NC Flood Resiliency Blueprint Decision Support Tool Workshop

NCAFPM Conference 2025

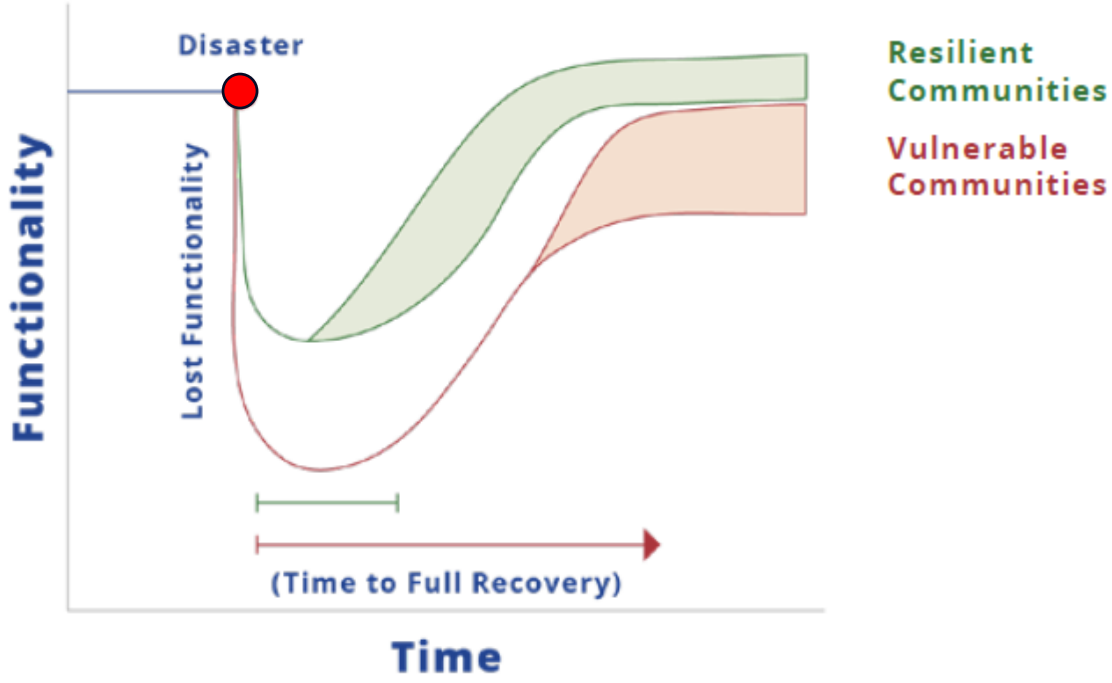
Today's Workshop

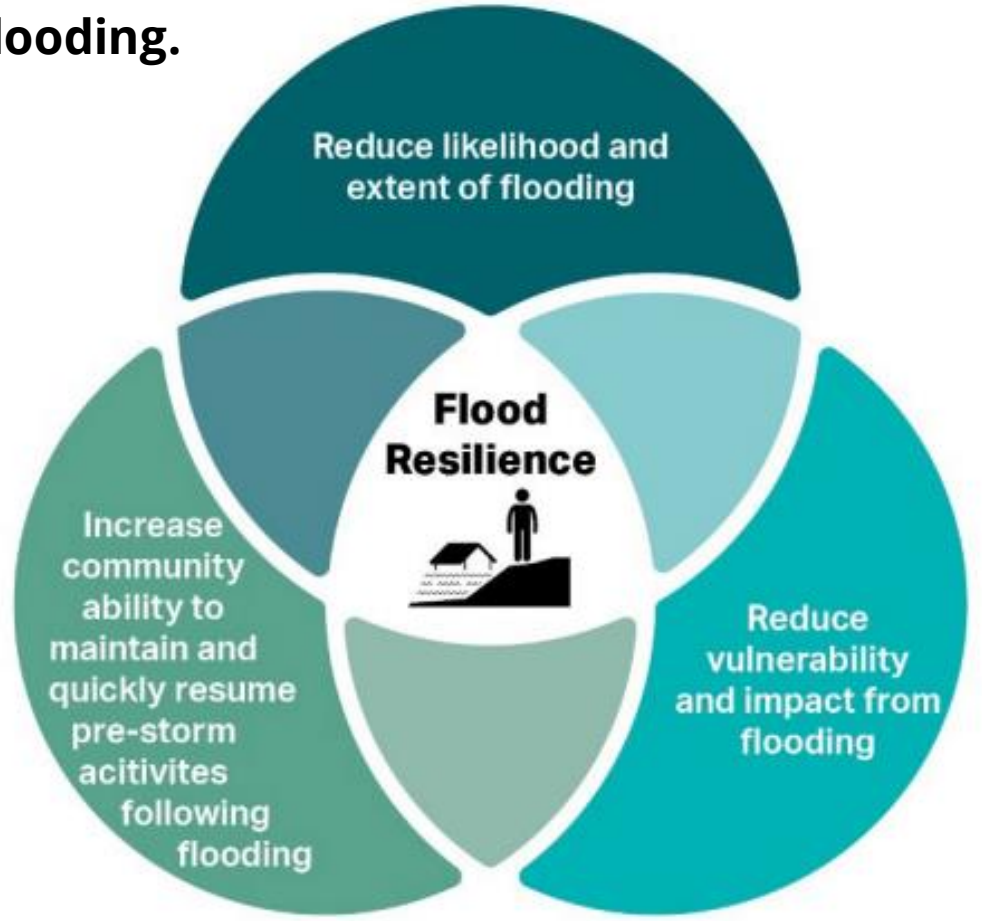
- Blueprint Overview
- Who's in the Room
- Decision Support Tool Modules Session 1
  - Community Profile
  - Flood Risk Management
- 30-minute Break
- Decision Support Tool Modules Session 2
  - Flood Risk Management
  - Action Management
- Next Steps

Blueprint Overview

North Carolina Flood Resiliency Blueprint

Overall goal: **Make North Carolina more resilient to flooding.**





North Carolina Flood Resiliency Blueprint

Goals:

- Serve as the backbone of State flood planning
- Increase community resilience to flooding
- Reduce the cost and complexity for local governments in the planning and implementation of flood risk reduction projects
- "…A successful blueprint should ultimately lead to a **prioritized set of projects** and funding strategies that the State can implement."

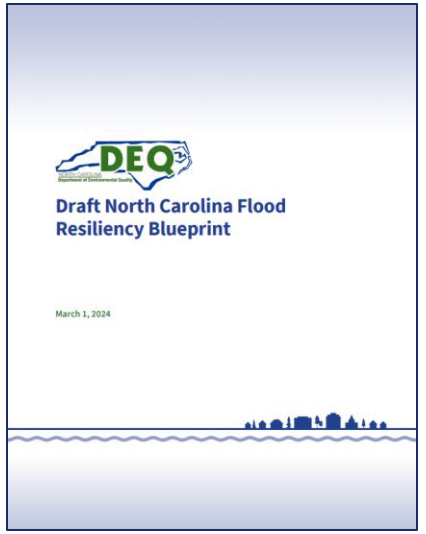
North Carolina Major River Basins by Order of Inclusion in Blueprint

Targeted River Basins: Neuse, Cape Fear, Lumber, Tar-Pamlico, White Oak, and French Broad (added 2024)

Blueprint Overview

- **Phase I** (2022 - 2024) - *Complete*
  - Research and evaluation, gap analysis, recommendations and decisions
  - Draft Neuse River Basin Action Strategy (Pilot)
  - Draft Blueprint
- **Phase II** (2023 - 2025) - *Ongoing*
  - Model improvement
  - Develop online decision support tool (Blueprint Tool)
- **Phase III** (2024 - 2026) - *Ongoing*
  - Develop Action Strategies for five prioritized areas
  - Refine Blueprint and Neuse Action Strategy (including additional data)
  - Refine Decision Support Tool
  - Additional River Basin Action Strategies as funding allows
- **Implementation** (2024 - ____) - *Ongoing*

Phase I	
2024 Flood Resiliency Blueprint	March 2024
Draft Neuse RBAS	July 2024
Supplementary Reports	Jan-July 2024



Community Engagement Q&A Meeting in Canton, 6/22/2023

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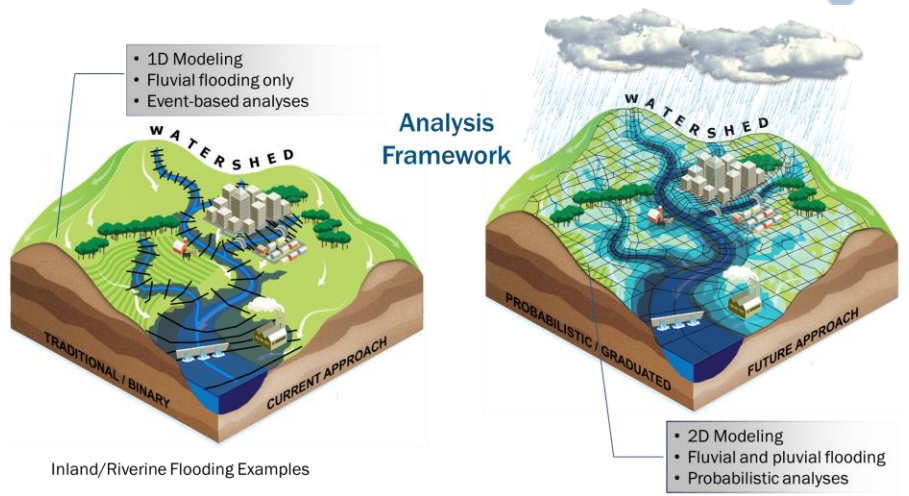
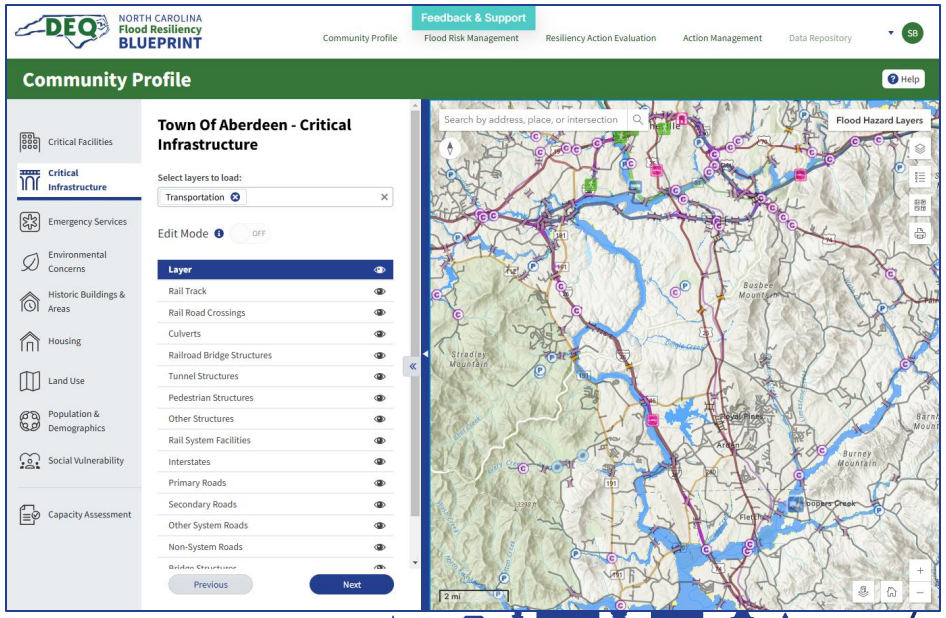


Inland/Riverine Flooding Examples



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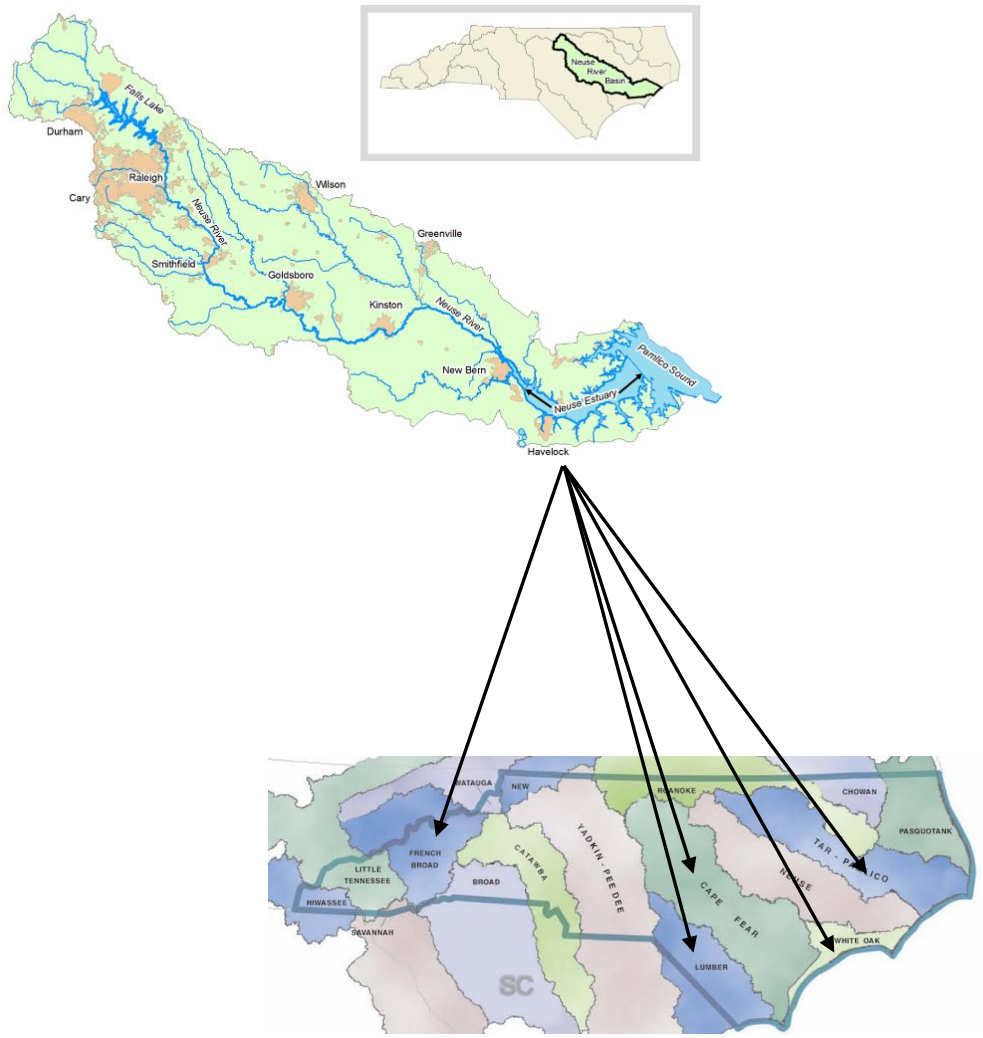


Blueprint Staff

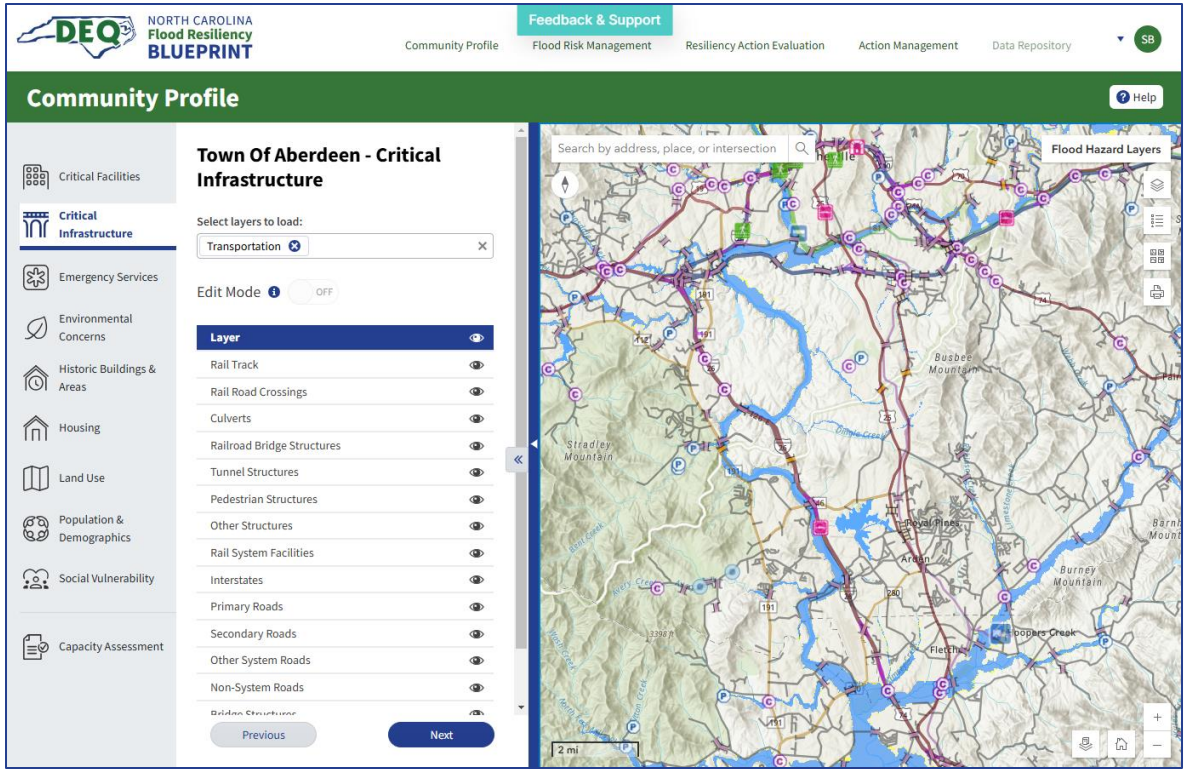
Stuart Brown *Flood Resiliency Blueprint Manager* 	Shana Shapiro *Lumber* 	Chris Dreps *Tar-Pamlico* *Neuse* 
Jessica Gray *Cape Fear* 	Suna Morkoc *French Broad* 	Brad Connell *White Oak* *Neuse* 

Basic Tool Functionality

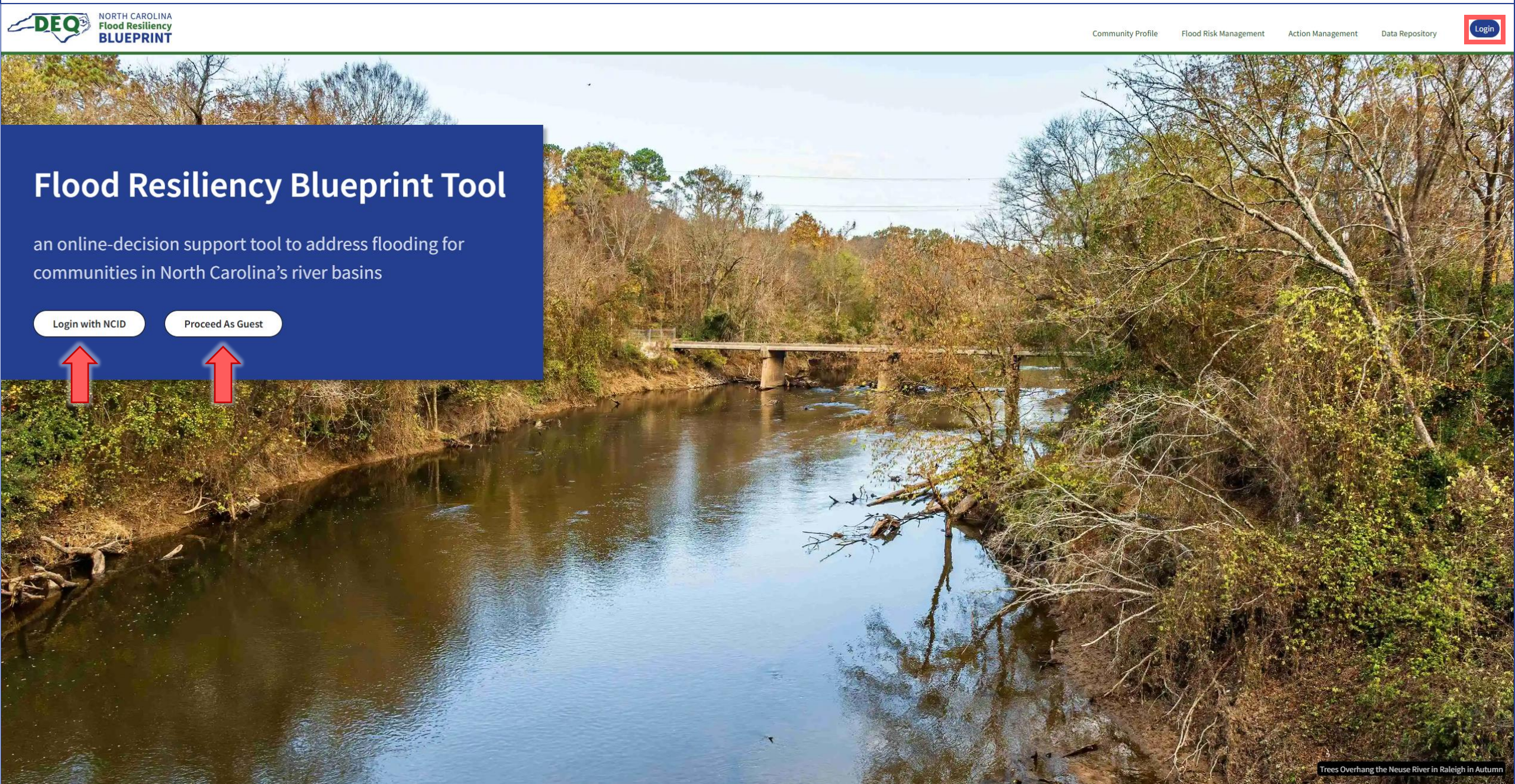
Phase II - Blueprint Tool

Goals:

- Be a resource for communities, local governments, and other partners for the planning and implementation of resilience actions
  - Provide users with accurate, data-driven flood risk and vulnerability assessments
  - Allow users to explore, develop, and define flood resilience actions
  - Help users to evaluate and prioritize effective flood resilience actions
- Be a resource to DEQ and partners in the development of River Basin Action Strategies
- Support DEQ/State funding decisions for planning and implementation



Tool Basics: Signing In



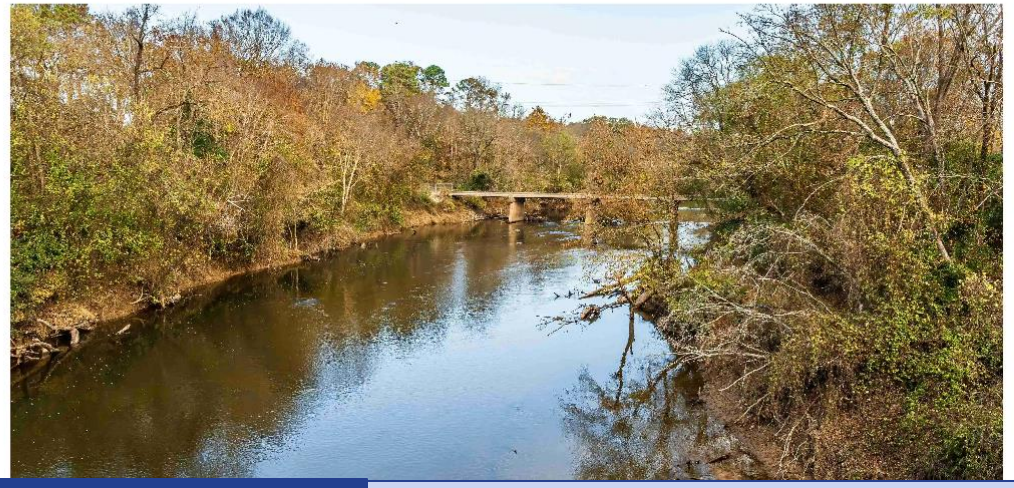
NORTH CAROLINA Flood Resiliency BLUEPRINT

Feedback & Support

Community Profile | Flood Risk Management | Action Management | Data Repository | KP

- User Profile
- My Roles
- Manage Users
- Logout

Welcome Kelsey



Request Access

Select jurisdiction that you want to access:

Wake County

Please contact one of the following jurisdiction administrators to request access:

Lisa Smith

Email	lisa_smith@email.com
Title	Delegated Authority

Bob Jones

Email	bob_jones@email.com
Title	Local Government Administrator

User Profile

Kelsey Peterson

Email	**kelsey.peterson@aecom.com**
NCID	**kelsey.peterson**
Agency	

Some details, like your name and job title, may be provided by your IT or human resources department. If you want to update those details, contact them or your admin.

Okay

My Roles

Local Government | Delegated Authority

Local Government Name	Submitter	Administrator
Johnston County	Request Role	☑
Wayne County	Request Role	☑
City Of Kinston	Request Role	☑
City Of New Bern	Request Role	☑
Craven County	Request Role	☑
City Of Raleigh	Request Role	☑

Request Additional Access

Close

Manage Users

Local Government | Delegated Authority

Johnston County

+ Add New User

User Name	Email	Administrator	Submitter	
		☐	☐	Save Cancel
Hope.Morgan	Hope.Morgan@aecom	☑	☐	
peyton.campbell	peyton.campbell@aec	☑	☐	
kelsey.peterson	kelsey.peterson@aeco	☑	☐	
ashley.ervin	ashley.ervin@aecom.c	☑	☐	

1

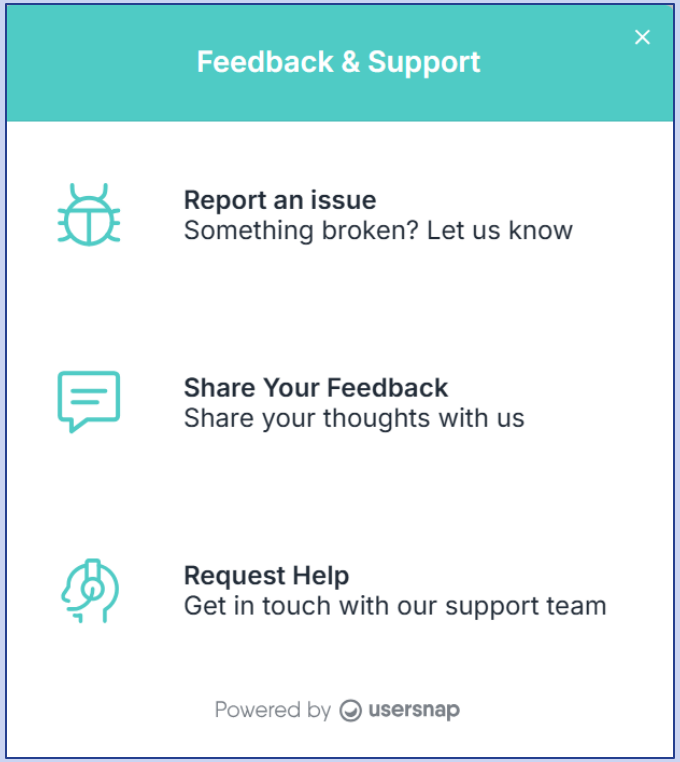
Close

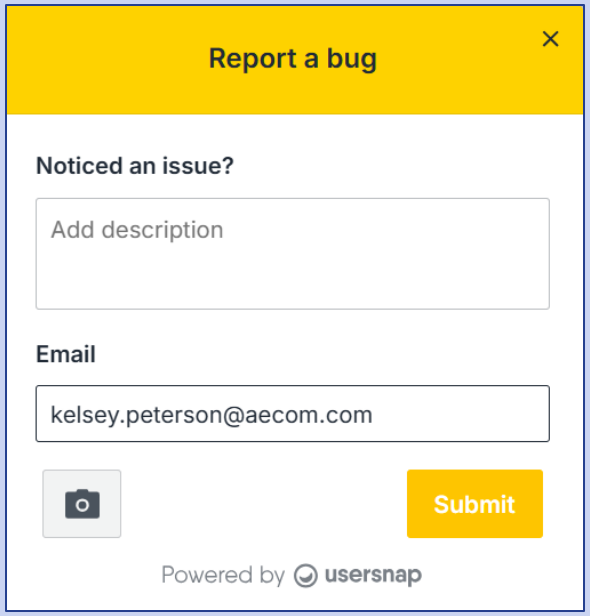
Informational Help and Warning Tool Tips

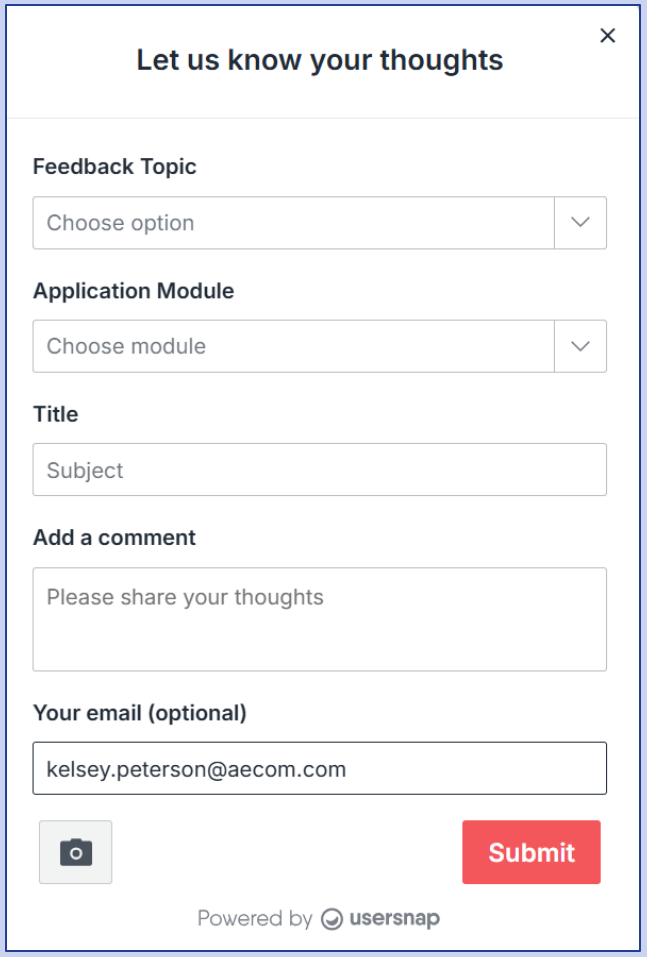
	Hover Tooltip	Brief/helpful text content that appears when a user hovers their mouse over the indicator
	Click to Open Popover	• Longer or more detailed content that appears when a user clicks on the icon • Content that requires tables or graphics • All popovers have an “X” close button in the upper right corner
	Click to Open Popover	• Any content that constitutes a warning • All popovers have an “X” close button in the upper right corner
	Click to Open PDF in New Tab	Linked PDF document
	Click to Open Linked Web Page in New Tab	Linked Web Page

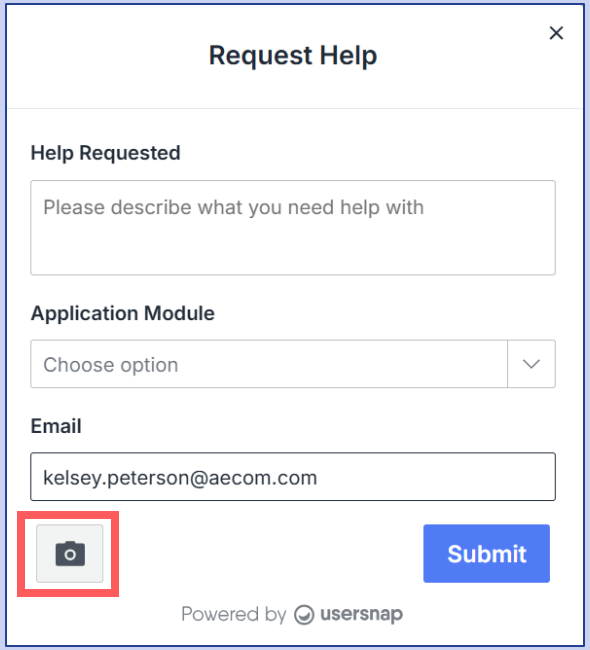
Feedback & Support

A Feedback & Support Banner Is Available Throughout Every Page of the Blueprint Tool









Today’s Activity

Activity Logistics

User Roles

- Local Submitter
  - Floodplain Administrator (Workshop Attendee)
  - Local Engineer (Workshop Attendee)
- Local Administrator
  - AECOM Rep.
- Delegated Authority Submitter
  - Council of Government Rep. (Workshop Attendee)
  - Non-Government Organization Rep. (Workshop Attendee)
- Delegated Authority Administrator
- Blueprint Analyst
  - NCDEQ Rep.

Pre-Assigned Jurisdictions for Today's Activities (Neuse River basin):
Raleigh
Kinston
New Bern
Wayne County
Johnston County
Craven County

Problem Statement

Communities within North Carolina's Neuse River basin—including Raleigh, Kinston, New Bern, Wayne County, Johnston County, and Craven County—have increasingly faced severe flooding due to heavy precipitation, stormwater runoff, and the impacts of extreme weather events such as hurricanes and tropical storms. While each community differs in scale and local context—from urbanized Raleigh and historic river towns like Kinston and New Bern to rural and coastal landscapes in Wayne, Johnston, and Craven counties—all share interconnected vulnerabilities to flooding along the Neuse River and its tributaries. Flood events have repeatedly disrupted critical infrastructure, including transportation networks, drinking water and wastewater systems, electrical utilities, agriculture, housing, and local businesses, negatively affecting public safety, community health, local economies, and ecosystems.

Local stakeholders recognize the importance of collaborative, data-driven resilience planning to minimize flood risk and enhance recovery capabilities. During this workshop, your team of six stakeholders representing these diverse communities in this hypothetical scenario will test the initial public release of the NC Flood Resiliency Blueprint Tool, collaboratively identifying flood risks, exploring applicable resiliency actions, and prioritizing interventions suitable for addressing flooding impacts across the Neuse River basin.

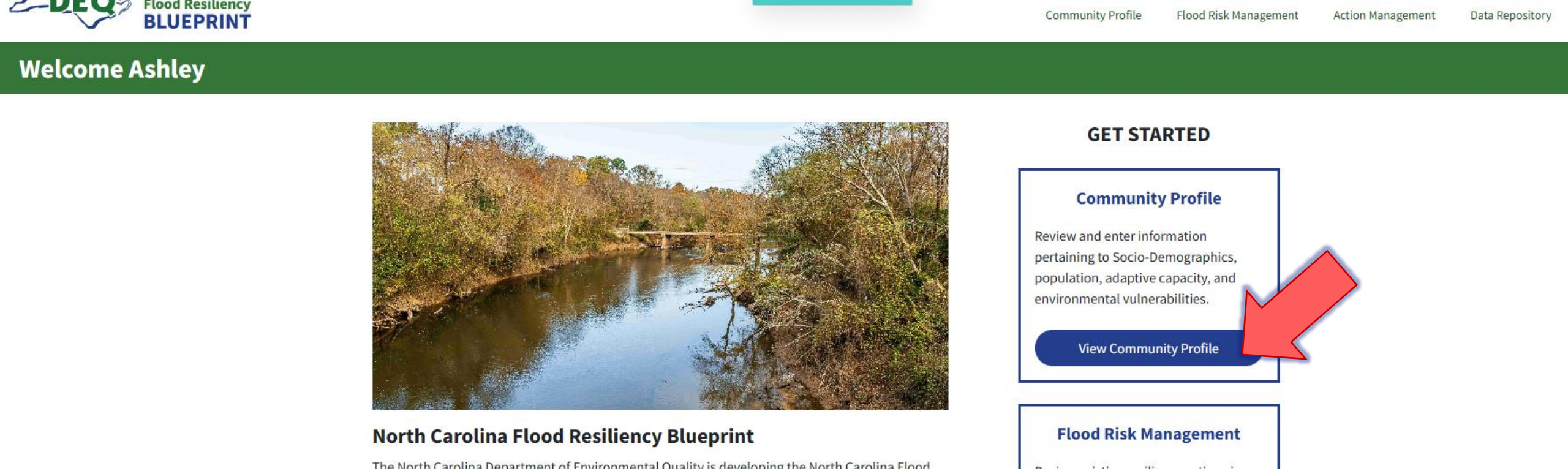
Section 1 on the Activity Worksheet

In this workshop you will…

- Explore your community profile
- Explore and evaluate your community's flood risk
- Create and prioritize actions
- Understand how each community's action will roll into the River Basin Action Strategy

Community Profile

Section 2 on the Activity Worksheet



Within the **Community Profile**, users can

- **Explore how various critical categories may be affected by differing flood events**
- **Edit certain layers to include missing infrastructure, structures, or critical facilities**
- **Evaluate and edit community capacity**

Community Profile

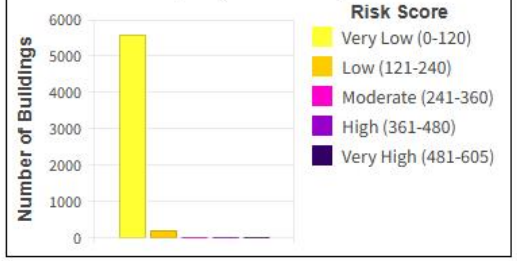
Help

Flood Risk Summary
Critical Facilities
Critical Infrastructure
Emergency Services
Environmental Concerns
Historic Buildings & Areas
Housing
Land Use
Population & Demographics
Social Vulnerability
Capacity Assessment
Impact Assessment

Craven County - Flood Risk Summary

5,763 Buildings at Risk by Risk Score

Total Risk Score: 118,409 (hover for details)



5,085 Buildings at Risk by Annualized Loss Estimate

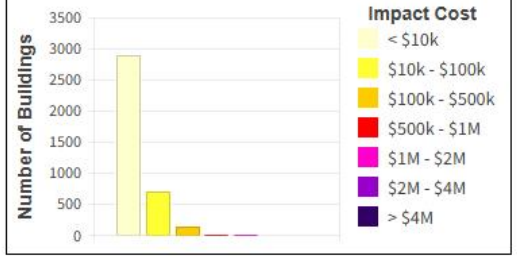
Total ALE: $2,117,456 (hover for details)

Flood Hazard Type: Regulatory Floodplain

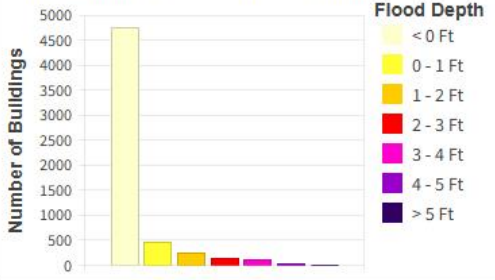
Recurrence Interval (yrs): 10 | 25 | 50 | 100 | 500

3,738 Buildings at Risk by Impact Costs

Total Structural Impact Costs: $58,397,656



5,763 Buildings at Risk by Flood Depth



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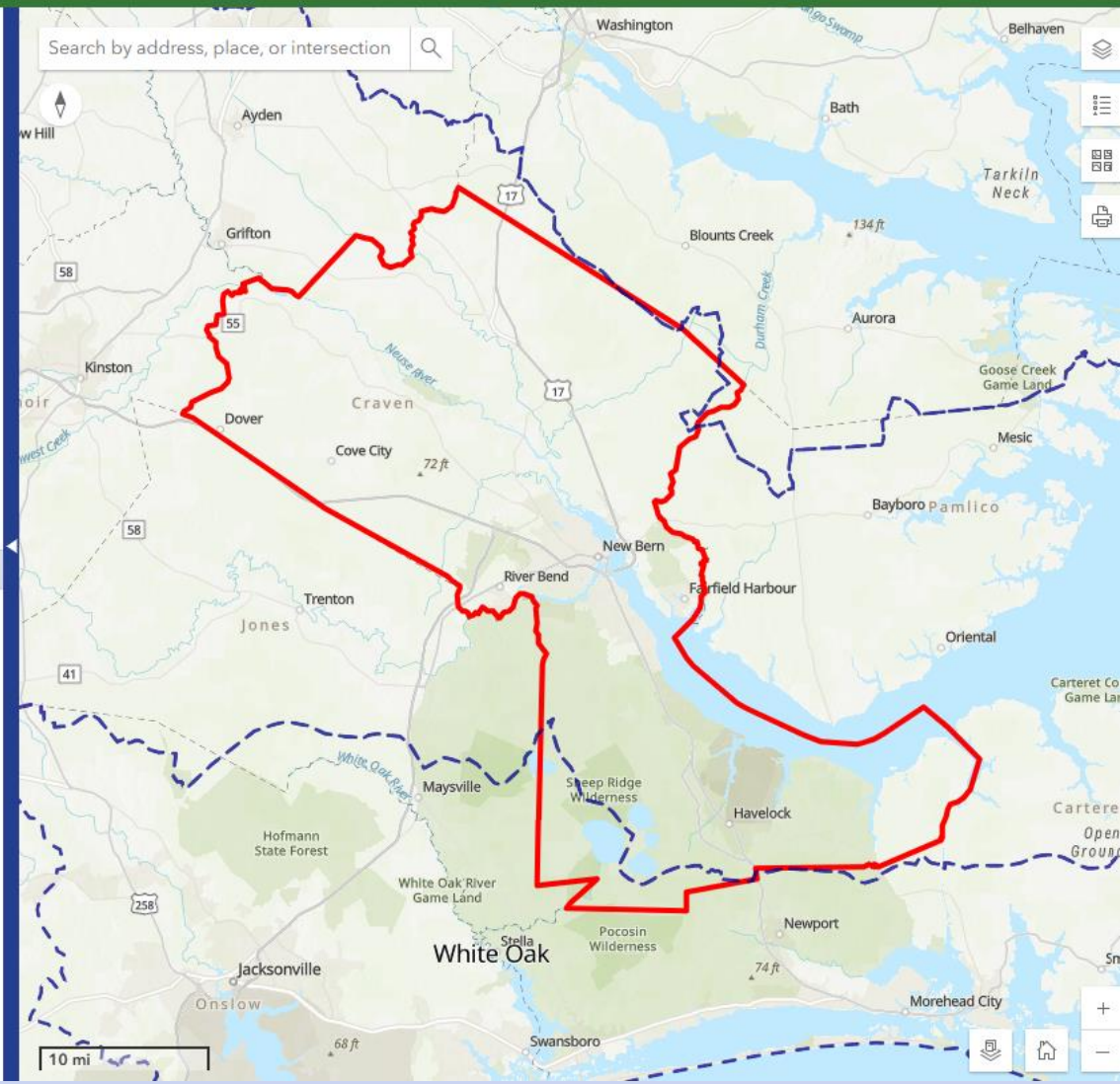


Community Profile

Help

- Flood Risk Summary
- **Critical Facilities**
- Critical Infrastructure
- Emergency Services
- Environmental Concerns
- Historic Buildings & Areas
- Housing
- Land Use
- Population & Demographics
- Social Vulnerability
- Capacity Assessment
- Impact Assessment

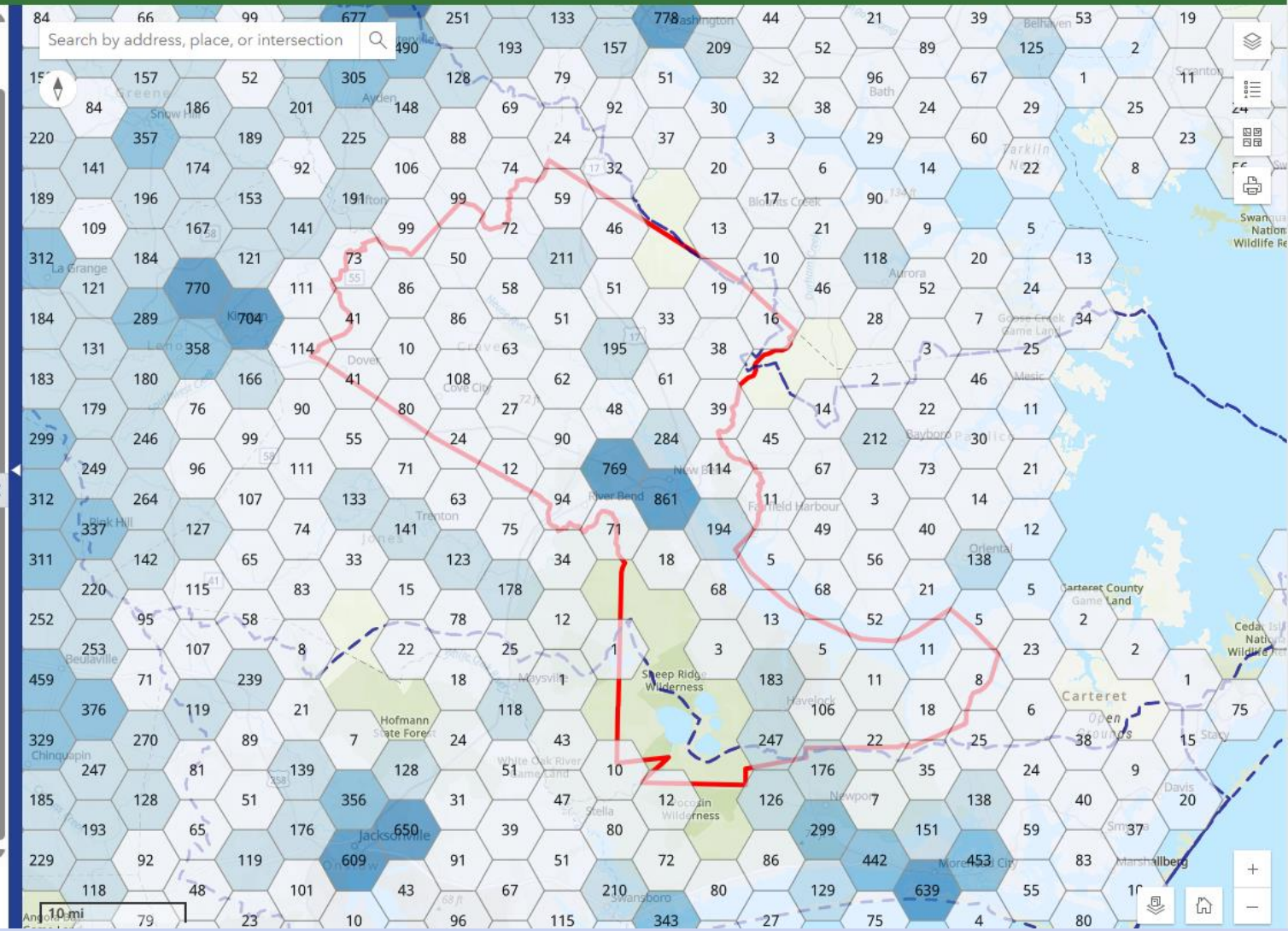
Craven County - Critical Facilities

Edit Mode OFF

Zoom in to enable Edit Mode

Sector
Food and Agriculture
Banking and Finance
Chemical
Commercial Facilities
Communications
Critical Manufacturing
Defense Industrial Base
Emergency Services
Energy
Government Facilities
Healthcare and Public Health
Information Technology
National Monuments and Icons
Nuclear Reactors, Materials and Waste
Postal and Shipping
Transportation Systems
Water
Other

Previous Next



Community Profile

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- Emergency Services
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Craven County - Critical Facilities

Edit Mode ON

Sector	
Food and Agriculture	
Banking and Finance	
Chemical	
Commercial Facilities	
Communications	
Critical Manufacturing	
Defense Industrial Base	
Emergency Services	
Energy	
Government Facilities	
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Nuclear Reactors, Materials and Waste	
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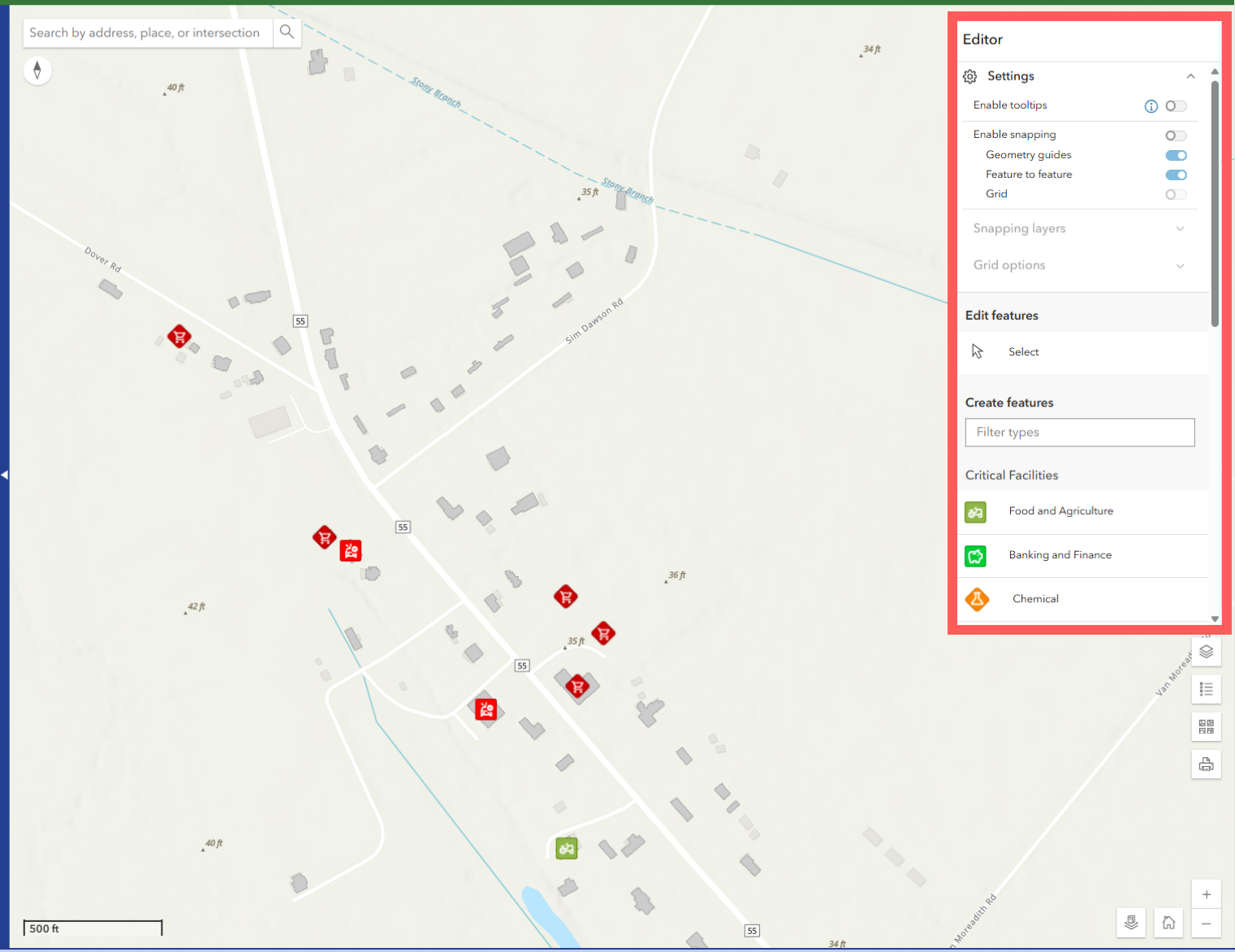
Transportation Systems	
Water	
Other	

Previous Next



Editor

Settings

Enable tooltips

Enable snapping

Geometry guides

Feature to feature

Grid

Snapping layers

Grid options

Edit features

Select

Create features

Filter types

Critical Facilities

Food and Agriculture

Banking and Finance

Chemical

Community Profile

Help

- Flood Risk Summary
- Critical Facilities
- **Critical Infrastructure**
- Emergency Services
- Environmental Concerns
- Historic Buildings & Areas
- Housing
- Land Use
- Population & Demographics
- Social Vulnerability
- Capacity Assessment
- Impact Assessment

Craven County - Critical Infrastructure

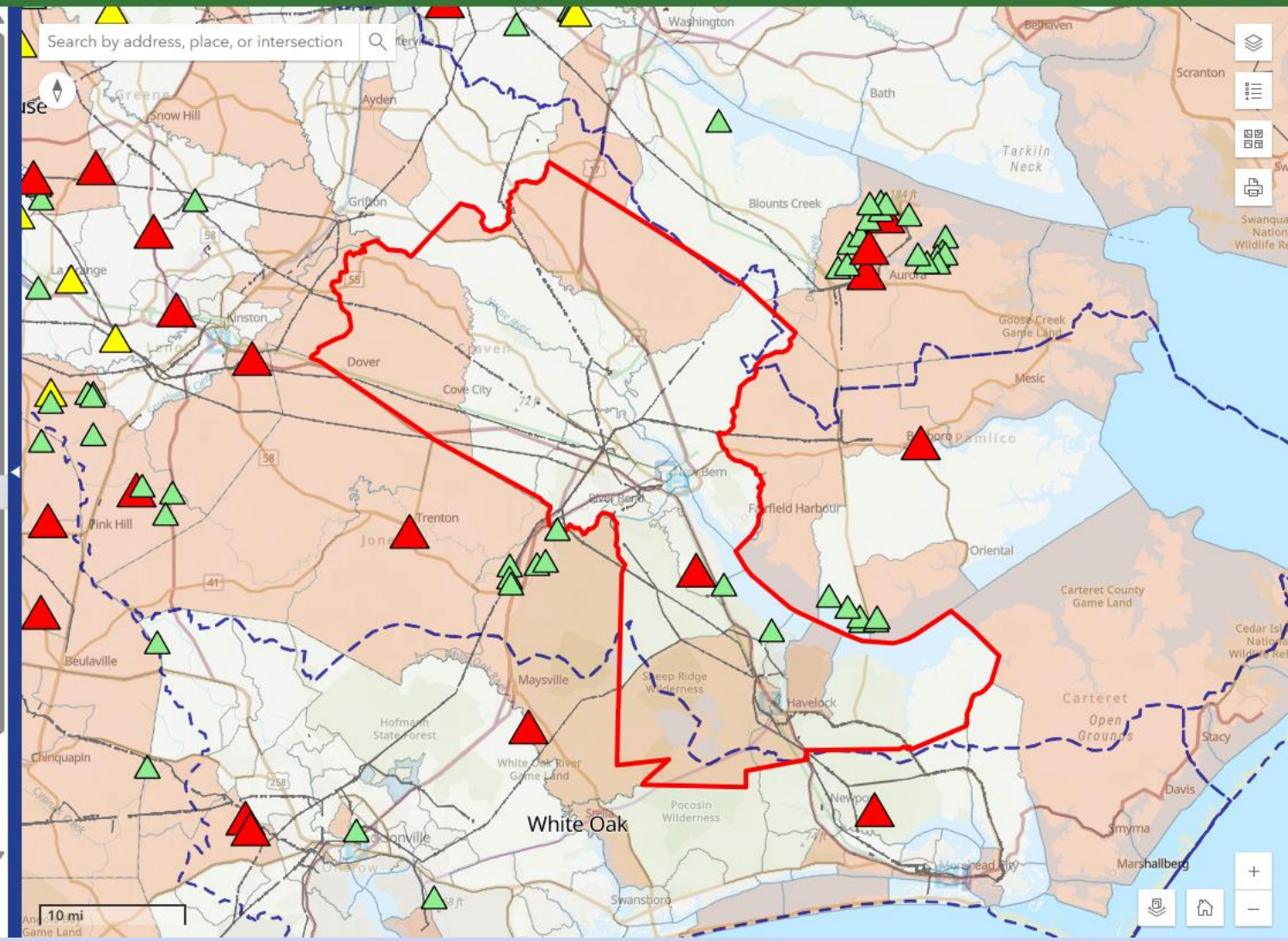
Select layers to load:

Transportation ⊗ | Utilities ⊗ | High Hazard Dams ⊗

Edit Mode ⓘ OFF

Layer	
Rail Track	
Rail Road Crossings	
Culverts	
Railroad Bridge Structures	
Tunnel Structures	
Pedestrian Structures	
Other Structures	
Broadband Indices	
Duke Transmission	
High Hazard Dams	
Dam Hazard Potential	
Rail System Facilities	
Interstates	
Primary Roads	
Secondary Roads	
Other System Roads	

Previous | Next



Community Profile

Help

- Flood Risk Summary
- Critical Facilities
- Critical Infrastructure
- **Emergency Services**
- Environmental Concerns
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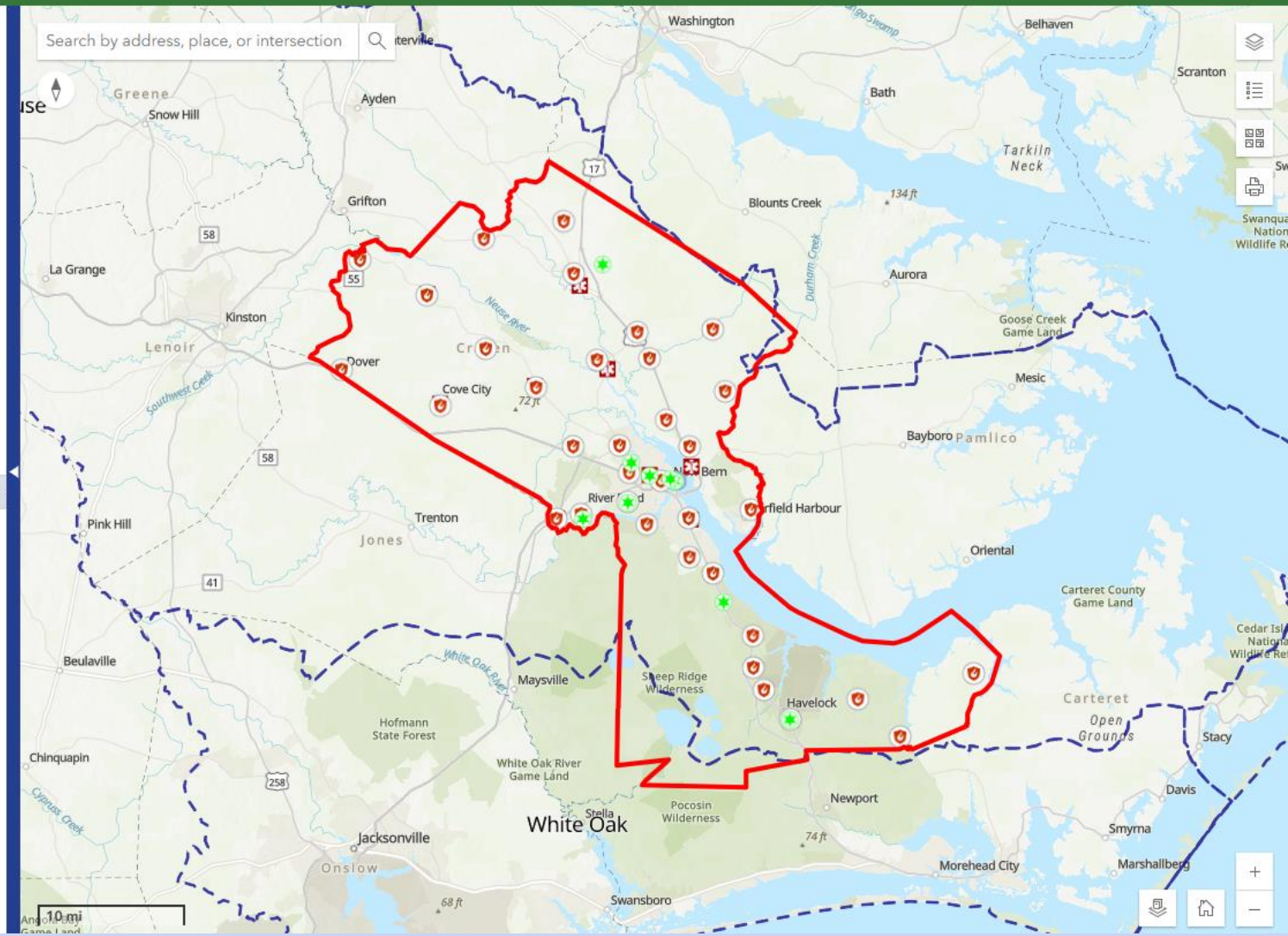
Craven County - Emergency Services

Layer	
Emergency Medical Services	
Emergency Operation Centers	
Fire Stations	
Law Enforcement Locations	

Previous | Next



Community Profile

Report

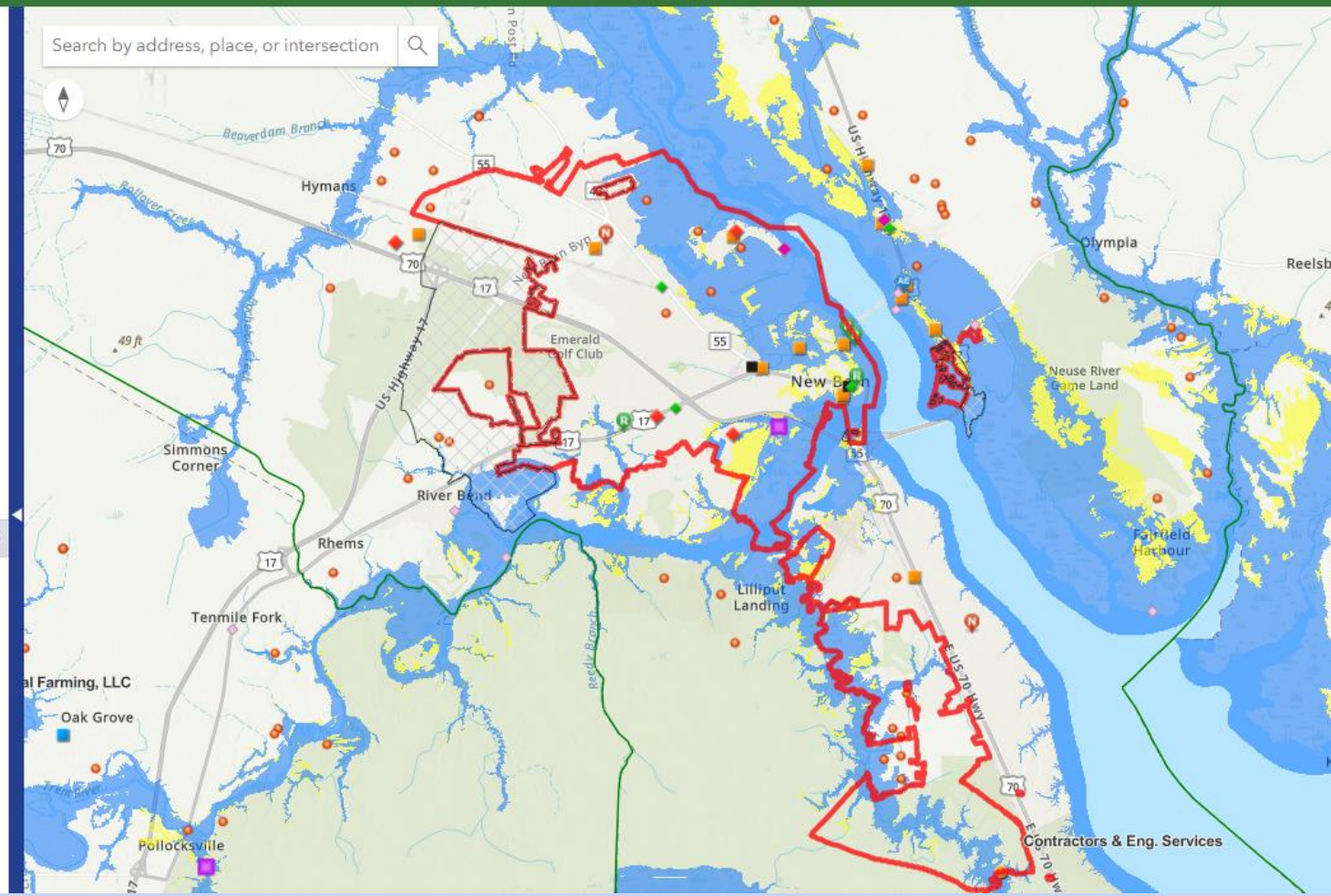
- Flood Risk Summary
- Critical Facilities
- Critical Infrastructure
- Emergency Services
- **Environmental Concerns**
- Historic Buildings & Areas
- Housing
- Land Use
- Population & Demographics
- Social Vulnerability
- Capacity Assessment

City Of New Bern - Environmental Concerns

Select layers to load:

Resiliency Planning | Event Response

Layer
Inactive Hazardous Sites
Coal Ash Structural Fills
Land Clearing And Inert Debris Landfill Notifications
Federal Remediation Branch Sites
Animal Feed Operation Permits
Dry Cleaning Contaminated
NPDES Wastewater Discharge Permits
Permitted Solid Waste Landfills
Hazardous Waste Sites
Above Ground Storage Tank Incidents



Community Profile

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- Critical Facilities
- Critical Infrastructure
- Emergency Services
- Environmental Concerns
- **Historic Buildings & Areas**
- Housing
- Land Use
- Population & Demographics
- Social Vulnerability
- Capacity Assessment
- Impact Assessment

Craven County - Historic Buildings & Areas

Edit Mode OFF

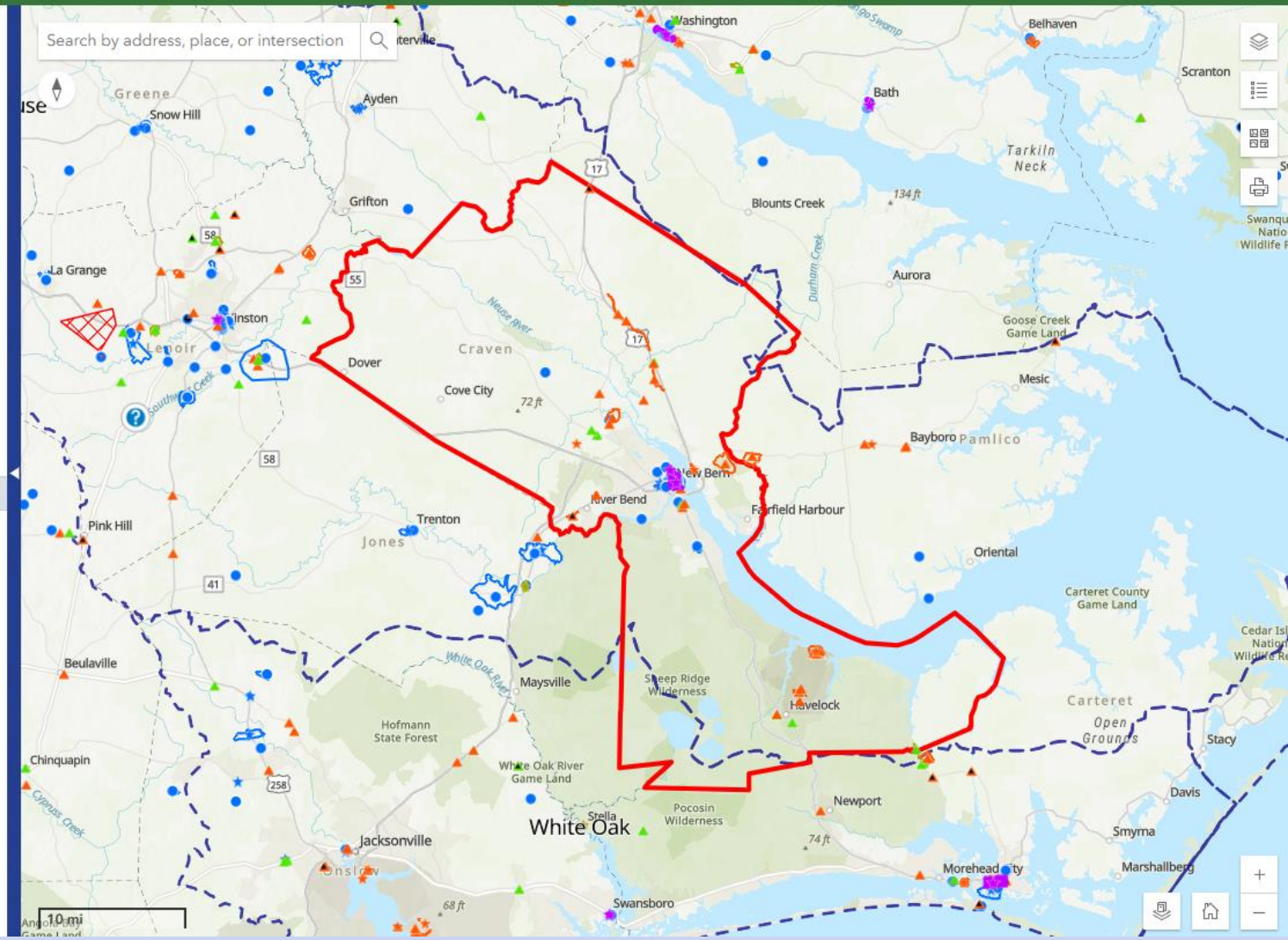
National Register
- NR Districts & Boundaries
- NR Individual Resources & Centerpoints

Determined Eligible
- DOE Districts & Boundaries
- DOE Individual Resources & Centerpoints

Local Landmarks and Districts
- Local Districts & Boundaries
- Local Individual Resources & Centerpoints

Community-Added Historic Buildings and Areas
- Community-Added Districts & Boundaries
- Community-Added Individual Resources & Centerpoints

Previous | Next



Community Profile

Help

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- Critical Facilities
- Critical Infrastructure
- Emergency Services
- Environmental Concerns
- Historic Buildings & Areas
- **Housing**
- Land Use
- Population & Demographics
- Social Vulnerability
- Capacity Assessment
- Impact Assessment

Craven County - Housing

Flood depth is negative when the water surface is below the first floor. This includes crawl spaces, basements, etc.

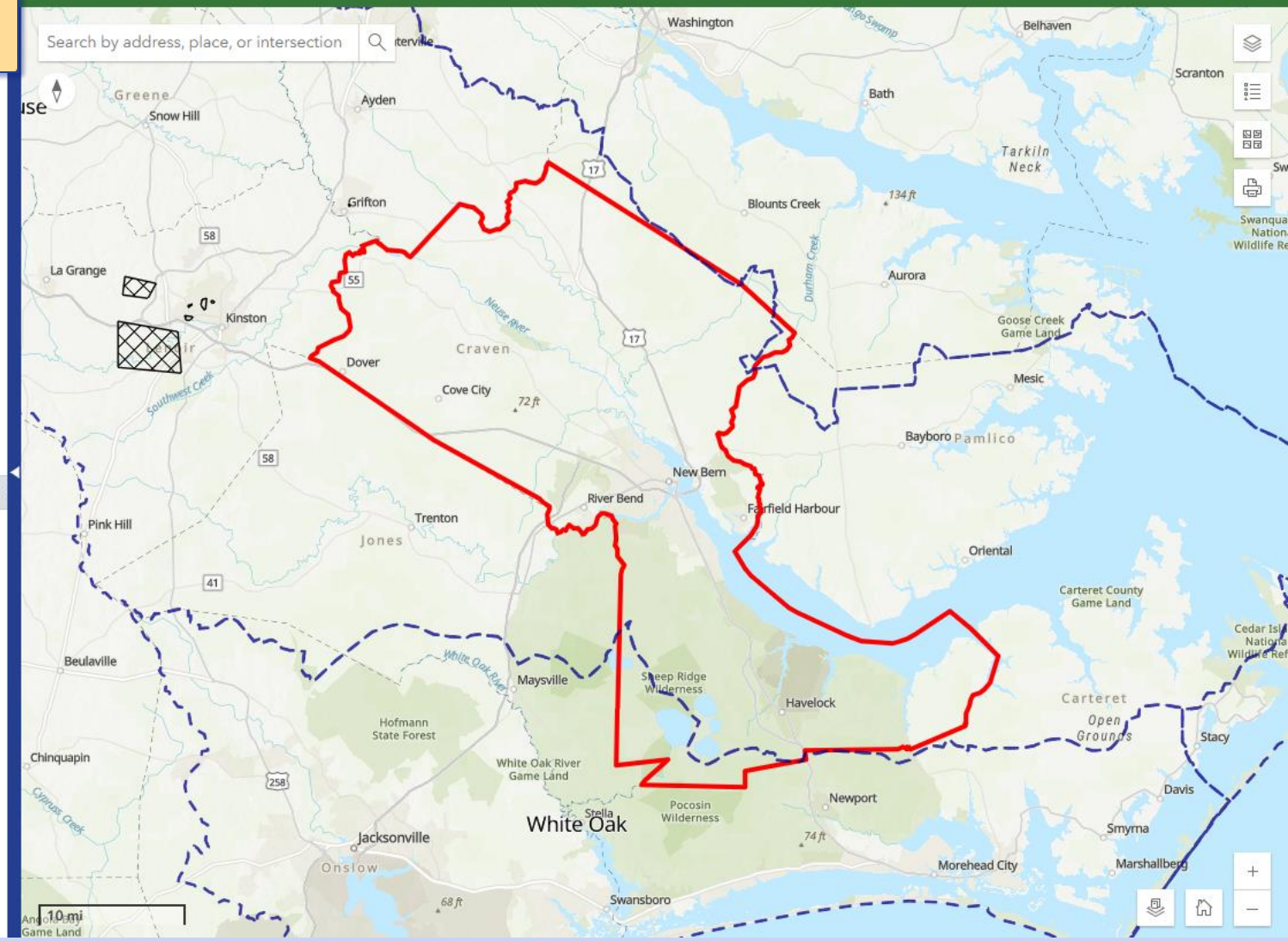
Houses at Risk by Flood Depth Relative to First Floor Elevation
(Based on 1% Annual Chance)

- More than 5 Feet
- 4 - 5 Feet
- 3 - 4 Feet
- 2 - 3 Feet
- 1 - 2 Feet
- 0 - 1 Feet
- Less than 0 Feet

Edit Mode OFF

- Community-Added Footprints

Previous | Next



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Craven County - Land Use

Land Cover Class

- Open Water
- Perennial Ice/Snow
- Developed Open Space
- Developed Low Intensity
- Developed Medium Intensity
- Developed High Intensity
- Barren Land
- Deciduous Forest
- Evergreen Forest
- Mixed Forest
- Dwarf Scrub
- Shrub/Scrub
- Grassland/Herbaceous
- Sedge/Herbaceous
- Lichens
- Moss
- Pasture/Hay
- Cultivated Crops
- Woody Wetlands

Previous | Next

Data Source

[USA NLCD Land Cover](#)

Imagery Layer from Esri

USA NLCD Land Cover service classes with corresponding index number (raster value):

11. Open Water - areas of open water, generally with less than 25% cover of vegetation or soil.

12. Perennial Ice/Snow - areas characterized by a perennial cover of ice and/or snow, generally greater than 25% of total cover.

21. Developed, Open Space - areas with a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses. Impervious surfaces account for less than 20% of total cover. These areas most commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes.

22. Developed, Low Intensity - areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 20% to 49% percent of total cover. These areas most commonly include single-family housing units.

23. Developed, Medium Intensity - areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 50% to 79% of the total cover. These areas most commonly include single-family housing units.

24. Developed High Intensity - highly developed areas where people reside or work in high numbers. Examples include apartment complexes, row houses and commercial/industrial. Impervious surfaces account for 80% to 100% of the total cover.

31. Barren Land (Rock/Sand/Clay) - areas of bedrock, desert pavement, scarps, talus, slides, volcanic material, glacial debris, sand dunes, strip mines, gravel pits and other accumulations of earthen material. Generally, vegetation accounts for less than 15% of total cover.

41. Deciduous Forest - areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. More than 75% of the tree species shed foliage simultaneously in response to seasonal change.

42. Evergreen Forest - areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. More than 75% of the tree species maintain their leaves all year. Canopy is never without green foliage.

43. Mixed Forest - areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. Neither deciduous nor evergreen species are greater than 75% of total tree cover.

51. Dwarf Scrub - Alaska only areas dominated by shrubs less than 20 centimeters tall with shrub canopy typically greater than 20% of total vegetation. This type is often co-associated with grasses, sedges, herbs, and non-vascular vegetation.

52. Shrub/Scrub - areas dominated by shrubs; less than 5 meters tall with shrub canopy typically greater than 20% of total vegetation. This class includes true shrubs, young trees in an early successional stage or trees stunted from environmental conditions.

71. Grassland/Herbaceous - areas dominated by gramanoid or herbaceous vegetation, generally greater than 80% of total vegetation. These areas are not subject to intensive management such as tilling, but can be utilized for grazing.

72. Sedge/Herbaceous - Alaska only areas dominated by sedges and forbs, generally greater than 80% of total vegetation. This type can occur with significant other grasses or other grass like plants, and includes sedge tundra, and sedge tussock tundra.

73. Lichens - Alaska only areas dominated by fruticose or foliose lichens generally greater than 80% of total vegetation.

74. Moss - Alaska only areas dominated by mosses, generally greater than 80% of total vegetation. Planted/Cultivated

81. Pasture/Hay - areas of grasses, legumes, or grass-legume mixtures planted for livestock grazing or the production of seed or hay crops, typically on a perennial cycle. Pasture/hay vegetation accounts for greater than 20% of total vegetation.

82. Cultivated Crops - areas used for the production of annual crops, such as corn, soybeans, vegetables, tobacco, and cotton, and also perennial woody crops such as orchards and vineyards. Crop vegetation accounts for greater than 20% of total vegetation. This class also includes all land being actively tilled.

90. Woody Wetlands - areas where forest or shrubland vegetation accounts for greater than 20% of vegetative cover and the soil or substrate is periodically saturated with or covered with water.

95. Emergent Herbaceous Wetlands - Areas where perennial herbaceous vegetation accounts for greater than 80% of vegetative cover and the soil or substrate is periodically saturated with or covered with water.

Close

Community Profile

Help

Flood Risk Summary
Critical Facilities
Critical Infrastructure
Emergency Services
Environmental Concerns
Historic Buildings & Areas
Housing
Land Use
Population & Demographics
Social Vulnerability
Capacity Assessment
Impact Assessment

Craven County - Population & Demographics

2020 POPULATION	100,720
2010 POPULATION: 103,505	DIFFERENCE: -2,785

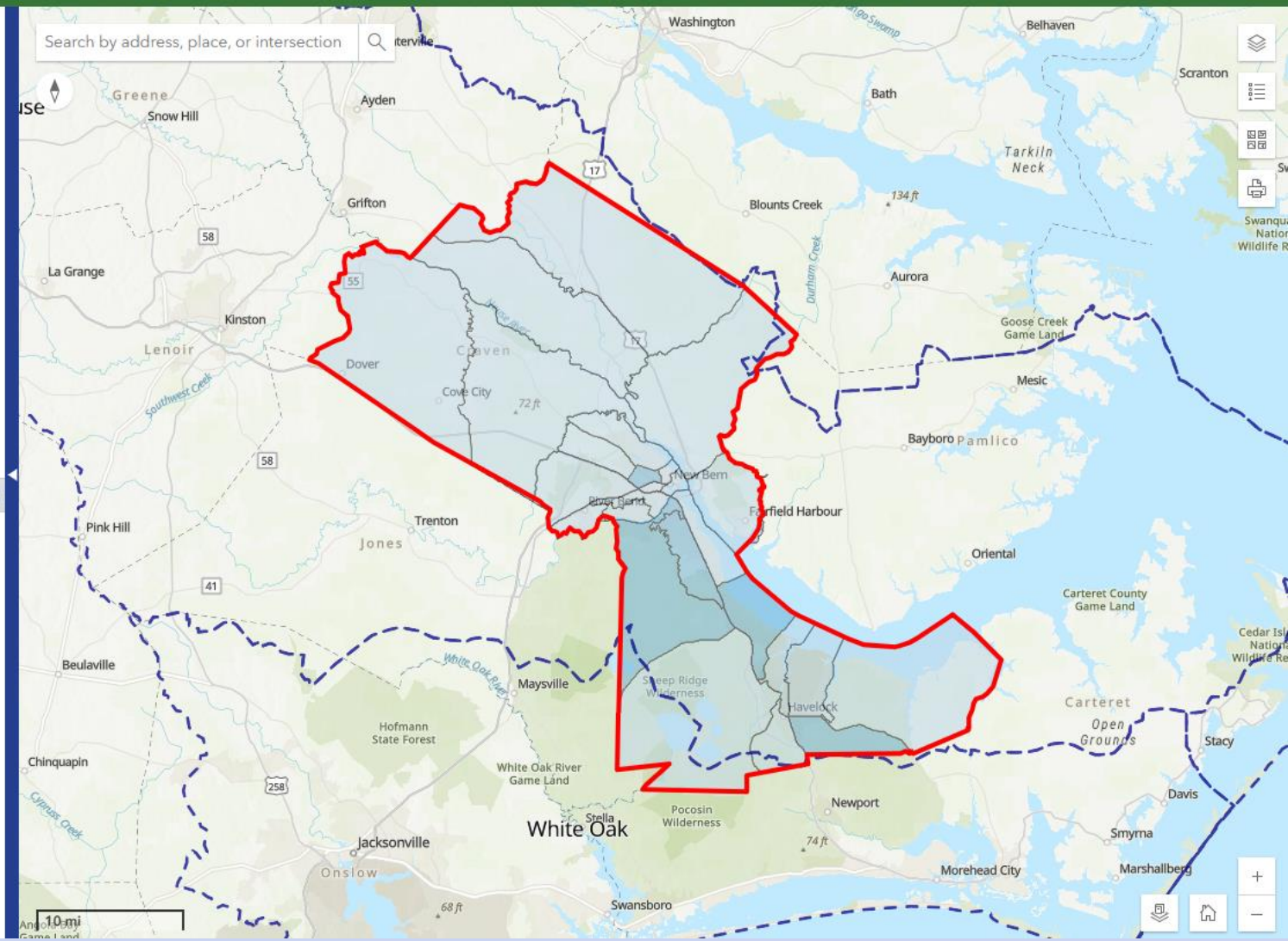
Select Demographic Topic:

Race

AFRICAN-AMERICAN	20,204
AMERICAN INDIAN AND ALASKA NATIVE	413
ASIAN	3,093
NATIVE HAWAIIAN AND OTHER PACIFIC ISLANDER	167
WHITE	66,703
OTHER	3,003
TWO OR MORE RACES	7,137
HISPANIC OR LATINO	7,195
NOT HISPANIC OR LATINO	93,525

Previous

Next



Community Profile

Help

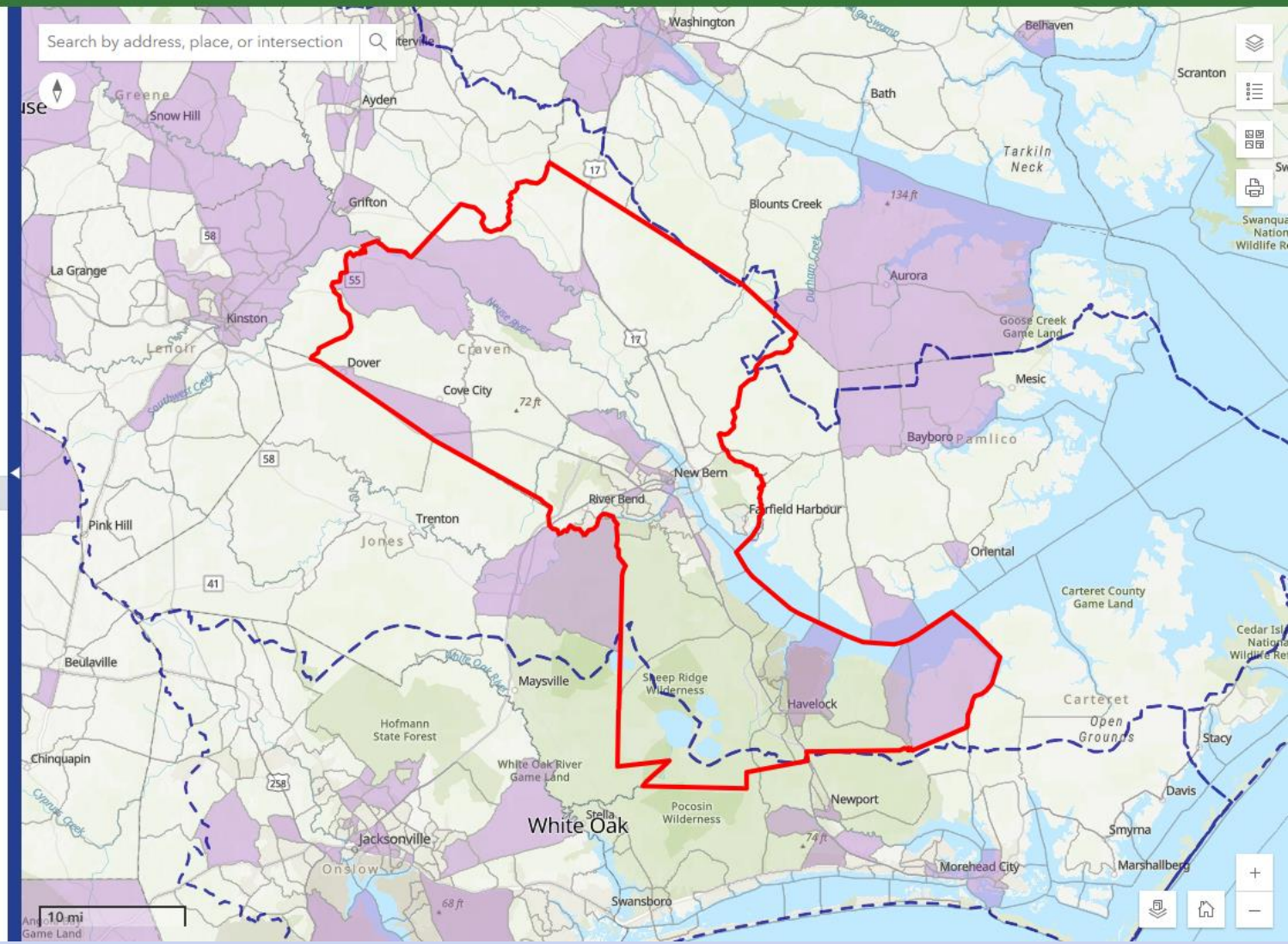
Flood Risk Summary
Critical Facilities
Critical Infrastructure
Emergency Services
Environmental Concerns
Historic Buildings & Areas
Housing
Land Use
Population & Demographics
Social Vulnerability
Capacity Assessment
Impact Assessment

Craven County - Social Vulnerability

Social vulnerability is the susceptibility of social groups to the adverse impacts of natural hazards, including disproportionate death, injury, loss, or disruption of livelihood.

Layer	
DEQ Potentially Underserved	
Environmental Justice Index	
Justice 40 Census Tracts	
Social Vulnerability Index	

Previous | Next



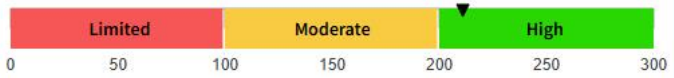
Flood Risk Summary
Critical Facilities
Critical Infrastructure
Emergency Services
Environmental Concerns
Historic Buildings & Areas
Housing
Land Use
Population & Demographics
Social Vulnerability
Capacity Assessment
Impact Assessment

Craven County - Capacity Assessment

Initial Capacity Assessment data loaded from Pamlico Sound Regional Plan.

Capacity Assessment Results

211



Detailed Results by Category

Category	Score	Rating
Planning & Regulatory	30	Moderate
Administrative & Technical	36	High
Fiscal	20	Moderate
Education & Outreach	15	High
Mitigation	20	High
Self-Assessment	90	High

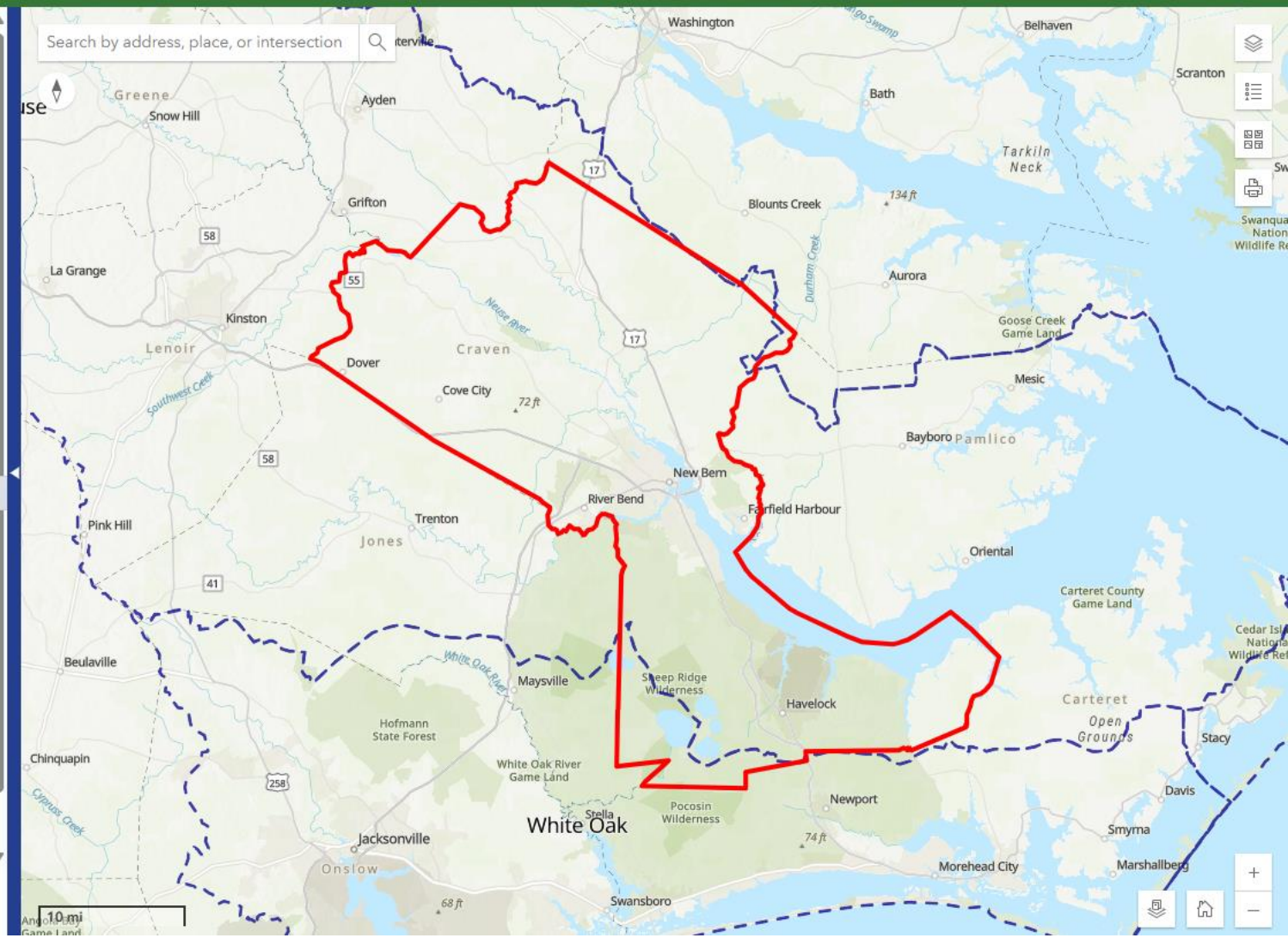
Political Capacity

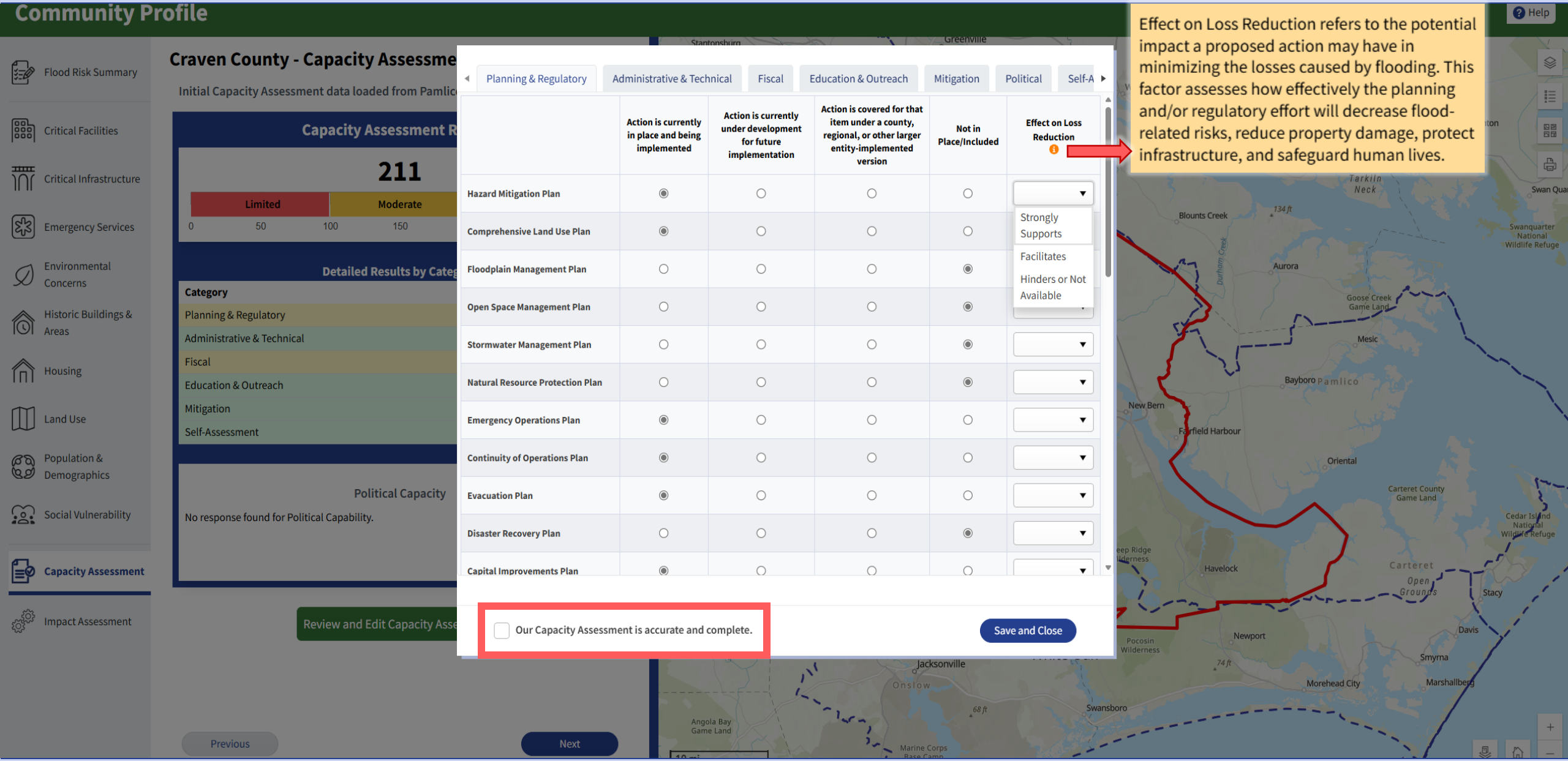
No response found for Political Capability.

Review and Edit Capacity Assessment

Previous

Next




Community Profile
Help
Flood Risk Summary
Critical Facilities
Critical Infrastructure
Emergency Services
Environmental Concerns
Historic Buildings & Areas
Housing
Land Use
Population & Demographics
Social Vulnerability
Capacity Assessment
Impact Assessment
Craven County - Capacity Assessme
Initial Capacity Assessment data loaded from Pamlic
Capacity Assessment R
211
Limited
Moderate
0
50
100
150
Detailed Results by Categ
Category
Planning & Regulatory
Administrative & Technical
Fiscal
Education & Outreach
Mitigation
Self-Assessment
Political Capacity
No response found for Political Capability.
Review and Edit Capacity Asse
Previous
Next
Planning & Regulatory
Administrative & Technical
Fiscal
Education & Outreach
Mitigation
Political
Self-A
Action is currently in place and being implemented
Action is currently under development for future implementation
Action is covered for that item under a county, regional, or other larger entity-implemented version
Not in Place/Included
Effect on Loss Reduction
Hazard Mitigation Plan
Comprehensive Land Use Plan
Floodplain Management Plan
Open Space Management Plan
Stormwater Management Plan
Natural Resource Protection Plan
Emergency Operations Plan
Continuity of Operations Plan
Evacuation Plan
Disaster Recovery Plan
Capital Improvements Plan
Strongly Supports
Facilitates
Hinders or Not Available
Our Capacity Assessment is accurate and complete.
Save and Close
Effect on Loss Reduction refers to the potential impact a proposed action may have in minimizing the losses caused by flooding. This factor assesses how effectively the planning and/or regulatory effort will decrease flood-related risks, reduce property damage, protect infrastructure, and safeguard human lives.
Tarkiln Neck
Blounts Creek
134 ft
Durham Creek
Aurora
Goose Creek Game Land
Mesic
Bayboro
Pamlico
New Bern
Fairfield Harbour
Oriental
Carteret County Game Land
Havelock
Carteret
Open Grounds
Stacy
Newport
Pocosin Wilderness
Davis
Smyrna
Morehead City
Marshallberg
74 ft
Jacksonville
Onslow
68 ft
Swansboro
Angola Bay Game Land
Marine Corps Base Camp
Swanquarter National Wildlife Refuge
Cedar Island National Wildlife Refuge

Flood Risk Summary
Critical Facilities
Critical Infrastructure
Emergency Services
Environmental Concerns
Historic Buildings & Areas
Housing
Land Use
Population & Demographics
Social Vulnerability
Capacity Assessment
Impact Assessment

Craven County - Impact Assessment

Select a category:

Overall

Select a flood scenario:

100-Year Flood

Overall Impacts

Score 0 to 100 among counties in the Neuse basin

80

None | Low | Medium | High | Highest

Detailed Evaluation Results by Category

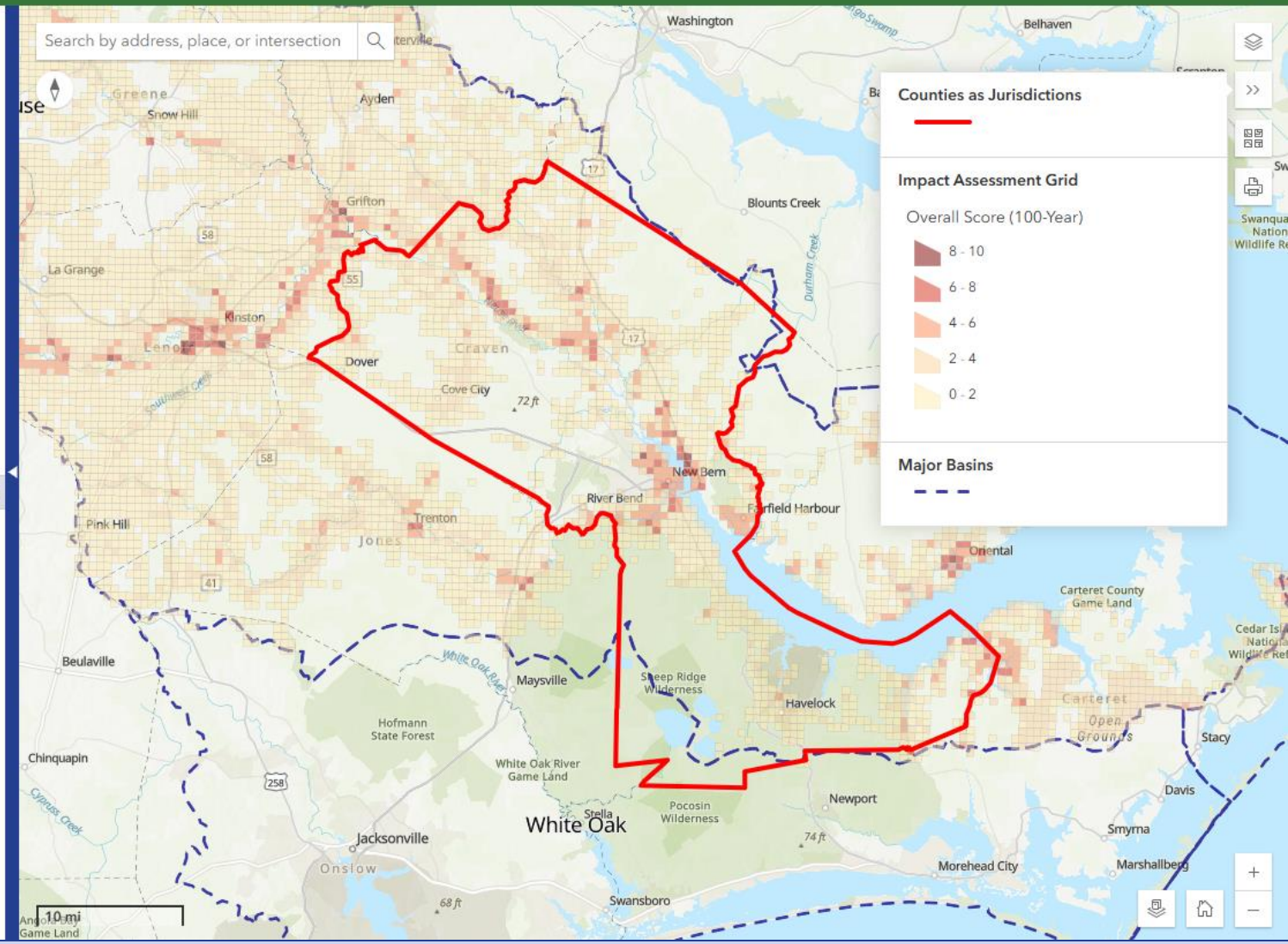
People 85

Environment 75

Infrastructure 73

Economic Sustainability 87

Previous



Community Profile

Help

- Flood Risk Summary
- Critical Facilities
- Critical Infrastructure
- Emergency Services
- Environmental Concerns
- Historic Buildings & Areas
- Housing
- Land Use
- Population & Demographics
- Social Vulnerability
- Capacity Assessment
- **Impact Assessment**

Craven County - Impact Assessment

Select a category:

Environment

Select a flood scenario:

100-Year Flood

Environment Impacts

Score 0 to 100 among counties in the Neuse basin

75

None	Low	Medium	High	Highest

Detailed Evaluation Results for Selected Flood Scenario

5,426

Crop Field Exposure (acres)

8.14% of County's Total Value

3,283,290

Livestock Exposure (lbs)

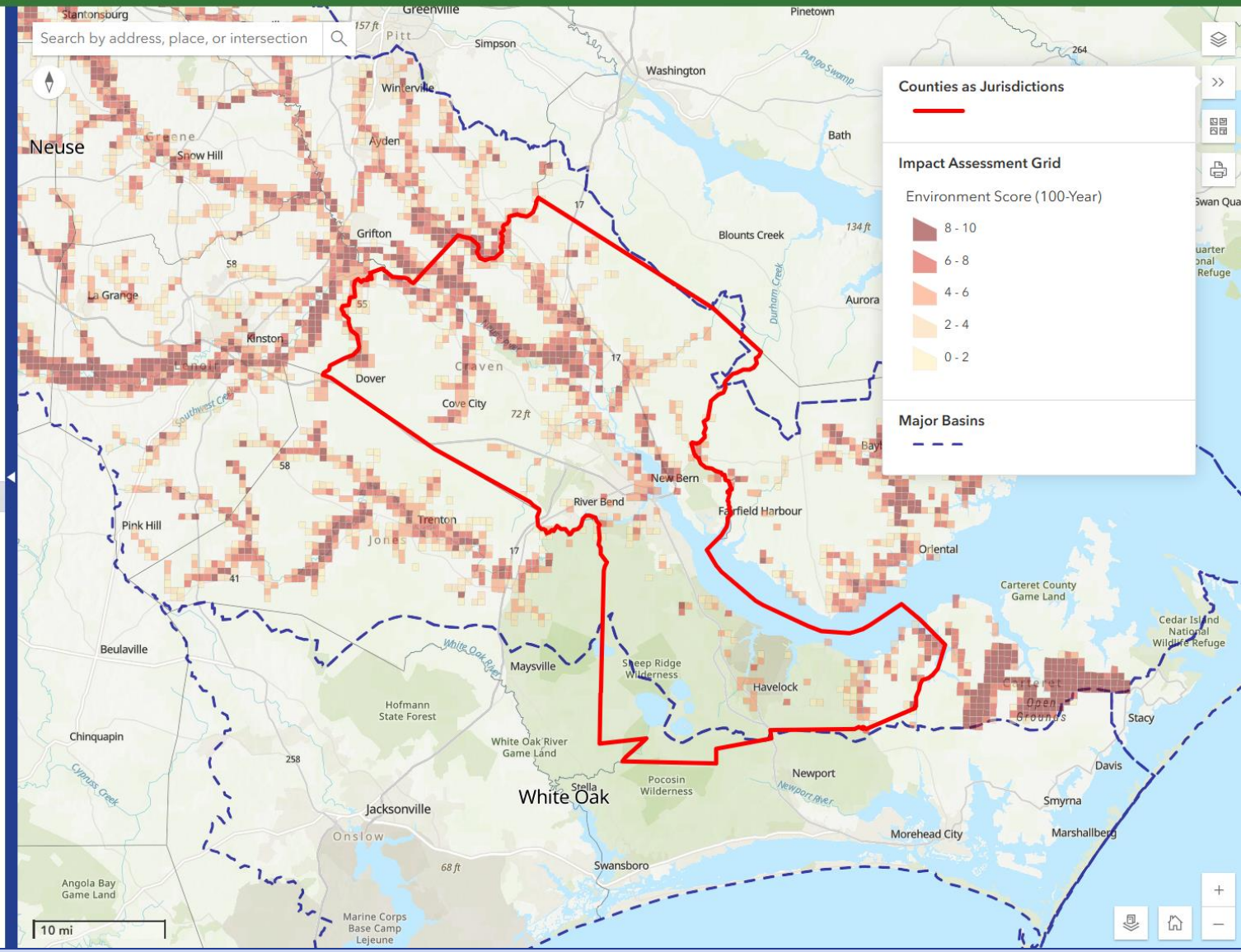
32.41% of County's Total Value

63

Number of Facilities Exposed to Flood Risk with Potential Environmental Hazards

36% of County's Total Value

Previous



Community Profile (15 minutes)

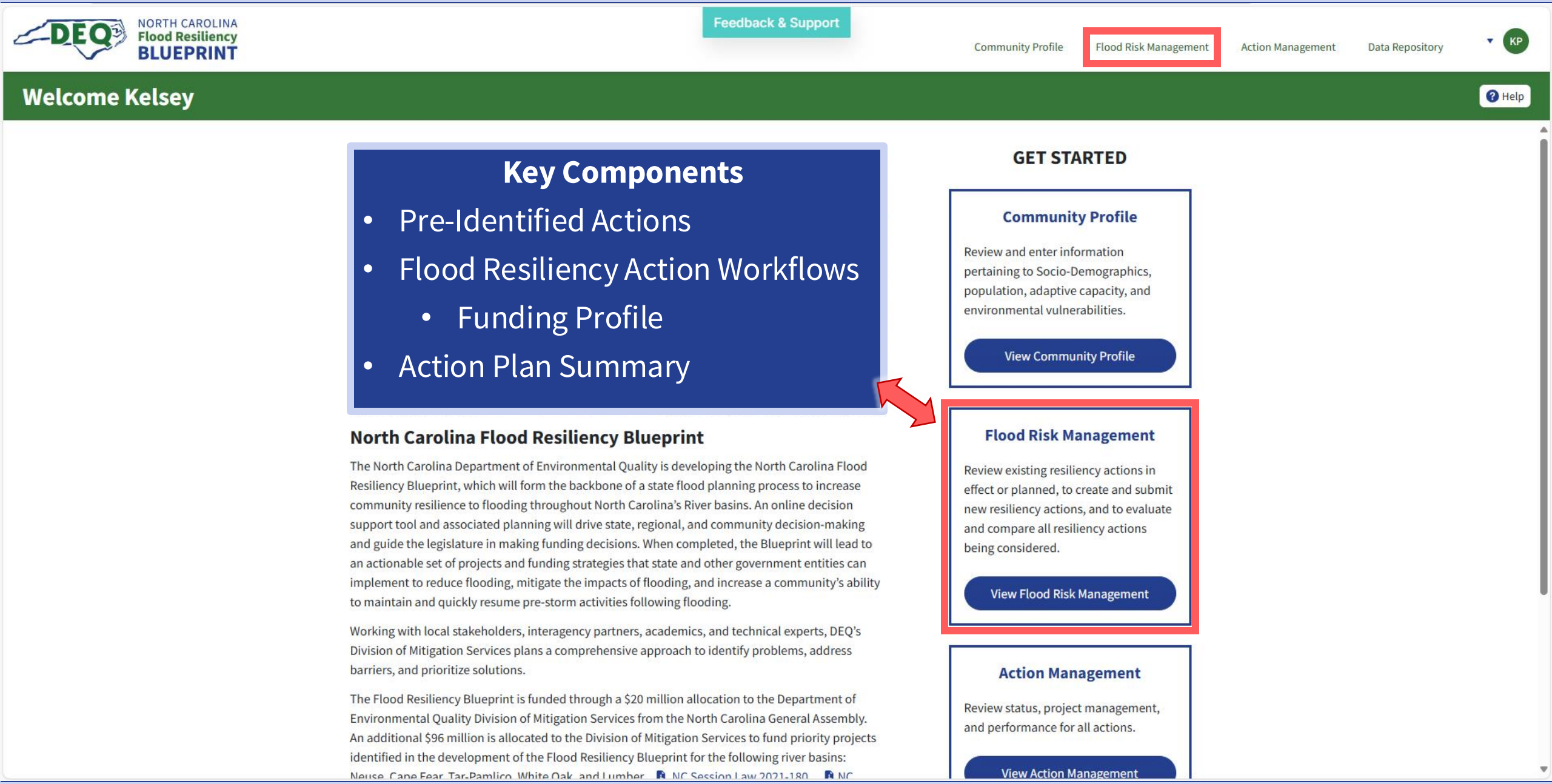
This exercise is designed to walk you through the Blueprint Tool's Community Profile. While there are editable layers that will be highlighted along the way, we will not edit any layers today. Once the timer hits the 10-minute mark, please select at least **one area of vulnerability or risk** you'd like to explore in greater depth and address through the Blueprint Tool's Resiliency Actions.

1. **Flood Risk Summary**: Adjust the Flood Hazard Type and Recurrence intervals. See how the summary charts change at different intervals.
2. **Critical Facilities**: Zoom into an area with at least 20 critical facilities. And explore which types of critical facilities are there.
3. **Critical Infrastructure**: Select the infrastructure layers you would like to see. These can be viewed one at a time or all together. Zoom in on an area to see what critical infrastructure is there. You can toggle the layers on and off by clicking the eye icon.
4. **Emergency Services**: Note the number of Emergency Services. Zoom in on any area to explore them. You can toggle the layers on and off by clicking the eye icon.
5. **Environmental Concerns**: Select the layers you would like to see. These layers can be viewed one at a time or all at once. You can toggle the layers on and off by clicking the eye icon.
6. **Historic Buildings and Areas**: Note the number of historical buildings and areas with the location boundary. Zoom into an area to explore. You can toggle the layers on and off by clicking the eye icon.
7. **Housing**: Zoom into the map to find an area affected by an event. Note the differing levels of risk for the housing structures.
8. **Land Use**: Note the differing land cover classes in your area. Are there any concerning development patterns?
9. **Population and Demographics**: Select the demographic information you would like to see from the Topic dropdown menu.
10. **Social Vulnerability**: You can toggle the layers on and off by clicking the eye icon. These layers can only be viewed one at a time. Do you notice any overlapping areas or patterns?
11. **Capacity Assessment**: Click on a category to see details on why it is scored the way it is. You can click through each category in the header of the pop-up table. This assessment is editable by clicking the "Review and Edit Capacity Assessment" button, but we will not edit it today.
12. **Impact Assessment**: Select a category to view or select. Note the areas with the highest impacts. Are there any overlapping areas? Notice any patterns?

Reflections & Questions

Flood Risk Management

Section 3 on the Activity Worksheet


NORTH CAROLINA
Flood Resiliency
BLUEPRINT
Feedback & Support
Community Profile
Flood Risk Management
Action Management
Data Repository
KP
Welcome Kelsey
Help
Key Components
• Pre-Identified Actions
• Flood Resiliency Action Workflows
• Funding Profile
• Action Plan Summary
North Carolina Flood Resiliency Blueprint
The North Carolina Department of Environmental Quality is developing the North Carolina Flood Resiliency Blueprint, which will form the backbone of a state flood planning process to increase community resilience to flooding throughout North Carolina's River basins. An online decision support tool and associated planning will drive state, regional, and community decision-making and guide the legislature in making funding decisions. When completed, the Blueprint will lead to an actionable set of projects and funding strategies that state and other government entities can implement to reduce flooding, mitigate the impacts of flooding, and increase a community's ability to maintain and quickly resume pre-storm activities following flooding.
Working with local stakeholders, interagency partners, academics, and technical experts, DEQ's Division of Mitigation Services plans a comprehensive approach to identify problems, address barriers, and prioritize solutions.
The Flood Resiliency Blueprint is funded through a $20 million allocation to the Department of Environmental Quality Division of Mitigation Services from the North Carolina General Assembly. An additional $96 million is allocated to the Division of Mitigation Services to fund priority projects identified in the development of the Flood Resiliency Blueprint for the following river basins:
Neuse, Cape Fear, Tar-Pamlico, White Oak, and Lumber
NC Session Law 2021-180
NC
GET STARTED
Community Profile
Review and enter information pertaining to Socio-Demographics, population, adaptive capacity, and environmental vulnerabilities.
View Community Profile
Flood Risk Management
Review existing resiliency actions in effect or planned, to create and submit new resiliency actions, and to evaluate and compare all resiliency actions being considered.
View Flood Risk Management
Action Management
Review status, project management, and performance for all actions.
View Action Management

Resiliency Action Method Descriptions

Advanced (15 actions)

- Incorporates multiple data layers and analyses
  - Examples: delineating drainage areas in real-time, pre-calculated NBS opportunity areas, multi-variable cost estimations, etc.
- Many of the inputs are pre-calculated or calculated in real-time by the Tool
  - Some user input/refinement may be required
- Provides in-depth results tailored to specific actions and flood resilience needs

Simple (12 actions)

- Leverages reference layers and user input/refinement to populate the Resiliency Action Profile
- Provides a high-level overview of key factors like cost ranges, potential impact on flooding, ecosystem service benefits, etc.
- "Simple" NBS methods incorporate additional education material in the

Upcoming (7 actions)

- Resiliency action methodologies that are currently in development by the Blueprint team or under review by NCDEQ for Tool integration in the coming weeks & months

Categories	Building Level Mitigation							Channel Modification			
Actions	Relocation	Utility Elevation	Structural Elevation	Reconstruction	Wet Floodproofing	Dry Floodproofing	Acquisition/ Demolition	Debris Removal	Diversion Channels	Channel Dredging	Channel Widening
Advanced Method	■	■	■	■	■	■	■		■	■	■
Simple Method								■			
Upcoming Method											

Categories	Nature Based Solutions										
Actions	Water Farming	Bioretention (large-scale)	Raingardens, Sand Filters, Bio-Swales, etc.	Green Roofs	Living Shorelines	Permeable Pavement	Afforestation	Flood Storage Wetlands	Riparian Buffers	Floodplain Preservation	Floodplain Restoration
Advanced Method	■						■				
Simple Method		■	■	■	■	■				■	
Upcoming Method								**Advanced**	**Simple**		**Advanced**

Categories	Infrastructure & Control Structures					Other			Policy & Planning			
Actions	Levees, Dikes & Berms	New & Existing Dam Structures	Road Elevations/ Road Crossing Modifications	Storm Water Management Activities	Quarries	Critical Infrastructure	Beaver Management	Coastal Resiliency Actions	Enhanced Zoning	Land Use/ Impervious Area Restrictions	Multi-Use Floodplains	Stormwater, Water Quality, Floodplain Regulations
Advanced Method		■	■					■				
Simple Method				■	■	■	■				■	
Upcoming Method	**Advanced**								**Simple**	**Simple**		**Simple**

My Action Plans

+ Create Draft Action Plan

Open Plan	Plan Name	Jurisdiction	County	Basin	Description	Created By	Date Created	Modified By	Date Modified
	Johnston County, NC Flood Resilience Plan	12 Jurisdictions	Johnston	Neuse	Johnston County, NC, has experienced multiple flood events over the past decade, impacting farmland, residential neighborhoods, and critical infrastructure. These recurring floods have created an urgent need for a coordinated, data-driven resilience strategy that prioritizes environmental and community benefits. Using the Blueprint Decision Support Tool, the county plans to identify high-risk areas and implement cost-effective projects to reduce future flood	Kelsey Peterson	02/28/2025		

1 2 3 ...

1 - 5 of 33 Action Plans

Close

NORTH CAROLINA Flood Resiliency BLUEPRINT

Feedback & Support

Community Profile | Flood Risk Management | Action Management | Data Repository | KP

Flood Risk Management

New Resiliency Action | View Summary | Help

Create Draft Action Plan

Create a unique name for your plan (e.g. City of Springfield Stormwater Department Plan)

Johnston County, NC Flood Resilience Plan

Action Plan Description

Johnston County, NC, has experienced multiple flood events over the past decade, impacting farmland, residential neighborhoods, and critical infrastructure. These recurring floods have created an urgent need for a coordinated, data-driven resilience strategy that prioritizes environmental and community benefits. Using the Blueprint Decision Support Tool, the county plans to identify high-risk areas and implement cost-effective projects to reduce future flood damage while preserving natural habitats.

In which river basin is this Action Plan? *

Neuse

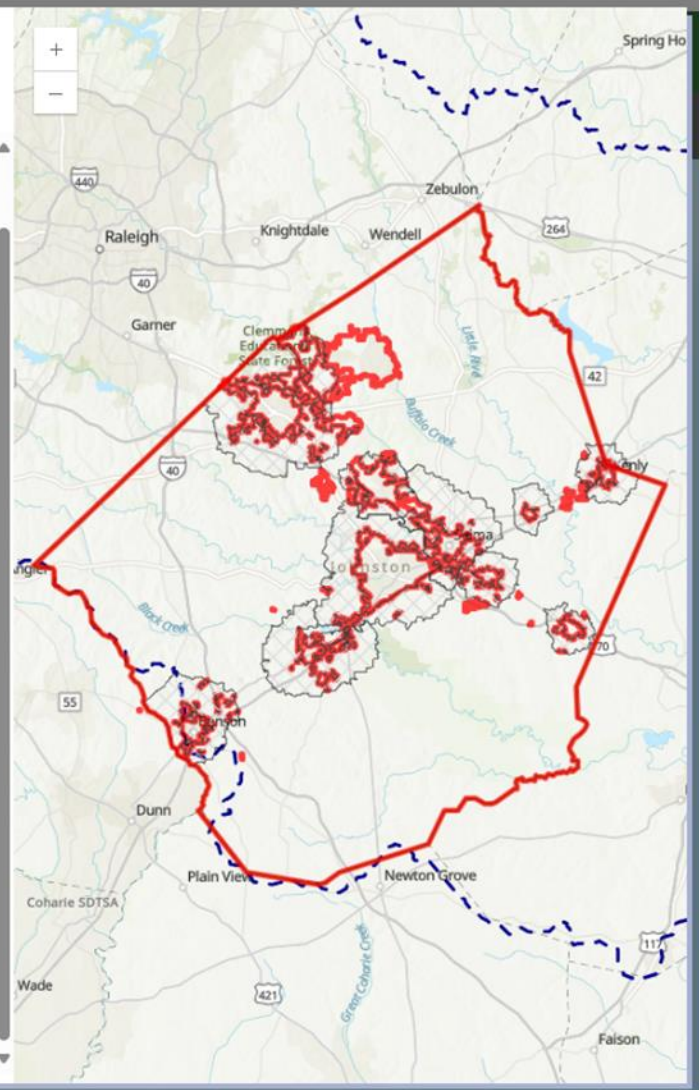
In which county(ies) is this Action Plan? Select all that apply. *

Johnston

Which jurisdiction(s) is participating in this Action Plan? Select all that apply. *

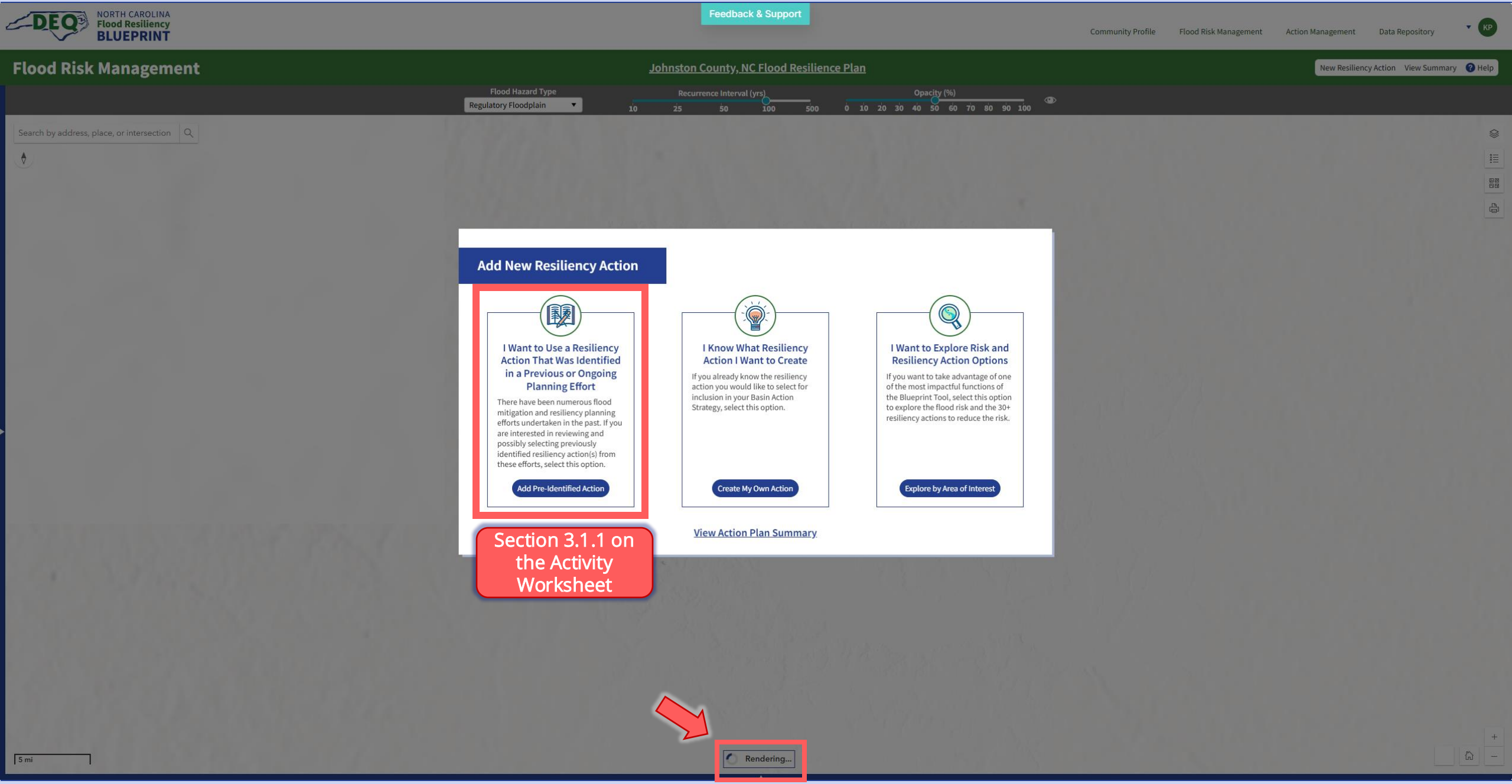
Town Of Archer Lodge | Town Of Benson | Town Of Clayton | Town Of Four Oaks | Johnston County | Town Of Kenly | Town Of Micro | Town Of Pine Level | Town Of Princeton | Town Of Selma | Town Of Smithfield | Town Of Wilson's Mills

Cancel | Create



Search by address, place, or intersection

50 mi


NORTH CAROLINA
Flood Resiliency
BLUEPRINT
Feedback & Support
Community Profile
Flood Risk Management
Action Management
Data Repository
KP
Flood Risk Management
Johnston County, NC Flood Resilience Plan
New Resiliency Action
View Summary
Help
Flood Hazard Type
Regulatory Floodplain
Recurrence Interval (yrs)
10 25 50 100 500
Opacity (%)
0 10 20 30 40 50 60 70 80 90 100
Search by address, place, or intersection
Add New Resiliency Action
I Want to Use a Resiliency Action That Was Identified in a Previous or Ongoing Planning Effort
There have been numerous flood mitigation and resiliency planning efforts undertaken in the past. If you are interested in reviewing and possibly selecting previously identified resiliency action(s) from these efforts, select this option.
Add Pre-Identified Action
I Know What Resiliency Action I Want to Create
If you already know the resiliency action you would like to select for inclusion in your Basin Action Strategy, select this option.
Create My Own Action
I Want to Explore Risk and Resiliency Action Options
If you want to take advantage of one of the most impactful functions of the Blueprint Tool, select this option to explore the flood risk and the 30+ resiliency actions to reduce the risk.
Explore by Area of Interest
View Action Plan Summary
Section 3.1.1 on the Activity Worksheet
Rendering...
5 mi

NORTH CAROLINA Flood Resiliency BLUEPRINT

Feedback & Support

Community Profile | Flood Risk Management | Action Management | Data Repository | KP

Flood Risk Management

Johnston County, NC Flood Resilience Plan

New Resiliency Action | View Summary | Help

Resiliency Action Planning

Pre-identified

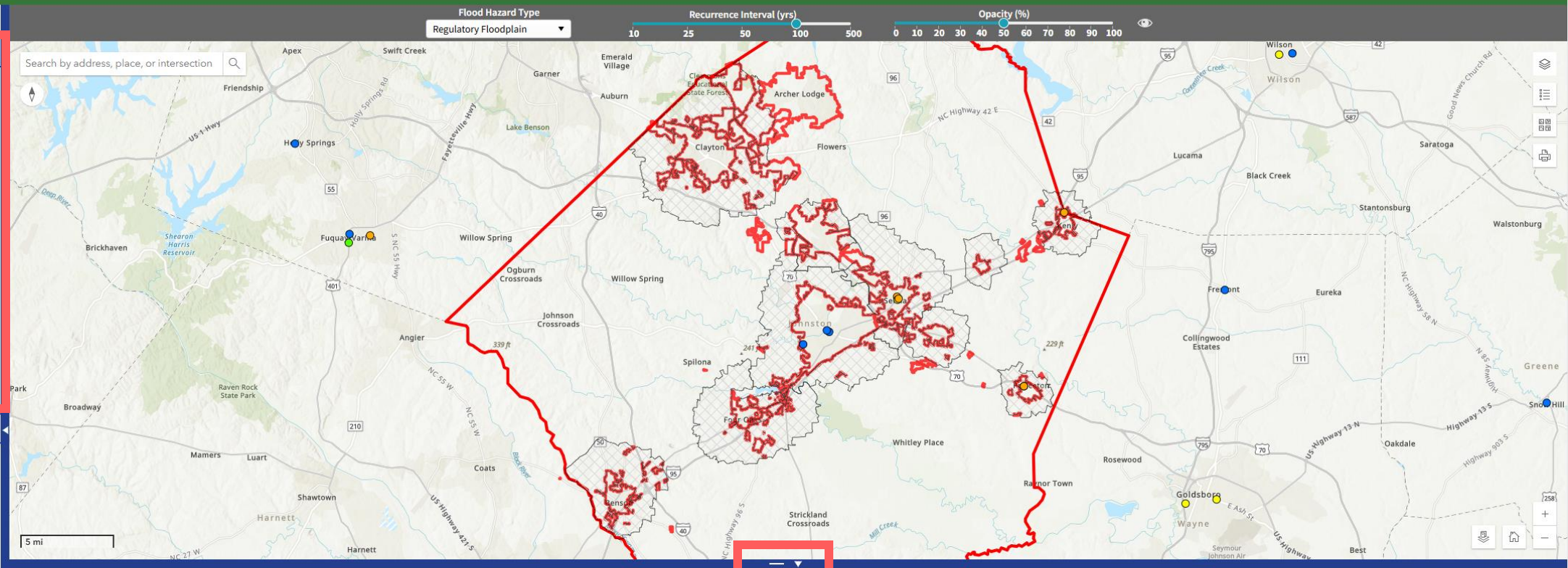
Johnston County Water Treatment Plant; Central Johnston County Regional Wastewater Treatment Facility

Raise the flood protection dike and access rd. Add stormwater controls at wastewater pump stations. Relocate water mains crossing culverts in the ROW creek crossings. Raise control bldg at Selma Equalization. Relocate Buffalo Creek Pump Station.

County	Johnston
Community	Not Available
Estimated Cost	Not Available
Plan	HMRRP
Plan Year	2017
Owner/Manager	Johnston County
Status & Barriers	1-5 years

Next

Resiliency Action Type



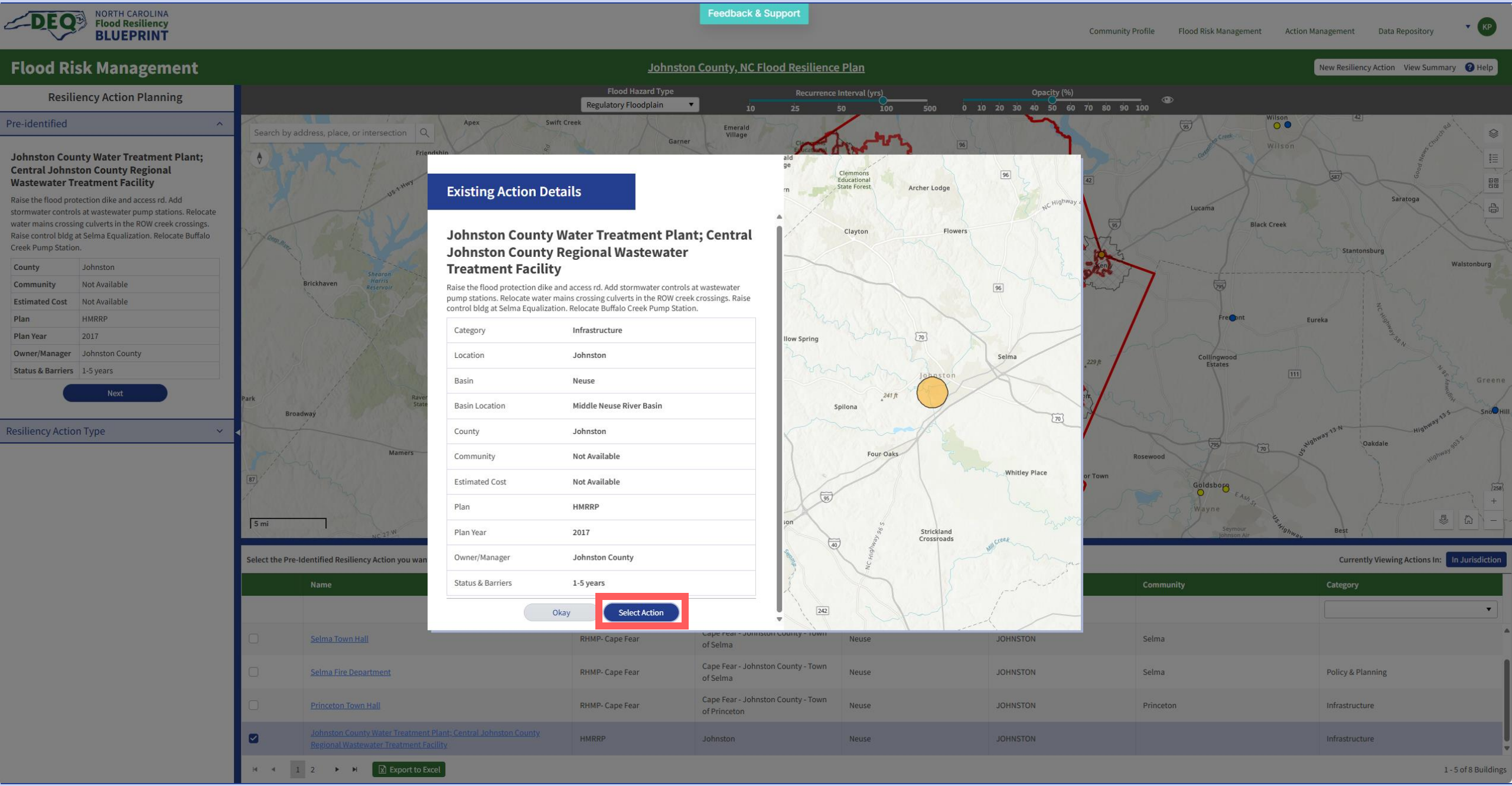
Select the Pre-Identified Resiliency Action you want to import

Currently Viewing Actions In: In Jurisdiction

	Name	Plan	Location	Basin	County	Community	Category
☐	Selma Town Hall	RHMP- Cape Fear	Cape Fear - Johnston County - Town of Selma	Neuse	JOHNSTON	Selma	
☐	Selma Fire Department	RHMP- Cape Fear	Cape Fear - Johnston County - Town of Selma	Neuse	JOHNSTON	Selma	Policy & Planning
☐	Princeton Town Hall	RHMP- Cape Fear	Cape Fear - Johnston County - Town of Princeton	Neuse	JOHNSTON	Princeton	Infrastructure
☑	Johnston County Water Treatment Plant; Central Johnston County Regional Wastewater Treatment Facility	HMRRP	Johnston	Neuse	JOHNSTON		Infrastructure

1 2 | Export to Excel

1 - 5 of 8 Buildings


NORTH CAROLINA
Flood Resiliency
BLUEPRINT
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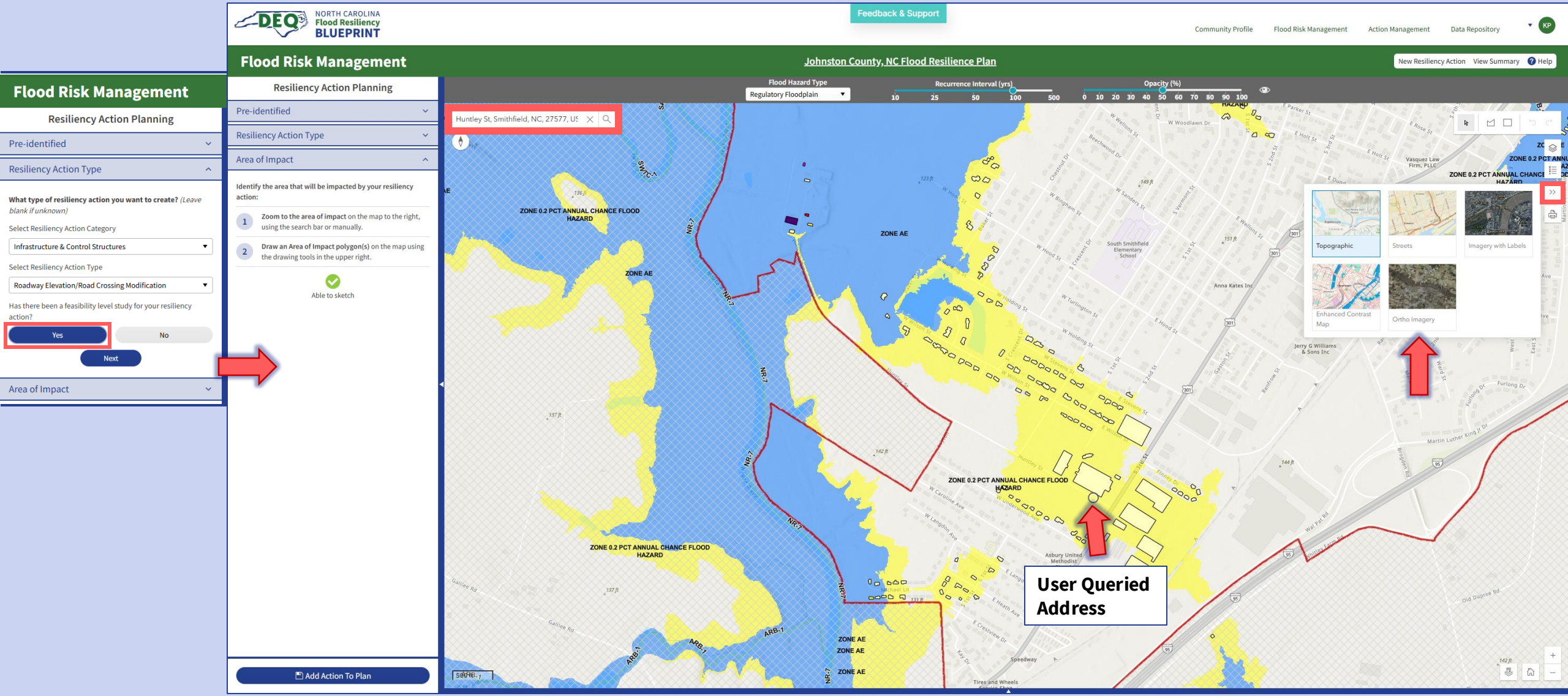
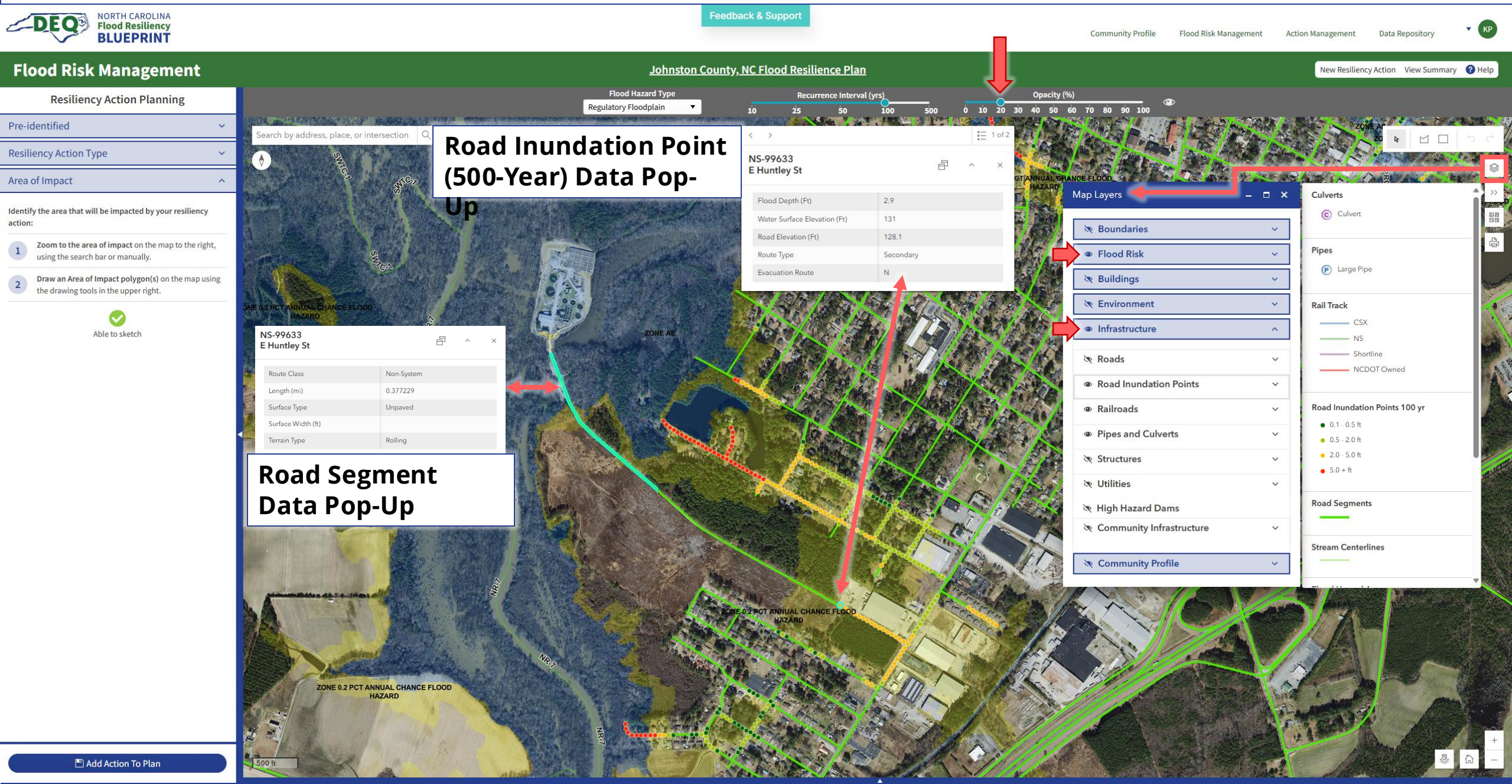
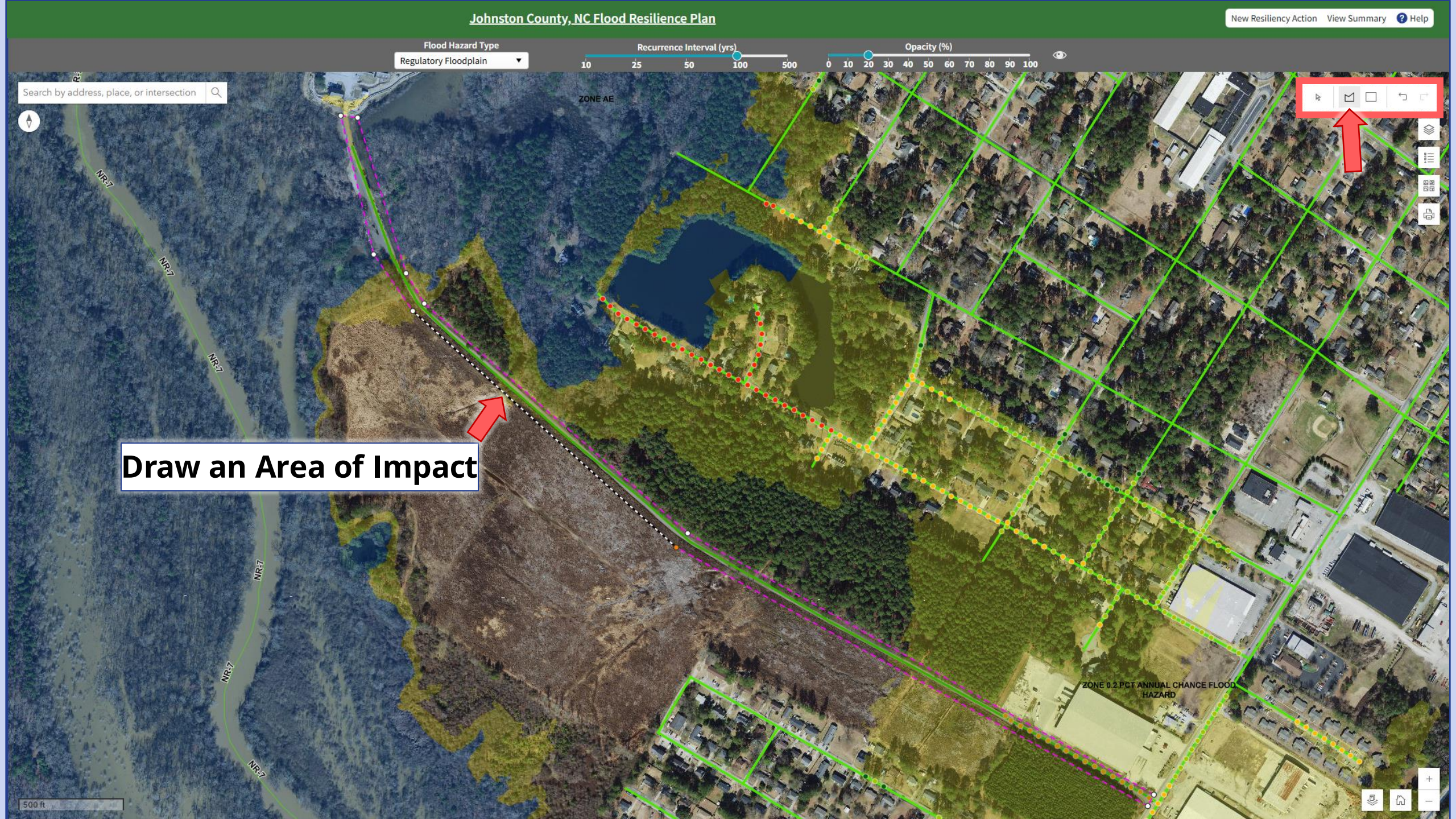
Flood Risk Management
Johnston County, NC Flood Resilience Plan
New Resiliency Action
View Summary
Help
Resiliency Action Planning
Pre-identified
Johnston County Water Treatment Plant; Central Johnston County Regional Wastewater Treatment Facility
Raise the flood protection dike and access rd. Add stormwater controls at wastewater pump stations. Relocate water mains crossing culverts in the ROW creek crossings. Raise control bldg at Selma Equalization. Relocate Buffalo Creek Pump Station.
County Johnston
Community Not Available
Estimated Cost Not Available
Plan HMRRP
Plan Year 2017
Owner/Manager Johnston County
Status & Barriers 1-5 years
Next
Resiliency Action Type
Flood Hazard Type
Regulatory Floodplain
Recurrence Interval (yrs)
10 25 50 100 500
Opacity (%)
0 10 20 30 40 50 60 70 80 90 100
Search by address, place, or intersection
Existing Action Details
Johnston County Water Treatment Plant; Central Johnston County Regional Wastewater Treatment Facility
Raise the flood protection dike and access rd. Add stormwater controls at wastewater pump stations. Relocate water mains crossing culverts in the ROW creek crossings. Raise control bldg at Selma Equalization. Relocate Buffalo Creek Pump Station.
Category Infrastructure
Location Johnston
Basin Neuse
Basin Location Middle Neuse River Basin
County Johnston
Community Not Available
Estimated Cost Not Available
Plan HMRRP
Plan Year 2017
Owner/Manager Johnston County
Status & Barriers 1-5 years
Okay
Select Action
Clemmons Educational State Forest
Archer Lodge
Clayton
Flowers
Selma
Spilona
Four Oaks
Whitley Place
Strickland Crossroads
Johnston
Wilson
Lucama
Black Creek
Saratoga
Stantonsburg
Walstonburg
Eureka
Collingwood Estates
Rosewood
Goldsboro
Wayne
Oakdale
Best
Brickhaven
Broadway
Mamers
Park
Apex
Swift Creek
Garner
Emerald Village
Select the Pre-Identified Resiliency Action you want
Currently Viewing Actions In:
In Jurisdiction
Name
Community
Category
Selma Town Hall
RHMP- Cape Fear
Cape Fear - Johnston County - Town of Selma
Neuse
JOHNSTON
Selma
Selma Fire Department
RHMP- Cape Fear
Cape Fear - Johnston County - Town of Selma
Neuse
JOHNSTON
Selma
Policy & Planning
Princeton Town Hall
RHMP- Cape Fear
Cape Fear - Johnston County - Town of Princeton
Neuse
JOHNSTON
Princeton
Infrastructure
Johnston County Water Treatment Plant; Central Johnston County Regional Wastewater Treatment Facility
HMRRP
Johnston
Neuse
JOHNSTON
Infrastructure
Export to Excel
1 - 5 of 8 Buildings

Aligning the Pre-Identified Action with a Blueprint Action Workflow

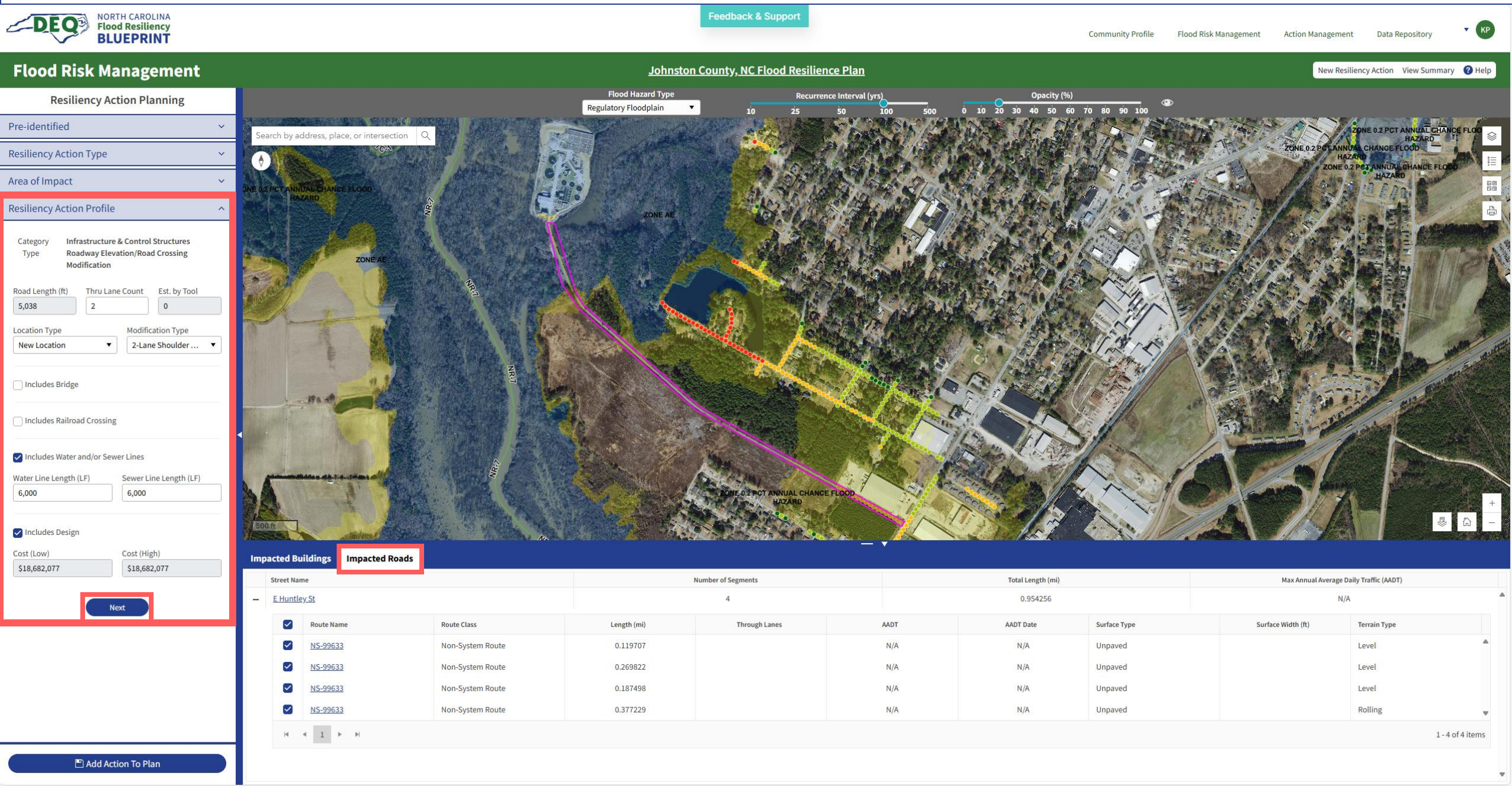


Refine the Webmap View & Explore Reference Layers




Johnston County, NC Flood Resilience Plan
New Resiliency Action
View Summary
Help
Flood Hazard Type
Regulatory Floodplain
Recurrence Interval (yrs)
10 25 50 100 500
Opacity (%)
0 10 20 30 40 50 60 70 80 90 100
Search by address, place, or intersection
ZONE AE
NR-7
Draw an Area of Impact
ZONE 0.2 PCT ANNUAL CHANCE FLOOD HAZARD
500 ft

Refine the Action by Completing the Resiliency Action Profile



Impacted Buildings | **Impacted Roads** | Risk

Street Name	Number of Segments	Total Length (mi)	Max Annual Average Daily Traffic (AADT)
+ Lattice Rd	1	1.000000	N/A

Route Class

Federal Route: federal-aid roads maintained by federal agencies
Rest Area: typically, state-maintained but not counted towards state-maintained mileage
NC Route: state-maintained
US Route: state-maintained
Projected Route: generalized locations of major facilities that have not yet been built
Non-System Ramp: not state-maintained Ramp: typically, state-maintained but not counted towards state-maintained mileage
Secondary Route: state-maintained Interstate: state-maintained Other State
Agency Route: federal-aid roads maintained by other state agencies Non-System: not state-maintained

NCRouteCharacteristics Field Description (2024)

Close

Surface Types

Level: Natural slope range of 0% to 8%
Rolling: Natural slope range of 8.1% to 15%
Mountainous: Natural slope over 15%

NCRouteCharacteristics Field Description (2024)

Close

Terrain Types

Unpaved: includes aggregate base course Bituminous: typically, pertains to asphalt-based materials used for paving surfaces.
JPCP: jointed plain concrete pavement.
CRCP: continuously reinforced concrete pavement.
AC overlay on AC: asphalt-concrete overlay over existing asphalt-concrete pavement.
AC overlay on JCP: asphalt-concrete overlay over existing jointed concrete pavement.
AC overlay on CRCP: bituminous overlay on continuously reinforced concrete pavement.
Unbonded JC overlay on PCC: unbonded jointed concrete overlay on Portland cement control pavement.
Bonded PCC overlay on PCC: bonded Portland cement control overlay on Portland cement control pavement.
Other: includes bridge decks, white topping, brick, etc.

NCRouteCharacteristics Field Description (2024)

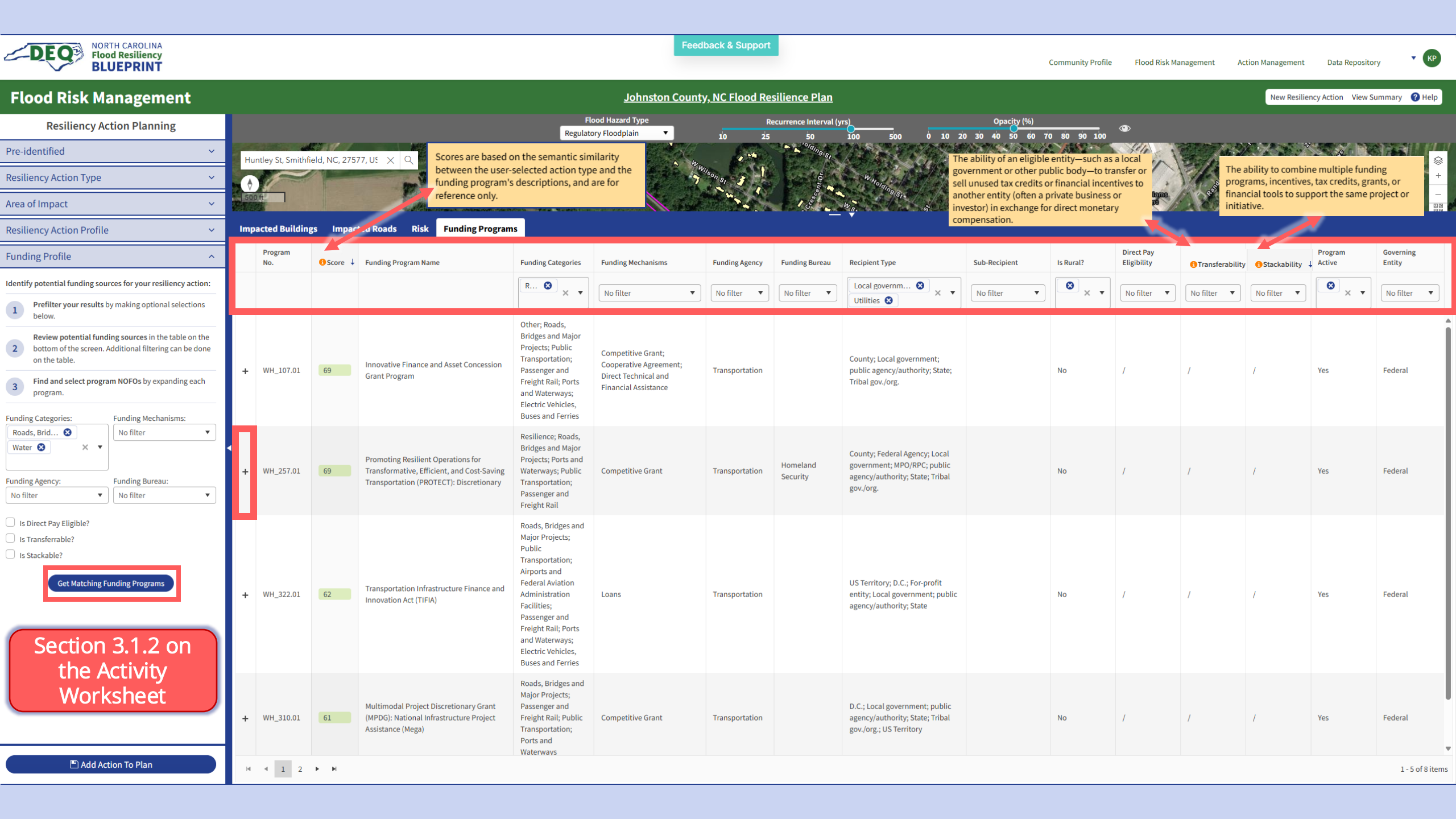
Close

Impacted Buildings | **Impacted Roads** | Risk

Street Name	Number of Segments	Total Length (mi)	Max Annual Average Daily Traffic (AADT)
− E Huntley St	4	0.954256	N/A

Route Name	Route Class	Length (mi)	Through Lanes	AADT	AADT Date	Surface Type	Surface Width (ft)	Terrain Type
NS-99633	Non-System Route	0.119707		N/A	N/A	Unpaved		Level
NS-99633	Non-System Route	0.269822		N/A	N/A	Unpaved		Level
NS-99633	Non-System Route	0.187498		N/A	N/A	Unpaved		Level
NS-99633	Non-System Route	0.377229		N/A	N/A	Unpaved		Rolling

1 - 4 of 4 items


NORTH CAROLINA Flood Resiliency BLUEPRINT
Feedback & Support
Community Profile
Flood Risk Management
Action Management
Data Repository
KP
Flood Risk Management
Johnston County, NC Flood Resilience Plan
New Resiliency Action
View Summary
Help
Resiliency Action Planning
Pre-identified
Resiliency Action Type
Area of Impact
Resiliency Action Profile
Funding Profile
Identify potential funding sources for your resiliency action:
1 Prefilter your results by making optional selections below.
2 Review potential funding sources in the table on the bottom of the screen. Additional filtering can be done on the table.
3 Find and select program NOFOs by expanding each program.
Funding Categories:
Roads, Brid…
Water
Funding Mechanisms:
No filter
Funding Agency:
No filter
Funding Bureau:
No filter
Is Direct Pay Eligible?
Is Transferrable?
Is Stackable?
Get Matching Funding Programs
Section 3.1.2 on the Activity Worksheet
Add Action To Plan
Flood Hazard Type
Regulatory Floodplain
Recurrence Interval (yrs)
10 25 50 100 500
Opacity (%)
0 10 20 30 40 50 60 70 80 90 100
Huntley St, Smithfield, NC, 27577, US
Scores are based on the semantic similarity between the user-selected action type and the funding program's descriptions, and are for reference only.
The ability of an eligible entity—such as a local government or other public body—to transfer or sell unused tax credits or financial incentives to another entity (often a private business or investor) in exchange for direct monetary compensation.
The ability to combine multiple funding programs, incentives, tax credits, grants, or financial tools to support the same project or initiative.
Impacted Buildings
Impacted Roads
Risk
Funding Programs
Program No.
Score
Funding Program Name
Funding Categories
Funding Mechanisms
Funding Agency
Funding Bureau
Recipient Type
Sub-Recipient
Is Rural?
Direct Pay Eligibility
Transferability
Stackability
Program Active
Governing Entity
WH_107.01 | 69 | Innovative Finance and Asset Concession Grant Program | Other; Roads, Bridges and Major Projects; Public Transportation; Passenger and Freight Rail; Ports and Waterways; Electric Vehicles, Buses and Ferries | Competitive Grant; Cooperative Agreement; Direct Technical and Financial Assistance | Transportation | | County; Local government; public agency/authority; State; Tribal gov./org. | | No | / | / | / | Yes | Federal
WH_257.01 | 69 | Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT): Discretionary | Resilience; Roads, Bridges and Major Projects; Ports and Waterways; Public Transportation; Passenger and Freight Rail | Competitive Grant | Transportation | Homeland Security | County; Federal Agency; Local government; MPO/RPC; public agency/authority; State; Tribal gov./org. | | No | / | / | / | Yes | Federal
WH_322.01 | 62 | Transportation Infrastructure Finance and Innovation Act (TIFIA) | Roads, Bridges and Major Projects; Public Transportation; Airports and Federal Aviation Administration Facilities; Passenger and Freight Rail; Ports and Waterways; Electric Vehicles, Buses and Ferries | Loans | Transportation | | US Territory; D.C.; For-profit entity; Local government; public agency/authority; State | | No | / | / | / | Yes | Federal
WH_310.01 | 61 | Multimodal Project Discretionary Grant (MPDG): National Infrastructure Project Assistance (Mega) | Roads, Bridges and Major Projects; Passenger and Freight Rail; Public Transportation; Ports and Waterways | Competitive Grant | Transportation | | D.C.; Local government; public agency/authority; State; Tribal gov./org.; US Territory | | No | / | / | / | Yes | Federal
1 2
1 - 5 of 8 items

Flood Risk Management

Johnston County, NC Flood Resilience Plan

New Resiliency Action | View Summary | Help

Resiliency Action Planning

- Pre-identified
- Resiliency Action Type
- Area of Impact
- Resiliency Action Profile
- Funding Profile

Identify potential funding sources for your resiliency action:

1. **Prefilter your results** by making optional selections below.
2. **Review potential funding sources** in the table on the bottom of the screen. Additional filtering can be done on the table.
3. **Find and select program NOFOs** by expanding each program.

Funding Categories: Roads, Brid… | Water

Funding Mechanisms: No filter

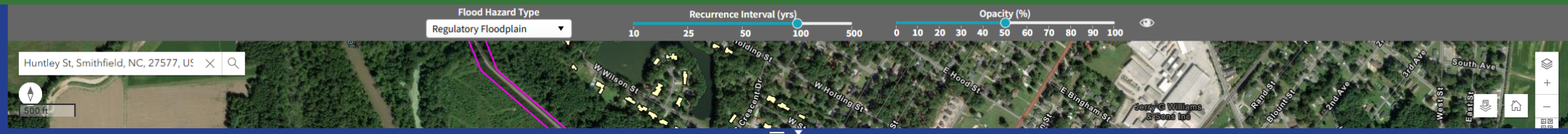
Funding Agency: No filter

Funding Bureau: No filter

- Is Direct Pay Eligible?
- Is Transferrable?
- Is Stackable?

Get Matching Funding Programs

Add Action To Plan



Impacted Buildings | Impacted Roads | Risk | **Funding Programs**

Program No.	Score	Funding Program Name	Funding Categories	Funding Mechanisms	Funding Agency	Funding Bureau	Recipient Type	Sub-Recipient	Is Rural?	Direct Pay Eligibility	Transferability	Stackability	Program Active	Governing Entity
			R…	No filter	No filter	No filter	Local governm… ; Utilities	No filter		No filter	No filter	No filter		No filter

recurrence of emergency events that are likely to occur in the geographic area in which the evacuation route is located; and projected changes in development patterns, demographics, and extreme weather events based on the best available evidence and analysis. In providing grants for community resilience and evacuation routes, the Secretary may consult with the Administrator of the Federal Emergency Management Agency, who may provide technical assistance to the Secretary and to eligible entities. PROTECT At-risk coastal infrastructure grants will fund projects that addresses the risks from a current or future weather event or natural disaster, including coastal flooding, coastal erosion, wave action, storm surge, or sea level change; and that reduces long-term infrastructure costs by avoiding larger future maintenance or rebuilding costs. In addition, the Secretary shall evaluate the extent to which a project will provide access to coastal homes, businesses, communities, and other critical infrastructure, including access by first responders and other emergency personnel; or access to a designated evacuation route.

Eligible Uses: Planning grants will fund eligible entities for the purpose of - (A) in the case of a State or metropolitan planning organization, developing a resilience improvement plan and prioritization of the project under that improvement plan. (B) resilience planning, predesign, design, or the development of data tools to simulate transportation disruption scenarios, including vulnerability assessments; (C) technical capacity building by the eligible entity to facilitate the ability of the eligible entity to assess the vulnerabilities of the surface transportation assets and community response strategies of the eligible entity under current conditions and a range of potential future conditions; or (D) evacuation planning and preparation. An eligible entity may use a resilience improvement grant for 1 or more construction activities to improve the ability of an existing surface transportation asset to withstand 1 or more elements of a weather event or natural disaster, or to increase the resilience of surface transportation infrastructure from the impacts of changing conditions, such as sea level rise, flooding, wildfires, extreme weather events, and other natural disasters. An activity eligible to be carried out under grant includes: (1) resurfacing, restoration, rehabilitation, reconstruction, replacement, improvement, or realignment of an existing surface transportation facility eligible for assistance under this title; (2) the incorporation of natural infrastructure; (3) the upgrade of an existing surface transportation facility to meet or exceed a design standard adopted by the Federal Highway Administration; (4) the installation of mitigation measures that prevent the intrusion of floodwaters into surface transportation systems; (5) strengthening systems that remove rainwater from surface transportation facilities; (6) upgrades to and installation of structural stormwater controls; (7) a resilience project that addresses identified vulnerabilities described in the resilience improvement plan of the eligible entity, if applicable; (8) relocating roadways in a base floodplain to higher ground above projected flood elevation levels, or away from slide prone areas; (9) stabilizing slide areas or slopes; (10) installing riprap; (11) lengthening or raising bridges to increase waterway openings, including to respond to extreme weather; (12) increasing the size or number of drainage structures; (13) installing seismic retrofits on bridges; (14) adding scour protection at bridges; (15) adding scour, stream stability, coastal, and other hydraulic countermeasures, including spur dikes; (16) vegetation management practices in transportation rights-of-way to improve roadway safety, prevent against invasive species, facilitate wildfire control, and provide erosion control; and (17) any other protective features, including natural infrastructure, as determined by the Secretary. An eligible entity may use a community resilience and evacuation route grant for 1 or more projects that strengthen and protect evacuation routes that are essential for providing and supporting evacuations caused by emergency events, including eligible activities that will (1) improve an evacuation route; (2) ensure the ability of the evacuation route to provide safe passage during an evacuation and reduces the risk of damage to evacuation routes as a result of future emergency events, including restoring or replacing existing evacuation routes that are in poor condition or not designed to mee
including steps to protect routes from mud, rock, or other debris slides; (3) accommodate evacuations, including installation of
equipment and infrastructure; (b) counterflow measures; or (c) shoulders; (4) construct new or rehabilitate evacuation routes, i
evacuation routes are not sufficient to adequately facilitate evacuations, including the transportation of emergency responders
traffic incident management equipment or signage; or (6) will ensure access or service to critical destinations, including hospita
employers, critical manufacturing centers, ports and intermodal facilities, utilities, and Federal facilities. An eligible entity may
stabilizing, hardening, elevating, relocating, or otherwise enhancing the resilience of highway and non-rail infrastructure, includ
and associated infrastructure, such as culverts and tide gates to protect highways, that are subject to, or face increased long-ter
changing conditions, including coastal flooding, coastal erosion, wave action, storm surge, or sea level rise, in order to improve
avoiding larger future maintenance or rebuilding costs.

Relevant Links: https://www.fhwa.dot.gov/environment/protect/discr...; https://www.fhwa.dot.gov/bipartisan-infrastructure...

SAM Link: https://sam.gov/fal/50471f650c3c4bb6a74b40c151b038...

1 2

Scroll Down to View Notice of Funding Opportunities (NOFOs) and Select Prioritized-Potential Funding Sources to Include with the Proposed Action

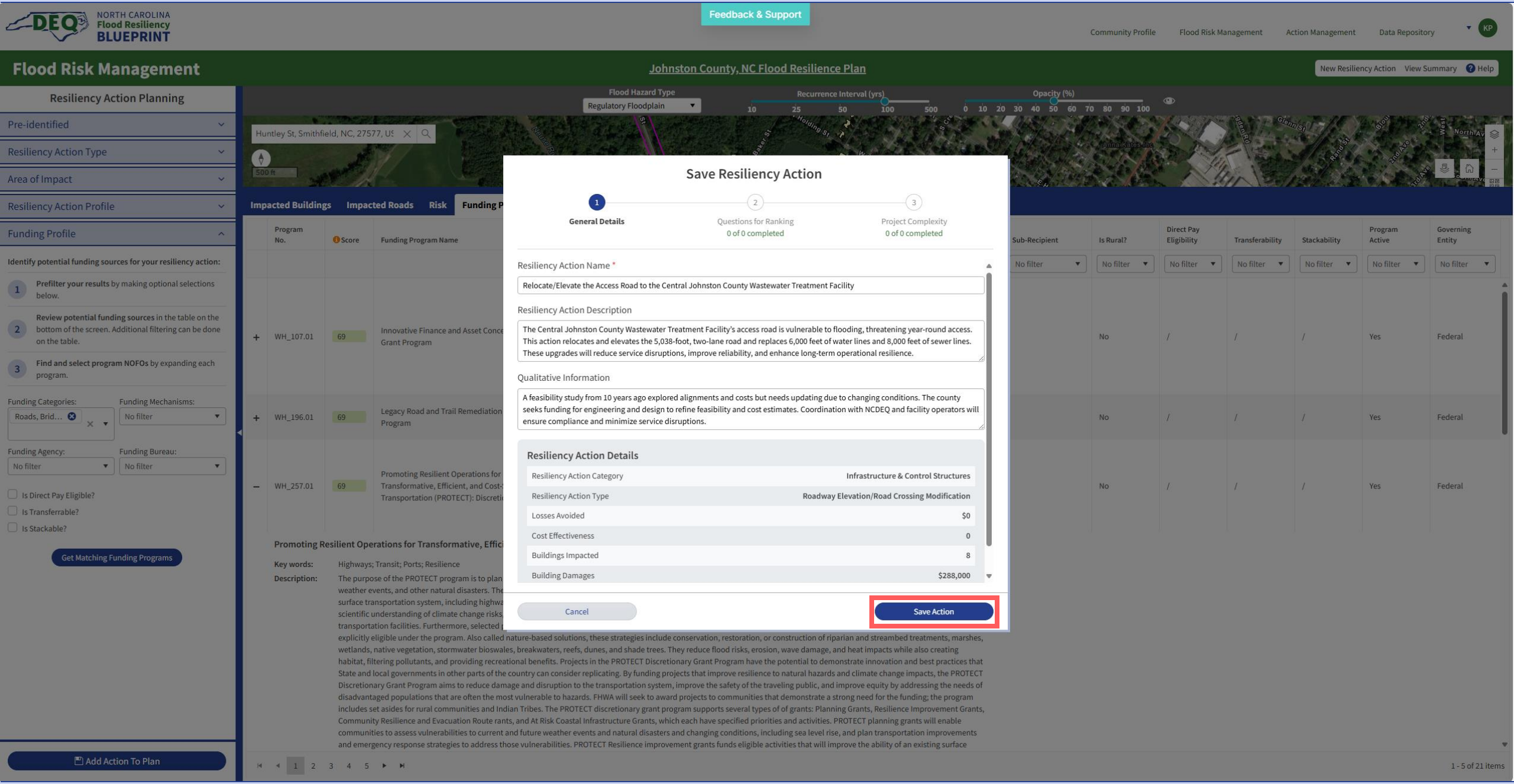
WH_252.01	1	74	Pollution Prevention Grants	Resilience	Competitive Grant	EPA	Educational agency/institution; State; Tribal gov./org.; US Territory; Hospital/healthcare

NOFOs:

	Fiscal Year	Deadlines	Funding Available	Award Size	Cost Share	URL	Notes
☑	FY22	**NOFO Issued:** 2/9/2022 **Applications Due:** 4/11/2022	$13,900,000	0 to 350,000	0%	https://www.grants.gov/search-results-detail/33791...	
☐	FY23	**NOFO Issued:** 3/8/2023 **Applications Due:** 7/6/2023	$8,000,000	0 to 1,200,000	0%	https://www.grants.gov/search-results-detail/34666...	
☐	FY23	**NOFO Issued:** 3/8/2023 **Applications Due:** 7/20/2023	$8,000,000	0 to 1,200,000	0%	https://www.grants.gov/search-results-detail/34667...	
☐	FY24	**NOFO Issued:** 3/18/2024 **Applications Due:** 5/17/2024	$13,900,000	0 to 350,000	0%	https://www.grants.gov/search-results-detail/35302...	

Pollution Prevention Grants

1 2 3 4 5 6 7 8 9 10 …


Feedback & Support
NORTH CAROLINA Flood Resiliency BLUEPRINT
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Funding Profile
Identify potential funding sources for your resiliency action:
1 Prefilter your results by making optional selections below.
2 Review potential funding sources in the table on the bottom of the screen. Additional filtering can be done on the table.
3 Find and select program NOFOs by expanding each program.
Funding Categories:
Roads, Brid…
Funding Mechanisms:
No filter
Funding Agency:
No filter
Funding Bureau:
No filter
Is Direct Pay Eligible?
Is Transferrable?
Is Stackable?
Get Matching Funding Programs
Add Action To Plan
Flood Hazard Type
Regulatory Floodplain
Recurrence Interval (yrs)
10 25 50 100 500
Opacity (%)
0 10 20 30 40 50 60 70 80 90 100
Huntley St, Smithfield, NC, 27577, US
500 ft
Impacted Buildings
Impacted Roads
Risk
Funding P
Program No.
Score
Funding Program Name
Sub-Recipient
Is Rural?
Direct Pay Eligibility
Transferability
Stackability
Program Active
Governing Entity
+ WH_107.01 69 Innovative Finance and Asset Conce Grant Program No / / / Yes Federal
+ WH_196.01 69 Legacy Road and Trail Remediation Program No / / / Yes Federal
– WH_257.01 69 Promoting Resilient Operations for Transformative, Efficient, and Cost- Transportation (PROTECT): Discreti No / / / Yes Federal
Promoting Resilient Operations for Transformative, Effici
Key words: Highways; Transit; Ports; Resilience
Description: The purpose of the PROTECT program is to plan
weather events, and other natural disasters. The
surface transportation system, including highwa
scientific understanding of climate change risks,
transportation facilities. Furthermore, selected p
explicitly eligible under the program. Also called nature-based solutions, these strategies include conservation, restoration, or construction of riparian and streambed treatments, marshes, wetlands, native vegetation, stormwater bioswales, breakwaters, reefs, dunes, and shade trees. They reduce flood risks, erosion, wave damage, and heat impacts while also creating habitat, filtering pollutants, and providing recreational benefits. Projects in the PROTECT Discretionary Grant Program have the potential to demonstrate innovation and best practices that State and local governments in other parts of the country can consider replicating. By funding projects that improve resilience to natural hazards and climate change impacts, the PROTECT Discretionary Grant Program aims to reduce damage and disruption to the transportation system, improve the safety of the traveling public, and improve equity by addressing the needs of disadvantaged populations that are often the most vulnerable to hazards. FHWA will seek to award projects to communities that demonstrate a strong need for the funding; the program includes set asides for rural communities and Indian Tribes. The PROTECT discretionary grant program supports several types of of grants: Planning Grants, Resilience Improvement Grants, Community Resilience and Evacuation Route rants, and At Risk Coastal Infrastructure Grants, which each have specified priorities and activities. PROTECT planning grants will enable communities to assess vulnerabilities to current and future weather events and natural disasters and changing conditions, including sea level rise, and plan transportation improvements and emergency response strategies to address those vulnerabilities. PROTECT Resilience improvement grants funds eligible activities that will improve the ability of an existing surface
1 2 3 4 5
1 - 5 of 21 items
Save Resiliency Action
1 General Details
2 Questions for Ranking 0 of 0 completed
3 Project Complexity 0 of 0 completed
Resiliency Action Name *
Relocate/Elevate the Access Road to the Central Johnston County Wastewater Treatment Facility
Resiliency Action Description
The Central Johnston County Wastewater Treatment Facility's access road is vulnerable to flooding, threatening year-round access. This action relocates and elevates the 5,038-foot, two-lane road and replaces 6,000 feet of water lines and 8,000 feet of sewer lines. These upgrades will reduce service disruptions, improve reliability, and enhance long-term operational resilience.
Qualitative Information
A feasibility study from 10 years ago explored alignments and costs but needs updating due to changing conditions. The county seeks funding for engineering and design to refine feasibility and cost estimates. Coordination with NCDEQ and facility operators will ensure compliance and minimize service disruptions.
Resiliency Action Details
Resiliency Action Category: Infrastructure & Control Structures
Resiliency Action Type: Roadway Elevation/Road Crossing Modification
Losses Avoided: $0
Cost Effectiveness: 0
Buildings Impacted: 8
Building Damages: $288,000
Cancel
Save Action

Save Resiliency Action Changes

General Details ✓ — 2 Questions for Ranking 0 of 15 completed — 3 Project Complexity 0 of 17 completed

Your Resiliency Action Has Been Saved

You will now be prompted to answer a series of questions to help the Flood Resiliency Blueprint Tool create a **Ranking Score** and a **Project Complexity Score**.

These scores will be used to help the NC Department of Environmental Quality compare and make selections from submitted resiliency actions to include in the Basin Action Strategy.

The **Ranking Score** represents the value of the resiliency action, and is determined using several criteria including Risks and Vulnerability, Implementation, Project Benefits, and Added Value.

The **Project Complexity Score** represents takes into account level of difficulty and potential obstacles a project may face. The score is determined using attributes including Financial, Regulatory, Political, Social, Environmental, and Monitoring/Maintenance/Success Metrics.

You Are Not Required to Answer the Questions Now

You can skip the questions by simply clicking the "Save & Close" button in the bottom right. You can come back and answer any questions at a later time. It is important to remember that DEQ will use this information to make choices about your resiliency actions, so they should be answered before submitting your Action Plan.

BACK NEXT

Cancel Save & Close

Save Resiliency Action Changes

General Details ✓ — 2 Questions for Ranking 1 of 15 completed — 3 Project Complexity 0 of 17 completed

- ▼ Risks and Vulnerability
  - Life/Safety Risk Score
  - Direct Damages Avoided
  - Social Vulnerability
  - Regulatory Floodway
- ▼ Implementation
  - Regional Benefits
  - Potential Barriers
  - Opportunity to Fulfill Strategies in Existing Plans, Programs, and Policies
  - Local Workforce Development
- ▼ Project Benefits
  - Risk Avoidance/Critical Infrastructure
  - Equitable Benefits
  - Environmental Benefits
- ▶ Added Value

Life/Safety Risk Score

How many of the following potential threats to life and safety does the resiliency action resolve?

1. Located in, or mitigates risk in, an area with high velocity flood waters and/or with greater than than 6 inches of flood waters?
2. Alleviates flooding on major roads (arterial routes)?
3. Resolves access or connectivity issues caused by flooding (ie communities cut off or isloated by flooding)?

- (●) **The project addresses all three of these threats**
- ( ) The project addresses 2 of these threats
- ( ) The project addresses 1 of these threats
- ( ) The project does not address any of these threats

BACK NEXT

Cancel Save & Close

Save Resiliency Action

General Details

Questions for Ranking
15 of 15 completed

3
Project Complexity
1 of 17 completed

- Financial
  - Financial Burden
  - External Funding
  - External Funding Requirments
  - Financial Evaluation
- Regulatory
  - Permits
  - Special Permissions
- Political
  - Political Will
- Social
  - Stakeholder Engagement
  - Fair Treatment
  - Landowners
- Environmental
- Monitoring, Maintenance, & Success Metrics

Financial Burden

Will the proposed action financially burden the community if external funding is not secured?

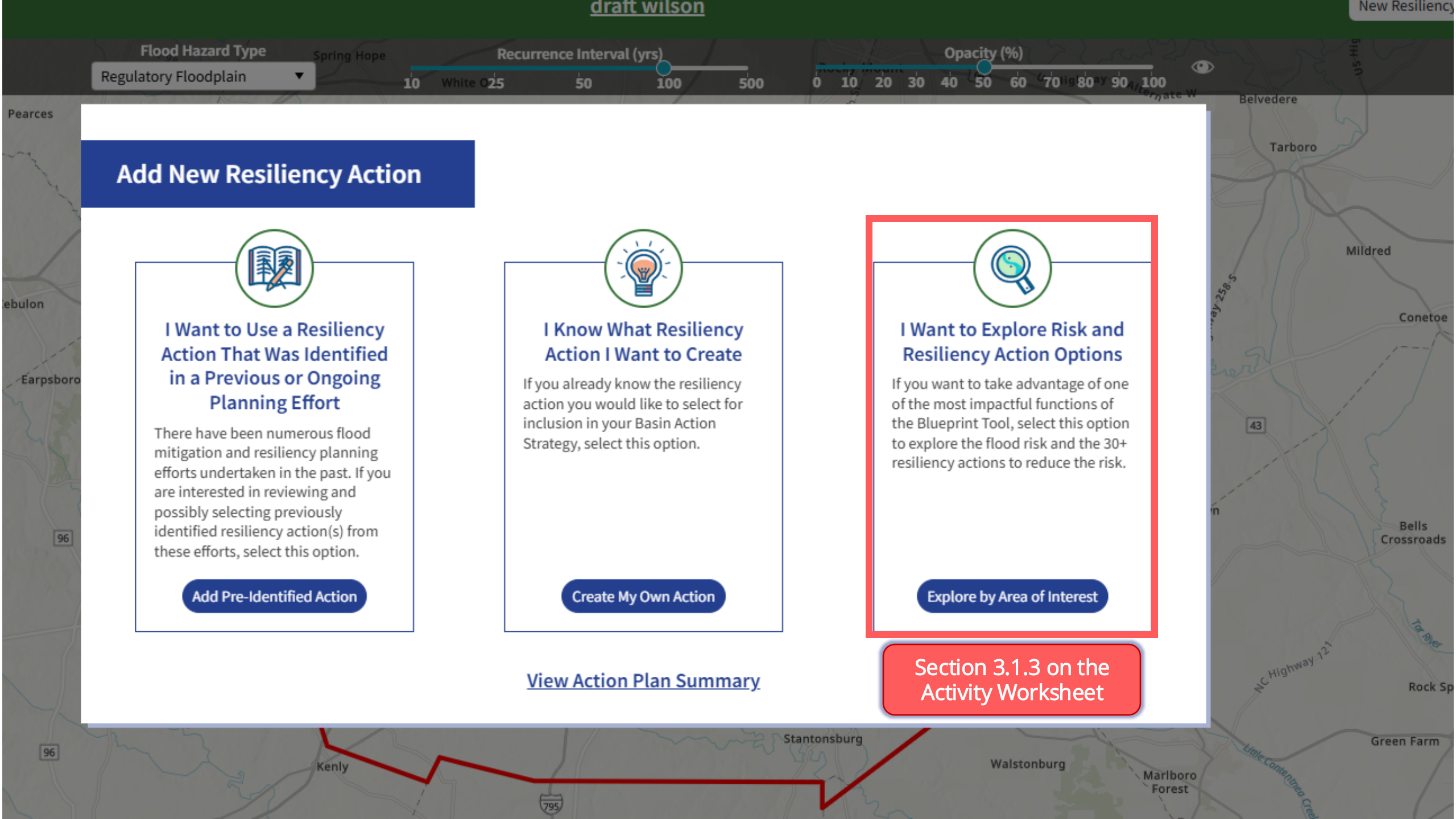
- (●) Yes
- ( ) No

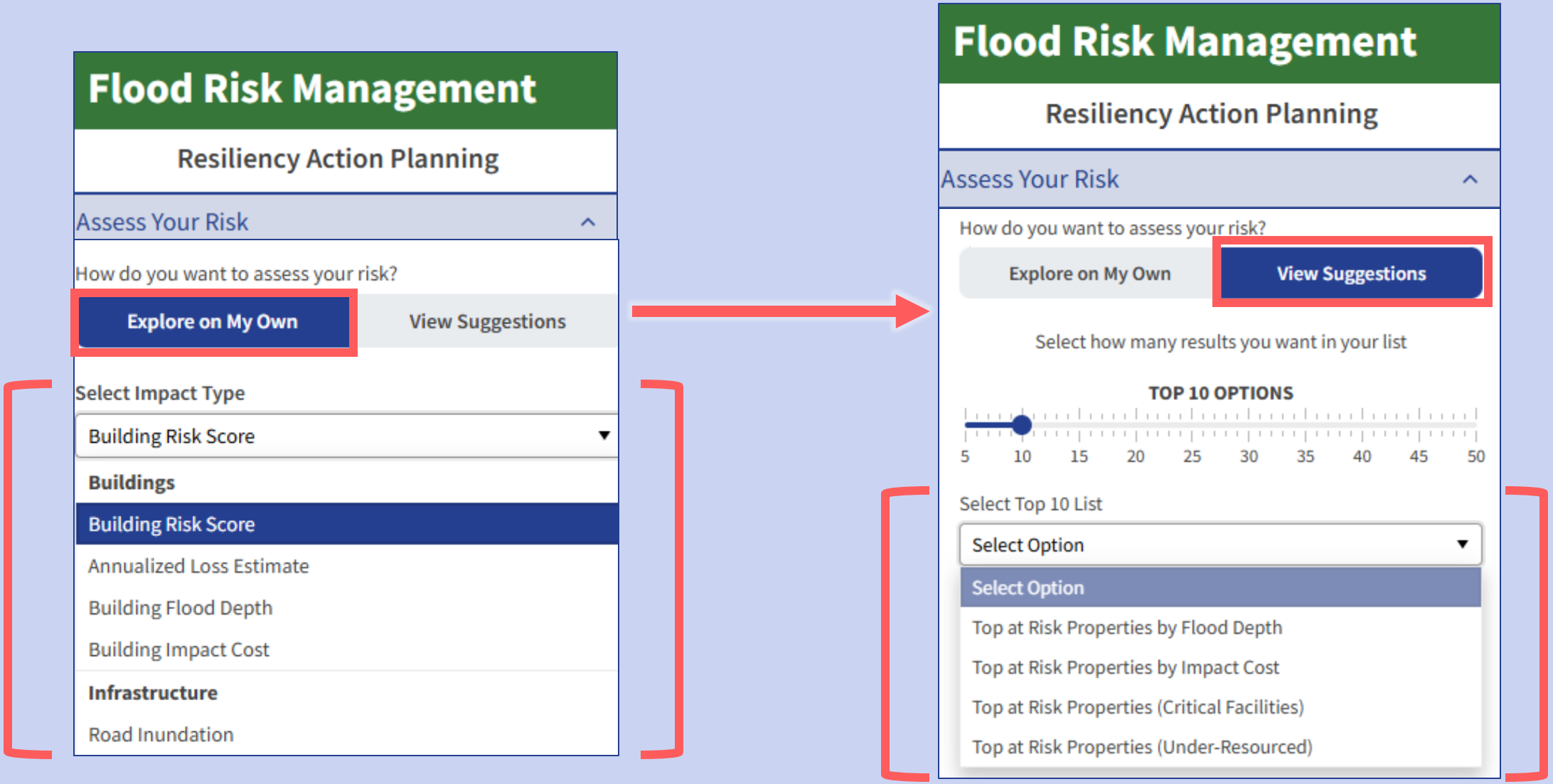
BACK

NEXT

Cancel

Save & Close


draft wilson
New Resiliency
Flood Hazard Type
Regulatory Floodplain
Recurrence Interval (yrs)
10
25
50
100
500
Opacity (%)
0
10
20
30
40
50
60
70
80
90
100
Add New Resiliency Action
I Want to Use a Resiliency Action That Was Identified in a Previous or Ongoing Planning Effort
There have been numerous flood mitigation and resiliency planning efforts undertaken in the past. If you are interested in reviewing and possibly selecting previously identified resiliency action(s) from these efforts, select this option.
Add Pre-Identified Action
I Know What Resiliency Action I Want to Create
If you already know the resiliency action you would like to select for inclusion in your Basin Action Strategy, select this option.
Create My Own Action
I Want to Explore Risk and Resiliency Action Options
If you want to take advantage of one of the most impactful functions of the Blueprint Tool, select this option to explore the flood risk and the 30+ resiliency actions to reduce the risk.
Explore by Area of Interest
View Action Plan Summary
Section 3.1.3 on the Activity Worksheet
Pearces
Spring Hope
Belvedere
Tarboro
Mildred
Conetoe
Earpsboro
Bells Crossroads
Stantonsburg
Walstonburg
Kenly
Marlboro Forest
Green Farm
Rock Sp
96
43
795


Flood Risk Management
Resiliency Action Planning
Assess Your Risk
How do you want to assess your risk?
Explore on My Own
View Suggestions
Select Impact Type
Building Risk Score
Buildings
Building Risk Score
Annualized Loss Estimate
Building Flood Depth
Building Impact Cost
Infrastructure
Road Inundation
Flood Risk Management
Resiliency Action Planning
Assess Your Risk
How do you want to assess your risk?
Explore on My Own
View Suggestions
Select how many results you want in your list
TOP 10 OPTIONS
5 10 15 20 25 30 35 40 45 50
Select Top 10 List
Select Option
Select Option
Top at Risk Properties by Flood Depth
Top at Risk Properties by Impact Cost
Top at Risk Properties (Critical Facilities)
Top at Risk Properties (Under-Resourced)

Select recurrence intervals for:

- Building flood depth
- Building impact cost
- Road inundation

Select Impact Type

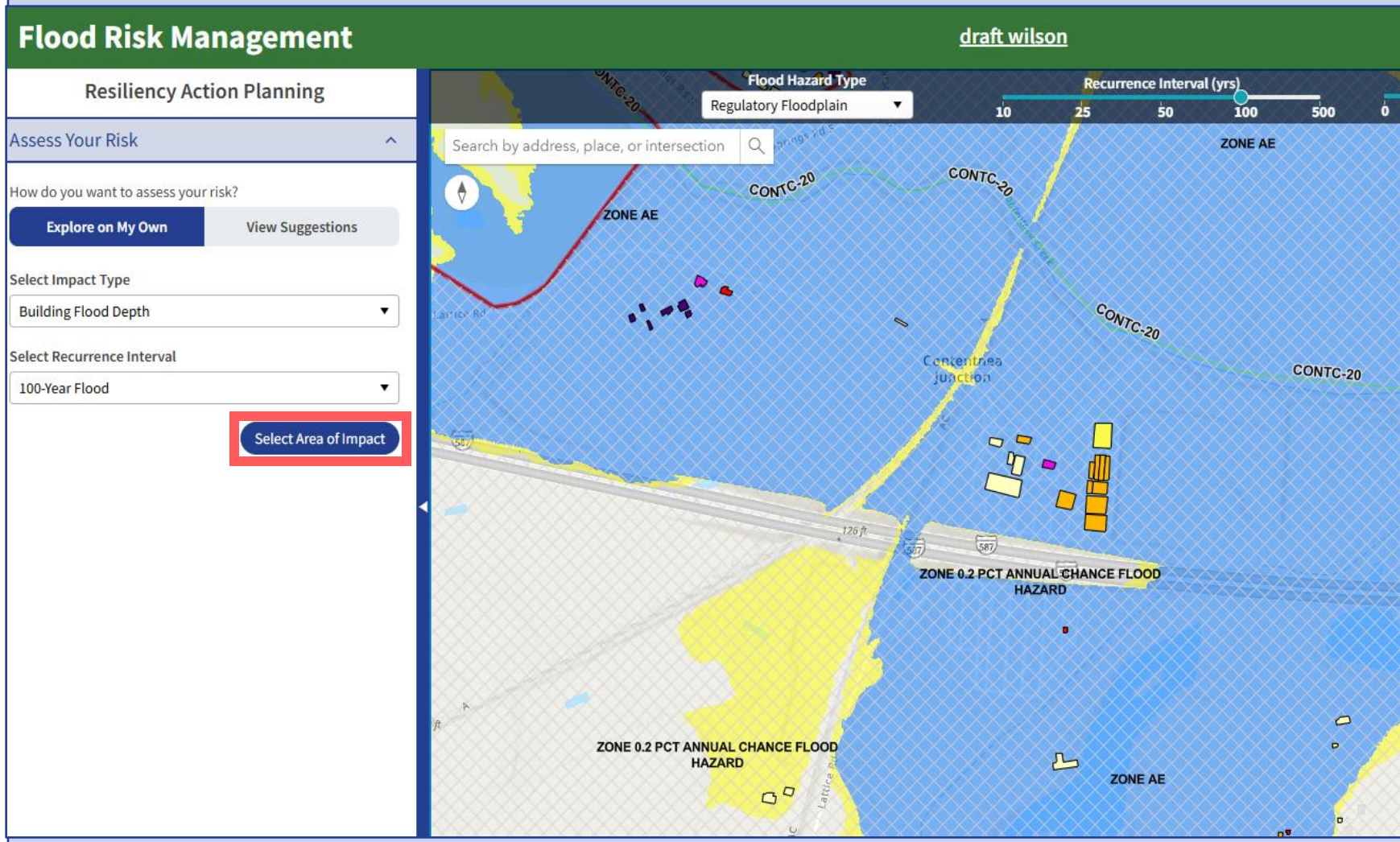
Building Flood Depth

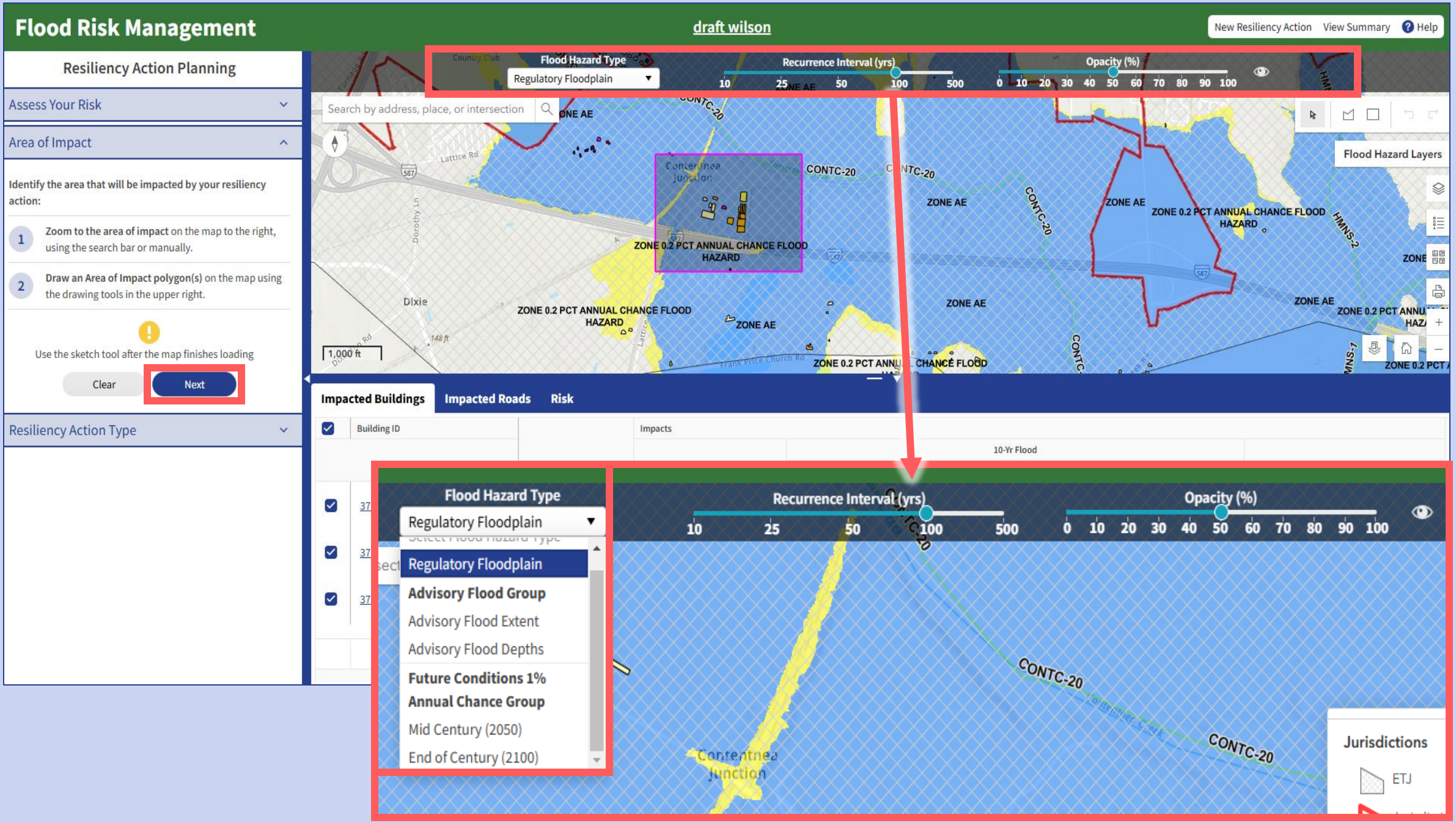
Select Recurrence Interval

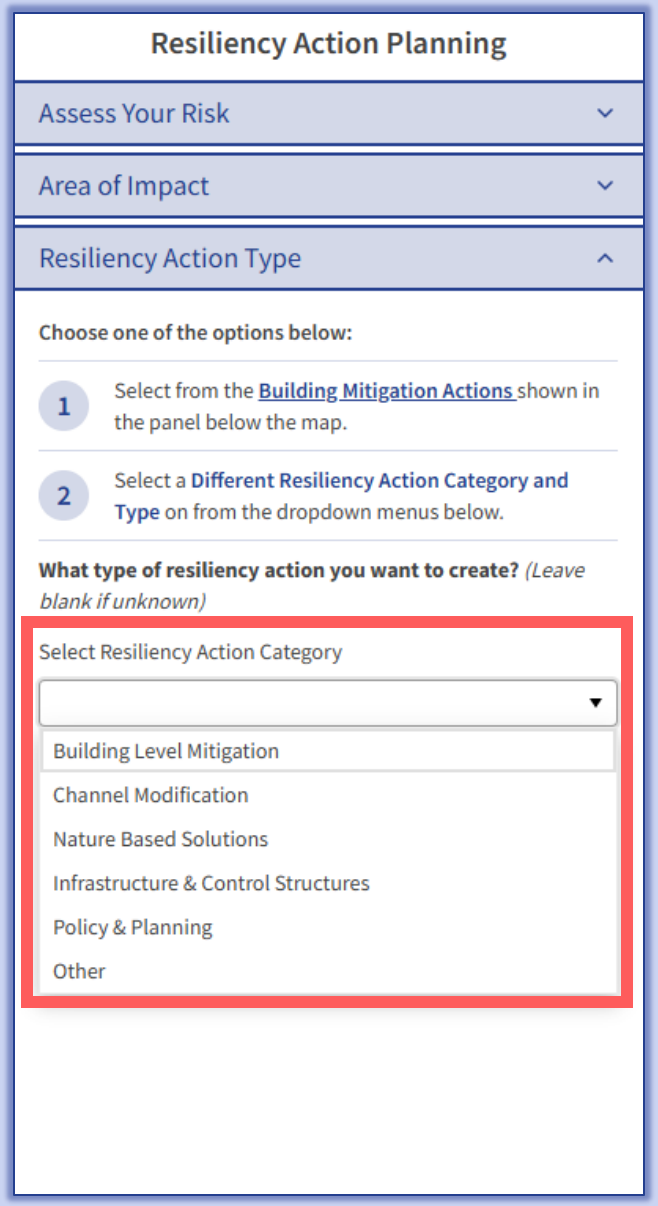
100-Year Flood

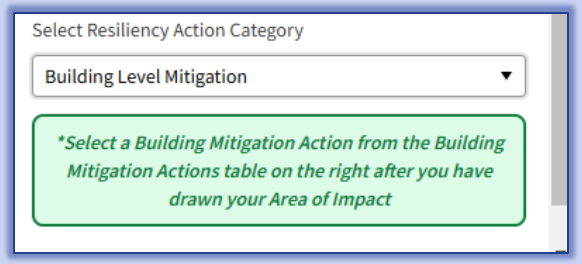
10-Year Flood
25-Year Flood
50-Year Flood
100-Year Flood
500-Year Flood

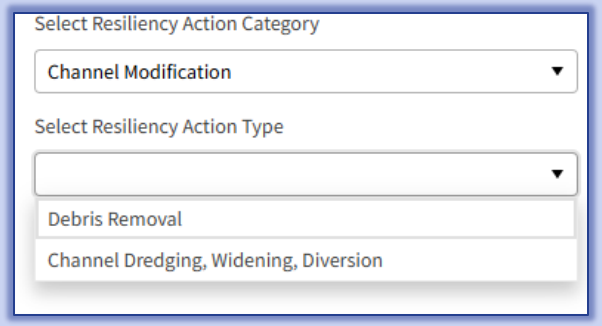
*Other “Explore Risk and Resiliency Action Options” risk assessments are automatically at the 100-year return interval

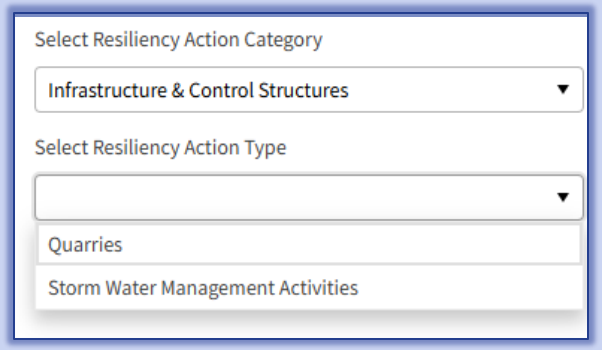


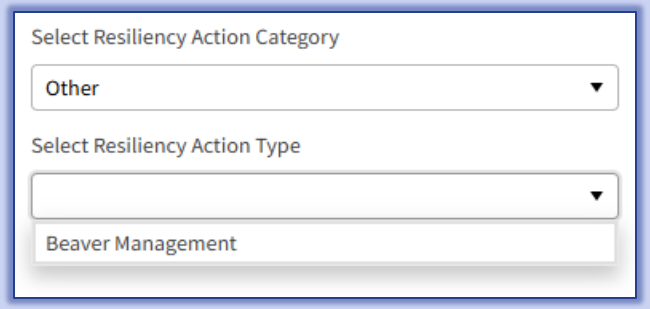

Flood Risk Management
draft wilson
New Resiliency Action
View Summary
Help
Resiliency Action Planning
Assess Your Risk
Area of Impact
Identify the area that will be impacted by your resiliency action:
1 Zoom to the area of impact on the map to the right, using the search bar or manually.
2 Draw an Area of Impact polygon(s) on the map using the drawing tools in the upper right.
Use the sketch tool after the map finishes loading
Clear
Next
Resiliency Action Type
Flood Hazard Type
Regulatory Floodplain
Recurrence Interval (yrs)
10 25 50 100 500
Opacity (%)
0 10 20 30 40 50 60 70 80 90 100
Search by address, place, or intersection
Flood Hazard Layers
ZONE AE
ZONE 0.2 PCT ANNUAL CHANCE FLOOD HAZARD
CONTC-20
HMNS-2
Dixie
Lattice Rd
Dorothy Ln
Frank Price Church Rd
1,000 ft
Impacted Buildings
Impacted Roads
Risk
Building ID
Impacts
10-Yr Flood
Regulatory Floodplain
Advisory Flood Group
Advisory Flood Extent
Advisory Flood Depths
Future Conditions 1% Annual Chance Group
Mid Century (2050)
End of Century (2100)
Jurisdictions
ETJ

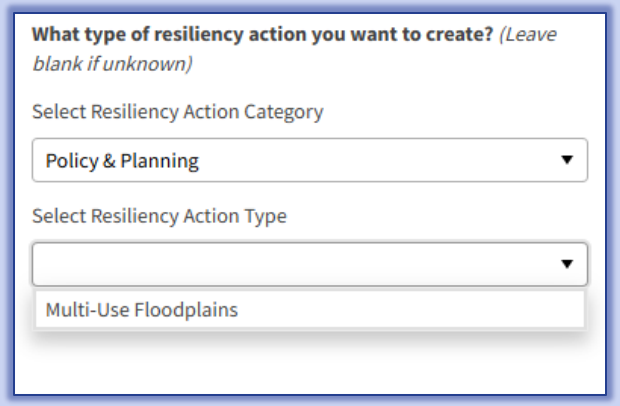

Resiliency Action Planning
Assess Your Risk
Area of Impact
Resiliency Action Type
Choose one of the options below:
1
Select from the Building Mitigation Actions shown in the panel below the map.
2
Select a Different Resiliency Action Category and Type on from the dropdown menus below.
What type of resiliency action you want to create? (Leave blank if unknown)
Select Resiliency Action Category
Building Level Mitigation
Channel Modification
Nature Based Solutions
Infrastructure & Control Structures
Policy & Planning
Other

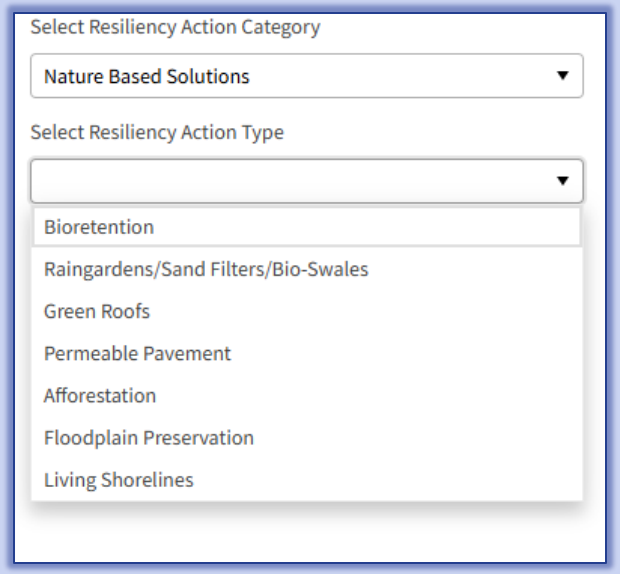

Select Resiliency Action Category
Building Level Mitigation
*Select a Building Mitigation Action from the Building Mitigation Actions table on the right after you have drawn your Area of Impact


Select Resiliency Action Category
Channel Modification
Select Resiliency Action Type
Debris Removal
Channel Dredging, Widening, Diversion


Select Resiliency Action Category
Infrastructure & Control Structures
Select Resiliency Action Type
Quarries
Storm Water Management Activities


Select Resiliency Action Category
Other
Select Resiliency Action Type
Beaver Management


What type of resiliency action you want to create? (Leave blank if unknown)
Select Resiliency Action Category
Policy & Planning
Select Resiliency Action Type
Multi-Use Floodplains


Select Resiliency Action Category
Nature Based Solutions
Select Resiliency Action Type
Bioretention
Raingardens/Sand Filters/Bio-Swales
Green Roofs
Permeable Pavement
Afforestation
Floodplain Preservation
Living Shorelines

Impacted Buildings | Impacted Roads | Risk

Building ID	Risk Score	Impacts: Annualized Loss Estimate (ALE)	10-Yr Flood: Probability	10-Yr Flood: Flood Depth vs FFE (ft)	10-Yr Flood: Structural Cost	10-Yr Flood: Contents Cost
3710134024	62.2	$4,556	0.9990	2.8 Ft	$20,000	$25,000
3710135258	27.0	$6,724	0.9990	0.5 Ft	$29,000	$31,000
3710134070	17.7	$1,298	0.9990	0.1 Ft	$7,000	$4,000
3710135458	16.9	$4,700	0.9940	0.1 Ft	$26,000	$13,000
3710134044	40.0	$2,926	0.9990	1.2 Ft	$11,000	
3710134728	26.7	$7,312	0.9990	0.5 Ft	$32,000	
3710134914	3.4	$249	0.0000	-1.9 Ft	$2,000	
3710134991	3.1	$294	0.0000	-2.1 Ft	$2,000	
3710134494	1.6	$120	0.0000	-1.1 Ft	$1,000	$0
3710134100	4.8	$466	0.0000	-1.2 Ft	$3,000	$1,000
3710134681	0.0	N/A	0.0000	-0.9 Ft	$0	$0
3710134004	7.2	$624	0.0000	-0.8 Ft	$4,000	$2,000
	225.6	**$32,046**			**$161,000**	**$131,000**

Provided for 10-, 25-, 50-, 100-, and 500-year floods in the selected area

**The included data is for planning purposes only. It is not at the level of detail of current market values.*

Building ID	Building Elevation (Ft NAVD 88)		
	First Floor Elevation	Lowest Adjacent Grade	Highest Adjacent Grade
3710727275	30.8 Ft	26.5 Ft	27.2 Ft
3710731775	29.7 Ft	27.0 Ft	27.3 Ft
3710727271	30.9 Ft	27.3 Ft	28.4 Ft

Impacted Buildings

Building ID	Building Characteristics					
	Occupancy Type	Heated Area	Foundation Type	Number of Stories	Year Built	Building Value
3719538074	AGR1 - RESEARCH DERIVED - HIGH CONFIDENCE	2,800.0 Sq Ft	SLAB ON GRADE - HAZUS DERIVED	1 - HAZUS DERIVED	1979	$163,996
3719537923	RES2 - FIELD DERIVED - HIGH CONFIDENCE	1,782.0 Sq Ft	CRAWL SPACE - FIELD DERIVED - HIGH CONFIDENCE	1 - FIELD DERIVED - HIGH CONFIDENCE	2001	$45,566
3719537924	AGR1 - RESEARCH DERIVED - HIGH CONFIDENCE	715.0 Sq Ft	CRAWL SPACE - FIELD DERIVED - HIGH CONFIDENCE	1 - FIELD DERIVED - HIGH CONFIDENCE	1979	$41,878
3719538027	AGR1 - RESEARCH DERIVED - HIGH CONFIDENCE	966.0 Sq Ft	SLAB ON GRADE - FIELD DERIVED - HIGH CONFIDENCE	1 - FIELD DERIVED - HIGH CONFIDENCE	1979	$56,579
3719538028	AGR1 - RESEARCH DERIVED - HIGH CONFIDENCE	1,824.0 Sq Ft	SLAB ON GRADE - HAZUS DERIVED	1 - HAZUS DERIVED	1979	$106,832
3719538029	AGR1 - RESEARCH DERIVED - HIGH CONFIDENCE	6,357.0 Sq Ft	SLAB ON GRADE - HAZUS DERIVED	1 - HAZUS DERIVED	1979	$372,329
3719538030	AGR1 - RESEARCH DERIVED - HIGH CONFIDENCE	927.0 Sq Ft	SLAB ON GRADE - FIELD DERIVED - HIGH CONFIDENCE	1 - FIELD DERIVED - HIGH CONFIDENCE	1979	$54,294
3719538031	AGR1 - RESEARCH DERIVED - HIGH CONFIDENCE	921.0 Sq Ft	SLAB ON GRADE - FIELD DERIVED - HIGH CONFIDENCE	1 - FIELD DERIVED - HIGH CONFIDENCE	1979	$53,943
3719538032	AGR1 - RESEARCH DERIVED - HIGH CONFIDENCE	2,742.0 Sq Ft	SLAB ON GRADE - HAZUS DERIVED	1 - HAZUS DERIVED	1979	$160,599
3719538033	AGR1 - RESEARCH DERIVED -					

Impacted Buildings | Impacted Roads | Risk

Risk Score | Annualized Loss Estimate | Flood Depth | Impact Costs

Community	Town Of Wilson's Mills, Town Of…
Flooding Source	GS-6, UNT1MCSNC-1, BIGB-1, LNGB-2, BULB-1, CATC-1, LR-10, LR-12, LR-7, LR-14, UNT1LR-1, LR-13, LBFC-3, LBFC-2, SPRNGB-2, UNT1SPRNGB-1, SNPC-2, B11S7-1, SPRNGB-3, LILC-1, LILC-2, SNPC-1, LR-5, LR-11, BFCB9S1-2, MC-14, LR-4, UNT1RP-1, JKS-2, JPGR-1, UNT1JKS-1, LILSB-…
Flood Zone	AE

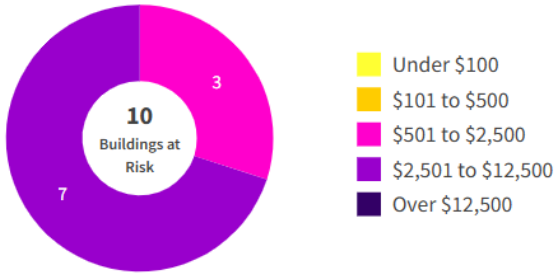
Buildings at Risk by Risk Score

Risk Score

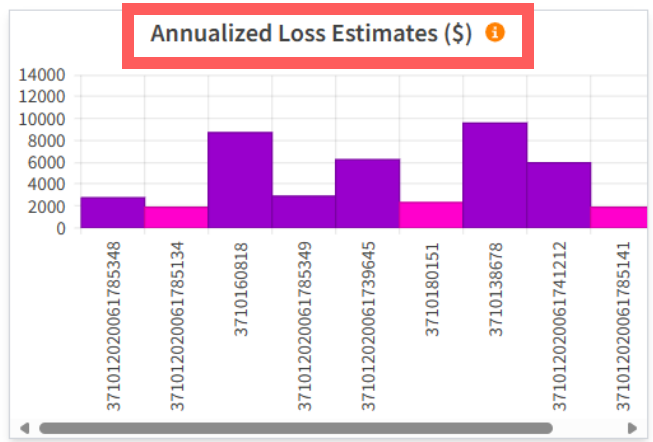
Risk Score | Annualized Loss Estimate | Flood Depth | Impact Costs

Community	Town Of Wilson's Mills, Town Of…
Flooding Source	GS-6, UNT1MCSNC-1, BIGB-1, LNGB-2, BULB-1, CATC-1, LR-10, LR-12, LR-7, LR-14, UNT1LR-1, LR-13, LBFC-3, LBFC-2, SPRNGB-2, UNT1SPRNGB-1, SNPC-2, B11S7-1, SPRNGB-3, LILC-1, LILC-2, SNPC-1, LR-5, LR-11, BFCB9S1-2, MC-14, LR-4, UNT1RP-1, JKS-2, JPGR-1, UNT1JKS-1, LILSB-…
Flood Zone	AE

Buildings at Risk by Annualized Loss Estimate ($)



Annualized Loss Estimates ($)

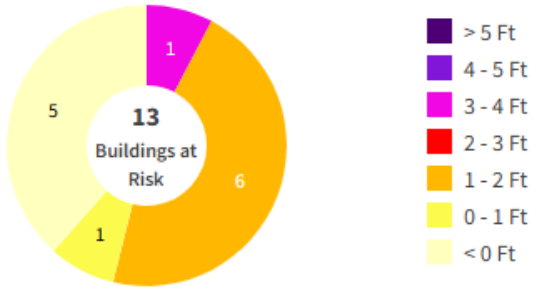


Risk Score | Annualized Loss Estimate | **Flood Depth** | Impact Costs

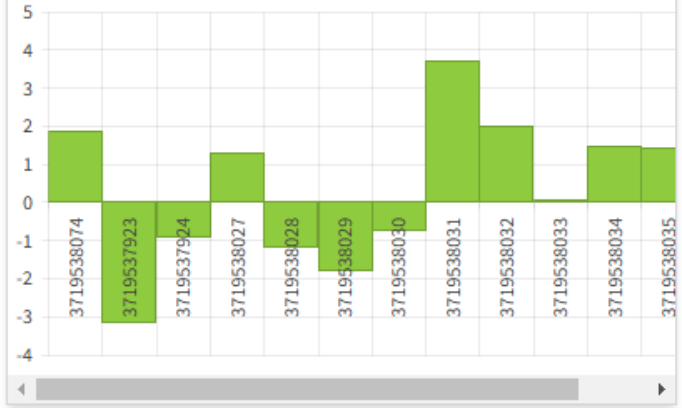
Based on the 100-Year Flood

Community	Wilson County, City Of Wilson
Flooding Source	Contentnea Creek, Black Creek, Black Creek Tributary, Bloomery Swamp, Bloomery Swamp Tributary 3, Contentnea Creek Tributary, Hog Island Tributary, Hominy Swamp Tributary 1, Little Swamp, Marsh Swamp, Marsh Swamp Tributary, Mill Branch, Shepard Branch,…
Flood Zone	AE

Buildings at Risk by Flood Depth (ft)



Flood Depth vs First Floor Elevation (ft)

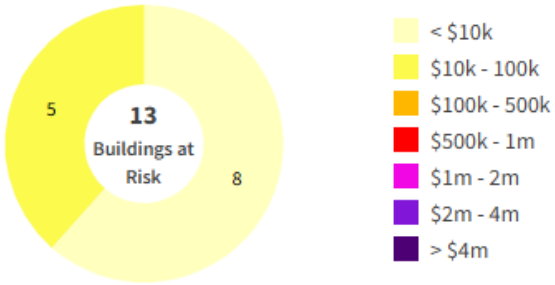


Risk Score | Annualized Loss Estimate | Flood Depth | **Impact Costs**

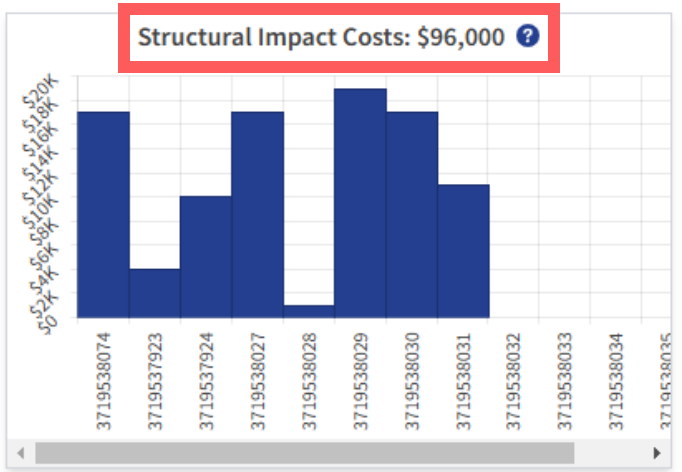
Based on the 100-Year Flood

Community	Wilson County, City Of Wilson
Flooding Source	Contentnea Creek, Black Creek, Black Creek Tributary, Bloomery Swamp, Bloomery Swamp Tributary 3, Contentnea Creek Tributary, Hog Island Tributary, Hominy Swamp Tributary 1, Little Swamp, Marsh Swamp, Marsh Swamp Tributary, Mill Branch, Shepard Branch,…
Flood Zone	AE

Buildings at Risk by Cost ($)



Structural Impact Costs: $96,000



Impacted Buildings | Impacted Roads | Risk | **Building Mitigation Actions**

		Mitigation Type	Foot Height	Cost	Losses Avoided	Cost Effectiveness
+	☐	Wet Floodproofing	2	$24,000	$112,000	5.1
+	☐	Wet Floodproofing	4	$60,000	$112,000	2.0
+	☐	Wet Floodproofing	8	$60,000	$112,000	2.0
+	☐	Relocation	-	$484,000	$760,000	1.7
+	☐	Acquisition/Demolition	-	$1,355,000	$974,000	0.8
+	☐	Structural Elevation	2	$315,000	$217,000	0.7
+	☐	Structural Elevation	4	$335,000	$217,000	0.7
+	☐	Structural Elevation	8	$368,000	$217,000	0.6
+	☐	Mitigation Reconstruction	2	$790,000	$217,000	0.3
+	☐	Mitigation Reconstruction	4	$790,000	$217,000	0.3
+	☐	Mitigation Reconstruction	10	$830,000	$217,000	0.3
+	☐	Utility Elevation	-	$120,000	$26,000	0.2

−	☐	Acquisition/Demolition	-	$1,355,000	$974,000	0.8

Building ID	Cost	Losses Avoided	Useful Life	Foot Height	Cost Effectiveness
3710731775	$60,000	$156,000	100	-	2.8
3710727272	$78,000	$181,000	100	-	2.5
3710727275	$218,000	$311,000	100	-	1.5
3710727271	$165,000	$123,000	100	-	0.8
3710728231	$100,000	$72,000	100	-	0.8
3710727273	$100,000	$38,000	100	-	0.4
3710728225	$140,000	$38,000	100	-	0.3
3710728226	$202,000	$44,000	100	-	0.2


NORTH CAROLINA
Flood Resiliency
BLUEPRINT
Feedback & Support
Community Profile
Flood Risk Management
Action Management
Data Repository
KP
Flood Risk Management
Johnston County Flood Resilience Plan
New Resiliency Action
View Summary
Help
Resiliency Action Planning
Resiliency Action Type
Assess Your Risk
Resiliency Action Location
Resiliency Action Profile
Category Policy & Planning
Type Multi-Use Floodplains
Project Area (acres)*
2.2
Estimated By Tool (acres)
2.2
Area Type
Urban
Ecosystem Service Value (USD/acre/yr)
$16,000
Project Area Ecosystem Service Value (USD/year)
$35,000
Ecosystem Service
Value (2021) (USD/acre/year)
Aesthetic Value $7,000
Air Quality $200
Climate Regulation $100
Erosion Value $100
Flood Hazard Risk Reduction $300
Habitat $5,900
Pollination $400
Recreation/Tourism $1,600
Useful Life without Perpetual Easement (yrs)
50
Ecosystem Service Value without Perpetual Easement
$1,750,000
Useful Life with Perpetual Easement (yrs)
100
Ecosystem Service Value with Perpetual Easement
$3,500,000
Parcel Value
$4,130,000
Next
Add Action To Plan
Flood Hazard Type
Regulatory Floodplain
Recurrence Interval (yrs)
10 25 50 100 500
Opacity (%)
0 10 20 30 40 50 60 70 80 90 100
Search by address, place, or intersection
Buildings 100-Year Flood Depth
100-Year Flood Depth Levels
5.01 Ft - 100.00 Ft
4.01 Ft - 5.00 Ft
3.01 Ft - 4.00 Ft
2.01 Ft - 3.00 Ft
1.01 Ft - 2.00 Ft
0.01 Ft - 1.00 Ft
-93.23 Ft - 0.00 Ft
Jurisdictions
ETJ
Jurisdiction
Counties as Jurisdictions
Flood Hazard Areas
FLOODWAY
AE, 1 PCT FUTURE CONDITIONS
1 PCT FUTURE CONDITIONS
ZONE AE
Proposed Multi-Use Floodplain for a Local Hospice Center
Existing Multi-Use Floodplain for a Local Hospital Complex
100 ft

Save Resiliency Action

1 General Details — 2 Project Complexity (0 of 17 completed)

Resiliency Action Name *

Add a name for your resiliency action

Resiliency Action Description

Add description...

Qualitative Information

Add any additional information not included in your action profile. This can include a description of key assumptions, barriers to implementation, action objectives, available resources, status of stakeholder collaboration efforts, etc.

Resiliency Action Details

Resiliency Action Category	**Policy & Planning**
Resiliency Action Type	**Multi-Use Floodplains**
Losses Avoided	-$5,508,000
Cost Effectiveness	-1.0
Buildings Impacted	18
Building Damages	$18,000

Cancel | Save Action

Save Resiliency Action

Action successfully saved.

General Details — 2 **Project Complexity** (0 of 17 completed)

Your Resiliency Action Has Been Saved

You will now be prompted to answer a series of questions to help the Flood Resiliency Blueprint Tool create a **Ranking Score** and a **Project Complexity Score**.

These scores will be used to help the NC Department of Environmental Quality compare and make selections from submitted resiliency actions to include in the Basin Action Strategy.

The **Ranking Score** represents the value of the resiliency action, and is determined using several criteria including Risks and Vulnerability, Implementation, Project Benefits, and Added Value.

The **Project Complexity Score** represents takes into account level of difficulty and potential obstacles a project may face. The score is determined using attributes including Financial, Regulatory, Political, Social, Environmental, and Monitoring/Maintenance/Success Metrics.

You Are Not Required to Answer the Questions Now

You can skip the questions by simply clicking the "Save & Close" button in the bottom right. You can come back and answer any questions at a later time. It is important to remember that DEQ will use this information to make choices about your resiliency actions, so they should be answered before submitting your Action Plan.

BACK | NEXT

Cancel | Save & Close

Flood Risk Management Activity Part 1

(Individual Activity - 10 min.)

Please explore the **Pre-Identified Actions** for your assigned community and select an action to address one of the vulnerabilities you prioritized in the previous activity.

Complete the steps necessary to add the pre-identified action to your Draft Action Plan. A completed action workflow includes the Resiliency Action Profile, General Details, Questions for Ranking, and Project Complexity elements. Fill out the notecard as you progress through the workflow.

- **Action Notecard #1**

Flood Risk Management Activity Part 1

(Individual Activity - 10 min.)

For the action you have just created, explore the **Funding Profile**. Try different inputs in the working panel, get matching funding programs, and try the various filters in the Funding Programs table. Determine the **top three** funding options for your proposed action and review the associated responsibilities for the jurisdiction in the given scenario.

Program name	Funding mechanism	Recipient type	Funding type	Potential contribution	Residual funding needs

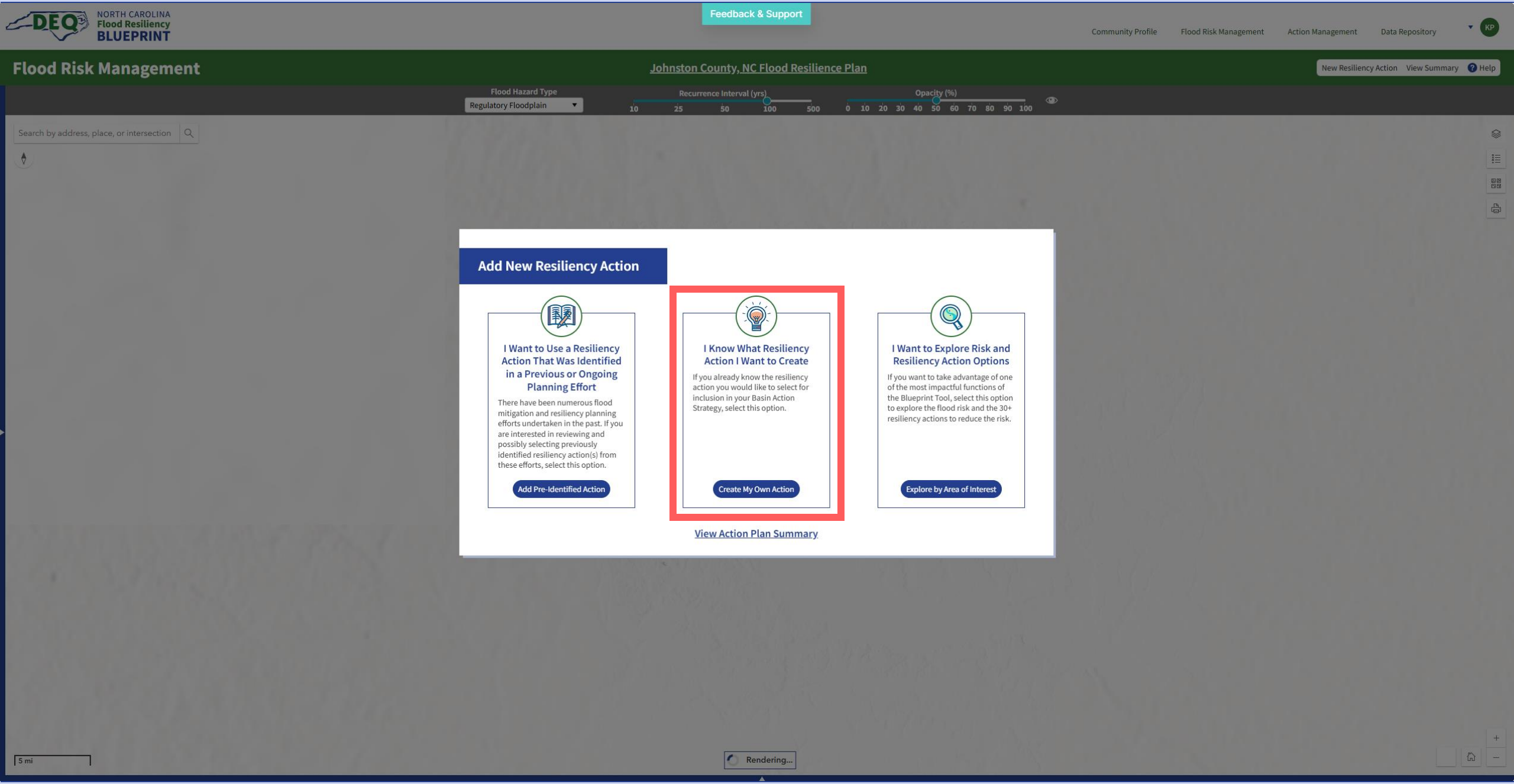
Flood Risk Management Activity Part 1

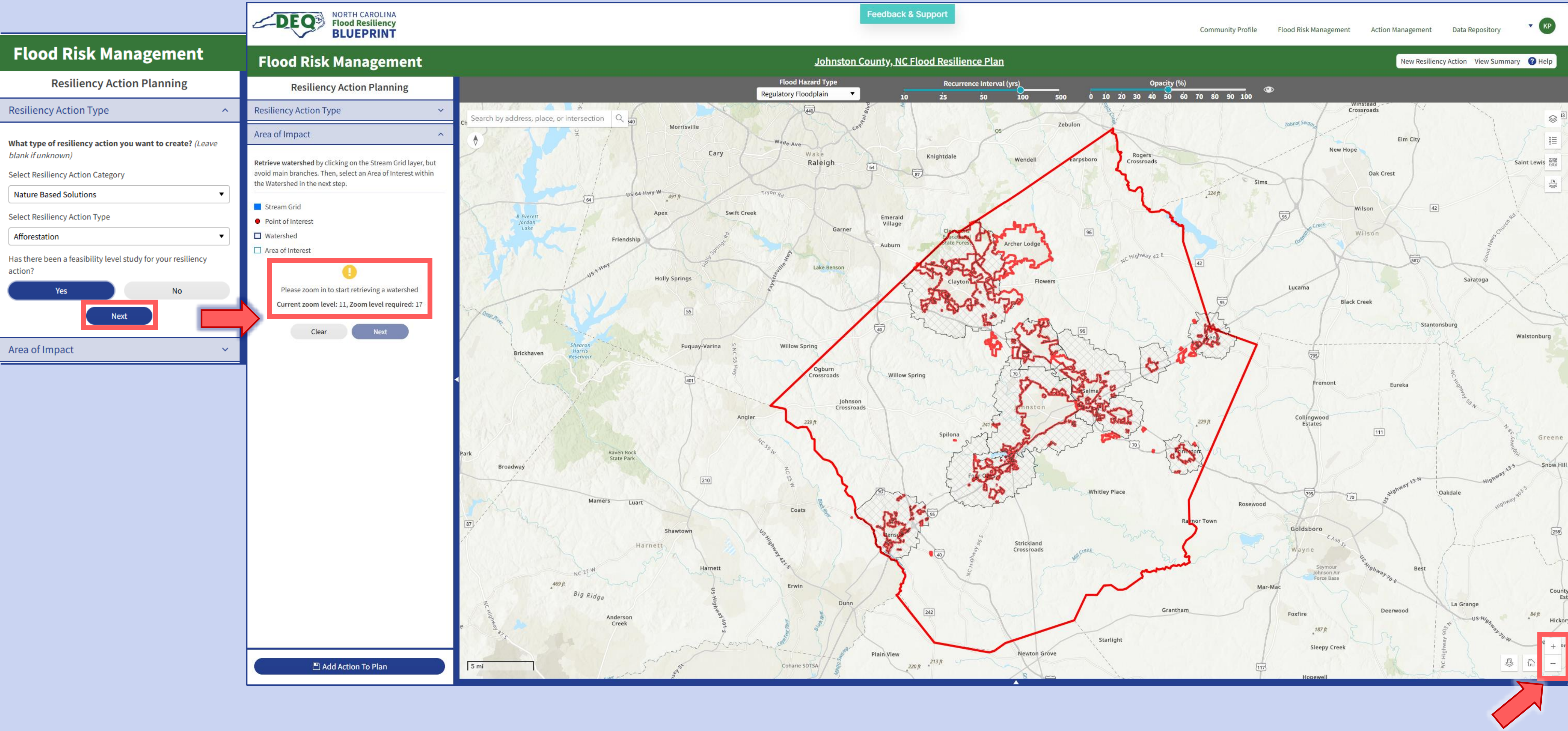
(Individual Activity - 10 min.)

Review your **Action Notecard #2** and identify your assigned **Resiliency Action Category**. Each participant at your table has been assigned a different category: Building Mitigation, Nature-Based Solution, Channel Modification, Infrastructure and Control Structures, Policy & Planning

Add a new resiliency action through **I Want to Explore Risk and Resiliency Action Options**. Use the **Assess Your Risk** component to identify and explore flood vulnerabilities relevant to your assigned resiliency category. Review spatial layers using the **Explore on My Own** function. Use the **View Suggestions** function to identify priority properties based on flood depth, impact cost, critical facilities, or under-resourced properties. Adjust the slider (5-50) to review priority features.

Based on your exploration of risks and vulnerabilities, select a **Resiliency Action Type** from your assigned category that best addresses the negative impacts of flooding you've identified for your assigned community. Complete the steps necessary to add the action to your Draft Action Plan. A completed action workflow includes the Resiliency Action Profile, General Details, Questions for Ranking, and Project Complexity elements. Fill out the notecard as you progress through the workflow.


NORTH CAROLINA
Flood Resiliency
BLUEPRINT
Feedback & Support
Community Profile
Flood Risk Management
Action Management
Data Repository
KP
Flood Risk Management
Johnston County, NC Flood Resilience Plan
New Resiliency Action
View Summary
Help
Flood Hazard Type
Regulatory Floodplain
Recurrence Interval (yrs)
10 25 50 100 500
Opacity (%)
0 10 20 30 40 50 60 70 80 90 100
Search by address, place, or intersection
Add New Resiliency Action
I Want to Use a Resiliency Action That Was Identified in a Previous or Ongoing Planning Effort
There have been numerous flood mitigation and resiliency planning efforts undertaken in the past. If you are interested in reviewing and possibly selecting previously identified resiliency action(s) from these efforts, select this option.
Add Pre-Identified Action
I Know What Resiliency Action I Want to Create
If you already know the resiliency action you would like to select for inclusion in your Basin Action Strategy, select this option.
Create My Own Action
I Want to Explore Risk and Resiliency Action Options
If you want to take advantage of one of the most impactful functions of the Blueprint Tool, select this option to explore the flood risk and the 30+ resiliency actions to reduce the risk.
Explore by Area of Interest
View Action Plan Summary
5 mi
Rendering...


Flood Risk Management
Resiliency Action Planning
Resiliency Action Type
What type of resiliency action you want to create? (Leave blank if unknown)
Select Resiliency Action Category
Nature Based Solutions
Select Resiliency Action Type
Afforestation
Has there been a feasibility level study for your resiliency action?
Yes
No
Next
Area of Impact
NORTH CAROLINA
Flood Resiliency
BLUEPRINT
Feedback & Support
Community Profile
Flood Risk Management
Action Management
Data Repository
KP
Flood Risk Management
Johnston County, NC Flood Resilience Plan
New Resiliency Action
View Summary
Help
Resiliency Action Planning
Resiliency Action Type
Area of Impact
Retrieve watershed by clicking on the Stream Grid layer, but avoid main branches. Then, select an Area of Interest within the Watershed in the next step.
Stream Grid
Point of Interest
Watershed
Area of Interest
Please zoom in to start retrieving a watershed
Current zoom level: 11, Zoom level required: 17
Clear
Next
Add Action To Plan
Flood Hazard Type
Regulatory Floodplain
Recurrence Interval (yrs)
10 25 50 100 500
Opacity (%)
0 10 20 30 40 50 60 70 80 90 100
Search by address, place, or intersection
5 mi

Flood Risk Management

Johnston County, NC Flood Resilience Plan

New Resiliency Action | View Summary | Help

Resiliency Action Planning

Resiliency Action Type

Area of Impact

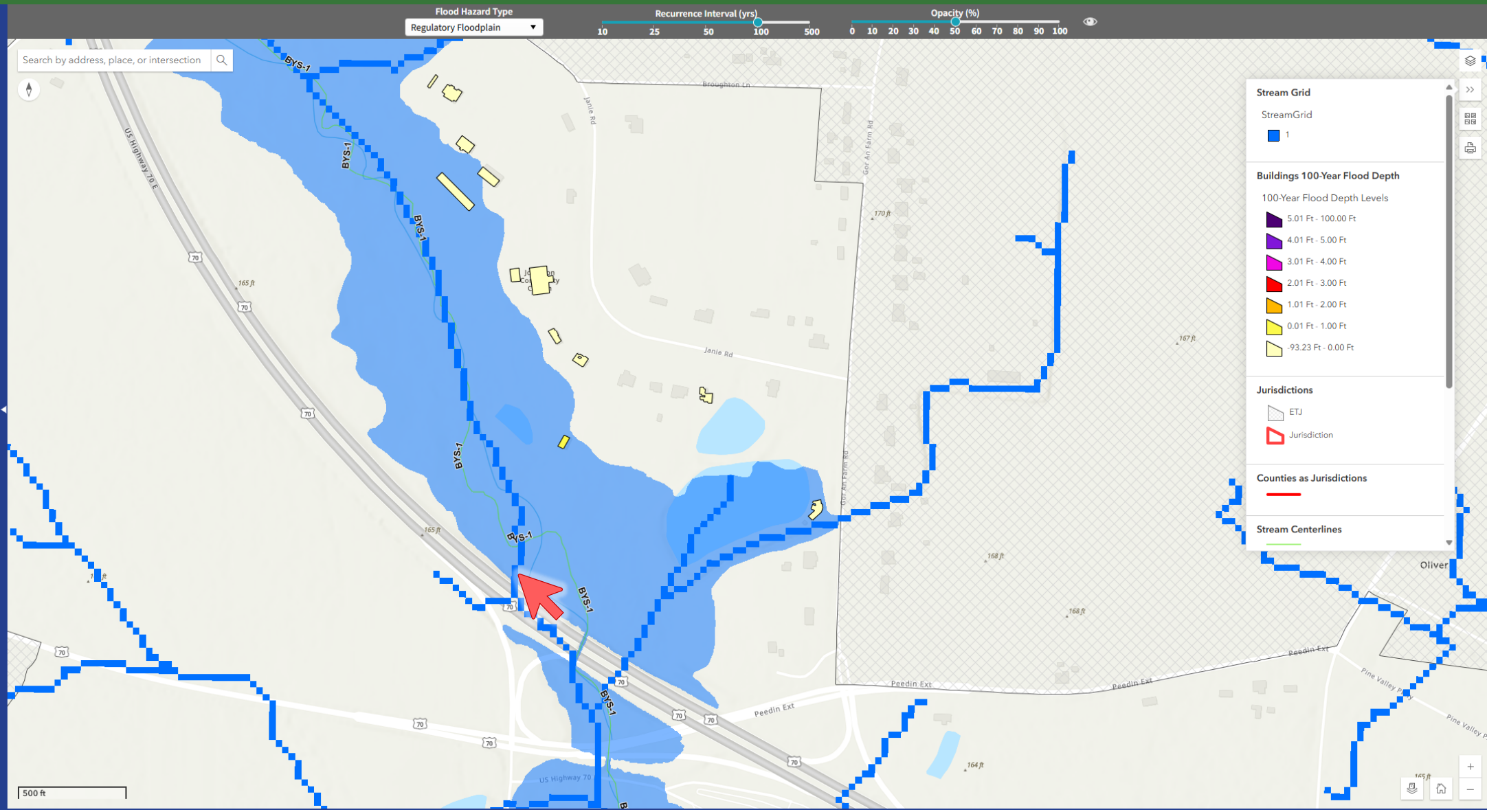
Retrieve watershed by clicking on the Stream Grid layer, but avoid main branches. Then, select an Area of Interest within the Watershed in the next step.

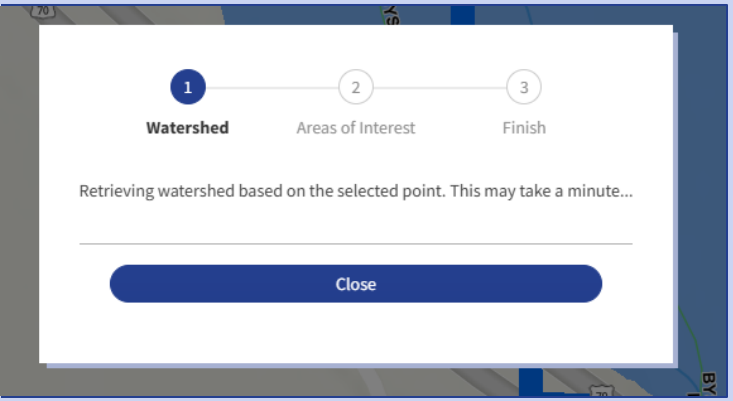
- Stream Grid
- Point of Interest
- Watershed
- Area of Interest

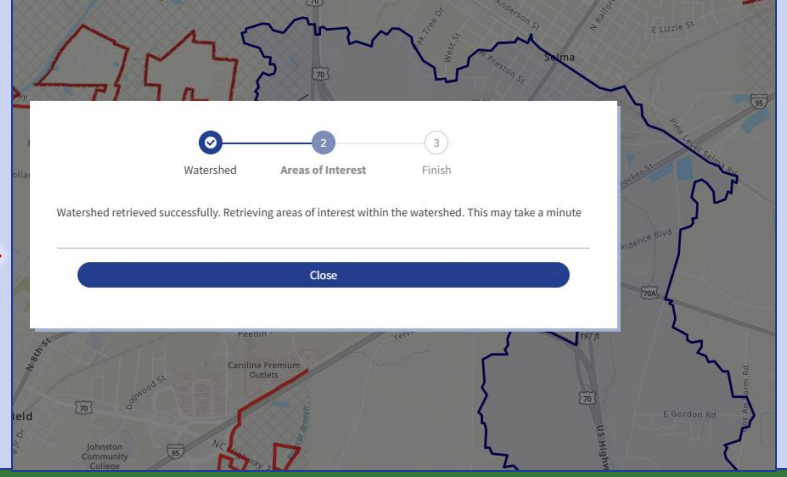
Click on the Stream Grid layer to retrieve watershed

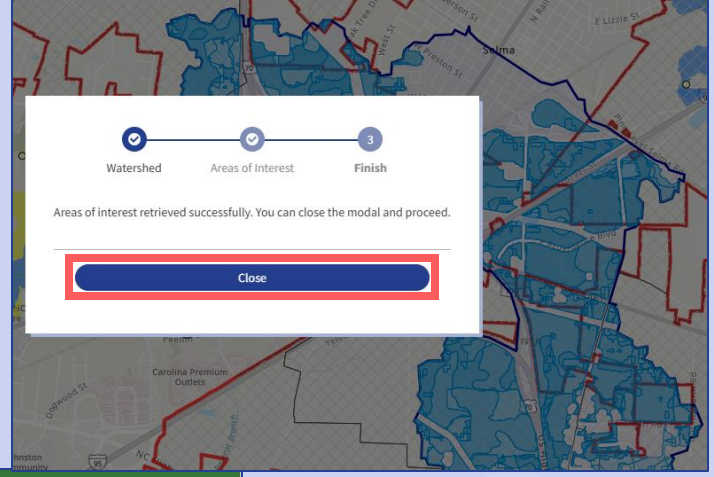
Clear | Next

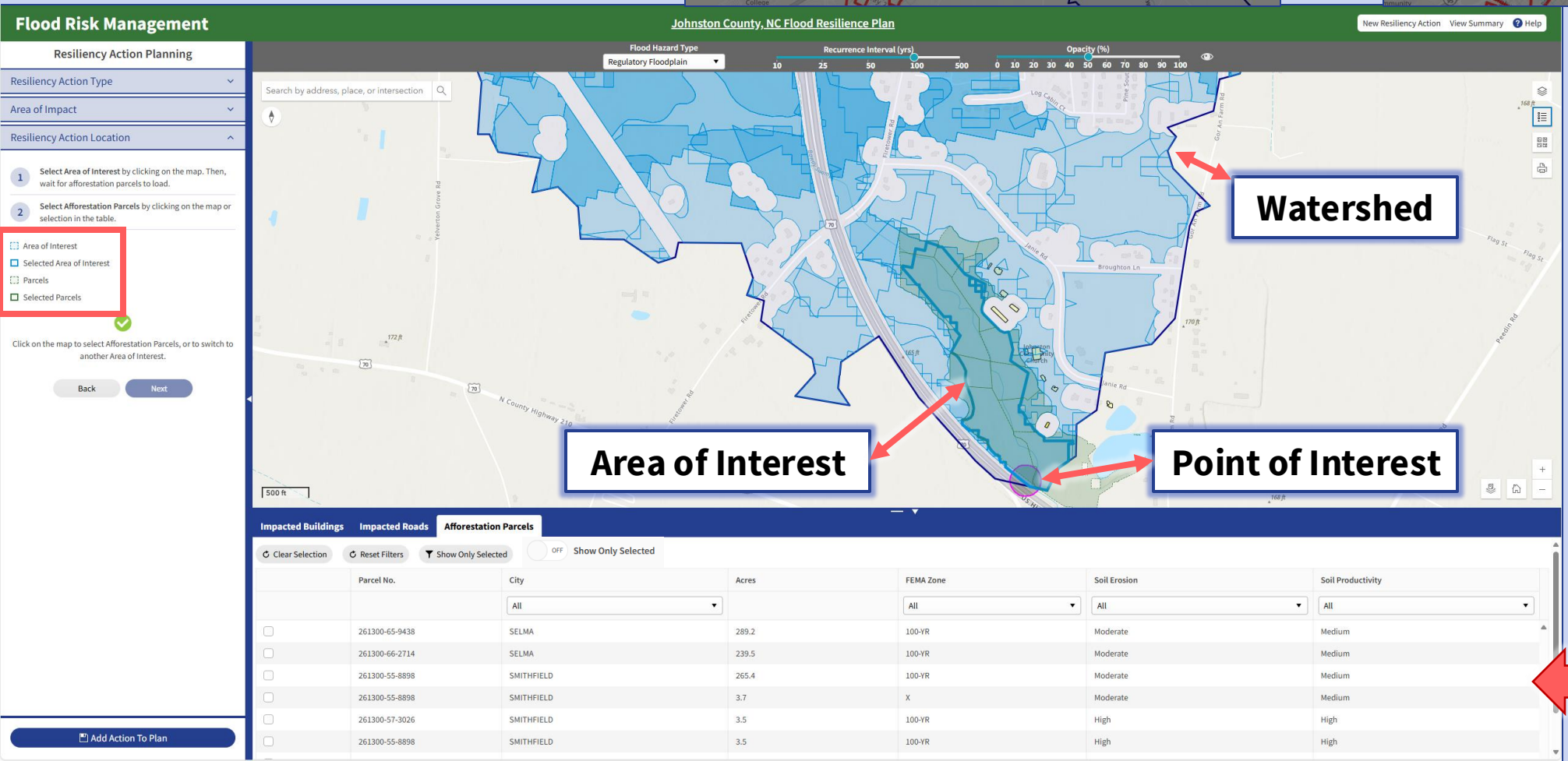
Add Action To Plan

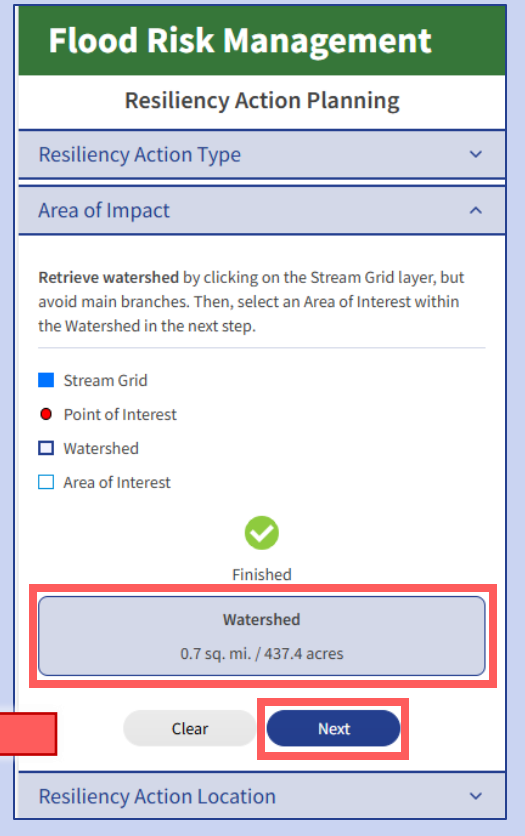



1
Watershed
2
Areas of Interest
3
Finish
Retrieving watershed based on the selected point. This may take a minute...
Close


Watershed
Areas of Interest
Finish
Watershed retrieved successfully. Retrieving areas of interest within the watershed. This may take a minute
Close


Watershed
Areas of Interest
Finish
Areas of interest retrieved successfully. You can close the modal and proceed.
Close


Flood Risk Management
Johnston County, NC Flood Resilience Plan
New Resiliency Action
View Summary
Help
Resiliency Action Planning
Resiliency Action Type
Area of Impact
Resiliency Action Location
1 Select Area of Interest by clicking on the map. Then, wait for afforestation parcels to load.
2 Select Afforestation Parcels by clicking on the map or selection in the table.
Area of Interest
Selected Area of Interest
Parcels
Selected Parcels
Click on the map to select Afforestation Parcels, or to switch to another Area of Interest.
Back
Next
Add Action To Plan
Flood Hazard Type
Regulatory Floodplain
Recurrence Interval (yrs)
10 25 50 100 500
Opacity (%)
0 10 20 30 40 50 60 70 80 90 100
Search by address, place, or intersection
Watershed
Area of Interest
Point of Interest
500 ft
Impacted Buildings
Impacted Roads
Afforestation Parcels
Clear Selection
Reset Filters
Show Only Selected
OFF
Show Only Selected
Parcel No.
City
Acres
FEMA Zone
Soil Erosion
Soil Productivity
All
261300-65-9438 SELMA 289.2 100-YR Moderate Medium
261300-66-2714 SELMA 239.5 100-YR Moderate Medium
261300-55-8898 SMITHFIELD 265.4 100-YR Moderate Medium
261300-55-8898 SMITHFIELD 3.7 X Moderate Medium
261300-57-3026 SMITHFIELD 3.5 100-YR High High
261300-55-8898 SMITHFIELD 3.5 100-YR High High


Flood Risk Management
Resiliency Action Planning
Resiliency Action Type
Area of Impact
Retrieve watershed by clicking on the Stream Grid layer, but avoid main branches. Then, select an Area of Interest within the Watershed in the next step.
Stream Grid
Point of Interest
Watershed
Area of Interest
Finished
Watershed
0.7 sq. mi. / 437.4 acres
Clear
Next
Resiliency Action Location

Flood Risk Management

Johnston County, NC Flood Resilience Plan

New Resiliency Action | View Summary | Help

Resiliency Action Planning

- Resiliency Action Type
- Area of Impact
- Resiliency Action Location

1. **Select Area of Interest** by clicking on the map. Then, wait for afforestation parcels to load.
2. **Select Afforestation Parcels** by clicking on the map or selection in the table.

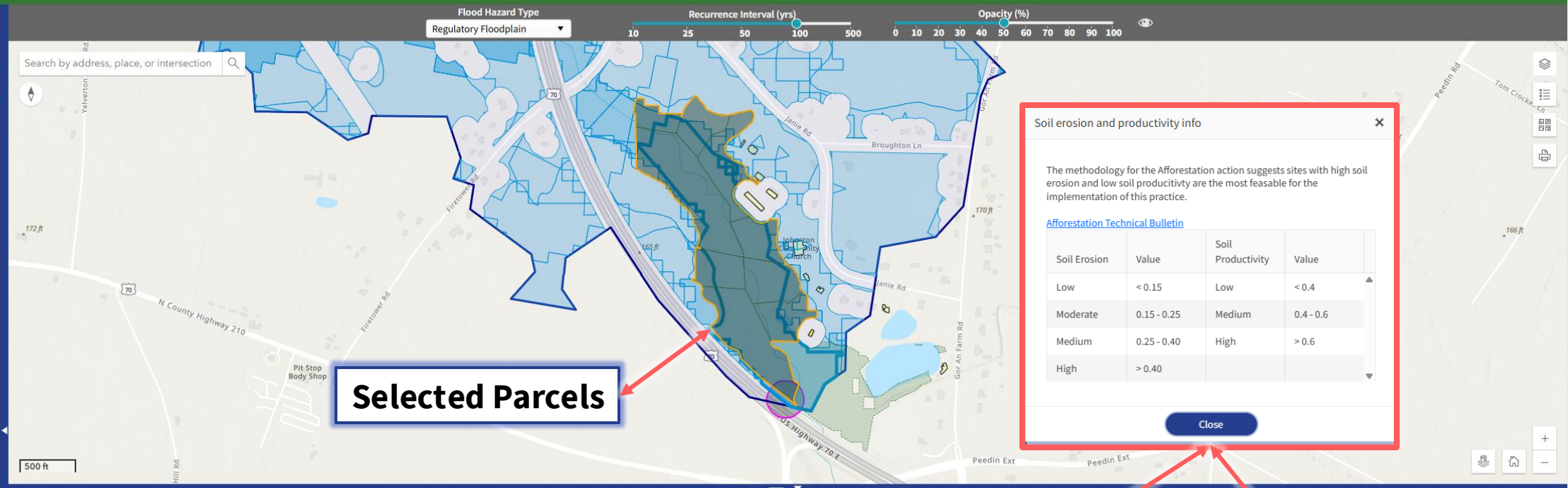
- Area of Interest
- Selected Area of Interest
- Parcels
- Selected Parcels

Click on the map to select Afforestation Parcels, or to switch to another Area of Interest.

Back | Next

- Resiliency Action Profile

Add Action To Plan



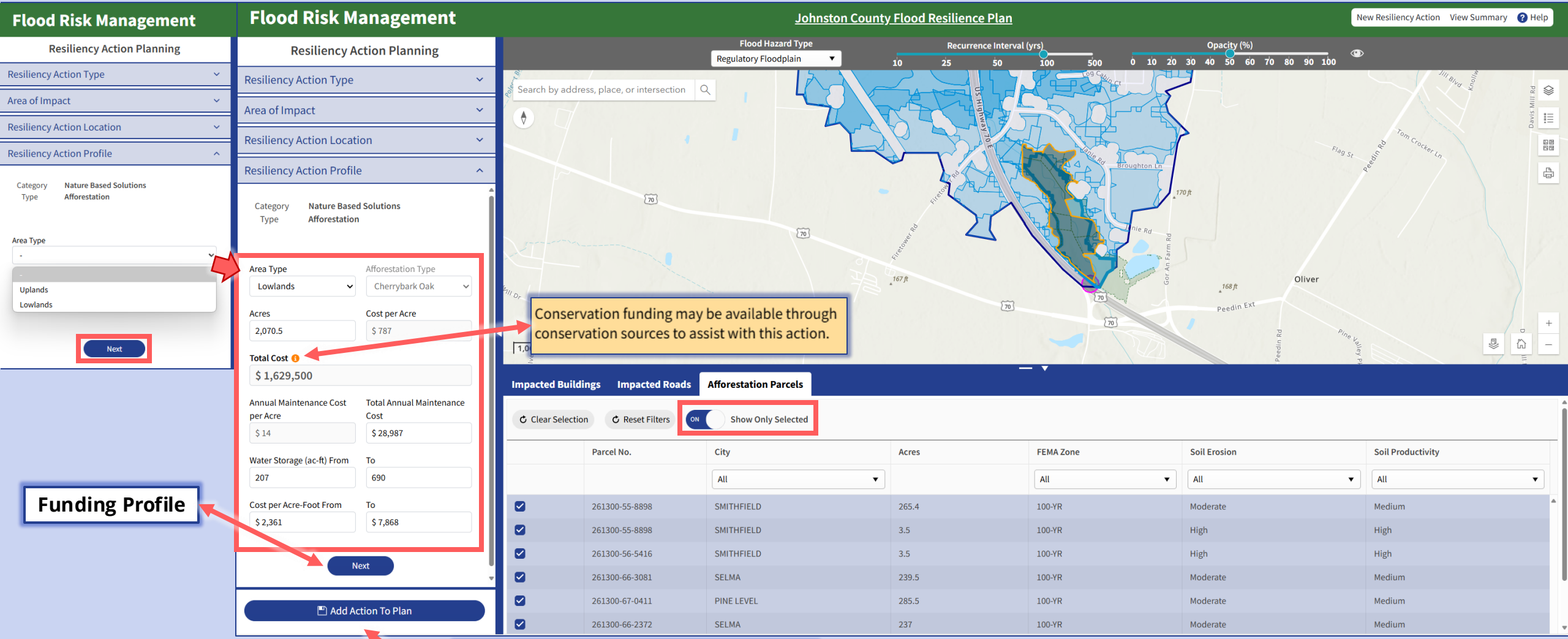
Impacted Buildings | Impacted Roads | Afforestation Parcels

Clear Selection | Reset Filters | Show Only Selected | Show Only Selected

Parcel No.	City	Acres	FEMA Zone	Soil Erosion	Soil Productivity
	All		All	All	All
261300-66-3081	SELMA	239.5	100-YR	Moderate	Medium
261300-66-2714	SELMA	239.5	100-YR	Moderate	Medium
261300-57-3026	SMITHFIELD	287.1	100-YR	Moderate	Medium
261300-65-9438	SELMA	289.2	100-YR	Moderate	Medium
261300-67-0411	PINE LEVEL	285.5	100-YR	Moderate	Medium
261300-55-8898	SMITHFIELD	3.5	100-YR	High	High
261300-56-5416	SMITHFIELD	3.5	100-YR	High	High

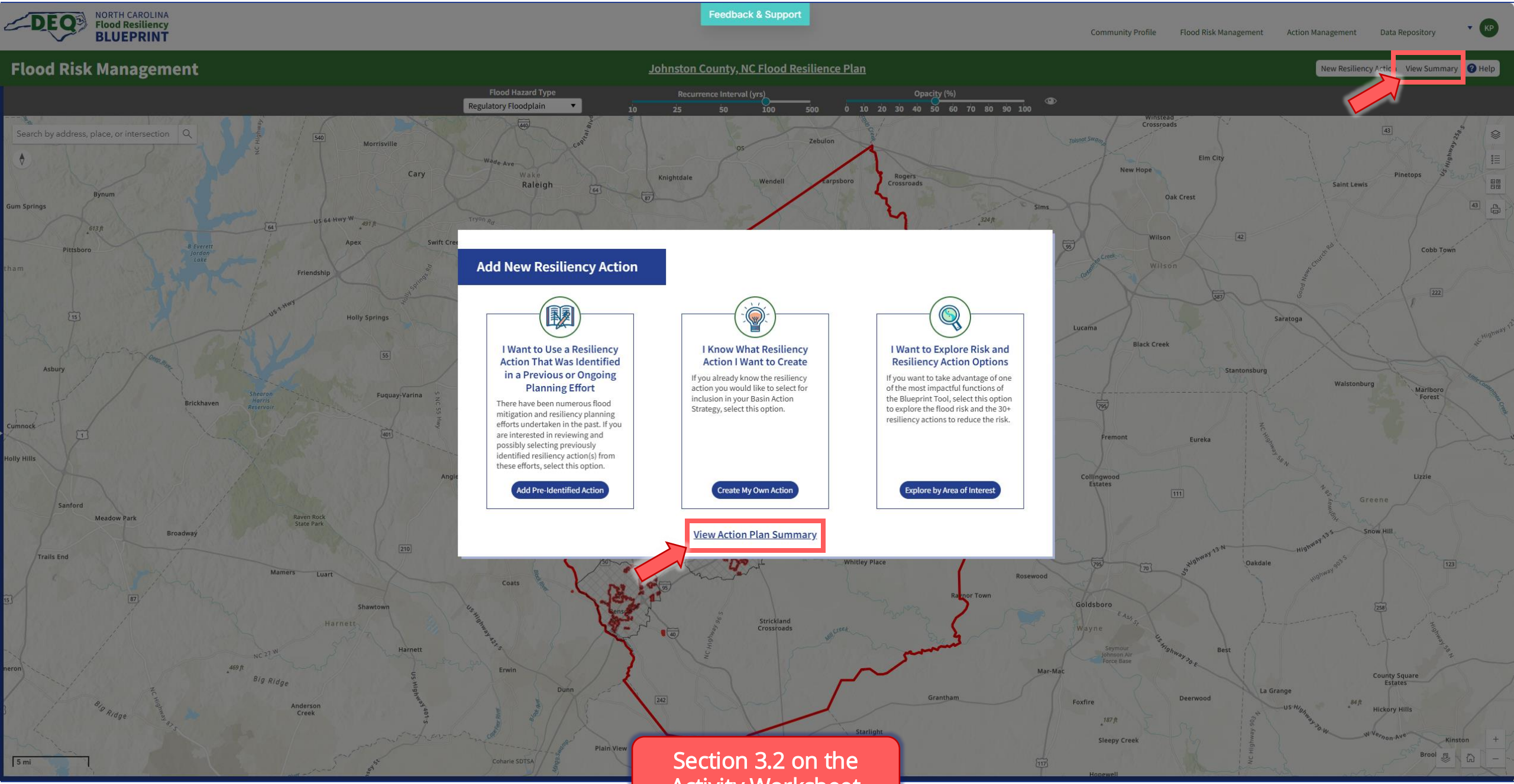
1 2

1 - 7 of 14 items

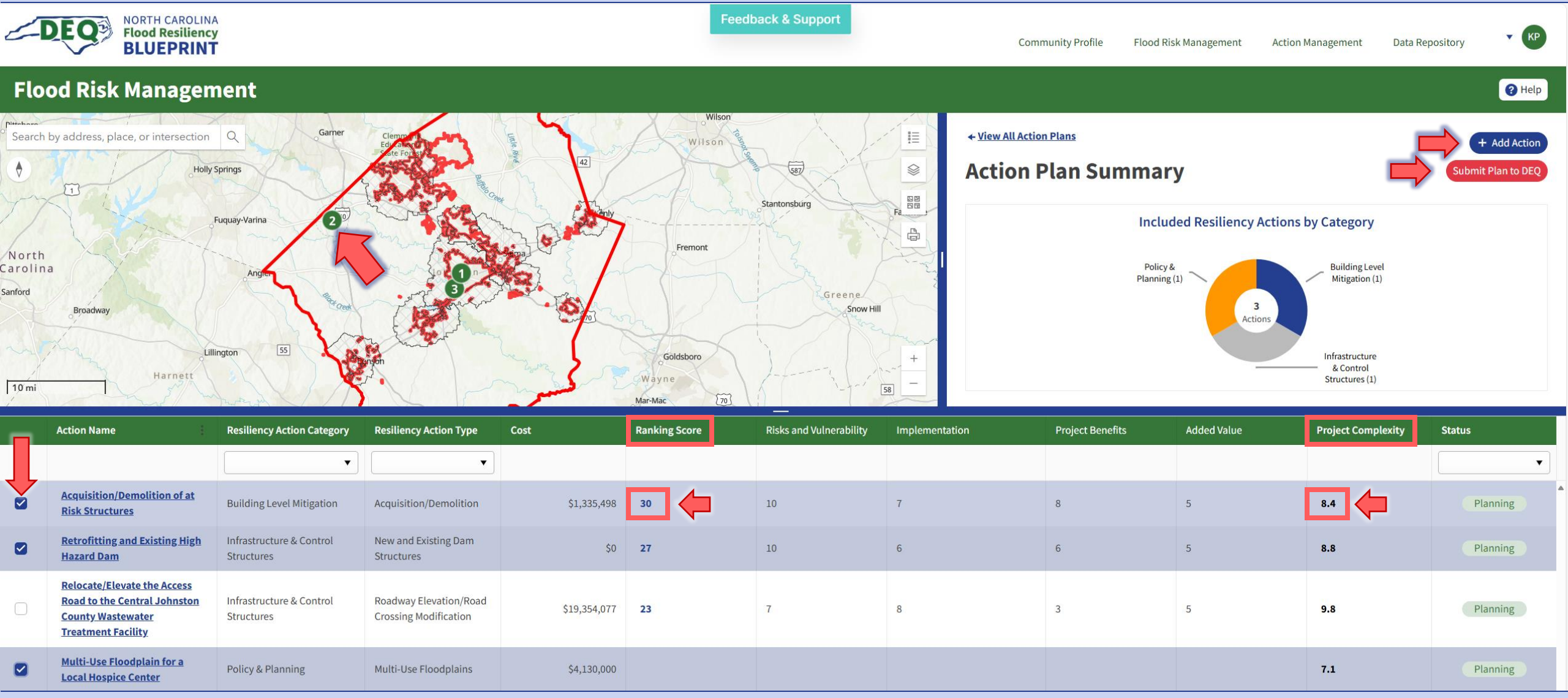


Funding Profile

- General Details
- Questions for Ranking
- Project Complexity
- Save Action to Draft Action Plan


NORTH CAROLINA
Flood Resiliency
BLUEPRINT
Feedback & Support
Community Profile
Flood Risk Management
Action Management
Data Repository
KP
Flood Risk Management
Johnston County, NC Flood Resilience Plan
New Resiliency Actio
View Summary
Help
Flood Hazard Type
Regulatory Floodplain
Recurrence Interval (yrs)
10 25 50 100 500
Opacity (%)
0 10 20 30 40 50 60 70 80 90 100
Search by address, place, or intersection
Add New Resiliency Action
I Want to Use a Resiliency Action That Was Identified in a Previous or Ongoing Planning Effort
There have been numerous flood mitigation and resiliency planning efforts undertaken in the past. If you are interested in reviewing and possibly selecting previously identified resiliency action(s) from these efforts, select this option.
Add Pre-Identified Action
I Know What Resiliency Action I Want to Create
If you already know the resiliency action you would like to select for inclusion in your Basin Action Strategy, select this option.
Create My Own Action
I Want to Explore Risk and Resiliency Action Options
If you want to take advantage of one of the most impactful functions of the Blueprint Tool, select this option to explore the flood risk and the 30+ resiliency actions to reduce the risk.
Explore by Area of Interest
View Action Plan Summary
Section 3.2 on the Activity Worksheet

Review & Prioritize Actions for Inclusion in the Action Plan Submittal



Action Name	Resiliency Action Category	Resiliency Action Type	Cost	Ranking Score	Risks and Vulnerability	Implementation	Project Benefits	Added Value	Project Complexity	Status
Acquisition/Demolition of at Risk Structures	Building Level Mitigation	Acquisition/Demolition	$1,335,498	30	10	7	8	5	8.4	Planning
Retrofitting and Existing High Hazard Dam	Infrastructure & Control Structures	New and Existing Dam Structures	$0	27	10	6	6	5	8.8	Planning
Relocate/Elevate the Access Road to the Central Johnston County Wastewater Treatment Facility	Infrastructure & Control Structures	Roadway Elevation/Road Crossing Modification	$19,354,077	23	7	8	3	5	9.8	Planning
Multi-Use Floodplain for a Local Hospice Center	Policy & Planning	Multi-Use Floodplains	$4,130,000						7.1	Planning

Resiliency Action Score Details

Resiliency Action Name	Relocate/Elevate the Access Road to the Central Johnston County Wastewater Treatment Facility
Resiliency Action Description	The Central Johnston County Wastewater Treatment Facility's access road is vulnerable to flooding, threatening year-round access. This action relocates and elevates the 5,038-foot, two-lane road and replaces 6,000 feet of water lines and 8,000 feet of sewer lines. These upgrades will reduce service disruptions, improve reliability, and enhance long-term operational resilience.
Action Category	Infrastructure & Control Structures
Action Type	Roadway Elevation/Road Crossing Modification
Location	Neuse Basin
Jurisdiction	Wilson's Mills, Kenly, Selma, Johnston County, Clayton, Archer Lodge, Benson, Smithfield, Four Oaks, Pine Level, Princeton, Micro

Risks and Vulnerability | Implementation | Project Benefits | Added Value

	Attribute	Base Score	Weighting Factor	Points
1	**Risks and Vulnerability**	7/24	5	7
1A	Life Safety Risk	3	X 1	= 3
1B	Direct Damages Avoided	1	1	1
1C	Social Vulnerability	1	1	1
1D	Regulatory Floodway or Coastal V Zone	2	1	2
1E	Future Risk	0	1	0
2	**Implementation**	8/24	4	8
3	**Project Benefits**	3/24	2	3
4	**Added Value**	6/24	5	6

Project Complexity Score Details

Resiliency Action Name	**Acquisition/Demolition of at Risk Structures**
Resiliency Action Description	**Acquiring three structures in the 100-year floodplain with 100-year flood depths greater than 2ft. These structures were prioritized based on the Blueprint Tool's positive cost-effectiveness rating.**
Action Category	**Building Level Mitigation**
Action Type	**Acquisition/Demolition**
Location	**Neuse Basin**
Jurisdiction	**Benson, Archer Lodge, Clayton, Wilson's Mills, Kenly, Four Oaks, Smithfield, Pine Level, Micro, Johnston County, Selma, Princeton**

Financial | Regulatory | Political | Social | Environmental | Monitoring/Maintenance/Success Metrics

Category & Question	Scoring Criteria	Points
Financial	^	3
Will the proposed action financially burden the community if external funding is not secured?	Yes = 1 No = 0	1
Will the proposed action require sources of funding other than internal funds or those potentially acquired through NCDEQ?		1
Do the external funding sources have additional requirements that exceed the scope of what the NC Flood Resiliency Blueprint requires?		1
Can the proposed action be easily evaluated for its return on investment and added value to the community's overall flood resilience?		0
Regulatory	v	0.67
Political	v	0.5
Social	v	1.25
Environmental	v	0
Monitoring/Maintenance/Success Metrics	v	3

Edit Answers

Flood Risk Management Activity Part 2 (20 minutes)

1. Each participant will give an elevator pitch (1-2 min.) for one of their action notecards, using the talking points below. (**Group Activity – 10 min.**)
   - What vulnerability/risk does the action address?
   - What are the action's ranking and complexity score? Are there other key details from the Resiliency Action Profile?
   - Why is the action important to your assigned community?

     OR

   - After working with the Tool, do you have any feedback on improving its function, usability, or other related recommendations?

   ***After you present, please stick both action notecards you've completed directly onto the large evaluation matrix at each table corresponding to the cell with the applicable ranking and complexity score ranges.

2. After completing the matrix, briefly discuss the results as a group. Each table should select three priority actions to submit as a part of their assigned jurisdiction's Draft Action Plan. (**Group Activity – 10 min.**)
   - Actions positioned in the High Ranking/Low Complexity cells – ideal quick wins
   - Actions that are highly ranked but more complex – consider if capacity indicates feasibility or barriers to implementation
   - Opportunities to combine resources or capacities across multiple jurisdictions, communities, or departments

Resiliency Action Evaluation Matrix

Ranking Score	Incomplete	0 ≤ Score < 6	6 ≤ Score < 12	12 ≤ Score ≤ 17
Unranked or Incomplete	Could not complete the activity			
0 ≤ Score < 49		Small Steps	Slow & Steady	Long Hauls
49 ≤ Score < 98		Easy Upgrades	Balanced Bets	Heavy Lifts
98 ≤ Score		Ideal-Quick Wins	Smart Investments	Major Strategic Moves

Project Complexity Score

Reflections & Questions

Action Management & Data Repository

Section 4.1 on the Activity Worksheet

North Carolina Flood Resiliency Blueprint

The North Carolina Department of Environmental Quality is developing the North Carolina Flood Resiliency Blueprint, which will form the backbone of a state flood planning process to increase community resilience to flooding throughout North Carolina's River basins. An online decision support tool and associated planning will drive state, regional, and community decision-making and guide the legislature in making funding decisions. When completed, the Blueprint will lead to an actionable set of projects and funding strategies that state and other government entities can implement to reduce flooding, mitigate the impacts of flooding, and increase a community's ability to maintain and quickly resume pre-storm activities following flooding.

Working with local stakeholders, interagency partners, academics, and technical experts, DEQ's Division of Mitigation Services plans a comprehensive approach to identify problems, address barriers, and prioritize solutions.

The Flood Resiliency Blueprint is funded through a $20 million allocation to the Department of Environmental Quality Division of Mitigation Services from the North Carolina General Assembly. An additional $96 million is allocated to the Division of Mitigation Services to fund priority projects identified in the development of the Flood Resiliency Blueprint for the following river basins: Neuse, Cape Fear, Tar-Pamlico, White Oak, and Lumber. NC Session Law 2021-180 NC Session Law 2022-75

GET STARTED

Community Profile

Review and enter information pertaining to Socio-Demographics, population, adaptive capacity, and environmental vulnerabilities.

View Community Profile

Flood Risk Management

Review existing resiliency actions in effect or planned, to create and submit new resiliency actions, and to evaluate and compare all resiliency actions being considered.

View Flood Risk Management

Action Management

Review status, project management, and performance for all actions.

View Action Management

Data Repository

A publicly accessible repository for data and modeling outputs and technical reports.

View Data Repository

Action Management

Help

Filter By

River Basins

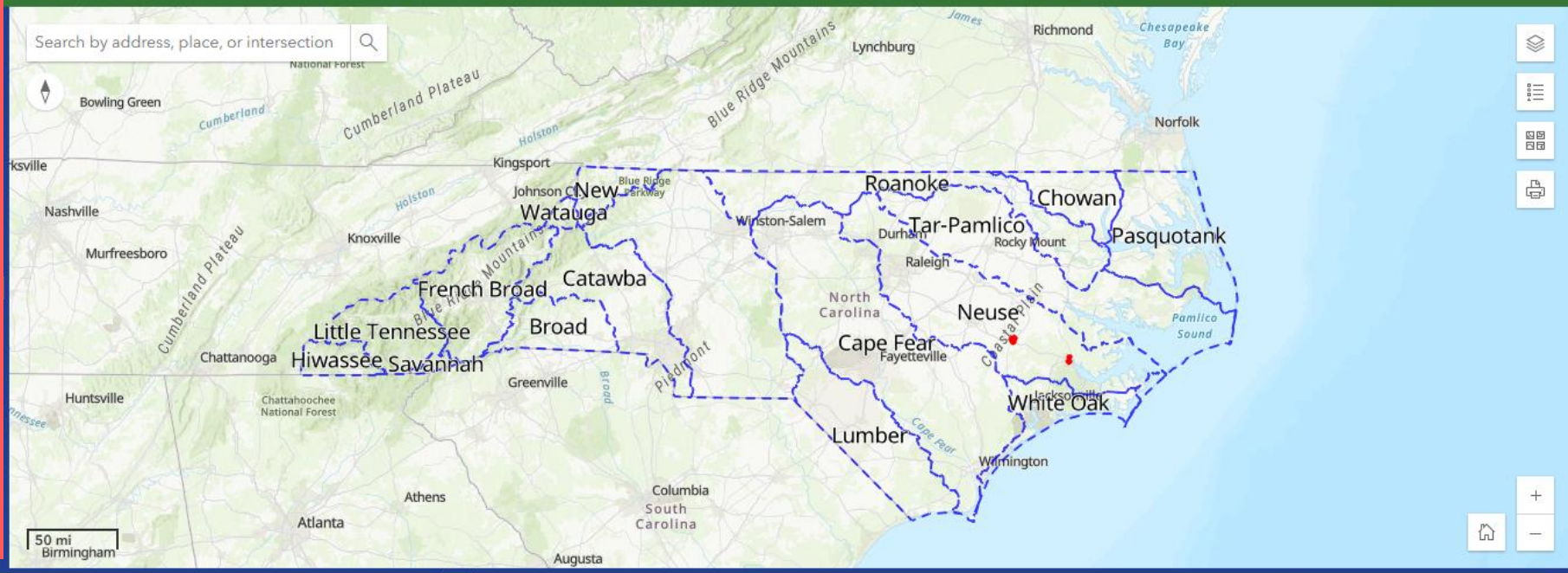
Search

- [x] All Basins
- [ ] Broad
- [ ] Cape Fear
- [ ] Catawba
- [ ] Chowan
- [ ] French Broad
- [ ] Hiwassee

Counties

Jurisdictions

Status



Name	Action Category	Action Type	Status	Action Strategy	Owner	DEQ Analyst	Partners	Funding Sources	Milestones Met	Funds Secured vs Total Cost

Name	Action Category	Action Type	Status	Action Strategy	Owner	DEQ Analyst	Partners	Funding Sources	Milestones Met	Funds Secured vs Total Cost

- Is equal to
- Is not equal to
- Contains
- Does not contain
- Starts with
- Ends with
- Is null

- Local
- Basin

Name	Action Category	Action Type	Status	Action Strategy	Owner	DEQ Analyst	Partners	Funding Sources	Milestones Met	Funds Secured vs Total Cost
test	Building Level Mitigation	Acquisition/Demolition	Included	Local	City Of Kinston	Not Assigned			0/4	$0 / $1,108,589

Action Management

Action that Judie added on 12/30

Resiliency Action Details

Strategy	None
Category	Building Level Mitigation
Type	Relocation
Total Cost	$507,392
Losses Avoided	$1,389,153
Cost Effectiveness	2.9431677
Owner	City Of Wilson
DEQ Program Analyst	ChristopherL Dreps

Partners

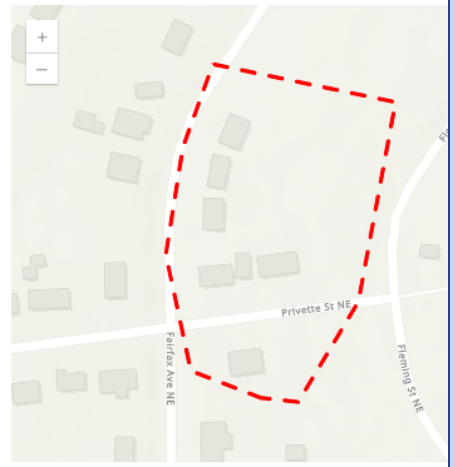
Partner

Milestones Completed

4 Milestones

Funding Secured

Total Cost $507,392



Add Milestone

Click on Milestone to Edit

Title	Start Date	End Date	Cost	Funding Sources	Total Funded	% Funded
Feasibility Study				None		
Engineering and Design				None		
Construction				None		
Operation and Maintenance				None		

Action Management

Action that Judie added on 12/30

Resiliency Action Details

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Category	Building Level Mitigation
Type	Relocation
Total Cost	$507,392
Losses Avoided	$1,389,153
Cost Effectiveness	2.9431677
Owner	City Of Wilson
DEQ Program Analyst	ChristopherL Dreps

Partners

Partner

Milestones Completed

4 Milestones

Completed Remaining

Add Milestone

Title	Start Date
Feasibility Study	
Engineering and Design	
Construction	
Operation and Maintenance	

Create Milestone

Title

Start Date: month/day/year

End Date: month/day/year

Progress

Milestone Cost

Funding Source

Amount of Funding

Completely Funded: N/A

Save Cancel

Data Repository

- Documents are provided for each methodology describing:
  - Data references
  - Technical details of a Resiliency Action or Tool component's underlying methodology and workflow
  - Tool outputs from the method/workflow
  - Any data/method limitations or caveats
- Downloadable data
  - GeoDatabase
  - GeoJSON
  - Shapefile

North Carolina Flood Resiliency Blueprint

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GET STARTED

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View Flood Risk Management

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Review status, project management, and performance for all actions.

View Action Management

Data Repository

A publicly accessible repository for data and modeling outputs and technical reports.

View Data Repository

Data Repository

Help

Spatial Data

Technical Documents

Select Boundary

Neuse

Johnston

Basin

County

Municipality

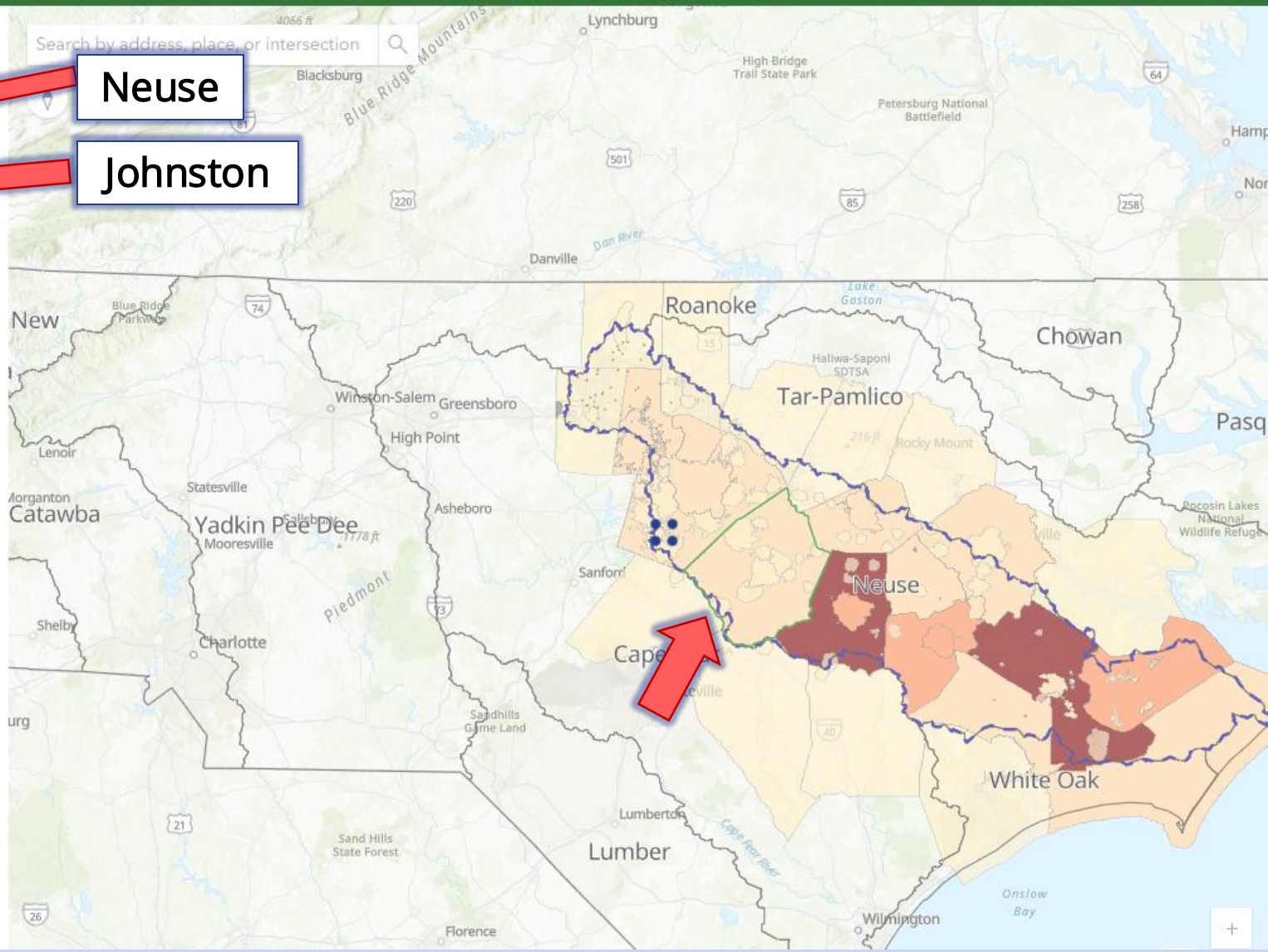
ARCHER LODGE | BENSON | KENLY | CLAYTON | FOUR OAKS | MICRO | PINE LEVEL | PRINCETON | SELMA | SMITHFIELD | WILSON'S MILLS

Available Layers

- Neuse NBS Afforestation Areas
- Building Footprints
- Neuse Impact Metrics and Scores
- Neuse Impact County Jurisdiction Summary
- Neuse NBS Floodplain Restoration
- Neuse NBS Water Farming
- Neuse NBS Flood Wetland Storage

Download

GeoDatabase | GeoJSON | Shapefile



Data Repository

Help

Spatial Data

Technical Documents

Search

Technical Bulletin: Bioretention

Bioretention is a stormwater control measure that uses natural components and processes to capture stormwater runoff, allowing water to soak into planted areas,…

Category: User Methodologies

Last Modified: 3/24/2025

View

Technical Bulletin: Permeable Pavement

Installing permeable pavements during the building or renovation process increases flood resilience by allowing water to infiltrate the ground surface, reducing run…

Category: User Methodologies

Last Modified: 3/24/2025

View

Technical Bulletin: Floodplain Preservation

The floodplain preservation feature of the Blueprint Tool refers to an area that transitions between a wetland and upland with distinct vegetative species than…

Category: User Methodologies

Last Modified: 3/24/2025

View

Technical Bulletin: Roadway Elevation & Road Crossing…

Roadway elevation and road crossing modifications are a flood resiliency action focused on raising roadways or modifying crossings to mitigate flooding impacts an…

Category: User Methodologies

Last Modified: 3/24/2025

View

Technical Bulletin: Channel Modifications (Dredging,…

This methodology is intended to demonstrate the potential flood damage reduction associated with channel modifications such as channel dredging,…

Category: User Methodologies

Last Modified: 3/24/2025

View

Technical Bulletin: Floodplain Restoration

Floodplain restoration is a resiliency action aimed at rehabilitating degraded floodplain areas to enhance their natural ability to store and slow floodwaters, reducing…

Category: User Methodologies

Last Modified: 3/24/2025

View

Technical Bulletin: Rain Gardens

Rain gardens are shallow, planted depressions designed to capture and temporarily hold stormwater, allowing it to slowly infiltrate the soil while filtering…

Category: User Methodologies

Last Modified: 3/24/2025

View

Technical Bulletin: Estimating Impacts to People,…

The impacts assessment methodology is intended to estimate the impacts of flooding and the impacts of reducing flooding from mitigation techniques (in dollars). The…

Category: User Methodologies

Last Modified: 3/24/2025

View

Technical Bulletin: Bioretention

Bioretention is a stormwater control measure that uses natural components and processes to capture stormwater runoff, allowing water to soak into planted areas, and slowing its flow. By allowing water to infiltrate through the ground, bioretention systems decrease the pressure on drainage infrastructure and minimize the likelihood of flooding. These systems are highly adaptable in that they can be installed across various soil types, from clay to sand, and can be tailored to various site conditions. These systems are designed to improve water quality by capturing and treating stormwater from the one-year (24-hour) storm event. However, this action can be essential to urban flood resiliency when combined with other SCMs or where multiple bioretention areas are strategically placed to maximize the potential reduction in stormwater runoff volume and flow.

Category: User Methodologies

Last Modified: 3/24/2025 4:06 PM

View Download Close

Action Management Activity

- Access submitted actions for your assigned location by filtering for Major River Basin, Counties, Jurisdictions, and Status
- Review the actions in the summary table and explore the various filters
- Select a resiliency action from the table to edit project milestones and key details
- Set milestone dates (start & end dates)
  - **Feasibility Study:** Began 6 months pre-Workshop; lasted 5 months
  - **Engineering and Design:** Began 1 month pre-Workshop; projected to take 6 months
  - **Construction:** Undetermined
  - **Operation and Maintenance:** Undetermined
- Assign a progress percentage and a cost to each milestone using the hypothetical examples below:
  - **Feasibility Study** (Progress =100%) (Milestone Cost = Total Cost * 0.15)
    - Add the name of one of the action's matched funding sources and set the Amount of Funding equal to the Milestone Cost
  - **Engineering and Design** (Progress = 25%) (Milestone Cost = Total Cost * 0.15)
    - Add the name of one of the action's matched funding sources and set the Amount of Funding equal to the Milestone Cost
  - **Operation and Maintenance** (Progress = 0%) (Milestone Cost= Total Cost * 0.10)
  - **Construction** (Progress = 0%) (Milestone Cost = Total Cost * 0.6)

Reflections & Questions

Close out & Next Steps

Next Steps for Blueprint Program

- [insert DEQ approved Next steps]

Thank You & Questions

Contacts:

Stuart Brown
NC Flood Resiliency Blueprint Manager
stuart.brown@deq.nc.gov

To join an outreach meeting, test out the online tool, or request more information, contact the DEQ lead for your river basin:

WHITE OAK & NEUSE	TAR-PAMLICO	CAPE FEAR	FRENCH BROAD	LUMBER RIVER
Brad Connell *brad.connell @deq.nc.gov*	Chris Dreps *chris.dreps@ deq.nc.gov*	Jessica Gray *jessica.gray @deq.nc.gov*	Suna Morkoc *suna.morkoc@ deq.nc.gov*	Shana Shapiro *shana.shapiro@ deq.nc.gov*

Contact Blueprint Staff

For general inquiries, contact 919-707-8976.

For public information and records, contact Sascha Medina, 919-707-8672.

Show 100 entries Search:

Name	Title	River Basin	Email	Phone
Stuart Brown	Program Manager		stuart.brown@deq.nc.gov	919-703-7944
Brad Connell	Program Consultant	White Oak and Neuse River Basins	brad.connell@deq.nc.gov	
Chris Dreps	Program Consultant	Tar-Pamlico and Neuse River Basins	chris.dreps@deq.nc.gov	919-707-8417
Jessica Gray	Program Consultant	Cape Fear River Basin	jessica.gray@deq.nc.gov	910-796-7407
Suna Morkoc	Program Consultant	French Broad River Basin	suna.morkoc@deq.nc.gov	919-707-8308
Shana Shapiro	Program Consultant	Lumber River Basin	shana.shapiro@deq.nc.gov	919-707-8958