

Coastal Resilience Community of Practice Meeting Notes

Tuesday, July 11 – 1:00 - 3:00pm

Purpose of the COP: Bring together diverse coastal stakeholders to focus on how ecosystem resilience can build local community resilience. We don't necessarily have to have a "thing" to work on but will take on projects as appropriate and mutually agreed on. Website: <https://deq.nc.gov/coastal-resilience-cop>

In attendance:

- Amanda Mueller – NC State University
- Amanda Merrill – Moffatt and Nichol
- Andrew van Wyk - TNC's Maryland/DC chapter
- Steve Bevington - NC Land & Water Fund
- Brian Byfield – N.C. Office of Recovery and Resilience
- Brooke Massa - N.C. Wildlife Resources Commission
- Cat Bowler NC Audubon
- Cayla Cothron – N.C. Sea Grant
- Erin Seekamp – NCSU
- Eryn Futral – N.C. Department of Public Safety
- Everett Craddock – Duke Grad Student
- Gian Tavares – American Flood Coalition
- Gloria Putnam – N.C. Sea Grant
- Forest Shepard – N.C. Division of Water Resources
- Holly White – N.C. Office of Recovery and Resilience
- Kasen Wally – N.C. Division of Coastal Management
- Lisa Williams – Mideast Commission
- Lora Eddy – The Nature Conservancy
- Mackenzie Todd – N.C. Division of Coastal Management
- Mike Christenbury – N.C. Division of Coastal Management
- Phillip Todd -
- Rachel Love-Adrick – N.C. Division of Coastal Management
- Robin Hoffman – N.C. Division of Water Resources
- Sam Burdick – Dewberry
- Savannah Newbern – Dare County
- Steve Bevington – N.C. Land and Water Fund
- Whitney Jenkins – N.C. Coastal Reserve/Division of Coastal Management

Presentation: Community engagement in Turner Station, SE Baltimore County, MD – Andrea van Wyk, Baltimore Community Project Manager for TNC's Maryland/DC chapter – [See slides](#)

- BIG takeaway/lessons learned - No one size fits all for engaging people and communities, looks different for segments of populations. Learning who you want to engage and repeat the work of outreach and engagement as you go forward.
- Discussion on why engagement is important – learning from our past mistakes and wrongs, examples environmental justice from indigenous communities to black and brown people and pollution/industrialization in their communities. Turner Station in Baltimore example landfill, industrial port
- Who/community – discussion on how when looking to develop community engagement need to identify the audience and community to target can be based upon Geography/Identity/Affinity as some groups/areas that can define the
- Outreach vs Engagement – outreach is talking to people, tabling event or presentation, approaching audience with your organization's core service with internal-focus and a short-term approach VS engagement which is built around listening and creating a dialogue to work with the community to identify problems and their solutions

- Discussion of how the community engagement is part of The Nature Conservancy's (TNC) strategic planning so this is not a short-term effort – goals include developing a dialogue with those living there and determined their needs and wants or goals
- TNC sought feedback through survey about the Witness Trees Project TNC engagement efforts; TNC had been working with local leaders in Turner Station and had requested a letter of support and that community leader asked for reciprocation in assisting the community in building their climate resilience
- This has helped to lay the groundwork for funding that has come through IRA Funds, etc. But now need to support this community in the Phase 2 of project implementation, which is difficult due to long-term capacity challenges
- Focus on building constellations, not being the star = created those networks that can support work in the long term
- Authentic relationships take time, expect interruptions

Presentation: The American Flood Coalition: Helping communities build resilience to higher seas and stronger storms – Gian Tavares, Senior Strategy Associate for the American Flood Coalition – [See slides](#)

- Overview of the organization and their work in NC, nonpartisan coalition of leaders, cities/towns/elected official, business looking for better and equitable solutions to flooding
- 370 members across 22 states 34 federal champions on the hill (in NC: Tillis, Greg Murphy, David Rouzer)
- Assisting with the development of a Flood Resiliency Blueprint
- Flood Resiliency Cohort Members (6 selected communities) in NC: New Bern, Wallace, Whiteville, Canton - working with those local governments to assist with navigating grants and funding to develop policies projects to reduce flood risk
- Have a branch working with Congress and federal programs that assist with flood risk reduction including Farm Bill, Water Resources Development Act, NFIP, National Defense Authorization Act
- Highlighted examples in Farm Bill on conservation practices that support flood adaption
- Also looking at improvements to post-disaster recovery processes CDBG-DR, CLEAR
- What American Flood Coalition offering its members? It is peer sharing network, no cost to join, offers tools like the Flood Finder, an online tool that queries federal funding opportunities for flooding projects and focuses on programs allows user to filter funding sources by topics like environmental restoration, matching funds required
- Example Tool: Flood Coalition Adaptation Guide created with ARCADIS and Netherlands to help local leaders identify solutions and help them through the planning process. Focuses on 3 categories of approaches: Land Use Policies/Stormwater & Drainage/Coastal and Shorelines. This was converted into an online tool that is searchable to assist with developing ideas and discover funding

Presentation: N.C. Land and Water Fund: funding recipients related to flooding/resilience – Steve Bevington – [See slides](#)

- Reporting on the recent Land and Water Fund (LWF) awards
- Last state budget placed \$15M to fund projects that store water, reduce flooding, improve water quality, provide wildlife and aquatic habitat, and provide recreational opportunities
- This program and board of trustees considered the state's definition of economically distressed areas, giving projects additional points in the review process if located in these areas. Additional points also given if the project was in an economic opportunity zone
- 17 awards: six in both a Tier 1 county and opportunity zone, three in Tier 1 county, four projects just in opportunity zones, and six projects in neither economic designation
- Types of projects - water farming, urban stormwater enhancement, buyout enhancement, natural service enhancement, public uses of floodplains, planning for use of state-owned lands

- Water Farming – practice of temporarily storing stormwater on working lands, like renting stormwater storage space. Examples:
 - A forestry application project to demo holding water using water control structures
 - Another example will be on an open field and creation of berms to hold the water onsite during large events
- Urban storage example in Durham to add flood storage to a 7-acre stream and wetland by installing water control structure, which will add 50-acre feet storage.
- Buyout enhancement example in Seven Springs to expand services at Cliffs of the Neuse State Park, provide an RV park to add economic development opportunity to the area.
- 1,000 acres on Newport River that was previously drained for timber farming. Project will restore site by blocking ditches, installing water control structures, enhance berms to hold water, and restore the wetlands to create wildlife habitat.
- Public uses of floodplains example, City of Lumberton received funding to help complete the “Lumberton Loop” - a combo greenway/blueway corridor with bike path. Funds will help with acquisition of four floodplain parcels

Q&A with Steve

- Erin Seekamp – What have you seen from communities as far as accepting the flooding of land to help downstream areas?
 - Steve: Communities seemed to be desperate to fix challenges of managing stormwater in general and sometimes that means onsite and not just drainage. And not all the projects are seeing the connection between helping downstream neighbors.
- Erin Seekamp – Are they monitoring?
 - Steve: Yes, three of the projects are in cooperation with NC State who has planned to monitor those demo or proof-of-concept projects like the water farming.

Member Updates

- Amanda – Moffat & Nichol are working on the Duffy Field Park resilience project, which is in a historically African American community that frequency floods
- Steve another LWF funding cycle coming up
- Brian - Nine regions funded \$65K through the Duke Accelerator Grant Funding through the RISE Program <https://www.rebuild.nc.gov/duke-energy-resilience-accelerator-grant-program>
- Cat Bowler – Recommended for funding through the NOAA Coastal Habitats & Communities for nature-based solutions work in Tyrrell County
- Cayla Cothron – graduate student opportunity on ghost forest research: <https://ncseagrant.ncsu.edu/news/2023/06/graduate-student-funding-available-now-for-ghost-forest-research/>; New Hire, Mariko Polk for NC Sea Grant Coastal Processes Position at Wilmington Office: <https://ncseagrant.ncsu.edu/news/2023/06/mariko-polk-joins-nc-sea-grant-as-coastal-processes-specialist/>
- Erin Futral – workshops for NC Floodplain Administrators just wrapped up across the state, they are rewriting the coastal building guidance document and incorporating sea level rise predictions
- Gloria Putnam – Would like to update the model tree ordinance developed by Duke and Forestry Service, would like to submit a letter of intent for NOAA funding with interest in enhancing Blueback Herring habitat, please contact if interested in helping with these projects

- Robin Hoffman – Planning grants for regional council of government, local governments to fund planning efforts like nine-element watershed restoration plans
- Holly White – call for abstracts for the October NC Floodplain Managers conference in Asheville is underway, please consider submitting: <https://ncafpm.org/>

Next meeting in October. Whitney will send a meeting poll.

Pictured: Community Partners of the Witness Trees Project in Turner Station- Turner Station Conservation Teams, Lyon Homes/Henrietta Lacks Village, Union Baptist Church, Greater Baltimore Wilderness Coalition, Baltimore County, and The Nature Conservancy



Community Engagement 101: Building Climate and Social Resilience

July 11, 2023

Andrea van Wyk, Baltimore Community Project Manager

Agenda

- Why community engagement is important
- What is “Community”
- The difference between outreach and engagement
- General principles for practicing community engagement
- Common Challenges
- Discussion



Micah Garen/Getty Images



ERIK MCGREGOR / LIGHTROCKET / GETTY IMAGES



1 Dundalk Marine Terminal/Port of Baltimore



2 BGE Riverside Generation Station



3 Grey's Landfill



4 Bethlehem Steel/Sparrows Point



ERIK MCGREGOR

geography



identity



affinity



A community by **GEOGRAPHY** is defined by place e.g., a city, a district, a neighborhood, a country. The simplest version of this community is the place where you live. But you might also feel part of a geographic community related to the place you grew up, or a place you used to live, or a place you often visit.

A community by **IDENTITY** is defined by characteristics. It is made up of people who end the sentence "I am _____" e.g., Jewish. Chicano. Fifth generation. Artist. Some identities are self-ascribed (like "vegetarian") whereas others are assigned externally (like "black").

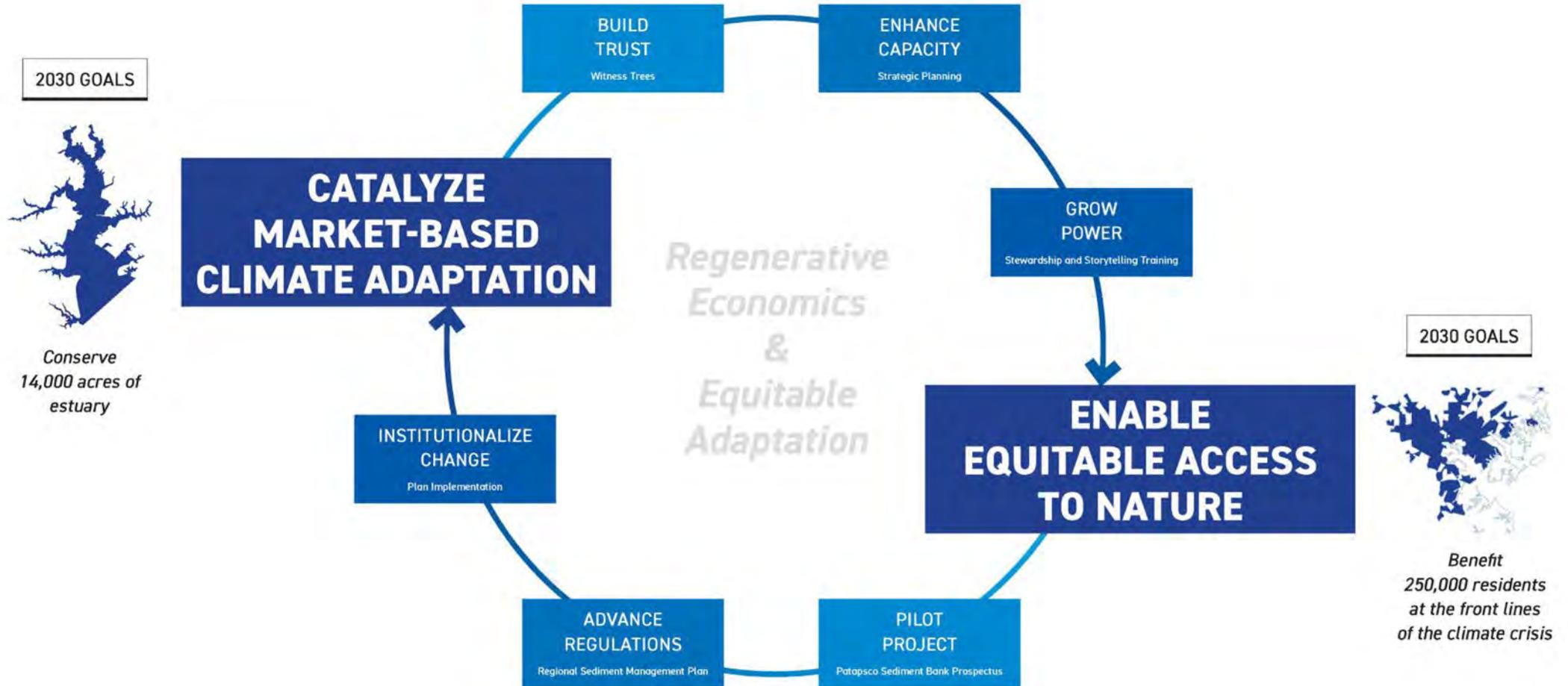
A community by **AFFINITY** is defined by what we like. It is made up of people who end the sentence "I like _____" or "I do _____" same e.g., Knitters. Surfers. Punks. People who go to midnight movies. Some affinities are lifelong passions. Others are passing fancies.

What is Community Engagement?

Outreach	Engagement
Extension of an organization's core service (value-added, once-off, delivered by one or a few individual staff/teams)	Integrated within an organization's culture, strategy & practices
One to many	Builds a pathway for dialogue
<u>Talking</u> to people	<u>Listening</u> to people
Approaches audiences with answers	Works with the community to identify problems and their solutions
Looks at who is not attending existing programs & why or why not	Looks at what matters to community and how we are or are not responding
Internally-focused: how can the community serve our needs?	Externally-focused: how can we serve the community's needs?
Short-term conservative approach with predictable & focused outcomes	Long-term strategy, but outcomes can far exceed initial expectations

If the focus is on you, your organization or what you do, it's probably promotion (and that has an important role elsewhere).

Engagement requires a completely different orientation from the typical program outreach/promotion





Project Goals

- 
 Preserve Turner Station's Rich Cultural History
- 
 Celebrate Community Resiliency
- 
 Enhance Climate Adaptation, Environmental + Public Health



PROJECT IMPACT

COMMUNITY OUTREACH

A MULTI-LAYERED APPROACH

Turner Station is going through what community leaders are calling an “environmental renaissance” because of current efforts to address decades of environmental injustice. Examples include: the [EPA/MDE Air Quality Monitoring Program](#) to ensure industry is appropriately regulated, [EPA’s Bear Creek Superfund Site](#) designation to cleanup neighboring tributary’s legacy pollutants, the [Army Corps of Engineers Flood Resilience Study](#) which incentivized Baltimore County to seek resiliency funding for Turner Station, [NeighborSpace’s Chestnut Park](#) as an example of a community greenspace revitalization, and of course the Witness Trees project which provides green infrastructure for improved climate adaptation.

Given the history of environmental injustices Turner Station has endured, it was important for Phase 1 of Witness Trees to prioritize building trust and rapport with the community and reinforce the Core Partners long term investment in the improvement, success, and wellbeing of the neighborhood. Especially given Witness Trees’ multi-phased scope of work for the next several years.

To ensure community buy-in, at the very beginning of Phase 01, TNC facilitated a Witness Trees feedback session for community stakeholder groups such as TSCT, Turner Station Recreation Council, Turner Station Boys and Girls Scouts, Fleming Senior Center, Lyon Homes, and Baltimore County, to provide initial guidance on best practices and methods for successful resident engagement. This initial meeting served as the foundation for the development of a Witness Trees outreach plan dedicated to door-knocking, tabling at community celebrations, and placing yard signs, posters, and flyers throughout the neighborhood. The previously engaged Turner Station stakeholder groups also supported outreach and information sharing through word of mouth.

As an example of these efforts, to attract resident participation, TNC staff would go canvassing in advance of community visioning workshops. Of the 278 homes outreached, 160 residents were engaged in conversation about the Witness Trees project. By the third door-knocking activity, residents recognized TNC staff and shared that they were aware of the Witness Trees workshops.

To build personal rapport with residents, TNC staff participated in community gathering opportunities such as neighborhood cleanups, monthly meetings, festivals, and other neighborhood projects to become a familiar face and better understand the wants and needs of the community.

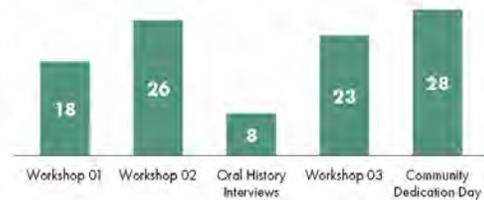


Chart depicting participant numbers

In total, Phase 01 of the Witness Trees engaged 103 residents in the design process, many were repeat participants who were invested in the outcome.



Chart depicting repeat participants

PROJECT IMPACT

COMMUNITY OUTREACH

At the final design workshop, participants were surveyed on their experience engaging in the community visioning process. Of the 17 participants surveyed:

94% of participants:

- enjoyed participating in community visioning sessions.
- felt their feedback was appropriately reflected in the final design.
- strongly agreed that they understood the design process and activity schedule.
- found workshop material and drawings clear and helpful in understanding project purpose.
- would work and/or engage with the Core Partner again.

The overwhelming positive feedback highlights that the participants felt their perspectives were valued and well incorporated into the final design.

Illuminating the importance of intentionality, when asked if their attitude about trees changed because of their participation in the Witness Trees project, one participant shared “my attitude [towards trees] is enthusiastically increased because of the ability to participate in the decisions. There were no bad ideas, only different.”

Another participant shared “my attitude changed because I was informed of the different species of trees that can be used to form a design that can be conducive for the neighborhood.”

88% of participants:

- strongly agreed that they would participate in future Witness Tree Phases based on their experience participating in the design workshop series.
- agreed that the partners made sufficient effort to attract community participation in the Witness Trees design workshop series.

When asked how the Core Partners could have improved or increased community engagement in the Witness Trees Project, one participant noted “I think the team did a wonderful job engaging the participants. They even canvassed the neighborhood to encourage people to participate. The discussion was hearty.”

In summary, community design workshop participants had a positive experience while engaging in Phase 01 of the Witness Trees project and would want to engage in future phases. This feedback confirms that the Core Partners were successful in building relationship and rapport with community residents, and securing trust for upcoming phases of the Witness Trees project.

What's Now?

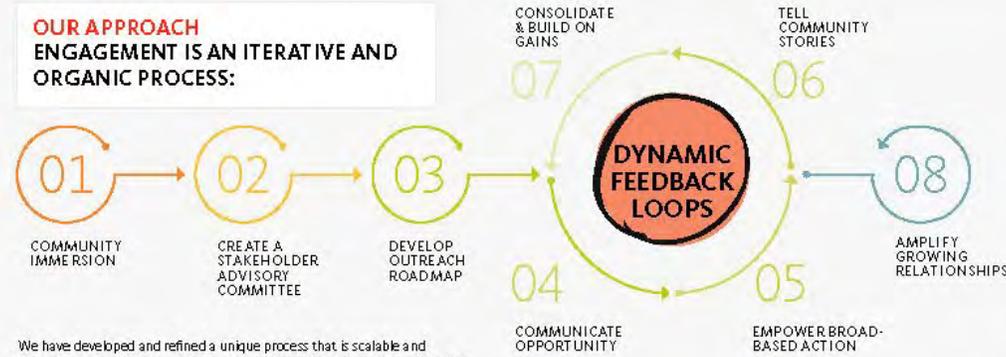
WT Phase 2



Groundwork

TURNER STATION CONSERVATION TEAMS INTERGENERATIONAL LEADERSHIP
DEVELOPMENT & CAPACITY BUILDING

OUR APPROACH
ENGAGEMENT IS AN ITERATIVE AND ORGANIC PROCESS:



We have developed and refined a unique process that is scalable and effective across a wide variety of users, both public and private sectors. Our process combines the essence of Appreciative Inquiry with the wisdom of John Kotter's 8-step methodology to create lasting change.



Fleming Park Shoreline Restoration Project

OPEN HOUSE



JOIN US FOR



National
NIGHT OUT

"A Night to Unite Against Crime"

the source image

TUESDAY, AUGUST 2, 2022
6:00 - 8:00 P.M.

Sollers Point Multi-Purpose Center
323 Sollers Point Road
Turner Station, Maryland 21222

Fun * Food * Music Games



Turner Station Recreation Council
Turner Station Conservation Teams, Inc.

PLEASE JOIN THE
TURNER STATION
CONSERVATION
TEAMS AND THE
TURNER STATION GIRL
AND BOY SCOUTS
FOR

TURNER STATION
COMMUNITY CLEAN
AND GREEN UP

APRIL 30th | 9 AM

MEET IN FRONT OF UNION BAPTIST CHURCH
AT 105 MAIN STREET IN TURNER STATION



FOR MORE INFORMATION, CONTACT ARKIA
WADE AT ARKIAGOWINS@GMAIL.COM OR
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Community Engagement in Practice



Move at the
Speed of Trust



Turn Outward,
Reflect Inward



Listen Actively



Center
Collaboration



Follow Through



Be Flexible and
Adaptive



Consider Room
for Improvement

Focus On Building Constellations, Not Being The Star



Common Challenges

External: Navigating Partnership/Stakeholders

Internal: Managing Multiple Priorities

Authentic Relationships Take Time

Interruptions

Questions
Comments
Concerns

- Why is community engagement important within the context of your work?
- What are the different communities within your audience of interest?
- How can you focus on building constellations within the communities you serve?

Andrea van Wyk

Baltimore Community Project Manager

Andrea.vanwyk@tnc.org





AMERICAN FLOOD COALITION

American Flood Coalition

Helping communities build resilience for higher seas and stronger storms



Agenda

1

Coalition overview

- Who is the American Flood Coalition
 - Policy platform
-

2

AFC in North Carolina

- Flood Resiliency Blueprint
 - Flood Resilient Communities Cohort
-

3

Our federal work

- Current federal priorities
-

4

Member resources

- Flood Funding Finder
 - Adaptation for All
-



The American Flood Coalition

A nonpartisan coalition of leaders advancing solutions to flooding and sea level rise



**Federal
Champions**



**Cities, Towns
and Counties**



**Elected
Officials**



Businesses

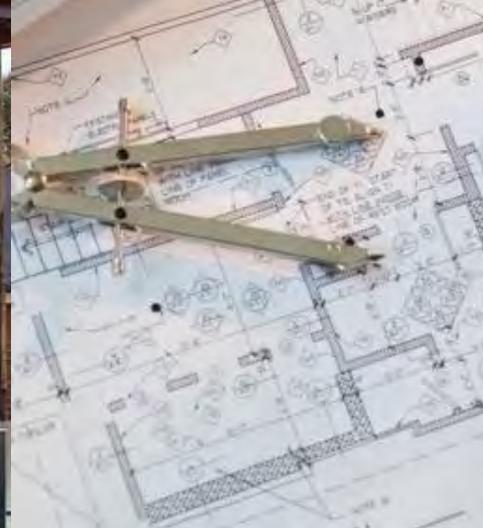


**Military
Groups**



**Civic and
Academic Groups**





Our founding 4 pillars for coastal and inland solutions

Economy

Invest in infrastructure that boosts the economy and protects property values

Communities

Use smart planning to keep communities safe and save taxpayer dollars

Rebuilding

Build back stronger to protect communities from future flooding

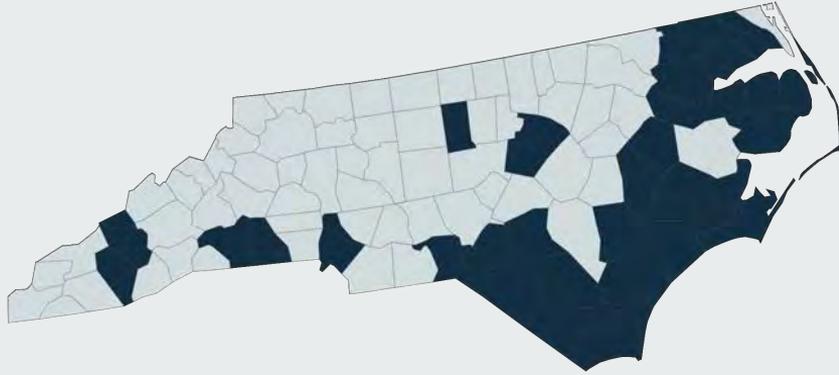
Military

Ensure our military installations are ready to deploy 365 days a year





We have 77 members in North Carolina representing municipalities, elected officials, businesses, and COGs



31 cities, towns, and counties



36 state and local elected officials



4 businesses



6 civic groups (including 3 COGs)



Rep. David Rouzer
NC-07



Rep. Greg Murphy
NC-03



Senator Thom Tillis
R-NC



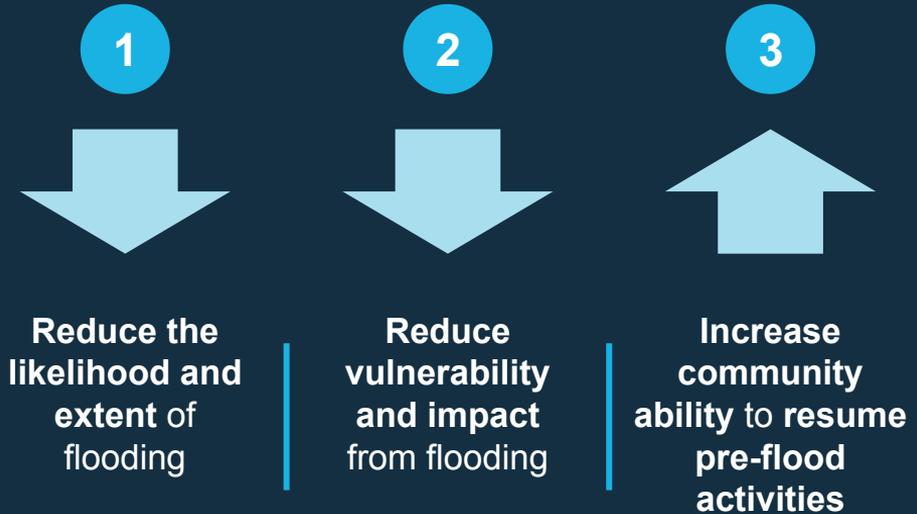


In North Carolina, AFC is helping establish a best-in-class data and modeling program

DEQ received \$20m to develop a Flood Resiliency Blueprint

- Develop community and **basin-specific risk management processes** to identify and address flooding for NC communities.
- Develop an **online decision support tool** which seamlessly guides state, county, municipal, and other jurisdictions to identify and select flood mitigation strategies responsibly, systematically, equitably, and transparently.
- Establish a **repeatable, statewide methodology for prioritizing, and selecting flood mitigation strategies** for future implementation.

Blueprint Goals





Our Flood Resilient Communities Cohort will walk through the federal infrastructure process together to identify barriers to funding

Current Cohort members



Project overview

AFC selected **6 communities in the Carolinas represented by local governments and CBOs**. We will help them navigate the infrastructure process and use their experience to drive policy reform.





We are elevating flood resilience as Congress works on the following items in 2023 and 2024



Appropriations

Spending bill to fund the federal government for fiscal year 2024



Water Resources Development Acts

Legislation provides funding for the U.S. Army Corp of Engineers' water infrastructure programs



Farm Bill

Legislation sets national agriculture, nutrition, conservation, and forestry policy



National Defense Authorization Act

Military spending bill; passed annually



National Flood Insurance Program

Reauthorization and reform of the NFIP; no long term extension since 2017





As the 2023 Farm Bill ramps up, we are focused on expanding policies that support flood adaptation and piloting innovative farming solutions

AFC A Farm bill priorities

- Priority A** **Make USDA disaster assistance more responsive**, so that communities have the resources and capabilities to recover swiftly after a disaster
- Priority B** **Elevate flooding as a priority in USDA conservation programs** which enable producers to lead on innovative practices that reduce flooding
- Priority C** **Develop data at USDA to determine conservation practices' effect** as a flood solution
- Priority D** **Strengthen USDA's Small Watershed Programs** which enable communities to address flooding across jurisdictional boundaries and at the watershed scale

Piloting local innovation



AFC has partnered with Northeast Iowa Resource Conservation & Development to measure the flood reduction impact of multi-cropping.





We are also pushing efforts to boost proactive state resilience and improve post-disaster recovery processes

U.S. Dept. of Housing and Urban Development's Community Development Block Grant-Disaster Recovery (CDBG-DR) program

- Flexible, permanent authorization of CDBG-DR, which provides the bulk of long-term disaster recovery funding, would save money, expedite recoveries, and ease challenges among state and local recipients.

Championing Local Efforts to Advance Resilience (CLEAR) Act

- Bipartisan proposal that would fund state resilience offices, drive coordinated resilience planning, and other metric-driven activities.

Disaster Assistance Simplification Act and Disaster Survivors Fairness Act

- Senate and House bipartisan bills that would establish a universal disaster assistance application for disaster survivors to apply for federal assistance programs across various federal agencies.



AFC offers resources to build flood resilience, and a platform to advocate for more equitable solutions to flooding nationwide



**Best-in-class
educational guides**



**Tools for effective
communication**



**Networks of
leaders on flooding**



**Competitive local
resilience pilots**



**Platform for
advocacy and
education**





We build tools and informational resources to meet our members' needs

The Coalition Current

Informational blogs including a series on the connection between flooding and property values, understanding FEMA's BRIC program, and updates on federal legislation.

Flood Funding Finder

We launched an interactive online tool to help leaders identify federal funding to support their flooding projects.

Adaptation for All

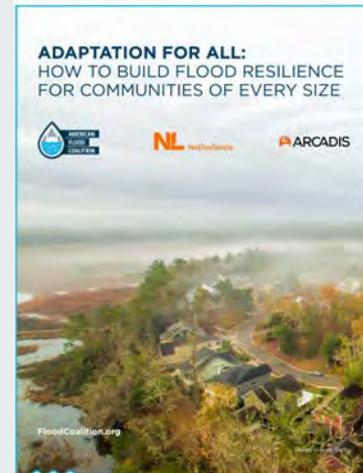
Our newest guide includes 26 case studies and examples of communities and their strategies to address flooding.

Infrastructure and Jobs

In partnership with Johns Hopkins 21st Century Cities Initiative, we released a report showing the economic argument for resilience.

Turning the Tide

This white paper examines the inequities in federal flood disaster policy and calls for solutions to ensure vulnerable communities have access to resources after disasters





The Flood Funding Finder is an interactive online tool to help leaders identify federal funding for flooding projects



Gives special consideration for small communities



Does not require a cost share or matching funds from smaller communities



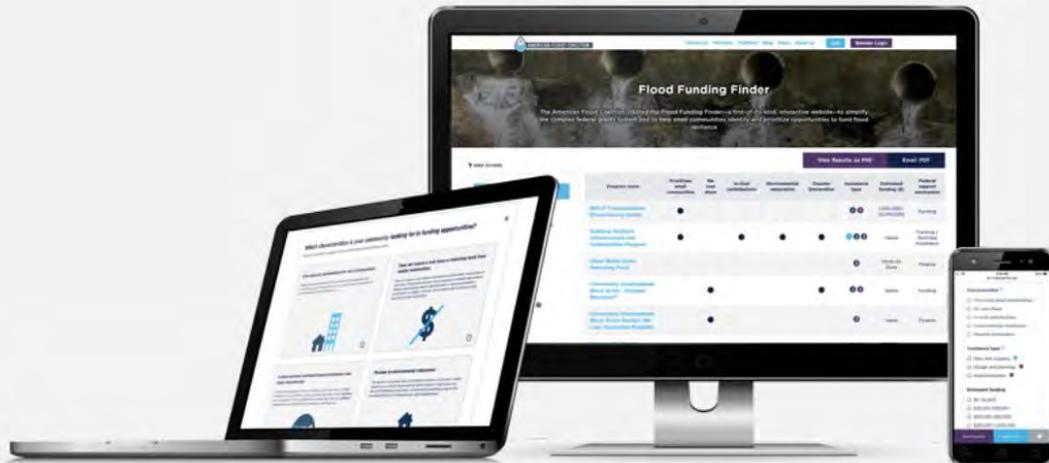
Allows in-kind services to contribute toward nonfederal cost share requirements



Focuses on environmental restoration



Requires a Presidential Disaster Declaration



[Flood Funding Finder](#)





Flood Funding Finder

Help Me Choose	Program name	Prioritizes small communities	No cost share	In-kind contributions	Environmental restoration	Disaster Declaration	Assistance type	Estimated funding (\$)	Federal support mechanism
<p>Characteristics</p> <p><input type="checkbox"/> Prioritizes small communities</p> <p><input type="checkbox"/> No cost share</p> <p><input checked="" type="checkbox"/> In-kind contributions</p> <p><input type="checkbox"/> Environmental restoration</p> <p><input type="checkbox"/> Disaster Declaration</p> <p>Assistance type</p> <p><input type="checkbox"/> Data and scoping ¹</p> <p><input type="checkbox"/> Design and planning ²</p> <p><input type="checkbox"/> Implementation ³</p> <p>Estimated funding</p> <p><input checked="" type="checkbox"/> \$0-25,000</p> <p><input checked="" type="checkbox"/> \$25,001-100,000</p> <p><input checked="" type="checkbox"/> \$100,001-250,000</p> <p><input type="checkbox"/> \$250,001-1,000,000</p> <p><input type="checkbox"/> \$1,000,001-5,000,000</p> <p><input type="checkbox"/> Greater than \$5,000,000</p> <p>Federal support mechanism</p> <p><input checked="" type="checkbox"/> Funding</p> <p><input type="checkbox"/> Finance</p> <p><input type="checkbox"/> Technical assistance</p>	Building Resilient Infrastructure and Communities Program	●		●	●	●	1 2 3	Varies	Funding
	Disaster Supplemental Funding			●		●	2 3	Varies	Funding
	Environmental Education Local Grants			●	●		3	50,000-100,000	Funding
	Five Star and Urban Waters Restoration Grant Program			●	●		3	20,000-50,000	Funding
	Flood Mitigation Assistance Grant Program			●	●		1 2 3	25,000-10,000,000	Funding
	Hazard Mitigation Grant Program			●			1 2 3	Varies	Funding
	National Coastal Resilience Fund			●	●		1 2 3	125,000-5,000,000	Funding
	Public Assistance Program			●			3	Varies	Funding
	Public Works and Economic Adjustment Assistance Programs			●			2 3	150,000-3,000,000	Funding
	Resilient Communities Program			●	●		2 3	100,000-500,000	Funding
	Rural Development Water and Environmental Programs	●	●	●			1 2 3	3,000-100,000	Funding / Finance / Technical Assistance

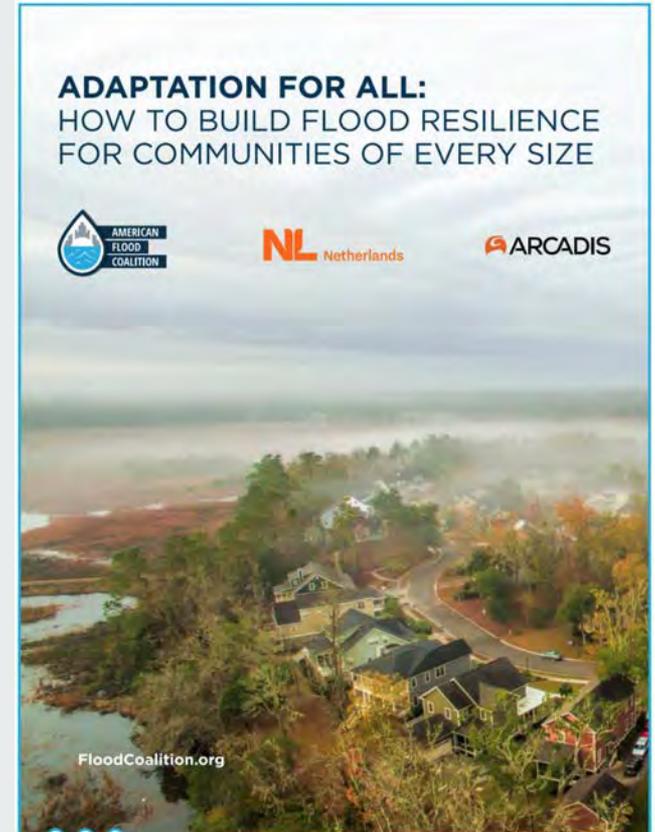




Adaptation for All Guide

- Communities large and small feel the devastating impact of flooding, yet each community's ability to recover and plan for the future is different.
- Drawing on examples from the U.S. and the Netherlands, this guide is for **communities of every size looking for strategies to address flooding**
- The guide was **driven by input from local elected, business, and civic leaders** in the U.S.
- The concepts, approaches, and case studies in the guide were developed with **multidisciplinary technical input** for use by local leaders

[Adaptation for All](#)

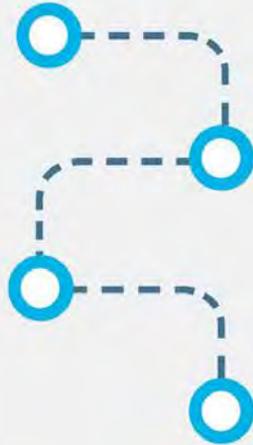




Using the AFA guide to inform local flood planning

Explore concepts for local leaders: review key tips and ideas for developing a local flood action plan

Review case studies and summaries: review examples across three categories of approaches



Understand cost and complexity: explore which approaches may best fit local flood challenges, resources, and budget

Share this guide with key stakeholders: use the guide as a resource to inform a local flood action plan





Three categories of approaches



Land use and policy

Example: Ordinances



Stormwater and drainage

Example: Stormwater Parks



Coastal and shoreline

Example: Living Shorelines

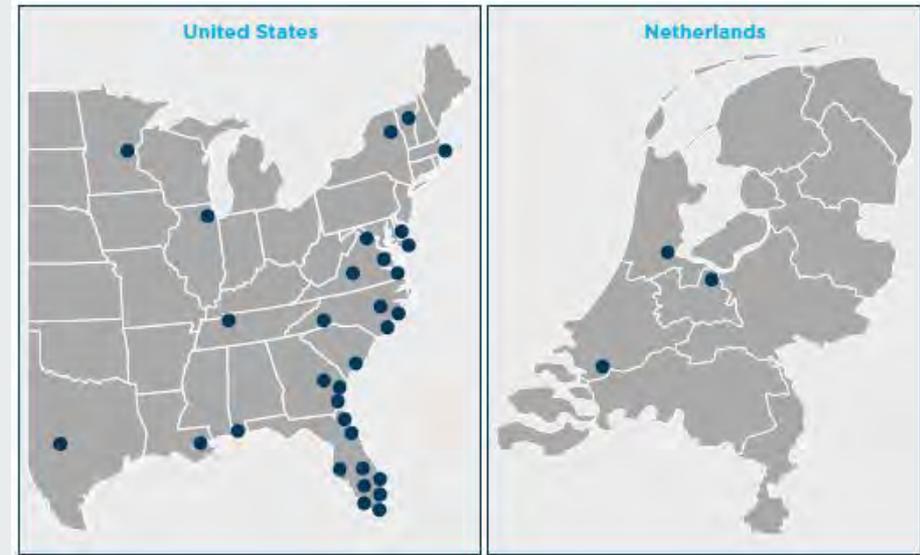
For each of the 26 approaches across these 3 categories, the guide describes: Potential benefits, implementation considerations, scale, investment type, operations and maintenance, funding and info resources, and a case study





Case studies: learning from local examples

- The guide includes examples of resilience and adaptation approaches from both the U.S. and the Netherlands
- These cover a range of project types from policy approaches to capital projects for communities to reduce risk and become more resilient
- Most case studies are from the Southeastern region of the U.S., where the majority of the American Flood Coalition's membership is based





Cost and complexity: land use and policy approaches



Cost*	\$	Less than \$100,000	Complexity level		Low
	\$\$	\$100,000 - \$500,000			Medium
	\$\$\$	\$500,000 - \$1 Million			High
	\$\$\$\$	\$1 Million - \$5 Million			
	\$\$\$\$\$	\$5 Million+			

*These cost and complexity estimates provide generalized order of magnitude guidance. Actual project cost and level of complexity will vary depending on scale, design and technical specifications, location, and community context.





Adaptation for All Tool

AMERICAN FLOOD COALITION

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Adaptation for All

How to build flood resilience for communities of every size

Across the country, communities large and small face the devastating impact of flooding, yet each community's ability to recover and plan for the future is different. The American Flood Coalition, in partnership with the Embassy of the Kingdom of the Netherlands and Arcadis, created this online tool to help local leaders determine approaches to flooding or sea level rise that can work best for them.

Drawing on examples from the U.S. and the Netherlands – a country with a long history of flood challenges and innovations – this tool highlights 26 approaches broken down by cost, benefits, and other considerations to help communities of any size evaluate how specific approaches can fit into their flood resilience strategies.

Use the tool below to filter through programs by (1) selecting the Approach(es) your community wishes to explore and (2) selecting Characteristics of the flood solutions using the drop down menus.

For a full description of each approach and characteristic, [view our key](#).

Approaches:

Land use and policy Stormwater and drainage Coastal and shoreline

Characteristics:

Scale	Investment types	Operations and maintenance	Cost	Complexity
<input type="checkbox"/> Building <input checked="" type="checkbox"/> Site <input type="checkbox"/> Shoreline segment <input type="checkbox"/> Municipal <input type="checkbox"/> State <input type="checkbox"/> Regional	<input type="checkbox"/> Public <input type="checkbox"/> Private <input checked="" type="checkbox"/> Public/private	<input checked="" type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	<input checked="" type="checkbox"/> < \$100,000 <input type="checkbox"/> \$100K-\$499K <input type="checkbox"/> \$500K-\$999K <input type="checkbox"/> \$1 Million-\$5 Million	<input checked="" type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High

[Reset Filters](#)

Stormwater and drainage

- Rainwater harvesting
 - Prichard, Alabama: Residential rain barrels
 - Charleston, South Carolina: Charleston rainproof program
- Urban tree canopy
 - San Marcos, Texas: Community Canopy program

AMERICAN FLOOD COALITION

ARCADIS Design & Consulting for natural and built assets

NL Netherlands





AMERICAN FLOOD COALITION

Questions?



Gian Tavares

Senior Strategy Associate
gian@floodcoalition.org



Tony McEwen

Carolinas Director
tony@floodcoalition.org

NCLWF Flood Risk Reduction Program Background

\$15,000,000 to the North Carolina Land and Water Fund to provide grants to our partners for projects to protect and restore floodplains and wetlands for the purposes of:

storing water

reducing flooding

improving water quality

providing wildlife and aquatic habitat

providing recreational opportunities



NCLWF Flood Risk Reduction Program Background

Economically Distressed Communities will be defined by the NC Department of Commerce designations:

- **County Development Tier Designations**

Projects located within the 40 most distressed counties, designated as Tier 1, will receive five points

And/Or

- **North Carolina Opportunity Zones**

Projects located within North Carolina Opportunity Zones will receive five points



NCLWF Flood Risk Reduction Program Background

North Carolina Opportunity Zones Map



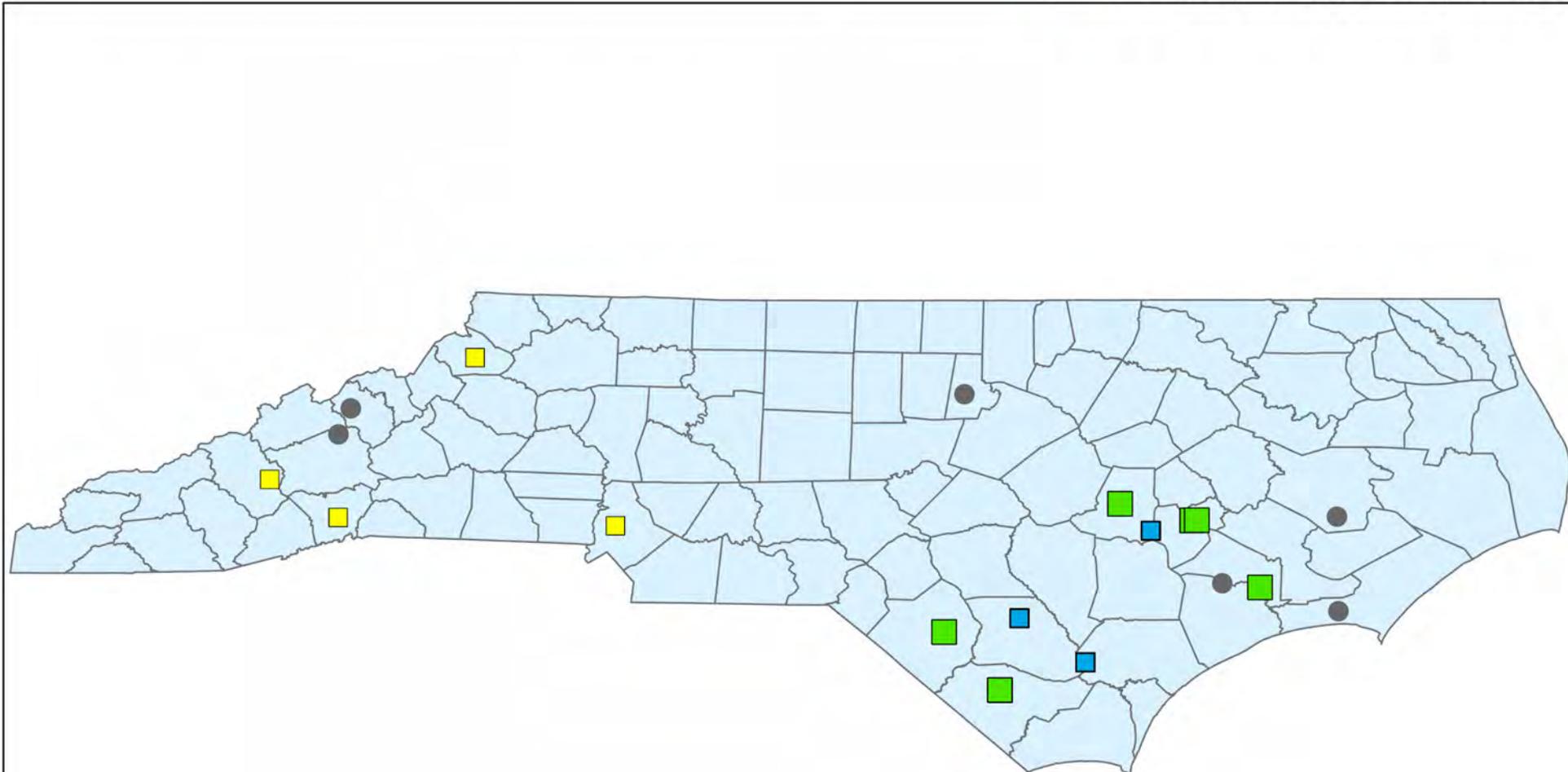
NCLWF Flood Risk Reduction Program Background

Flood Risk Reduction Program 2022

Economically Distressed Community Factors



- None (6)
- Opportunity Zone (4)
- Tier 1 County (3)
- Tier 1 County AND Opportunity Zone (6)



Flood Risk Reduction Awards

Water farming

Urban stormwater enhancement

Buyout enhancement

Natural services enhancement

Public uses of floodplains

Planning for use of State-owned lands

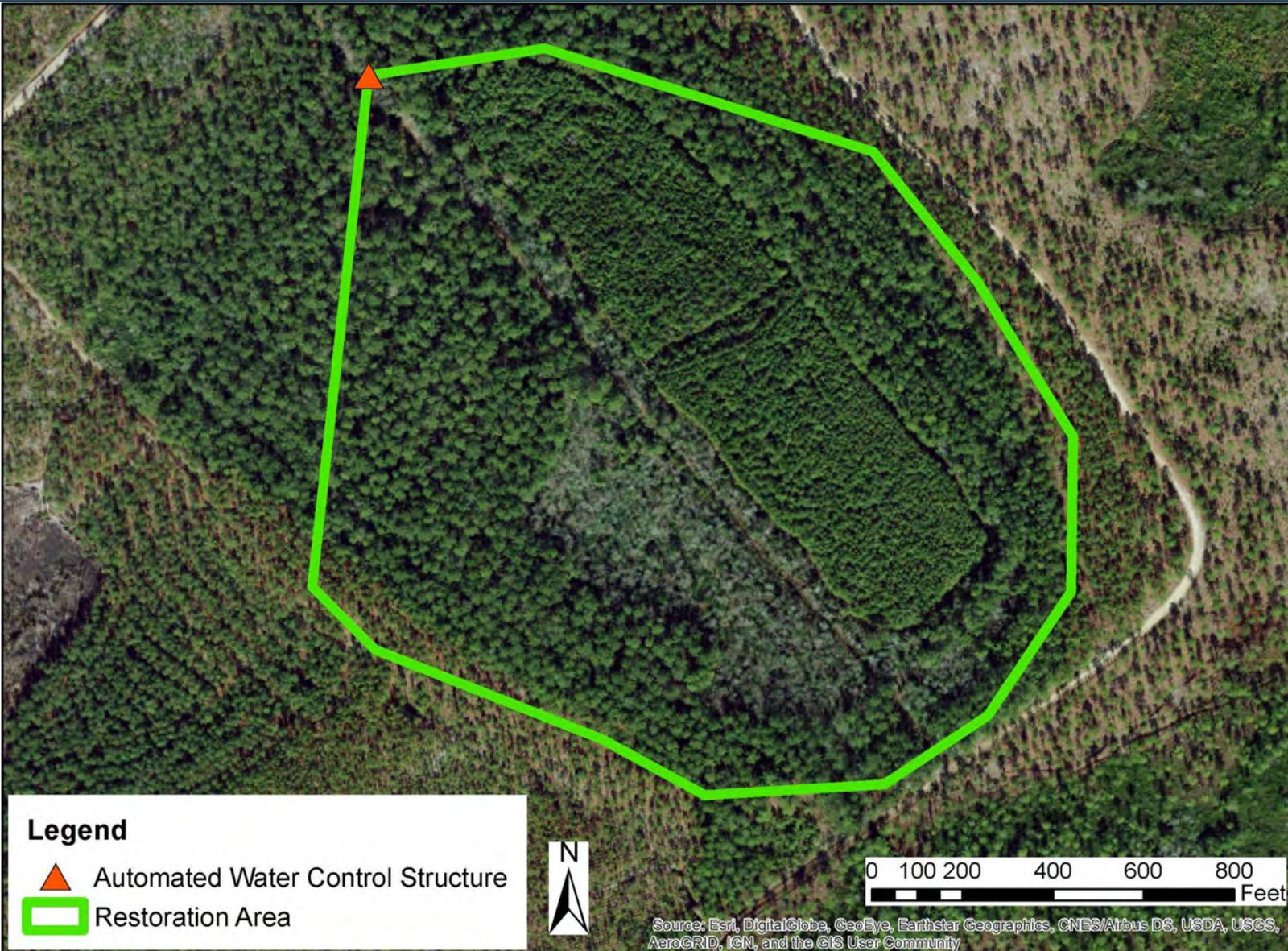




Photo: NC Policy Collaboratory

WATER FARMING

The practice of temporarily storing stormwater on previously active or currently active working lands, such as agricultural or forestry lands, for the purpose of reducing peak discharge and flooding in the watershed.



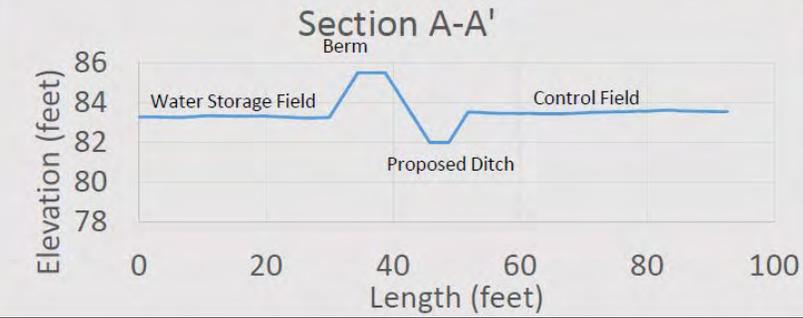
FLOOD REDUCTION STRATEGY

- Install automatic water control structure on 62 acres of working forestry land
- Use remote data, including weather forecasts, to discharge retained water in advance of rainfall events

PROJECTED RESULTS

- Hold over 50 acre-feet of stormwater
- Reduce peak discharge to Turnbull Creek, trib of Cape Fear
- Restore natural wetland hydrologic conditions
- Possible benefits for Atlantic White Cedar





FLOOD REDUCTION STRATEGY

Construction of:

- 2 - 3.5 ft berms around 15-acre agricultural field (+ control)
- 6 acre-feet stormwater retention pond
- 4 measurement locations + water table monitors



Irrigated Crop Fields
46 acres

Proposed
Pond

Control
10
acres

Water
Farm
Demo
15 acres

Existing Ditches - Drains to Adkin's Branch

Caswell Research Farm
2415 W. Vernon Avenue, Kinston, NC



PROJECTED RESULTS

- Storage of over 18 acre-feet of stormwater in flood-prone Neuse River watershed
- Research will:
 - Measure water quality & quantity
 - Measure effectiveness of practice on crop yield & soil health
 - Develop O&M guidelines





ENDURING OUTCOMES & COMMUNITY IMPACT

Successful demonstration of automated water control structures in managed forestry tracts could result in:

- **Enhanced natural function of forests as flood mitigation areas**
- **Reduce flood risks to communities across NC**



Flood Risk Reduction Awards

Water farming

Urban stormwater enhancement

Buyout enhancement

Natural services enhancement

Public uses of floodplains

Planning for use of State-owned lands





FLOOD REDUCTION STRATEGY

- Add flood storage to 7-acre stream and wetland project funded by NCLWF
- Install water control structure at outlet
- Elevated embankment



Project site condition prior to Durham's purchase

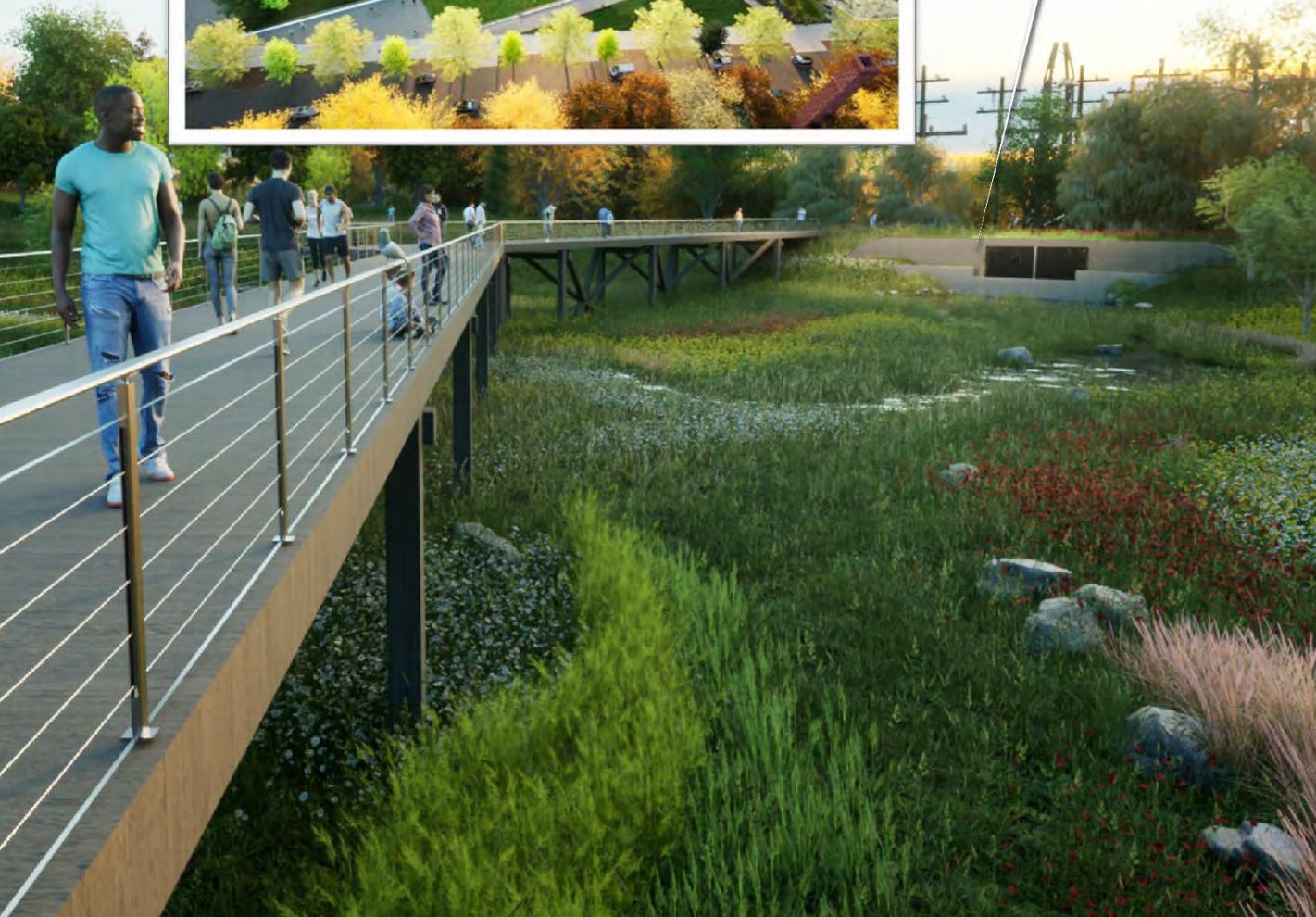


**New Outlet Structure with Complex Weir
Reduces Peak Flows Downstream by 34%
During 100-yr Flood**



PROJECTED RESULTS

- **50 acre-feet of added flood storage**
- **Will allow stream and wetland complex to hold more stormwater**



Flood Risk Reduction Awards

Water farming

Urban stormwater enhancement

Buyout enhancement

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Public uses of floodplains

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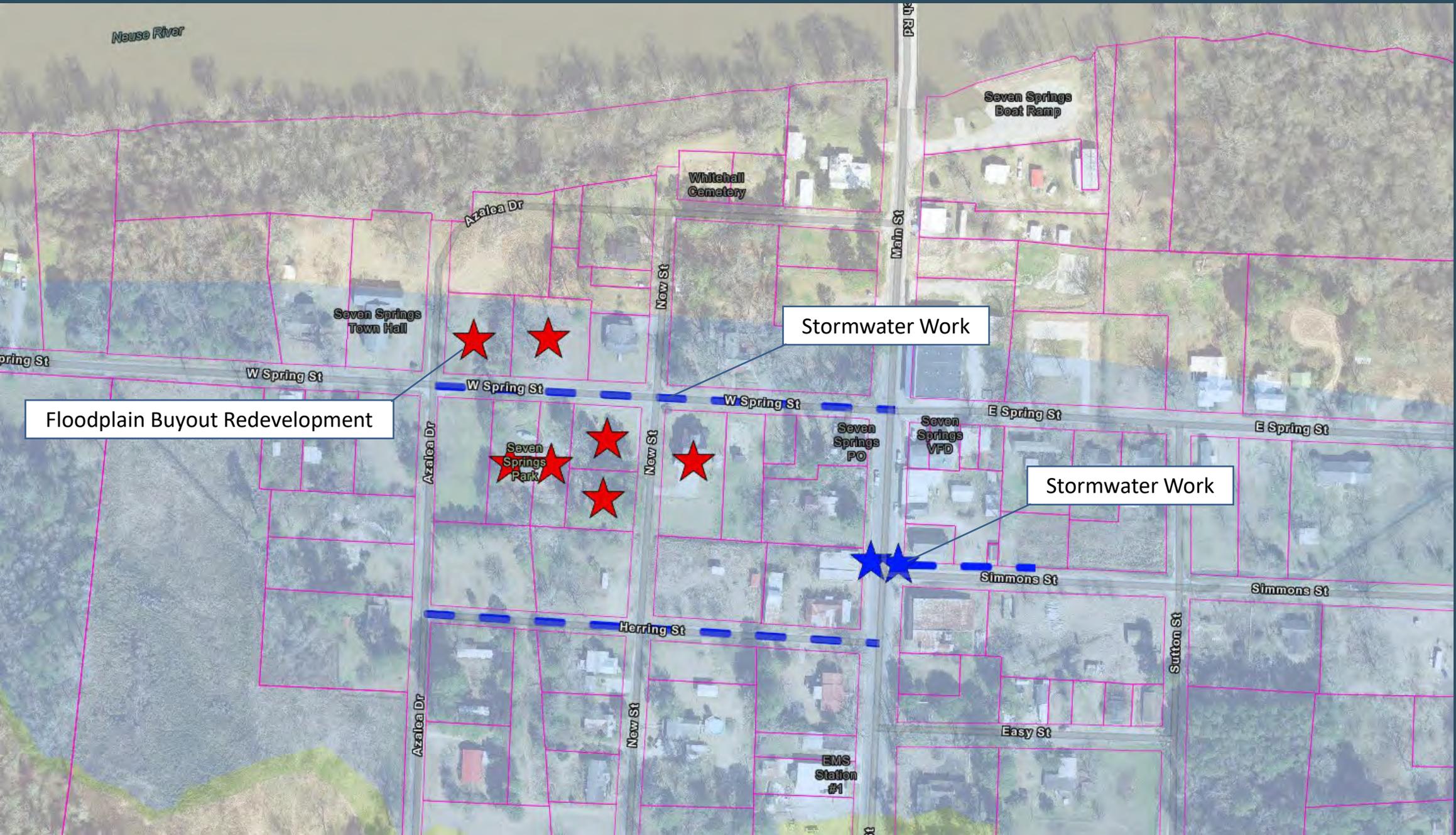




FLOOD REDUCTION STRATEGY

- Build upon ongoing FEMA floodplain buyout efforts
- Enhance ecological, public, and local community benefits of more than 10 acres of newly acquired lots





Floodplain Buyout Redevelopment

Stormwater Work

Stormwater Work





PROJECTED RESULTS

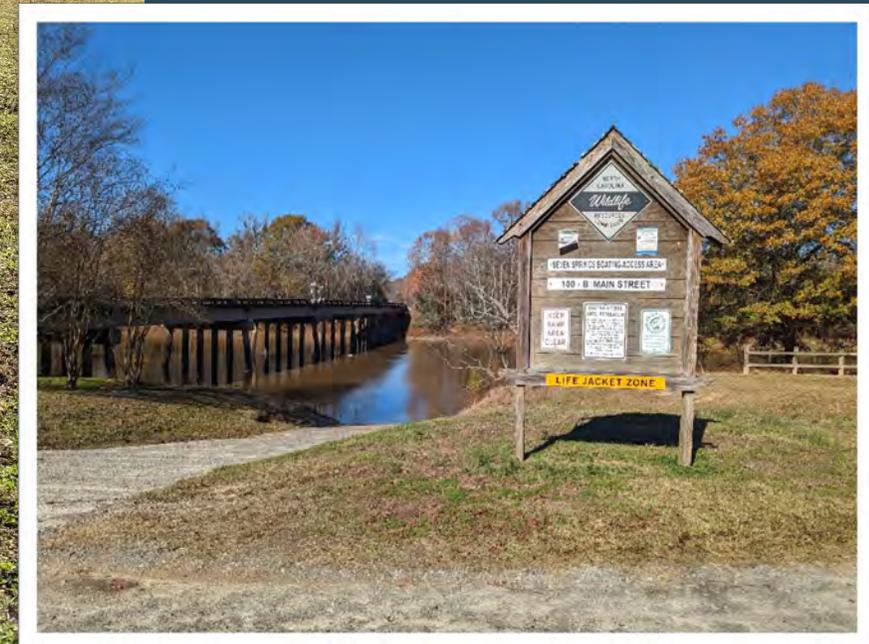
- FEMA-purchased parcels developed to support Cliffs of the Neuse State Park and town services
- Preserve floodplain areas that can be flooded safely and naturally





ENDURING OUTCOMES & COMMUNITY IMPACT

- Provide overflow camping areas
- Provide positive example of how FEMA buyout programs can support natural resources and local community



Flood Risk Reduction Awards

Water farming

Urban stormwater enhancement

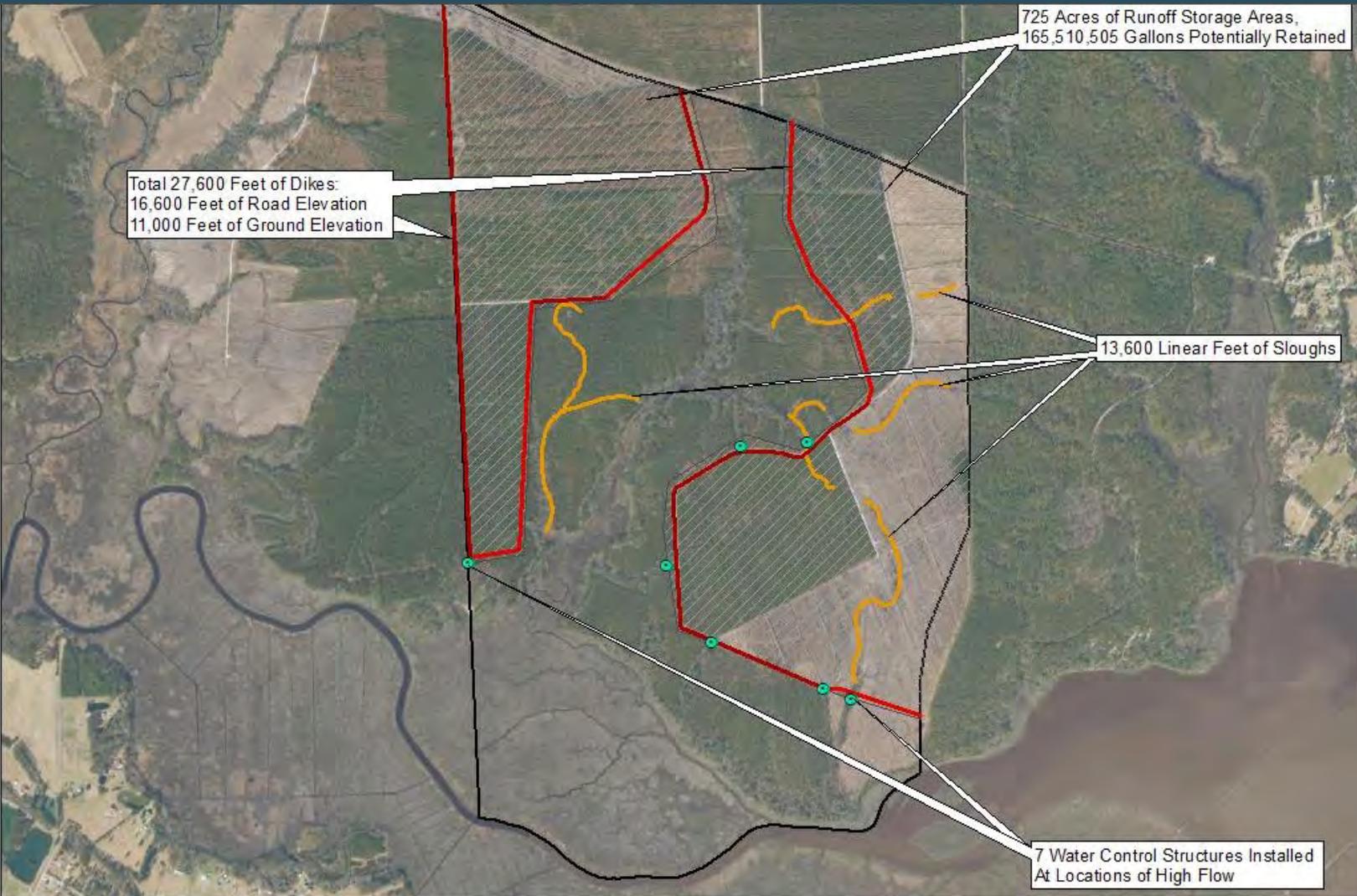
Buyout enhancement

Natural services enhancement

Public uses of floodplains

Planning for use of State-owned lands





FLOOD REDUCTION STRATEGY

Project would enhance the flood storage capacity of 1,100 acres on the Newport River, which drains into Bogue Sound

- Block ditches
- Install water control structures
- Enhance berms
- Restore wetlands





PROJECTED RESULTS

Enhance the flood storage capacity of the parcel by restoring floodplain areas recently used for timber production.

This effort would retain 500 acre-feet of stormwater.





ENDURING OUTCOMES & COMMUNITY IMPACT

Major roads near the project site have been threatened or closed during flooding events.

This project will contribute to:

- The safe operation of Highway 70, the primary evacuation route for Morehead City.
- Two crossings of Newport River tributaries that were inundated during Hurricane Florence.

Flood Risk Reduction Awards

Water farming

Urban stormwater enhancement

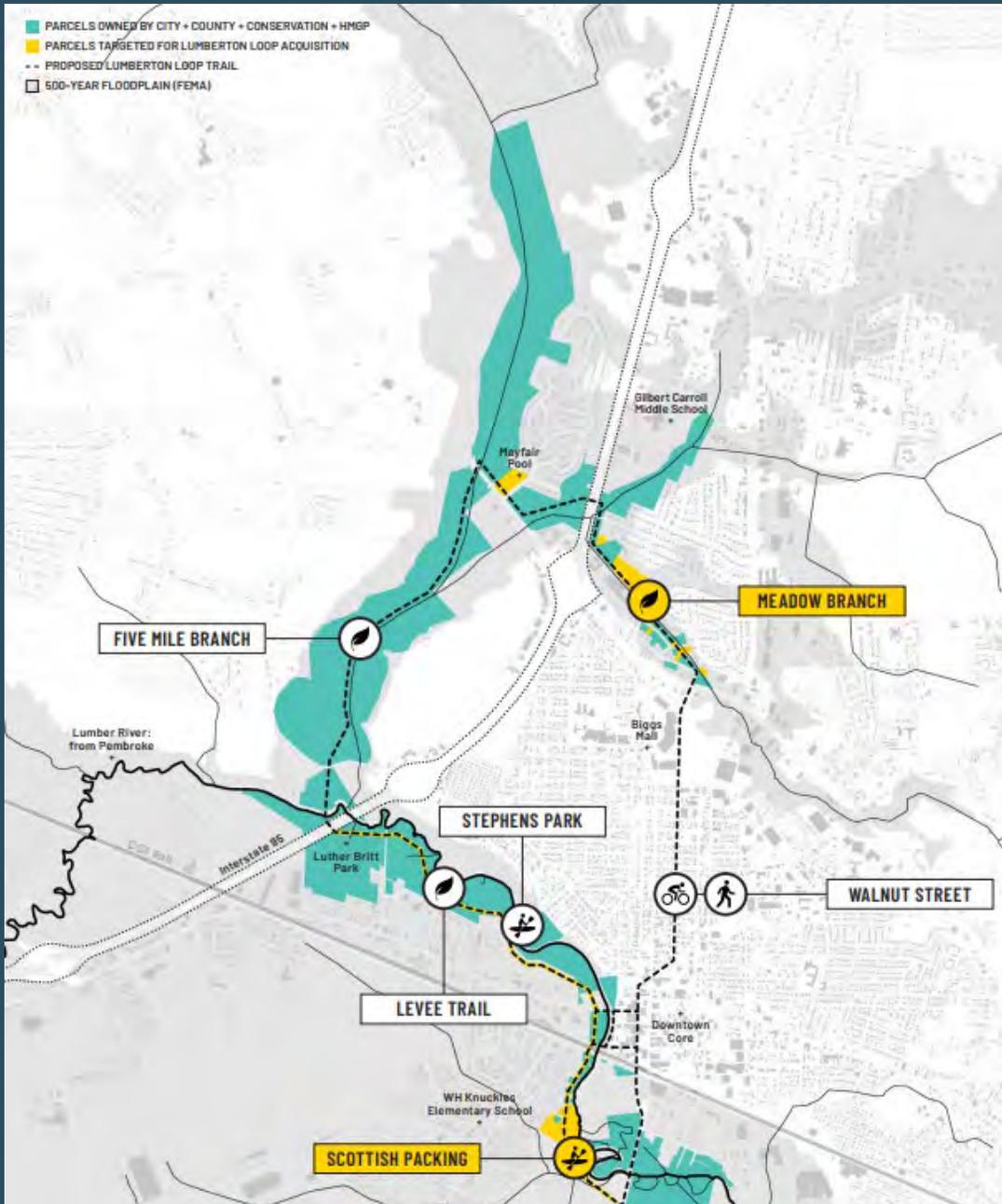
Buyout enhancement

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PROJECTED RESULTS

This project will have the greatest effect in the location of the excavation

- Acquisition of four floodplain parcels
- Detention of 23 acre-feet of stormwater



ENDURING OUTCOMES & COMMUNITY IMPACT

- Reduce flooding from backed-up culverts
- Connection to "Lumber Loop" an urban green/blueway corridor
- Reduce flood elevations in the Mayfair neighborhood (a historically disadvantaged community with two dozen homes in the 100-year floodplain)



LANDOWNER INTEREST – Majority of project lands or landowner agreements are secured.

CONSERVATION & STEWARDSHIP – All project parcels are/will be permanently protected with easements.

Long-term stewardship by the City and partners along the entire Lumber Loop.

RECREATION & EDUCATION USES – Open to public use most days of the year as a greenway; No educational component.

2022 Tier Designation: 1

Benefits Opportunity Zone