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Subtask 4.1: Flood Resiliency Blueprint Tool Requirements

North Carolina Flood Resiliency Blueprint

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Tables

Definitions

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

- https://ncfloodblueprint.com/documents/DraftBlueprint_DefinitionsGlossary.pdf (PDF)

Acronyms

API	Application Programming Interface
COG	Council of Government
GIS	Geographic Information System
NC	North Carolina
NCDEQ	North Carolina Department of Environmental Quality
NCDIT	North Carolina Department of Information Technology
NGO	Non-Governmental Organization
PDF	Portable Document Format
REST	Representational State Transfer
SDK	Software Development Kit
URL	Uniform Resource Locator
US	United States

1 Introduction

This section outlines recommendations for the following subtasks:

- **Subtask 4.1** - **Documentation of requirements needed to develop a suite of functions to produce an online decision support tool**. Resources shall be readily available to the public and not require software installation to access data or tools. Tools shall be developed to support decision-making at multiple levels: state, regional, and local, with an intended audience ranging from private citizens to regional planners to Legislative partners. These tools will allow all users to conduct scenario analysis and exploration based on climate predictions, identify areas with conservation values that can mitigate flooding impacts, identify funding sources, query data, and execute reports to facilitate decision-making. In addition, users shall be able to prioritize projects and/or approaches based on outcomes, community impact, cost, and collective impact on the environment and stakeholders.

1.1 Background and Purpose

In 2021, the North Carolina General Assembly, per session law 2021-180 SB105, directed the North Carolina Department of Environmental Quality (NCDEQ) Division of Mitigation Services to develop a Statewide Flood Resiliency Blueprint (Blueprint) to increase community resiliency to flooding.

The Blueprint's purpose is to be a standardized, basin-wide flood resiliency approach applicable to all 17 North Carolina River basins. The Blueprint will include the Flood Resiliency Blueprint Tool (Blueprint Tool), a decision-support tool that forms the backbone of the state flood planning process. The Blueprint Tool intends to achieve a cohesive effort encompassing county, municipal, state, federal, and non-governmental organization (NGO) participation.

As mentioned throughout this document, Phase II of the NC Flood Resiliency Blueprint Project will focus more on the exact look, user experience, and functionality of the Blueprint Tool. It will build from the research, gap analysis, and recommendations that are products of Phase I of the project. Using the Agile process (a dynamic approach to software development), the Blueprint Team and a select user group will be extensively engaged in creating and refining the Blueprint Tool. The detailed information shown below should not be considered final.

1.2 Blueprint Tool Role in Broader Blueprint Decision-making Process

The Blueprint will accomplish several key goals, including:

- Develop community and basin-specific risk management processes to identify and address flooding for North Carolina communities.

- Develop an online Flood Resiliency Blueprint Tool that provides decision support and seamlessly guides state, county, municipal, and other jurisdictions to identify and select flood resiliency strategies responsibly, systematically, equitably, and transparently.
- Establish a repeatable, statewide methodology for prioritizing and selecting flood resiliency actions and strategies for future development and implementation, such as flood resilience infrastructure or policies.

The online decision support tool, or Flood Resiliency Blueprint Tool, is software that will aid in identifying, prioritizing, and funding flood resilience actions (i.e., projects). It will be a publicly accessible, data—and model-driven, geographic information system (GIS)-enabled web application.

Users will include decision-makers and their technical support staff within state, regional, and local government, as well as businesses, NGOs, and members of communities affected by recurring and excessive flooding. The Flood Resiliency Blueprint Tool will provide multi-scale modeling, scenario exploration systems, guidance documents, and iterative and interactive online planning tools to increase decision-makers' abilities to prioritize and implement projects in response to current and future conditions. The Blueprint Tool will incorporate local knowledge while building on existing data, strategies, projects, plans, and efforts underway by state agencies, academia, businesses, and nonprofits.

2 Intended Audience/User Roles

The Flood Resiliency Blueprint Tool spans all phases of the Blueprint process. Each phase involves multiple user roles in various ways. In the context of the NCDEQ-supported River Basin Action Strategy (hereinafter called Basin Action Strategy), an individual Action Plan consisting of singular or multiple flood risk reduction actions, both physical, plan or policy that a local government can create, collection of local governments, or a state government, in collaboration with NCDEQ. Each submitted action is ranked and compared with other submitted actions. Equally important, actions are tracked for progress, funding, and accountability.

In addition to public access, the Blueprint Tool will also enable authenticated user roles (e.g., to create personal accounts), with the potential for different access levels to application modules and functionalities. The audience, user roles, responsibilities, and access shown in Table 1 will be refined further in Phase II.

Table 1: Intended Audience/User Roles Table

	Role	Responsibilities or Access
Blueprint Team		
	NCDEQ Application Administrator	Responsible for Application Administration, Database Administration, and User Authorization Administration for all user and administrator roles.
	NCDEQ Blueprint Program Supervisor	Oversees all NCDEQ Program Analysts, development of Basin Action Strategies, and river basin action activities.
	NCDEQ Blueprint Program Analyst	Serves as point of contact and coordination lead for activities within an assigned river basin(s), including data collection, meetings, the development of Basin Action Strategies, action tracking, and response to inquiries and concerns related to river basin activities.
Local Government		
	Local Government Administrator	An employee of a land-use authority who provides user administration within their agency. Local governments that want credentialed access will need to designate someone for this role.
	Local Action Submitter	An employee of a land-use authority, such as a town, city, or county, would submit an action or action plan for their defined areas through the Flood Resiliency Blueprint Tool. This person may also implement and manage a project or

	Role	Responsibilities or Access
		action should it be selected for inclusion in the basin action strategy. Can also be a delegate from a Council of Government (COG), NGO, contractor, etc.
Delegated Authority		
	Delegated Authority Administrator	A delegated authority (Council of Government, for example) was selected to represent NCDEQ or a local government that provides user administration within that agency.
	Delegated Authority Submitter	A delegated authority selected to represent NCDEQ or a local government would submit an action plan and then implement and manage a project or action.
Other Roles		
	General Public (Community Stakeholder, etc.)	Member of the public who may participate in the Basin Action Strategy or specific submitted Action Plan development by providing public comment and feedback. Not a credentialed role.
	Contractor/ Subconsultant	Augmented staff hired to support state activities. Will be responsible for inputting, analyzing, and controlling the quality of new and existing data within the tool.

3 Requirements

3.1 Overall Flood Resiliency Blueprint Tool

3.1.1 Overview

In Phase II, the contractor shall design and build the Blueprint Tool platform to support all basins statewide. The Blueprint Tool shall serve as the official online decision support tool used to help make more targeted funding decisions and support the development and management of Basin Action Strategies that ultimately lead to the implementation of resilient actions. It will also be publicly accessible and used as a decision support tool for local governments, state agencies, and others to help make more informed decisions related to flood resiliency.

3.1.2 Overall Tool Requirements

Table 2 provides the overall tool requirements for the Blueprint Tool to be used statewide.

Table 2: Overall Tool Requirements

Requirement	User Story
Web Application	The Blueprint Tool shall be a publicly accessible, data and model-driven, geographic information system (GIS) enabled web application. It shall be designed to deploy onto NCDEQ's Azure cloud environment and shall use software and versioning that meets the state's requirements. The Blueprint Tool shall be a standalone web application and shall not require users to install any software.
Meets NCDIT Guidelines	The vendor creating the Blueprint Tool will follow the state architecture and security guidelines specified by the Enterprise Architecture and Enterprise Security and Risk Management Office at the NC Department of Information Technology (NCDIT).
User Interface Modules and Dashboards	The Blueprint Tool shall include a user interface comprising several modules and dashboards. The following modules are anticipated currently but are subject to change during software development (Phase II): • Introductory Module • Flood Risk Management Module • Action Evaluation Module • Action Management Module • Data Repository

Requirement	User Story
Functionality Modules	The Blueprint Tool shall contain modules to perform functionality such as automatically calculating, prioritizing, and generating matches to be returned to the user interface modules for display. These modules should include: • Ranking/Decision Support Module • Funding Sources Module
APIs and SDKs	The Blueprint Tool shall use application programming interfaces (APIs) or software development kits (SDKs), such as ArcGIS Maps SDK for JavaScript, to add application functionality whenever appropriate.
Help Tips	The Blueprint Tool shall include help tips throughout the application to educate and guide users.
Video Tutorials	The Blueprint Tool shall include video tutorials for topics throughout the application. These tutorials shall be accessible from the area of the application that each is relevant to and listed on a sitewide Resources page.

3.2 Database/Data Management

3.2.1 Overview

In Phase II, the contractor shall use the recommendations derived from the Phase I NC Flood Resiliency Blueprint development effort to architecturally design and construct a database structure to support the Blueprint Tool functionality.

3.2.2 Database/Data Management Requirements

Table 3 provides the database/data management requirements necessary to support the Blueprint Tool functionality.

Table 3: Database/Data Management Requirements

Requirement	User Story
NC Blueprint Database	A Structured Query Language database shall be designed so the Blueprint Tool can access and load data throughout the site. Database standards and schema definitions will be established and documented for various data formats, including:

	• Non-spatial tabular data • Spatial data • Raster images
REST Services	The Blueprint Tool shall use application programming interfaces (APIs) and Representational State Transfer (REST) services of authoritative sources whenever appropriate. Services may include: • Building footprints from the NC Flood Risk Information System REST services • United States (US) Census Blocks from the US Census Bureau
Data Queries	The Blueprint Tool shall include the functionality to query the database by various attributes so that users can filter and search data throughout the tool.
Spatial Queries	The Blueprint Tool shall include the functionality to query spatial data so that users can filter and make selections on maps throughout the tool.
Excel Export on Tables	All site tables will include an Excel export button so users can download included data in Excel format.
Data Updates	During regularly scheduled maintenance, the Blueprint Tool's source data and models shall be updated via automation tools to maintain data integrity and ensure the database remains accurate and relevant.

3.3 Ranking/Decision Support Module

3.3.1 Overview

The Blueprint Tool platform will be built upon a data-driven, performance-based methodology for evaluating and prioritizing different types of potential flood resilience actions or strategies. Using information from various resiliency planning efforts, the user should create a list of candidate strategies on the tool interface to mitigate flood risks. This concept, which will be further refined in Phase II, is candidate strategies will be evaluated by the tool in two major areas:

- Single Strategy Performance Evaluation:
    - Individual strategies will be assessed through a multi-criteria framework encompassing variables such as:
        - Benefits/impacts, including multi-benefit.
        - Location factors.
        - Limiting factors (cost, technical difficulties).
        - Funding opportunities.
        - Others as appropriate.

- Each strategy will produce expected outputs that include rankings and scores, as well as associated criteria/performance metrics.

- Multiple Strategies Aggregation Assessment:
  - In addition to the rankings and scores of individual strategies, other important variables and aggregated impacts shall be included. These may include, but are not limited to:
    - Distribution of impacts among different communities.
    - Potential Benefits to less resilient communities.
    - Aggregated impacts on targeted flood areas.
  - Expected outputs will include a list of actions to help a community achieve the goals and objectives set up earlier in the process.

3.3.2 Ranking/Decision Support Requirements

Table 4 describes the ranking and decision support requirements that will become the foundation of the Blueprint Tool platform.

Table 4: Ranking/Decision Support Requirements

Requirement	User Story
Framework Objective Confirmation	Major stakeholders shall be identified. NCDEQ and stakeholders will confirm the goals and objectives to be achieved.
Framework Development	A draft methodology for a multi-criteria framework will be developed. The methodology will be tested offline using sample actions.
Framework Refinement	Feedback from the sample actions will be collected. This feedback will refine the methodology regarding criteria, framework, and aggregated assessment.
Framework Integration	The refined methodology shall be integrated as part of the tool platform.

3.4 Funding Sources Module

3.4.1 Overview

The Funding Sources Module will provide general information and URL links to local municipalities for potential funding sources to support risk reduction and resilience actions/projects. Phase II will provide more details on how funding sources will be provided and used for decision-making. The module will also provide, in matrix form or other appropriate formats, information that helps a local decision-maker decide what funding source to pursue.

These include, but are not limited to:

- Federal and State Appropriations
- Other State Funding Programs
- Federal Infrastructure Investment and Jobs Act
- American Rescue Plan Act
- Inflation Reduction Act
- Water Infrastructure Finance and Innovation Act
- Water Resources Development Act – US Army Corps of Engineers
- Public Private Partnerships
- Non-Profit Trust

3.4.2 Funding Sources Module Requirements

Table 5 describes the funding sources module requirements for the Blueprint Tool.

Table 5: Funding Sources Module Requirements

Requirement	User Story
Fund Matching	The Funding Sources Module shall search a database of available federal, state, tribal, non-governmental, or non-traditional grants and other funding types so that the Blueprint Tool can display potential funding sources for resiliency actions based on a set of parameters.

3.5 Data Repository

3.5.1 Overview

The Blueprint Tool Data Repository Module will be designed as the central hub for searching, accessing, and downloading publicly available Blueprint Tool-produced data used throughout the Blueprint Tool. This hub will contain modeling outputs, spatial data resources, technical reports, and other relevant data to the Blueprint Tool. It will allow the administrator role to upload and modify existing data in the repository and add and edit metadata for more efficient searching.

3.5.2 Data Repository Requirements

Table 6 lists the data repository requirements for the Blueprint Tool Data Repository Module.

Table 6: Data Repository Requirements

Requirement	User Story
Data Repository	The Blueprint Tool will include a publicly accessible, searchable, and filterable repository for data and modeling outputs and technical reports so that users can download relevant data and models.

Requirement	User Story
	The repository will not require the user to install new software, and large datasets will be zipped before download.
Repository Administration	The repository will allow administrators to upload data and tag it with metadata so that users can later identify and search by: • Geographical area(s) such as county Federal Information Processing Standards or major basins • Data category • Date created

3.6 Introductory Module

3.6.1 Overview

The Introductory Module provides login functionality for credentialed users and access for public stakeholders. Each user will land on a customized home page based on their role.

3.6.2 Introductory Module Requirements

Table 7 lists the Introductory Module requirements that will provide login functionality for credentialed users plus access for public stakeholders.

Table 7: Introductory Module Requirements

Requirement	User Story
Login Page	The login page allows credentialed users to log in with their North Carolina Identity Management using Microsoft 365 authentication. It should also include a link for public stakeholders to enter the site without logging in.
Role-based Home Page	The Blueprint Tool will show logged-in users a landing page with links to application modules based on their role so that the website modules that can be accessed are relevant to their use.
Public Home Page	The Blueprint Tool will show guest users a landing page with a summary of the Flood Resiliency Blueprint and links to the project website. It will also include application modules that are open to the public and links to online tutorials.

3.7 Flood Risk Management Module

3.7.1 Overview

The Flood Risk Management Module for State and Local Government Action Submitters and their delegates (such as contractors or COGs) will, first and foremost, provide the ability to review flood risk areas to ascertain the potential for flood losses, especially for future conditions modeling. The Flood Risk Management Module also allows users to examine existing or planned resiliency actions, create and submit new actions, and evaluate and compare all actions under consideration.

3.7.2 Flood Risk Management Module Requirements

Table 8 provides the Flood Risk Management Module requirements that will allow State and Local Government Action Submitters to review, create, and submit, as well as evaluate and compare resiliency actions being considered.

Table 8: Flood Risk Management Module Requirements

Requirement	User Story
Flood Risk Visualization	Screens should provide visualization of interactive maps, data, and analysis so that State or Local Government Action Submitters can view, evaluate, and select current and future hazards, natural and built assets, vulnerabilities, resulting impacts, and resiliency actions to reduce impact.
View Multiple Action Plans	Provide a screen for Multiple Action Plans (action plans may be a single action or a combination of actions) for State or Local Government Action Submitters to view all Action Plans based on a geographical area.
Action Plan Summary	Provide an Action Plan Summary screen for State or Local Government Action Submitters to review existing resiliency actions in effect or planned, to create and submit new resiliency actions, and to evaluate and compare all resiliency actions being considered.
Create a New Action Plan Screen	Include the Create New Action Plan screen so that State or Local Government Action Submitters can select their basin and jurisdictions and initiate their Action Plan.
Community Profile: Priorities	Include a Community Priorities Profile so that State or Local Government Action Submitters can inform state officials of local goals and priorities, focusing on criteria such as social vulnerability and/or nature-based solutions.
Community Profile: Demographics	Include a Demographic Profile for the planning area and each jurisdiction in the planning area so that State or Local Government

Requirement	User Story
	Action Submitters can inform state officials of the makeup of their population.
Community Profile: Adaptive Capacity and Capabilities	Include an Adaptive Capacity and Capabilities Profile for each jurisdiction in the planning area so that State or Local Government Action Submitters can inform state officials of their capabilities and limitations, such as: • Planning and regulatory capability • Administrative and technical capability • Fiscal capability • Education and outreach capability • Resiliency capability • Political capability • Local self-assessment
Add Identified Actions	Include a searchable/filterable list and map view where State or Local Government Action Submitters can view and select pre-identified but unfunded resiliency actions from the Blueprint's basin-specific structural or non-structural resiliency actions to include in their Action Plan.
Flood Risk Areas	Include Flood Risk Areas functionality so that State or Local Government Action Submitters can adjust and compare multiple map layers to identify flood risk areas, critical infrastructure, and socially vulnerable areas and select a target area for a new resiliency action.
Select Target Area	Provide spatial selection tools so that State or Local Government Action Submitters can select polygons such as parcels, subbasins, and jurisdictions for a new resiliency action. The resulting spatial feature will connect resiliency actions with geographical features that can later be used for filtering, sorting, or rolling up plan data in other tool modules.
Define New Resiliency Actions	Include functionality through which State or Local Government Action Submitters can create new resiliency actions from known resiliency strategies. Resiliency action types should include structural, non-structural, nature-based, and gray infrastructure.
Action Summary	Include an Action Summary screen so that State or Local Government Action Submitters can see an overview of a resiliency action.

Requirement	User Story
Structures/Infrastructure Table	Include a table listing all structures or infrastructure within the target area so that State or Local Government Action Submitters can view structure-specific data, such as value, first-floor elevation, base flood elevation, flood probabilities, and flood zone. The table will also include publicly available information for other infrastructure (roads, stormwater, etc.). Includes a popup window to view complete data for individual structures/infrastructure.
Flood Hazard Profile	Include a Flood Hazard Profile where State or Local Government Action Submitters can select from a list of natural and artificial hazard profiles for existing flood hazard frequencies and available future scenarios.
Impacts Profile	Include a data-driven Impact Profile so State or Local Government Action Submitters can view spatial and textual data and analysis for various available impact metrics that may include: • Damages (in dollars). • Damage percentage. • Content losses (in dollars). • Building flood depth (determined by base flood elevation at the building). • Loss of human life. • Number of people losing access. • Agricultural and/or business loss or damage. • Water peak and volume stored or slowed.
Action Profile: Structural	Display data and analysis for selected structural flood risk reduction resiliency options so that State or Local Government Action Submitters can assess and select the most effective resiliency action to include in the action plan.
Action Profile: Nature-Based	Display data and analysis for select Nature-Based flood risk reduction resiliency actions (for example, wetland restoration) that State or Local Government Action Submitters can assess and select the most effective resiliency action to include in the action plan.
Action Profile: Gray Infrastructure	Display data and analysis for select gray infrastructure) flood risk reduction resiliency options that State or Local Government Action Submitters can assess and select the most effective resiliency action to include in the action plan.
Fund Matching	Identify, display, and match potential funding sources to selected resiliency actions so that State or Local Government Action

Requirement	User Story
	Submitters can select an effective funding strategy for that resiliency action.
Request New Study	Include functionality through which State or Local Government Action Submitters can request a new study (examples: detailed flood modeling, impacts from significant land use changes, etc.).
Recommend Policy Change	Include functionality through which State or Local Government Action Submitters can recommend changes to policy, such as land use policy or future development considerations.
Action Plan Ranking Screen	Display ranked resiliency action for minimizing loss, as defined by the submitter, relevant to priority. Display ranked resiliency actions for minimizing loss so that State or Local Government Action Submitters can evaluate which resiliency actions should be included in the Draft Action Plan. Ranking and Scenario Analysis should rate, rank, sort, and monitor actions by metrics such as: • Funding strategy • 5-year operating and capital budget • Performance including multi-benefit • Return on investment • Complexity • Long term viability Functionality should include the ability of NCDEQ Program Analysts and their representative organization to modify limited weighting factors based on their goals and priorities.
Generate Action Plan Report	Allow State or Local Government Action Submitters and Approvers to generate a data-driven Portable Document Format (PDF) report of the draft or submitted action plans.

3.8 Resiliency Action Evaluation Module

3.8.1 Overview

The Resiliency Action Evaluation Module allows NCDEQ officials and members of selected representative organizations to visualize and compare alternative resiliency actions. This step aims to consolidate and clarify the action profile information submitted by the state or local governments into the Blueprint Tool for a particular river basin to support the development of the overall Basin-specific Action Strategy. This will be used to guide the implementation process for the selected actions. The initial Basin action strategy plan will establish a baseline for the key performance indicators and

metrics that provide the qualitative and quantitative measures for how the Blueprint team will track the progress of each action's implementation.

3.8.2 Resiliency Action Evaluation Module Requirements

Table 9 lists the Resiliency Action Evaluation Module requirements that allow selected representatives and organizations to visualize and compare alternative resiliency actions for submission to the state.

Table 9: Resiliency Action Evaluation Module Requirements

Requirement	User Story
All Submitted Action Plans	Provide an All Submitted Action Plans screen for NCDEQ Program Analysts and their representative organizations to view all submitted Action Plans statewide.
Action Plan Ranking Screen	Display ranked mitigating/resiliency strategies for minimizing loss so that NCDEQ Program Analysts and their representative organizations can determine and select which resiliency actions to include in the draft Action Plan. Ranking and Scenario Analysis shall rate, rank, sort, and monitor actions by metrics such as: • Funding strategy • 5-year operating and capital budget • Performance including multi-benefit • Return on investment • Complexity • Long term viability Functionality should include the ability of NCDEQ Program Analysts and their representative organization to modify weighting factors based on community priorities.
Action Plan Summary	Provide an Action Plan Summary screen, including a searchable and filterable list and map view, for NCDEQ Program Analysts and their representative organizations to evaluate and compare all resiliency actions within a submitted Action Plan.
Submitted Community Profile	Include a view of the submitted Community Profile so that NCDEQ Program Analysts and their representative organizations can view details about the community, including: • Goals and priorities • Demographics • Adaptive capacity and capabilities

Requirement	User Story
Submitted Flood Risk, Hazard, and Impact Profile Details	Include a view of the submitted Impact Profile so NCDEQ Program Analysts and their representative organizations can view details about the hazards and impacts of a resiliency action.
Submitted Resiliency Profile Details	Display data and analysis for select Structural flood risk reduction resiliency options) so that NCDEQ Program Analysts and their representative organizations can view the submitted resiliency action and other potential options.
Fund Matching	Display potential funding sources for submitted resiliency actions so that NCDEQ Program Analysts and their representative organizations can review and potentially modify the funding strategy for that resiliency action.
Generate Report to Support River Basin Action Strategy	Allow NCDEQ Program Analysts and their representative organization to generate a data-driven PDF report (including a spreadsheet that can be downloaded) to support the development of the Basin Action Strategy.

3.9 Action Management Module

3.9.1 Overview

The Action Management Module is a query-based status, project management, and performance interface for all actions.

3.9.2 Action Management Module Requirements

Table 10 lists the requirements for the Action Management Dashboard.

Table 10: Action Management Dashboard Requirements Table

Requirement	User Story
Dashboard Visualization	Screens shall provide visualization of interactive maps, data, and analysis so that all users can view implemented actions and data associated with each.
Action Implementation	Provide Action Implementation functionality so NCDEQ Program Analysts and their representative organizations can implement resiliency actions that have been funded and included in appropriations.
Endorsement of Action Implementation	Provide the functionality so that State or Community Action Implementers can endorse newly implemented resiliency actions.

Requirement	User Story

Implemented Actions Summary Screen	Provide an Actions Summary screen for all users to view an overview of implemented resiliency actions. Implemented resiliency actions shall be sortable and filterable by criteria such as:
	• Geography
	  ○ State
	  ○ Region
	  ○ River basin
	  ○ County
	  ○ Jurisdiction
	  ○ Political district
	  ○ Council of Governments (COG)
	• Action type
	• Estimated cost
	• Benefits
	Public stakeholders will be able to view this screen.

Implemented Action Overview Dashboard	Provide an Action Overview Dashboard for all users to view an overview of an individual implemented resiliency action. The overview dashboard may include the following: • Action details • Map of implemented Action Area • Status and timeline • Breakdown (building or infrastructure list) • Benefits (such as but not necessarily limited to return on investment [return on investment]/benefit-cost analysis) • Before and after risks/impacts • Funding Public stakeholders can view this dashboard, but it may have some limitations.
Status Updates	Provide Status Updates functionality so State or Local Government Action Implementers can enter status updates on implemented resiliency actions. Allow communities and local planners to enter project status and request funding; include a verification process for NCDEQ or similar administrative-level users.
Implemented Action Status Sub-Dashboard	Provide an Action Details Dashboard for all users to view the more granular details of the status of the implemented resiliency action. Public stakeholders can view this dashboard, but it may have some limitations.

Requirement	User Story
Checkoffs and Milestone Signoffs	Provide Checkoffs and Milestone Signoffs functionality so NCDEQ Program Analysts and their representative organizations can checkoff when action and/or basin milestones are met.
Implemented Action Schedule and Milestones Sub-Dashboard	Capture actions and track project status updates, evaluations, Program Manager checkoffs, and milestone signoffs. Display the project timeline on a Gantt chart.
Implemented Action Benefit Details Sub-Dashboard	Provide a Benefit Details Dashboard for all users to view and analyze detailed benefit data for the resiliency action.
Implemented Action Impact Details Sub-Dashboard	Provide an Impact Details Dashboard for all users to view and analyze detailed impact data for the resiliency action.
Request Funding	Provide functionality for State or Local Government Action Implementers to request funding as milestones are met and the project progresses.
Finance Tracking Details Sub-Dashboard	Provide a Finance Tracking Details Dashboard for all users to: • View and analyze detailed funding data for the resiliency action. • Track financial workflow transactions between communities and potential multiple-state financial agents. • Display costs averted based on financed projects in a Basin Action Strategy. • Capture and track requested funding reimbursement or allocation by the community for Grant Management.
Generate Rollup Report	Allow all users to generate a data-driven PDF report from rolled-up data based on user-filtered resiliency actions. Public stakeholders can generate this report, but it may have some limitations.
Generate Implemented Action Report	Allow all users to generate a data-driven PDF report for an individual-implemented resiliency action. Public stakeholders can generate this report, but it may have some limitations.

3.10 Beta Testing

3.10.1 Overview

Identified beta-testers will participate in testing each Blueprint Tool application software module. All feedback, comments, and user responses collected from the beta testers through the Blueprint Tool application will be sorted, analyzed, and managed through an online customer feedback platform to derive insights and determine if and where actionable changes should be implemented for the subsequent beta releases. A workshop for NCDEQ staff will be provided to educate and inform users on how to operate the Blueprint Tool and how to contribute meaningful feedback.

3.10.2 Beta Testing Requirements

Beta-testing should include a diversified array of users from multiple jurisdictions to make the best-informed decisions on where improvements and changes need to be made, if any. The users that participate in beta testing could be, but are not limited to:

- Elected and appointed officials
- Members of the Phase 1 Principal, Technical, and/or Neuse Regional Advisory Group
- Local government staffers such as:
  - Managers (stormwater, municipality, public works, etc.)
  - Planners
  - Public works directors/staff
  - County Soil and Water Conservation representatives
  - COG representatives
  - Other NGO representatives

The vendor will use an online customer feedback platform to collect and document all feedback received from beta testers. NCDEQ will receive a summary of all comments, including what actions should be implemented for the next beta release. **Table 11** lists the requirements for beta testing.

Table 11: Beta Testing Requirements Table

Requirement	User Story
Set Up the Tester Feedback Platform	Integrate an online customer feedback platform into the Blueprint Tool application.
Create Test Cases and Testing Scenarios	Create comprehensive test cases and testing scenarios to ensure that all features within the software modules are tested, functional, and stable.
Collect and Document Tester Feedback	Collect and document all feedback received from beta testers. NCDEQ will receive a summary of all comments, including what actions should be implemented for the next release.