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Task 47

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# George Washington Regional Commission Coastal Zone Management Technical Assistance Program Report FY2022



**Virginia Coastal Zone**  
MANAGEMENT PROGRAM



# **Fiscal Year 2022 Coastal Zone Management Technical Assistance Final Annual Report**

November 2023

## **George Washington Regional Commission**

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And the many others who participated and contributed to an exciting year of enhancing coastal resiliency in the GWRC region.

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## Executive Summary

The George Washington Regional Commission (GWRC) developed and maintained several projects with funding assistance from Virginia Coastal Zone Management Program (Virginia CZM) in Fiscal Year (FY) 2022. These projects included the addition of an Environmental Strategy Framework to our Environmental Strategic Plan with the help of the Regional Environmental Managers Technical Committee (REMTC) and partners. GWRC Staff also maintained progress on our flood risk communications by engaging localities in workshops on Federal Emergency Management Agency's (FEMA) Community Rating System (CRS) to lower National Flood Insurance for residents. The Plant Central Rappahannock Natives campaign members also met and coordinated care for the native plant demonstration garden at Cedell Brooks Jr. Park. Resiliency played a central role in all the projects GWRC implemented, but especially in trainings and increased efforts for public engagement. GWRC staff worked closely with partners to increase visibility the FY2021 Urban Heat Island Study and the associated Green Infrastructure solutions with community listening sessions and the new monthly GWRC environmental newsletter. Resiliency for Planning District 16 (GWRC) in FY2022 involved a lot of relationship building as new staff came onboard, but major progress was still made on the 2020 Environmental Strategic Plan's action items—including building a septic program and finalizing the next iteration of the Hazard Mitigation Plan. Finally, GWRC staff continued to serve as a liaison between state groups, such as the Virginia Coastal Resilience Master Plan (VCRMP) Technical Advisory Committee (TAC) and the Coastal Policy Team (CPT), and the localities in our region to communicate state funding opportunities and locality needs.

## Product #1: Training and Coordination Outcomes

### A. CZM Coordination Meetings

George Washington Regional Commission (GWRC) staff and consultant participated in the following Virginia CZM-related meetings:

1. 11/21/22 – Coastal Virginia Shoreline Stakeholders Group Subcommittee on Funding Discussion highlighted by example project entry in draft spreadsheet with input from Department of Wildlife Resources (DWR)'s Becky Gwynn. Group agreed that "Phase 1" work group deliverables will consist of spreadsheets for sharing resources followed by "Phase 2" work group deliverables leveraging "Phase 1" resources to create decision making frameworks.
2. 12/1/2022—Virginia Coastal Resilience Master Plan (VCRMP) Technical Advisory Committee (TAC) Virtual Meeting to discuss the feedback on the VCRMP framework and Phase 1.
3. 2/6/23- Coastal Virginia Shoreline Stakeholders Group to preliminarily discuss how to build out a funding database and who the user would be (homeowner, locality staff, state staff, NGO, etc.).
4. 2/15/2023 – Coastal Policy Team (CPT) Meeting to discuss upcoming funding and budgets as well as plans for staff turnover.
5. 2/21/23 – Coastal PDC Quarterly Meeting hosted by Northern Neck PDC in which PDC staff discussed the most recent CPT meeting and toured the Tide's Inn's living shoreline.

6. 3/16/2023—Coastal Resiliency TAC where the Virginia Department of Transportation (VDOT) presented on their Resiliency Plan and DCR staff updated TAC members on CRMP—including rollout for pluvial flood modeling.
7. 5/8/2023—Bipartisan Infrastructure Law (BIL) Funding Introduction where Virginia CZM staff presented on upcoming BIL funding sources and attendees workshopped proposals.
8. 5/25/2023-- Coastal PDC Quarterly Meeting hosted by Middle Peninsula PDC where Virginia Institute of Marine Science (VIMS) faculty and PDC staff held a workshop on how to exchange resources, tools, and information in a more effective way.
9. 6/2/2023—Upcoming Funding Opportunities with Virginia CZM where Virginia CZM staff provided an additional update on upcoming funding sources.
10. 6/27/2023—Coastal Resilience TAC where Virginia Department of Conservation & Recreation (DCR) staff updated members on VCRMP Phase II including updating the Resilience Web Explorer and Pluvial Modeling Pilot.
11. 7/5/2023—Conservation Funding Workgroup Meeting with Virginia CZM to review BIL Round 2 competitive grants. CZM introduced new Chesapeake Bay National Estuarine Research Reserve – VA (CBNERR-VA) staff and the Virginia CZM and CBNERR-VA BIL competition process, explaining that Virginia can maximize its projects by strategically selecting which program to apply for a project through. Virginia CZM also presented the idea of a DELMARVA Coastal Habitat Protection & Restoration Project under the Inflation Reduction Act (IRA) Climate Resilience Regional Challenge (CRRC).
12. 7/12/2023-- Coastal Virginia Shoreline Stakeholders Group Subcommittee on Funding featured discussion on limitations to project eligibility, primarily Virginia’s status as a “low water” state where private property extends to mean low water. This restricts the area of shoreline that can be restored to below MLW (offshore) since those locations are public bottomlands held in trust by the state and eligible for public funding. Funding and onshore restoration work is thus limited.
13. 8/17/2023—Wetlands Watch Living Shorelines FY23 Project of Special Merit (PSM) Overview where Wetlands Watch staff provided an update on their plan for implementation of the PSM award for Living Shorelines.
14. 8/24/2023-- Coastal Resilience TAC Subcommittee on Outreach and Coordination Virtual Meeting Virtual Meeting where DCR staff updated members on the Outreach and Engagement Plan and clarified the subcommittee’s role in the large VCRMP Phase II.
15. 8/31/2023-- Coastal PDC Quarterly Meeting hosted by Northern Virginia Regional Commission where members toured George Mason University’s Potomac Science Center and discussed the upcoming CPT meeting.
16. 9/21/2023—CPT Meeting where Virginia CZM staff reintroduced the group’s scope and purpose and members discussed funding allocations and priorities.

As well as numerous other smaller meetings and communications.

These meetings included presentations and/or discussions on Virginia CZM program updates, the CZM Resilience Project Database, the VCRMP, Resilience Adaptation Feasibility Tool (RAFT), native plant campaign implementation, ecotourism, future grant focal areas, and Chesapeake Bay Preservation Act (CBPA) regulations, among other topics.

GWRC staff have presented information on Virginia CZM-related activities to the GWRC Board as needed.

GWRC staff also regularly attended meetings of the Rappahannock River Basin Commission Technical Committee, the York River and Small Coastal Basins Roundtable, American Planning Association legislative recaps, Wetlands Watch Community Rating System (CRS) Workgroup meetings, and the Potomac Roundtable. Staff from GWRC also serve as the Rappahannock River Roundtable's Middle Rappahannock Regional Coordinator and an Advisory Committee Member for the Interstate Commission on the Potomac River Basin.

## B. Regional Environmental Managers Technical Committee & Regional Resiliency Meeting

The GWRC Regional Environmental Managers Technical Committee (REMTC) includes locality staff members and meets regularly. The Regional Resiliency Group is open to the public and often includes city and county planning, parks and recreation, and other department staff, town managers, representatives from state agencies (including Virginia Department of Environmental Quality (DEQ), DCR, Virginia Department of Health (VDH), and Virginia Department of Emergency Management (VDEM)), Soil and Water Conservation Districts, and occasionally elected officials, as well as stakeholders and professionals from universities, nonprofits, military installations, and private organizations.

GWRC hosted quarterly coordination and training meetings for the REMTC and the Regional Resiliency Stakeholder Group on:

1. November 15<sup>th</sup>, 2022 (Joint) (17 attendees)
2. January 17<sup>th</sup>, 2023—REMTC (11 attendees)
3. February 28<sup>th</sup>, 2023—REMTC (9 attendees)
4. March 21, 2023 – Regional Resiliency Stakeholder Group Meeting (27 attendees)
5. May 16<sup>th</sup>, 2023—REMTC (11 attendees)
6. June 20<sup>th</sup>, 2023 -- Regional Resiliency Stakeholder Group Meeting (7 attendees)
7. September 12<sup>th</sup>, 2023—REMTC (5 attendees)
8. September 19<sup>th</sup>, 2023-- Regional Resiliency Stakeholder Group Meeting (14 attendees)

The purpose of these meetings was to bring together regional stakeholders to discuss topics of mutual interest in the spheres of water quality, resilience, hazard mitigation, energy, stream and shoreline protection, wildlife and habitat protection, and other topics centered around resiliency, the green economy, and environmental protection. The topics were explored through trainings and discussions on any new or revised regulatory changes, best management practices, exploring grant opportunities, exposing stakeholders to new ideas, and other matters relevant to the group. This forum has been effective in facilitating and propagating the latest changes in the stormwater regulations and best practices. The meetings were especially important for sharing grant opportunities which could further other regional environmental initiatives.

In addition to more general conversations about resilience and local issues, the meetings included the following **training** presentations:

- **11/15/22:** Septic Grant Opportunity – Lauren Linville, DEQ's Office of Clean Water Financing
  - DEQ's Lauren Linville gave a quick overview of the new grant programs coming out of the American Rescue Plan Act (ARPA), with a focus on the Septic Local Partners Program grant. This interactive presentation then focused on how the grant application works,

answering specific questions, and asking the locality staff what the state of septic is in their jurisdiction.

- [Agenda](#), [Minutes](#) (*presentation slides were not used for this training*)
- **3/21/2023:** Resiliency Strategy Opportunities—Wetlands Watch’s Shereen Hughes, Madison Teeter, and Gabi Kinney
  - Wetlands Watch staff talked about the programs they touch. They related our emphasis on green infrastructure and meeting Chesapeake Bay water quality goals to workforce development and needing trusted professionals. For this they offer the Chesapeake Bay Landscape Professionals (CBLP) program. They also touched on the CRS which helps lower national flood insurance rates for participating localities. Finally, they presented available grants to meet water quality and resiliency goals such as the Community Flood Preparedness Fund (CFPF).
  - [Presentation](#), [Recording](#), [Minutes](#)
- **6/20/2023:** Resilient and Sustainable Stormwater Programs— David Wood, Chesapeake Stormwater Network
  - David Wood from the Chesapeake Stormwater Network trained participants in the basics of how Municipal Separate Storm Sewer Systems (MS4) permitting works—including an overview of the 6 Minimum Control Measures (MCMs). This was then tied back to how changing conditions—such as the frequency and intensity of precipitation-- can cause ongoing damage to our built and natural environment. Resiliency factors in designing a BMP were discussed and examples were given to help visualize. Finally, David shared about the Chesapeake Urban Stormwater Professionals certification program which is available to emerging professionals for FREE to help them better understand MS4 and stormwater.
  - [Presentation](#), [Minutes](#)
- **9/19/2023:** Trees and the Rappahannock River— Adam Lynch, Friends of the Rappahannock
  - Adam Lynch from the Friends of the Rappahannock trained participants on why trees are important to water quality. This included a background on watershed-wide planning and land use and land cover impacts on water quality. The training focused on tying the Bay TMDL pollutant reduction goals and main sources of pollution into avenues through which tree canopy can improve water quality. Participants walked away with a better understanding of local threats to water quality and resources on how to improve water quality in their backyard and wider community.
  - [Presentation](#), [Minutes](#), [Recording](#)

Minutes and presentation materials from each REMTC meeting are posted on [GWRC’s website](#).

### C. Website

GWRC has updated and maintained the “Environment” tab and its subpages on the website. [Coastal Zone Management](#) has its own subpage with information on past products of the grants. The [Regional Environmental Managers Technical Committee](#) and the Environmental Strategic Plan also have subpages. New information this fiscal year has included updating the [Green Infrastructure](#) subpage and the [Land Use Toolbox](#) under the REMTC subpage and adding an [Urban Heat Island](#) and [Septic](#) subpages. The

Environment Tab also has a sub-page for [Native Plants](#) with information and a link to the Plant Central Rapp Natives website.

## D. Deliverables

Minutes and presentation materials from each of the meetings are posted on [GWRC's website](#).

# Product #2: Environmental Strategic Plan Update

## A. Project Summary

The original Environmental Services Strategic Plan was a collaborative effort between GWRC, the member localities, and nonprofits and other stakeholders to delve into resiliency gaps and deficiencies, identify needs and wants, and develop goals and strategies to meet them over the next 10 years, with timelines and sources of funding identified, as well as a list of projects for each locality and their current status. This plan is meant to be a living document and is revisited frequently in the monthly meetings of the REMTC.

GWRC used the 2020 Environmental Services Strategic Plan to create scopes of work for the DEQ Watershed Implementation Plan (WIP) 2022 and 2023 contracts and the CZM FY22 contract from October 2022 to September 2023. To update the plan, GWRC staff solicited input from the REMTC to add a broad overview—including a guiding vision and program activities. Locality staff provided input during a brainstorming session at the January 17<sup>th</sup>, 2023, meeting of the REMTC. This sticky note activity allowed GWRC staff to sort locality priorities into 3 categories: Hazards, Water Quality, and Resiliency. This was further divided into 3 types of action steps: Outreach & Coordination, Trainings & Technical Tools, and Planning & Implementation.

The vision for the program was drawn from the Environmental Services Long Term Aspiration in the adopted [GWRC 2022-2027 Strategic Plan](#):

"We aspire to see a region using land wisely and growing thoughtfully, better appreciating the natural beauty of its piedmont and coastal realm, working to protect its natural resources (land, air, and water), taking actions to minimize the impacts of natural disasters, and preserving its cultural heritage and historic resources." (page 14)

This document is a working document meant to tie together the 2020 Environmental Strategic Plan and the 2022 GWRC Strategic Plan. The framework provides vision and focus for the Environmental Plan from the GWRC Plan as well as updated action items for the Environmental Services program.

## B. Deliverable

The final product of this deliverable is attached as Appendix A.



## Product #3: Heat Island Special Project

### A. Project Summary

GWRC staff worked closely with the Friends of the Rappahannock to follow up the [2022 Urban Heat Island Study](#) product through two community listening sessions. These listening sessions (held on 2/22/2023 and 3/9/2023) were a well-attended community engagement opportunity that allowed community members to learn more about the results of the 2022 Study as well as ask questions for follow up research and share their lived experience. In the meetings, participants were prompted by a series of questions on research gaps, priorities for their communities, and socio-economic impacts of urban heat. The resulting outcome summary suggests that participants were highly concerned with how to implement change around sprawling development and limit conditions that cause urban heat. To achieve this, they suggested further research on economic impacts of urban heat island (cost-benefit analysis) as well as studies on solar panels contributions to heat in more rural areas. Finally, participants were asked *who* could most affect these changes and what the best points of entry would be. They responded that the ultimate goal was to better educate and get investment from developers—they also recognized the difficulty with this task. Points of entry identified included incentive programs like the US Green Building Councils' LEED certification or the local planning departments. Next steps were for GWRC staff to find university partners willing to conduct follow-up research.

### B. Deliverable

The final meeting minutes and list of potential projects are attached as Appendix B.

## Product #4: Benefits Accrued from Prior CZM Grants

### A. Environmental Strategic Plan Progress

The George Washington Regional Commission made significant progress in the Environmental Services Strategic Plan (2020- 2025). The following action items were either fulfilled or progress was achieved:

STRATEGY	ACTION	OUTCOME
1.2.1	Update GWRC Hazard Mitigation Plan 2022	GWRC Staff worked with the Project Management Team and the Berkeley Group (a consultant) to update and adopt the GWRC 2023 Hazard Mitigation Plan. The final plan was formally approved pending adoption by FEMA on 3/16/2023. The final locality adopted the plan on 09/07/2023.
1.3.2	Assess resilience of drinking water supply and wastewater management systems	GWRC staff working with VIMS, Virginia CZM staff, and other university is assessing wastewater management systems on an ongoing basis.

<b>1.3.8</b>	Partner to address high hazard dams in Stafford County	Stafford County is working on a Community Flood Preparedness Fund grant to support their planning efforts looking at high hazard dams in their locality.
<b>2.1.02</b>	Coordination with localities and CPT on water quality	GWRC supported water quality trainings on 11/15, 3/21, 6/20, and 9/19 this year.
<b>2.2.3</b>	Coordinate training on BMPs - septic	GWRC hosted Lauren Linville on 9/15/22 to talk about septic funding sources.
<b>2.2.4</b>	Coordinate training on local water quality policy options	GWRC hosted Chesapeake Stormwater Network on 6/20/23 to talk about MS4 and policies to make BMPs more resilient to climate change.
<b>2.3.06</b>	Prepare 319 grant application for Mattaponi Implementation Plan	GWRC did prepare and submit an application for 319(h) funding in the Mattaponi watershed.
<b>2.4.04</b>	Septic system program management	GWRC is working to create a program around septic repairs and BMPs in Planning District 16.
<b>2.4.09</b>	Support urban tree program	GWRC is working with Friends of the Rappahannock and Tree Fredericksburg to create urban tree programs, including an application to National Fish and Wildlife Federation (NFWF) to create an urban tree resource portal similar to Middle Peninsula's Fight the Flood program.
<b>2.5.1</b>	Engage on septic systems	GWRC is currently forming a septic project management team to advise on septic funding and wastewater issues.
<b>2.6.2</b>	Septic system public outreach	As funding comes in, GWRC is building septic outreach material and will start tabling at events soon to engage the public.
<b>2.6.3</b>	Urban tree planting and reporting public outreach	GWRC is working with Friends of the Rappahannock and Tree Fredericksburg to create urban tree programs, including a planting campaign at local schools who were hotspots for urban heat island per our 2022 study.
<b>2.6.7</b>	Comprehensive public outreach on water quality	GWRC has been tabling with Friends of the Rappahannock to engage and inform the public on green infrastructure, stormwater, and cost-share funding available.
<b>3.4.02</b>	Support urban and non-urban stream restoration	GWRC meets with and supports MS4 permittees regularly, Fredericksburg and Stafford (of that group) are currently working on stream restoration projects.
<b>3.4.12</b>	Pursue Sentinel Landscapes Partnerships	A Sentinel Landscape designation for the Lower Chesapeake was just awarded.

<b>4.3.8</b>	Participate in regional energy and climate change planning	GWRC has been engaging with the Virginia Climate Center at George Mason University to engage in climate planning in our region.
<b>4.4.04</b>	Urban Heat Island Mitigation	GWRC applied for and was awarded technical assistance for a Green Infrastructure Charette in 2024 which will continue the conversation on Urban Heat Island mitigation.

## B. Plant Central Rapp Natives Campaign

The Plant Central Rappahannock Natives (PCRN) Campaign is a group of regional stakeholders that have distributed educational material on the benefits of natives through their various organizations. CZM funds help GWRC continue to host the meetings in the GWRC office and to create and store program materials.

GWRC hosted meetings of the PCRN campaign. Meetings were held on:

- February 28, 2023 – PCRN Regular Campaign Call to coordinate between partners and plan collaborative outreach efforts.
- March 24, 2023 – Cedell Brooks Garden Maintenance Meeting to discuss what supplies need to be ordered and coordinate volunteer efforts.
- September 21, 2023—Garden Maintenance Meeting to discuss what supplies need to be ordered and coordinate volunteer efforts.

GWRC staff also attended and helped to host the PCRN table at the Historic Garden Week stop in Fredericksburg/King George on April 18<sup>th</sup>, 2023. The stop was based out of the Cedell Brooks Jr. Garden, a prior CZM project which resulted in a native plant demonstration garden. Campaign materials were also set up at a variety of other events such as Compost-A-Thon (05/12/2023) and Pollinator Week (06/17/2023). [Plant Virginia Natives](#) has its own website page with information and a link to the Plant Central Rapp Natives website.

## C. Flood Risk Communications Plan

The purpose of the Flood Risk Communications Program is to engage local leaders, stakeholder groups, and citizens in awareness training using the Federal Emergency Management Agency (FEMA) [Flood Risk Communication Toolkit for Community Officials](#) to coincide with FEMA's updates to Flood Insurance Rate Maps in the region. The strategy is to create tools and materials that localities can directly plug into their social media and other channels in order to inform citizens about flooding dangers and the existence of national flood insurance.

The first stakeholder meeting for this project was held in FY20, but due to a confluence of factors remained in the draft stage. Part of the ongoing effort to further this project was to pull in diverse voices from other GWRC groups. GWRC staff facilitated the sharing of information between the Local Emergency Planning Committee and the REMTC. The groups would like in future to hold a joint meeting to learn about how resiliency can affect them both.

As part of the continuing effort to connect localities to resources to better address flood risks, GWRC worked to facilitate a connection between communities and Wetlands Watches' CRS program. This resulted in Wetlands Watch providing a workshop on the CRS program which GWRC attended on 8/30/2023. This meeting was attended by many Spotsylvania County departments, including emergency management, planning, GIS, and environmental codes, which allowed for a robust conversation on how to address flooding in the jurisdiction. Spotsylvania County administrators are currently discussing options with their board about the benefits and costs associated with incorporating CRS and FEMA tools into their formal planning efforts.

## Product #4: Regional Resiliency Coordination Outcomes

### A. Regional Resiliency Coordination

The Regional Resiliency Stakeholder Group consists of the GWRC REMTC and any interested members of the public, with the intent to educate the stakeholder group on resilience topics and resources as well as engage the workgroup to develop the other project deliverables. Whereas the meetings begin with a training, the meeting ends with a Partner Roundtable that touches on resiliency topics important to the Stakeholder Group with particular emphasis on advancing ecosystem and community resilience. The following synopses encapsulate the Roundtable portion of the meetings:

1. **11/15/22:** Lauren Linville from DEQ's Office of Clean Water Financing offered perspective on how decentralized wastewater management is an emerging issue in coastal zones. Partners shared on the state of wastewater management in their region and what vulnerabilities they believe their locality has to changing conditions.
2. **3/21/23:** Wetlands Watch offered resources on how tie workforce development and resiliency grants into green infrastructure to address urban heat island and stormwater management in the region. Partners shared how they believe their locality or organization could use the funding or training resources to increase their resiliency.
3. **6/20/23:** Chesapeake Stormwater Network talked about how MS4 permitting works and how we may need to go above and beyond requirements to keep our communities safe from changing weather and coastal conditions. Partners shared how future resources on stormwater could help them improve resiliency in their organization or locality.
4. **9/19/23:** Friends of the Rappahannock talked with participants about tree planting efforts, local organizations spearheading tree plantings, and how to get involved. The discussion also included a robust partner roundtable on how localities, local organizations, and environmental stakeholders are addressing resiliency within their corresponding areas. This networked approach allowed for discussions on training and community engagement opportunities.

Minutes from these meetings can be found on our [website](#). GWRC is continuously engaging localities and stakeholders to determine which resiliency projects could be implemented in the region. GWRC also began a monthly newsletter to better facilitate the sharing of information on resiliency tools and grants. Archived copies of these newsletters are also available on [our website](#). These newsletters are an opt-in opportunity for community members to get news on environmental justice tools, water quality resources,

and GWRC environmental services events. Currently the list has over 100 subscribers and goes out on the first business day of the month.

## B. Regional Resiliency Projects

GWRC worked with stakeholder groups to identify regional resiliency needs, such as data gaps, local capacity, etc. Locality staff and Board members expressed capacity needs and gaps in the areas of:

- Water supply planning,
- Decentralized wastewater management,
- Staff retention and recruitment,
- Staff Capacity to engage in proactive measures, such as education of developers, boards, and residents on coastal regulations and Best Management Practices,
- Litter prevention and mitigation.

This list represents the ongoing engagement between GWRC staff and the localities to better understand how needs can be addressed and gaps filled and will be updated as conversations continue.

## C. Resilience Database Contributions

GWRC has been participating in ongoing discussions with other Coastal PDCs, DCR, and CZM staff to craft a bulk upload into the VCRMP resilience project database. GWRC has worked with regional partners to add entries into the final project spreadsheet, which is attached as Appendix C.

## D. State Resilience Planning Support

GWRC attended the VCRMP TAC quarterly meetings on 12/1/22, 3/16/2023, and 6/27/2023 as well as a Subcommittee on Outreach and Coordination Virtual Meeting on 8/24/2023. Information from these meetings was then shared with locality staff through REMTC and Regional Resiliency Stakeholder Group meetings as well as newsletter emails.

## APPENDIX A: ENVIRONMENTAL STRATEGIC FRAMEWORK

# Environmental Strategic Framework

George Washington Regional Commission

FY2022, CZM Technical Assistance Product

Working Document as of September 30, 2023



*This document is a working document meant to tie together the 2020 Environmental Strategic Plan and the 2022 GWRC Strategic Plan. The framework provides vision and focus for the Environmental Plan from the GWRC Plan as well as updated action items for the Environmental Services program.*



# Strategic Vision

"We aspire to see a region **using land wisely and growing thoughtfully**, better appreciating the natural beauty of its piedmont and coastal realm, working to **protect its natural resources** (land, air, and water), taking actions to **minimize the impacts of natural disasters**, and preserving its cultural heritage and historic resources."

From the GWRC 2022-2027  
Strategic Plan

## Focal Areas:



**WATER  
QUALITY**

**HAZARDS**



**RESILIENCE**

GEORGE  
WASHINGTON  
REGIONAL COMMISSION



# Resilience Strategy

*"Using land wisely and growing thoughtfully"*

- **Expand Outreach and Engagement**

- Create an environmental website to host a library of media toolkits, maps, studies, and interactive tools.
- Work with state-wide partners to coordinate efforts surrounding septic implementation, regulation, and modeling.
- Continue to offer trainings and coordination of partners through the Regional Resiliency meetings.

- **Offer Training Coordination and Technical Tools**

- Increase opportunities for locality staff and interested community members to receive training on resiliency.
- Work with partners to conduct a cost benefit analysis of urban heat island in our region.

- **Support Planning & Implementation Efforts**

- Work with basin-wide partners to write grant applications that expand resilience programs.
- Support efforts to strategically increase urban tree canopy and green infrastructure in the region.

# Water Quality Strategy

*"Protecting natural resources"*

- **Expand Outreach and Engagement**

- Make meaningful strides to participate in and engage communities across all three river basins.
- Start a regional newsletter for community leaders with resources on water quality improvement.

- **Offer Training Coordination and Technical Tools**

- Increase opportunities for locality staff to receive Continuing Education Units (CEUs) towards certifications and trainings on erosion and sediment control and stormwater management.
- Facilitate ongoing conversations around green infrastructure through charettes and trainings.

- **Support Planning & Implementation Efforts**

- Work with regional partners to create a living document of Best Management Practices (BMPs) in non-MS4 localities.
- Continue to secure funding for an in-house septic cost-share program.



# Hazards Strategy

*"Minimizing the impacts of natural disasters"*

- **Expand Outreach and Engagement**

- Continue to staff Local Emergency Planning Committee (LEPC).
- Work with emergency managers to disseminate information on hazard mitigation and vulnerability to risk.

- **Offer Training Coordination and Technical Tools**

- Increase opportunities for local Emergency Management (EM) staff to receive training and run hazards scenarios.
- Address research gaps in Hazard Mitigation Plan to prepare for the next iteration of the plan.

- **Support Planning & Implementation Efforts**

- Coordinate with Regional EM staff to support implementing hazard mitigation strategies.
- Write and support Hazard Mitigation Planning on a 5-year cycle.

## APPENDIX B: URBAN HEAT ISLAND COMMUNITY LISTENING SESSION SUMMARY

## **Urban Heat Island Community Listening Session**

February 22<sup>nd</sup> at 10 am and March 9<sup>th</sup> at 6pm

In-person at GWRC with Zoom option

**Group Goal:** *To solicit input on how UHI is impacting the community, and to generate a list of projects that could address community impacts related to the Regional Urban Heat Island Study.*

### **Meeting Agenda:**

5 min	Welcome and Introductions
30 min	Presentation on Regional Urban Heat Island Study by Friends of the Rappahannock
15 min	Questions
30 min	Discussion and Brainstorming Future Projects
5 min	Adjourn

### **Discussion Questions:**

1. **What does your community need to alleviate the burdens associated with UHI?**
  - a. Giving developers incentives and resources to plant trees– can we funnel DOF or Chesapeake Bay Program money to residents / developers? (Only go to retrofits)
  - b. Lessen the burden for development to encourage innovation!
    - i. How can we tie localities, developers, and GO Virginia into a partnership to innovate new practices?
2. **Research shows that the most effective way to mitigate the impacts of UHI are to plant urban trees and implement green infrastructure practices. What other co-benefits could this generate?**

- a. Mental Health (CHIP at RAHD)
- b. Tourism and other economic development
  - i. reduce congestion by making multimodal transportation options more attractive (people can bike/walk on tree-lined streets!)
- c. Quality of life for attracting businesses (we are a great place for your employees to live!)
- d. unsheltered homeless population: less stress on their health and the healthcare system
- e. Crime reduction with green infrastructure
- f. Community engagement/ investment (neighborly love!) with community gardens and distributed care of community spaces

**3. What is preventing localities from implementing green streets?**

- a. keeping mature tree canopy vs planting new canopy – you get better credits for “leaving” the trees vs trying to plant seedlings.
- b. the development community or engineers needs to be educated around environmental issues– openness to this?

**4. One of the great misconceptions surrounding UHI is that they only exist in highly urbanized areas. In contrast, our study found temperature differentials in most all areas within the region that have high impervious surface cover. What can we do to dispel the myth that urban heat islands are only applicable to cities and highly urbanized areas?**

- a. Rename urban heat island effect (suburban heat island)
- b. Testimonials from urban, suburban, and rural landowners
- c. Warning off sprawling development (Urban doesn't mean what it used to)

**5. What research gaps exist? What future studies could be conducted regionally or locally?**

- a. Follow-up on UHI matrixed with EJScreen Tool
- b. Quantifying the costs associated with urban heat islands
- c. ROI on tree canopy
- d. Thermal water pollution
- e. How solar farms are impacting UHI?
- f. How does historical data compare to current conditions around land use / UHI or repeat the study every X number of years?

- g. cost differential (time, materials, personnel, expertise, etc.) between developing in a “traditional” way vs developing with green infrastructure.
- h. Comparing heat differentials between areas of newer development without mature tree canopy and green infrastructure vs areas with well-developed tree canopy and/or “best practice” green infrastructure
- i. How do heat islands impact crops

**6. Given that UHI sits at the intersection of environmental and social determinants of health, what organization is best suited to spearhead this effort moving forward? If not one organization, what does a partnership between existing organizations look like?**

- a. Health department wants to be involved but cannot lead conversation.
  - i. same for CoC
- b. Urban Forestry Master Plan for City of Fredericksburg (City Arborist, DOF)
- c. USGBC–Virginia chapter
  - i. resources for how to talk to people without environmental backgrounds.
- d. Presentation to the GWRC board
- e. Mary Washington Hospital Foundation, DSS, Micah Ministries
- f. Health Insurance companies??
- g. DOF Forestry Permit– work with forester
  - i. Patti and Kaitlin Duval– watershed Foresters
- h. Charette = next step

**Attendees:**

**2/22/23:** Kari Eaves (FAMPO), Jeff Flood (DEQ-CZM), Jake Kline (DEQ- Ches. Bay), Adam Lynch (FOR), Allison Balmes-John (RAHD), Kate Gibson (GWRC), Meredith Keppel (GWRC), Maddie Harris (GWRC-CoC), Kimberly Bastress (FXBG Clean & Green Commission), Scott Rae (Fredericksburg), Andrea Heller (Apex Co), Freda Rosso (UMW)

**3/9/23:** George Solley (FXBG Clean & Green Commission), Whitney Brewster-Wilson (USGBC-Virginia), Jacob Pastwik (Spotsylvania Planning), Taylor Coxon (Spotsylvania Environmental Codes), Sam Shoukas (GWRC), Sean Morrow (UMW), Adam Lynch (FOR), Meredith Keppel (GWRC)

## APPENDIX C: TABLE OF GWRC PROJECTS SUBMITTED TO DCR RESILIENCE PROJECT DATABASE



CRM ID	Submitter Name Last	Submitter Name First	Submitter contact info (email)	Project Name	Project Owner (Select One)	Other - Project Owner (If "other" is selected, please explain here)	Project Owner Contact Info (email)	Project Partners	Related Initiative
1									
2	406 Keppel	Meredith	<a href="mailto:meredith.keppel@xvregion.org">meredith.keppel@xvregion.org</a>	Septic Collaborative and Cost Share	George Washington RC		<a href="mailto:Meredith.keppel@xvregion.org">Meredith.keppel@xvregion.org</a>	Friends of the Rappahannock, VIMS, CB-NERR	Programmed – the project has been identified as a need through a formal planning process that addresses flood resilience (e.g. Resilience Plan, Comprehensive Plan, Hazard Mitigation Plan), and has been budgeted for near-term or future progression.  Proposed - the project has been identified as a need through a formal planning process that addresses flood resilience (e.g. Resilience Plan, Comprehensive Plan, Hazard Mitigation Plan, etc.), but has not yet been formally initiated or budgeted.  Proposed - the project has been
3	1 Keppel	Meredith	<a href="mailto:meredith.keppel@xvregion.org">meredith.keppel@xvregion.org</a>	Smith Run Pond D Retrofit	Fredericksburg		<a href="mailto:asrae@fredericksburgva.gov">asrae@fredericksburgva.gov</a>		Yes