

Lumberton Loop: A City-Wide Plan for Flood Mitigation, Restoration, and Recreation in Lumberton, NC

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)

Lumberton Loop: A City-Wide Plan for Flood Mitigation, Restoration, and Recreation in Lumberton, NC

Activities

Primary activity type

Flood control

Primary sub-activity type

Floodplain and stream restoration

Secondary activity type (Optional)

Acquisition

Tertiary activity type (Optional)

Education and awareness

Tertiary sub-activity type

Other

If Other please specify

Youth environmental education site.

Geographic areas description

The proposed project will take place in Lumberton, North Carolina. Lumberton is the county seat of Robeson County with a population of approximately 20,840 people. The project area included in the proposed scope of work primarily encompasses lands directly adjacent to the Lumber River and two of its tributaries, Meadow Branch and Five Mile Branch, which are all part of the 3,343 square mile Lumber River Basin in North Carolina’s coastal plain ecoregion.

Community lifelines

Primary community lifeline

Health and medical

Primary sub-community lifeline	Public health
Secondary community lifeline (optional)	Safety and security
Secondary sub-community lifeline	Community safety
Tertiary community lifeline (optional)	Transportation
Tertiary sub-community lifeline	Maritime
Hazard sources	
Primary hazard source	Flooding
Secondary hazard source (optional)	Tropical cyclone (Hurricane/Typhoon)
Tertiary hazard source (optional)	Infrastructure failure
Is this a phased project?	No
Are you doing construction in this project?	Yes
Population affected	36.6
Detail/description of stated percentage	The Lumberton Loop is a 806+ acre green infrastructure project that connects Lumberton residents to riverine ecosystems, restored streams, constructed wetlands, and recreational facilities through a connected 8.52-mile greenway. Creating a 0.25-mile buffer around the perimeter of the Lumberton Loop captures the residents that are most likely to regularly access the Loop for recreational purposes. The 0.25-mile buffer contains 3,064 buildings out of the 8,366 buildings that are within Lumberton's city limits. This ratio is equivalent to 36.6% of all buildings in Lumberton, and is assumed to have a direct correlation to the percentage of Lumberton's population affected by the project on a daily basis. However, the Lumberton Loop's city-wide footprint, watershed benefits, and regional connectedness to other multimodal networks has significant potential to impact all of the city's residents and to visitors from outside city limits as well.
Provide a clear and detailed description of your proposed activity	Background: Hurricanes Matthew (2016) and Florence (2018) brought record-breaking rainfalls and devastating floods across the North Carolina

coastal plain. In Lumberton, North Carolina these impacts either met or exceeded the reach of the 500-year floodplain, and have left a lasting imprint on the social, environmental, and economic vitality of the neighborhoods that were hardest hit. Now engaged in multiple federally-financed and state-led recovery processes, the City of Lumberton and its residents are in need of holistic solutions that can respond to the current aftermath and projected recurrence of unmitigated floodwaters. Witnessed after both Matthew and Florence is that flood risk is not distributed equally across communities, neighborhoods, or individuals. As seen throughout the U.S., communities with large numbers of low-income households and people of color, among other factors, often find themselves in areas most affected by environmental stressors. In Lumberton, these areas are most notably present south of the Lumber River within its corresponding floodplain, and consequently represent some of the city's most demographically vulnerable populations. A new pattern that the hurricanes have uncovered, however, is extensive flooding along the Lumber River's smaller tributaries located north of downtown Lumberton. Now, despite the vastly different demographic profiles that have historically divided north and south Lumberton, both areas now share a unifying problem in need of collective response: the emerging presence of vacant lots in high-risk flood zones. Resulting either from mitigation efforts or through abandonment, the discontinuous checkerboard pattern of vacant parcels has further fractured these neighborhoods, and has created a compromising condition that threatens the health, safety, and welfare of Lumberton residents. In response to these issues, the City of Lumberton, the NC State University Coastal Dynamics Design Lab, and The Conservation Fund have engaged in a multi-year, collaborative effort that ultimately led to the creation of a land-planning framework for the procurement of connected, tangible, and flood-adapted projects. Coined the Lumberton Loop, this plan: i) combines and consolidates clusters of vacant properties acquired through HMGP (Hazard Mitigation Grant Program) processes; ii) connects them to existing public parks, conservation easements, and city-owned parcels; and iii) proposes a series of green infrastructure projects and outdoor recreation facilities to programmatically activate the system. Adopted by the City of Lumberton in March of 2019, the Lumberton Loop connects over 108 parcels of land

to create a contiguous 8.5-mile, 806+ acre trail system throughout the city - of which, over 99% is within the 100-year floodplain. Since adoption, collaborative partnerships centered around realizing the Lumberton Loop have grown to include numerous affiliates at the North Carolina Office of Recovery and Resiliency, the North Carolina Department of Transportation, North Carolina State Parks, the Lumber River Conservancy, and countless local officials and stakeholders that have been involved in public engagement processes. To date, this group has been successful in securing a number of regional- and state-level grants that have been foundational for acquiring critical properties and generating early-phase funds for immediate mitigation efforts. However, more substantial funds are needed in order to fully implement the Lumberton Loop, and to build a more resilient City of Lumberton. Project Description: Guided by the North Carolina Enhanced Hazard Mitigation Plan (2018), core values of building technical capacity, reducing the risk of repetitive flood loss properties, and strengthening local fiscal capability are embedded within the processes and outcomes of the Lumberton Loop plan. As a small, rural community in a Tier One county (most economically distressed ranking per NC Commerce, 2020), the City of Lumberton has very limited financial and personnel resources that are needed in order to adequately engage in complex hazard mitigation activities without significant assistance. While the Lumberton Loop plan has created a framework that has been qualitatively vetted by community members and quantitatively modeled to mitigate future flood losses, reduce NFIP claims, and enhance the equity of parkspace in Lumberton, additional financial resources are needed to implement the next phases of this innovative approach to rural resiliency and hazard mitigation. Specifically, the requested \$2,623,670 in grant funds will be used to finance mitigation, restoration, and recreational enhancements at four focus areas identified in the Lumberton Loop plan. These are: i) restored stream channels, constructed wetlands, reforested floodplains, demolished roadways, and greenway trails as part of a newly-expanded park along Meadow Branch in North Lumberton; ii) constructed wetlands and educational paths as part of a newly-established park at the former Scottish Packing facility in South Lumberton; iii) multi-modal paths along Five Mile Branch; and iv) multi-modal paths along Walnut

Street to close the loop. Funds from the BRIC program would allow for the acquisition of the last four (4) properties along Meadow Branch where homeowners missed previous phases of HMGP applications but have expressed interest in acquisition at a later date. And in supporting these select acquisitions, the footprint of the Lumberton Loop becomes effectively established which will allow remaining requested funds to catalyze and connect a chain of nature-based infrastructure projects across the city. Implementing these components of the Lumberton Loop plan mitigates the cascading risks to multiple Critical Lifelines (Health, Safety, Transportation) in neighborhoods and to various forms of city-supported infrastructure that were damaged post-Matthew and post-Florence by reducing the severity of future flood events to property, infrastructure, and human life. Further supporting these lifelines are a wide range of ancillary benefits that will serve the community as a result of the project's implementation. These secondary benefits include, but are not limited to: improved water quality, enhanced ecological habitats, increased opportunities for economic redevelopment, increased public health, and the establishment of a city-wide cultural and recreational resource. By continuing the collaborative partnership between the City of Lumberton, the NC State University Coastal Dynamics Design Lab, and The Conservation Fund, the collective team aims to meet the project's resiliency goals through the utilization of monthly project benchmarks and the division of tasks that are best-suited to each partner's area of expertise. This framework has been proven effective for jointly executing projects in the past where challenges and obstacles are similar to those expected in this proposed scope of work. Overall, the items included in the proposed scope of work directly respond to mitigation directives identified in local hazard mitigation plans while simultaneously aligning with guiding principles of the BRIC program. Thematically present across the: "Robeson County Multi-Jurisdictional Hazard Mitigation Plan (2017)," "Robeson County Resilient Redevelopment Plan (2017)," and the "Lumberton Recovery Plan (2018)," is the expression of mitigation strategies that specifically: i) restore floodways and improve floodplain conveyance; ii) manage and maintain buyout properties; and iii) expand recreational lands. This project seeks to realize these strategies in a way that builds a culture of resilience in the

How will the mitigation activity be implemented?

City of Lumberton through the implementation of the Lumberton Loop. Once completed, these projects will have an impact that stretches across watersheds, demographic boundaries and ecological corridors while concurrently reducing the threats associated with future flood events.

The City of Lumberton will provide the personnel time for acquisition administration, labor for demolition activities, and labor for city-owned right-of-way enhancements as an in-kind service to the project. Components of the project relating to the procurement of restored stream channels, constructed wetlands, reforested floodplains, and installment of trails and signs will be hired as contractual services using funds from the requested project budget. The City of Lumberton, in partnership with team members from the NC State University Coastal Dynamics Design Lab and The Conservation Fund, will administer and manage each aspect of the project to ensure that key benchmarks are met on time and on budget.

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.):

The Lumberton Loop was created as a mitigation response to damaged, vulnerable, and acquired properties that experienced catastrophic flooding during Hurricanes Matthew (2016) and Florence (2018). The various components included in this scope of work are technically feasible by connecting city-owned parks, city-owned rights-of-way, city-owned acquisition properties, and existing conservation easements through hydrological, ecological and recreational networks. Proposed land-use delineations as shown in illustrative attachments of the Lumberton Loop have been carefully vetted to fit: i) FEMA-defined deed restrictions for acquired properties where appropriate (44 CFR Part 80, 2010); ii) descriptions of Conservation Purpose and Public Benefit in accordance with U.S. Treasury Regulations for Qualified Conservation Contributions (26 CFR 1.170A-14, 1999); and iii) input from resident stakeholders in surrounding neighborhoods as gathered during community engagement activities. As applicable for the Meadow Branch focus area, the resultant schematic designs that included these inputs were then subject to hydraulic analyses to prove effectiveness of the proposal. Outputs from the hydraulic model and subsequent engineering studies showed significant benefit for: i) protecting project-adjacent properties from future flood events by reducing peak flood extents up to the 100-year flood; ii) protecting multiple adjacent road

crossings and a lift station for lower-return periods by reducing peak flood elevations and velocities; and iii) improving water quality by reducing sediment and nutrient loads through the construction of restored stream channels, wetland areas, and reforested floodplain lands. Overall, future risk of property damages has been eliminated for areas within the project scope of work through the previously-completed acquisition and demolition of structures. Furthermore, this proposal seeks to eliminate future flood risk and potential loss of life for four (4) additional properties in the Meadow Branch floodway, and in doing so, will enable a broader and more holistic nature-based restoration effort that has been modeled to significantly reduce flood risk for project-adjacent properties.

Who will manage and complete the mitigation activity?

A team approach between the City of Lumberton, the NC State University Coastal Dynamics Design Lab, and The Conservation Fund will be utilized to assure that each type of mitigation, restoration, and recreational element of the project is completed and that overall project outcomes are met. This partnership has a multi-year history of successfully working together in Lumberton by advancing common goals of protecting environmental assets and building community resilience. The complementary backgrounds and skill sets represented across the team will afford specific team members to lead individual components of the proposed project as best-suited to their area of expertise. However, overall project benchmarks and collective team efforts will be unified as guided by the project schedule included in this application.

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

Yes. This project addresses flood hazards through a combination of: i) eliminating future flood risk through acquisition and demolition activities within the project area; ii) reducing future flood risk for project-adjacent properties that will benefit from the proposed mitigation and restoration interventions; and iii) increasing environmental awareness of Lumberton residents by enabling public access to sensitive, flood-prone environments throughout the city. Minimal residual risk will remain within the project area for recreational facilities (i.e. trails and open-air shelters), however all other risk to structures and property will be eliminated.

When will the mitigation activity take place?

The proposed activities will take place within a 36-month period of performance to begin 01/01/2022

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?

and to be complete by 12/31/2024.

The exact alignment of the Lumberton Loop was created through an iterative and analytical process that considered: i) geospatial analyses of areas in Lumberton with the highest concentrations of existing and anticipated social, economic, environmental vulnerabilities; ii) opportunities created through allied land ownership conditions; and iii) highway, roadway, and multi-modal transportation plans. Collating this information led to the formation of the Lumberton Loop plan that responds to the areas of highest need through connecting city-wide assets and leveraging adopted plans by the City of Lumberton and State of North Carolina. At more localized levels, facilitated community engagement meetings in the Meadow Branch and Scottish Packing focus areas utilized a mixed-methods approach for communicating environmental risks and collecting stakeholder preferences for various small area plan design alternatives. Clear consensus was established around specific programming and land planning criteria that led to the completion of finalized schematic proposals for each focus area. Collectively, the various forms of due diligence, site inventory and analysis, and community participation at state, city, and neighborhood levels of intervention corroborate the mitigation, restoration, and recreation strategies included in this proposal as being the best alternative for implementing desired outcomes.

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 City of Lumberton will be responsible for performing long-term maintenance of the project areas. Maintenance costs for the items proposed to be implemented in this scope of work are estimated to equal \$13,718 annually (which includes 1% of green infrastructure project costs, per FEMA guidance). The City of Lumberton will allocate annual budget funds to the Recreation and Public Works Departments for regular monitoring and maintenance in accordance with existing parks and recreation maintenance schedules and per the needs of the project areas. Supplemental post-occupancy data collection will also be performed by the NC State University Coastal Dynamics Design Lab as an in-kind service to the project in order to study the efficacy of the proposed project elements and inform long-term maintenance decisions.

Additional comments (optional)

Attachments

Filename	Date uploaded	Uploaded by	Label	Description	Action
BRIC_Attachments_2020.12.17.pdf	12/18/2020	blove@ci.lumberton.nc.us	Scope of Work Attachments	<i>No description given.</i>	

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