grant award, or the subapplicant is a past recipient of Building Resilient Infrastructure and Communities (BRIC) non-financial Direct Technical Assistance? **No**
- Has the applicant adopted building codes consistent with the [international codes](#)? **Yes**
- Year of building code **2018**

Please provide the building code.

Have the applicant's building codes been assessed on the [Building Code Effectiveness Grading Schedule \(BCEGS\)](#)?

Select rating.

Describe involvement of partners to enhance the mitigation activity outcome.

Discuss how anticipated future conditions are addressed by this project.

Yes

4

The proposed bridge work needed to mitigate flooding along Blounts Creek at Russell Street will involve both the North Carolina Department of Transportation (NCDOT) who owns the two roadway related spans and CSX who owns the railroad bridge to coordinate all aspects of design and construction. Traffic control and additional temporary safety measures to perform construction of the bridge improvements will also be coordinated as needed. The City has had initial meetings with NCDOT and CSX and has received favorable response from both on the need for the bridge improvements and a commitment for engagement in the project moving forward. The project has also been included in the Fayetteville Area Metro Planning Organization's (FAMPO's) recent Fayetteville Area Multi-Modal Congestion Management Process final report as a project of need. The City intends to foster collaboration throughout Phase 1 and 2 of the project with both regulatory agencies and across stakeholder groups. There will be at least two annual engagement meetings throughout the period of performance. The two annual meetings will be tailored specifically towards the target audience. The City intends to host one meetings to derive input from the general public and the other will consist of targeted stakeholders which are relevant to the project and its outcome. See Qualitative Criterion 6 – Leveraging Partners for more detail.

The North Carolina Office of Recovery and Resilience (NCORR) recently completed a Climate Hazards Vulnerability Assessment for the Mid-Carolina region which identified increased future climate risks that include more severe storms and hurricanes, increased wildfire risk, increase flood risk, and increased risk from extreme heat indexes (Qualitative Criterion 2 – Future Conditions). The project addresses these future hazard conditions in several ways, along with addressing, future population growth, and future land use conditions within the Blounts Creek watershed. The NCORR assessment identified Fayetteville as being a location with a high population density within the floodplain, a problem which will only increase in the future, and on which the City seeks to address through this project. Future flooding and intense rain from severe storms is address through requirements within the City's Stormwater Ordinance and Consultant Standards Manual. These directives require H&H modeling, used for the basis of design, to incorporate a 6% increase from existing rainfall conditions to account for future climate change. This incorporation of future rainfall conditions sets the baseline for the project which, increases the City's resilience to climate change and provides increased benefit under existing climate conditions. The use of nature-based stream components and improvement to the floodplain will also help to be responsive to climate change. Increased storage capacity will assist in handling the increased intensity of future storms. Nature-based components also have the advantage of being adaptive to a changing climate, naturally expanding and contracting as baseline climate conditions vary. The project is also responsive to future population growth and land use change, especially within the growing downtown area of the City. The City's 2040 Comprehensive Plan aims at increasing land use intensity in key areas including downtown, which is expected to increase stormwater runoff. Incorporation of nature-based elements similar to those along Person St, directly west of the project (Attachment 9), will provide additional benefits for future conditions within the growing downtown area. Not only will these elements mitigate flooding, as discussed previously, but they will also help to mitigate extreme heat. Increased vegetation and reduced hardscape will reduce the heat-island effect lowering the risk from future extreme heat event. See Qualitative Criterion 2 – Future Conditions for more detail.

Additional comments (optional)

**Attachments**

Filename	Date uploaded	Uploaded by	Label	Description	Action
<a href="#">Attachment 13 - Fayetteville NC BCEGS Report.pdf</a>	01/06/2023	jonathan.trimble@arcadis.com	Evaluation Attachments	Attachment 13 - Fayetteville BCEGS Score	

Filename	Date uploaded	Uploaded by	Label	Description	Action
<a href="#">QualitativeCriterion_6_LeveragingPartners.pdf</a>	01/06/2023	jonathan.trimble@arcadis.com	Evaluation Attachments	Qualitative Criterion 6 - Overview of Partners to Leverage for Project	
<a href="#">QualitativeCriterion_2_Future_Conditions.pdf</a>	01/06/2023	jonathan.trimble@arcadis.com	Evaluation Attachments	Qualitative Criterion 2 - Overview of Climate Change and Other Future Conditions	
<a href="#">Attachment 2 - Watershed Masterplan Solutions for Blounts Creek.pdf</a>	01/06/2023	jonathan.trimble@arcadis.com	Evaluation Attachments	Attachment 2 - Watershed Masterplan Solutions for Blounts Creek by Priority Sub-basins	
<a href="#">Attachment 9 - Person Street Green Infrastructure.pdf</a>	01/06/2023	jonathan.trimble@arcadis.com	Evaluation Attachments	Attachment 9 - Person Street Green Infrastructure Monitoring Report	
<a href="#">Fayetteville NC Russell-Person St Bridge and Stream Improvement Project - Technical Scoring Support revised 1.pdf</a>	01/19/2023	jonathan.trimble@arcadis.com	Evaluation Attachments	Technical Scoring Summary Document	

## Comments & attachments

▶ <b>Community</b>	<b>0 comment, 1 attachments</b>
▶ <b>Mitigation plan</b>	<b>1 comment, 1 attachments</b>
▶ <b>Scope of work</b>	<b>1 comment, 11 attachments</b>
▶ <b>Budget</b>	<b>0 comment, 2 attachments</b>
▶ <b>Cost-effectiveness</b>	<b>1 comment, 3 attachments</b>
▶ <b>Evaluation</b>	<b>0 comment, 6 attachments</b>
▶ <b>Environmental/Historic Preservation (EHP)</b>	<b>0 comment, 25 attachments</b>
▶ <b>Location</b>	<b>0 comment, 5 attachments</b>

## Assurances and certifications

OMB Number: 4040-0009 Expiration Date: 02/28/2025 [View burden statement](#)

### SF-424D: Assurances - Construction Programs

Content:

OMB Number: 4040-0009  
 Expiration Date: 02/28/2025

Certain of these assurances may not be applicable to your project or program. If you have any questions, please contact the awarding agency. Further, certain Federal awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant, I certify that the applicant:

1. Has the legal authority to apply for Federal assistance and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project costs) to ensure proper planning, management and completion of the project described in this application.
2. Will give the awarding agency, the Comptroller General of the United States and, if appropriate, the State, the right to examine all records, books, papers, or documents related to the assistance; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.

3. Will not dispose of, modify the use of, or change the terms of the real property title or other interest in the site and facilities without permission and instructions from the awarding agency. Will record the Federal awarding agency directives and will include a covenant in the title of real property acquired in whole or in part with Federal assistance funds to assure nondiscrimination during the useful life of the project.
4. Will comply with the requirements of the assistance awarding agency with regard to the drafting, review and approval of construction plans and specifications.
5. Will provide and maintain competent and adequate engineering supervision at the construction site to ensure that the complete work conforms with the approved plans and specifications and will furnish progressive reports and such other information as may be required by the assistance awarding agency or State.
6. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.
7. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.
8. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§4728-4763) relating to prescribed standards for merit systems for programs funded under one of the 19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).
9. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.
10. Will comply with all Federal statutes relating to nondiscrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee- 3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and, (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.
11. Will comply, or has already complied, with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal or federally-assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.
12. Will comply with the provisions of the Hatch Act (5 U.S.C. §§1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.
13. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333), regarding labor standards for federally-assisted construction subagreements.
14. Will comply with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is \$10,000 or more.
15. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205).
16. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.
17. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a--1 et seq.).
18. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-133, "Audits of States, Local Governments, and Non-Profit Organizations."
19. Will comply with all applicable requirements of all other Federal laws, executive orders, regulations, and policies governing this program.
20. Will comply with the requirements of Section 106(g) of the Trafficking Victims Protection Act (TVPA) of 2000, as amended (22 U.S.C. 7104) which prohibits grant award recipients or a sub-recipient from (1) Engaging in severe forms of trafficking in persons during the period of time that the award is in effect (2) Procuring a commercial sex act during the period of time that the award is in effect or (3) Using forced labor in the performance of the award or subawards under the award.

## Certifications regarding lobbying

OMB Number: 4040-0013

Expiration Date: 02/28/2025

Certification for Contracts, Grants, Loans, and Cooperative Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this

Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions.

3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

#### Statement for Loan Guarantees and Loan Insurance

The undersigned states, to the best of his or her knowledge and belief, that:

If any funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this commitment providing for the United States to insure or guarantee a loan, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions. Submission of this statement is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required statement shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

## SF-LLL: Disclosure of Lobbying Activities

OMB Number: 4040-0013

Expiration Date: 02/28/2025

Complete only if the applicant is required to do so by 44 C.F.R. part 18. Generally disclosure is required when applying for a grant of more than \$100,000 and if any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions. Further, the recipient shall file a disclosure form at the end of each calendar quarter in which there occurs any event described in 44 C.F.R. § 18.110(c) that requires disclosure or that materially affects the accuracy of the information contained in any disclosure form previously filed by the applicant.

1. Type of federal action:	grant
2. Status of federal action:	initial award
3. Report type:	initial filing
4. Name and address of reporting entity:	Prime
Name	City of Fayetteville
Street 1	433 Hay Street
Street 2	
City	Fayettevill
State	NC
Zip	28301
Zip Ext	5537
Congressional district, if known:	7, 9
6. Federal department/agency:	DHS/FEMA
7. Federal program name/description:	Building Resilient Infrastructure and Communities (BRIC)
CFDA number, if applicable:	97.047
8. Federal action number, if known:	
9. Award amount, if known:	\$15092857.50
10a. Name and address of lobbying registrant:	
Prefix	
First name	Ron
Middle name	
Last name	Hamm
Suffix	
Street 1	444 North Capitol Street

Street 2 NW Suite 840  
City Washington DC  
State DC  
Zip 20001  
Zip Ext

10b. Individual performing services: (including address if different from No. 10a)

Prefix  
First name Ron  
Middle name  
Last name Hamm  
Suffix

Street 1 444 North Capitol Street  
Street 2 NW Suite 840  
City Washington DC  
State DC  
Zip 20001  
Zip Ext

11. Information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when the transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.