

Phase 1 & 2

# Newland Township Resilience Strategy

June 28, 2024



# 7 Project Portfolio

## 7.1 Selecting Priority Projects

Phase 2 of the RCCP develops a portfolio of resilience projects aimed at reducing exposure and sensitivity to hazards as well as strengthening the adaptive capacity of community assets and vulnerable populations. This strategy builds upon foundational plans and projects (detailed in Section 4) and prioritizes recommendations for the Project Portfolio.

A list of potential projects was shared during the May Open House and with the CAT to gain feedback and clarity on what projects would be prioritized for the County. Each priority project is provided a description based on the prescribed information provided in the RCCP Planning Handbook.

### The priority projects for the County include:

- Research and promote resilient and sustainable farming practices and develop a farmers supporting farmers program.
- Develop a Conservation Toolbox and review and update county regulations as they pertain to undeveloped lands and natural resource areas; integrate climate resilience, flood mitigation, and stormwater management into existing ordinances.
- Pursue funding for buyouts through the Natural Resources Conservation Services (NRCS)-Emergency Watershed Management Program.
- Advocate for the rehabilitation and conservation of the Great Dismal Swamp and surrounding undeveloped areas.
- Restore Newland Dike.
- Pursue funding for culvert replacement of older or failing culverts.
- Pursue NFWF funding to develop a regional watershed hydraulic and hydrologic model.
- Develop a strategic maintenance plan for the stormwater system.
- Design and implement streambank erosion controls.
- Enroll in the FEMA Community Rating System (CRS).
- Pursue funding for home or utility elevations.
- Explore interest in regional retreat/ relocation to areas with less exposure to flooding.
- Adopt design guidelines to encourage or require design considerations for flooding.
- Conduct assessment to identify areas of Newland Township that may become isolated during an event.
- Bury powerlines.



**i** **Research and promote resilient and sustainable farming practices and develop a farmers supporting farmers program**

**Project Description**

Coordinate a steering committee of local farmers and conduct a campaign to share resources with agricultural workers and landowners in the region.

Enhance social connectedness and discuss strategies around changing weather patterns and climate change.

**Location**

Newland Township



**Source**

County and Weston & Sampson

**Scoping Questions**

- What types of farming practices are most common currently?
- What training programs currently exist and how could these be leveraged to enhance and expand practices to conserve soil and water, encourage biodiversity, and promote energy conservation/renewable resources?
- What systems are currently in place that facilitate sharing of information and resources?
- What characteristics are important to promote a diversity of perspectives on the steering committee?
- What is the best method for bringing this community together? Are there already meetings to capitalize on within the agricultural community?

**Hazards Addressed**

- Flooding
- Other: Drought, Storms
- All Hazards

**Supporting Function**

Agriculture

**Type of Solution**

- Plans, Policies, and Ordinances
- Nature-based Solution
- Infrastructure/Facility Retrofit
- Other: Non-regulatory program, community engagement

**Estimated Timeline**



**Responsible Entity**

Pasquotank County, Steering committee of local farmers

**Potential Partners**

Future Farmers of America, Pasquotank Chapter

**Existing Funding**

Staff time

**Potential Funding Sources**

- NRCS Environmental Quality Incentives Program (EQIP)
- State 319 Nonpoint Source Funding
- County annual budget

**Estimated Cost**



**Anticipated Benefit**



**Priority Rating**



Does not relate to the immediate protection of life and safety, but important to economic health, food security and prosperity.



## Develop a Conservation Toolbox.

Review and update county regulations as they pertain to undeveloped lands and natural resource areas; integrate climate resilience, flood mitigation, and stormwater management into existing ordinances.



### Project Description

Toolbox could include regulatory tools, incentives, and best practices for protecting waterways, undeveloped lands, forest and farmlands, and provide standards for developing lands.

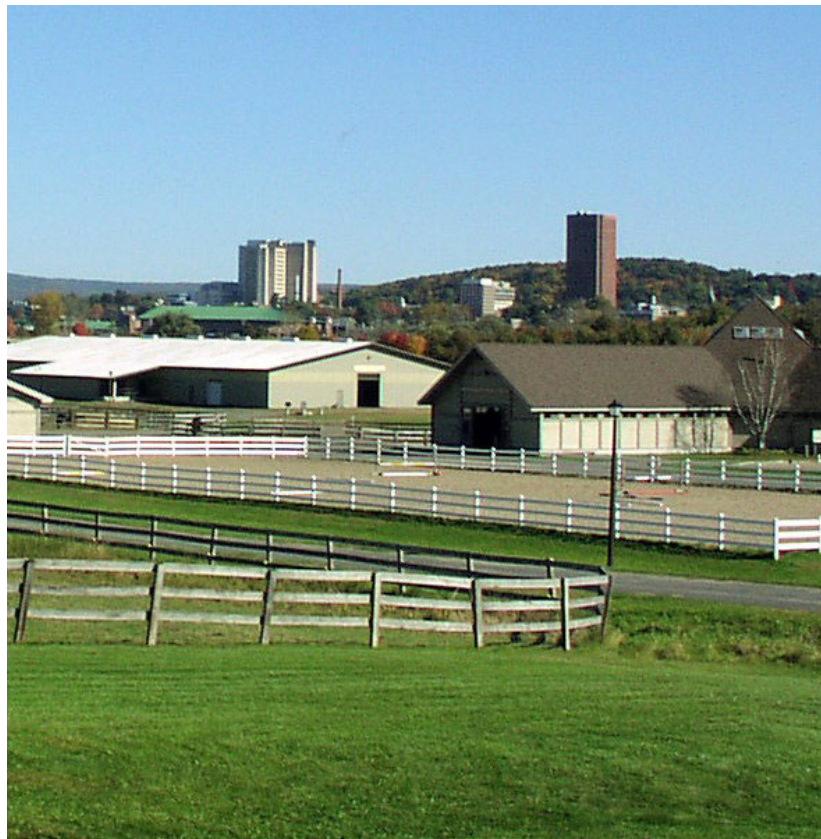
Increase protections for lands surrounding water bodies or containing resources such as forested lands. Integrate climate resilience, flood mitigation, or stormwater management best practices into existing regulations. Identify gaps and opportunities for new language or replacement language.

Update local flood ordinance to reflect latest FEMA Flood Insurance Rate Maps.



### Location

County-wide



### Source

County and Weston & Sampson

### Scoping Questions

- What types of regulatory tools are already in place?
- What are the gaps or opportunities for new standards?
- Can regulations be aligned with Elizabeth City and neighboring communities to increase their regional impact?
- What best practices or precedents should be referenced?
- Which conservation organizations or other entities should be consulted in the process?
- Have undeveloped lands and natural resources areas been inventoried and mapped throughout the County?
- What regulations are currently in place that pertain to undeveloped lands and natural resource areas?
- What level of protection does the County want to provide to these areas?
- Is there public support for a land conservation/ greenbelt plan?

### Hazards Addressed

- Flooding
- Other
- All Hazards

### Supporting Function

General resiliency, biodiversity

### Estimated Timeline



### Type of Solution

- Plans, Policies, and Ordinances
- Nature-based Solution
- Infrastructure/Facility Retrofit
- Other

### Responsible Entity

Pasquotank County Planning Department

### Potential Partners

- Pasquotank County Utilities Department
- Private Property Owners
- Conservation Organizations
- Pasquotank County Inspections Department
- Pasquotank County Parks & Recreation Department
- Pasquotank County Board of Commissioners

### Existing Funding

Staff time

### Potential Funding Sources

County annual budget

### Estimated Cost



### Anticipated Benefit



This will increase the overall resiliency of not only Newland Township, but Pasquotank County as a whole.

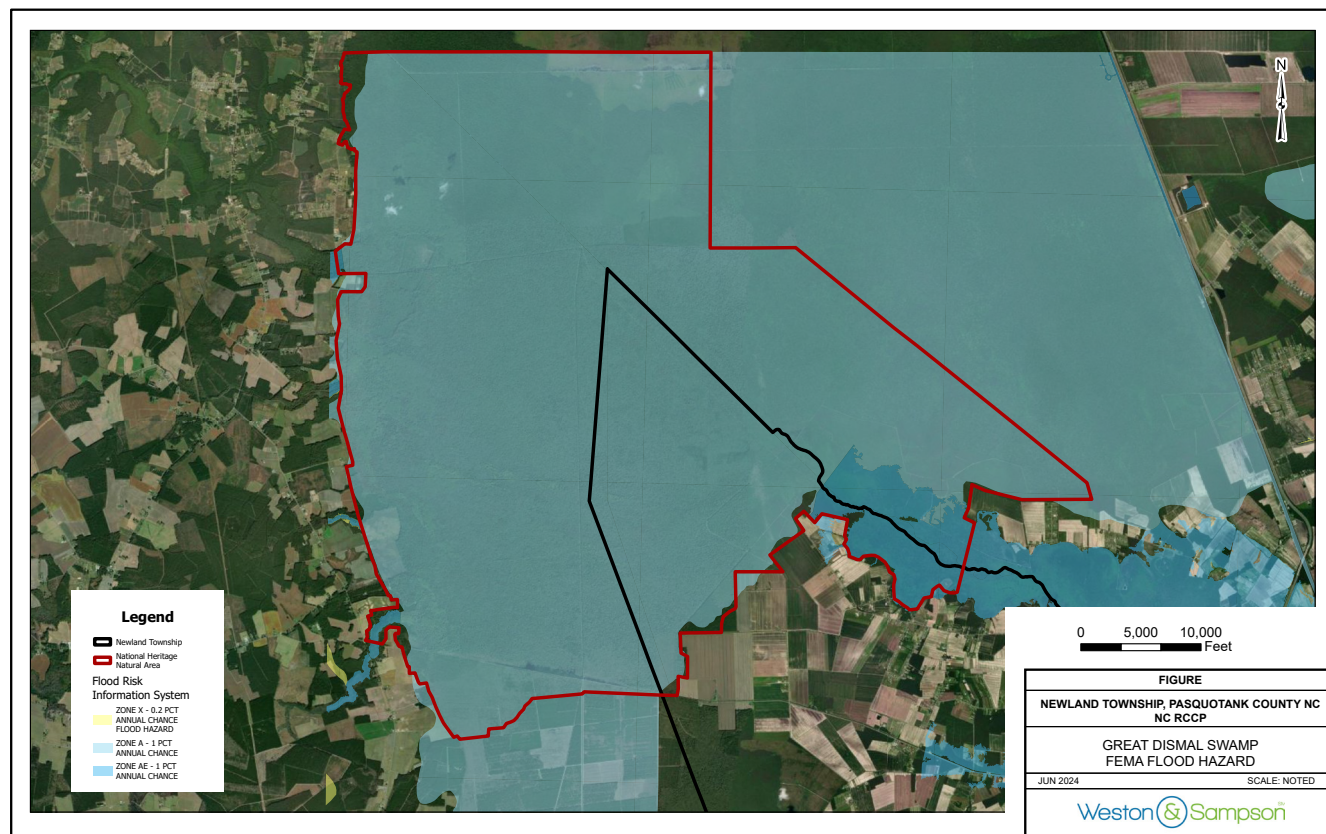
### Priority Rating



**i** Advocate for the rehabilitation and conservation of the Great Dismal Swamp and surrounding undeveloped areas.

**Project Description**  
 Advocate for a regional study of drainage and conveyance of water to the swamp – study could inform the restoration of natural features or redesign of key infrastructure components to reduce flooding.

**Location & Project Map**  
 Great Dismal Swamp Region



**Source**  
 County and Weston & Sampson

- Scoping Questions**
- What areas of the Great Dismal Swamp are not under protection of US Fish and Wildlife or other land trusts?
  - What restoration efforts have been effective in either North Carolina or Virginia to create capacity for flood storage and/or improve function of the Great Dismal Swamp?
  - What are known existing drainage or flood issues in Newland Township caused by the alteration of the Great Dismal Swamp?

- Hazards Addressed**
- Flooding
  - Other
  - All Hazards

**Supporting Function**  
 Conservation, General Resiliency

- Type of Solution**
- Plans, Policies, and Ordinances
  - Nature-based Solution
  - Infrastructure/Facility Retrofit
  - Other: Study, Drainage, Land Rehabilitation, and Conservation



**Responsible Entity**  
 Pasquotank County Planning Department

- Potential Partners**
- Local land trusts (NC Coastal Land Trust, Trust for Public Land)
  - US Fish and Wildlife Service
  - US Army Corps of Engineers
  - Conservation Organizations

**Existing Funding**  
 None identified

- Potential Funding Sources**
- North Carolina Land & Water Fund
  - US Forest Service Community Forest and Open Space Conservation Program



This area not only serves as naturally functioning floodplain but could increase recreational opportunities in the region.



The County has limited ability to conduct a study like this on its own but could create a regional collaboration effort.



## Restore the Newland Dike.



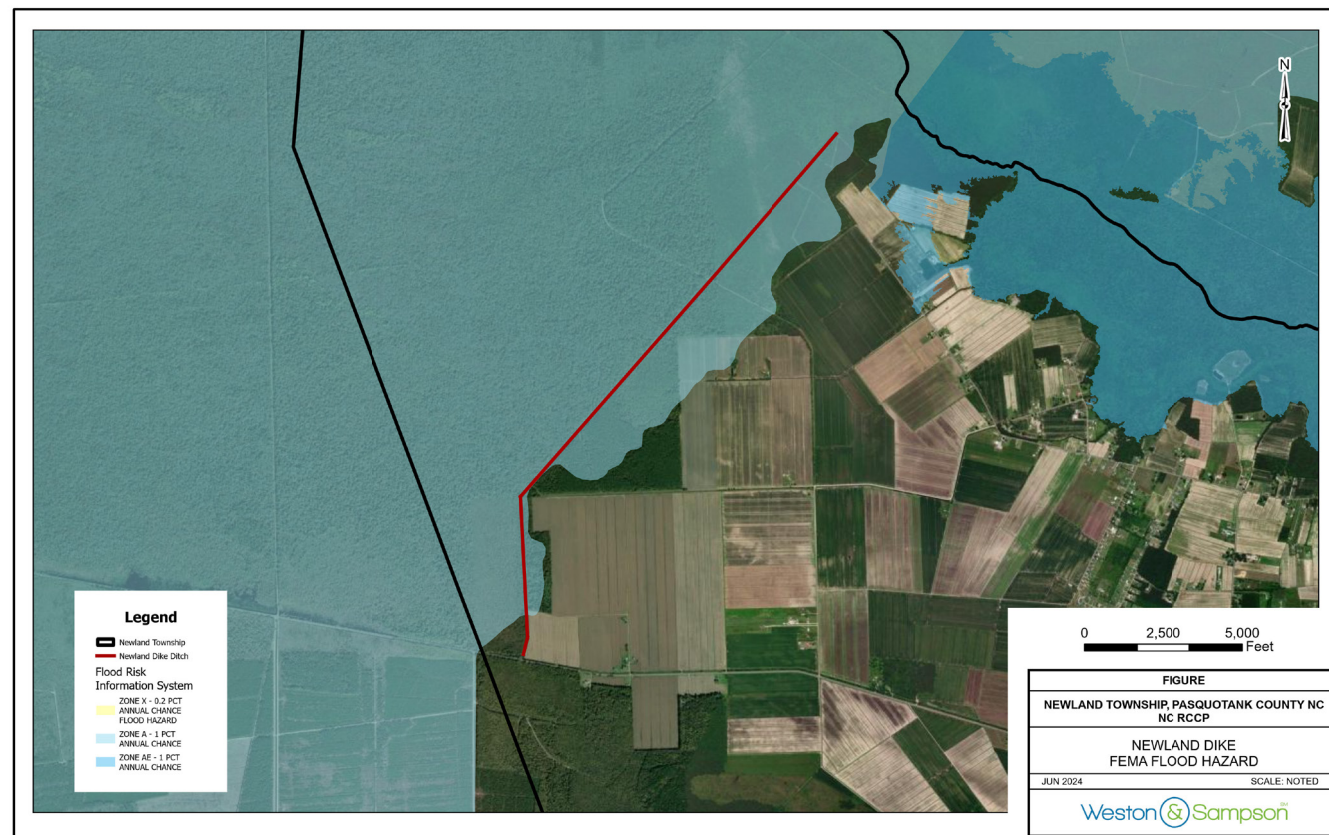
### Project Description

(1) Establish water level elevation monitoring stations. (2) Calibrate elevations and duration of water control on the upstream Refuge area with water release rates to prevent flooding on the cropland downstream along 158 Canal. (3) Improve downstream cropland protection from flooding by changing field ditch spacing, land grading and shaping, installing “Flap” gates on field culverts, and changing farm management strategy.



### Location & Project Map

Newland Township



### Source

County, CAT, and Weston & Sampson

### Scoping Questions

- What locations are appropriate for water level elevation monitoring stations?
- Will this task require assistance from an outside contractor?

### Hazards Addressed

- Flooding
- Other
- All Hazards

### Supporting Function

Conservation, General Resiliency

### Type of Solution

- Plans, Policies, and Ordinances
- Nature-based Solution
- Infrastructure/Facility Retrofit
- Other

### Estimated Timeline



### Responsible Entity

Pasquotank County Utilities Department

### Potential Partners

- Outside Consultant
- Agricultural Community

### Existing Funding

None identified

### Potential Funding Sources

- FEMA Building Resilient Infrastructure and Communities Program (BRIC)
- Natural Resources Conservation Service

### Estimated Cost



### Anticipated Benefit



Newland Township is a frequently flooded region that depends heavily on agriculture and has experienced crop loss in the past. This would mitigate flooding of the immediate area and prevent loss of cropland. The Newland Dike Ditch was also identified as highly vulnerable during the vulnerability assessment.

### Priority Rating





## Pursue funding for culvert replacement of older or failing culverts.



### Project Description

New culvert designs should be upsized and include solutions that promote wildlife passage and corridors, streamflow, and streambank health and stabilization. For example, bridges or wider culverts in lieu of tightly-sized features allow for debris to pass through and for fish to swim.



### Location

County-wide, focus on Newland Township



### Source

County, CAT, and Weston & Sampson

### Scoping Questions

- Have culverts been inventoried and mapped in the county? Are there known culverts in Newland Township that are undersized or in need of replacement?
- Is there a database that lists the age and size of culverts across the county?
- How will culverts be prioritized for replacement?

### Hazards Addressed

- Flooding
- Other
- All Hazards

### Supporting Function

Stormwater management, flood mitigation

### Type of Solution

- Plans, Policies, and Ordinances
- Nature-based Solution
- Infrastructure/Facility Retrofit
- Other

### Estimated Timeline



### Responsible Entity

Pasquotank County Utilities Department

### Potential Partners

Private property owners

### Existing Funding

None identified

### Potential Funding Sources

- FEMA Building Resilient Infrastructure and Communities Program (BRIC)
- Stormwater Funding Program through NCDEQ
- Flood Mitigation Grants through North Carolina Department of Public Safety (NCDPS)
- NCDOT / FHWA funding

### Estimated Cost



### Anticipated Benefit



This would mitigate flooding in problem areas in Newland Township.

### Priority Rating

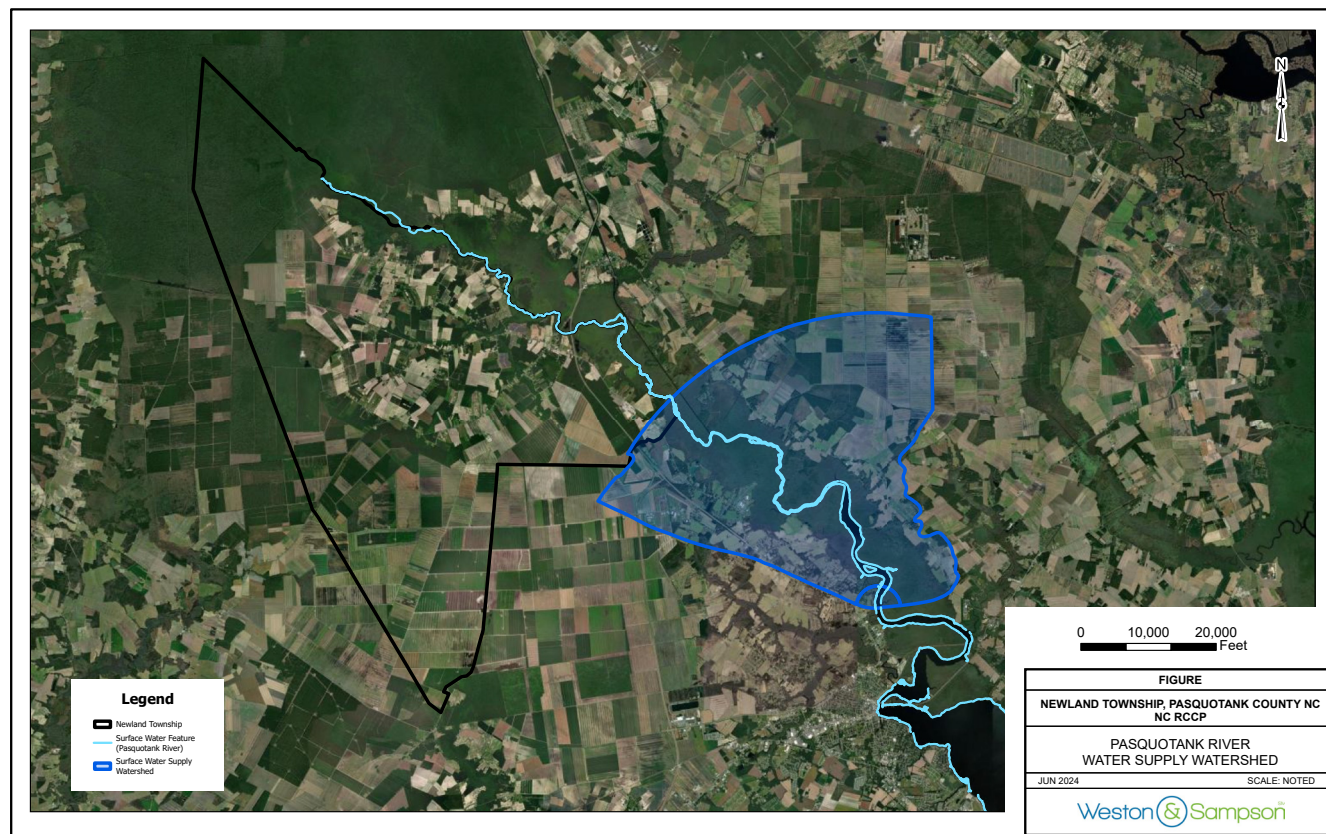


Residents suggested culvert replacement during community engagement as being a top concern.

**i** Pursue NFWF funding to develop a regional watershed hydraulic and hydrologic model.

**Project Description**  
This model would help to better understand upstream and downstream impacts. The model would help identify solutions in the surrounding areas to reduce flood impacts in the township.

**Location & Project Map**  
County-wide, focus on Newland Township



**Source**  
County, CAT, and Weston & Sampson

- Scoping Questions**
- What design storms will be run through the model? What historic storm can be used to calibrate the model?
  - What are the best statewide, regional, or local datasets available for precipitation data?

- Hazards Addressed**
- Flooding
  - Other
  - All Hazards

**Supporting Function**  
Stormwater management

- Type of Solution**
- Plans, Policies, and Ordinances
  - Nature-based Solution
  - Infrastructure/Facility Retrofit
  - Other: Modeling



**Responsible Entity**  
Pasquotank County Utilities Department

**Potential Partners**  
Outside consultant with H/H modeling qualifications

**Existing Funding**  
None identified

**Potential Funding Sources**  
National Fish and Wildlife Foundation (NFWF)



This model will help to identify areas where flood mitigation projects would be most beneficial in the region.







## Develop a strategic maintenance plan for the stormwater system.



### Project Description

Develop a stormwater maintenance plan, focusing on areas of known flooding such as drainage ditches along frequently flooded roadways.



### Location

County-wide, focus on Newland Township



### Source

County staff

### Scoping Questions

- Are the assets that comprise the stormwater system inventoried and mapped in GIS?
- Does the county have adequate staff to do this in-house, or does the county need to hire outside services?

### Hazards Addressed

- Flooding
- Other
- All Hazards

### Supporting Function

Stormwater management, flood mitigation

### Type of Solution

- Plans, Policies, and Ordinances
- Nature-based Solution
- Infrastructure/Facility Retrofit
- Other

### Estimated Timeline



### Responsible Entity

Pasquotank County Utilities Department

### Potential Partners

- NC DOT
- Private property owners
- Community organizations/volunteers

### Existing Funding

None identified

### Potential Funding Sources

- NC DOT Funding
- NCDEQ Stormwater Funding Program

### Estimated Cost



### Anticipated Benefit



Improving regular stormwater maintenance will help mitigate flooding across the County and ensure that stormwater infrastructure is functioning properly.

### Priority Rating





## Design and implement streambank erosion controls.



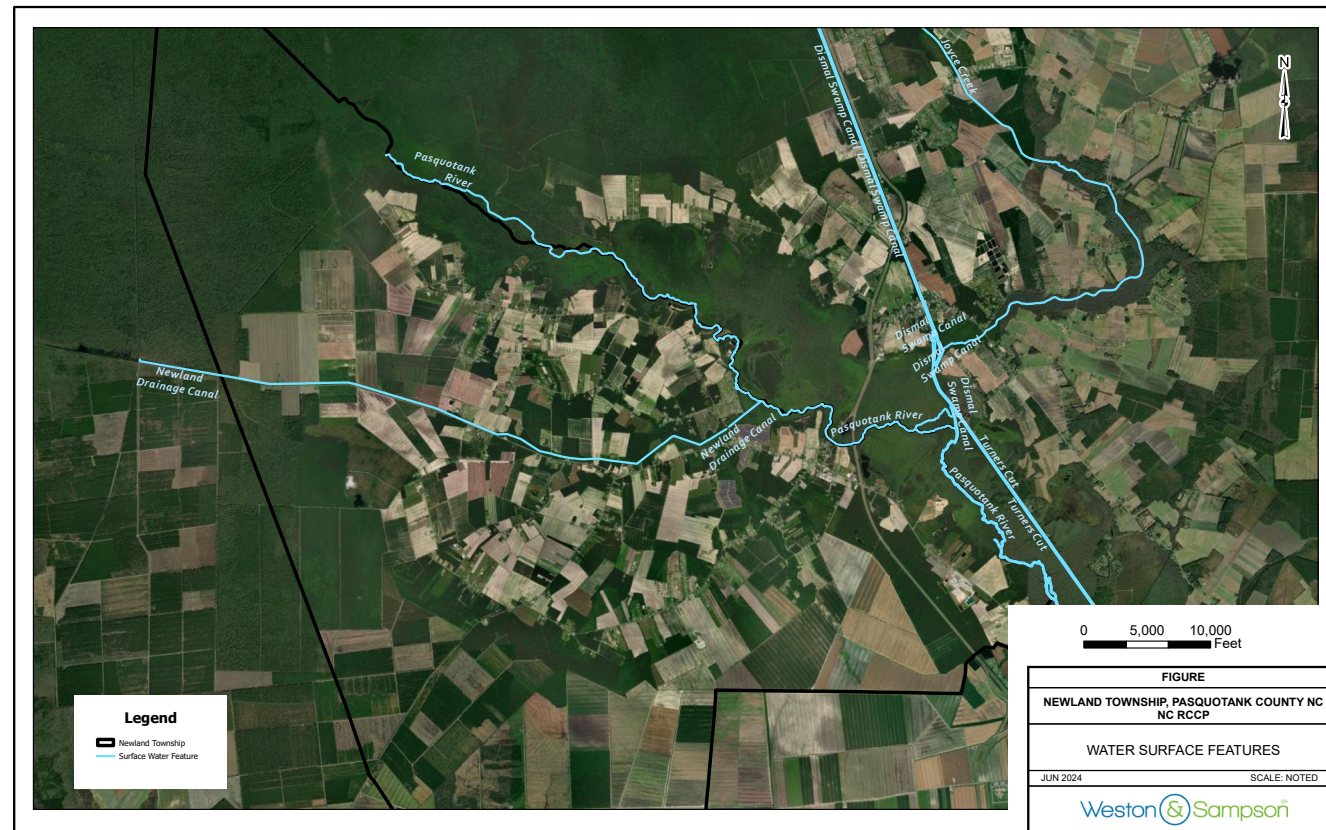
### Project Description

Identify local sections of stream in which debris commonly builds up and where streambanks are eroding. Develop clean-up plan and design and implement controls where erosion needs to be controlled.



### Location & Project Map

Newland Township



### Source

County and Weston & Sampson

### Scoping Questions

- Have areas that require streambank stabilization been identified already?
- Where are the locations of volunteer lead clean-ups that were mentioned by the CAT and the community?

### Hazards Addressed

- Flooding
- Other: Erosion
- All Hazards

### Supporting Function

Stormwater management

### Type of Solution

- Plans, Policies, and Ordinances
- Nature-based Solution *\*potential*
- Infrastructure/Facility Retrofit
- Other: Green Infrastructure

### Estimated Timeline



### Responsible Entity

Pasquotank County Utilities Department

### Potential Partners

- North Carolina Department of Environmental Quality
- Community volunteers or organizations

### Existing Funding

None identified

### Potential Funding Sources

The Streamflow Rehabilitation Assistance Program (StRAP) through North Carolina Department of Agriculture

### Estimated Cost



### Anticipated Benefit



Residents stated at the public workshop that streams are often filled with debris, backing up flows and creating flood issues.

### Priority Rating





## Enroll in the FEMA Community Rating System (CRS).



### Project Description

Implement strategies from CRS to lower National Flood Insurance Program premiums.



### Location

County-wide



### Source

County and Weston & Sampson

### Scoping Questions

- What activities are currently being implemented in Pasquotank County that would qualify for CRS credit?
- How many active flood insurance policies are there in Pasquotank County?

### Hazards Addressed

- Flooding
- Other
- All Hazards

### Supporting Function

Floodplain management

### Type of Solution

- Plans, Policies, and Ordinances
- Nature-based Solution
- Infrastructure/Facility Retrofit
- Other

### Estimated Timeline



### Responsible Entity

- County Manager
- County CFM
- Shelley Cox
- Brian Parnell, Emergency Management Director

### Potential Partners

- Pasquotank County Emergency Management
- Pasquotank County Utilities Department
- Pasquotank County Planning Department

### Existing Funding

None identified

### Potential Funding Sources

Annual budgeting process

### Estimated Cost



No cost to join CRS, the cost estimate reflects staff time.

### Anticipated Benefit



This would save citizens money on their flood insurance premiums, and also support more stringent floodplain management strategies in Pasquotank County.

### Priority Rating





## Pursue funding for home or utility elevations



### Project Description

Pursue funding for home or utility elevations through the FEMA Hazard Mitigation Grant Program or Flood Mitigation Assistance Program.



### Location

County-wide, focus on Newland Township



### Source

County and Weston & Sampson

### Scoping Questions

How many repetitive loss properties exist within Pasquotank County? Within Newland Township?

### Hazards Addressed

- Flooding
- Other
- All Hazards

### Supporting Function

Floodplain management

### Type of Solution

- Plans, Policies, and Ordinances
- Nature-based Solution
- Infrastructure/Facility Retrofit
- Other: Structural, retrofit

### Estimated Timeline



### Responsible Entity

- County Manager
- County CFM

### Potential Partners

- Pasquotank County Emergency Management
- Pasquotank County Planning Department

### Existing Funding

None identified

### Potential Funding Sources

FEMA Hazard Mitigation Grant Program or Flood Mitigation Assistance Program

### Estimated Cost



### Anticipated Benefit



This would protect the built environment of Pasquotank County and help protect citizens and property from flood damage.

### Priority Rating





**Explore interest in regional retreat/ relocation to areas with less exposure to flooding.**



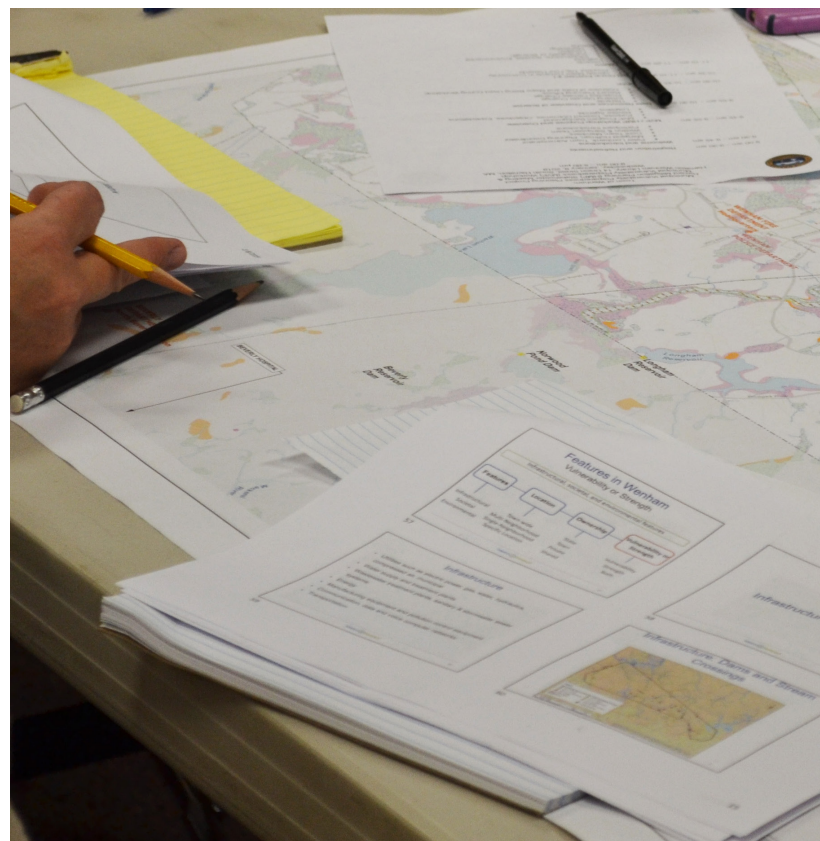
**Project Description**

Use land use regulatory mechanisms such as transfer of development rights, rolling easements, and moratoriums on new developments in high-risk areas. If residents are interested, pursue funding through FEMA for funding through the Natural Resources Conservation Service (NRCS) Emergency Watershed Protection Program for buyouts or FEMA Flood Mitigation Assistance Program.



**Location**

County-wide



**Source**

County and Weston & Sampson

**Scoping Questions**

- Have any residents expressed a desire to relocate?
- Are there any areas in the Township with contiguous properties that experience repetitive flooding?
- What type of enabling legislation exists for these regulatory changes?

**Hazards Addressed**

- Flooding
- Other
- All Hazards

**Supporting Function**

Floodplain management

**Type of Solution**

- Plans, Policies, and Ordinances
- Nature-based Solution
- Infrastructure/Facility Retrofit
- Other

**Estimated Timeline**



**Responsible Entity**

- County Manager
- County CFM

**Potential Partners**

Pasquotank County Emergency Management

**Existing Funding**

None identified

**Potential Funding Sources**

- County annual budgeting
- FEMA Hazard Mitigation Grant Program
- FEMA Flood Mitigation Assistance Program
- Natural Resources Conservation Service Emergency Watershed Protection Program

**Estimated Cost**



**Anticipated Benefit**



This would help mitigate damage both to the built environment of the County and to citizens of the County, however it would involve residents relocating which can be disruptive to their everyday lives.

**Priority Rating**





## Adopt design guidelines to encourage or require design considerations for flooding.



### Project Description

Design guidelines could include recommendations to build to a more protective design flood elevation standard, use of flood resistant materials, and site strategies to mitigate stormwater impacts.



### Location

County-wide



### Source

County and Weston & Sampson

### Scoping Question

What guidelines related to floodplain construction are in place for the county, region, or state?

### Hazards Addressed

- Flooding
- Other
- All Hazards

### Supporting Function

Floodplain management

### Type of Solution

- Plans, Policies, and Ordinances
- Nature-based Solution
- Infrastructure/Facility Retrofit
- Other

### Estimated Timeline



### Responsible Entity

Pasquotank County Planning Department

### Potential Partners

Pasquotank County Inspections Department

### Existing Funding

Staff time

### Potential Funding Sources

County annual budgeting

### Estimated Cost



### Anticipated Benefit



This will increase the resiliency of the built environment in Pasquotank County and help protect people and property from flooding in Newland Township (for new builds or retrofits)

### Priority Rating



**i** Conduct assessment to identify areas of Newland Township that may become isolate during an event.

**Project Description**

Isolation can occur due to washed out roads or lack of access by emergency vehicle. An assessment would help identify these areas and prioritize flood mitigation activities to reduce roadway closures. Actions could include culvert replacement, drainage ditch rehabilitation and clean out.

**Location**  
Newland Township



Photo Credit: Pasquotank-Camden EMS

**Source**

County and Weston & Sampson

**Scoping Questions**

- What isolation events have occurred in the past?
- Are there areas in Newland Township that are known to become isolated?

**Hazards Addressed**

- Flooding
- Other
- All Hazards

**Supporting Function**

Emergency response

**Type of Solution**

- Plans, Policies, and Ordinances
- Nature-based Solution
- Infrastructure/Facility Retrofit
- Other: Assessment/ Study

**Estimated Timeline**



**Responsible Entity**

Pasquotank County Emergency Management

**Potential Partners**

- Pasquotank County Police and Fire
- Pasquotank County Utilities
- NC DOT

**Existing Funding**

None identified

**Potential Funding Sources**

County annual budgeting

**Estimated Cost**



**Anticipated Benefit**



This will improve emergency response to Newland Township and increase public safety.

**Priority Rating**





## Bury powerlines.



### Project Description

Bury powerlines that are susceptible to damage or outages from wind.



### Location

County-wide



### Source

County and Weston & Sampson

### Scoping Questions

- Are powerlines mapped by the utility department or provider?
- Are there any areas of the county where underground powerlines would not be feasible?

### Hazards Addressed

- Flooding
- Other
- All Hazards

### Supporting Function

Energy, power supply

### Type of Solution

- Plans, Policies, and Ordinances
- Nature-based Solution
- Infrastructure/Facility Retrofit
- Other

### Estimated Timeline



### Responsible Entity

Pasquotank County Utility Department

### Potential Partners

Utility Provider

### Existing Funding

None identified

### Potential Funding Sources

FEMA Building Resilient Infrastructure and Communities Program (BRIC)

### Estimated Cost



### Anticipated Benefit



This would increase the overall resilience of Pasquotank County.

### Priority Rating

