



# Subtask 2.10: Identification of Existing Recommendations

## North Carolina Flood Resiliency Blueprint

Prepared for the North Carolina Department of Environmental Quality by AECOM

July 2024



# Table of Contents

<b>Definitions .....</b>	<b>iii</b>
<b>Common Acronyms.....</b>	<b>iv</b>
<b>1 Introduction .....</b>	<b>1</b>
1.1 Purpose and Intended Uses.....	1
1.1.1 Summary.....	1
1.2 Inclusion Criteria.....	2
1.3 Connections to Other North Carolina Flood Resiliency Blueprint Tasks.....	3
1.4 Recommendation Scoring and Ranking .....	3
1.4.1 Recommendation Scoring .....	3
1.4.2 Recommendation Priority.....	6
1.5 Resource Inventory .....	6
<b>2 Review.....</b>	<b>8</b>
2.1 Policy .....	9
2.1.1 NC Natural and Working Lands Action Plan .....	9
2.1.2 Collaboratory Flood Resilience Study .....	10
2.1.3 Action Plan for Nature-Based Stormwater Strategies.....	10
2.2 Data Acquisition and Management .....	11
2.2.1 Collaboratory Flood Resilience Study .....	11
2.2.2 Collaboratory Flood Resilience Study .....	12
2.2.3 NCDHHS Climate Strategy Report .....	13
2.3 Planning.....	13
2.3.1 NC Enhanced Hazard Mitigation Plan.....	13
2.3.2 Collaboratory Flood Resilience Study .....	14
2.3.3 CDBG-MIT Action Plan .....	15
2.4 Projects.....	16
2.4.1 RISE: Resilient Communities Guidebook.....	16
2.4.2 RISE: Digital Resilience Clearinghouse .....	16
2.4.3 RISE: Regional Resilience Portfolio Program .....	17
<b>3 Appendix .....</b>	<b>19</b>

**Tables**

Table 1: Primary Resource Inventory ..... 6

Table 2: Secondary Resource Inventory..... 19

Table 3: Statewide Planning Efforts Corresponding to Flood Resiliency Strategies and How They  
Are Connected to Blueprint..... 22

## Definitions

---

A comprehensive list of definitions applicable to multiple Flood Resiliency Blueprint documents is provided in a separate document.

## Common Acronyms

---

**BRIC** – Building Resilient Infrastructure and Communities Grant Program

**CDBG-DR** – Community Development Block Grant Disaster Relief Grant Program

**CDBG-MIT** – Community Development Block Grant Mitigation Grant Program

**DMS** – Division of Mitigation Services

**DPR** – Division of Parks and Recreation

**DWR** – Division of Water Resources

**FAIR** – Findable, Accessible, Interoperable, and Reusable

**FEMA** – Federal Emergency Management Agency

**GIS** – Geographic Information Systems

**LEED** – Leadership in Energy and Environmental Design

**NCCF** – North Carolina Coastal Federation

**NCDA&CS** – North Carolina Department of Agriculture and Consumer Services

**NCDEQ** – North Carolina Department of Environmental Quality

**NCDHHS** – North Carolina Department of Health and Human Services

**NCBIT** – North Carolina Department of Information Technology

**NCDMVA** – North Carolina Department of Military and Veteran Affairs

**NCDNCR** – North Carolina Department of Natural and Cultural Resources

**NCDOA** – North Carolina Department of Administration

**NC DOT** – North Carolina Department of Transportation

**NCDPS** – North Carolina Department of Public Safety

**NCEM** – North Carolina Emergency Management

**NCLWF** – North Carolina Land and Water Fund

**NCORR** – NC Office of Recovery and Resiliency

**NFIP** – National Flood Insurance Program

**NOAA** – National Oceanic and Atmospheric Administration

**RCCP** – Resilient Coastal Communities Program

**RCP** – Resilient Communities Program

**RISE** – Regions Innovating for Strong Economies and Environment

**RSF** – Recovery Support Functions

**SDRTF** – State Disaster Recovery Task Force

**UNC** – University of North Carolina

**USACE** – US Army Corps of Engineers

# 1 Introduction

---

## 1.1 Purpose and Intended Uses

The purpose of this report is to identify specific recommendations from existing statewide planning efforts that correspond with flood resilience strategies and how they can be effectively connected to the NC Flood Resiliency Blueprint (Blueprint). This will build awareness of existing efforts and help connect identified strategies to the intent of Blueprint, a statewide watershed planning effort to establish a framework and tools to assist local communities in decision-making related to reducing flood risk and increasing resilience.

Reviewed materials included plans and strategies, technical reports, research studies, and programs. The following categories organize identified flood resiliency strategies to reflect the natural progression of high-level vision and goals set by policy, the translation of those goals into actionable strategies through planning, the acquisition and management of flood resiliency-related data to inform the planning framework and decision-making process, and the implementation of concrete activities in alignment with policies and planning through projects.

- Data Acquisition and Management
- Policy
- Planning
- Projects

The report includes identified flood resiliency strategies that received the highest three scores from a recommendation scoring framework, described in greater detail in section 1.4. This report ranks identified strategies based on their effective connection to Blueprint. Ease of implementation was not a major consideration for scoring or ranking since some of the low—and medium-scoring strategies would be easier to implement but were not highly considered for inclusion in this report.

### 1.1.1 Summary

Thirteen “High” ranked recommendations were expanded on in this report based on how effectively Blueprint could connect to, support, integrate, and/or implement flood resiliency strategies. Each category below had three strategies, and there is an overarching strategy of using existing flood resiliency recommendations from existing documentation. All recommendations can be found in the literature review and data collection inventory in fulfillment of Subtask 1.1 and the Statewide Planning Efforts with Flooding Resilience Recommendations in fulfillment of Subtask 1.7.

#### 1.1.1.1 Policy

Three Policy strategies included (1) the integration of climate adaptation and resiliency strategies into local government plans from the NC Natural and Working Lands Action Plan, (2) state exploration of a wide variety of funding mechanisms from the Collaboratory Flood Resilience Study, and (3) Encourage

the use of nature-based stormwater strategies by evaluating potential state policy changes from the Action Plan for Nature Based Stormwater Strategies.

### 1.1.1.2 Data Acquisition and Management

Data Acquisition and Management included three strategies. Two are from the Collaboratory Flood Resilience Study, which includes (1) prioritizing and funding the establishment of Findable, Accessible, Interoperable, and Reusable (FAIR) data standards and (2) taking measures to improve its hazard mitigation data collection, management, and dissemination infrastructure. The third strategy comes from the NC Department of Health and Human Services (NCDHHS) Climate Strategy Report, which provides the recommendation to (3) complete a flood assessment survey and develop adaptation strategies to promote environmental justice and equity by including input from community leaders who can advocate for the needs of their community and mitigate the risk of isolation during flooding after a hurricane.

### 1.1.1.3 Planning

Three Planning recommendations include (1) improve coordination/education/outreach to better identify and assist underserved communities in the NC Enhanced Hazard Mitigation Plan, (2) initiate renewed efforts to develop pre-disaster mitigation plans via a “portfolio” approach in the Collaboratory Flood Resilience Study, and (3) build a strategy for the development and preservation of rental housing in the 23 counties most impacted and distressed by Hurricanes Matthew and Florence from the Community Development Block Grant-Mitigation Grant Program (CDBG-MIT) Action Plan.

### 1.1.1.4 Projects

The three statewide Project Recommendations include (1) developing a climate resilience planning guide for local leaders as stated in the Regions Innovating for Strong Economies & Environment (RISE): Resilient Communities Guidebook, (2) developing an online resilience resource center for local governments and community leaders in the RISE: Digital Resilience Clearinghouse, and (3) integrating findings from the RISE: Regional Resilience Portfolio Program.

## 1.2 Inclusion Criteria

The inclusion criteria for resources listed in this literature review and data inventory are included below. While noted below, it should be noted that this document reviews resources that specifically consider actions at a statewide scale. Regional and river basin-scale resources and corresponding actions will be compiled and evaluated for each river basin during the initiation and discovery phase of the Blueprint process. An inventory of Neuse River Basin-specific actions can be found in subtasks 2.3 and 4.4.

- State-wide geographic scope. This inventory's geographic scope is the state of North Carolina; the materials included have state-wide considerations and/or applicability.

- Corresponds with flood resilience strategies. Identified statewide planning efforts that provide recommendations specific to flood resiliency and mitigation strategies.
- Credible and vetted. Resources have state or agency support or have been reviewed by subject matter experts.
- Up-to-date, latest version. Generally, resources are published in 2019 or later, responsive to Governor Roy Cooper’s Executive Order 80, signed in late 2018. If annual updates are available, only the latest are reviewed (but earlier versions may be mentioned and/or links included).

## 1.3 Connections to Other North Carolina Flood Resiliency Blueprint Tasks

It is important to note that many of the reviewed materials for flood resilience strategies are listed in full in the *Literature Review and Data Collection Inventory* in fulfillment of Subtask 1.1 and the *Statewide Planning Efforts with Flooding Resilience Recommendations* in fulfillment of Subtask 1.7.

## 1.4 Recommendation Scoring and Ranking

A recommendation scoring matrix was created to evaluate the over 250 flood resiliency strategies from statewide planning efforts identified in Subtask 1.1 and 1.7 with the most effective connection to Blueprint. The nine criteria used to score each identified recommendation, described in detail below, were informed by the goals of Blueprint and other state-level prioritization frameworks. The primary source used to inform this scoring matrix was a framework developed by the NC Office of Recovery and Resiliency’s (NCORR) Regions Innovating for Strong Economies and Environment (RISE) Program for the prioritization and selection of recommended actions developed during the implementation of their Regional Resilience Portfolio Program.

The scoring resulted in 68 “Low,” 170 “Medium,” and 13 “High” ranked recommendations based on how effectively Blueprint could connect to, support, integrate, and/or implement the flood resiliency strategies. The top three recommendations that received the highest score in the policy, planning, data acquisition and management and project categories are included in this report with a more detailed evaluation of their connection to Blueprint. All recommendations from the complete list of documents are available for basins to review. This scoring provides a starting point for the review and ranking of recommendations. The complete set of strategies with associated scores can be found in the Appendix.

### 1.4.1 Recommendation Scoring

Criteria were developed to evaluate the level of connection the identified flood resiliency strategies from existing statewide planning efforts have to Blueprint. Recommendations received a score of zero, one, or two from each criterion described below, with structural mitigation, non-structural mitigation, social vulnerability, and equity components weighted more heavily (scores multiplied by two where potential points are from zero to two and four) to reflect the intent of Blueprint.



- **Structural Mitigation**: the extent to which the recommendation includes direct actions to prevent floodwaters from reaching properties. Structural measures involve the construction of man-made structures that control and redirect water flows. Structural mitigation generally includes reservoirs, levees/floodwalls/seawalls, channel modifications, stormwater infrastructure, etc.
  - 4 – Structural mitigation measure(s) directly reduce the statewide likelihood and extent of flooding.
  - 2 – Structural mitigation measure(s) partially contribute or may lead to direct reductions in the statewide likelihood and extent of flooding.
  - 0 – The recommendation does not include structural mitigation or measure(s) that do not directly reduce the statewide likelihood and extent of flooding.
  
- **Non-Structural**: the degree to which the recommendation encompasses physical and nonphysical measures that, when applied to structures vulnerable to flooding or those measures incorporated as programmatic floodplain management actions, reduce life loss and property damage. Non-structural mitigation generally includes but is not limited to acquisition/elevation/relocation of at-risk structures and property; policy, regulations, and guidance; emergency services; flood insurance; public education and outreach.
  - 4 – Non-structural measure(s) with a high potential to reduce life loss and property damage.
  - 2 – Non-structural measure(s) that may lead to reduced life loss and property damage.
  - 0 – Recommendation is not a non-structural measure, and/or non-structural measure will not reduce life loss and property damage associated with flooding.
  
- **Environmental**: the recommendation incorporates nature-based solutions and/or limits unwanted impacts on the natural and man-made systems (e.g., habitats, species, and resources).
  - 2 – Preserves or restores biodiversity or natural systems.
  - 1 – Reduces or may lead to a reduction of impacts on natural systems.
  - 0 – Does not preserve or restore natural systems.
  
- **Social Vulnerability**: the extent to which the recommendation incorporates and serves socially vulnerable populations, addressing the susceptibility of social groups that face disproportionate impacts from flooding.
  - 4 – Vulnerable and/or tribal communities are the focus and direct beneficiaries of the recommended action.
  - 2 – Limited support for tribal and/or vulnerable communities.
  - 0 – Does not support vulnerable and/or tribal communities.
  
- **Equity**: the degree to which the recommendation involves and benefits communities, regardless of their demographic characteristics, where resources are focused on uplifting low-resource and underserved communities.
  - 4 – Recommendation involves and benefits all communities, where uplifting low-resource and underserved communities is the strategy's primary focus.

- 2 – Recommendation involves and benefits all communities with a moderate focus on low-resource and underserved communities.
- 0 – Recommendation does not focus on or benefit low-resource, underserved communities.
- Community Engagement Level of Effort: the extent to which a given recommendation involves efforts to engage with the public, including individuals who may or may not possess subject matter expertise, and incorporates their insights into their respective communities and the impact of flooding.
  - 2 – Material referenced robust community engagement conducted with a thoughtful and intentional community engagement plan that informed the development of the material. Feedback received and included in the material is relatively representative of the entire state.
  - 1 – Material referenced some community engagement and mentioned community engagement plans or strategies that were conducted to inform the development of the material. Feedback received and included in the material does not represent the entire state.
  - 0 – Material referenced no or little community engagement that was conducted to inform the development of the material; the material does not specify or include engagement strategies.
- Partners/Collaboration Pathways: the recommendation includes partnerships and collaboration pathways with governmental, non-governmental, and community-based organizations that may be leveraged to implement the recommendation.
  - 2 – Partnerships and collaboration pathways with varying types of organizations are fully integrated and central to the recommendation.
  - 1 – Partnerships and collaboration pathways with at least one organization are mentioned; diverse collaboration is not central to the recommendation.
  - 0 – Partnerships and collaboration pathways not mentioned or fully integrated into the recommendation.
- Funding Availability: the extent to which the recommendation has identified or secured funding and supplemental funding to complete the proposed project.
  - 2 – Funding has already been secured.
  - 1 – Funding has been identified.
  - 0 – There are no funding strategies in the material.
- Capacity: an indication of the capacity of the North Carolina Department of Environmental Quality (NCDEQ) and Blueprint to integrate and complete/support the recommendation.
  - 2 – Blueprint has the full capacity to integrate and support/implement; Blueprint has all the necessary internal resources and funding.

- 1 – Blueprint has partial internal resources and funding available to integrate and support/implement the recommendation. Blueprint will require major procurement of resources and a detailed review of additional funding opportunities.
- 0 – Blueprint lacks the capacity to integrate and support/implement; no internal resources or funding are available to implement the project.

### 1.4.2 Recommendation Priority

Identified recommendations were assigned a high, medium, or low priority for inclusion in this report based on a point distribution related to their effective connection to Blueprint, detailed in the list below. The level of effort required to implement the identified recommendations was not a significant consideration in this particular effort. The lowest possible score an identified statewide planning effort flood resiliency strategy could receive was a zero, with a 26 as the highest possible score.

- High: 18-26
- Medium: 9-17
- Low: 0-8

## 1.5 Resource Inventory

The resource inventory contains the sources of the existing statewide planning efforts with flood resiliency strategies that can be most effectively connected to Blueprint. Table 1 contains all planning efforts covered in the main body of this report. For a complete list of resources evaluated, see Table 2 in the Appendix.

Table 1: Primary Resource Inventory

Flood Resiliency Effort	Lead Agency	Date	Source
<b>NC Coastal Habitat Protection Plan 2021 Amendment</b>	NCDEQ	2021	<a href="https://deq.nc.gov/media/26810/open">https://deq.nc.gov/media/26810/open</a>
<b>Natural and Working Lands Action Plan</b>	NCDEQ	2020	<a href="https://www.deq.nc.gov/environmental-assistance-and-customer-service/climate-change/natural-working-lands/nwl-action-plan-final-copy/download">https://www.deq.nc.gov/environmental-assistance-and-customer-service/climate-change/natural-working-lands/nwl-action-plan-final-copy/download</a>
<b>NC Enhanced Hazard Mitigation Plan</b>	North Carolina Emergency Management	2023	<a href="https://www.ncdps.gov/20230125-2023-nc-shmp-final-publicpdf/open">https://www.ncdps.gov/20230125-2023-nc-shmp-final-publicpdf/open</a>
<b>NCDEQ Climate Strategy Report</b>	NCDEQ	2022	<a href="https://www.deq.nc.gov/climate/ncdeq-climate-strategy-report-fy22pdf/download?attachment">https://www.deq.nc.gov/climate/ncdeq-climate-strategy-report-fy22pdf/download?attachment</a>

<b>Action Plan for Nature-Based Stormwater Strategies</b>	North Carolina Coastal Federation	2021	<a href="https://www.nccoast.org/wp-content/uploads/2021/03/NBSS-Action-Plan.pdf">https://www.nccoast.org/wp-content/uploads/2021/03/NBSS-Action-Plan.pdf</a>
<b>Collaboratory Flood Resiliency Study</b>	NC Policy Collaboratory	2021	<a href="https://collaboratory.unc.edu/wp-content/uploads/sites/476/2021/06/flood-resiliency-report.pdf">https://collaboratory.unc.edu/wp-content/uploads/sites/476/2021/06/flood-resiliency-report.pdf</a>
<b>NCDHHS Climate Strategy Report</b>	NC Department of Health and Human Services	2022	<a href="https://www.deq.nc.gov/climate/ncdhhs-climate-strategy-report-fy22pdf/download?attachment">https://www.deq.nc.gov/climate/ncdhhs-climate-strategy-report-fy22pdf/download?attachment</a>
<b>NCDPS Climate Strategy Report</b>	NC Department of Public Safety	2022	<a href="https://www.deq.nc.gov/climate/ncdps-climate-strategy-report-fy22pdf/download?attachment">https://www.deq.nc.gov/climate/ncdps-climate-strategy-report-fy22pdf/download?attachment</a>
<b>NC Resilient Coastal Communities Program (RCCP)</b>	NCDEQ	2020	<a href="https://www.deq.nc.gov/about/divisions/coastal-management/coastal-adaptation-and-resiliency/nc-resilient-coastal-communities-program">https://www.deq.nc.gov/about/divisions/coastal-management/coastal-adaptation-and-resiliency/nc-resilient-coastal-communities-program</a>
<b>Regions Innovating for Strong Economies and Environment (RISE)</b>	NC Office of Recovery and Resiliency	2020	<a href="https://www.rebuild.nc.gov/resiliency/resilient-communities">https://www.rebuild.nc.gov/resiliency/resilient-communities</a>

## 2 Review

---

Establishing how to use the flood resiliency recommendations included in the many hundreds of pages of relevant documentation is critical to setting a basis for understanding. This process acknowledges the extensive efforts of diverse cross-sector stakeholders across North Carolina while identifying how this content effectively connects to Blueprint’s development. The recommendation areas included in this report refer to the recommendations/strategies identified in these statewide planning efforts. This document cites reports and their associated recommendations. The intent is not to alter a report’s recommendations but to leverage those recommendations for further development in informing Blueprint. They may use these documents and the identified connections to enhance and complement their participation in Blueprint’s development.

- The Principal Advisory Group
- Core Advisory Group
- Technical Advisory Groups
- Other stakeholders

North Carolina is fortunate because the state has many existing and ongoing planning efforts that correspond with flood resilience. These efforts have generated a wealth of valuable resources and experience that Blueprint can leverage so that limited time and resources are not spent duplicating efforts but instead focused on connecting to, learning from, and improving upon these efforts. Several strategies evaluated in the main body of this report can be connected to Blueprint by coordinating with administering organizations on the adaptation and integration of resources generated through their efforts. Potential resources Blueprint can connect with from the 12 strategies discussed in the main body of this report include:

- Data collection, standards, management, and dissemination infrastructure (NC Policy Collaboratory) Highly resolved financial risk datasets (NC Policy Collaboratory)
- Health risk flood survey assessments (NC Department of Health and Human Services)
- Housing-related flood resiliency and mitigation action guidance (NCORR)
- Resilient Communities Guidebook (NCORR)
- Regional Resilience Portfolios (NCORR)

This report further connects Blueprint to the strategies described in the subsequent sections through discussions around supporting the integration of climate adaptation and resilience strategies into local comprehensive plans, providing guidance on implementing a mixed funding approach to flood resiliency projects, encouraging/prioritizing the use of nature-based stormwater measures in Blueprint funded projects; and emphasizing equity through action by building flexibility, training, outreach, and technical assistance.

## 2.1 Policy

Three policy-related statewide flood resiliency strategy recommendations, identified in Subtask 1.1 and 1.7, with the most effective connection to Blueprint, are included in the following sections. These recommendations come from the NC Natural and Working Lands Action Plan, the NC Policy Collaboratory’s Flood Resilience Study, and the North Carolina Coastal Federation’s (NCCF) Action Plan for Nature-Based Stormwater Strategies. For the purposes of this document, “policy” refers to a broader strategic approach with overarching flood resilience principles, guidelines, and regulations proposed or enacted at the state government level. Each recommendation section contains the lead agency, publication, and/or start date, as well as the identified strategy and how that strategy connects to Blueprint.

### 2.1.1 NC Natural and Working Lands Action Plan

**Lead Agency:** NCDEQ

**Publication Date:** 2020

**Source:** <https://www.deq.nc.gov/environmental-assistance-and-customer-service/climate-change/natural-working-lands/nwl-action-plan-final-copy/download>

**Strategy:** Integrate climate adaptation and resiliency strategies into comprehensive plans for local governments. The North Carolina Legislature can amend NC General Statutes, Chapter 160D, to require all North Carolina counties and municipalities to incorporate climate adaptation and resilience strategies into their comprehensive plan. Periodic updates of the plans every ten years can also be required. Local governments can use their amended or newly adopted comprehensive plans as a basis for adopting new zoning codes that address climate change and identify strategies for adaptation and resilience. Local governments can be encouraged to use existing Natural and Working Lands programs, resources, and actions identified in this report to improve new and existing plans, taking into consideration options that will enhance resilience, public health, and quality of life, such as creating parks, trails, or greenways in floodplains.

**Connection to Blueprint:** The NC Natural and Working Lands Action Plan’s recommended flood resiliency strategy requiring counties and municipalities to incorporate climate adaptation and resilience strategies into their comprehensive plans can be effectively connected to Blueprint as a component of the community & river basin action strategy development process. While Blueprint does not have the authority to mandate the inclusion of flood resiliency in comprehensive plans, the Flood Resiliency Blueprint Tool can include the strategy as a recommended option during the development and prioritization of community & river basin action strategies. Blueprint can include descriptions, templates, case studies, and other relevant resources for integrating flood resiliency into comprehensive plans at varying geographic scales and community capabilities.

### 2.1.2 Collaboratory Flood Resilience Study

**Lead Agency:** NC Policy Collaboratory

**Publication Date:** 2021

**Source:** <https://collaboratory.unc.edu/wp-content/uploads/sites/476/2021/06/flood-resiliency-report.pdf>

**Strategy:** The State should explore a variety of funding mechanisms that could smooth and speed buyout processes, including municipal/green bonds, revolving loan funds, local option sales taxes, and stormwater utility fees. Particular attention should be paid to the inclusive and equitable use of these funding mechanisms at the state and local scale.

**Connection to Blueprint:** This recommendation, proposed by the NC Policy Collaboratory, effectively connects to Blueprint by promoting a mixed funding approach for implementing flood resiliency strategies that emphasize an intentional, inclusive, and equitable administration. The funding navigator component of Blueprint similarly emphasizes a mixed funding approach by assisting communities with identifying primary and matching funding sources. The NC Policy Collaboratory’s recommended strategy can also be connected to Blueprint’s Flood Resiliency Basin Action Strategy development process, where descriptions, templates, case studies, and other relevant resources for funding mechanisms at varying scales and capacities of local, county, and regional governments could be included as potential/recommended strategies. Blueprint can assist participating communities in exploring, evaluating, and implementing a mixed funding approach as a component of their 5-year River Basin Flood Resiliency Blueprint.

### 2.1.3 Action Plan for Nature-Based Stormwater Strategies

**Lead Agency:** NCCF

**Publication Date:** 2021

**Source:** <https://www.nccoast.org/wp-content/uploads/2021/03/NBSS-Action-Plan.pdf>

**Strategy:** Encourage the use of nature-based stormwater strategies by evaluating potential state policy changes like those in the Federal Energy Independence and Security Act Section 438. This federal law requires large construction projects financed by the federal government to “maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property regarding the temperature, rate, volume, and flow duration.

**Connection to Blueprint:** The recommended strategy from NCCF’s Action Plan for Nature-Based Stormwater Strategies can be effectively connected to Blueprint by informing potential policies related to implementing flood resiliency projects developed in the community and river basin action strategies. In January of 2024, the NC Department Administration (NCDORA) released a new policy for

the “Uniform Floodplain Management Policy for State Property.”<sup>1</sup> The new policy updates design and construction requirements for new state government and university buildings in flood-prone areas. Notably, significant provisions included:

- Preventing, with narrow exceptions, state-owned construction in what is known as the “100-year” and “500-year” floodplains.
- Increasing elevation requirements for construction in coastal areas to account for increasing storm severity, frequency, and anticipated sea-level rise.
- Stipulating that all future state construction projects must consider incorporating nature-based infrastructure into the design to mitigate or minimize any adverse effects.

The state could set requirements like the proposed NCCF strategy to encourage communities to implement state-funded projects using nature-based stormwater measures that maintain or restore predevelopment hydrology. Subtask 2.8 – *Natural Infrastructure Data Assessment* provides a detailed summary of nature-based strategies, including the potential benefits of encouraging the use of nature-based stormwater measures.

## 2.2 Data Acquisition and Management

Three statewide flood resiliency data acquisition and management recommendations, identified in Subtask 1.1 and 1.7, with the most effective connection to Blueprint, are included in the following sections. These recommendations come from the NC Policy Collaboratory’s Flood Resilience Study and the NCDHHS Climate Strategy Report. For this report, “data acquisition and management” refers to collecting, analyzing, and organizing data related to flood risks, vulnerability, and mitigation strategies. Each recommendation section contains the lead agency, publication, and/or start date, as well as the identified strategy and how that strategy connects to Blueprint.

### 2.2.1 Collaboratory Flood Resilience Study

**Lead Agency:** NC Policy Collaboratory

**Publication Date:** 2021

**Source:** <https://collaboratory.unc.edu/wp-content/uploads/sites/476/2021/06/flood-resiliency-report.pdf>

**Strategy:** The State should prioritize and fund the establishment of FAIR data standards – ensuring data is Findable, Accessible, Inter-operable, and Reusable – for all buyout- and hazard mitigation-related data, creating policies and data use agreements to standardize and curate metadata, streamline researcher and community group access, and enhance accessibility to the public. As part of this, buyouts- and hazard-related data should be stored in a publicly accessible data repository

<sup>1</sup> <https://www.doa.nc.gov/sco-uniform-floodplain-management-policy-state-property-2024125/open>



(e.g., University of North Carolina (UNC) Dataverse) that facilitates good user experiences and easy and effective data dissemination. Ultimately, these actions will save staff time and dramatically lower costs in response to data requests.

**Connection to Blueprint:** The recommended strategy from the NC Policy Collaboratory’s Flood Resilience Study of establishing FAIR data standards provides users with data that can be connected to Blueprint in several ways. Data governance is a critical component of Blueprint that will ensure accessibility, usability, relevance, accuracy, timeliness, and integration of data to support decision-making with a reliable data pipeline (see Subtasks 2.12 and 3.11 for more details on the design of Blueprint’s data governance model). Blueprint will require extensive and diverse data inputs from various sources to effectively identify and illustrate the state's flood risk and resiliency potential. Developing and integrating FAIR data standards can help build trust between Blueprint and Blueprint users and ensure that data is usable and of a quality that enables sound decision-making.

## 2.2.2 Collaboratory Flood Resilience Study

**Lead Agency:** NC Policy Collaboratory

**Publication Date:** 2020

**Source:** <https://collaboratory.unc.edu/wp-content/uploads/sites/476/2021/06/flood-resiliency-report.pdf>

**Strategy:** The State should improve its hazard mitigation data collection, management, and dissemination infrastructure. This will 1) facilitate evaluations of mitigation outcomes, 2) improve targeting of public investments to areas of greatest need, and 3) increase transparency and reduce demands on staff time. Researchers at UNC can help the State create database tools to accomplish this.

**Connection to Blueprint:** Several Blueprint subtasks relate to the NC Policy Collaboratory’s recommended strategy for improving the State’s flood risk data collection, management, and dissemination infrastructure, including...

- **Subtask 2.2** – *Resource Documentation for Risk Data*
- **Subtask 2.5** – *Future Flood Hazard Data Identification*
- **Subtask 2.8** – *Natural Infrastructure Data Assessment*
- **Subtask 2.11** – *Identification of Existing Flood Mitigation Decision Tools*
- **Subtask 3.3** – *Other Flood Resiliency Effort Integration Recommendations*
- **Subtask 3.9** – *Standardizing Statewide Dataset and Model Implementation Recommendations*
- **Subtask 3.10** – *Immediate Statewide Effort Recommendations*
- **Subtask 3.14** – *Blueprint Maintenance Recommendation*

The primary objective of Subtasks 2.2, 2.5, 2.8, and 2.11 is to identify and evaluate existing datasets covering a wide range of topics related to flood resiliency in North Carolina. By identifying what datasets are available, these subtasks further identify where there are gaps in available data that

future efforts by Blueprint, academic institutions, non-profits, and other relevant government and non-governmental organizations can consider addressing. Subtasks 3.3, 3.09, 3.10, and 3.14 build on the previously discussed subtasks by recommending how Blueprint should standardize, prioritize, integrate, and maintain flood mitigation and resiliency data. These subtasks can be found on the NC Flood Resiliency Blueprint website.

### 2.2.3 NCDHHS Climate Strategy Report

**Lead Agency:** NCDHHS

**Publication Date:** 2022

**Source:** <https://www.deq.nc.gov/climate/ncdhhs-climate-strategy-report-fy22pdf/download?attachment>

**Strategy:** Complete a flood assessment survey and develop adaptation strategies to promote environmental justice and equity by including input from community leaders who can advocate for the needs of their community and mitigate the risk of isolation during flooding after a hurricane.

**Connection to Blueprint:** NCDHHS completed a flood-survey assessment (qualitative interviews) of key community members in Sampson County to learn about the effects of geographical and social isolation related to hurricanes and extreme flooding events and the community's readiness for addressing those effects. NCDHHS plans to use the survey and ongoing analysis of the results to help facilitate adaptation efforts in participating communities. These efforts connect to Blueprint by providing a framework for identifying flood-related health risks and fully involving relevant stakeholders as sources of information and decision-makers. Blueprint can coordinate with NCDHHS in the future to expand their flood survey assessment to other communities during the initial basin & community initiation and discovery phase(s) that inform the development of community and basin action strategies.

## 2.3 Planning

Three planning-related statewide flood resiliency strategy recommendations, identified in Subtask 1.1 and 1.7, with the most effective connection to Blueprint, are included in the following sections. These recommendations come from North Carolina Emergency Management's Enhanced Hazard Mitigation Plan, NC Policy Collaboratory's Flood Resilience Study, and NCORR's CDBG-MIT Action Plan. For this document, "planning" refers to existing and proposed detailed and specific actions, initiatives, and projects in alignment with existing policy. Each recommendation section contains the lead agency, publication, and/or implementation date, as well as the identified strategy and how that strategy connects to Blueprint.

### 2.3.1 NC Enhanced Hazard Mitigation Plan

**Lead Agency:** North Carolina Emergency Management (NCEM)

**Publication Date:** 2023

**Source:** <https://www.ncdps.gov/20230125-2023-nc-shmp-final-publicpdf/open>

**Source:** [https://www.fema.gov/sites/default/files/documents/fema\\_2022-2026-strategic-plan.pdf](https://www.fema.gov/sites/default/files/documents/fema_2022-2026-strategic-plan.pdf)

**Strategy:** Improve coordination/education/outreach to identify and better assist underserved communities as identified in the Federal Emergency Management Agency (FEMA) Strategic Plan 2022-26.

**Connection to Blueprint:** This strategy from the NC Enhanced Hazard Mitigation Plan (2023), administered by NCEM, references an objective from FEMA’s Strategic Plan 2022-26 to remove barriers to FEMA Programs through a people-first approach. This approach emphasizes equity in action by prioritizing and harnessing a diverse workforce and removing barriers to programs through a people-first approach that ultimately works to achieve equitable outcomes.

FEMA’s proposed strategy, carried forward by NCEM in North Carolina, connects to Blueprint by ensuring that underserved communities can access and leverage flood resiliency resources in ways that meet their needs. Some communities Blueprint will inevitably serve will lack local staff and/or strategic partners who have the capabilities to access and navigate Blueprint’s resources. Building flexibility, training/outreach, and technical assistance into Blueprint’s program and resources, which will serve a large and socially, politically, and economically diverse population, will be the foundation for administering flood resiliency strategies.

### 2.3.2 Collaboratory Flood Resilience Study

**Lead Agency:** NC Policy Collaboratory

**Publication Date:** 2021

**Source:** <https://collaboratory.unc.edu/wp-content/uploads/sites/476/2021/06/flood-resiliency-report.pdf>

**Strategy:** The state should initiate renewed efforts to develop pre-disaster mitigation plans via a “portfolio” approach that includes multiple strategies, including infrastructure (e.g., flood control, property elevation), buyouts of at-risk properties, zoning policy, and financial instruments (e.g., flood insurance, disaster-based reinsurance). This planning process will benefit significantly from more highly resolved estimates of flood-related financial risk, including who bears the risk and where they are located.

**Connection to Blueprint:** The recommended strategy, conveyed in the NC Policy Collaboratory’s Flood Resilience Study, to develop pre-disaster mitigation plans that include portfolios of mitigation strategies informed by more highly resolved flood-related financial risk estimates can be connected to several Blueprint objectives. A primary objective of Blueprint is to build the Flood Resiliency Blueprint Tool. This online decision-support tool will provide decision-makers with multi-scale flood modeling, scenario exploration systems, guidance documents, and iterative and interactive online planning

tools to increase their ability to prioritize and implement flood resiliency actions, regardless of their technical background. Blueprint will use a multi-faceted approach to accurately picture flood-related risk, with financial risk as one significant facet. Blueprint can help communities identify and evaluate flood-related financial risk and develop potential actions to mitigate those risks by incorporating existing and ongoing datasets, models, and other related efforts outlined in the literature reviews and data collection inventories developed in Subtasks 1.1, 1.7, 2.1, 2.2 and 2.3. Like the Collaboratory's study, the Blueprint Tool could incorporate highly resolved financial risk datasets to illustrate how flood-related risk is distributed across different groups (e.g., the federal government, property owners, lenders, and local governments). Datasets that could be evaluated for inclusion in Blueprint Tool include parcel-level information on flood insurance policies/claims, property values, outstanding mortgage balances, etc.

### 2.3.3 CDBG-MIT Action Plan

**Lead Agency:** NCDPS-NCORR

**Publication Date:** 2022

**Source:** <https://www.rebuild.nc.gov/about/plans-policies-reports/action-plans>

**Strategy:** NCORR has leveraged the experience of the UNC Development Finance Initiative to build a strategy for developing and preserving rental housing in the 23 counties most impacted and distressed by Hurricanes Matthew and Florence. The planning study identified affordable and resilient housing types, including multi-family dwellings, single-family homes, and other housing types most needed by those counties. Further, the study evaluates the availability of suitable properties, the development community's capacity, and the financial feasibility of the housing types needed. The plan aims to inform the allocation of recovery funds through NCORR's affordable housing development fund to create new affordable housing that is safer, more resilient, and better matched with the needs of each impacted area. The bulk of the analysis, completed in June 2022, includes final strategic recommendations and tools. NCORR will use the planning data to produce county-specific analysis and reporting for each of the 23 counties.

**Connection to Blueprint:** NCORR's affordable housing strategy can be effectively connected to Blueprint by providing data and analyses on types of affordable and resilient housing, suitable properties for development, community capacity, and financial feasibility. The information developed in the affordable housing strategy can inform and connect with several aspects of Blueprint, including...

- Potential housing-related flood resiliency and mitigation action recommendations/guidance (e.g., acquisition/ elevation/ relocation of flood-prone structures, dry- and wet-proofing, etc.).
- Recommendation development based on community capacity and financial limitations.

## 2.4 Projects

The following sections include three statewide flood resiliency project recommendations identified in Subtask 1.1 and 1.7, with the most effective connection to Blueprint. These recommendations come from three efforts under NCORR’s RISE program. For this report, “projects” refers to tangible, on-the-ground initiatives and activities directly resulting in planning processes. Each recommendation section contains the lead agency, publication, and/or start date, as well as the identified strategy and how that strategy connects to Blueprint.

### 2.4.1 RISE: Resilient Communities Guidebook

**Lead Agency:** NCDPS-NCORR

**Publication Date:** 2022

**Source:** <https://www.rebuild.nc.gov/resiliency/resilient-communities/rise/guidebook>

**Strategy:** Develop a climate resilience planning guide for local leaders. NCORR is working with a consultant to develop a resilient community planning guide for NC’s local governments. The guide will empower local and regional leaders to understand their climate vulnerabilities and develop shared priorities for action. The guide will have two components: A playbook and an idea book. The playbook will guide users through building a team, analyzing vulnerabilities and assets, brainstorming, prioritizing actions, and identifying implementation steps. The idea book will provide examples of projects, programs, and policies that improve resilience across social, economic, and environmental domains. The planning guide is supported by funding from the Economic Development Administration. It is being developed as a component of RISE in conjunction with the Resilient Communities Program (RCP) and runs in partnership with NCDEQ. Both guide components are expected to be released in the Fall of 2024.

**Connection to Blueprint:** NCORR’s climate resilience planning guide can be linked to Blueprint through two key components, including the playbook and idea book.

- The playbook, which helps decision-makers navigate the steps of resilience planning, connects to Blueprint by providing a framework NCDEQ can use to inform the development of training and educational material for participating stakeholders on Blueprint’s planning processes and the development of action strategies.
- The idea book provides examples of projects, programs, and policies that improve resilience across social, economic, and environmental domains and can be connected to Blueprint as a foundation of potential flood resiliency and mitigation strategies.

### 2.4.2 RISE: Digital Resilience Clearinghouse

**Lead Agency:** NCDPS-NCORR

**Publication Date:** 2022

**Source:** <https://www.deq.nc.gov/climate/ncdps-climate-strategy-report-fy22pdf/download?attachment>

**Strategy:** Develop an online resilience resource center for local governments and community leaders—The expected completion date is December 2023. NCORR, in partnership with the NCDEQ and several NC environmental nonprofits and universities, has hired a consultant to begin the initial stages of developing an online climate resilience clearinghouse for local governments and community leaders. The tool is called for in the 2020 North Carolina Climate Risk Assessment and Resilience Plan (2020 Plan) and the NC Natural and Working Lands Action Plan. The resource will “point users to relevant climate data and best practices for building resilience in an equitable way” (p. 7-15, 2020 Plan). The project is supported by funding from the US Climate Alliance.

**Connection to Blueprint:** NCORR’s online resilience clearinghouse is connected to Blueprint as it is a similar online resource/tool that provides decision-makers and community leaders the resources to build resilience in North Carolina equitably. While the resilience clearinghouse includes various natural hazard-related materials besides flood-related resilience, the Blueprint and the resilience clearinghouse can coordinate their efforts and integrate each other’s work to provide helpful flood resiliency resources to NC communities.

### 2.4.3 RISE: Regional Resilience Portfolio Program

**Lead Agency:** NCDPS-NCORR

**Publication Date:** 2022

**Source:** <https://www.rebuild.nc.gov/resiliency/resilient-communities/rise/portfolio>

**Strategy:** Since the program’s launch in the fall of 2021, NCORR, in partnership with NC Rural Center, has worked with consultants and local stakeholders to develop a vulnerability assessment and a portfolio of five to ten regional resilience actions in each of the nine multi-county regions. NCORR worked with project partners to develop implementation pathways for each resilience action, including a project lead, potential funding opportunities, implementation steps, and more. NCORR worked with each region to submit one action to the Duke Energy Foundation for full or partial funding. The Duke Energy Foundation committed \$600,000 total to aid the implementation of the RISE Regional Resilience Portfolios. The Regional Resilience Portfolios are a part of the RISE program, which aims to address the need for local capacity building around long-term disaster recovery and resilience planning and implementation. RISE is part of RCP and is run in partnership with NCDEQ. Funding from the Economic Development Administration and the US Department of Housing and Urban Development supports this project.

**Connection to Blueprint:** NCORR’s RISE Program has supported nine regional partnerships in developing vulnerability assessments and portfolios of priority resilience projects. Similar to NCORR’s Resilient Coastal Communities Program (RCCP), the RISE Program’s regional resilience portfolios can be connected to Blueprint by providing comprehensive vulnerability assessments and portfolios of

mitigation actions developed and prioritized by community stakeholders for 50 counties in Eastern North Carolina.

### 3 Appendix

The following appendix includes every flood resiliency strategy from existing statewide planning efforts identified in **Subtask 1.1** and **1.7**. Table 3 provides details on identified strategies, sorted by their effective connection to Blueprint score in descending order. The table provides several key details for identified strategies, including the relevant planning effort, identified strategy, lead agency, published and/or implementation state, strategy type, whether the action has been completed or not, the strategy's applicability to the Neuse River Basin, and a score, rating, and description for how the strategy can be effectively connected to Blueprint. Table 2 is a resource inventory that includes the sources of every existing statewide planning effort, including flood resiliency strategies, which were evaluated for their connection to Blueprint.

Table 2: Secondary Resource Inventory

Planning Effort	Lead Agency	Date	Source
<b>Resilient Coastal Communities Program</b>	NCORR	2020	<a href="https://www.deq.nc.gov/about/divisions/coastal-management/coastal-adaptation-and-resiliency/nc-resilient-coastal-communities-program">https://www.deq.nc.gov/about/divisions/coastal-management/coastal-adaptation-and-resiliency/nc-resilient-coastal-communities-program</a>
<b>Regions Innovating for Strong Economies and Environment</b>	NCORR	2020	<a href="https://www.rebuild.nc.gov/resiliency/resilient-communities">https://www.rebuild.nc.gov/resiliency/resilient-communities</a>
<b>NC Coastal Habitat Protection Plan 2021 Amendment</b>	NCDEQ	2021	<a href="https://deq.nc.gov/media/26810/open">https://deq.nc.gov/media/26810/open</a>
<b>NC Natural and Working Lands Action Plan</b>	NCDEQ	2020	<a href="https://www.deq.nc.gov/environmental-assistance-and-customer-service/climate-change/natural-working-lands/nwl-action-plan-final-copy/download">https://www.deq.nc.gov/environmental-assistance-and-customer-service/climate-change/natural-working-lands/nwl-action-plan-final-copy/download</a>
<b>Action Plan for Nature-Based Stormwater Strategies</b>	NCCF	2021	<a href="https://www.nccoast.org/wp-content/uploads/2021/03/NBSS-Action-Plan.pdf">https://www.nccoast.org/wp-content/uploads/2021/03/NBSS-Action-Plan.pdf</a>



Planning Effort	Lead Agency	Date	Source
<b>Collaboratory Flood Resiliency Study</b>	NC Policy Collaboratory	2021	<a href="https://collaboratory.unc.edu/wp-content/uploads/sites/476/2021/06/flood-resiliency-report.pdf">https://collaboratory.unc.edu/wp-content/uploads/sites/476/2021/06/flood-resiliency-report.pdf</a>
<b>NC Department of Transportation (NCDOT) Resiliency Strategy Report</b>	NCDOT	2022	<a href="https://www.ncdot.gov/initiatives-policies/Transportation/transportation-resilience/Documents/ncdot-resilience-report.pdf">https://www.ncdot.gov/initiatives-policies/Transportation/transportation-resilience/Documents/ncdot-resilience-report.pdf</a>
<b>NC Department of Health and Human Services Climate Strategy Report</b>	NCDHHS	2022	<a href="https://www.deq.nc.gov/climate/ncdhhs-climate-strategy-report-fy22pdf/download?attachment">https://www.deq.nc.gov/climate/ncdhhs-climate-strategy-report-fy22pdf/download?attachment</a>
<b>NC Department of Environmental Quality Climate Strategy Report</b>	NCDEQ	2022	<a href="https://www.deq.nc.gov/climate/ncdeq-climate-strategy-report-fy22pdf/download?attachment">https://www.deq.nc.gov/climate/ncdeq-climate-strategy-report-fy22pdf/download?attachment</a>
<b>NC Department of Safety Climate Strategy Report</b>	NCDPS	2022	<a href="https://www.deq.nc.gov/climate/ncdps-climate-strategy-report-fy22pdf/download?attachment">https://www.deq.nc.gov/climate/ncdps-climate-strategy-report-fy22pdf/download?attachment</a>
<b>Flood Risk Reduction Grant Program</b>	NC Land and Water Fund (NCLWF)	2022	<a href="https://nclwf.nc.gov/flood-risk-reduction-program-funding-manual/open">https://nclwf.nc.gov/flood-risk-reduction-program-funding-manual/open</a>
<b>NC Climate Risk Assessment and Resilience Plan</b>	All State Agencies	2020	<a href="https://files.nc.gov/ncdeq/climate-change/resilience-plan/2020-Climate-Risk-Assessment-and-Resilience-Plan.pdf">https://files.nc.gov/ncdeq/climate-change/resilience-plan/2020-Climate-Risk-Assessment-and-Resilience-Plan.pdf</a>
<b>NC Enhanced Hazard Mitigation Plan</b>	NCDPS	2023	<a href="https://www.ncdps.gov/20230125-2023-nc-shmp-final-publicpdf/open">https://www.ncdps.gov/20230125-2023-nc-shmp-final-publicpdf/open</a>
<b>NC Department of Agriculture and Consumer Services (NCDA&amp;CS) Climate Strategy Report</b>	NCDA&CS	2022	<a href="https://www.deq.nc.gov/climate/ncdacs-climate-strategy-report-fy22pdf/download?attachment">https://www.deq.nc.gov/climate/ncdacs-climate-strategy-report-fy22pdf/download?attachment</a>

Planning Effort	Lead Agency	Date	Source
<b>NC Department of Information Technology (NCDIT) Climate Strategy Report</b>	NCDIT	2022	<a href="https://www.deq.nc.gov/climate/ncdit-climate-strategy-report-fy22pdf/download?attachment">https://www.deq.nc.gov/climate/ncdit-climate-strategy-report-fy22pdf/download?attachment</a>
<b>NC Department of Military and Veteran Affairs (NCDMVA) Climate Strategy Report</b>	NCDMVA	2022	<a href="https://www.deq.nc.gov/climate/ncdmva-climate-strategy-report-fy22pdf/download?attachment">https://www.deq.nc.gov/climate/ncdmva-climate-strategy-report-fy22pdf/download?attachment</a>
<b>NC Department of Natural and Cultural Resources (NCDNCR) Climate Strategy Report</b>	NCDNCR	2022	<a href="https://www.deq.nc.gov/climate/ncdncr-climate-strategy-report-fy22pdf/download?attachment">https://www.deq.nc.gov/climate/ncdncr-climate-strategy-report-fy22pdf/download?attachment</a>
<b>NC Department of Administration (NCDOA) Climate Strategy Report</b>	NCDOA	2022	<a href="https://www.deq.nc.gov/climate/ncdoa-climate-strategy-report-fy22/download?attachment">https://www.deq.nc.gov/climate/ncdoa-climate-strategy-report-fy22/download?attachment</a>
<b>RISE Program</b>	NCORR	2022	<a href="https://www.rebuild.nc.gov/resiliency/resilient-communities/rise">https://www.rebuild.nc.gov/resiliency/resilient-communities/rise</a>

Table 3: Statewide Planning Efforts Corresponding to Flood Resiliency Strategies and How They Are Connected to Blueprint.

*\*Denotes recommendations that are discussed in the main body of the text*

Planning Effort	Strategies	Lead Agency	Date	Resource Type	Completed (Y/N)	News (Y/N)	Score (0-26)	Connection to Blueprint	Description
<b>Action Plan for Nature-Based Stormwater Strategies</b>	Continue and expand watershed-level initiatives to identify and maximize strategic opportunities that provide water quality and flood reduction benefits to local and downstream communities. Seek to incorporate watershed initiatives with other ongoing landscape-level programs that have different but compatible benefits, including 1) Coordinate with a new landscape initiative work group comprised of private and public stakeholders with funding from U.S. Fish and Wildlife Service to identify locations in coastal NC where private and public funds can be focused on large-scale hydrologic restoration projects. 2) Work with military stakeholders to identify target properties that are essential for military training where	NCCF	2021	Project	N	N	17	Medium	This strategy is consistent with the goals and objectives of Blueprint.

hydrologic restoration projects are also feasible. The operations of DoD collectively constitute NC's second-largest industry. Preserving working lands is critical to the military's ability to function, and the Sentinel Landscapes Partnership is an important vehicle to facilitate the preservation of working lands. It should become an active partner in implementing this work group's strategy. 3) Implement the Lake Mattamuskeet Watershed Management Plan by working with private landowners, the U.S. Fish and Wildlife Service, NC Wildlife Resources Commission, Hyde County, and the NC Coastal Federation. iv Identify existing and emerging regional conservation partnership opportunities outside the coastal counties that provide opportunities for hydrologic restoration and management.

Action Plan for Nature-Based Stormwater Strategies	Adopt policies within all state-administered financial assistance grant and loan programs used to acquire and retrofit public lands and	NCCF	2021	Project	N	N	16	Medium	This strategy is consistent with the goals and
--	---	------	------	---------	---	---	----	--------	--

	infrastructure that promote the use of nature-based stormwater strategies.									objectives of Blueprint.
Action Plan for Nature-Based Stormwater Strategies	Create a Nature-Based Stormwater Steering Committee to ensure continued stakeholder engagement and leadership in support of long-term, meaningful progress.	NCCF	2021	Project	N	N	16	Medium	This strategy is consistent with the goals and objectives of Blueprint.	
Action Plan for Nature-Based Stormwater Strategies	Create a state-sponsored awards program administered by NCDEQ and/or NCORR that recognizes notable low-impact development projects and communities leading in applying nature-based stormwater strategies each year. These awards may highlight creative approaches to coordinating, funding, and designing nature-based stormwater strategies and could highlight the successes of NCORR’s RCP and other state technical assistance offerings.	NCCF	2021	Project	N	N	16	Medium	This strategy is consistent with the goals and objectives of Blueprint.	
Action Plan for Nature-Based Stormwater Strategies	Direct more federal funds, including disaster mitigation program funding, to support consistent staffing capacity at the state, regional, and local levels to help	NCCF	2021	Project	N	N	16	Medium	This strategy is consistent with the goals and objectives of	

	identify, plan, design, fund, and construct projects that protect, restore, or replicate natural hydrology. Partner with the Natural Resources Conservation Service to increase the staffing capacity of federal, state, local, and nonprofit organizations to plan and execute nature-based stormwater strategies on working lands.									Blueprint by advocating cost share for mitigation projects.
Action Plan for Nature-Based Stormwater Strategies	Mount a coordinated campaign that works with state leaders, the NC Congressional delegation, and engaged stakeholders to pursue substantially increased financial resources from the federal Farm Bill and other programs for conservation. Financial parity with other states could finance wetland restoration, conservation easements, and large-scale hydrologic restoration projects in North Carolina.	NCCF	2021	Project	N	N	16	Medium	This strategy is consistent with the goals and objectives of Blueprint.	
Action Plan for Nature-Based Stormwater Strategies	Facilitate local government review of development codes and ordinances for potential inclusion of nature-based solutions. State	NCCF	2021	Project	N	N	15	Medium	This strategy is consistent with the goals and	

	agencies, nonprofits, and academic partners should work together to assist local officials in an organized and consistent approach, including community outreach and technical assistance, to highlight nature-based strategies as a priority resilience measure.									objectives of Blueprint.
Action Plan for Nature-Based Stormwater Strategies	Include more information and technical guidance on nature-based stormwater strategies that are appropriate for the transportation system in the NCDOT best management practices toolbox and share that information with municipal transportation agencies.	NCCF	2021	Project	N	N	15	Medium		This strategy is consistent with the goals and objectives of Blueprint.
Action Plan for Nature-Based Stormwater Strategies	Provide accurate information on maintenance cost for nature-based stormwater strategies. The steering committee will work with state officials and stakeholders to amend the stormwater design manual to include this data so that users are able to budget for life-cycle costs of these measures and learn about the savings regular maintenance can provide over time.	NCCF	2021	Project	N	N	15	Medium		This strategy is consistent with the goals and objectives of Blueprint.

Action Plan for Nature-Based Stormwater Strategies	<p>1) Train industry and trade professionals, government staff, and decision-makers so that they understand the benefits and limitations of nature-based stormwater strategies. Elements of this training need to include continuing education credits for training courses that review permitting procedures; design criteria for individual measures and practices; operation and maintenance requirements, including lifecycle costs compared to conventional treatment systems; benefits of nature-based systems; and legal instruments used to ensure permit compliance with permittees. 2) Workforce training: Promote skills training on construction and maintenance of low-impact development to employees of landscape and maintenance firms. 3) Peer-to-peer forums and trade shows: Create and facilitate regular opportunities for practitioners, including the private business sector as well as public entities, to share experiences,</p>	NCCF	2021	Project	N	N	15	Medium	This strategy is consistent with the goals and objectives of Blueprint.
--	--	------	------	---------	---	---	----	--------	---



	collaborate, and inspire each other to expand the use of nature-based stormwater strategies. This initiative includes a biannual trade show with conference and training workshops, a list-serve that convenes the community of practice online, and periodic luncheons, gatherings, and webinars that provide formal and informal opportunities to discuss experiences and ideas.									
Action Plan for Nature-Based Stormwater Strategies	Advance state and local policies promoting nature-based stormwater strategies. The steering committee and its various stakeholders will engage with key state and local leadership to promote recommendations in this plan and seek the adoption of formal policies that enable the government to lead by example.	NCCF	2021	Project	N	N	14	Medium	This strategy is consistent with the goals and objectives of Blueprint by promoting flood resiliency policies.	
Action Plan for Nature-Based Stormwater Strategies	Economic study on costs and benefits of nature-based stormwater strategies. The N.C. General Assembly will be encouraged to request a study to	NCCF	2021	Project	N	N	14	Medium	This strategy is consistent with the goals and	

	prepare an economic analysis that details the cost savings associated with using nature-based stormwater strategies to mitigate flooding. This research may be conducted by a private consultant in partnership with North Carolina experts such as those at (universities, stakeholders, and other interests).								objectives of Blueprint.
Action Plan for Nature-Based Stormwater Strategies	Educate the public about nature-based stormwater strategies by incorporating these practices into facilities that are frequently visited by the public, such as government office buildings, parks, boat ramps, schools, and beach access areas. Include educational signage and exhibits in these retrofit projects to spread public awareness and use of these strategies.	NCCF	2021	Project	N	N	14	Medium	This strategy is consistent with the goals and objectives of Blueprint.
Action Plan for Nature-Based Stormwater Strategies	Establish a consistent mechanism for continuing education and outreach. A work group will be organized to coordinate future planning for education and outreach. The group will seek the necessary financial resources	NCCF	2021	Project	N	N	14	Medium	This strategy is consistent with the goals and objectives of Blueprint by fostering

	support regularly scheduled, targeted programming and provide the necessary training and awareness building to advance action plan priorities.								partnerships and knowledge sharing related to flood resilience
Action Plan for Nature-Based Stormwater Strategies	Promote the use of forest and agricultural products grown in North Carolina to maintain and expand these markets so that landowners have strong economic returns from their working lands. Develop a partnership between trade organizations, conservation interests and academic institutions to help with this outreach effort. Work with the Leadership in Energy and Environmental Design (LEED) standard to enable forest products from smaller forest landowners to be used in LEED certified buildings, further promoting the use of these products.	NCCF	2021	Project	N	N	14	Medium	This strategy is consistent with the goals and objectives of Blueprint.

Action Plan for Nature-Based Stormwater Strategies *	The N.C. General Assembly requests a study to determine the degree to which promoting nature-based solutions saves the state money in addressing flooding and water quality concerns, and an economic impact analysis of jobs created, improved property values and other benefits because of applying nature-based solutions. Evaluate how these cost savings and economic benefits, if found, can be used to provide, and inform financial incentives such as tax breaks, design/planning assistance, to promote the use of nature-based stormwater strategies. This study should include state-funded institutions of higher learning.	NCCF	2021	Project	N	N	14	Medium	This strategy is consistent with the goals and objectives of Blueprint.
Action Plan for Nature-Based Stormwater Strategies	The steering committee will organize local stakeholders to approach local governments to seek adoption of model incentives, policies and/ or ordinances. State agency technical specialists will support communities in developing and implementing these changes.	NCCF	2021	Project	N	N	14	Medium	This strategy is consistent with the goals and objectives of Blueprint.

Action Plan for Nature-Based Stormwater Strategies	Congressional education on working land opportunities: Form a work group of stakeholders to develop components of a coordinated campaign that works with state leaders, the U.S. Congressional delegation and engaged stakeholders to substantially increase the number of financial resources for conservation coming from the federal Farm Bill and other federal programs.	NCCF	2021	Project	N	N	13	Medium	This strategy is consistent with the goals and objectives of Blueprint.
Action Plan for Nature-Based Stormwater Strategies	Form the Action Plan Steering Committee. This leadership group of dedicated individuals from various stakeholder interests should spearhead implementation of recommendations in the plan. The group will meet periodically to set priorities and oversee accomplishments.	NCCF	2021	Project	N	N	13	Medium	This strategy is consistent with the goals and objectives of Blueprint by fostering partnerships and knowledge sharing related to flood resilience

Action Plan for Nature-Based Stormwater Strategies	Secure additional funding to support technical specialist(s) in NCDEQ, associated with NCORR’s RCP or within other agencies and organizations, including universities and non-governmental organizations, and through private-public partnerships who can meet with project designers and developers in early stages of the design phase to evaluate, advise and provide technical assistance on site suitability for nature-based stormwater strategies. Specialists should also assist local permitting authorities.	NCCF	2021	Project	N	N	13	Medium	This strategy is consistent with the goals and objectives of Blueprint.
Action Plan for Nature-Based Stormwater Strategies	Add a new chapter to the NCDEQ Stormwater Design Manual to provide guidance on the appropriate uses of nature-based strategies to address compliance issues with its existing permits. This promotes practices that mimic “hydrologic matching” as already defined in the manual. This guidance should be written with the intention to simplify the review process.	NCCF	2021	Project	N	N	12	Medium	This strategy is consistent with the goals and objectives of Blueprint.

Action Plan for Nature-Based Stormwater Strategies	Develop model policies, incentives, and ordinances that local governments can adopt that promote the use of nature-based stormwater strategies for local government construction projects.	NCCF	2021	Project	N	N	12	Medium	This strategy is consistent with the goals and objectives of Blueprint.
Action Plan for Nature-Based Stormwater Strategies	Obtain commitments to move forward with comprehensive watershed management framework. State leaders will devise and fund a multi-year planning framework that encourages watershed management to reduce flooding and enhance water quality concurrently. This will be supported and informed by relevant stakeholders drawing on the work group attendees.	NCCF	2021	Project	N	N	12	Medium	This strategy is consistent with the goals and objectives of Blueprint.
Action Plan for Nature-Based Stormwater Strategies	Work with NCORR, NCDA&CS, and other agencies that administer disaster mitigation funding that is available to enhance staffing levels and consulting services to aid in the developing and administering hydrology-related projects.	NCCF	2021	Project	N	N	12	Medium	This strategy is consistent with the goals and objectives of Blueprint by advocating cost share for

									mitigation projects
Action Plan for Nature-Based Stormwater Strategies	Request that the N.C. General Assembly evaluate if it should encourage the use of nature-based stormwater strategies by enacting a state law that includes provisions like those in the Federal Energy Independence and Security Act Section 438. This federal law requires large construction projects financed by the federal government to “maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property regarding the temperature, rate, volume, and duration of flow	NCCF	2021	Policy	N	N	14	Medium	This strategy is consistent with the goals and objectives of Blueprint.
Action Plan for Nature-Based Stormwater Strategies	Engage transportation agencies, who are among the largest landowners in the state, as major partners in the proposed watershed planning effort. Seek to incorporate stormwater strategies for roadways into overall watershed management	NCCF	2021	Project	N	N	11	Medium	This strategy is consistent with the goals and objectives of Blueprint.



	strategies recommended in the plans. Explore opportunities that exist beyond the established right-of-way for cost-effective use of nature-based stormwater strategies.									
Action Plan for Nature-Based Stormwater Strategies	Ensure that maintenance plans prepared as a requirement of state and locally issued stormwater permits include an estimated budget of lifecycle costs for operating and maintaining the authorized stormwater system. This critical information will disclose these costs to current and future permit holders so that they can budget each year to fulfill their long-term financial responsibilities. In many places, systems that use nature-based stormwater strategies will be more cost-effective to operate and maintain.	NCCF	2021	Project	N	N	11	Medium	This strategy is consistent with the goals and objectives of Blueprint.	
Action Plan for Nature-Based Stormwater Strategies	Establish a standardized life-cycle cost analysis for disclosure, as is currently being documented in research at N.C. State University and include these costs for operating	NCCF	2021	Project	N	N	11	Medium	This strategy is consistent with the goals and	

	and maintaining permitted stormwater systems as an update to the state’s stormwater design manual. Update periodically to ensure accuracy of cost estimates.									objectives of Blueprint.
Action Plan for Nature-Based Stormwater Strategies	Increase economic incentives from local, state, and federal sources to landowners, including industrial owners, to preserve wetlands within forest lands, and to preserve forested and agricultural floodplains. Support ongoing efforts to identify forest lands that are a high priority to maintain and determine financial assistance or economic incentives needed to keep these lands working.	NCCF	2021	Project	N	N	11	Medium	This strategy is consistent with the goals and objectives of Blueprint.	
Action Plan for Nature-Based Stormwater Strategies	Increase education, outreach and professional training for nature-based stormwater and watershed management strategies.	NCCF	2021	Project	N	N	11	Medium	This strategy is consistent with the goals and objectives of Blueprint.	
Action Plan for Nature-Based Stormwater Strategies	Issue appropriate executive orders and policies that promote the use of nature-based stormwater strategies by the governor’s cabinet agencies	NCCF	2021	Project	N	N	11	Medium	This strategy is consistent with the goals and objectives of Blueprint.	

Stormwater Strategies	to the extent allowed by existing laws and rules. For certain defined projects, nature-based stormwater strategies should be the default and must be demonstrated to be impracticable before using conventional methods.									objectives of Blueprint.
Action Plan for Nature-Based Stormwater Strategies	State and local governments need to lead by example by encouraging the use of nature-based stormwater strategies and implementing them widely.	NCCF	2021	Project	N	N	11	Medium		This strategy is consistent with the goals and objectives of Blueprint.
Action Plan for Nature-Based Stormwater Strategies	Add a new chapter to the NCDEQ Stormwater Design Manual to include guidance on how best to use nature-based stormwater strategies to retrofit existing land uses that may or may not have existing stormwater permits. The chapter needs to explain how these measures can be adapted so that they are cost-effective to use even when site limitations constrain the ability to meet all optimal design specifications.	NCCF	2021	Project	N	N	10	Medium		This strategy is consistent with the goals and objectives of Blueprint.

Action Plan for Nature-Based Stormwater Strategies	Based on this review, changes to existing laws, rules, ordinances, policies, funding sources, and procedures that facilitate the use of nature-based stormwater strategies should be recommended.	NCCF	2021	Project	N	N	10	Medium	This strategy is consistent with the goals and objectives of Blueprint.
Action Plan for Nature-Based Stormwater Strategies	Consider nature-based approaches first when upgrading, updating, or redeveloping existing government facilities.	NCCF	2021	Project	N	N	10	Medium	This strategy is consistent with the goals and objectives of Blueprint.
Action Plan for Nature-Based Stormwater Strategies	Coordinate agreements between transportation agencies and disaster recovery programs that expand opportunities to rely on nature-based stormwater strategies to promote the agency missions of all parties. Seek to direct hazard mitigation investments so that stormwater needs of transportation agencies are achieved whenever possible.	NCCF	2021	Project	N	N	10	Medium	This strategy is consistent with the goals and objectives of Blueprint.
Action Plan for Nature-Based Stormwater Strategies	Develop and identify significant new sources of federal, state, and local funding to support retrofit projects that reduce flooding, improve water	NCCF	2021	Project	N	N	10	Medium	This strategy is consistent with the goals and

Stormwater Strategies	quality, and reduce economic disruptions by achieving “hydrologic matching.”									objectives of Blueprint.
Action Plan for Nature-Based Stormwater Strategies	Direct federal and state disaster mitigation funding to plan, design, and install nature-based stormwater strategies as part of recovery programs.	NCCF	2021	Project	N	N	10	Medium	This strategy is consistent with the goals and objectives of Blueprint.	
Action Plan for Nature-Based Stormwater Strategies	Integrate efforts to maintain working lands into a state watershed management program. Secure additional funds to support technical, legal, and financial assistance to integrate efforts to maintain working lands through watershed management strategies designed to reduce flooding and improve water quality.	NCCF	2021	Project	N	N	10	Medium	This strategy is consistent with the goals and objectives of Blueprint.	
Action Plan for Nature-Based Stormwater Strategies	Provide agency leadership with briefings and supportive materials necessary to secure their support and guidance on how best to promote the use of these strategies as part of their decision-making.	NCCF	2021	Project	N	N	10	Medium	This strategy is consistent with the goals and objectives of Blueprint.	

Action Plan for Nature-Based Stormwater Strategies	Revise NCDOT’s qualification standards for designers, engineers, contractors, and other professional consultants to include demonstrated training and experience in nature-based stormwater strategies.	NCCF	2021	Project	N	N	10	Medium	This strategy is consistent with the goals and objectives of Blueprint.
Action Plan for Nature-Based Stormwater Strategies	Additionally, NCDOT should ensure contract awardees are trained in nature-based design strategies and are committed to receiving continuing education on these design options annually. NCDOT may consider making this a new prequalification code or an amended one, and these trainings may be developed in partnership with the education programs proposed in the “New Development” recommendations.	NCCF	2021	Project	N	N	9	Medium	This strategy is consistent with the goals and objectives of Blueprint.
Action Plan for Nature-Based Stormwater Strategies	Create opportunities to hold more water on working lands to provide downstream benefits while compensating for potential crop loss due to the additional water being held on these lands.	NCCF	2021	Project	N	N	9	Medium	This strategy is consistent with the goals and objectives of Blueprint.

Action Plan for Nature-Based Stormwater Strategies	Develop a guidance manual for transportation planners that illustrates the effective incorporation of nature-based stormwater strategies into transportation planning and project development decision-making processes. Action Plan for Nature-based Stormwater Strategies: Promoting Natural Designs that Reduce Flooding and Improve Water Quality 18.	NCCF	2021	Project	N	N	9	Medium	This strategy is consistent with the goals and objectives of Blueprint.
Action Plan for Nature-Based Stormwater Strategies	Develop detailed informational maps to assist with watershed management plan development and guide where and what types of nature-based stormwater strategies are most practical and economical for potential new development sites, including land acquisition strategies, stormwater mitigation banks, etc. Obtain site characteristics necessary for these maps by relying upon existing geographic information system databases.	NCCF	2021	Project	N	N	9	Medium	This strategy is consistent with the goals and objectives of Blueprint.

Action Plan for Nature-Based Stormwater Strategies	Organize NCDOT work group. The steering committee will work to assist NCDOT leadership and staff in putting together a work group to tackle NCDOT’s highest priority recommendations including updating its toolbox to include nature-based stormwater strategies and reviewing regulatory constraints that discourage the use of these measures more fully.	NCCF	2021	Project	N	N	9	Medium	This strategy is consistent with the goals and objectives of Blueprint by fostering partnerships and knowledge-sharing related to flood resilience.
Action Plan for Nature-Based Stormwater Strategies	Promote demonstration projects. Identify and implement projects (new development, retrofits, roadways, and working lands) that demonstrate the value of nature-based stormwater strategies with real-world projects.	NCCF	2021	Project	N	N	9	Medium	This strategy is consistent with the goals and objectives of Blueprint.
Action Plan for Nature-Based Stormwater Strategies	Streamline modifications to existing stormwater permits to encourage the use of nature-based stormwater strategies. Secure a commitment from NCDEQ to evaluate processes and work with stakeholders to	NCCF	2021	Project	N	N	9	Medium	This strategy is consistent with the goals and objectives of Blueprint by



	devise standard operating procedures that provide a streamlined process for modifications of existing permit requirements so that nature-based stormwater strategies can be used to achieve regulatory compliance.									promoting flood resiliency policies.
Action Plan for Nature-Based Stormwater Strategies	Use nature-based stormwater strategies to bring failing stormwater systems into regulatory compliance. Devise a streamlined process for modifications of existing state and local permit requirements so that nature-based stormwater strategies can be used to obtain regulatory compliance.	NCCF	2021	Project	N	N	9	Medium	This strategy is consistent with the goals and objectives of Blueprint.	
Action Plan for Nature-Based Stormwater Strategies	Using the most up-to-date projections available, determine where production zones for working lands may change due to climate change to inform agricultural management, land use, and conservation decisions.	NCCF	2021	Project	N	N	9	Medium	This strategy is consistent with the goals and objectives of Blueprint.	
Action Plan for Nature-Based Stormwater Strategies	Develop a list of nature-based environmental impact avoidance and minimization actions that can be evaluated as agencies comply	NCCF	2021	Project	N	N	8	Low	This strategy is consistent with the goals and	

Stormwater Strategies	with federal and state environmental review (National Environmental Policy Act/State Environmental Policy Act) processes.									objectives of Blueprint.
Action Plan for Nature-Based Stormwater Strategies	Enact new state legislation to resolve stormwater permits that are out of compliance and no longer have an identifiable party responsible for maintaining their compliance. The law needs to outline procedures and provide funding opportunities or incentives to fix these compliance issues. It should explicitly encourage the use of cost-effective nature-based stormwater strategies to fix and upgrade failing systems. Local governments should establish a program or mechanism to absorb financial risk and use collective funds to fix non-compliant systems.	NCCF	2021	Project	N	N	8	Low	This strategy is consistent with the goals and objectives of Blueprint.	
Action Plan for Nature-Based Stormwater Strategies	Expedite permit applications that are designed to achieve runoff volume matching as specified in the state’s stormwater design manual.	NCCF	2021	Project	N	N	8	Low	This strategy is consistent with the goals and	

										objectives of Blueprint.
Action Plan for Nature-Based Stormwater Strategies	Formalize policies and internal guidance as needed to institutionalize agency leadership support for prioritizing the use of nature-based stormwater strategies.	NCCF	2021	Project	N	N	8	Low	This strategy is consistent with the goals and objectives of Blueprint.	
Action Plan for Nature-Based Stormwater Strategies	Develop typical roadway sections that illustrate nature-based stormwater solutions in the design context to guide comprehensive transportation planning, project planning, and project design.	NCCF	2021	Project	N	N	7	Low	This strategy is consistent with the goals and objectives of Blueprint.	
Action Plan for Nature-Based Stormwater Strategies	Develop technical guidance tailored for roadside operations personnel on techniques for optimizing the infiltration and evapotranspiration capacity of the roadside environment.	NCCF	2021	Project	N	N	7	Low	This strategy is consistent with the goals and objectives of Blueprint.	
Collaboratory Flood Resilience Study	Assemble a team of scientists/engineers and stakeholders to develop a state-run Implementation program. The program must include a process for	NC Policy Collaboratory	2021	Project	N	Y	13	Medium	This strategy is consistent with the goals and	

	involving landowners early in the program design stage, providing multiple ways to give input and feedback to the program design and implementation.									objectives of Blueprint.
Collaboratory Flood Resilience Study *	The State should prioritize and fund the establishment of FAIR data standards – ensuring data is Findable, Accessible, Inter-operable, and Reusable – for all buyouts- and hazard mitigation-related data, creating policies and data use agreements to standardize and curate metadata, streamline researcher and community group access, and enhance accessibility to the public. As part of this, buyouts- and hazard-related data should be stored in a publicly accessible data repository (e.g., UNC Dataverse) that facilitates good user experiences, and easy and effective data dissemination. Ultimately, these actions will save staff time and dramatically lower costs in response to data requests.	NC Policy Collaboratory	2021	Data Acquisition and Management	N	N	18	High	This strategy is consistent with the goals and objectives of Blueprint.	

Collaboratory Flood Resilience Study *	The State should take measures to improve its hazard mitigation data collection, management, and dissemination infrastructure. This will 1) facilitate evaluations of mitigation outcomes, 2) improve targeting of public investments to areas of greatest need, and 3) increase transparency and reduce demands on staff time. Researchers at UNC can help the State create database tools to accomplish this.	NC Policy Collaboratory	2021	Data Acquisition and Management	N	N	16	Medium	This strategy is consistent with the goals and objectives of Blueprint.
Collaboratory Flood Resilience Study	We recommend that the state identify coastal communities where compound flooding is likely to result in hazards that are different from those currently shown on FEMA floodplain maps. Utilize improved coastal hazard estimates to support cost-benefit analyses of both structural and nonstructural flood mitigation alternatives at household and community scales over the short- and long-term.	NC Policy Collaboratory	2021	Project	N	N	12	Medium	This strategy may fall within the goals and objectives of Blueprint; however, additional coordination with the Lead Agency is needed.

Collaboratory Flood Resilience Study *	The State should initiate renewed efforts to develop pre-disaster mitigation plans via a “portfolio” approach that includes multiple strategies, including infrastructure (e.g., flood control, property elevation), buyouts of at-risk properties, zoning policy and financial instruments (e.g., flood insurance, disaster-based reinsurance). This planning process will benefit significantly from more highly resolved estimates of flood-related financial risk, including who bears the risk and where they are located.	NC Policy Collaboratory	2021	Policy	N	N	15	Medium	This strategy is consistent with the goals and objectives of Blueprint.
Collaboratory Flood Resilience Study	Expand opportunities for landowners and local governments to protect natural systems that contribute to flood mitigation.	NC Policy Collaboratory	2021	Policy	N	N	14	Medium	This strategy does not fall within the goals and objectives of Blueprint.
Collaboratory Flood Resilience Study	Provide local governments with capacity-building and coordination support.	NC Policy Collaboratory	2021	Policy	N	N	14	Medium	This strategy is consistent with the goals and objectives of

										Blueprint; however, the feasibility of the strategy should be revisited with the lead agency.
Collaboratory Flood Resilience Study	The transaction costs associated with buyouts vary widely across the State and around the United States, but they can be substantial. These costs are likely absorbed by municipalities and landowners under current buyout processes. NCORR could be instrumental in helping to limit these costs, along with efforts to prioritize and plan for future buyouts across the State.	NC Policy Collaboratory	2021	Policy	N	N	13	Medium	This strategy is consistent with the goals and objectives of Blueprint by advocating cost share for mitigation projects.	
Collaboratory Flood Resilience Study	Additional work needs to explore the legal hurdles to implementing alternative buyout processes and evaluate how those processes would ensure stronger equitable and environmental outcomes.	NC Policy Collaboratory	2021	Policy	N	N	12	Medium	This strategy is consistent with the goals and objectives of Blueprint.	

Collaboratory Flood Resilience Study	Provide Funding for Flood Storage Capacity Projects Authorized in the 2020 Water/Wastewater Public Enterprise Reform Act (HB 1087)	NC Policy Collaboratory	2021	Policy	N	N	12	Medium	This strategy is consistent with the goals and objectives of Blueprint; however, the feasibility of the strategy should be revisited with the lead agency.
Collaboratory Flood Resilience Study	Sponsor research to examine similar flood mitigation potential on other watersheds, and with other measures, and estimate flood and damage reduction impacts at the farm to local to community scales	NC Policy Collaboratory	2021	Policy	N	Y	12	Medium	This strategy is consistent with the goals and objectives of Blueprint.
Collaboratory Flood Resilience Study	The State should target communities at risk to encourage insurance uptake through both education and the provision of incentives, such as funding to assist property owners in paying National Flood Insurance Program (NFIP) premiums to cover future damages.	NC Policy Collaboratory	2021	Policy	N	N	11	Medium	This strategy is consistent with the goals and objectives of Blueprint.



	<p>The analysis described in this work can inform which counties, neighborhoods, or even individual properties should be targeted to impact the area's most at risk, allowing for a more effective use of state funds.</p>									
Collaboratory Flood Resilience Study *	<p>The State should explore a wide variety of funding mechanisms that could smooth and speed buyout processes, including municipal/green bonds, revolving loan funds, local option sales taxes, and stormwater utility fees. Special attention should be paid to the inclusive and equitable use of these funding mechanisms at the state and local scale.</p>	NC Policy Collaboratory	2021	Planning	N	N	16	Medium	<p>This strategy is consistent with the goals and objectives of Blueprint by advocating cost share for mitigation projects.</p>	
Collaboratory Flood Resilience Study	<p>The State should incentivize communities that receive federal or state grants for buyouts to restrict future residential development in flood hazard areas.</p>	NC Policy Collaboratory	2021	Policy	N	N	10	Medium	<p>This strategy is consistent with the goals and objectives of Blueprint by advocating cost share for</p>	

										mitigation projects.
Collaboratory Flood Resilience Study	The State should work to improve workforce development within the water and wastewater sector, especially as the current workforce ages and the new workforce dwindles in size.	NC Policy Collaboratory	2021	Policy	N	N	10	Medium	This strategy does not fall within the goals and objectives of Blueprint.	
Collaboratory Flood Resilience Study	Increase funds for the NC Forest Service’s Forest Development Program in order to convert lower productivity and other open lands to forests in target flood-prone river basins and their most frequently flooded areas.	NC Policy Collaboratory	2021	Policy	N	Y	9	Medium	This strategy is consistent with the goals and objectives of Blueprint.	
Collaboratory Flood Resilience Study	Invest in improving the resilience of all critical infrastructure that is vulnerable to flooding (roads, bridges, stormwater systems, reservoirs, water and wastewater treatment facilities and networks, energy supply) in order to minimize loss of life, emergency rescue, loss of use and negative impacts to	NC Policy Collaboratory	2021	Project	N	Y	11	Medium	This strategy is consistent with the goals and objectives of Blueprint by advocating cost share for	

	commerce and economic impacts during future extreme storm events.									mitigation projects.
Collaboratory Flood Resilience Study	A rigorous and detailed assessment of neighborhoods at the highest risk of flood-related mortgage default should be conducted to identify which areas and lenders are most threatened and to inform actions designed to mitigate this risk (e.g., property buyouts and lines of credit to vulnerable banks).	NC Policy Collaboratory	2021	Planning	N	N	14	Medium		This strategy is consistent with the goals and objectives of Blueprint.
Collaboratory Flood Resilience Study	The state increased efforts to identify areas and parties at greatest risk from flooding and set up systems to collect and rapidly disseminate post-flood damage information to inform targeted resiliency efforts.	NC Policy Collaboratory	2021	Planning	N	N	11	Medium		This strategy is consistent with the goals and objectives of Blueprint.
Collaboratory Flood Resilience Study	The State should convene a small working group or task force to: a) identify the communities and sections of the grid in Eastern NC	NC Policy Collaboratory	2021	Planning	N	N	11	Medium		This strategy does not fall within the goals and

	<p>most at risk of prolonged electric outages due to flooding</p> <p>b) prioritize the need for protective intervention based on the likelihood of occurrence and potential for negative consequences</p> <p>c) gain knowledge about grid operators' contingency plans before, during, and severe, localized flooding events</p>								objectives of Blueprint.
Collaboratory Flood Resilience Study	To foster resilience, it is recommended that (1) every jurisdiction employs an active inspection and maintenance program and (2) a process is established by jurisdictions to educate owners of stormwater control measures every time the property (& therefore stormwater control measure) is sold or conveyed.	NC Policy Collaboratory	2021	Policy	N	N	9	Medium	This strategy does not fall within the goals and objectives of Blueprint.
Collaboratory Flood Resilience Study	The State should work to operationalize "resilience" planning for water and wastewater utilities, providing a clear definition and	NC Policy Collaboratory	2021	Planning	N	N	9	Medium	This strategy is does not fall within the goals and

actionable steps for utilities to become more resilient.									objectives of Blueprint.
Collaboratory Flood Resilience Study	The State should consider launching a bridge funding/financing program that allows utilities to borrow money to repair/replace critical infrastructure while waiting for FEMA money.	NC Policy Collaboratory	2021	Policy	N	N	8	Low	This strategy is consistent with the goals and objectives of Blueprint however the feasibility of the strategy should be revisited with the lead agency.
Collaboratory Flood Resilience Study	Engagement with relevant stakeholders, including municipal wastewater utilities, hog and livestock farming operations, and county health departments will permit a further assessment of the risks posed by floodwaters.	NC Policy Collaboratory	2021	Planning	N	N	8	Low	No Recommendation

Collaboratory Flood Resilience Study	Planning efforts that reduce development in areas most at risk of flooding (e.g., flood plains) that decrease the financial risk of these events should be pursued at the local, county, and state level.	NC Policy Collaboratory	2021	Planning	N	N	8	Low	This strategy is consistent with the goals and objectives of Blueprint however the feasibility of the strategy should be revisited with the lead agency.
Collaboratory Flood Resilience Study	Adopt policies that prevent future development and redevelopment within the 100-year floodplain and that severely restricts development in the 500-year floodplain. It should be noted that all encroachment into the floodplain (i.e., elevated structures) reduces the water storage capacity of the floodplain during extreme events.	NC Policy Collaboratory	2021	Policy	N	Y	7	Low	This strategy is consistent with the goals and objectives of Blueprint.
Collaboratory Flood Resilience Study	Maintaining existing protections for wetlands and streams is a critical first step to enhancing natural systems for flood mitigation,	NC Policy Collaboratory	2021	Policy	N	N	7	Low	This strategy is consistent with the goals and

	<p>particularly as North Carolina lawmakers seek cost effective strategies to improve the state’s resilience to major storms. NCDEQ’s proposed temporary permitting rule would achieve that goal in the near-term.</p>								objectives of Blueprint.
Collaboratory Flood Resilience Study	<p>Investigate other conservation-based flood mitigation programs (e.g., Iowa, Minnesota) to identify and evaluate program scope, authority, funding, management, intergovernmental agreements, streamlined permitting processes, and implementation options.</p>	NC Policy Collaboratory	2021	Project	N	Y	10	Medium	This strategy is consistent with the goals and objectives of Blueprint.
Collaboratory Flood Resilience Study	<p>The State should consider water holistically, thinking about the connectedness of water resources when making legislative changes related to flood resilience.</p>	NC Policy Collaboratory	2021	Policy	N	N	7	Low	This strategy is does not fall within the goals and objectives of Blueprint.
Collaboratory Flood Resilience Study	<p>Accuracy Assessment for IoT Stream Gages Data: The project aimed to evaluate the accuracy/precision of low-cost stream gages in different environmental conditions during a</p>	NC Policy Collaboratory	2021	Data Acquisition and	Y	N	9	Medium	This strategy is consistent with the goals and

	one-year period. This is to ensure that the gages utilized for the expansion of FIMAN coverage are providing accurate and precise information.			Management					objectives of Blueprint.
Collaboratory Flood Resilience Study	Economic impact analyses – including investigations of the extent to which NC is producing a “home grown” ecological restoration industry – should be conducted as part of the evaluation of State Natural Infrastructure programs, including those currently administered by Division of Mitigation Services (DMS).	NC Policy Collaboratory	2021	Project	N	Y	9	Medium	This strategy is consistent with the goals and objectives of Blueprint.
Collaboratory Flood Resilience Study	Flood Resilience: Data Collection and Data Analytic in support of Flood Management The project aimed to expand gage testing by including low-cost radar sensors and rain gages and developing water gauge reading method.	NC Policy Collaboratory	2021	Data Acquisition and Management	Y	N	9	Medium	This strategy is consistent with the goals and objectives of Blueprint.
Collaboratory Flood Resilience Study	As part of exploring alternative buyout processes, the State should identify improved methods of calculating avoided loss that include aggregate risk (beyond project	NC Policy Collaboratory	2021	Policy	N	N	6	Low	This strategy is consistent with the goals and



	itself, e.g., downstream impacts) to determine whether buyouts lower flooding risk and damage elsewhere nearby.								objectives of Blueprint.
Collaboratory Flood Resilience Study	Develop a pilot flood mitigation program for a targeted sub watershed with documented flooding issues. The program would allow the ecological restoration industry to implement flood mitigation projects. Flood storage benefits could be estimated by comparing model results of the peak flow reduction, peak flow delay and volume of water stored for existing and proposed condition during the several return interval storms (e.g., 50-, 100-year storm). Track the economic and employment impacts of this program.	NC Policy Collaboratory	2021	Policy	N	Y	6	Low	This strategy is consistent with the goals and objectives of Blueprint by advocating cost share for mitigation projects.
Collaboratory Flood Resilience Study	There is no integrated database that contains information on channel properties and surrounding floodplain topography that can be used to configure coastal and hydrological flood hazard models,	NC Policy Collaboratory	2021	Data Acquisition and Management	N	N	8	Low	This strategy is consistent with the goals and objectives of Blueprint.

	<p>particularly for smaller tributaries and channel reaches in the NC coastal plain. Future work should leverage existing state-wide datasets of surveyed channel data and high-resolution Light Detection and Ranging to create a single, integrated geospatial database that can be used to incorporate channels and their associated floodplains into flood hazard models. Gaps in the existing datasets, particularly where cross-sectional surveys may be outdated or lack resolution, should be identified, and filled.</p>									
Collaboratory Flood Resilience Study	Coastal flood hazard estimates should consider the interactions between storm surge and rainfall-runoff.	NC Policy Collaboratory	2021	Planning	N	N	6	Low	This strategy is consistent with the goals and objectives of Blueprint.	
Collaboratory Flood Resilience Study	The State should utilize the research team’s model of the NC power grid to evaluate flooding and other resiliency impacts on the grid in connection with natural disasters such as hurricanes.	NC Policy Collaboratory	2021	Planning	N	N	6	Low	This strategy is does not fall within the goals and	

										objectives of Blueprint.
Collaboratory Flood Resilience Study	Continued effort should be pursued to utilize coastal flood models (ADCIRC) and hydrological models (LISFLOOD-FP) to model compound flood hazards throughout eastern NC.	NC Policy Collaboratory	2021	Project	N	N	6	Low		This strategy is consistent with the goals and objectives of Blueprint.
Collaboratory Flood Resilience Study	There are not fully coupled inland and coastal models that can capture both inland and coastal flood processes, and questions remain as to how to efficiently and accurately represent compound flood events using existing models. More research is needed to investigate the influence of the model boundary location and connection on the propagation of surge and streamflow. Additionally, we recommend using gauge data and basin and river network characteristics to determine the watershed response (e.g., time-lag between rainfall and peak streamflow) to understand the frequency at which the models	NC Policy Collaboratory	2021	Data Acquisition and Management	N	N	6	Low		This strategy is consistent with the goals and objectives of Blueprint.

	should pass information to each other.									
Collaboratory Flood Resilience Study	Invest in research to develop and monitor a pilot water farming project. The research should focus on evaluating water management systems, storage, and peak flow reductions, impacts to soils and crops and other agricultural management processes, and associated economic factors.	NC Policy Collaboratory	2021	Policy	N	Y	5	Low	This strategy is consistent with the goals and objectives of Blueprint.	
Collaboratory Flood Resilience Study	Recommend a stratified random sampling approach to characterize floodwaters and non-flood impacted waters with priority devoted to assessing the relative impact of sewage and hog fecal material on relevant systems.	NC Policy Collaboratory	2021	Project	N	N	5	Low	This strategy is does not fall within the goals and objectives of Blueprint.	
Collaboratory Flood Resilience Study	Continue to pursue buyout and elevation of structures and infrastructure located within the 100-year floodplain to avoid	NC Policy Collaboratory	2021	Project	N	Y	2	Low	This strategy is consistent with the goals and objectives of	

	inevitable repeat loss of these structures.									Blueprint by advocating cost share for mitigation projects.
Flood Risk Reduction Grant Program	Restoring, enhancing, constructing, or repairing floodplains, shorelines, or wetlands including Design and construction of nature-based infrastructure to retain and/or detain flood waters. Design and construction of projects to reconnect streams to the full extent of their original floodplains. Design and construction of projects to reconnect streams to the full extent of their original floodplains. Redevelopment of developed floodplains into waterfront parks or open spaces that are compatible with flooding and flood water storage, and that provide opportunities for community engagement, recreation and/or river access.	NCLWF	2022	Project	N	N	11	Medium	This strategy is consistent with the goals and objectives of Blueprint.	

Flood Risk Reduction Grant Program	Acquiring land, or an interest in land, for purposes including Enhancing or restoring the flood attenuation capacity of floodplains, wetlands, and areas of the natural landscape that contribute to their function. Storing flood waters through long-term land management agreements, such as water farming. Participating in floodplain buyout programs as a first step in enhancing ecosystem services.	NCLWF	2022	Project	N	N	7	Low	This strategy is consistent with the goals and objectives of Blueprint.
NC Climate Risk Assessment and Resilience Plan	Begin administering the Building Resilient Infrastructure and Communities program.	NCDEQ	2020	Project	N	N	16	Medium	This strategy is consistent with the goals and objectives of Blueprint by facilitating hazard planning pursuits so Building Resilient Infrastructure and Communitie

										s (BRIC) grant projects can be vetted and prioritized by local communities .
NC Climate Risk Assessment and Resilience Plan	Develop an online resilience resource center for local governments and community leaders.	NCDEQ	2020	Project	N	N	15	Medium	This strategy is consistent with the goals and objectives of Blueprint.	
NC Climate Risk Assessment and Resilience Plan	Integrate climate change adaptation practices and resiliency planning into cabinet agencies' policies and operations.	NCDEQ & all state agencies	2020	Policy	N	N	10	Medium	This strategy is consistent with the goals and objectives of Blueprint by promoting flood resiliency policies through creating a	

clearinghouse of NC climate adaptation practices and resiliency planning efforts to create a consolidated approach to policy maintenance and /or policy change.

NC Climate Risk Assessment and Resilience Plan	Conduct flood mitigation studies. ( <a href="https://www.rebuild.nc.gov/resiliency/river-basin-studies">https://www.rebuild.nc.gov/resiliency/river-basin-studies</a> )	NCDEQ	2020	Planning	N	N	15	Medium	This strategy is consistent with the goals and objectives of Blueprint by facilitating hazard planning pursuits.
--	---	-------	------	----------	---	---	----	--------	--



NC Climate Risk Assessment and Resilience Plan	Facilitate a stream management and flooding reduction working group.	NCORR	2020	Planning	N	N	15	Medium	This strategy is consistent with the goals and objectives of Blueprint by fostering partnerships and knowledge sharing related to flood resilience.
NC Climate Risk Assessment and Resilience Plan	Support nine regions in the eastern half of the state to complete climate vulnerability assessments and develop implementation pathways for 5-10 priority projects.	NCDEQ	2020	Planning	N	N	15	Medium	This strategy is consistent with the goals and objectives of Blueprint by facilitating resiliency planning pursuits.

NC Climate Risk Assessment and Resilience Plan	Work with local governments impacted by Hurricane Matthew to restore damaged critical infrastructure.	NCDEQ	2020	Project	N	N	11	Medium	This strategy is consistent with the goals and objectives of Blueprint by advocating local match buy-in for cost share for mitigation projects that are 75%-90% federally funded.
NC Climate Risk Assessment and Resilience Plan	Conduct building vulnerability assessments and identify mitigation strategies for areas impacted by riverine flooding from Hurricanes Matthew and Florence. <a href="https://flood.nc.gov/advisoryflood/">https://flood.nc.gov/advisoryflood/</a>	NCDEQ	2020	Planning	Y	N	14	Medium	This strategy is consistent with the goals and objectives of Blueprint by facilitating hazard planning pursuits.

NC Climate Risk Assessment and Resilience Plan	Develop a climate resilience planning guide for local leaders.	NCDEQ	2020	Planning	N	N	13	Medium	This strategy is consistent with the goals and objectives of Blueprint by facilitating resiliency planning pursuits.
NC Climate Risk Assessment and Resilience Plan	Support the update and modeling of NC climate impacts, local capacity building, and planning for nature-based solutions to flooding impacts.	NCDEQ	2020	Planning	N	N	12	Medium	This strategy is consistent with the goals and objectives of Blueprint by facilitating resiliency planning pursuits.
NC Climate Risk Assessment and Resilience Plan	Facilitate interagency communication on resilience topics and projects.	NCDEQ	2020	Planning	N	N	11	Medium	This strategy is consistent with the goals and objectives of Blueprint by fostering

										partnerships and knowledge sharing related to flood resilience
NC Climate Risk Assessment and Resilience Plan	Support the development of an update to the NC Uniform Floodplain Management Policy for State Construction.	DOA	2020	Policy	N	N	9	Medium	This strategy is consistent with the goals and objectives of Blueprint by promoting flood resiliency policies.	
NC Climate Risk Assessment and Resilience Plan	Facilitate the State Disaster Recovery Task Force (SDRTF) to coordinate efforts and advise state government as needed on recovery and resilience.	NCORR	2020	Planning	N	N	9	Medium	This strategy is consistent with the goals and objectives of Blueprint by fostering partnerships and knowledge	

										sharing related to flood resilience.
NC Climate Risk Assessment and Resilience Plan	Conduct a dam breach analysis on intermediate and high hazard dams.	NCDEQ	2020	Planning	N	N	8	Low		This strategy is consistent with the goals and objectives of Blueprint By facilitating resiliency planning pursuits.
NC Climate Risk Assessment and Resilience Plan	Improve data collection at sites where flooding is common. ( <a href="https://fiman.nc.gov/">https://fiman.nc.gov/</a> )	NCDEQ	2020	Data Acquisition and Management	N	N	10	Medium		This strategy is consistent with the goals and objectives of Blueprint by facilitating resiliency planning pursuits.

NC Climate Risk Assessment and Resilience Plan	Pilot a flood insurance program.	NCDEQ	2020	Project	N	N	9	Medium	This strategy is consistent with the goals and objectives of Blueprint.
NC Climate Risk Assessment and Resilience Plan	Coordinate state agencies' annual Climate Strategy Reports.	NCDEQ & NCORR	2020	Planning	N	N	7	Low	This strategy is consistent with the goals and objectives of Blueprint by fostering partnerships and knowledge sharing related to flood resilience.
NC Climate Risk Assessment and Resilience Plan	Account for climate change in the State Hazard Mitigation Plan.	NCEM	2020	Planning	N	N	5	Low	This strategy is consistent with the goals and objectives of Blueprint by facilitating

										resiliency planning pursuits
NC Climate Risk Assessment and Resilience Plan	Purchase homes in the floodplain.	NCDEQ	2020	Project	N	N	7	Low		This strategy is consistent with the goals and objectives of Blueprint by advocating local match buy-in for cost share for mitigation projects that are 75%-90% federally funded.

NC Climate Risk Assessment and Resilience Plan	Repair and elevate storm-damaged homes.	NCDEQ	2020	Project	N	N	5	Low	This strategy is consistent with the goals and objectives of Blueprint by advocating local match buy-in for cost share for mitigation projects that are 75%-90% federally funded.
NC Coastal Habitat Protection Plan – Amendment *	By 2023, NCDEQ will obtain state matching funds for the National Oceanic and Atmospheric Administration (NOAA) Coastal Change Analysis Program to map NC’s Coastal Plain at 1m resolution and additional funding to expand wetland monitoring conducted by DWR and other state agencies.	NCDEQ	2021	Policy	N	N	16	Medium	This strategy is consistent with the goals and objectives of Blueprint.



NC Coastal Habitat Protection Plan – Amendment	By 2022, NCDEQ will form an interagency workgroup with non-government organizations, and local governments to inform and guide development of watershed restoration plans to protect, restore, or replicate natural habitats (i.e., submerged aquatic vegetation, water quality, coastal habitats) and hydrology through natural and nature-based solutions.	NCDEQ	2021	Planning	N	N	16	Medium	This strategy is consistent with the goals and objectives of Blueprint.
NC Coastal Habitat Protection Plan – Amendment	By 2025, the Division of Energy, Mineral, and Land Resources and other divisions should increase education, outreach, and training to consultants, local government, and landowners for nature-based stormwater and watershed management strategies.	NCDEQ	2021	Planning	N	N	16	Medium	This strategy is consistent with the goals and objectives of Blueprint.
NC Coastal Habitat Protection Plan – Amendment	By 2022, Division of Energy, Mineral, and Land Resources will initiate and continue outreach to stormwater permit holders on rules and required maintenance of stormwater control measures and structures.	NCDEQ	2021	Planning	N	N	14	Medium	This strategy is consistent with the goals and objectives of Blueprint.

NC Coastal Habitat Protection Plan – Amendment	By 2023, NCDEQ will develop and implement a full-scale assessment program to conduct coastwide submerged aquatic vegetation mapping and monitoring at regular intervals ( $\leq 5$ years).	NCDEQ	2021	Project	N	N	11	Medium	This strategy is consistent with the goals and objectives of Blueprint.
NC Coastal Habitat Protection Plan – Amendment	By 2022, NCDEQ will form an interagency workgroup to develop a Coastal Plain wetland mapping and monitoring plan, including a minimum set of standardized metrics and a potential centralized location to store relevant reports and information.	NCDEQ	2021	Planning	N	N	10	Medium	This strategy is consistent with the goals and objectives of Blueprint.
NC Coastal Habitat Protection Plan – Amendment	By 2025, NCDEQ will determine if living shoreline projects can be built in a manner that qualifies for salt marsh or nutrient mitigation credits	NCDEQ	2021	Planning	N	N	10	Medium	This strategy is consistent with the goals and objectives of Blueprint.
NC Coastal Habitat Protection Plan – Amendment	By 2026, NCDEQ will determine the status and trends of Coastal Plain wetland acreage, condition, and function, based on the additional mapping and monitoring data obtained	NCDEQ	2021	Data Acquisition and Management	N	N	10	Medium	This strategy is consistent with the goals and objectives of Blueprint.

NC Coastal Habitat Protection Plan – Amendment	By 2022, the NC Division of Marine Fisheries will determine potential mechanisms to prevent harvesting from living shorelines constructed with oysters.	NCDEQ	2021	Planning	N	N	9	Medium	This strategy is consistent with the goals and objectives of Blueprint.
NC Coastal Habitat Protection Plan – Amendment	By 2024, NCDEQ will pursue the use of emerging technologies such as data fusion or deep learning neural networks, which rely on a combination of satellite imagery, drone imagery, and field verification for Coastal Plain wetland mapping and change analyses.	NCDEQ	2021	Data Acquisition and Management	N	N	10	Medium	This strategy is consistent with the goals and objectives of Blueprint.
NC Coastal Habitat Protection Plan – Amendment	By 2023, DWR will evaluate and prioritize the incorporation of shallow water sites (< 1m mean lower low water) that currently or historically contain(ed) submerged aquatic vegetation into the statewide Ambient Monitoring System.	NCDEQ	2021	Project	N	N	8	Low	This strategy is consistent with the goals and objectives of Blueprint.
NC Enhanced Hazard Mitigation Plan *	Improve Coordination/Education/Outreach to better identify and assist underserved communities as	NCEM	2023	Planning	N	N	18	High	This strategy is consistent with the goals and objectives of

identified in the FEMA Strategic Plan 2022-26.										Blueprint by facilitating hazard planning pursuits
NC Enhanced Hazard Mitigation Plan	Promote full funding of NC Flood Mapping Program to complete new Flood Insurance Studies for entire state.	NCEM	2023	Policy	N	N	12	Medium	This strategy is consistent with the goals and objectives of Blueprint by supporting state mapping projects through funding and database management. Councils of Governments would be an excellent partner for this and would also help with a	

regional approach.

NC Enhanced Hazard Mitigation Plan	Meet annually with NC Housing Finance Agency to identify available funding that could be used for mitigation and discuss opportunities to collaborate.	NCEM	2023	Policy	N	N	11	Medium	This strategy is consistent with the goals and objectives of Blueprint by advocating cost share for mitigation projects.
NC Enhanced Hazard Mitigation Plan	Supply funds for purchase of conservation easements or purchase of land within flood hazard areas.	NCEM	2023	Policy	N	N	11	Medium	This strategy is consistent with the goals and objectives of

										Blueprint by advocating cost share for mitigation projects.
NC Enhanced Hazard Mitigation Plan	Promote river basin wide planning of flood hazard.	NCEM	2023	Planning	N	N	16	Medium		This strategy is consistent with the goals and objectives of Blueprint by facilitating hazard planning pursuits at the regional level.

NC Enhanced Hazard Mitigation Plan	Promote benefits of adopting higher standards in local Flood Damage Prevention Ordinances.	NCEM	2023	Planning	N	N	13	Medium	This strategy is consistent with the goals and objectives of Blueprint by promoting local flood resiliency policies at the statewide level, local governments can have more visibility and the ability to adopt best practices from other communities .
NC Enhanced Hazard Mitigation Plan	Develop a robust network of tools and systems throughout the state to help local and state officials better prepare for and respond to flooding events. This would include:	NCEM	2023	Data Acquisition and Management	N	N	11	Medium	This strategy is consistent with the goals and objectives of

	<ul style="list-style-type: none"> <li>• Increase the number of stream-flow gauges and dam impoundment water level gauges statewide</li> <li>• Collect stream gauge data, rainfall data, and high-water mark data regularly</li> <li>• Provide information to communities on real-time flood inundation</li> <li>• Develop flood warning and alert system</li> </ul>		<p>Blueprint by advocating local match buy-in for cost share for mitigation projects that are 75%-90% federally funded.</p>						
<p>NC Enhanced Hazard Mitigation Plan</p>	<p>Develop and conduct county-wide educational programs for local officials on wildfire programs such as Firewise Communities, Ready, Set, Go!, and Fire Adapted Communities, and on flood risk including flood mapping, new DFIRMs, flood insurance, etc.</p>	<p>NCEM</p>	<p>2023</p>	<p>Planning</p>	<p>N</p>	<p>N</p>	<p>11</p>	<p>Medium</p>	<p>This strategy is consistent with the goals and objectives of Blueprint by supporting state mapping projects through funding and database management. Councils of</p>



Government  
s would be  
an excellent  
partner for  
this and  
would also  
help with a  
regional  
approach.

NC Enhanced Hazard Mitigation Plan	Directly integrate mitigation actions from state hazard mitigation plan into Risk MAP program to ensure progress is being tracked and recognized.	NCEM	2023	Planning	N	N	11	Medium	This strategy is consistent with the goals and objectives of Blueprint by facilitating hazard planning pursuits.
NC Enhanced Hazard Mitigation Plan	Promote improvement of storm drainage systems.	NCEM	2023	Planning	N	N	11	Medium	This strategy is consistent with the goals and objectives of Blueprint by

										facilitating hazard planning pursuits.
NC Enhanced Hazard Mitigation Plan	Analyze building stock to identify potential structures that could be mitigated.	NCEM	2023	Planning	N	N	10	Medium	This strategy is consistent with the goals and objectives of Blueprint by supporting state mapping projects and updates to tax assessors' databases.	
NC Enhanced Hazard Mitigation Plan	Continued strategic growth of the NC ECONet, with new stations installed in areas that lack adequate climate and weather data.	NCEM	2023	Planning	N	N	10	Medium	This strategy is consistent with the goals and objectives of Blueprint.	

NC Enhanced Hazard Mitigation Plan	Produce future volumes of NC measuring success publications documenting losses avoided quantitatively and qualitatively.	NCEM	2023	Planning	N	N	9	Medium	This strategy is consistent with the goals and objectives of Blueprint by advocating cost share for mitigation projects.
NC Enhanced Hazard Mitigation Plan	The repetitive loss and severe repetitive loss strategy for NC is geared towards encouraging local communities to prioritize mitigation of repetitive loss and severe repetitive loss properties and removing the financial strain imposed upon the NFIP for claims that compensate homeowners who have suffered repeatedly from flood losses.	NCEM	2023	Planning	N	N	9	Medium	This strategy is consistent with the goals and objectives of Blueprint by advocating local match buy-in for cost share for mitigation projects that are 75%-90% federally funded.

NC Enhanced Hazard Mitigation Plan	Work with the NCDEQ Division of Coastal Management to develop the hazard mitigation portion of the revised planning guidelines under the Coastal Area Management Act.	NCEM	2023	Planning	N	N	9	Medium	This strategy is consistent with the goals and objectives of Blueprint by facilitating hazard planning pursuits.
NC Enhanced Hazard Mitigation Plan	Identify properties to be acquired that will support mitigation by coordinating with other entities (such as the Clean Water Task Force) to leverage other funding sources for acquisition to support additional state-mandated goals.	NCEM	2023	Planning	N	N	8	Low	This strategy is consistent with the goals and objectives of Blueprint by advocating local match buy-in for cost share for mitigation projects that are 75%-90% federally funded.

NC Enhanced Hazard Mitigation Plan	Promote consideration of future build-out conditions when establishing land use and floodplain management regulations.	NCEM	2023	Planning	N	N	8	Low	This strategy is consistent with the goals and objectives of Blueprint by promoting flood resiliency policies.
NC Enhanced Hazard Mitigation Plan	Acquire or elevate properties that are located in areas vulnerable to flooding.	NCEM	2023	Project	N	N	8	Low	This strategy is consistent with the goals and objectives of Blueprint by advocating local match buy-in for cost share for mitigation projects that are 75%-90% federally funded.

NC Enhanced Hazard Mitigation Plan	Promote and support recognition programs, such as the Community Rating System.	NCEM	2023	Planning	N	N	7	Low	This strategy is consistent with the goals and objectives of Blueprint by promoting flood resiliency policies.
NC Natural and Working Lands Action Plan *	Integrate climate adaptation and resiliency strategies into local government comprehensive plans.	NCDEQ	2020	Planning	N	N	16	Medium	This strategy is consistent with the goals and objectives of Blueprint.
NC Natural and Working Lands Action Plan	Provide incentives to stakeholders for coastal habitat protection.	NCDEQ	2020	Planning	N	N	16	Medium	This strategy is consistent with the goals and objectives of Blueprint.
NC Natural and Working Lands Action Plan	Implement targeted interventions to protect peatlands from sea level rise and saltwater intrusion guided by scenario-based modeling.	NCDEQ	2020	Planning	N	N	10	Medium	This strategy is consistent with the goals and

										objectives of Blueprint.
NC Natural and Working Lands Action Plan	Coordinate the State’s floodplain buyout and restoration program to increase resilience.	NCDEQ	2020	Planning	N	N	9	Medium	This strategy is consistent with the goals and objectives of Blueprint by advocating cost share for mitigation projects.	
NC Natural and Working Lands Action Plan	Prioritize climate change and sea level rise in coastal habitat restoration planning.	NCDEQ	2020	Planning	N	N	8	Low	This strategy is consistent with the goals and objectives of Blueprint.	
NC Natural and Working Lands Action Plan	Facilitate the migration of coastal habitats through the protection of migration corridors.	NCDEQ	2020	Planning	N	N	7	Low	This strategy is consistent with the goals and objectives of Blueprint.	

NC Natural and Working Lands Action Plan	Protect and restore forests and wetlands within flood-prone areas.	NCDEQ	2020	Planning	N	N	7	Low	This strategy is consistent with the goals and objectives of Blueprint.
NC Resilient Coastal Communities Program *	The primary objective of Phase 3 of the RCCP is to provide funding to assist communities with the engineering and design of a prioritized project identified in their RCCP Resilience Strategy or other existing plans that meet the RCCP’s Phases 1 and 2 planning criteria. Some communities will also receive funds to develop or amend ordinances that improve their resilience to flooding and other coastal hazards or to otherwise take steps to manage stormwater and flooding. Most engineering and design projects feature natural and nature-based elements such as wetland restoration and living shoreline design.	NCORR	2020	Planning	N	N	20	High	This strategy is consistent with the goals and objectives of Blueprint.



RISE: Funding Forum*	<p>The Funding Forum, held in February 2023, addressed the obstacles to funding resiliency projects by introducing community leaders, policymakers, and other stakeholders to federal, state, and nonprofit funding opportunities for resilience-related projects. The free, one-day event allowed attendees to engage with potential funders, who supplied presentations and answered project-specific questions during break-out sessions. Attendees also had the opportunity to take part in a grant writing session to take their project one step closer to reality.</p>	NCORR	2020	Planning	N	N	19	High	<p>This strategy is consistent with the goals and objectives of Blueprint by advocating cost share for mitigation projects.</p>
NCDA&CS Climate Strategy Report	<p>Preserving upriver farms to reduce flooding in North Carolina.</p>	NCDA&CS	2022	Policy	N	N	7	Low	<p>This strategy is consistent with the goals and objectives of Blueprint.</p>
NCDA&CS Climate Strategy Report	<p>Provides education and implementation of cover crop, conservation tillage, and cropland conversion programs for</p>	NCDA&CS	2022	Project	N	N	9	Medium	<p>This strategy is consistent with the goals and</p>

	stormwater management, leading to increased rainfall infiltration and decreased soil erosion and runoff.									objectives of Blueprint.
NCDA&CS Climate Strategy Report	The Plant Conservation Program has secured funding to address existing culvert and road wash-out concerns at coastal plain preserves.	NCDA&CS	2022	Project	N	N	9	Medium		This strategy is consistent with the goals and objectives of Blueprint.
NCDA&CS Climate Strategy Report	Educational resources and examples are provided to farmers to utilize Noninsured Disaster Assistance programs, along with resources for cost share and disaster assistance programs to prepare and recover following weather disaster events.	NCDA&CS	2022	Project	N	N	7	Low		This strategy is consistent with the goals and objectives of Blueprint.
NCDEQ Climate Strategy Report	Implement Phase 2 of the Tribal Coastal Resilience Connection Project.	NCDEQ	2022	Project	N	N	18	High		This strategy is consistent with the goals and objectives of Blueprint.

NCDEQ Climate Strategy Report	Coordinate water resources rules revisions that support Executive Order 80.	NCDEQ	2022	Project	N	N	17	Medium	This strategy is consistent with the goals and objectives of Blueprint.
NCDEQ Climate Strategy Report	Create resilience tools and resources for local governments.	NCDEQ	2022	Project	N	N	17	Medium	This strategy is consistent with the goals and objectives of Blueprint.
NCDEQ Climate Strategy Report	Implement Phase 1 & 2 of RCCP Round 2.	NCDEQ	2022	Project	N	N	17	Medium	This strategy is consistent with the goals and objectives of Blueprint.
NCDEQ Climate Strategy Report	Implement Phase 3 & 4 of RCCP.	NCDEQ	2022	Project	N	N	17	Medium	This strategy is consistent with the goals and objectives of Blueprint.

NCDEQ Climate Strategy Report	In addition, environmental justice was incorporated into NCDEQ’s formal recommendations for updates to the Enhanced Hazard Mitigation plan.	NCDEQ	2022	Project	Y	N	17	Medium	This strategy is consistent with the goals and objectives of Blueprint.
NCDEQ Climate Strategy Report	Include climate change impacts in basin watershed action plans.	NCDEQ	2022	Project	N	N	16	Medium	This strategy is consistent with the goals and objectives of Blueprint.
NCDEQ Climate Strategy Report	Deliver Coastal Training Program to coastal decision-makers on nature-based strategies to reduce coastal hazards, barrier island development, and low-impact development basics for water quality protection.	NCDEQ	2022	Project	N	N	14	Medium	This strategy is consistent with the goals and objectives of Blueprint.
NCDEQ Climate Strategy Report	Launch Technical Assistance Grant for Stormwater Infrastructure.	NCDEQ	2022	Project	N	N	14	Medium	This strategy is consistent with the goals and objectives of Blueprint.

NCDEQ Climate Strategy Report	Add to the NC Flood Inundation Mapping and Alert Network.	NCDEQ	2022	Project	N	N	13	Medium	This strategy is consistent with the goals and objectives of Blueprint.
NCDEQ Climate Strategy Report	Secure Funding for Natural Infrastructure Flood Mitigation Program.	NCDEQ	2022	Policy	N	N	9	Medium	This strategy is consistent with the goals and objectives of Blueprint.
NCDEQ Climate Strategy Report	Complete dam breach modeling	NCDEQ	2022	Project	N	N	10	Medium	This strategy is consistent with the goals and objectives of Blueprint.
NCDEQ Climate Strategy Report	Conduct a hydrologic and hydraulic capacity study of the Neuse and Lumber River Basin dams.	NCDEQ	2022	Project	N	Y	10	Medium	This strategy is consistent with the goals and objectives of Blueprint.

NCDEQ Climate Strategy Report	Rachel Carson National Estuarine Research Reserve Habitat Resilience Plan that identifies and priorities areas for resilience projects based on known vulnerabilities and hazards.	NCDEQ	2022	Project	N	N	10	Medium	This strategy is consistent with the goals and objectives of Blueprint.
NCDEQ Climate Strategy Report	Execute Scuppernong River Study.	NCDEQ	2022	Project	N	N	9	Medium	This strategy is consistent with the goals and objectives of Blueprint.
NCDEQ Climate Strategy Report	Implement strategies for enhanced waste management storm preparedness.	NCDEQ	2022	Project	N	N	8	Low	This strategy is consistent with the goals and objectives of Blueprint.
NCDEQ Climate Strategy Report	Recalculate flow statistic methods.	NCDEQ	2022	Project	N	N	8	Low	This strategy is consistent with the goals and objectives of Blueprint.

NCDEQ Climate Strategy Report	Evaluate air monitoring site locations located in low drainage and flood-prone areas.	NCDEQ	2022	Project	N	N	7	Low	This strategy is consistent with the goals and objectives of Blueprint.
NCDEQ Climate Strategy Report	Increase resiliency of dams during storms.	NCDEQ	2022	Project	N	N	7	Low	This strategy is consistent with the goals and objectives of Blueprint.
NCDEQ Climate Strategy Report	Continue coastal habitat restoration at Cedar Island.	NCDEQ	2022	Project	N	N	5	Low	This strategy is consistent with the goals and objectives of Blueprint.
NCDHHS Climate Strategy Report*	Complete a flood survey assessment and develop adaptation strategies to promote environmental justice and equity by including input from community leaders who can advocate for the needs of their community and mitigate the risk of	NCDHHS	2022	Project	N	N	21	High	This strategy is consistent with the goals and objectives of Blueprint.

	isolation during flooding after a hurricane.								
NCDHHS Climate Strategy Report	Continue Black River Flooding Forecast Initiative that address the public health impacts of climate change by alerting residents that are most vulnerable to flood risks so they can make actionable steps.	NCDHHS	2022	Project	N	N	16	Medium	This strategy is consistent with the goals and objectives of Blueprint.
NCDIT Climate Strategy Report	Send teams to meet with county, city, and town information technology leaders to brainstorm ideas for improving and adapting resiliency planning ideas Continue Black River Flooding Forecast Initiative that address the public health impacts of climate change by alerting residents that are most vulnerable to flood risks so they can make actionable steps.	NCDIT	2022	Project	N	N	17	Medium	This strategy is consistent with the goals and objectives of Blueprint.
NCDMVA Climate Strategy Report	Integrate climate change adaptation practices and resiliency planning into cabinet agencies' policies and operations.	NCDMVA	2022	Policy	N	N	8	Low	This strategy is consistent with the goals and objectives of Blueprint.



NCDMVA Climate Strategy Report	Evaluate the impacts of climate change on cabinet agencies' programs and operations.	NCDMVA	2022	Policy	N	N	6	Low	This strategy is consistent with the goals and objectives of Blueprint.
NCDMVA Climate Strategy Report	Coordinate with facility owners of leased property supporting Veteran Service Centers to ensure the facilities are prepared for natural disasters Planned Expected Completion Date: TBD. NCDMVA plans to review contracts for all leased facilities to ensure they include owner's responsibility reference care for facility in the case of a natural disaster.	NCDMVA	2022	Project	N	N	7	Low	This strategy is consistent with the goals and objectives of Blueprint.
NCDMVA Climate Strategy Report	Develop and distribute a contacts list to keep necessary services up and running before, during, and after a disaster Planned Expected Completion Date: TBD. The NCDMVA plans to develop and internally distribute a local, state, and federal contacts list to facilitate disaster preparedness and response.	NCDMVA	2022	Project	N	N	7	Low	This strategy is consistent with the goals and objectives of Blueprint.

NCDMVA Climate Strategy Report	Protect the State Veterans Homes from Flooding Proposed Evaluate any additional protective measures that should be taken if a flooding incident takes place near the facility.	NCDMVA	2022	Project	N	N	6	Low	This strategy is consistent with the goals and objectives of Blueprint.
NCDMVA Climate Strategy Report	Adopt adaptation best practices for the State Veterans Cemeteries Proposed Expected Completion Date: June 30, 2030. The department will integrate any appropriate climate change adaptation practices and resiliency planning into the policies and operations of the State Veterans Cemeteries as required and as identified by NCDEQ.	NCDMVA	2022	Project	N	N	4	Low	This strategy is consistent with the goals and objectives of Blueprint.
NCDMVA Climate Strategy Report	Understand and address the effect of climate change on State Veterans Cemeteries Complete Completion Date: Summer 2022. The maintenance and landscaping of the State Veterans Cemeteries has become increasingly more complex with the temperature and rainfall changes during the seasons. Maintaining a lush, attractive plot of	NCDMVA	2022	Project	Y	N	4	Low	This strategy is consistent with the goals and objectives of Blueprint.

land requires innovation and skill to coordinate fertilization, installation, North Carolina Department of Military and Veterans Affairs 5 mowing, and mulching to peak growing seasons. This will minimize the wasted efforts during non-optimal growing seasons.

<p>NCDNCR Climate Strategy Report</p>	<p>Manage Land Restoration. Expected completion date: N/A. The Division of Parks and Recreation (DPR) is actively restoring lands and waters that have been damaged from past land activities. Actions on lands include conversion of pine plantations and abandoned agricultural fields to a more natural condition. Streams and wetlands are being restored by re-creating natural channels and removing artificial structures such as dams and culverts. Examples of DPR's restoration work include: 1. Phase 2 of the pine plantation conversion at the Deep River-Justice restoration project area continues with the treatment of invasive species, the reintroduction of prescribed fire, and the enhancement and monitoring of groundcover species appropriate to the site. 2. Dam removal at the Deep River Justice tract is scheduled to begin by the end of 2022. 3. Invasive species treatments continue at the Lake James State Park 126 restoration area, a prior eastern white pine</p>	<p>NCDNCR</p>	<p>2022</p>	<p>Project</p>	<p>N/A</p>	<p>N</p>	<p>15</p>	<p>Medium</p>	<p>This strategy is consistent with the goals and objectives of Blueprint.</p>
---------------------------------------	--	---------------	-------------	----------------	------------	----------	-----------	---------------	--

plantation. A successful prescribed fire in Spring 2022 was conducted jointly between DPR, North Carolina Forest Service, US Forest Service, and The Nature Conservancy staff members. This fire has facilitated the augmentation planting of shortleaf pine, Table Mountain pine, pitch pine, and additional fire appropriate white and red oak species. 4. DPR Natural Resources and Operation staffs are working collaboratively with Coastal Federation on the shoreline resiliency projects at Carolina Beach State Park, Hammocks Beach State Park, Theodore Roosevelt State Natural Area, Fort Macon State Park, and Jockey's Ridge State Park. 5. The pine plantation conversion project at Carvers Creek State Park will begin in FY23 (Phase 1). 6. Phase 3 prescribed fires and monitoring are planned for the Goose Creek restoration area in FY23. Groundcover and longleaf pine reintroductions, as well as initial prescribed fires have been completed to date. 7. DPR continues

to work with the Eno River Hydrilla Task Force to control this aquatic invasive species within the upper Neuse River basin. New, though patchy, populations of hydrilla were detected by DPR staff in August 2023. 8. Groundcover augmentation, mid-story control work, and prescribed fires are scheduled for FY23 at Weymouth Woods State Natural Area at the Boyd Tract, home to the oldest known longleaf pine in the US. This is to correct historic negative impacts. 9. Natural Resource staff are collaborating with UNC-Wilmington on a dendrochronological study at Weymouth Woods State Natural Area, Carvers Creek State Park, and Cliffs of the Neuse State Park to provide historical fire regime insight and inform future decisions. 10. Natural Resources staff are collaborating with the Southern Appalachian Spruce Restoration Initiative and the NC Natural Heritage Program to augment red spruce and Fraser fir populations on Mount Mitchell and Grandfather

Mountain State Parks, which have been historically impacted by past land-use, wildfires, invasive species, and now changing climatic conditions that effect the microhabitats and associated species. In collaboration with the Bog Learning Network, Natural Resource Program staff are continuing shrub control and invasive species management work at Pineola, Sugar Mountain, and Beech Creek bogs to protect several federal & state significant species.

<p>NCDNCR Climate Strategy Report</p>	<p>DNCR Strategic Plan. Expected completion date: June 2023. Conduct environmental reviews and provide assistance to constituents for disaster recovery, response, and mitigation for future events. During the next twelve months, DNCR will continue to provide support for planning and resiliency initiatives underway, and initiate planning, resiliency, and construction repair projects for historic resources. This work will take place under the Emergency Supplemental Historic Preservation Disaster Assistance grant projects for Hurricane Florence and Michael recovery. Additionally, the Environmental Review branch of the State Historic Preservation Office continues to work expeditiously to review all disaster-related and resiliency-oriented projects within a 30-day turnaround schedule. Finally, five members of the State Historic Preservation Office staff have completed or will complete Floodplain Management training</p>	<p>NCDNCR</p>	<p>2022</p>	<p>Project</p>	<p>N</p>	<p>N</p>	<p>14</p>	<p>Medium</p>	<p>This strategy is consistent with the goals and objectives of Blueprint.</p>
---	--	---------------	-------------	----------------	----------	----------	-----------	---------------	--



sponsored by the NCDPS by the end of calendar year 2022.									
NCDNCR Climate Strategy Report	Increase statewide resilience to the impacts of climate change	NCDNCR	2022	Project	N	N	13	Medium	This strategy is consistent with the goals and objectives of Blueprint.
NCDNCR Climate Strategy Report	Participate in the Recovery Support Functions of the SDRTF. Expected completion date: N/A. NC Natural Heritage Program and NC Land and Water Fund staff participate in the Environmental Recovery Support Function of the SDRTF, as does the State Historic Preservation Office in the Cultural Resources Recovery Support Function, contributing map data and recommendations for the upcoming Disaster Recovery Framework update. The State Historic Preservation Office will	NCDNCR	2022	Project	N/A	N	12	Medium	This strategy is consistent with the goals and objectives of Blueprint.

	participate in all update work as invited by the Emergency Management divisions of the NCDPS.									
NCDNCR Climate Strategy Report	DNCR Strategic Plan, Milestone 5.2.14 U Consider climate-related hazards when developing master plans for natural areas, parks, and nature preserves. Expected Completion Date: June 2023. Over the next 12 months, DPR will begin to develop a protocol for resiliency and climate related mitigation methods to implement into both the General Management Plan development and future Master Plans.	NCDNCR	2022	Project	N	N	11	Medium	This strategy is consistent with the goals and objectives of Blueprint.	
NCDNCR Climate Strategy Report	Assess Imperilment of Plants and Animal Species. Expected completion date: December 2022. The Natural Heritage Program is working to update the statewide lists of Rare Plant and Animal Species of NC. These reports, which are updated every two years, provide a list of all the plant and animal species that are listed as	NCDNCR	2022	Project	N	N	10	Medium	This strategy is consistent with the goals and objectives of Blueprint.	

Endangered, Threatened, or of Special Concern as well as all Significantly Rare species that are not formally protected but are imperiled enough to warrant tracking and monitoring to prevent extirpation. Habitat information and counties of occurrence are also included. The Natural Heritage Program is currently coordinating with the NC Wildlife Resources Commission and NC Plant Conservation Program to add state Threatened, Endangered, and Special Concern plant species to the State Wildlife Action Plan Species of Greatest Conservation Need. The proposal has been submitted to the US Fish and Wildlife Service and a decision is expected before the end of 2022. In late 2021, the Natural Heritage Program launched range-wide status surveys of Carolina Hemlock and Mountain Purple Pitcher Plant, assessing threats from all sources including climate change, habitat fragmentation, and invasive species.

<p>NCDNCR Climate Strategy Report</p>	<p>Complete the NC Shorescape Archaeological Survey Planned Expected Completion Date: Unknown. In FY2022-2023, the Office of State Archaeology will undertake a North Carolina Shorescape Survey to identify and document archeological resources associated with coastal communities that are most at risk of being damaged by storm events. The focus is on identifying and documenting sites within 200 ft (60 meters) of the shoreline. The focus is on identifying and documenting sites within 200 ft (60 meters) of the shoreline, including into the submerged lands. Survey projects will go out for proposal and fieldwork will be completed over the next twelve months. These surveys will allow the Office of State Archaeology to determine the location and extent of shoreline archaeological resources, the conditions of these sites and their associated shorelines, the historical significance of these resources, and management strategies to preserve</p>	<p>NCDNCR</p>	<p>2022</p>	<p>Project</p>	<p>N</p>	<p>N</p>	<p>10</p>	<p>Medium</p>	<p>This strategy is consistent with the goals and objectives of Blueprint.</p>
---	---	---------------	-------------	----------------	----------	----------	-----------	---------------	--

	these shoreline archaeological resources.									
NCDNCR Climate Strategy Report	Integrate climate change adaptation practices and resiliency planning into cabinet agencies' policies and operations.	NCDNCR	2022	Project	N	N	10	Medium	This strategy is consistent with the goals and objectives of Blueprint.	
NCDNCR Climate Strategy Report	Participate in the US Army Corps of Engineers (USACE) South Atlantic Coastal Study At-Risk Cultural Resources Analysis Underway Expected Completion Date: Unknown. For this project, the Office of State Archaeology and NC State Historic Preservation Office are consulting with USACE to identify cultural resources (historic and archaeological sites, historic districts, and other historic resources) vulnerable to coastal storm damage and sea level rise.	NCDNCR	2022	Project	N	N	10	Medium	This strategy is consistent with the goals and objectives of Blueprint.	

This analysis is part of a multi-state effort throughout the southeastern United States and Caribbean. Geographic Information Systems (GIS) and archaeological and architectural survey data along with staff expertise are all proving crucial to informing this effort. Many of the places identified are federal and state historic assets open to the public. Both the North Carolina Office of State Archaeology as well as North Carolina State Historic Preservation Office will continue to work with the USACE as the progress proceeds per USACE timelines.

<p>NCDNCR Climate Strategy Report</p>	<p>Conduct Teddy Roosevelt Natural Area Biodiversity Surveys. NC Aquariums conducted two biodiversity surveys in the Teddy Roosevelt Natural Area, adjacent to the Pine Knoll Shores Aquarium, 40 years apart. This long-term monitoring data could be tied to climate change. This project has been completed.</p>	<p>NCDNCR</p>	<p>2022</p>	<p>Data Acquisition and Management</p>	<p>N</p>	<p>N</p>	<p>9</p>	<p>Medium</p>	<p>This strategy is consistent with the goals and objectives of Blueprint.</p>
---------------------------------------	---	---------------	-------------	--	----------	----------	----------	---------------	--

<p>NCDNCR Climate Strategy Report</p>	<p>DNCR Strategic Plan, Milestone 5.2.11 Underway Expected Completion Date: June 2023. NC Museum of Art: Complete bridge, culvert, path repairs and replacement and stream restoration</p>	<p>NCDNCR</p>	<p>2022</p>	<p>Project</p>	<p>N</p>	<p>N</p>	<p>9</p>	<p>Medium</p>	<p>This strategy is consistent with the goals and objectives of Blueprint.</p>
<p>NCDNCR Climate Strategy Report</p>	<p>Help Libraries Contribute to Community Disaster Preparedness Planned Expected Completion Date: December 2023. For this project, the State Library will collaborate with the NC Public Library Directors Association to recognize and support the role that libraries play in disaster preparedness and recovery efforts more formally. Planning will begin the Winter/Spring of 2022-23 by forming a committee and creating an action plan for 2023. The project team will assess the types of support the State Library can offer libraries for this role.</p>	<p>NCDNCR</p>	<p>2022</p>	<p>Project</p>	<p>N</p>	<p>N</p>	<p>9</p>	<p>Medium</p>	<p>This strategy is consistent with the goals and objectives of Blueprint.</p>

<p>NCDNCR Climate Strategy Report</p>	<p>Hire a Sustainability Coordinator in DNCR Complete Completion Date: September 2022. DNCR developed a new sustainability coordinator position and hired the successful candidate in September 2022. This position supports the development and implementation of actions, policy, and program decisions to ensure DNCR is a leader among state agencies in addressing environmental sustainability, including but not limited to: assistance to divisions in the development of resilience and adaptation strategies for the effects of a changing climate; the creation of departmental strategies, goals, and benchmarks for mitigating carbon emissions in response to objectives and priorities set by the Governor and Secretary; and the development and implementation of educational materials and programs that capitalize on the potential of DNCR’s public-facing sites and programs to raise awareness among North Carolinians</p>	<p>NCDNCR</p>	<p>2022</p>	<p>Project</p>	<p>Y</p>	<p>N</p>	<p>9</p>	<p>Medium</p>	<p>This strategy is consistent with the goals and objectives of Blueprint.</p>
---	--	---------------	-------------	----------------	----------	----------	----------	---------------	--



<p>about environmental sustainability and science.</p>									
<p>NCDNCR Climate Strategy Report</p>	<p>Inventory and Monitor State Nature Preserves Ongoing Expected Completion Date: N/A. Field Biologists monitor rare species as they conduct biological inventories of lands under consideration for protection as state nature preserves. Special attention is paid to species and habitats that are most vulnerable to a changing climate and natural disasters such as hurricanes, floods, and landslides. During the field season of 2022, Natural Heritage Program staff worked closely with NCDPS to survey natural areas at prisons and propose new state nature preserves on state-owned land. During the upcoming year, the Natural Heritage Program plans to survey lands along the Waccamaw River (Columbus</p>	<p>NCDNCR</p>	<p>2022</p>	<p>Project</p>	<p>N/A</p>	<p>N</p>	<p>9</p>	<p>Medium</p>	<p>This strategy is consistent with the goals and objectives of Blueprint.</p>

	County), Pond Mountain (Ashe County), and Chowan River (Bertie County), as well as many additional sites.									
NCDNCR Climate Strategy Report	DNCR Strategic Plan, Milestone 5.2.12 Underway Expected Completion Date: June 2023. Evaluate off site storage solutions for collections at risk from the triple threats of flooding, heavy precipitation, and sea level rise climate risks across the department.	NCDNCR	2022	Project	N	N	8	Low	This strategy is consistent with the goals and objectives of Blueprint.	
NCDNCR Climate Strategy Report	DNCR Strategic Plan. Underway Expected Completion Date: June 2023. Floodplain and wetland acquisition and restoration.	NCDNCR	2022	Project	N	N	8	Low	This strategy is consistent with the goals and objectives of Blueprint.	
NCDNCR Climate Strategy Report	Monitor Wildlife and Plants for Climate Change Impacts Ongoing Expected Completion Date: N/A. DNCR is identifying potential impacts of climate change on plants and animals in North Carolina. Over	NCDNCR	2022	Project	N	N	8	Low	This strategy is consistent with the goals and objectives of Blueprint.	

	<p>time, scientists will be able to correlate data with changes in weather patterns and sea levels. DNCR is monitoring the following species and animal groups: Sand tiger sharks, Sea turtles (all species), Crystal skipper butterfly, Gopher frogs – two populations at Pine Knoll Shores, Least Tern colony at Pine Knoll Shores, Stranded marine mammals (all species) along the northern NC coastline, and Lionfish on offshore shipwrecks.</p>									
NCDOA Climate Strategy Report	Integrate climate change adaptation practices and resiliency planning into cabinet agencies’ policies and operations.	NCDOA	2022	Policy	N	N	10	Medium	This strategy is consistent with the goals and objectives of Blueprint.	
NCDOT Resiliency Strategy Report	Integrate climate adaptation and resiliency strategies into local government comprehensive plans	NCDOT	2022	Planning	N	N	16	Medium	This strategy is consistent with the goals and objectives of Blueprint.	

NCDOT Resiliency Strategy Report	Statewide Roadway Inundation Analysis. Upload to NCDOT GIS platform early 2022.	NCDOT	2022	Planning	Y	N	8	Low	This strategy is consistent with the goals and objectives of Blueprint By supporting state mapping projects.
NCDOT Resiliency Strategy Report	Incorporate resilience assessments in long range plans.	NCDOT	2022	Planning	N	N	7	Low	This strategy is consistent with the goals and objectives of Blueprint by facilitating resiliency planning pursuits.
NCDOT Resiliency Strategy Report	Coastal Roadway Inundation Tool.	NCDOT	2022	Planning	Y	N	6	Low	This strategy is consistent with the goals and objectives of Blueprint by supporting

										state mapping projects.
NCDOT Resiliency Strategy Report	Rail Special Transportation Circumstances Inundation analysis. Upload to NCDOT GIS platform early 2022.	NCDOT	2022	Planning	Y	N	6	Low		This strategy is consistent with the goals and objectives of Blueprint By supporting state mapping projects.
NCDOT Resiliency Strategy Report	US-70 vulnerability assessment pilot from Raleigh to Morehead.	NCDOT	2022	Planning	Y	N	5	Low		This strategy is consistent with the goals and objectives of Blueprint by supporting state mapping projects.

NCDOT Resiliency Strategy Report	US-74 vulnerability assessment pilot from Charlotte to Wilmington.	NCDOT	2022	Planning	Y	N	5	Low	This strategy is consistent with the goals and objectives of Blueprint by supporting state mapping projects.
NCDOT Resiliency Strategy Report	Address gaps in Ferry planning and standards - Assess the vulnerability of all the Ferry Division's infrastructure assets, including waterway channels, with respect to natural hazards.	NCDOT	2022	Project	N	N	7	Low	This strategy is does not fall within the goals and objectives of Blueprint.
NCDOT Resiliency Strategy Report	Continuing building and improving storm operation tools (FIMAN-T, FIMAN-T Surge, and Bridge Watch).	NCDOT	2022	Project	N	N	7	Low	This strategy is consistent with the goals and objectives of Blueprint.
NCDOT Resiliency	Continuing to pilot and assess risk and vulnerability studies: Future I-	NCDOT	2022	Project	N	N	6	Low	This strategy is consistent with the goals and

Strategy Report	87 corridor in eastern NC and I-40 and I-26 in the west.									objectives of Blueprint.
NCDOT Resiliency Strategy Report	Future Precipitation for Resilient Design Applied Research – Future rainfall distributions for modeling.	NCDOT	2022	Project	N	N	6	Low		This strategy is consistent with the goals and objectives of Blueprint by supporting state mapping projects.
NCDOT Resiliency Strategy Report	Continuing incorporating risk and resilience considerations into the Transportation Asset Management Plan.	NCDOT	2022	Planning	N	N	4	Low		This strategy is consistent with the goals and objectives of Blueprint by facilitating resiliency planning pursuits.

NCDOT Resiliency Strategy Report	I-95/I-40 Flood Resilience Study.	NCDOT	2022	Planning	Y	N	4	Low	This strategy is consistent with the goals and objectives of Blueprint by facilitating resiliency planning pursuits.
NCDOT Resiliency Strategy Report	Incorporating resilience planning into the Statewide Multimodal Freight Plan.	NCDOT	2022	Planning	N	N	4	Low	This strategy is does not fall within the goals and objectives of Blueprint.
RISE: Resilient Communities Guidebook*	Develop a climate resilience planning guide for local leaders. Expected completion date: December 2022. NCORR is working with a consultant to develop a resilient community planning guide for NC’s local governments. The guide will empower local and regional leaders to understand their climate vulnerabilities and develop	NCDPS	2022	Project	N/A	N	21	High	This strategy is consistent with the goals and objectives of Blueprint.



shared priorities for action. The guide will have two components: A playbook and an idea book. The playbook will guide users through the process of building a team, analyzing vulnerabilities and assets, brainstorming, prioritizing actions, and identifying implementation steps. The idea book will provide examples of projects, programs, and policies that improve resilience across social, economic, and environmental domains. The planning guide is supported by funding from the Economic Development Administration. It is being developed as a component of RISE in conjunction with the RCP, run in partnership with NCDEQ. Both components of the guide should be released in 2022.

RISE: Digital Resilience Clearinghouse*	Develop an online resilience resource center for local governments and community leaders. Expected completion date: December 2023. NCORR, in partnership with the NCDEQ and several NC environmental	NCDPS	2022	Project	N/A	N	21	High	This strategy is consistent with the goals and objectives of Blueprint.
---	--	-------	------	---------	-----	---	----	------	---

nonprofits and universities, has hired a consultant to begin the initial stages of developing an online climate resilience clearinghouse for local governments and community leaders. The tool is called for in the 2020 North Carolina Climate Risk Assessment and Resilience Plan (2020 Plan) and in the NC Natural and Working Lands Action Plan. The resource will “point users to relevant climate data and best practices for building resilience in an equitable way” (p. 7-15, 2020 Plan). The project is supported by funding from the US Climate Alliance.

<p>RISE: Regional Resilience Portfolio Program*</p>	<p>Support nine regions in the eastern half of the state to complete climate vulnerability assessments and develop implementation pathways for 5-10 priority projects. Expected completion date: December 2022. Since the program’s launch in fall 2021, NCORR, in partnership with NC Rural Center, has continued working with consultants and local stakeholders to develop a vulnerability assessment and a portfolio of five to ten regional resilience projects in each of the nine multi-county regions. As of September 2022, all nine vulnerability assessments have received public comments and are in the final stages of completion. In addition, all nine regions have developed a draft list of projects that are under review by local stakeholders. Over the next three months, NCORR will work with project partners to develop an implementation pathway for each resilience project, to include a project lead, potential funding opportunities, implementation</p>	<p>NCDPS</p>	<p>2022</p>	<p>Project</p>	<p>Y</p>	<p>N</p>	<p>21</p>	<p>High</p>	<p>This strategy is consistent with the goals and objectives of Blueprint.</p>
---	--	--------------	-------------	----------------	----------	----------	-----------	-------------	--

steps, and more. By December 2022, both documents– the vulnerability assessment and the portfolio of projects – in each region will be finalized and released the public. In early 2023, NCORR will work with each region to submit one project to the Duke Energy Foundation for full or partial funding. The Duke Energy Foundation has committed \$600,000 total to aid the implementation of the RISE Regional Resilience Portfolios. The project is part of the RISE program, which aims to address the need for local capacity building around long-term disaster recovery and resilience planning and implementation. RISE is part of RCP, run in partnership with NCDEQ. Funding from the Economic Development Administration and US Department of Housing and Urban Development supports this project.

CDBG-MIT Action Plan*	<p>NCORR has leveraged the experience of the UNC Development Finance Initiative to build a strategy for the development and preservation of rental housing in the 23 counties most impacted and distressed by Hurricanes Matthew and Florence. The planning study has identified the types of affordable and resilient housing, including multi-family dwellings, single family homes, and other housing types most needed by those counties. Further, the study evaluates the availability of suitable properties, the development community’s capacity, and the financial feasibility of the housing types needed. The plan is intended to inform the allocation of recovery funds through NCORR’s affordable housing development fund to create new affordable housing that is safer, more resilient, and better matched with the needs of each impacted area. The bulk of the analysis, completed in June 2022, includes final strategic recommendations and tools. The final written report is</p>	NCDPS	2022	Project	N	19	High	<p>This strategy is consistent with the goals and objectives of Blueprint.</p>
--------------------------	---	-------	------	---------	---	----	------	--

expected in October 2022. In addition, NCORR will use the planning data to produce county-specific analysis and reporting for each of the 23 counties by March 2023.

NCDPS  
Climate  
Strategy  
Report

Facilitate the SDRTF to coordinate efforts and advise state government as needed on recovery and resilience. Expected completion date: N/A. NCORR manages the SDRTF, which supports and advises state agencies as they address long-term recovery and undertake resilience-building initiatives statewide. The SDRTF is made up of 12 committees called Recovery Support Functions (RSFs). Since the start of this year, the Environmental Preservation RSF has held several meetings to update members on ongoing resilience efforts across state agencies, including rainfall modeling and data gathering, local capacity building, and nature-based

NCDPS

2022

Project

N/A

N

19

High

This strategy is consistent with the goals and objectives of Blueprint.

flood reduction planning efforts for which NCDEQ has received funding through NCORR's Community Development Block Grant Mitigation (CDBG-MIT) program. The Nonprofit and Volunteerism RSF worked on its first set of recommendations on improving diversity, equity, and inclusivity in disaster recovery and resilience. Two overarching themes of the recommendation document are to strengthen relationships between NCEM and nonprofits with strong ties to Black and Latino populations and to allocate disaster resources in a way that reduces equity gaps. The Housing RSF discussed how the American Rescue Plan Act programs can work together to support NC residents in obtaining and staying in safe, secure, and affordable housing across income spectrums. Housing instability and housing cost burden are strong drivers of household-level vulnerability to climate change. NCORR has made significant strides toward implementing the recommendation

	of the Housing RSF to increase the production of affordable, accessible housing by leveraging Community Development Block Grant Disaster Relief (CDBG-DR) funds.									
NCDPS Climate Strategy Report	Support the update and modeling of NC climate impacts, local capacity building, and planning for nature-based solutions to flooding impacts. Expected completion date: N/A. Through its administration of the CDBG-MIT, NCORR is funding several planning efforts by other state agencies that increase statewide resilience to climate change impacts. These projects update the state’s data and modeling of climate impacts including rainfall and drought, build local capacity to	NCDPS	2022	Project	N	N	19	High	This strategy is consistent with the goals and objectives of Blueprint.	



design solutions to climate vulnerabilities, and develop a natural infrastructure flood mitigation program. Thus far, NCORR has entered into four funding agreements with NCDEQ and one with NCDOT to support these important efforts:

- RCCP. NCDEQ, Division of Coastal Management. \$500,000 CDBG-MIT.
- Statewide Probable Maximum Precipitation Study. NCDEQ, Division of Energy, Mineral, and Land Resources. \$500,000 CDBG-MIT.
- Low Flow Statistics Re-Evaluation and Public Water Supply Boundary Area Assessment. NCDEQ, DWR. \$740,700 CDBG-MIT.
- Development of the Natural Infrastructure Flood Mitigation Program and Modeling of Nature-Based Solutions for Flooding. NCDEQ, DMS. \$340,800 CDBG-MIT.
- Updating the Precipitation Frequency Estimates for North Carolina, NOAA Atlas 14, NCDOT, \$237,120 CDBG-MIT

Over the next year, NCORR will continue to partner with NCDEQ and NCDOT to

monitor progress on these efforts. NCORR is also in the process of entering into a similar agreement with the State Climate Office, NC State University, to fund a project to incorporate climate data into the state’s precipitation statistics and create a publicly available, user-friendly interface for this information.

NCDPS Climate Strategy Report	<p>Begin administering the Building Resilient Infrastructure and Communities program. Expected Completion Date: N/A. In 2020, the federal government released its pre-disaster mitigation program, BRIC. NCEM launched BRIC, which aims to shift the focus away from reactive disaster spending and toward research-supported, proactive investment in community resilience. In the 2020 BRIC application, 32 projects were submitted for competitive evaluation by FEMA, and five were selected for awards</p>	NCDPS	2022	Project	N/A	N	17	Medium	This strategy is consistent with the goals and objectives of Blueprint.
-------------------------------	---	-------	------	---------	-----	---	----	--------	---

	<p>worth approximately \$30M. The State is currently waiting for these projects to receive an award letter and begin work. In the 2021 BRIC application, 49 projects totaling approximately \$167M were submitted for competitive evaluation by FEMA. FEMA review of all submitted projects is ongoing, with an expected notification date of selection on July 21.</p>								
NCDPS Climate Strategy Report	<p>Conduct flood mitigation studies. Expected completion date: Fall 2022. In 2020, NCEM initiated new flood mitigation studies for the Northeast Cape Fear River, Cape Fear River, Little River, and Cashier River Basins. NCEM completed flood and mitigation alternatives analyses in the summer of 2022 and is in the process of completing the final reports for the project. Final reports will be complete and loaded to the Rebuild NC website (<a href="https://www.rebuild.nc.gov/resiliency/river-basin-studies">https://www.rebuild.nc.gov/resiliency/river-basin-studies</a>) to share with the public in the Fall of 2022.</p>	NCDPS	2022	Project	Y	N	16	Medium	This strategy is consistent with the goals and objectives of Blueprint.

<p>NCDPS Climate Strategy Report</p>	<p>Account for climate change in the State Hazard Mitigation Plan. Expected completion date: Fall 2022. Ensure the Enhanced State Hazard Mitigation Plan includes an emphasis on addressing the projected impacts of climate change and on protecting, communicating with, and serving marginalized populations. NCEM has integrated climate change and the North Carolina Climate Risk Assessment and Resilience Plan (Resilience Plan) into the Enhanced State Hazard Mitigation Plan update to the extent feasible. New FEMA guidance comes into play in April of 2023 that includes specific considerations for climate change in the risk analysis as well as an expansion of outreach to underserved populations. The current update is expected to be completed and approved before the new guidance comes into play, but NCEM did, at the suggestion of the Resilience Plan, begin to address some specific impacts of climate change in the hazard analysis, specifically regarding heat and</p>	<p>NCDPS</p>	<p>2022</p>	<p>Project</p>	<p>N/A</p>	<p>N</p>	<p>15</p>	<p>Medium</p>	<p>This strategy is consistent with the goals and objectives of Blueprint.</p>
--	---	--------------	-------------	----------------	------------	----------	-----------	---------------	--

<p>flooding, addressing anticipated changes in frequency/intensity of drought and flood conditions and the impacts of same on wildfire and landslide hazards. NCEM put the draft up for public comment from September 22 to October 14, 2022.</p>									
<p>NCDPS Climate Strategy Report</p>	<p>Work with local governments impacted by Hurricane Matthew to restore damaged critical infrastructure. Expected completion date: August 2024. NCCORR's Infrastructure Program is currently developing community infrastructure projects in Bladen, Duplin, Hyde, and Robeson Counties, the City of Lumberton, and the Towns of St. Paul's and Princeville. These projects include a range of critical infrastructure and technical assistance for subrecipient projects as varied as drainage studies, stormwater drainage, development of potable water sources, sewer improvements,</p>	<p>NCDPS</p>	<p>2022</p>	<p>Project</p>	<p>N</p>	<p>N</p>	<p>15</p>	<p>Medium</p>	<p>This strategy is consistent with the goals and objectives of Blueprint.</p>

demolition of dangerous building ruins, and rehabilitation of buildings to be used for critical community services. Additionally, the Infrastructure Program is lending assistance in the construction of infrastructure to build flood-safe communities, most notably in the Town of Princeville, and is currently monitoring the development and construction of a homeless services building in the City of Fayetteville, which is forecasted to be completed in the early summer of 2023. During the past year, the program has assisted subrecipients in completing the construction of stormwater infrastructure in Nash County and the ongoing, aforementioned facility in Fayetteville, assisted subrecipients with procurement of nine architectural-engineering firms for design of infrastructure improvements, and closely followed the completion of a countywide stormwater drainage study that includes hydrological and hydraulic calculations that will inform the county as they develop feasible and

	<p>cost-effective designs to address extensive stormwater drainage problem throughout the county. Over the next 12 months, the program’s subrecipients plan to construct approximately 15 projects. The program is closely monitoring contracted scoping tasks and accompanying timelines for design and is proactively advising sub recipients on the next steps, leading toward construction and successful completion.</p>									
<p>NCDPS Climate Strategy Report</p>	<p>Conduct a vulnerability assessment of facilities within the Division of Adult Corrections. Expected completion date: December 2024. Funding in the amount of \$3 million was approved to begin Phase I of a Comprehensive Facility Strategy for our Prison Facilities. The funding is an initial step of a \$25 million effort to develop an operational strategy and model for the prison system. It will include a vulnerability review NCDPS as part of the Facility</p>	<p>NCDPS</p>	<p>2022</p>	<p>Project</p>	<p>N</p>	<p>N</p>	<p>14</p>	<p>Medium</p>	<p>This strategy is consistent with the goals and objectives of Blueprint.</p>	

<p>Condition Index for all Prison locations. The Condition Index will be coupled with operational data to determine the most efficient usage of all resources for the custody management of inmates.</p>									
<p>NCDPS Climate Strategy Report</p>	<p>Conduct building vulnerability assessments and identify mitigation strategies for areas impacted by riverine flooding from Hurricanes Matthew and Florence. Completion date: Fall 2022. In 2020, NCEM began a building-level risk assessment and mitigation strategy development process for approximately 12,000 square miles of unstudied streams heavily impacted by riverine flooding from Hurricanes Matthew and Florence. Flood risk analyses and building-level flood damages and mitigation alternatives assessments were completed in the Summer of 2022, and NCEM recently launched the NCEM Advisory Flood Data viewer (<a href="https://flood.nc.gov/advisoryflood/">https://flood.nc.gov/advisoryflood/</a>) to disseminate study reports, flood analyses boundaries, and building-</p>	<p>NCDPS</p>	<p>2022</p>	<p>Project</p>	<p>Y</p>	<p>N</p>	<p>13</p>	<p>Medium</p>	<p>This strategy is consistent with the goals and objectives of Blueprint.</p>



	level risk assessment data to local communities, state agencies, and the public.									
NCDPS Climate Strategy Report	Increase statewide resilience to the impacts of climate change.	NCDPS	2022	Project	N/A	N	13	Medium	This strategy is consistent with the goals and objectives of Blueprint.	
NCDPS Climate Strategy Report	Support the development of an update to the NC Uniform Floodplain Management Policy for State Construction. Expected completion date: December 2023. NCORR, in partnership with NCEM and the NCDOA, collaborated with the Governor’s Office to develop Executive Order 266. The EO directs NCDOA to update the state’s requirements for construction on state land subject to flooding. A direct outgrowth of NCORR’s work with the Interagency Resilience Team, the Executive Order will	NCDPS	2022	Project	N	N	13	Medium	This strategy is consistent with the goals and objectives of Blueprint.	

result in increased resilience for state assets by both updating the requirements for such construction (which requirements had last been updated in 1990) and by expanding the scope of projects subject to such requirements by implementing a flood risk management process beyond application of the previous 100-year floodplain standard. NCORR will assist NCDOA with developing the requirements and flood risk management standards. Executive Order 266 provides an 18-month deadline for NCDOA’s adoption of the new policy.

<p>NCDPS Climate Strategy Report</p>	<p>Conduct a dam breach analysis on intermediate and high-hazard dams. Expected completion date: Spring 2023 In 2020, NCEM began conducting dam breach analyses on the remaining 859 intermediate and high-hazard dams in NC that currently do not have dam failure inundation boundaries or building and road risk information. The agency is developing rainfall-runoff hydrological modeling for 287 dams,</p>	<p>NCDPS</p>	<p>2022</p>	<p>Project</p>	<p>N/A</p>	<p>N</p>	<p>12</p>	<p>Medium</p>	<p>This strategy is consistent with the goals and objectives of Blueprint.</p>
--------------------------------------	---	--------------	-------------	----------------	------------	----------	-----------	---------------	--

installing gauges to monitor for dam failure at 130 critical state and locally owned dams, and integrating all data into a secure monitoring, alert, and warning system. NCEM has completed an analysis of all intermediate and high-hazard dams, and this information was loaded into the State Emergency Response Application and the dam warning and alert application. NCEM has also completed rainfall-runoff modeling for 287 dams and has loaded this data into the dam alert and monitoring software. Finally, NCDEQ Dam Safety has secured long-term funding for annual software fees to continue the dam alert and warning application. NCEM has recently awarded a contract to install 34 remaining ultrasonic water level sensors and anticipates having these installed by early 2023. Also, NCEM plans to award a contract to install 29 remaining pressure transducer water level gauges at dams and install those by early spring 2023. These water level gauges will be integrated into the

dam alert and warning application once installation is complete.									
NCDPS Climate Strategy Report	Integrate climate change adaptation practices and resiliency planning into cabinet agencies' policies and operations.	NCDPS	2022	Policy	N	N	10	Medium	This strategy is consistent with the goals and objectives of Blueprint.

<p>NCDPS Climate Strategy Report</p>	<p>Coordinate state agencies' annual Climate Strategy Reports. Expected Completion Date: Annually: October 2022. In 2022, the Governor's Office issued a memo requesting that all state agencies annually report their progress on implementing the actions in the 2020 Climate Risk Assessment and Resilience Plan, Executive Order 80, and Executive Order 246 in one report – the Climate Strategy Report, due each October. Previously, State agencies reported progress on the Resilience Plan and Executive Order 80 in separate documents; this is the first time State agencies will report on Executive Order 246, announced in January 2022. NCORR, in partnership with the NCDEQ, developed a template and created a process for each agency to submit their accomplishments to the Governor's Office, the NC Climate Change Interagency Council, and the public. NCORR will continue coordinating and advising state agencies on this reporting process in 2023. Facilitate a stream</p>	<p>NCDPS</p>	<p>2022</p>	<p>Project</p>	<p>Y</p>	<p>N</p>	<p>11</p>	<p>Medium</p>	<p>This strategy is consistent with the goals and objectives of Blueprint.</p>
--	--	--------------	-------------	----------------	----------	----------	-----------	---------------	--

management and flooding reduction working group. Expected completion date: N/A. NCORR has established an intergovernmental working group comprising representatives from the NCDEQ, NCDDA&CS, and NCDNCR, among others, and is conducting outreach to other stakeholders outside of state government to recruit for membership. NCORR has submitted two reports to the Joint Legislative Commission on Governmental Operations and NCDPS, the Fiscal Research Division, regarding the findings and recommendations of the working group. Thus far, the working group has identified several issues for further discussion and recommendation, including (among others):

- The need for restricting development in the floodplain and expanding the requirements for floodproofing.
- The need for land conservation along the coast and within floodplains, and the need to reinstate NC's land conservation tax credit to incentivize keeping people and development out of areas

<p>vulnerable to flooding. The need for ongoing outreach and education regarding what can be accomplished through various flood reduction methods to improve public and private decision making. Over the course of the next 12 months, the working group will further refine and develop these and other recommendations for the legislature. In the short term, the working group intends to focus its efforts on analyzing the 2021 Flood Resilience Study by the NC Policy Collaboratory, which was submitted to the state legislature.</p>									
NCDPS Climate Strategy Report	Facilitate interagency communication on resilience topics projects. Expected completion date: N/A. NCORR facilitates the Interagency Resilience Team, as called for in Chapter 7 of the 2020 Climate Risk Assessment and Resilience Plan, to provide a structure for State staff to	NCDPS	2022	Project	N/A	N	11	Medium	This strategy is consistent with the goals and objectives of Blueprint.

	<p>coordinate resilience projects and to support the development of annual Climate Strategy Reports. The Interagency Resilience Team includes at least one resilience lead from each state cabinet agency, as well as the NCDA&amp;CS and the Wildlife Resources Commission. This team meets monthly.</p>								
NCDPS Climate Strategy Report	Evaluate the impacts of climate change on cabinet agencies' programs and operations.	NCDPS	2022	Project	N/A	N	10	Medium	This strategy is consistent with the goals and objectives of Blueprint.
NCDPS Climate Strategy Report	Repair and elevate storm-damaged homes. Expected completion date: N/A. NCORR administers the ReBuild NC Homeowner Recovery Program, NC's long-term disaster recovery program, to repair and elevate storm-damaged homes. Between March and August 2022, NCORR completed 35 repair and elevation projects despite facing challenges from nationwide material delays, labor shortages, and a significant	NCDPS	2022	Project	N	N	10	Medium	This strategy is consistent with the goals and objectives of Blueprint.



increase in material pricing. Those 35 projects consist of manufactured housing replacements, reconstruction of single-family residences, and rehabilitation of single-family residences. Since March 2022, NCORR has made a series of enhancements to the Rebuild program. NCORR transitioned from a construction management vendor to a state-run residential construction management program. In addition to the overhaul of construction management, NCORR has begun to post procurements to the State's Interactive Purchasing System. Due to these changes, NCORR expects to complete over 200 manufactured home replacements and reconstruction, rehabilitation, and elevation projects by the end of December 2022. ReBuild NC is made possible through the US Department of Housing and Urban Development's CDBG-DR and CDBG-MIT funding.

<p>NCDPS Climate Strategy Report</p>	<p>Conduct a vulnerability assessment of National Guard facilities and relocate buildings as needed. Expected completion date: January 2040. The NC National Guard is shifting to a “Hub and Spoke” model of a few large Regional Readiness Centers with a network of smaller Readiness Centers surrounding them strategically. The Guard’s Construction and Facility Maintenance Office is applying data on sea level rise and other resilience information to determine which current facilities are not sustainable, given current climate projections. With that information, the Guard will prioritize new construction projects and decide what properties can be retired. This process is expected to be ongoing over a period of decades as Congress makes more funds available to re- envision how the National Guard operates from a structural standpoint. Climate resilience will always be a critical element of decision-making.</p>	<p>NCDPS</p>	<p>2022</p>	<p>Project</p>	<p>N</p>	<p>N</p>	<p>9</p>	<p>Medium</p>	<p>This strategy is consistent with the goals and objectives of Blueprint.</p>
--	--	--------------	-------------	----------------	----------	----------	----------	---------------	--

<p>NCDPS Climate Strategy Report</p>	<p>Purchase homes in the floodplain. Expected completion date: April 2026. NCORR administers the ReBuild NC Strategic Buyout Program, which is a voluntary program that purchases properties that are at risk for flooding and turns them into deed-restricted greenspace. The Strategic Buyout Program engages closely with local governments and communities to identify contiguous areas that are good fits for the program, and the program offers generous financial incentives to encourage applicants to move to places that are less at risk for flooding. The program has received 230 applications since the program opened in January 2020 and has received 23 applications since March 2022. The program has undergone significant streamlining efforts in the last several months, which has resulted in a 937% increase in movement toward project completion. The program made its first three offers to applicants in July 2022. For the next 12 months, the program expects to</p>	<p>NCDPS</p>	<p>2022</p>	<p>Project</p>	<p>N</p>	<p>N</p>	<p>9</p>	<p>Medium</p>	<p>This strategy is consistent with the goals and objectives of Blueprint.</p>
--	---	--------------	-------------	----------------	----------	----------	----------	---------------	--

onboard state staff to facilitate applicant progression, begin purchasing homes, and expand to additional areas. NCORR intends to continue to identify areas in which the program can be simplified and will be making additional changes throughout the next year.

<p>NCDPS Climate Strategy Report</p>	<p>Improve data collection at sites where flooding is common. Completion date: Fall 2022. To improve the data collection capabilities of the State Emergency Response Team, NCEM purchased and is installing river gauges at 71 additional sites statewide and updated flood inundation libraries and risk assessments for these additional sites beginning in 2020. NCEM completed installing these 71 new radar gauges in May of 2022, and all data was loaded to and is being shared through the Flood Inundation Mapping and Alert Network (FIMAN) application (<a href="https://fiman.nc.gov/">https://fiman.nc.gov/</a>)</p>	<p>NCDPS</p>	<p>2022</p>	<p>Data Acquisition and Management</p>	<p>N/A</p>	<p>N</p>	<p>8</p>	<p>Low</p>	<p>This strategy is consistent with the goals and objectives of Blueprint.</p>
--	--	--------------	-------------	--	------------	----------	----------	------------	--

<p>NCDPS Climate Strategy Report</p>	<p>Pilot a flood insurance program. Expected completion date: TBD. NCORR and NCEM are working towards piloting a flood insurance program. The initiative is in the process of being integrated into the existing ReBuild NC Homeowner Recovery Program, which supports communities significantly impacted by Hurricanes Matthew and Florence. Currently, NCORR continues to refine program policies, procedures, and the system of recording business requirements. NCORR has discussed flood insurance purchase requirements with FEMA and NFIP in general and as they relate to newly constructed structures. Flood insurance policies cannot be transferred from building to building but rather are transferred from owner to owner. Hence, an eligible applicant's existing flood insurance policy on the old structure would need to be canceled, and a new flood insurance policy would need to be purchased for the new replacement structure. NCORR was informed by FEMA that</p>	<p>NCDPS</p>	<p>2022</p>	<p>Project</p>	<p>N/A</p>	<p>N</p>	<p>8</p>	<p>Low</p>	<p>This strategy is consistent with the goals and objectives of Blueprint.</p>
--	--	--------------	-------------	----------------	------------	----------	----------	------------	--

two-year flood insurance policies may not be pre-purchased, and it takes 30 days for a flood insurance policy to be in effect. NCORR is developing procedures with all of FEMA's requirements in mind to ensure there are no lapses in flood insurance for eligible applicants. NCORR is also reviewing FEMA's risk rating for North Carolina as those impact flood insurance premiums. NFIP State Coordinator (NCEM) facilitated a meeting on June 14, 2022, between NCORR and FEMA Region IV Flood Insurance Liaison to discuss providing NCORR with direct access to NFIP Insurance Data.

RISE Program	RISE will be supplying coaching and technical assistance to regional partners to support community vulnerability assessments, find priority actions to reduce risk and enhance resilience in their region, and develop paths to implementation.	NCORR	2021	Planning	N	N	19	High	This strategy is consistent with the goals and objectives of Blueprint.
--------------	---	-------	------	----------	---	---	----	------	---

RISE Program	Hosting regional leadership training workshops that emphasize resilience as a tool for community economic development.	NCORR	2021	Planning	N	N	15	Medium	This strategy is consistent with the goals and objectives of Blueprint.
--------------	--	-------	------	----------	---	---	----	--------	---