RESILIENT RHODY

STATE OF RESILIENCE REPORT - 2024

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Cover image provided by Narragansett Bay National Estuarine Research Reserve (NBNERR)

DEM RHODE ISLAND

Fellow Rhode Islanders:

Rhode Island's 400-plus miles of coastal & riverine shoreline and over 350,000 acres of forested land provide cultural, economic, and ecological benefits to our state's local communities. Our state relies on these notable landscape features – state parks, urban forests, wetlands, barrier beaches, bluffs, historic waterfronts, and more – to support key sectors of the state's economy such as tourism and marine trade, as well as valuable ecosystem services such as fish spawning, bird migration, and nature-based protection from storm events. These features contribute strongly to our state's identity and have defined Rhode Island's character as the Ocean State.

However, now more than ever, the defining landscape features that have provided such significant statewide benefit are at risk – and with reduced protection & support from these features, so too are Rhode Islanders. Sea level rise and increased frequency & intensity of storms and precipitation have worsened the depth and extent of both coastal and riverine flooding. Historic storm events have driven need for extensive emergency management and debris removal, with significant financial impact – from September 2023 through January 2024 alone, federal flood disasters that occurred without relent left our state reliant on over $22 million in FEMA Individual & Household Assistance dollars. With 2023 now the hottest year on record, increased temperatures have also had significant impact on Rhode Island. Resulting droughts, such as experienced early December 2024, have led to increased wildfire risk – a predominant example being the April 2023 wildfire in the Town of Exeter.

Across Rhode Island, state agencies, non-profits, universities, municipalities, and communities have been taking steps for years to adapt to these climate change impacts through identifying, planning for, and implementing key resilience solutions. In 2018, statewide stakeholders gathered together to author *Resilient Rhody: An Actionable Vision for Addressing the Impacts of Climate Change in Rhode Island*, which established 61 state resilience goals across five key areas – Critical Infrastructure & Utilities, Natural Systems, Emergency Preparedness, Community Health & Resilience, and Financing Climate Resilience Projects. In 2021, the *Resilient Rhody: Three Year Impact Report* was released, highlighting initial outcomes of these established resilience goals.

The *Resilient Rhody 2024 State of Resilience Report*, established by Governor McKee through Executive Order 23-07 Rhode Island Resilience 2023, serves as a comprehensive snapshot of climate resilience in Rhode Island, providing an overview of our current statewide initiatives & resources, standards, and progress to date on our 61 state resilience goals. Moreover, it serves as a launching point for the *Resilient Rhody 2025 Statewide Coastal Resilience Plan*, which will, beyond revisiting the original 61 state goals, expand to provide a thorough analysis of statewide vulnerability to climate impacts and project scoping for top priority sites.

Most importantly, the 2024 Report begins to capture the wide variety of impressive climate resilience work ongoing in our state. With over 50 state agency, non-profit, university, and subject-matter expert partner entities coming together to share their resources, initiatives, and knowledge – and over 100 statewide climate resources & initiatives documented – Rhode Island is not only well on its way to addressing climate impacts, but also is prepared to strategize and find solutions to our current resilience gaps. I commend the scope, quantity, and quality of these statewide efforts, and I could not be prouder to be a part of such a skilled group of resilience innovators and collaborators.

Much work remains to be done, but the scale of our statewide efforts – and the strength of collaboration across our partners – give me strong hope for the future of Rhode Island's resilience.

Sincerely,

Kimberly Korioth
Chief Resilience Officer, State of Rhode Island

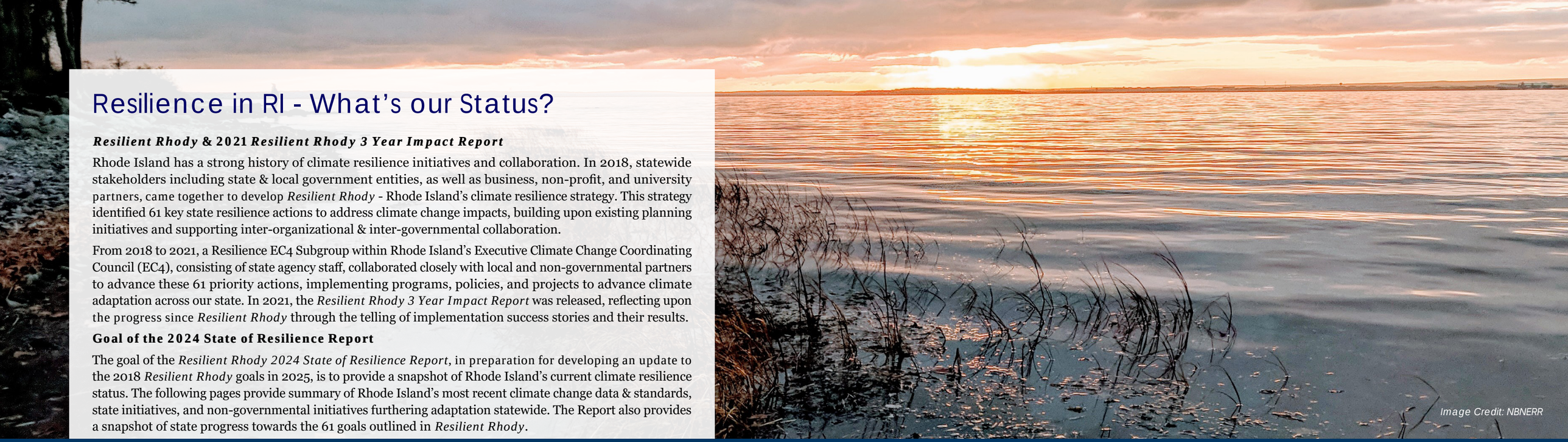

Image Credit: NBNERR

Resilience in RI - What's our Status?

Resilient Rhody* & 2021 *Resilient Rhody 3 Year Impact Report

Rhode Island has a strong history of climate resilience initiatives and collaboration. In 2018, statewide stakeholders including state & local government entities, as well as business, non-profit, and university partners, came together to develop *Resilient Rhody* - Rhode Island's climate resilience strategy. This strategy identified 61 key state resilience actions to address climate change impacts, building upon existing planning initiatives and supporting inter-organizational & inter-governmental collaboration.

From 2018 to 2021, a Resilience EC4 Subgroup within Rhode Island's Executive Climate Change Coordinating Council (EC4), consisting of state agency staff, collaborated closely with local and non-governmental partners to advance these 61 priority actions, implementing programs, policies, and projects to advance climate adaptation across our state. In 2021, the *Resilient Rhody 3 Year Impact Report* was released, reflecting upon the progress since *Resilient Rhody* through the telling of implementation success stories and their results.

Goal of the 2024 State of Resilience Report

The goal of the *Resilient Rhody 2024 State of Resilience Report*, in preparation for developing an update to the 2018 *Resilient Rhody* goals in 2025, is to provide a snapshot of Rhode Island's current climate resilience status. The following pages provide summary of Rhode Island's most recent climate change data & standards, state initiatives, and non-governmental initiatives furthering adaptation statewide. The Report also provides a snapshot of state progress towards the 61 goals outlined in *Resilient Rhody*.

State of Resilience Report Definitions

The 2018 *Resilient Rhody* strategy established Rhode Island's definition of **Climate Resilience** as:

> *The capacity of individuals, institutions, businesses, and natural systems within Rhode Island to survive, adapt, and grow no matter what chronic stresses and weather events they experience. While the effects of climate change are felt across the state, these impacts are not equally distributed. Effective climate resilience requires a focus on environmental justice and equity to support local leadership for sustained interaction between community, business, and government.*

Further, in 2015, Rhode Island's Executive Climate Change Coordinating Council (EC4) defined the six key statewide manifestations of climate change, which the EC4 Science & Technical Advisory Board (EC4 STAB) are tasked to assess. These include:

- *Sea level rise*
- *Warming air temperatures*
- *Warming water temperatures*
- *Storm frequency and intensity*
- *Changing Biodiversity*
- *Precipitation and inland flooding*

The *Resilient Rhody 2024 State of Resilience Report* continues to utilize these above definitions, given their role in shaping and defining our state's climate resilience initiatives to date. Any re-evaluation or amendments to these definitions will be conducted during the *Resilient Rhody 2025 Statewide Coastal Resilience Plan* process.

Structure of the State of Resilience Report

Across six key sections, the *Resilient Rhody 2024 State of Resilience Report* provides a snapshot of Rhode Island's current status on climate resilience. The report provides updates on key climate resilience data presented in the 2018 *Resilient Rhody* strategy, how climate resilience currently intersects with our state planning standards & permitting requirements, and our current state offered and non-governmentally provided climate resilience assistance resources. It also highlights Rhode Island's current measures of success towards improving statewide resilience, through a look at our progress towards the actions outlined in *Resilient Rhody* 2018.

1. Rhode Island's Climate Change Impacts
2. Standards for Climate Resilience
3. Statewide Resilience Initiatives
    - *Regional + Statewide Coordination*
    - *Data + Mapping*
    - *Education + Workforce Development*
    - *State Planning*
    - *Local Planning + Project Scoping*
    - *State Funded Funding Opportunities*
    - *Funding Programs + Incentive Programs*
4. 2018 *Resilient Rhody* Actions + Results
5. What's Next? - *Resilient Rhody 2025 Statewide Coastal Resilience Plan*

Rhode Island Climate Change Impacts

In 2018, Resilient Rhody provided an overview of climate change data and trends seen across Rhode Island's six manifestations of climate change. The most up to date information from these federal, regional, and state data sources is provided below.

Image Credit: NBNERR

Sea Level Rise

- The historic rate of sea level rise from 1930 to 2023 is 2.92 mm/year, or over 1" per decade. In other words, sea level has risen nearly 11" in Rhode Island since 1930.[1]
- Global mean sea level rise from 1993 has accelerated to 3.5 mm/year (satellite altimetry).[2]
- The mean annual rate of sea level rise in Newport is 4.25 mm/year from 1986-2022.[3]
- In February 2022, the National Oceanic and Atmospheric Administration (NOAA) projected high sea level rise scenarios for the Northeast at 1.77 ft by 2050, 6.89 ft by 2100, and 12.14 ft by 2150 (measured from the year 2000).[4]

Storm Frequency & Intensity

- Coastal inundation levels and storm surge impacts will increase due to sea level rise.[5]
- With a 2°C temperature increase above pre-industrial levels, rainfall rates within tropical storms and hurricanes are projected to increase by about 14%.[6]
- Globally, tropical cyclone intensities are projected to increase by 1 to 10%, according to projections for 2°C global warming. The proportion of tropical cyclones that reach very intense (Category 4 and 5) levels is projected to increase due to anthropogenic warming over the 21st century.[7]
- Climate change is projected to magnify the impact of tropical cyclones in the US Northeast through increased rainfall and wind speed. The coastal region at severe risk from tropical storms is projected to expand northward within the US Northeast.[8]
- Annual economic damage from U.S. landfalling hurricanes has increased remarkably since 1900. Studies agree that the dominant driver of the increase has been the rise in the amount and economic value of built infrastructure and wealth along the U.S. coast in hurricane-prone regions.[9]

Precipitation & Inland Flooding

- The Northeast has experienced the largest national increase in the number of extreme precipitation days (the top 1% of heaviest precipitation events), with an increase of 60% from 1958 to 2021. The region's annual and 5-year maximum precipitation amounts have also increased by over 10%.[10]
- In New England, extreme precipitation days have increased 71% from 1901-2012.[11]
- There is robust evidence that warming caused by humans has contributed to increases in the frequency and severity of the heaviest precipitation events across nearly 70% of the US.[12]
- Studies project that the observed increase in heavy precipitation events will continue in the future. Under the higher scenario (RCP8.5) the number of extreme events (exceeding a 5-year return period) increases by two to three times the historical average in every region by the end of the 21st century, with the largest increases in the Northeast. Under the lower scenario (RCP4.5), increases are 50%–100%.[13]

Warming Air Temperatures

- Levels of CO_2 have surpassed 419 parts per million, well above the pre-industrial (1850) level of 280ppm.[14]
- The Paris Agreement set the target of holding global average temperature below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels. Current global averages are 1.35°C degrees above pre-industrial levels.[15]
- 2023 is, to date, the warmest year on record.[16]
- In 2020, Rhode Island experienced 23 days above 90 degrees and three heat waves, creating severe drought across 43% of the state. In 2022, Rhode Island experienced the fourth-hottest July on record and the hottest August on record, with a combined 16 days above 90 degrees and two heat waves, leading to an extreme hydrologic drought that left Providence declared as a federal disaster area.[17]

Warming Water Temperatures

- From 1901 through 2023, sea surface temperature rose at an average rate of 0.14°F per decade globally.[18]
- Ocean temperatures in the continental shelf bottom waters of the Northeast have increased by 0.15°F to 0.7°F per decade.[19]
- Over the 50 year span from 1960 to 2010, the surface temperature of the Bay increased from 1.4° to 1.6°C (2.5° to 2.9 °F). Winter water temperatures in the Bay increased even more, from 1.6° to 2.0 °C (2.9° to 3.6 °F).[20]
- From 2003-2019, temperatures at the surface and bottom of Narragansett Bay increased at rates of 0.02°C (0.04°F) per year and 0.04°C (0.07°F) per year, respectively. Over these 16 years, surface temperature increased 0.32°C (0.58°F) and bottom temperature increased by 0.64°C (1.15°F).[21]

Changing Biodiversity

- In Rhode Island, spring is arriving sooner, with plants leafing out approximately two weeks earlier than the 1991-2020 average. According to 24 years of weather radar data, spring migrants are likely to pass certain stops earlier now than they would have 20 years ago.[22]
- Total statewide losses of existing coastal wetlands are predicted to be 13%, 52% and 87% under 1, 3 and 5 feet SLR scenarios, respectively.[23]
- Since the 1980s, fish communities have changed, with warm-water species (scup and butterfish) displacing cool-water resident species (winter flounder and red hake). In the Northeast, warming is changing distribution of bottom-dwelling species, including American lobster, Atlantic surf clams, and sea scallops.[24]
- Globally, algal blooms have increased in size by about 13 percent, or 1.5 million additional square miles, and have increased in frequency by 59 percent.[25]

CLIMATE CHANGE IMPACTS

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Standards for Climate Resilience

Elevation and setback guidance for sea level rise, storm surge, and inland flooding as implemented across Rhode Island's state agencies. These state standards inform project planning, implementation, and grant funding priorities.

Image Credit: NBNERR

PLANNING & DESIGN STANDARDS

These resilience considerations, implemented through state & local planning efforts and state design requirements, shape statewide prioritization, funding, and implementation of projects.

PRECIPITATION + INLAND FLOODING

STANDARD	IMPACT
RIDOT Resilience Improvement Plan: Whether the asset is located in a current floodway, 100yr and 500yr flooding event. (*FEMA FIRM*)	***Exposure scores created for infrastructure (roads, sidewalks, bridges, etc.)***
RI Division of Statewide Planning Local Comprehensive Plans: Areas exposed to 100yr and 500yr storm events. (*STORMTOOLS*)	***Determines which community assets are most vulnerable & highest priority for municipal action***
RIEMA Local Hazard Mitigation Plans: Must address all FEMA requirements including requirement to assess the risk and probability of future hazard events. (*FEMA FIRM*)	***All identified hazards must have two associated actions***
RIDEM Wastewater Treatment Facility Guidance: 100yr flooding events + 2-3' additional freeboard (structural and electrical components, respectively. (*NEIWPCC TR-16; FEMA FIRM*)	***Statewide guidance for planning and design of riverine wastewater facilities***
RIDEM Dam Safety Program: 100yr, 500yr, and half of Probable Maximum Flood (PMF). (*FEMA FIRM*)	***Utilized to determine design requirements for new dams and for repair of existing dams***

PLANNING & DESIGN STANDARDS

SEA LEVEL RISE + STORM SURGE

STANDARD	IMPACT
RIDOT Resilience Improvement Plan: Inundation depth of mean higher high water (MHHW) level plus 1, 2, 7' sea level rise; 100yr storm plus 1, 2, and 7' sea level rise. (*NOAA SLR Viewer Data; STORMTOOLS*)	***Exposure scores created for infrastructure (roads, sidewalks, bridges, etc.)***
RIDOT State Transportation Improvement Program (STIP): Assets exposed to 1-12' SLR. (*STORMTOOLS*)	***Priority projects for the STIP will be low-risk and not subject to SLR and other environmental risks***
RI Division of Statewide Planning Local Comprehensive Plans: Areas exposed to 1, 3, 5' SLR; areas inundated by category 1-4 hurricanes. (*STORMTOOLS; FEMA FIRM*)	***Determines which community assets are most vulnerable & highest priority for municipal action***
RIDEM Coastal Dock Elevation Design Standard: Assets must be elevated to minimum of 5.06' above mean high tide. (*NAVD88 Datum*)	***Determines new elevation of all bulkheads at state ports***
RIDEM Wastewater Treatment Facility Guidance: 100-yr flooding events + 2-3' additional freeboard (non-critical and critical facilities, respectively) + wave height. (*NEIWPCC TR-16; FEMA FIRM; STWAVE*)	***Statewide guidance for planning and design of coastal wastewater facilities***
RIEMA National Flood Insurance Program: RI Building Code implements extra 1' of freeboard beyond FEMA requirement for any development in a flood zone. (*FEMA FIRM*)	***Applied to new design, and additions, alterations, or repairs which constitute substantial improvement (cost greater than or equal to 50% market value)***

REGULATORY & PERMITTING STANDARDS

These resilience requirements, established and/or enforced through regulation, shape statewide and local development utilizing the following standards.

	STANDARD	IMPACT
PRECIPITATION + INLAND FLOODING	**RIDEM Freshwater Wetlands & Buffer Protection:** Setback standard of the buffer width + 20' (primary structures), buffer width + 5' (accessory structures), and 10' zone outside buffer (onsite wastewater). No net reduction in flood storage capacity. (*250-RICR-150-15-3*)	***Freshwater wetlands permitting - All projects and activities shall be designed and carried out to avoid alteration of buffers within buffer zones***
	RIDEM Multi-Sector Stormwater General Permit (MSGP): Required consideration of 100yr flooding events. (*FEMA FIRM*)	***Required for statewide industrial stormwater management plans***
	Rhode Island Stormwater Management, Design, and Installation Rules: Stormwater designs must consider up to 100yr design storms. (*Northeast Regional Climate Center*)	***State standard for planning, designing and installing stormwater best management practices***
SEA LEVEL RISE + STORM SURGE	**Rhode Island State Building Code:** Buildings and structures in flood hazard areas, coastal high hazard areas, and coastal A zones shall be in accordance with ASCE 7 and ASCE 24. (*FEMA FIRM*)	***Applied to new design, and additions, alterations, or repairs which constitute substantial improvement (cost greater than or equal to 50% market value)***
	CRMC Section 140 Setbacks: 30 - 50X the calculated average annual erosion rate. At a minimum, 50' from the inland boundary of the coastal feature or 25' from the edge of the Coastal Buffer Zone, whichever is more landward. (*Shoreline Change Maps*)	***Applies to alterations including grading, residential, sewage systems, industrial, commercial, public recreation, and transportation***
	CRMC Coastal Buffer Zones: 15-200' inland, based on lot size (less than 10,000 sq ft to over 200,000 sq ft). (*STORMTOOLS*)	***Required for all new developments and structural additions of 50% or more adjacent to a shoreline feature***
	CRMC Coastal Hazards Analysis: 30yr design life (currently 2050, 1.6' SLR). (*STORMTOOLS*)	***Guidance for sustainable floodplain development; completion of CHA analysis required but enforcement not bound by regulation***

GRANT & FUNDING STANDARDS

These resilience considerations are factored into the scoring criteria of statewide resilience and environmental grant programs.

	GRANT	REQUIREMENT / CRITERIA
CLIMATE RESILIENCE GRANTS	***RIIB Municipal Resilience Program Action Grants***	**Proposals must utilize climate impact data to address how the project improves site resilience from current conditions.**
	RIDEM Climate Resilience Fund	**Proposals must utilize climate impact data to address how the project improves site resilience from current conditions; Proposals for projects adapting-in-place (elevation, floodproofing, etc.) must incorporate the current lifespan of the structure to be adapted.**
	RIDEM & CRMC Ocean State Climate Adaptation & Resilience Fund	**Proposals must improve site resilience from current conditions; Proposals for projects adapting gray infrastructure in-place (elevation, floodproofing, etc.) in flood vulnerable locations are ineligible.**
	RIDEM Narragansett Bay & Watershed Restoration Fund	**Hardening of existing structures is ineligible under the Flood Prevention and Mitigation Subfund.**
LAND + ENVIRONMENT GRANTS	***RIDEM State Land Conservation Program***	**Scoring criteria considers salt marsh migration corridors and non-coastal habitats vulnerable to climate change.**
	RIDEM Local Open Space Grants	**Scoring criteria considers both flood protection (including sea level rise) and critical or uncommon habitat including undeveloped coastal lands and salt marsh migration corridors.**
	RIDEM Outdoor Recreation Grants	**Scoring criteria evaluates how well project accounts for climate change impacts, as well as project enhancement of resiliency through coastal buffers, flood storage, and/or salt marsh migration.**

Statewide Resilience Initiatives

Coordination, Data, Workforce Development, Education, Planning, Assistance, & Grants - How Rhode Island's EC4 Agencies, Non-Profits, and Universities are supporting statewide Climate Resilience. The listed initiatives engage across multiple scales and geographies, and provide a snapshot of climate resilience resources available across Rhode Island.

Image Credit: RIDOT

REGIONAL COORDINATION

STATEWIDE COORDINATION

SOUTHEAST NEW ENGLAND PROGRAM (SNEP) NETWORK

New England Environmental Finance Center

The SNEP Network provides training and assistance to municipalities, organizations, and tribes to advance stormwater and watershed management, ecological restoration, and climate resilience in Rhode Island and Massachusetts. The network is committed to building capacity in conjunction with EPA's Southeast New England Program within EPA Region 1. The program is supported by sixteen non-governmental and private-sector partners:

The Audubon Society of RI, the Blackstone Watershed Collaborative, the Cape Cod Commission, Elizabeth Scott Consulting, Mass Audubon, Kimberly Groff Consulting, Save the Bay, SRPEDD, The Environmental Finance Center at Syracuse University, The Nature Conservancy of Massachusetts, The Nature Conservancy of Rhode Island, The University of New Hampshire Stormwater Center, University of Rhode Island NEMO, The University of RI Onsite Wastewater Resource Center, Groundwork RI, and Groundwork Southcoast.

RESILIENCE EC4 SUBGROUP

RIDEM & EC4 State Agencies

The Resilience EC4 Subgroup was formed to facilitate ongoing coordination across state agencies on climate resilience efforts. Comprised of representatives from each EC4 agency, the group meets bimonthly to discuss active resilience projects, explore inter-agency collaborations, review statewide resilience standards, and establish metrics for success. This subgroup plays a key role in preparing content for the Statewide Resilience Report and Plan, fostering interagency alignment, and ensuring consistent progress on resilience goals set by the Executive Climate Change Coordinating Council (EC4).

RHODE ISLAND RESILIENCE PARTNER GROUP

RIDEM & RI Non-Profits, Universities, & Subject Experts

The Resilience Partner Group brings together resilience experts from nonprofits, universities, community-based organizations, and private entities across the state. Similar to the Resilience EC4 subgroup, this group was formed to enhance collaboration and information sharing, explore inter-organizational initiatives, and provide input on state resilience standards and metrics. The group has played a key role in developing the Statewide Resilience Report and Plan by helping to align diverse expertise toward Rhode Island's resilience objectives.

14 State Agencies

participate in the

Resilience EC4 Subgroup,

re-launched July 2024.

SNEP Network initiatives have included annual funding webinars, property owner guidance for resilience, and more (SNEP Network)

Over 40 entities -

organizations, institutions,

and subject matter experts -

participate in the

RI Resilience Partner Group,

launched September 2024.

Municipal Resilience Program workshop with MRP Core Team, municipal staff, and local stakeholders, hosted by the Rhode Island chapter of The Nature Conservancy (The Nature Conservancy)

3 Regional Resilience Coordinators -

1 coastal, 1 urban, and 1 inland -

will be contractually hired by

RIDEM to support local resilience

The RI Climate Resilience Learning Network launched in March 2024, with over 200 statewide resilience stakeholders in attendance (URI Coastal Resources Center)

MUNICIPAL RESILIENCE PROGRAM CORE TEAMS

The Nature Conservancy, RIIB, & RIDEM

Municipal Resilience Program Core Teams consist of local government representatives and community members from Rhode Island municipalities. Each team includes 2–5 municipal staff and community representatives, working together throughout the year and in annual resilience updates with RIDEM to identify local resilience priorities. These teams will be engaged to review statewide resilience standards and suggest updates for the 2025 Statewide Resilience Plan. This core team structure enables consistent communication between municipalities and state agencies, ensuring that local insights inform statewide resilience strategies.

REGIONAL RESILIENCE COORDINATORS

RIDEM & CRMC

RIDEM has secured funding via the NOAA Office for Coastal Management and the EC4 for the hiring of three Regional Resilience Coordinators. These positions – one coastal, one urban, and one inland – will provide local municipalities with technical assistance for climate resilience related planning, grant writing, project management, and community engagement & outreach, among other services.

RHODE ISLAND CLIMATE RESILIENCE LEARNING NETWORK

Rhode Island Sea Grant, URI Coastal Resources Center, & Narragansett Bay Estuarine Research Reserve (NBNERR)

The Rhode Island Climate Resilience Learning Network (RICRLN, or Network), launched March 2024, allows practitioners throughout the State who share similar concerns and challenges to engage in mutual learning, deepen their understanding of resilience tools and techniques, and collaboratively advance their collective work. The Network then facilitates engagement with diverse constituencies around resilience-building activities in their communities, applying practitioner capacity and expertise to locally established resilience priorities. Those on the front lines of community impacts and response have limited time and resources and require more support, which Network practitioners provide in the form of peer-to-peer learning, expert guidance, and enhanced access to and application of relevant information, tools, and techniques.

STATEWIDE COORDINATION

STATEWIDE COORDINATION

GREEN BUILDINGS ADVISORY COMMITTEE

RI Department of Administration

The Green Buildings Act requires that all major public facility projects of the state, public agencies, municipalities and political subdivisions be designed & constructed to LEED, LEED for Neighborhood Development, and SITES standards. Public school facilities must be designed to this standard or to the Northeast Collaborative for High-Performance Schools Protocol, Version 1.1. The Committee and its members provide recommendations; identify needs, actions, and funding; establish clear, measurable targets for implementing standards; identify ways to monitor and document ongoing operating savings and greenhouse gas emission reductions; and annually publish a report of findings.

RHODE ISLAND GREEN INFRASTRUCTURE COALITION

Nonprofit organizations, architects, designers, builders, city planners, & state and local policymakers

The RI Green Infrastructure Coalition (RIGIC) is a diverse group of environmental organizations who work together to promote nature-based solutions for reducing runoff pollution. RIGIC develops green infrastructure projects, leverages and supports policy in state and municipal governments, and educates others about the movement of stormwater through urban and suburban environments. This membership is open to any Rhode Island organization (public, private or governmental) that encourages the use of green infrastructure.

STORMWATER INNOVATION CENTER

Audubon Society of RI

The Stormwater Innovation Center (SIC) is a collaborative initiative dedicated to improving water quality and stormwater management in Rhode Island. From green infrastructure research to professional trainings to community science programs, SIC leads a wide range of initiatives addressing stormwater challenges comprehensively. Through collaborative projects with government, non-profits, and industry partners, SIC connects research, education, and real-world implementation to build a cleaner, more resilient future for Rhode Island's waterways.

LEADERSHIP EXCHANGE EVENTS

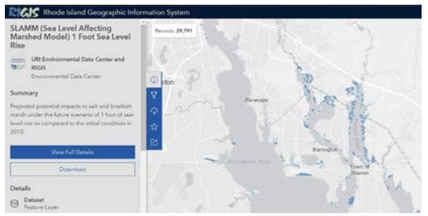
SNEP Network

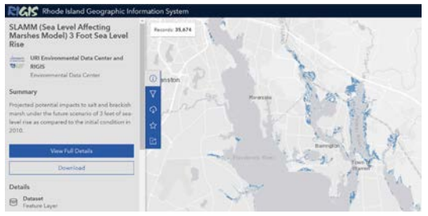
The SNEP Network delivers Leadership Exchange events for local municipalities. At the Leadership Exchange workshops, state and local experts discuss topics pertinent to addressing common concerns and building climate resilience, such as stormwater and water resources, emergency management and preparedness, and transportation. These discussions lead to the identification of next steps, project bundles, and funding opportunities, including exploration of sustainable financing options. In 2023, SNEP Network partners Throwe Environmental, Elizabeth Scott Consulting, and RIIB hosted a series of Leadership Exchange events with Aquidneck Island municipalities and Naval Station Newport to advance island-wide coordination on climate resilience.

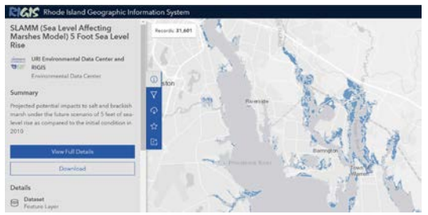
Stormwater Innovation Expo, held by the Green Infrastructure Coalition. In 2024, the Expo theme was "Partnerships for Climate Resilience," and included a keynote address from Kate England (Director of Green Infrastructure, City of Boston), resilience panels & speakers, and a tour of green infrastructure projects (ERICD)

Aquidneck Island Leadership Exchange Event (RIIB)

The 3CRS Project Brief, which can be found on the 3CRS Hub website (3CRS)







Sea Level Affecting Marsh Migration maps for 1', 3', and 5' of sea level rise (RIGIS)

STATEWIDE COORDINATION

RHODE ISLAND FLOOD MITIGATION ASSOCIATION

Local, state, and federal governments, watershed districts, consultants, insurance agents, and land trusts

RIFMA is a network of floodplain managers who work to improve the effectiveness and efficiency of all aspects of floodplain management in the State of Rhode Island. The Association establishes training opportunities for floodplain managers from around the state, and gathers to share ideas and experiences at conferences and workshops.

3CRS (COMMUNITY-DRIVEN COASTAL CLIMATE RESEARCH AND SOLUTIONS)

Brown University, University of RI, & Rhode Island College

The 3CRS Hub is a coastal resilience research hub aimed at addressing climate change related challenges faced by low-lying communities in New England. The group establishes a network of experts that members of these communities can turn to for help developing resilience solutions, through delivering tools for data collection and predicting rising water levels. The team includes members from Brown, University of Rhode Island, Rhode Island College, University of New Hampshire, Gulf of Maine Research Institute and Northeastern Regional Association of Coastal Ocean Observing Systems. The team is working with four coastal pilot communities (Galilee and Providence, RI, and Rockland and Bath, ME) and will bring solutions from these pilot communities across New England.

SALT MARSH RESTORATION, ASSESSMENT, & MONITORING PROGRAM (RAMP)

Narragansett Bay Estuary Program

The Salt Marsh Restoration, Assessment, and Monitoring Program formalizes a decades-long cooperation between multiple federal, state, local, non-profit, and academic agencies to restore, assess, and monitor salt marshes throughout Rhode Island. Multiple agencies and organizations with differing missions and mandates work efficiently and collaboratively towards the goal of preserving coastal wetlands throughout Rhode Island. This group coordinates research, management, and restoration initiatives.

RIGIS DATA CLEARINGHOUSE

University of RI & RI Div. of Statewide Planning

The Rhode Island Geographic Information System (RIGIS) distributes open geographically-referenced datasets that represent a wide range of topics, including transportation, infrastructure, and the environment. Datasets on RIGIS, including E911 (locations of structures throughout Rhode Island), RI Impervious Surfaces, Coastal Waters, Coastal Barriers, Coastal Wetlands Designated for Preservation, Coastline, Rivers & Streams, and Sea Level Rise Affection Marsh Migration (SLAMM), among others, provide valuable insights into structures and environments at risk from climate hazards and locations where resilience implementation would be most effective.

DATA + MAPPING

MYCOAST

RI Sea Grant, URI Coastal Resources Center, CRMC, & Save The Bay

MyCoast is a portal to collect and analyze photos of shorelines across the Ocean State. Information collected is used to capture the impact of flood hazards today, and to illustrate possible future conditions. Photos, linked to data about weather and tides, create reports that help stakeholders like government agencies, business owners, and residents to understand shoreline change and make informed decisions.

Jamestown - Extreme 2023 tides, upwards of 2' above average tide, impacts the island's evacuation road (MyCoast)

South Kingstown Town Beach - Storms in January 2024 resulted in erosion along many of the south shore beaches (MyCoast)

STORMTOOLS

University of RI & CRMC

STORMTOOLS is a method to map storm inundation, with and without sea level rise, for varying return period storms that covers all of Rhode Island's coastal waters. Predictions are provided that show water extent and depth at any given point for nuisance floods (1, 3, 5, and 10 year recurrence intervals) and 25, 50, 100, and 500 year storm scenarios at a 95% confidence interval. Sea level rise of 1, 2, 3, 5, and 7 feet on their own on their own as well as combined with each storm scenario are also modeled.

COASTAL ENVIRONMENTAL RISK INDEX (CERI)

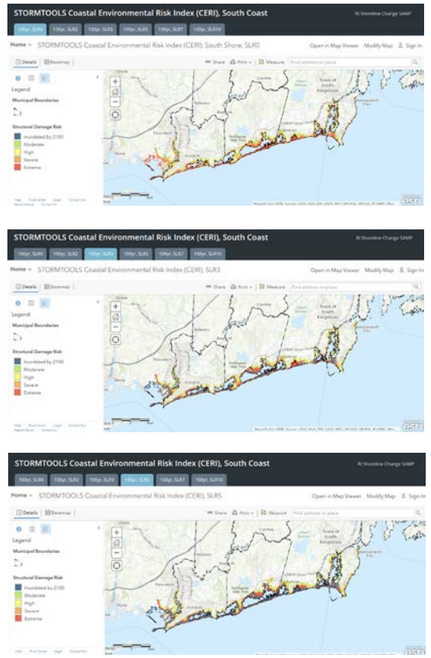
University of RI & CRMC

One of the challenges facing coastal zone managers and municipal planners is the development of an objective, quantitative assessment of the risk to structures, infrastructure, and public safety that coastal communities face from storm surge in the presence of changing climatic conditions, particularly sea level rise and coastal erosion. Here, state of the art modeling (ADCIRC and STWAVE) to predict storm surge and waves is combined with shoreline change maps (erosion) and damage functions to construct a Coastal Environmental Risk Index (CERI). Access to the state emergency data base (E-911) provides information on structure characteristics and the ability to perform analyses for individual structures. CERI has been designed as an online GIS tool, and is compatible with current flooding maps, including those from FEMA.

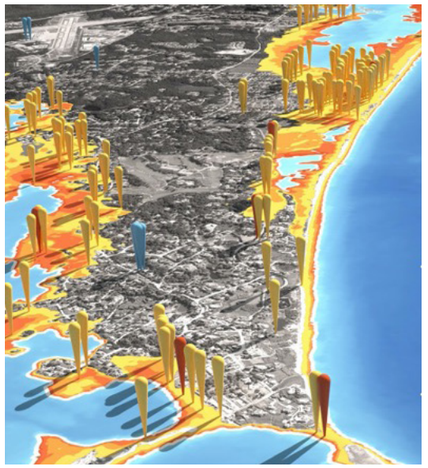
RHODE ISLAND COASTAL HAZARDS, ANALYSIS, MODELING & PREDICTION (RICHAMP)

University of RI

The RI-CHAMP system is a real-time hazard and impact prediction system for hurricanes and nor'easters in Southern New England at the hyper-local scale. The system includes cascading consequences of storm surge, wind, and waves impacting critical infrastructure such as wastewater treatment facilities, sewer systems, airports and seaports. RI-CHAMP is currently in operational use at the Rhode Island Emergency Management Agency (RIEMA) and customized planning tools have been delivered to RI Dept of Emergency Management, RI Dept of Health, Navy Station Newport, and are in development for the US Coast Guard Sector Southeastern New England. Integration of rainfall flooding is also in development.



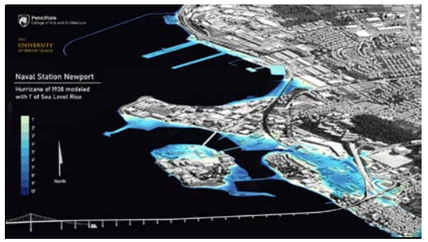
CERI maps reflecting an 100yr storm at 0', 3', and 5' sea level rise (URI, CRMC)



Storm impact model for Westerly's critical facilities showing wind and inundation (URI MACRL)

Maximum flooding impact from the hypothetical Hurricane Rhody is shown (URI MACRL)

The University of Rhode Island team met with stakeholders across Providence to identify critical infrastructure in the City's floodplain (URI MACRL)



Simulation showing Naval Station Newport Inundated by a modified 1938 hurricane with 1' sea level rise (URI MACRL)

RHODE ISLAND FLOODPLAIN VIEWER

RI Emergency Management Agency

The RI Floodplain Viewer is an online mapping tool that provides flood risk information relative to residences, businesses, and other structures. The information provided is based on FEMA FIRM (Flood Insurance Rate Map) maps. The tool approximates flood zone determinations based on this data.

SALT MARSH COASTAL PARCEL PLANNING TOOL

URI, Save the Bay, NBNERR, & RI Land Trust Council

This tool provides information on projected salt marsh habitat at the 2.8' and 8.8' sea level rise. To be considered a parcel supporting marsh migration, salt marsh must be 5%-75% of the parcel area under these scenarios, and the parcel must consist of 10% or less impervious surface.

HYDROLOGIC RESPONSE UNIT MAPPING

SNEP Network

The SNEP Network is working to develop a SNEP Region-wide HRU dataset. Hydrologic response units (HRUs) combine various land characteristics (e.g. land use, land cover, soil type, slope) to estimate an area's potential for runoff and pollutant loading. Through this work, municipalities throughout the SNEP Region (Rhode Island and Massachusetts) will soon have access to more information about where stormwater runoff is generated within their boundaries and watersheds.

URI MARINE AFFAIRS COASTAL RESILIENCE LAB

University of RI

The Marine Affairs Coastal Resilience Lab (MACRL), a part of the URI's Dept. of Marine Affairs, works across the fields of planning, policy, design, and engineering. Researchers contribute to untangling complex natural hazards problems and the resulting challenges in policy and planning. In applied projects such as the Rhode Island Coastal Hazards Analysis Modeling and Prediction system (RICHAMP), Prof. Austin Becker and his team of research associates, graduate, and undergraduate students, conduct applied research using social science methods in close partnership with end users such as the RI Emergency Management Agency and the RI Dept. of Environmental Management.

OCEAN TECH HUB

RI Commerce

The Ocean Tech Hub, supported by the U.S. Economic Development Administration, is part of the Regional Technology and Innovation Hubs initiative, designed to boost innovation & economic growth in technology sectors. This program aims to establish RI as a leader in ocean technology by investing in research, development, and commercialization efforts for marine science, renewable ocean energy, and maritime defense. The Ocean Tech Hub of Southern New England was awarded funding to continue implementing their strategy, which will strengthen undersea technology, ocean engineering, data collection, and machine learning to address economic and national security.

NARRAGANSETT BAY ESTUARY PROGRAM GIS HUB

Narragansett Bay Estuary Program

The NBEP GIS Hub synthesizes data on environmental conditions and trends to inform management and research focused on restoring and protecting water quality, wildlife, and quality of life in the Narragansett Bay region. Mapping includes protected coastal ponds, coastal land use, municipal coastal vulnerability (Warren), and environmental justice across the Narragansett Bay region.

RAIN SNAP

Stormwater Innovation Center & Audubon Society of RI

Rain Snap is a community-based stormwater monitoring network used to collect and analyze photos of stormwater flows at green infrastructure sites during heavy rain events. This information serves as a valuable resource for stormwater management decision-makers, designers, contractors, and maintenance workers, enabling them to gain a comprehensive understanding of the sites' effectiveness.

WOONASQUATUCKET GREEN INFRASTRUCTURE STORYMAP

Woonasquatucket River Watershed Council (WRWC)

WRWC encourages, supports, and promotes the restoration and preservation of the nationally recognized Woonasquatucket River Watershed as an environmental, recreational, cultural, and economic asset of Rhode Island. This story map provides a visual tour of Green Infrastructure completed or in progress by the WRWC.

GREEN INFRASTRUCTURE PROJECTS IN ROGER WILLIAMS PARK: MAPPING TOOL

Stormwater Innovation Center, Audubon Society of RI

This mapping tool includes site photos, data and videos of how green infrastructure sites are performing during storm events; design plans and construction costs; and lessons learned in stormwater and green infrastructure design, construction and maintenance.

RIDOT ROAD-STREAM CROSSING ASSESSMENT

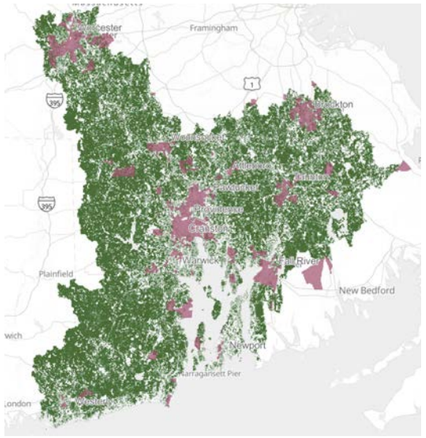
RI Dept. of Transportation

The 2021 Road-Stream Crossing Assessment Handbook, developed by RIDOT, Fuss and O'Neill, and stakeholders, serves as a decision-making tool to identify road-stream crossings for replacement/upgrade. The methodology prioritizes crossings based on flood vulnerability under climate change conditions and barriers to aquatic organism passage.

RI VULNERABILITY OF TRANSPORTATION ASSETS TO SLR

RI Div. of Statewide Planning

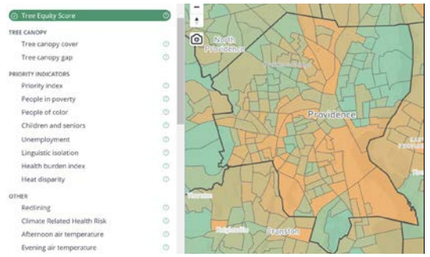
Covering 1', 3', and 5' of sea level rise, this mapping addresses vulnerability of transportation infrastructure including roads, rail, bike paths, ports & harbors, RIPTA bus routes, intermodal hubs, and bridges. The SLR scenarios were developed based on NOAA SLR projections, and add 1, 3, or 5 feet on top of Mean Higher High Water (MHHW).



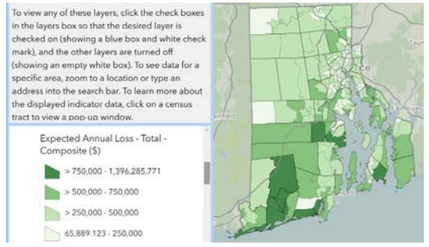
Map of Narragansett Bay watershed tree canopy and Environmental Justice priority areas (NBEP GIS Hub)

Green infrastructure for climate resilience at Riverside Park in Providence, completed by the Woonasquatucket River Watershed Council (WRWC)

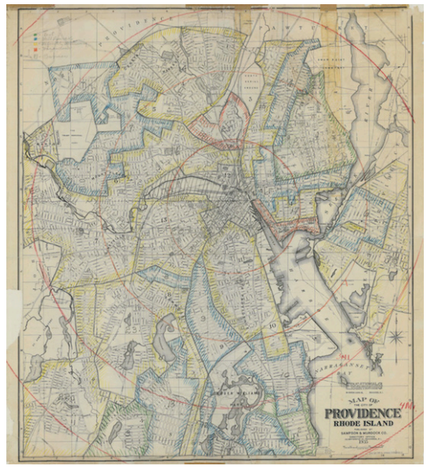
RIDOT Stream Crossing Assessment Handbook map, completed as a pilot for the Woonasquatucket River watershed (RIDOT)



Tree Equity Score Analyzer (TESA), with key criteria considered in score development. Areas with a higher equity score are in green, areas with a lower score are in orange (American Forests)



Map from the Social Equity Platform depicting expected annual economic losses due to climate change impacts (Social Equity Platform)



Residential Security Map of Providence, RI 1935. Note the lack of canopy in historically redlined areas in the TESA map (above) and Climate Safe Neighborhood Tree Canopy map (below) (National Archives)

Climate Safe Neighborhood map depicting Providence's historic redlining with existing tree canopy coverage (Groundwork RI)

TREE EQUITY SCORE ANALYZER

American Forests & RI Dept. of Health

The Tree Equity Score Analyzer provides user-friendly maps that assess equity of tree canopy coverage at the neighborhood & property level. Maps & resources explore demographic data, assess environmental factors and land use, evaluate the potential for tree planting on individual properties, and allow view of high-resolution tree canopy and satellite imagery.

SOCIAL EQUITY PLATFORM

RI Div. of Statewide Planning

The Rhode Island Division of Statewide Planning, in partnership with 13 other Rhode Island state agencies, developed a platform to better align social equity policies, decisions, and outcomes into statewide planning processes. The platform is intended to increase social equity data transparency and to overlay the unique justice issues communities across the state face. The RI Social Equity Data Platform pulls together more than 37 spatial data indicators on public health, environmental justice, socioeconomics, and transportation into one easy to use, publicly accessible platform. The Platform does not designate any specific areas as "equity areas," but rather displays the extent of individual indicators for every census tract in the state.

CLIMATE SAFE NEIGHBORHOODS STORY MAP

Groundwork Rhode Island

Groundwork RI's Climate Safe Neighborhoods story map includes an analysis of historical redlining maps and modern satellite imagery that show the relationship between government-led housing segregation of the past century and vulnerability to extreme heat and flooding in Providence, Central Falls, and Pawtucket today.

MY NEIGHBORHOOD GIS MAPPING

Executive Office of Health and Human Services

The My Neighborhood initiative provides GIS mapping to visualize how geographic inequities in social and environmental indicators are impacting health outcomes. This outcome data provides valuable insights to understand which communities are most disproportionately affected by issues such as climate change. The mapping generated assists to drive more equitable decision making and change making.

HEALTH RISK ASSESSMENT TEAM

RI Dept. of Health

The Environmental Health Risk Assessment Program will develop tools to examine the intersection of chemical contamination, flooding, and cancer. This work will make it easier for RIDOH to investigate community cancer concerns and will build community capacity to respond to environmental exposures due to flooding. They will develop two versions of a GIS tool to integrate existing cancer incidence, historic site use, and flood risk data, and will use the tools to educate community members.

DATA + MAPPING

READY SET RHODY

RI Div. of Statewide Planning & RI Commerce

Ready Set Rhody is a program to identify and support small business districts susceptible to flooding. Funded by the U.S. Department of Commerce's Economic Development Administration, the program focuses on enhancing the resilience of business communities against storm-induced flooding. Key components of the initiative include developing comprehensive GIS maps to pinpoint vulnerable business districts & engaging directly with businesses within these areas. Up to 12 identified districts will be receiving targeted infrastructure vulnerability assessments and tailored storm/disaster readiness strategies.

EDUCATION + WORKFORCE DEVELOPMENT

PREP-RI – PROVIDING RESILIENCE EDUCATION FOR PLANNING IN RI

URI Coastal Resources Center, RI Sea Grant, & Narragansett Bay Estuarine Research Reserve

PREP-RI encompasses a diverse portfolio of tools and technical assistance examples that coastal communities, businesses, and leaders can use to act today and plan for tomorrow. The portfolio builds upon over a decade of work with diverse partnerships committed to adaptation science, policy, and practice, with a range of activities — from shoreline exposure mapping to green infrastructure design, to resilience plan development — already undertaken by many Ocean State communities. PREP is now providing technical expertise to pilot programs, including those in the city of Providence and the town of Portsmouth. Information from PREP coastal resilience initiatives is available to all, with municipalities as a key audience.

COASTAL TRAINING PROGRAM

Narragansett Bay National Estuarine Research Reserve

The Coastal Training Program (CTP) provides decision-makers with practical and relevant science-based information and skills needed to address critical resource management issues of concern to local communities. CTP programs benefit a wide range of decision-maker audiences such as municipal staff and officials, regulators, developers, engineers, designers, landscape architects, attorneys, environmental non-profits, and community groups. Ongoing assessments of audience needs feed into the development of programs that focus on topics such as water quality, climate change adaptation, and habitat protection. Of particular focus is meaningful community engagement, collaborative decision making, and science & climate risk communications.

2010 FLOOD FILM

Woonasquatucket River Watershed Council, ONE Neighborhood Builders

The Woonasquatucket River Watershed Council created a video with partners at ONE Neighborhood Builders to help prepare neighbors along the river to prepare for climate change impacts such as urban flooding. This film highlights the climate-vulnerable Olneyville neighborhood where development has taken over areas that were once wetlands.

PREP-RI offers a number of training modules, covering the science of climate change, flood risks, infrastructure vulnerability, flood mapping, planning & policy development, and more (URI CRC)

CLIMATE RESILIENCE INITIATIVES

Opening to RIDOH's "Rhode Island's Changing Climate: Building Resilience Through Local Solutions" video (RIDOH)

Annual rain barrel workshop with the Eastern RI Conservation District (ERICD)

Annual rain barrel workshop with the Woonasquatucket River Watershed Council (WRWC)

RHODE ISLAND'S CHANGING CLIMATE: BUILDING RESILIENCE THROUGH LOCAL SOLUTIONS (2017)

RI Dept. of Health

This video informs Rhode Islanders of the impacts of climate change, including sea level rise, erosion, storm surge, and drought, and discusses adaptation efforts that have been implemented across the state. Stories are shared from local municipalities and communities regarding the challenges of climate change impacts, as well as successful solutions.

ANNUAL EAST BAY RAIN BARREL WORKSHOPS

Eastern RI Conservation District

Eastern RI Conservation District holds 3 annual rain barrel workshops in Middletown, Bristol, and Barrington during April. At the hands-on workshop, residents learn how to create a simple and affordable rainwater capture system for their garden or lawn. In this session, participants receive step-by-step guidance on building and setting up their own rain barrel, a practical tool that helps conserve water, reduce runoff, and lower utility costs. Whether an experienced gardener or a beginner, this workshop empowers residents to take control of their water usage while helping the environment.

ANNUAL RAIN BARREL WORKSHOP

Woonasquatucket River Watershed Council

The Woonasquatucket River Watershed Council's rain barrel workshops empower residents to make a low-cost, easy-to-install solution to capture rainwater for reuse for lawns or gardens. The free workshop teaches participants the steps to build and install their own rain barrel.

ENVIRONMENTAL LITERACY PARTNERSHIP

RI Dept. of Education & Rhode Island Environmental Education Association (RIEEA)

RIEEA's long term goal for the Environmental Literacy Partnership with RIDE is to foster environmental literacy, ecological awareness, and community caretaking behaviors in future citizenry in a way that informs climate-smart actions. RIEEA is currently working with the University of Wisconsin-Madison's Epistemic Analytics Lab to modify the "iPlan: Local Environmental Modeling" tool and test the hypothesis that iPlan measures the indicators associated with environmental literacy in middle and high school students through its scalable, digital platform.

LOCAL ENVIRONMENTAL MODELING TOOL

Rhode Island Environmental Education Association

Over the past two years, RIEEA has convened a Rhode Island Environmental Learning Council of high school educators to inform and test the development of Local Environmental Modeling lesson units for their students. Each lesson unit integrates classroom lessons and outdoor experiential learning. Through these activities, high school students use climate change-related environmental and social science data and models to solve real world problems in their own locations.

EDUCATION + WORKFORCE DEVELOPMENT

CAREER AND TECHNICAL EDUCATION (CTES)

RI Dept. of Education & Rhode Island Environmental Education Association

Career and Technical Education (CTE) in Rhode Island is designed to provide students with the academic and experiential skills they need to be successful in the workforce and in further education. CTE approved programs supporting climate adaptation fundamentals, including Bioscience and Engineering, can be found in municipalities across the state.

MARINE AFFAIRS INSTITUTE & RI SEA GRANT LEGAL PROGRAM

Roger Williams University & RI Sea Grant

The Marine Affairs Institute at RWU School of Law is a partnership of the law school, the University of Rhode Island, and Rhode Island Sea Grant. The Marine Affairs Institute prepares law students to enter the field of ocean and coastal law and policy. Through the partnership with Rhode Island Sea Grant, law students can participate in the Rhode Island Sea Grant Law Fellow Program, an experiential education program that matches second and third-year law students with outside organizations seeking assistance with marine law or policy questions. The Institute also houses a Coastal Resilience Law and Policy Clinic, where municipalities and government agencies can receive low or no-cost legal research assistance.

URI GRADUATE CERTIFICATE IN COASTAL RESILIENCE

University of RI

The URI Coastal Resilience Graduate Certificate Program provides students and professionals with advanced training needed to find professional employment in the field of coastal resilience. Upon completion of the Coastal Resilience Graduate Certificate Program, students will be able to: (1) apply knowledge in a variety of disciplines and have practical skills to address real-world problems in coastal resilience; and (2) find employment in agencies and businesses involved in research, scholarly, and problem-solving endeavors in the field of coastal resilience. In particular, the curriculum will provide students with academic and practice-based skills, knowledge and expertise to (1) explain threats to and impacts of natural hazards and disasters on natural and built environments and human communities; (2) describe human responses at a variety of scales (e.g., individual; international) to natural hazards and disasters; (3) apply theoretical concepts in coastal resilience to real-world and hypothetical scenarios; and (4) critically evaluate policies, programs, and plans for addressing the effects of coastal hazards and disasters.

MASTER OF MARINE AFFAIRS AND MASTER OF LANDSCAPE ARCHITECTURE

University of RI & Rhode Island School of Design

Responding to dramatic ecological, social, urban and climatic transformations occurring worldwide, RISD Landscape Architecture has partnered with Marine Affairs at the University of Rhode Island (URI) to offer a joint graduate program that inspires cross-disciplinary strategies to address these urgent problems. The joint program enhances student design education with studies in coastal and marine social science, economics, policy, planning and law. Candidates broaden their understanding of complex issues like climate change and ecosystem management, as well as related policy issues.

OCEAN POLICY AND SCIENCE GRADUATE CERTIFICATE

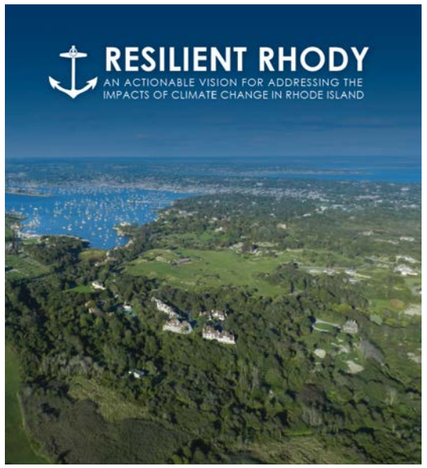
University of RI

The Ocean Policy and Science Graduate Certificate from URI Online offers a comprehensive exploration of critical issues at the intersection of marine science, policy, and conservation. Designed for professionals seeking to deepen their understanding of ocean governance, marine resource management, and coastal sustainability, this program provides specialized knowledge and practical skills to address complex challenges in the field.

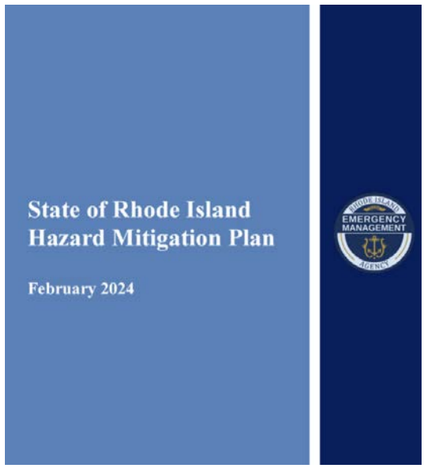
ENVIRONMENT, SUSTAINABILITY, AND MANAGEMENT (AS)

Community College of RI & Rhode Island College

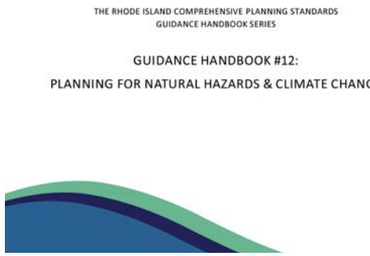
The Environment, Sustainability, and Management Associate in Science degree offers training in sustainable agriculture, horticulture, land management, and related businesses in the Green Sector. The curriculum explores land, water, and air; how humans positively and negatively impact their local and global environments; business management, entrepreneurship, innovation, and design; and includes a cooperative work experience with an employer.



Resilient Rhody: An Actionable Vision for Addressing the Impacts of Climate Change in Rhode Island, 2018 (RIIB)



2024 State Hazard Mitigation Plan (RIEMA)



Guidance Document #12, Planning for Natural Hazards & Climate Change (Rev. 2018) (Div. of Statewide Planning)

REAL JOBS RHODE ISLAND PLATFORM

RI Div. of Labor and Training

Real Jobs RI is a business-led workforce development initiative. Working with a network of employers, training providers, and community organizations, Real Jobs RI partnerships build workforce solutions that address industries' unique workforce challenges. Training programs for job seekers include blue and green economy options, including renewable energy, as well as healthcare, hospitality, manufacturing, education, and finance.

A RESILIENT RHODE ISLAND: BEING PRACTICAL ABOUT CLIMATE CHANGE (2014)

RI Executive Climate Change Council

A Resilient Rhode Island was prepared to assess, integrate, and coordinate efforts across state agencies to reduce greenhouse gas emissions reductions, strengthen community resilience, and prepare for climate change impacts; improve our understanding of the impacts of climate change; and work on partnerships to identify, develop, and implement strategies to better prepare for climate impacts.

RESILIENT RHODY (2018) AND RESILIENT RHODY THREE YEAR IMPACT REPORT (2021)

Rhode Island Infrastructure Bank & Statewide Partners

The 2018 Resilient Rhody Climate Action Strategy was developed by RI's first Chief Resilience Officer. The plan leveraged the expertise of statewide stakeholders across 10 roundtables to develop 61 resilience actions, spanning critical infrastructure, natural systems, emergency preparedness, community health & resilience, and climate financing. In 2021, a 3 Year Impact Report was developed that showcased resilience initiatives and projects following Strategy development.

STATE HAZARD MITIGATION PLAN (2024)

RI Emergency Management Agency

The SHMP identifies strategies to reduce risk to natural and human-made hazards, which pose significant risks for Rhode Island's water, wastewater, surface transportation, and energy infrastructures and utilities, the natural environment, and health, welfare, and economic well-being. The plan outlines statewide actions to combat climate change and related hazards, including a overview of climate action in RI.

GUIDANCE DOCUMENT #12, PLANNING FOR NATURAL HAZARDS & CLIMATE CHANGE (REV. 2018)

RI Div. of Statewide Planning & Comprehensive Planning Advisory Committee

Guidance Document #12, Planning for Natural Hazards and Climate Change accompanies the Rhode Island Comprehensive Planning Standards Manual. The document provides guidance on approaches to natural hazards and climate change, including general planning information and guidance on how to best fulfill the requirements laid out in the Standards Manual, such as sample goals and policies.

STATE LAND USE PLAN (2006)

RI Div. of Statewide Planning

The 2025 State Land Use Plan promotes a number of climate resilient approaches, including holistic systems planning approaches at the watershed level, upgrading and maintaining urban and community greenspace, and ensuring that shoreline areas compose a significant portion of greenspace systems. The plan also contemplates shoreline land development pressures, including how best to protect natural resources along their shores, avoid encroachment on working ports, provide opportunities for public access, and direct development away from areas subject to erosion and flooding from winds, storm surge, and sea level rise. An update to the State Land Use Plan, inclusive of further climate change consideration, is currently in progress.

VULNERABILITY OF MUNICIPAL TRANSPORTATION ASSETS TO SEA LEVEL RISE & STORM SURGE (2015, 2016)

RI Div. of Statewide Planning

This Vulnerability of Municipal Transportation analysis follows upon previous efforts for analyzing transportation asset vulnerability to sea level rise, incorporating additional data (including storm surge modeling) and focusing on municipal assets in order to help cities and towns better prepare for climate change impacts. The analysis considers one, three, five, and seven foot sea level rise scenarios, and contemplates how these scenarios would interact with a 100yr storm surge event.

LONG RANGE TRANSPORTATION PLAN (2020)

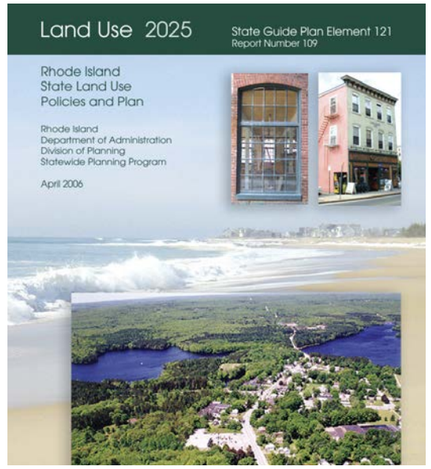
RI Div. Statewide Planning & RI Dept. of Transportation

The Long-Range Transportation Plan (LRTP) outlines Rhode Island's strategic vision for the transportation system over the next 20 years. It focuses on enhancing mobility, safety, and accessibility while addressing infrastructure needs and environmental sustainability. The plan includes stakeholder input and aims to improve various transportation modes, such as roads, public transit, and biking. It also prioritizes investment in resilience measures to combat climate change impacts on transportation infrastructure.

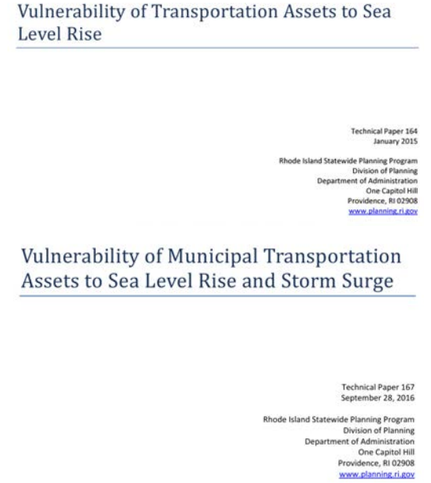
BRISTOL COUNTY ROUTE 114 RESILIENCE PLAN (2025)

RI Div. Statewide Planning & RI Public Transit Authority

The Bristol County Route 114 Resilience Plan aims to enhance climate resilience for a critical coastal roadway in the East Bay transportation network that is threatened by flooding and storm surge. Route 114 is a critical north-south connector that serves the communities of Barrington, Bristol, and Warren. The plan involves a comprehensive risk assessment and the development of strategies to protect the roadway's integrity and functionality. It emphasizes stakeholder engagement and aims to implement both immediate and long-term adaptation measures. By prioritizing infrastructure upgrades, the plan supports broader state efforts to mitigate climate change impacts on transportation networks.



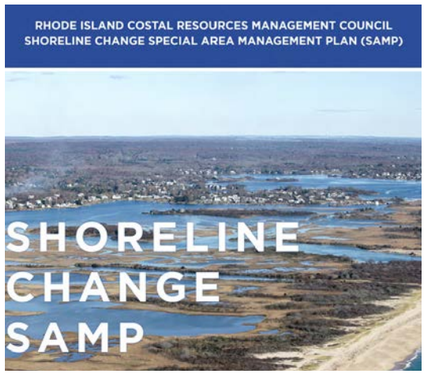
State Land Use Plan, 2006 (Div. of Statewide Planning)



Vulnerability of Transportation Assets Technical Papers, 2015 and 2016 (Div. of Statewide Planning)

Long Range Transportation Plan, 2020 (Div. of Statewide Planning)

Resilience Improvement Plan, 2024 (RIDOT)



Shoreline Change (Beach) Special Area Management Plan, 2018 (CRMC)

The State of Narragansett Bay and Its Watershed Technical Report, 2017 (NBEP)

CLIMATE RESILIENCE INITIATIVES

STATE PLANNING

RESILIENCE IMPROVEMENT PLAN (2024)

RI Dept. of Transportation

The RIDOT Resilience Improvement Plan outlines strategies to enhance the resilience of Rhode Island's transportation infrastructure in the face of climate change. It focuses on assessing vulnerabilities, prioritizing adaptation measures, and integrating resilience into project planning. The plan includes collaboration with various stakeholders and aims to ensure safe, reliable transportation while mitigating risks associated with severe weather and rising sea levels.

RIDOT ROAD-STREAM CROSSING DESIGN MANUAL (2022)

RI Dept. of Transportation

This manual is focused on the design of safer, cost-effective, and climate-resilient stream crossings to meet transportation needs, improve hydraulic function, reduce maintenance costs, and enhance natural stream functions and wildlife migration. The design standards presented apply to all RIDOT owned road-stream crossings.

BEACH SPECIAL AREA MANAGEMENT PLAN (2018)

RI Coastal Resources Management Council

The Shoreline Change (Beach) Special Area Management Plan was created to address community needs to protect people and property, as well as vital infrastructure such as drinking water supplies, utilities, and roadways as shorelines continue to change due to sea level rise and increasing storm intensity. Since its creation, CRMC has held stakeholder meetings, connected with realtors on coastal properties, and shared additional flood maps for the East Bay. The plan led to the development of the Coastal Hazards Application.

COASTAL PROPERTY GUIDE (2014)

RI Coastal Resources Management Council

The Coastal Property Guide, prepared by CRMC, URI and RI Sea Grant, provides information to coastal property owners, renters, developers, and potential buyers regarding shoreline risks and requirements. Topics addressed include regulations, coastal zoning, flood and erosion mapping, climate change risk, and shoreline protection methods. The document now exists as a live web tool on CRMC's webpage.

STATE OF NARRAGANSETT BAY & ITS WATERSHED REPORT (2017)

Narragansett Bay Estuary Program

Every 5 years, NBEP coordinates with universities, organizations, and agencies to synthesize the latest science and report on indicators of bay and watershed health. This report presents and tracks 24 indicators in order to evaluate key stressors to Narragansett Bay and its watershed; assess chemical, physical, and biological conditions; describe past and recent trends; look ahead to potential future changes; and identify data and research needed to advance understanding of these changes.

STATE PLANNING

COASTAL & ESTUARINE LAND CONSERVATION (2010, 2025)

RI Coastal Resources Management Council & RIDEM

This plan is part of a program authorized by the Coastal Zone Management Act to protect coastal lands that are ecologically important or possess other coastal conservation values, such as historic features, scenic views, or recreational opportunities. Rhode Island's CELCP is anticipated to be updated with current climate science in 2025.

COMPREHENSIVE CONSERVATION & MANAGEMENT PLAN (2010, 2025)

Narragansett Bay Estuary Program

Every 10 years, NBEP coordinates across Rhode Island, Massachusetts, and Connecticut on a regional plan. This plan provides a blueprint for action to sustain and restore Narragansett Bay, Little Narragansett Bay, the Coastal Salt Ponds, and their watersheds. The most recent update is scheduled for release in 2025.

NARRAGANSETT BAY ESTUARY PROGRAM SCIENCE UPDATES (2021-2024)

Narragansett Bay Estuary Program

Responding to dramatic ecological, social, urban and climatic "Nuisance Flooding in the Narragansett Bay Region" (2021) presents an introduction to nuisance flooding in the Narragansett Bay Watershed, which occurs with extreme high tide events and is increasing with sea level rise. Other Science Updates, such as "Ocean Acidification" and "Solar Fields in Forests" examine multiple facets of climate change. These updates stimulate thought and discussion around pressing issues among partners and climate change experts.

WATERSHED COUNTS REPORTS (2011-2017)

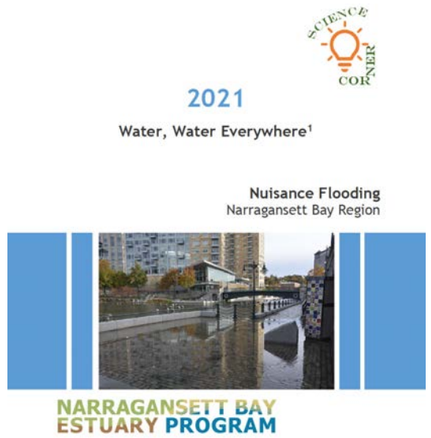
Narragansett Bay Estuary Program & URI Coastal Institute

Watershed Counts was initiated by the Coastal Institute at URI and NBEP with the support of many partners throughout Narragansett Bay and its watershed. This was designed as a bridge project to report on the environmental health of Narragansett Bay and its watershed until such time as NBEP developed its updated status and trends report. With NBEP's 2017 publication of The State of Narragansett Bay and Its Watershed Report, Watershed Counts had served its intended purpose and subsequently ceased publication.

SNEP STRATEGIC PLAN (2021)

Southeast New England Program (SNEP)

The Southeast New England Program, administered by the EPA, works to restore and protect the environment of Rhode Island and the southeastern coastal areas of Massachusetts. The SNEP Strategic Plan lays out the framework of the Program and future investment over a projected 30 years, starting with the 2021-2025 planning horizon. The Program Vision for 2050 incorporates three key goals: 1. Resilient Ecosystem of Safe and Healthy Waters, 2. Thriving Watersheds and Natural Lands, and 3. Sustainable Communities.

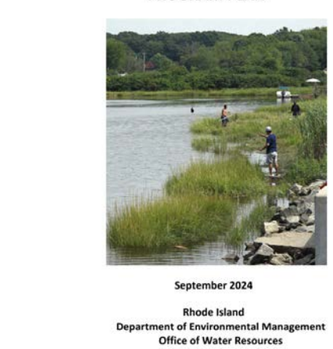


"Nuisance Flooding in the Narragansett Bay Region," 2021, one of NBEP's science updates focusing strongly on climate resilience (NBEP)

NBEP's Watershed Counts cover a wide variety of topics, including Warming Waters & Oyster populations, Storm Risks to Coastal Homes, and more (NBEP)

The Southeast New England Program's 2021-2025 Strategic Plan places resilience front and center (SNEP)

Implications of Climate Change for RI Wastewater Collection & Treatment Infrastructure, 2017 (RIDEM)



Nonpoint Source Management Program Plan, 2024 (RIDEM)

Climate Change and Health Resiliency Report, 2015 (RIDOH)

RI WATER QUALITY MANAGEMENT PLAN (2016)

RI Div. of Statewide Planning

The Water Quality Management Plan focuses on Rhode Island's potable water - where and how we get it, how we use it, and its relationship to economy and environment. The plan includes a key climate resilience goal of ensuring adequate potable supplies for now and the future in the context of a changing climate.

ENSURING SAFE WATER FOR RHODE ISLAND'S FUTURE (2013)

RI Dept. of Health

The Safe Waters report studied the impacts of climate change on drinking water utilities across Rhode Island and provided information for water utility managers to evaluate and plan for the future. Factors such as temperature, rainfall, and other climate impacts are assessed. Impacts of changing conditions are explored, appropriate management strategies established, and recommendations for specific utilities and government entities are proposed.

IMPLICATIONS OF CLIMATE CHANGE FOR RI WASTEWATER COLLECTION & TREATMENT INFRASTRUCTURE (2017)

RI Dept. of Environmental Management

This report evaluates the implications of key climate change hazards on Rhode Island's major wastewater infrastructure. The study assesses all nineteen treatment plants statewide, identifying vulnerabilities to flooding, storm surge, shoreline change, and other severe climate impacts. Both predictive and historic data are utilized. Adaptive strategies are suggested for each of the WWTF systems that were identified as being vulnerable.

NON-POINT SOURCE (NPS) MANAGEMENT PLAN (2024)

RI Dept. of Environmental Management

RIDEM's Office of Water Resources has developed the 2024 Nonpoint Source Program Management Plan that guides the Nonpoint Source Program's priorities and objectives for the five-year period from 2025-2029, and follows up on the 2019 Program Management Plan. The plan integrates consideration of climate change factors such as sea level rise, warming water temperatures, changing precipitation patterns, greater stormwater runoff, and flooding.

CLIMATE CHANGE AND HEALTH RESILIENCY (2015)

RI Dept. of Health

Developed by RI Dept. of Health's Climate Change Program and funded by CDC's Building Resilience Against Climate Effects (BRACE), the Climate Change and Health Resiliency report synthesizes research on climate impacts to human health, identifies climate change threats, and describes best practices for public health interventions to climate risks.

SOCIOECONOMICS OF SEA LEVEL RISE

RI Div. of Statewide Planning

Socioeconomics of Sea Level Rise (Technical Paper 168) provides information on the population and characteristics of people located in the 1, 3, 5, and 7' sea level rise zone across RI's coastal communities. Information on population social, economic, and demographic characteristics are documented, and this information is reflected in Community Factsheets provided on Div. of Statewide Planning's website.

HEALTH EQUITY INSTITUTE & HEALTH EQUITY INDICATORS

RIDOH & Executive Office of Health and Human Services

The Health Equity Institute's Mission is to collaborate with Rhode Island Department of Health (RIDOH) staff, state leaders, and community partners to ensure every Rhode Islander has a fair and just opportunity to be healthy. The HEI has established Health Equity Indicators (2019), which include both Community Resiliency (ex. civic engagement, social vulnerability, and equity in policy) as well as Physical Environment (ex. natural environment, such as % of overall landmass with tree canopy cover). The HEI is also home to the state's Health Equity Zone (HEZ) Initiative.

CAPA HEAT WATCH STUDY (2020)

RI Dept. of Health

The CAPA Heat Watch Study, conducted by CAPA Strategies through CDC funding, collected thousands of temperature and humidity data points across the cities of Providence, East Providence, Pawtucket, and Central Falls. The initiative provided heat modeling across the four cities in summer 2020, mapping morning, afternoon, evening, and midnight observations. Long stretches of asphalt and concrete without tree canopy cover were noted to create hot spots within the municipalities.

EXTREME HEAT THREAT RESPONSE GUIDE (2025)

RI Dept. of Health

The Threat Response Guide (TRG) will provide an overview of the threat posed by extreme heat to public health and outline RI Department of Health's (RIDOH) strategy for preparing for & responding to extreme heat events. Covering an overview of the threat of extreme heat; activities to be take before, during, and after extreme heat events; coordination with healthcare systems; and deployment of resources to communities during such events, the guide focuses on the role of RIDOH regarding extreme heat with reference to other agency initiatives.

RELISH RHODY (2017)

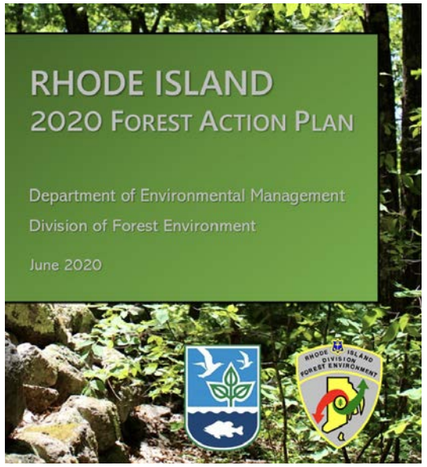
RI Commerce

Relish Rhody, An Actionable Vision for Food in Rhode Island, provides a vision for a sustainable and equitable food system that builds on tradition and supports innovation. The strategy is organized around three core themes, one of which is Environment and Resiliency, including managing water resources, considering ecosystem benefits, and more.

Rhode Island Socioeconomics of Sea Level Rise Technical Paper (Div. of Statewide Planning)

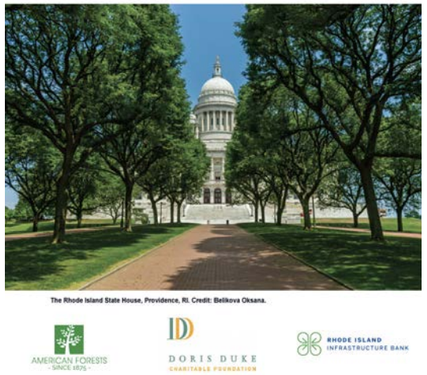
Map of Rhode Island Health Equity Zones (RIDOH & EOHHS)

Relish Rhody, 2017 (RI Commerce)



Rhode Island Forest Action Plan, 2020 (RIDEM)

RHODE ISLAND **TREE EQUITY**
FUNDING, FINANCING, AND POLICY GUIDE



RI Tree Equity Funding, Financing, and Policy Guide (2021)

Ocean State Accelerates, Rhode Island's Comprehensive Economic Development Strategy, 2023 (RI Commerce)

FOOD & AGRICULTURAL SECTOR SPECIFIC PLAN (2020)

RI Emergency Management Agency & RI Dept. of Health

The Food & Agricultural Sector Specific Plan outlines state preparedness efforts which can provide support to local communities during climate disaster events. These activities include maintaining a data base of food facilities (with information on their capacity) that can provide needed food in an emergency; monitoring the safety of food impacted by disasters; facilitating the dissemination of food to areas of need within the state; assisting with re-opening of operations; among others.

RHODE ISLAND FOREST ACTION PLAN (2020)

RI Dept. of Environmental Management

The 2020 Rhode island Forest Action Plan presents priorities, goals, and strategies for the management of statewide forested lands. The plan focuses on 5 key issues of concern, including Water, Fire, and Climate Change. Statewide and regional climate resilience findings are cited to describe both climate change impacts and related forest impacts, and priority concerns such as species composition and methods for responding to change are detailed.

THE VALUE OF RHODE ISLAND FORESTS (2019)

RI Tree Council

The Value of Rhode Island Forests outlines benefits of forested land and recommends strategies for forest conservation. The report highlights the various benefits of Rhode Island's forests, including carbon sequestration, cooling of urban spaces, and absorption of stormwater.

RI TREE EQUITY FUNDING, FINANCING, & POLICY GUIDE (2021)

Rhode Island Infrastructure Bank & American Forests

This guide offers information on the benefits of the urban tree canopy, the status of urban forestry funding & policy in RI, national mechanisms for funding and policy for urban trees, and recommendations to support Rhode Island's urban forests. Documentation of relevant implementation and grant resources is provided.

OCEAN STATE ACCELERATES (2023)

RI Commerce & RI Div. of Statewide Planning

Ocean State Accelerates serves as RI's Comprehensive Economic Development Strategy (CED). The document builds upon the state's RI2030 Plan to provide a 5 year vision and strategy for economic development for the state. The strategy has three thematic areas, one of which is Sustainable Growth - with goals such as embedding climate resilience into all statewide economic, land use, and transportation initiatives. The document also incorporates a statewide Resilience Assessment, utilizing University of South Carolina's Baseline Resilience Indicators for Communities (BRIC) Index and considering Human Well-Being, Cultural & Social; Economic & Financial; Infrastructure, Built Environment, and Housing; Institutional & Governance; Community Capacity; and Environmental & Natural factors.

STATE PLANNING

RHODE ISLAND'S 2030 BLUE ECONOMY ACTION PLAN

University of Rhode Island & Statewide Stakeholders

The 2030 Blue Economy Action Plan focuses on defining a growth strategy for Rhode Island's blue economy around actions such as program development, infrastructure building, wider community engagement, and policy/regulatory asks. The document also explores development of a Blue Economy Partnership. One of the plan's Business Growth and Investment Goals is to invest in climate adaptation and mitigation strategies to protect Rhode Island's coast and physical assets.

PROJECT SCOPING

MRP COMMUNITY RESILIENCE BUILDING SUMMARY OF FINDINGS (2019-2024)

The Nature Conservancy, RIIB, & RIDEM

The Municipal Resilience Program (MRP) provides direct support to cities and towns to complete a municipal-driven workshop process called Community Resilience Building that brings together climate change information and local knowledge to identify top hazards, current challenges, and community strengths. This process identifies priority projects and strategies to improve the municipality's resilience to all natural and climate-related hazards. To date, TNC has completed workshops and Summaries of Findings for 38 of RI's 39 municipalities. Upon completion of their MRP Workshop, the participating municipality is designated a Resilient Rhody Municipality and becomes eligible to apply for MRP Action Grants.

LOCAL PLANNING + PROJECT SCOPING

LOCAL HAZARD MITIGATION PLANS

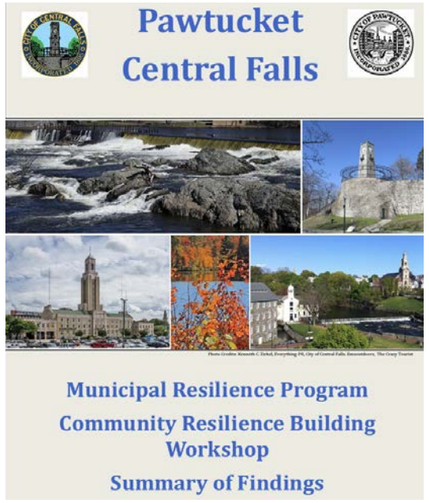
RI Emergency Management Agency

Rhode Island offers local hazard mitigation planning assistance through the Rhode Island Emergency Management Agency. The state supports municipalities in creating or updating Hazard Mitigation Plans to reduce risks from natural hazards like floods, hurricanes, and coastal erosion. RIEMA provides technical guidance, data resources, and coordination with FEMA, helping communities qualify for federal funding to implement mitigation projects that enhance resilience and public safety.

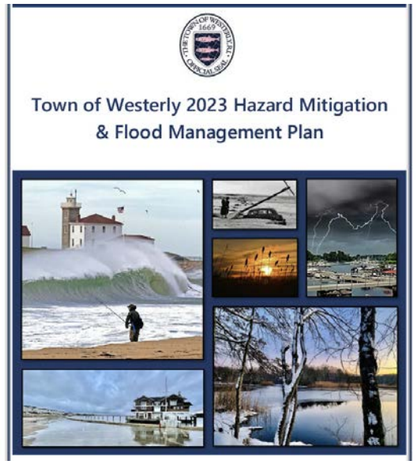
LOCAL COMPREHENSIVE PLANS

RI Div. of Statewide Planning

Rhode Island's Division of Statewide Planning supports local comprehensive planning by offering guidance and resources to municipalities for creating, updating, and implementing their comprehensive plans. This assistance ensures that local plans align with state policies and address critical areas such as land use, housing, transportation, and environmental sustainability. The division also helps municipalities meet state requirements and access technical support to enhance planning efforts. Local comprehensive plans require municipalities to consider vulnerability to sea level rise (1, 3, and 5'), storms (100yr storms), and hurricane scenarios (category 1-4).



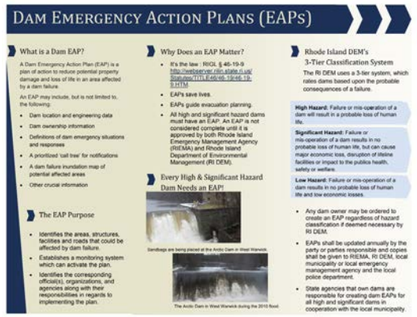
Municipal Resilience Program Summary of Findings for Pawtucket and Central Falls, 2020, based on outcomes from their MRP Workshop (The Nature Conservancy)



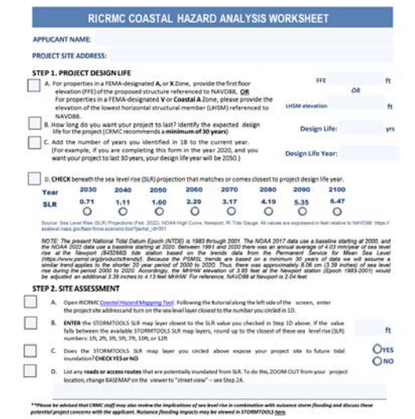
Local Hazard Mitigation Plan from the Town of Westerly, 2023 (Town of Westerly)

Local Comprehensive Plan from the Town of Richmond, 2021 (Town of Richmond)

Nonpoint Source Watershed Plan for the Buckeye Brook Watershed, 2022 (RIDEM)



Overview of Dam Emergency Action Plans (EAPs), which can be found on DEM's website (RIDEM)



Coastal Hazard Analysis Worksheet (CRMC)

LOCAL PLANNING + PROJECT SCOPING

COMMUNITY FOREST STORM MITIGATION PLANNING

RI Dept. of Environmental Management

This planning document provides municipalities with guidance on developing Community Forest Storm Mitigation Plans, which supplement local hazard mitigation planning. Four core segments are incorporated into plan development: Community Setting, Storm Preparation, Storm Response, and Storm Recovery. The goal of these plans is to reduce damage to property as well as urban canopy losses.

NPS PROGRAM WATERSHED PLANS

RI Dept. of Environmental Management

RIDEM's Non-Point Source Pollution Program requires Watershed Plans for local areas seeking funding for Section 319 grant funds. Watershed plans provide strategies to reach local water resources goals, and consider issues of climate change pertaining to wetlands and habitat spanning temperature, precipitation patterns, hydrology and the frequency of intense storms. Plans have been completed for Aquidneck Island, Barrington-Palmer-Warren Rivers, Bristol-Kickemuit Rivers, Buckeye Brook, Jamestown Brook, Little Compton, Narrow River, Nonquit Pond, Stafford Pond, Tiverton Mount Hope Bay, Watson Reservoir, Wesquage Pond, and Wood-Pawcatuck Rivers.

EMERGENCY ACTION PLANS

RIDEM & RI Emergency Management Agency

Local Emergency Action Plans define responsibilities & procedures for conditions which may endanger local dams. Covering instances of possible, impending, or actual dam failure, the EAPs contain notification procedures to safeguard property and the lives of residents.

SPILLWAY CAPACITY ANALYSES

RI Dept. of Environmental Management

RIDEM's Spillway Capacity Analyses, funded by FEMA and conducted by GZA for 169 dams statewide, consider dam vulnerability in 100yr and 500yr storm scenarios. Findings were presented in a workshop to local municipalities in 2024, with the next phase of the work focusing on support for local owner action.

COASTAL HAZARDS ANALYSIS WORKSHEET

RI Coastal Resources Management Council

When a coastal property owner in Rhode Island is seeking a permit from the RI Coastal Resources Management Council, they must complete a Coastal Hazard Analysis (CHA) and Viewer in order to assess potential coastal hazards that should be taken into consideration when planning shoreline development. A CHA assesses risks like sea level rise, storm surge, and erosion to guide safer, informed, resilient planning and investment along the coast. While required for specific projects, this tool is available to anyone for risk evaluation. The CHA process considers a 30-year design life but may adjust based on site-specific risks.

SHORELINE ADAPTATION, INVENTORY, & DESIGN

RI CRMC, URI Coastal Resources Center, Save The Bay, Roger Williams University Law, & GZA

Launched in 2019, and funded through the National Fish and Wildlife Foundation National Coastal Resilience Fund (NFWF NCRF), CRMC and its partners inventoried sites for potential shoreline adaptation projects. The SAID program then provided design assistance for new projects that would yield natural systems & resilience benefits. Designed projects addressed the impacts of coastal storms, sea level rise, and stormwater such as erosion, flooding, loss of habitats, and shoreline public access. Sites were selected to help to improve the resilience and safety of Rhode Island's shoreline while increasing the benefits of natural systems, such as water quality improvement and enhancement of habitat for fish and wildlife. A total of 9 projects were brought through the design phase. The SAID initiative was later developed into the ongoing Designing for Resilience initiative.

DESIGNING FOR RESILIENCE

RIIB, RIDEM, NBNERR, Save The Bay, The Nature Conservancy, & Weston & Sampson

Designing for Resilience partners work with municipalities to review existing maps and plans, facilitate a site visit, complete site analysis and nature-based project scoping, engage community stakeholders, and complete conceptual design & cost-estimates (or cost equivalent design & engineering services). Site visits offer municipal staff opportunity to share detail with the design team about experienced challenges and site context, opportunities, and constraints. Climate resilience factors, including intense precipitation, storm surge, and sea level rise; extreme air and water temperatures; and changing biodiversity are evaluated for each site, and best practices of resilient design are applied. Community stakeholders are engaged at the draft conceptual design stage to allow for participation in and contribution to the decision-making process and include representatives from local Environmental Justice communities.

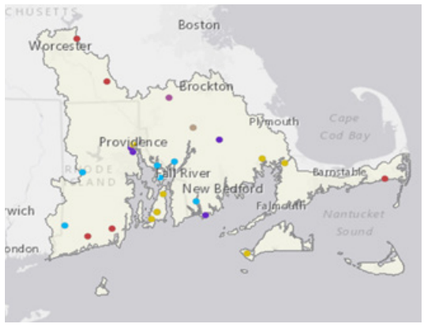
STORMWATER PLANNING SERIES

SNEP Network

In response to municipalities' requests for stormwater planning assistance, the SNEP Network developed the Stormwater Training/ Facilitated Planning Series, which collectively guides communities to develop conceptual designs for nature-based stormwater retrofit options in their selected drainage areas. Participants use the tools and techniques presented in the training to identify low-cost stormwater solutions to address the stormwater problem at their specific location. Communities are encouraged to invite an interdisciplinary team to participate, including municipal/tribal staff, board members, and/or community members, to build a common understanding of options for managing stormwater and cohesion in developing stormwater solutions that align with their communities' culture and maintenance capacity. The planning series is held virtually with five training sessions over the course of six months.

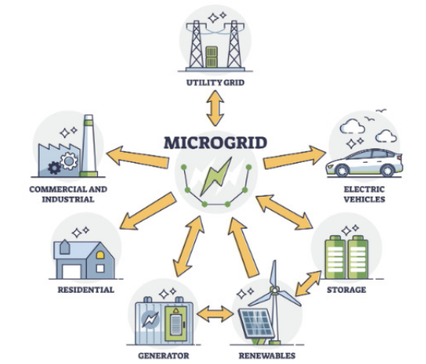
Shoreline Adaptation, Inventory, and Design (SAID) Site Visits in Warwick, RI. State and local stakeholders visited a completed site and a potential site (Sea View Drive) (CRMC)

SNEP Network site visit with Swansea, MA, in 2023 as part of the SNEP Network Stormwater Planning Series (SNEP Network)



Map of SNEP Community Assistance Projects (SNEP Network)

Legend: Blue - Stormwater Planning; Yellow - Climate Resilience; Red - LID/GI/Bylaw Review; Purple - Field Assessment/Engineering; Brown - Pilot Project; Pink - Organization Capacity & Climate Resilience



Microgrids are supported by and provide support to a number of different sectors and systems, including battery storage, generators, and renewable energy (OER)

Many microgrids, such as those developed through the Resilient Microgrids for Critical Services Program, incorporate battery storage such as shown here (OER)

SNEP COMMUNITY ASSISTANCE PROJECTS

SNEP Network

Community Assistance Projects offer technical, financial, and training assistance to municipalities, tribes, and non-profits in the SNEP region. SNEP assists communities that need assistance with established stormwater and restoration programs to advance their practice to the next level. Projects include stormwater planning and financing, climate resilience, low-impact development, green infrastructure, by-law review, and field assessments and engineering. Through this program, SNEP Network partner Throwe Environmental completed Resilience Capital Improvement Planning with Middletown and Portsmouth, following Throwe's Planning to Action: Climate Toolkit (PACT).

RESILIENT MICROGRIDS FOR CRITICAL SERVICES PROGRAM

RI Office of Energy Resources & RI Commerce

The Resilient Microgrids for Critical Services Program, a joint program between the Office of Energy Resources and RI Commerce's Renewable Energy Fund, provides guidance and support for municipalities, school districts, and fire districts to develop microgrids that enhance resilience, reliability, and energy independence. Microgrids are local energy systems that can operate independently from the grid during outages, ensuring critical infrastructure like hospitals, emergency services, and water systems continue functioning. The program will roll out in two phases. Phase 1 focuses on technical assistance, developing feasibility studies to help applicants plan, finance, and implement these systems, contributing to long-term energy security and sustainability.

HEALTH EQUITY ZONE INITIATIVE & HEZ CLIMATE RESILIENCE DISCUSSIONS

Executive Office of Health and Human Services

Since 2015, Rhode Island's HEZ Initiative has supported community leaders and residents to form 15 Health Equity Zone collaboratives in communities across Rhode Island. Health Equity Zones (HEZs) are specific areas throughout the state where collaboratives of community stakeholders, organizations, and residents have formed to address issues that are most important to them. Through a collective, community-led process, each HEZ conducts a needs assessment, identifies priorities, and implements a data-driven action plan to address barriers to health. Climate resilience has regularly been identified as a high priority.

MUNICIPAL ORDINANCE PROGRAM

RI Div. of Statewide Planning

The Division of Statewide Planning has launched the Municipal Resilience Ordinance Program, which partners municipalities with a consultant to deliver sample climate adaptation ordinances in consideration of local context and priorities. The program is currently working with the Town of Cumberland to develop inland and riverine climate adaptation ordinances. EC4 funding has been allocated to expand the effort, which will allow Statewide Planning to further partner with a coastal municipality to develop relevant adaptation ordinances.

URBAN FORESTS FOR RI TECHNICAL ASSISTANCE PROGRAM

RIDEM & Green Infrastructure Center (GIC)

The Rhode Island Department of Environmental Management (DEM) has launched a Comprehensive Technical Assistance Grant Program in partnership with the Green Infrastructure Center to support urban communities in improving environmental and public health outcomes. This program offers grants to help municipalities, nonprofits, and other organizations address issues such as stormwater management, urban forestry, and pollution reduction. It emphasizes projects that enhance community resilience, provide climate adaptation, and create green spaces. The program supports tree canopy mapping, planning, management, planting, code and ordinance development, master plans, policy development, and community engagement and education.

URBAN FORESTRY IN HEALTH EQUITY ZONES

Executive Office of Health and Human Services & RIDEM

The Executive Office of Health and Human Services, in partnership with RIDEM, is enhancing urban & community forestry across RI Health Equity Zones with support received through the USDA Urban and Community Forestry Grant Program. This work supports community-level work, providing comprehensive urban forestry training and technical assistance to diverse stakeholders to develop Urban Forestry Action Plans. It leverages existing tree canopy investments to advance planning, management, maintenance, and stewardship of urban forests.

STATUS OF ISLAND WATERS REPORT (2018)

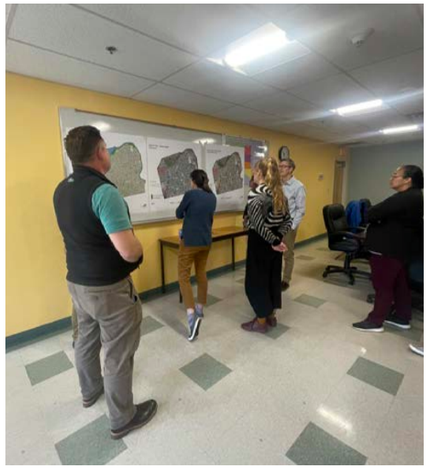
Aquidneck Island Planning Commission

Island Waters: The Aquidneck Island Water Quality Initiative was developed by AIPC in partnership with Newport, Middletown and Portsmouth, along with non-profit partners Clean Ocean Access and the Aquidneck Land Trust. The purpose of Island Waters was to help the three Island communities work together to better manage stormwater. Outreach was a big component, helping homeowners and others to better control stormwater runoff from yards and rooftops. Implemented projects to date include the installation of two Wet Vegetated Treatment Systems between Carriage Drive and Oakland Farm in Portsmouth.

AQUIDNECK ISLAND CLIMATE RESILIENCE INITIATIVE

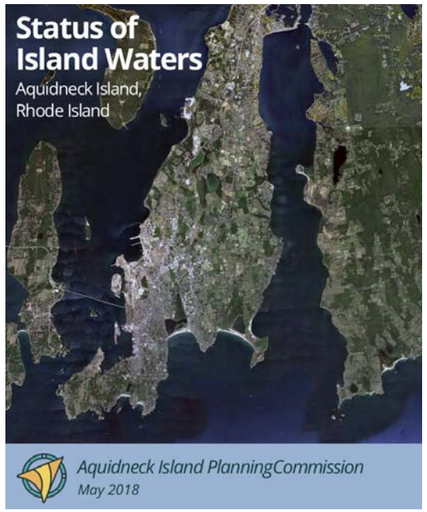
Aquidneck Land Trust

Over the next four years, Aquidneck Land Trust, in collaboration with the three island municipalities and Naval Station Newport, will use Climate Resilience Regional Challenge funding from NOAA to grow their island-wide resilience approach by building staff capacity, participating in and providing community with educational trainings, and offering technical assistance in the form of grant writing, project management, and community engagement. The initiative includes developing a climate resilience plan to outline actionable strategies for responding to climate change. Additionally, the Land Trust will work with their established network of partners to implement resilience projects that include nature-based solutions to address threats from flooding & sea level rise.

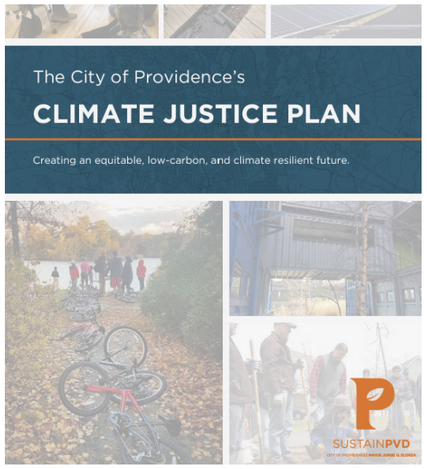


Workshop with Central Falls through the Urban Forests for RI Technical Assistance Program (GIC & RIDEM)

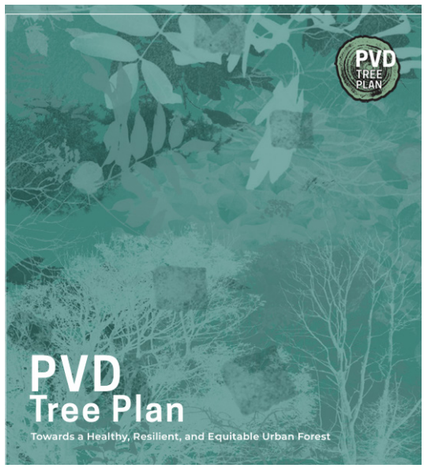
Workshop with Pawtucket through the Urban Forests for RI Technical Assistance Program (GIC & RIDEM)



Status of the Island Waters Report, 2018 (Aquidneck Island Planning Commission)



The City of Providence's Climate Justice Plan, 2019 (City of Providence)



PVD Tree Plan, 2023 (Providence Neighborhood Planting Partners, The Nature Conservancy, Movement Education Outdoors, Providence Parks)

Ready and Resilient Barrington, 2024 (Town of Barrington)

CLIMATE RESILIENCE INITIATIVES

LOCAL PLANNING + PROJECT SCOPING

WOOD PAWCATUCK WATERSHED FLOOD RESILIENCY MANAGEMENT PLAN (2017)

Wood-Pawcatuck Watershed Association (WPWA)

This Flood Resiliency Management Plan addresses existing conditions and provides evaluation of what can be done to mitigate future impacts from storms in the Wood Pawcatuck watershed. This project produced a management plan which includes a list of actions and tools that towns now use to protect themselves from future weather related events.

BUILDING CLIMATE READY PROVIDENCE

Providence Resilience Partnership

The Providence Resilience Partnership is catalyzing collaboration among Providence residents, organizations and policymakers to respond with confidence to the impacts of a changing climate. Working closely with others, the Providence Resilience Partnership advances a comprehensive approach to assessing climate vulnerability, developing shared understanding through community co-learning and building collaborative resilience strategies in the City of Providence. Current priority projects underway include a citywide climate vulnerability assessment built on broad and deep community engagement, coupled with place-based co-learning and assessment projects in the neighborhoods along the Port of Providence and Seekonk River.

PROVIDENCE CLIMATE JUSTICE PLAN (2019)

City of Providence

Providence's Climate Justice Plan sets seven key objectives, over 20 targets, and over 50 strategies for achieving an equitable, low carbon, climate resilient city. Strategies proposed include maximizing opportunities for new open space and climate resiliency investments; creation of Resilience Hubs; and support of Microgrids.

PVD TREE PLAN (2023)

Providence Neighborhood Planting Partners, The Nature Conservancy, Movement Education Outdoors, Providence Parks

The PVD Tree Plan creates a vision and strategies for a healthy, just, and resilient urban forest for the City of Providence. This plan outlines recommendations for maximizing the social, public health, economic and environmental benefits that tree canopy provides, and for making sure those benefits are equitably shared. Recommendations cover Engagement, Planting, Maintenance, Workforce Development, Funding, Policy, and Accountability, among others.

READY AND RESILIENT BARRINGTON (2024)

Town of Barrington

Through this plan, Barrington addresses both climate mitigation & adaptation, outlining 10 priority actions for the Town to address climate change contributions & impacts with identified timelines. Actions address Community Health & Resilience; Infrastructure, Transportation, & Land Use; and Natural Resources, among others.

STATE FUNDED GRANT OPPORTUNITIES

CLIMATE RESILIENCE FUND

RI Dept. of Environmental Management

Rhode Island's Climate Resilience Fund, managed by the Department of Environmental Management (DEM), provides financial support for design and construction projects that help communities proactively address climate change impacts. CRF funds assist municipalities and nonprofits in implementing resilience projects for climate-driven challenges facing Rhode Island communities statewide, such as sea level rise and intense precipitation. The fund aims to reduce risks to vulnerable coastal, riverine, and floodplain areas, in order to improve community & habitat resilience, as well as public safety. The fund has been supported by $7mm from the 2018 and 2024 State Green Bonds.

MUNICIPAL RESILIENCE PROGRAM ACTION GRANTS

Rhode Island Infrastructure Bank

Rhode Island's Municipal Resilience Program (MRP) Action Grants provide funding to cities and towns for design and construction projects that strengthen local climate resilience. Administered by the Rhode Island Infrastructure Bank (RIIB), these grants support initiatives identified through MRP Workshops (Community Resilience Building). The program empowers municipalities to address climate risks proactively, enhancing community preparedness and environmental sustainability statewide. The program has been supported by $33 million from the 2021, 2022, and 2024 State Green Bonds.

NARRAGANSETT BAY & WATERSHED RESTORATION FUND

RI Dept. of Environmental Management

Rhode Island DEM's Bay and Watershed Restoration Fund supports local projects that improve water quality and restore ecosystems within the Narragansett Bay watershed. This fund provides grants to municipalities, nonprofits, and other organizations for initiatives such as non-point source and stormwater pollution control, flood prevention and mitigation, and aquatic habitat restoration. By addressing sources of water degradation and promoting ecological health, the fund aims to protect and enhance Rhode Island's waterways, supporting cleaner, more resilient aquatic environments. The fund has been supported by $21.5 million from 2004, 2012, 2014, 2016, and 2022 State Bonds.

OCEAN STATE CLIMATE ADAPTATION & RESILIENCE FUND

RIDEM & RI Coastal Resources Management Council

The Ocean State Climate Adaptation & Resilience Fund (OSCAR) is a Rhode Island initiative providing financial support for planning, design, and construction projects on public land that build climate resilience. OSCAR funds are allocated to state agencies, municipalities, and nonprofits for projects that address climate change impacts, such as sea-level rise, coastal flooding, and extreme weather, through nature-based and habitat enhancing solutions. The fund aims to reduce risks to people, infrastructure, and ecosystems, helping Rhode Island communities to proactively address climate risks and enhance long-term environmental resilience. The fund has been supported by $4 million from the state budget.

Removal of the Upper and Lower Kickemuit Dams was supported through the Climate Resilience Fund (RIDEM)

Valley Falls/Lonsdale (VFL) Urban Forestry Municipal Resilience Project, Cumberland, funded through 2021 Municipal Resilience Program Action Grants (RIIB)

Oakland Beach Nature Based Resiliency Enhancements, Warwick, funded through 2020 Municipal Resilience Program Action Grants (RIIB)

CLIMATE RESILIENCE INITIATIVES

Boy Scouts Buck Hill property, Burrillville, funded through the State Land Conservation Program (RIDEM)

Cayer property, Hopkinton, funded through the Local Open Space Grant (RIDEM)

All New England states are part of the Regional Greenhouse Gas Initiative (RIDEM)

STATE LAND CONSERVATION PROGRAM

RI Dept. of Environmental Management

Guided by the DEM Land Acquisition Committee, the State Land Conservation Program identifies, assesses, and acquires lands of State-wide interest and significance. The program is funded by State voter approved bond funds leveraged with grants from various Federal programs, and non-profit or local organizations. Preserved lands are available to the public for uses including boating, fishing, swimming, hiking, hunting, biking and nature observation.

LOCAL OPEN SPACE GRANTS

RI Dept. of Environmental Management

This grant program provides up to 50% matching funds to municipalities, land trusts and non-profit conservation land organizations to preserve valuable open space throughout the state. A maximum of 50% of the approved appraised value, up to a per-project cap of $400,000, has been awarded. Awardees are also eligible for reimbursement of up to 50% of appraisal, title, and survey costs associated with the project.

TREE EQUITY RI GRANT PROGRAM

RI Dept. of Environmental Management

The Tree Equity Grant provides funding to municipalities, public educational institutions, and non-profit organizations for tree planting efforts in disadvantaged areas. Applicants utilize the Tree Equity Score Analyzer as a part of their proposal. This grant program is made possible through funding by the Regional Greenhouse Gas Initiative (RGGI).

REGIONAL GREENHOUSE GAS INITIATIVE (RGGI)

RI Dept. of Environmental Management & EC4

The EC4 was provided with funding to support GHG mitigation and climate resilience priorities for the first time in its 10-year history in the FY2024 budget cycle ($3M). In FY2025, the Council was again supported with funding ($1.5M). Across the FY2024 and FY2025 EC4 expenditure plans, approximately $1M was provided by the EC4 to directly support resilience projects across five state agencies and public universities.

SITE READINESS GRANT PROGRAM

RI Commerce

The Site Readiness Program offers funding to public or private entities for site-specific technical assistance, planning, and/or improvements. Activities including property surveys, master planning, engineering surveys, environmental studies, infrastructure improvements, land assembly activities, site clearing or demolition, and building improvements are supported. Assistance with writing zoning ordinances, updating comprehensive plans, strategic planning support, development coordination, and/or marketing support is also supported.

STATE FUNDED GRANT OPPORTUNITIES

STATE FUNDED GRANT OPPORTUNITIES

MAIN STREET RI STREETSCAPE FUND

RI Commerce

The Main Street Rhode Island Streetscape Improvement Fund is a competitive award program that funds improvements to commercial districts across the state. This program encourages private-public partnerships to enhance streetscapes in Rhode Island's local business districts. The lead applicant must be a municipality, political subdivision of a municipality, or an economic development organization. Technical assistance is now an eligible expense (up to $50k).

WASTEWATER TREATMENT FACILITY RESILIENCE FUND

RIDEM & Rhode Island Infrastructure Bank

The Wastewater Treatment Facility Resilience Fund is supported by the Green Economy and Clean Water Bond referendum. Through a competitive grant process, WWTFRF has provided funding to municipalities and quasi entities to protect wastewater collection systems and treatment facilities against the impacts of climate change.

RENEWABLE ENERGY FUND & RESILIENT MICROGRIDS FOR CRITICAL SERVICES PROGRAM

RI Office of Energy Resources & RI Commerce

RI Commerce's Renewable Energy Fund (REF) provides grants and financing to support renewable energy projects across the state. Leveraging funds from retail electricity providers, the fund offers financial assistance to individuals, businesses, municipalities, and organizations for solar, wind, and other renewable energy installations. Additionally, the Resilient Microgrids for Critical Services Program, a joint program between the Office of Energy Resources and the Renewable Energy Fund, offers grant support for microgrid construction through Phase 2 of the program. Phase 2 will launch in Late 2025. Phase 1 of the program provides technical assistance through microgrid feasibility studies for municipalities, fire and school districts. Phase 1 is currently underway.

INNOVATION NETWORK MATCHING GRANT

RI Commerce

The Innovative Network Matching Grant funds organizations that provide small business support through technical assistance, space on flexible terms, and/or access to capital. Grants are available to nonprofits, for-profit organizations, universities, and co-working space operators. Supported industries such as Clean Technology & Energy Efficiency address climate change mitigation and adaptation.

STORMWATER PROJECT ACCELERATOR

Rhode Island Infrastructure Bank

The Stormwater Project Accelerator (SPA) loan program provides upfront financing for green stormwater infrastructure projects that have received, and will eventually be funded through, state and local reimbursement grants. Loans are interest free, with a 1.5% administration fee. Municipalities, non-profits, and utilities are eligible.

Floodproofing resiliency measures installed at the East Greenwich Wastewater Treatment Facility, funded by the Wastewater Treatment Facility Resilience Fund (RIDEM)

FEDERAL FUNDING + INCENTIVE PROGRAMS FOR RI COMMUNITIES

RIDOT conducts a site visit to discuss resilience measures (above). Measures funded through PROTECT will help to prevent bridge washouts such as depicted here (below) (RIDOT)

The Aquidneck Island Regional Hazard Mitigation Plan (above) and Municipal Resilience Program workshops (below) both received funding through FEMA BRIC grants (Town of Portsmouth, TNC)

U.S. DOT PROTECT GRANTS

RI Dept. of Transportation

In 2024, Rhode Island Department of Transportation (RIDOT) secured $26.75 million in PROTECT Grant funding to enhance transportation infrastructure and climate resiliency across the state. The "Turning the Tide" initiative will focus on enhancing transportation infrastructure resilience against the effects of sea-level rise, flooding, and extreme weather by identifying vulnerable roads, bridges, and transit assets and implementing strategies to protect these critical structures from climate impacts. Efforts include elevating roadways, strengthening drainage systems, and utilizing green infrastructure to absorb stormwater. Additionally, RIDOT received $750,000 to develop a coastal management plan to address alternatives for three state roadways along RI-136 that will facilitate the implementation of the Town of Warren's "Market to Metacom" managed retreat strategy.

FEMA GRANTS (BRIC, FMA, AND HMGP)

RI Emergency Management Agency

The Rhode Island Emergency Management Agency (RIEMA) facilitates the application and issuance of multiple grant programs focused on hazard mitigation to support statewide resilience against natural disasters. Through funding opportunities like the Building Resilient Infrastructure and Communities (BRIC) and Flood Mitigation Assistance (FMA) programs, RIEMA assists state and local governments in implementing projects that reduce risks from flooding, hurricanes, and other hazards. These grants prioritize community safety, infrastructure protection, and the integration of nature-based solutions to strengthen the state's resilience to climate impacts.

The Flood Mitigation Assistance (FMA) Grant Program provides funds towards measures that can be taken to reduce or eliminate the risk of flood damage to buildings insured under the National Flood Insurance Program. Three types of grants are available under FMA: Planning, Project, and Technical Assistance Grants. FMA Planning Grants are available to states and communities to prepare Flood Mitigation Plans. Those with approved Flood Mitigation Plans are eligible for Project grants.

The Building Resilient Infrastructure and Communities (BRIC) Program supports states, tribes, territories, and local communities with hazard mitigation projects that reduce risks from disasters and natural hazards. The BRIC program also offers communities direct, non-financial technical assistance for hazard planning and project support, specifically for disadvantaged communities. This assistance helps communities and tribes in reducing disaster damages, building community resilience, and sustaining successful mitigation programs.

The Hazard Mitigation Grant Program (HMGP) and HMGP Post Fire Assistance are the only post-disaster mitigation program and assists in implementing long-term hazard mitigation measures following federally declared disasters.

FEMA INDIVIDUAL & PUBLIC ASSISTANCE

RI Emergency Management Agency

After federally declared disasters, FEMA offers funding support through its Individuals and Households Program (IHP), as well as through its Public Assistance Program. RI Emergency Management Agency (RIEMA) supports Rhode Islanders and municipal governments to navigate these application processes.

FEMA's Individuals and Households Program (IHP) provides funding and services to eligible individuals and households impacted by a federally declared disaster, who have uninsured or under-insured necessary expenses. Funds can cover temporary housing, such as hotel costs, and can support repair of primary residences.

FEMA's Public Assistance Program provides grant funding to state, tribal, territorial, local governments, and eligible non-profits to support community recovery after a federally declared disaster. Work may include, but is not limited to debris removal, emergency measures, and repairing public infrastructure.

GRID RESILIENCY FUNDING (40101D)

RI Office of Energy Resources

Rhode Island's Grid Resilience and Promoting Resilient Outage Prevention (PROP) initiative, led by the Office of Energy Resources, is designed to strengthen the state's electric grid against disruptions caused by severe weather and other hazards. Supported by formula funding through the U.S. Department of Energy's Grid Deployment Office and established by Section 40101d of the Bipartisan Infrastructure Law, PROP supports projects that improve grid reliability, enhance energy storage capacity, and incorporate renewable energy sources to reduce outage impacts. This initiative is designed to strengthen and modernize America's power grid against natural disasters and extreme weather that are exacerbated by climate change. Funding may be used to implement a wide range of resilience measures such as weatherization technologies and equipment; undergrounding of electrical equipment; utility pole management; the relocation of power lines or reconductoring with advanced conductors; vegetation and fuel-load management; and microgrid development.

RHODE ISLAND SEA GRANT BIENNIAL RESEARCH RFPS

RI Sea Grant

Every two years, Rhode Island Sea Grant (RISG) issues a Request for Proposals for research projects that address thematic areas outlined in the RISG Strategic Plan, including Healthy Coastal Ecosystems, Resilient Communities and Economies, and Sustainable Fisheries and Aquaculture. Research projects address important issues, problems, or opportunities for just and sustainable use and management of Rhode Island's coastal and marine ecosystems, and incorporate meaningful and appropriate engagement of relevant user groups, government, local communities, & organizations across the state.

Grid modernization in progress (OER)

Removal of phragmites within Buckeye Brook to improve ecological health of the stream and increase water-holding capacity for flood reduction, funded by NPS Section 319 Grants (RIDEM)

Installation of a wet vegetated treatment system (WVTS) in Middletown funded by NPS Section 319 Grants (RIDEM)

Impervious surface removal in preparation for green infrastructure and plantings at Agnes B Hennessey Elementary School, funded by EPA OSG Grants (RIIB)

NBEP GRANTS FOR PLANNING, CAPACITY, EDUCATION, AND OUTREACH (STORMWATER, HABITAT, & RESILIENCE)

Narragansett Bay Estuary Program

Since 2020, the Narragansett Bay Estuary Program has funded more than twenty projects to advance green infrastructure, habitat restoration, research, outreach, and capacity-building in the region. NBEP specializes in supporting often under-funded pre-construction project steps, including stakeholder engagement, project selection, design, planning, and permitting.

SNEP WATERSHED IMPLEMENTATION GRANTS

Restore America's Estuaries, SNEP

Grants are one way in which SNEP supports science & action for a better environment. Since 2017, EPA Region 1 has partnered with Restore America's Estuaries (RAE) to manage SNEP Watershed Implementation Grants (SWIG), an annual grant program that funds local priorities while building regional capacity to address environmental needs. These grants are designed to support SNEP's Program Vision 2050 Priorities: 1. Resilient Ecosystem of Safe and Healthy Waters, 2. Thriving Watersheds and Natural Lands, and 3. Sustainable Communities. Since 2018, SWIG has awarded appx. $18 million and over 80 projects in RI and MA to build and sustain effective partnerships among public, private, academic and non-profit organizations, including state, federal, municipal and tribal governments.

NONPOINT SOURCE POLLUTION (SECTION 319) GRANTS

RI Dept. of Environmental Management

The Nonpoint Source Pollution Grant program provides funding for projects addressing pollution to surface water, groundwater and wetlands, including those managing overland stormwater runoff. Projects in watersheds with federally approved (EPA) Watershed Plans are eligible for these funds.

EPA SEWER OVERFLOW & STORMWATER REUSE (OSG)

Rhode Island Infrastructure Bank

In 2023, the Rhode Island Infrastructure Bank (RIIB) delivered $632,100 to municipalities via the Sewer Overflow & Stormwater Reuse Grant Program. Issued through EPA funding, this program supports sewer overflow and stormwater infrastructure projects in municipalities to reduce pollution to local waterways. Funds can be used for design and construction of stormwater projects. In 2023, three municipalities received funding through this program to reduce flooding, improve water quality, and enhance climate resilience in their community: 1. East Providence: Funds will support green infrastructure to manage runoff and reduce flooding risks at Agnes B Hennessey Elementary School; 2. Pawtucket: The project includes stormwater improvements at Slater Park to mitigate flood impacts; 3. Little Compton: Grant funding will be used for stormwater infrastructure to safeguard sensitive coastal resources at Taylor's Lane.

OUTDOOR RECREATION GRANTS

RI Dept. of Environmental Management

This grant program provides matching funds to cities and towns and recognized Native American tribes for the acquisition, development and renovation of outdoor recreational lands and facilities. The program is funded through State bonds. Funding categories include Large Recreation Development grants (up to 80% matching funds to a maximum of $400,000), Small Recreation Development Grants (up to 80% matching funds to a maximum of $100,000), and Recreation Acquisition grants (up to 50% matching funds to a maximum of $400,000). Scoring criteria is established by the State Comprehensive Outdoor Recreation Plan (SCORP).

URBAN & COMMUNITY FORESTRY GRANTS

RI Dept. of Environmental Management

The Urban and Community Forestry Grant Program funds projects which lead to a more effective and efficient management of urban and community forests and improve public understanding of the benefits of preserving existing tree cover in communities. The program operates as a partnership between RIDEM and USDA. Grant projects should be developed to address at least one of these goals: 1. Promote active and sustainable management to conserve trees and forests where people live, work and play; 2. Protect trees and forests from threats through planning and response (invasive, catastrophic, climate, etc.); 3. Enhance the public benefits from trees and forests through improved management practices.

WILD AND SCENIC COMMUNITY GRANTS

Wood-Pawcatuck Wild and Scenic Rivers Stewardship Council

The Wild & Scenic Community Grants, supported by US National Park Service Wild and Scenic Rivers Program, offers grants up to $4000 for projects to protect, preserve and enhance the outstanding and remarkable values of the federally designated Wild and Scenic Wood-Pawcatuck watershed.

HEZ GREEN SCHOOLYARDS (ENVIRONMENTAL PUBLIC HEALTH TRACKING PROGRAM)

RI Dept. of Health

Three Health Equity Zones (HEZs) participated in the grant funding provided by the Environmental Public Health Tracking Program. In Central Falls, 12 trees were planted at Calcutt Middle School, and twenty-two students were engaged in the initiative. In Providence, 27 trees and shrubs were planted at Nathaniel Greene Middle School with over 400 students reached with in-class presentations and a film screening about healthy air. In North Providence, the Greening the Whelan Schoolyard project created a new shade structure for outdoor learning, a plan for tree cover, installation of a raised bed garden, aligned curriculum delivery for 4th and 5th grade students, and student and family engagement in the project - partners included lead agency Tri-County HEZ, Whelan Elementary School, and WRWC.

North Kingstown Town Beach Playground, funded through the Outdoor Recreation Grant (RIDEM)

USDA funding can support state and local projects. Here, Newport conducts a workshop as part of the Urban Forestry for RI Technical Assistance Program, a USDA funded project (GIC & RIDEM)

Tree planting conducted as part of the HEZ Green Schoolyards initiative (RIDOH)

2024 Arbor Day Celebration in Cranston, RI. Governor McKee addresses attendees (top) and joins Senators Whitehouse and Reed, RIDEM Director Gray, Mayor Hopkins, and RITree's John Campanini in the annual celebratory tree planting (middle and bottom) (GIC)

DEPT OF EDUCATION GRANT FOR HEALTHY ENVIRONMENTS FOR ADVANCED LEARNING

RI Dept. of Education

The Rhode Island Department of Education (RIDE) received federal grants ($5mm and over $877k) through the Supporting America's School Infrastructure Grant Program to support the development of modern, resilient school facilities across the state. The funding will assist RIDE in creating comprehensive plans for upgrading school infrastructure, focusing on health, safety, and sustainability. This grant will enable RIDE to assess school building needs, integrate energy-efficient designs, and improve climate resilience. The goal is to provide students with safe, high-quality learning environments while reducing long-term operational costs and promoting environmental sustainability in Rhode Island's educational facilities. RIDE will focus on five high-need and urban districts that collectively serve over 300,000 students.

COMMUNITY RATING SYSTEM

RI Emergency Management Agency

The Rhode Island Emergency Management Agency oversees the Community Rating System (CRS), a voluntary program that recognizes and encourages a community's efforts that exceed the NFIP minimum requirements for floodplain management. The CRS program emphasizes three (3) goals: the reduction of flood losses, facilitating accurate insurance rating and promoting the awareness of flood insurance. By participating in the CRS program, communities can earn a 5 % -45% discount for flood insurance premiums based on the activities that reduce the risk of flooding within the community. Municipalities enroll in the program and submit yearly reports to demonstrate compliance. Currently there are 10 municipalities across Rhode Island that are participating in the CRS.

TREE CITY USA

RI Dept. of Environmental Management

This national program, offered by the Arbor Day Foundation and managed in RI by the Department of Environmental Management, recognizes municipalities who complete four key urban management components each year: maintaining a tree board or department, having a community tree ordinance, spending at least $2 per capita on urban forestry and celebrating Arbor Day. In addition, a Tree Campus USA program is offered for universities, and a Tree Line USA program for utilities.

US DEPARTMENT OF EDUCATION GREEN RIBBON SCHOOLS

RI Dept. of Education

RIDE facilitates the registration and selection Rhode Island's Green Ribbon School program. The Green Ribbon Schools program recognizes schools that save energy, reduce costs, feature environmentally sustainable learning spaces, protect health, foster wellness, and offer environmental education.

NFWF NATIONAL COASTAL RESILIENCE FUND

Statewide Government & Non-Profit Awardees

The National Coastal Resilience Fund restores, increases and strengthens natural infrastructure to protect coastal communities while also enhancing habitats for fish and wildlife. Established in 2018, NCRF invests in conservation projects that restore or expand natural features such as coastal marshes and wetlands, dune and beach systems, oyster and coral reefs, forests, coastal rivers and floodplains, and barrier islands that minimize the impacts of storms and other naturally occurring events on nearby communities. Recent awards in Rhode Island have supported the Designing for Resilience initiative (RIIB, $249,896); resilience improvements at Mill Creek on Prudence Island (RIDEM, $1.8 million); and work in the Elizabeth Brook watershed on Aquidneck Island (ERICD, $680,500). Since 2018, Rhode Island state agencies, local governments, non-profits, and universities have been awarded over $6.2 million in NCRF funds for priority resilience initiatives.

USDA EMERGENCY WATERSHED PROTECTION PROGRAM

RI Natural Resources Conservation Service

The EWP offers assistance to help local communities relieve threats to life and property caused by floods, fires, windstorms and other natural disasters. EWP does not require a disaster declaration by federal or state government officials. NRCS offers financial and technical assistance for activities including debris removal from stream channels, road culverts and bridges; reshaping and protecting eroding streambanks; correcting damaged or destroyed drainage facilities; establishing vegetative cover on critically eroding lands; repairing levees and structures; repairing certain conservation practices; and purchasing of buyouts.

PL566

RI Natural Resources Conservation Service

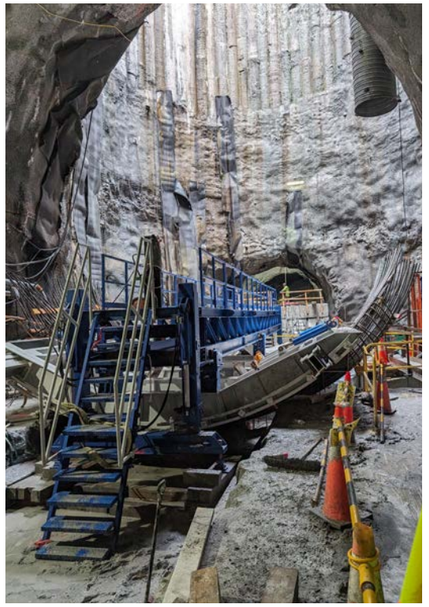
USDA's Small Watershed Program prevents damage from erosion, floodwater and sediment, furthers conservation development, utilization, and disposal of water, and furthers the conservation and proper utilization of land. The program, which applies to watersheds 250,000 acres and smaller, provides funding support for 1) watershed surveys and planning; and 2) watershed and flood prevention operations and construction. At least 20 percent of project benefits must relate directly to agriculture, including rural communities.

CLEAN WATER STATE REVOLVING FUND (CWSRF) & DRINKING WATER STATE REVOLVING FUND (DWSRF)

Rhode Island Infrastructure Bank, RIDEM, & RIDOH

The CWSRF provides loans to local governments, quasi-public agencies, and private entities for the completion of wastewater, stormwater, and other water pollution abatement projects. Through the DWSRF, loans are provided to community public water systems, non-profit non-community public water systems, privately organized water suppliers and local governments to complete drinking water infrastructure projects (including supply, treatment, and transmission infrastructure).

Flooding at Mill Creek in Portsmouth (Prudence Island) that will be addressed through 2024 NFWF NCRF funding (Town of Portsmouth)



Narragansett Bay Commission Combined Sewer Overflow tunnel, funded by the Clean Water State Revolving Loan Fund (RIIB)

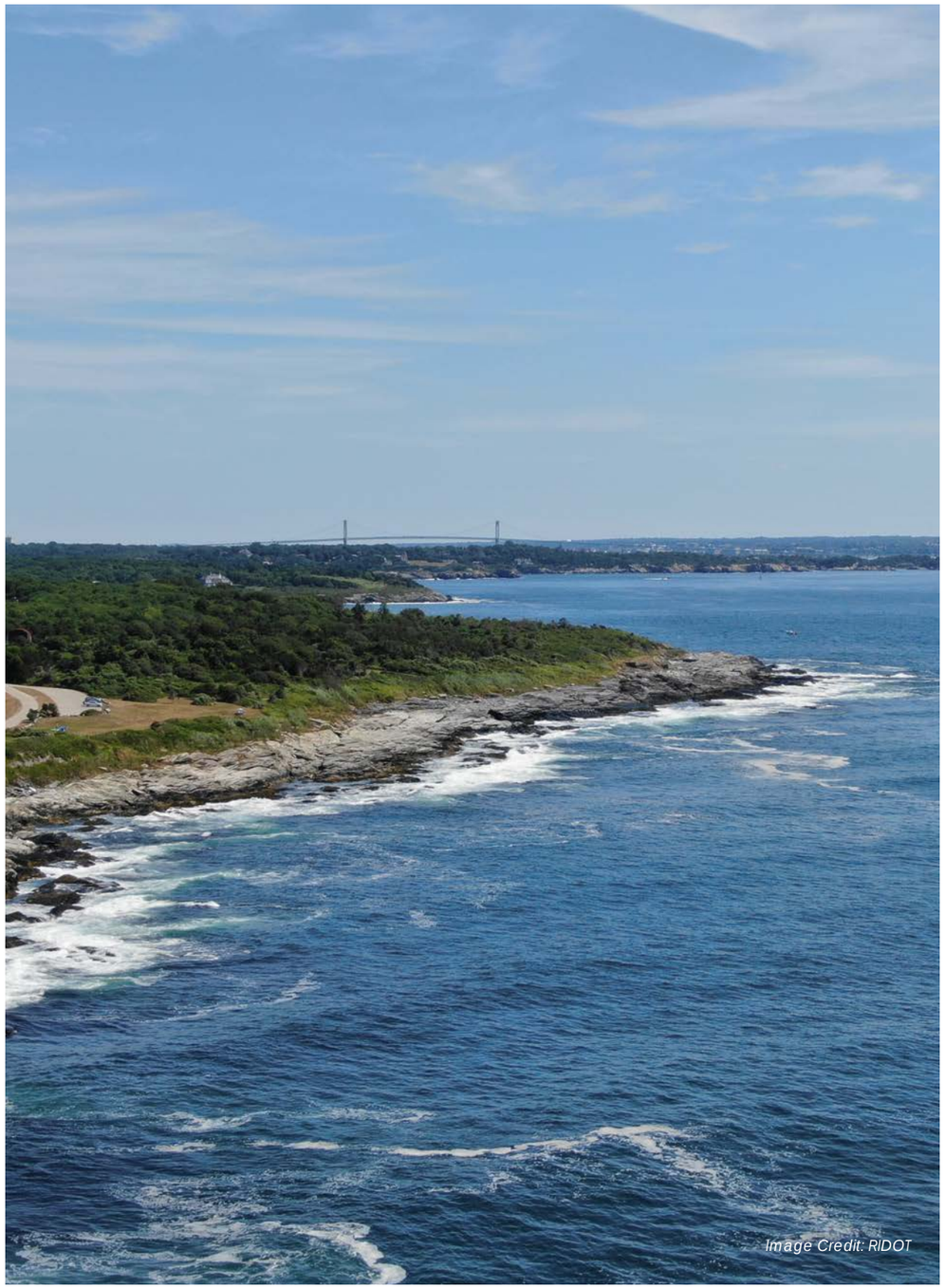


Image Credit: RIDOT

Resilient Rhody Actions

Rhode Island's 61 Climate Resilience Actions - Where We Started and Where We Are Now.

Image Credit: RIDOT

ACTIONS	RESULTS
1. **Assist water suppliers in developing local Emergency Interconnection Programs** to address supply vulnerability among small systems throughout the state. Emergency Water System interconnections provide redundancy of supply and the ability to address water emergencies rapidly and efficiently across water supply districts.	1. **Evaluation process created** for approval of emergency interconnections (*RIDOH*) 2. **Standard operating procedures created** for corrosion control evaluations prior to interconnecting (*RIDOH*) 3. **Emergency interconnections & redundant water sources funded** (*WRB*), including: a. Portsmouth Water and Fire District and Stone Bridge Fire District emergency interconnection b. Block Island emergency well 4. **Emergency interconnections approved** (*RIDOH*), including Pawtucket Water Supply Board (WSB) to Attleboro 5. **Merging of systems to advance regional collaboration**, including: a. RI General Law 45-39.2—4, which merges the Pascoag Utility District and the Harrisville Fire District Water Dept to create the Clear River Electric and Water District (will bring two new wells & increased vehicles and equipment) b. Barrington Inn merged with Block Island WC c. Johnston Congressional of Jehovah's Witness merged with Providence Water 6. **Water Supply Resiliency Survey conducted in 2024** (update from 2019 Survey); results will be analyzed and compiled to create an updated Resiliency Survey Story Map (*WRB*) 7. **Staff capacity increased** (*RIDOH & WRB*)
2. **Assess the vulnerability of near coastal drinking water reservoirs** to storm surge and sea level rise.	1. **Completed Saltwater Intrusion Water Systems Vulnerability Study** (*URI & WRB*) 2. **RI Coastal Hazards, Analysis, Modeling and Prediction (RI-CHAMP) utilized to assess water system vulnerability** to severe storms (*RIDOH & URI*), including: Jamestown, North Kingstown, Quonochontaug East Beach FD, and Bristol County Water Authority
3. **Advance common goal setting and communication** between water suppliers that manage reservoirs and downstream municipalities. **Ensure downstream flood mitigation via proactive spillway management** without adverse impacts on safe yield.	1. **Assisted local water suppliers through facilitating goal setting & communication to develop emergency interconnections** (*WRB*), including for the East Providence and Portsmouth Water and Fire District / Stone Bridge Fire District connections 2. **Completing assessment of Big River Management Area** to implement best management practices (BMPs) for future water sources (*WRB*)
4. **Ensure that all major suppliers have current contingency contracts** for the purchase of emergency supplies and have established emergency interconnection/distribution process.	1. **Water Supply Resiliency Survey conducted in 2024** (update from 2019 Survey); results will be analyzed and compiled to create an updated Resiliency Survey Story Map (*WRB*) 2. **Completed Water Supply System Management Plan reviews**, which are inclusive of contingency contracts and descriptions of the status of all current contracts (21 completed since 2018) (*WRB*) 3. **Currently developing Incident Response Plan, which will include an Emergency Drinking Water Supply Plan** (EDWS). The EDWS outlines the steps to take when bulk potable water is needed (*RIDOH*)
5. **Accelerate treatment system and pumping station hardening projects** identified in Implications of Climate Change for RI Wastewater Collection & Treatment Infrastructure to include the installation of submarine doors; elevated, watertight protections of motor control centers; waterproofing and elevated instrumentation, windows, hatches, and vents; and installation of standby power systems.	1. Through the 2018 Green Bond, developed the **Wastewater Treatment Facility Resilience Fund, which funded $4.7mm in statewide wastewater adaptation projects** (*RIDEM & RIIB*), including: *Warren: Emergency Generators for Collection Systems; Bristol: Ferry Road Pump Station Improvements; Bristol: Fortifying Emergency Pumping Capabilities; Bristol: Compost Facility Generator; Burrillville: Oakland Pump Station Resiliency Improvements; Cranston: Hardening Various Pump Stations; East Greenwich: WWTF Hardening & Relocation Projects; East Providence: Silver Street Pump Station Floodproofing; Narragansett: Scarborough WWTF Groin Restoration; New Shoreham: Ocean Avenue Pump Stations #1 & #2 Flood Protection; Newport: Long Wharf Pump Station Flood Protection; Quonset Development Corporation (QDC): Various Hardening/Redundancy Projects; Smithfield: WWTF Grit Removal System; South Kingstown: Middlebridge Pump Station Hardening; Warren: WWTFRF Electrical Resiliency Improvements; Westerly: New Canal Street Pump Station Flood Retaining Wall; Woonsocket: WWTF Building Hardening; Westerly: Vortex Grit Chamber Redundancy* 2. **Municipal Resilience Program Action Grants** (supported by 2021 special election, 2022, and upcoming 2024 Green Bonds) have also supported wastewater resilience (*RIIB*), with projects including: *Westerly: Old/New Canal Pump Stations ($750,000); Burrillville: Oakland Pump Station ($145,597)* 3. During RIPDES Permit renewal, **RIDEM compiles and assesses information from RIPDES-required resiliency studies and matches needs with potential future funding mechanisms.** Resiliency guidelines laid out in the 2017 "Implications of Climate Change for RI Wastewater Collection & Treatment Infrastructure" are used for the basis of this review. (*RIDEM*) 4. Inclusion of **WWTF Resiliency Plan Development** requirements in the RIPDES permits issued to the 19 major municipal WWTFs that require schedules of short and long-term actions that will be taken to maintain operation and protect key collection and treatment system assets from climate change impacts (*RIDEM*) 5. Inclusion of **Industrial Facility Stormwater BMP Requirements that Address Flooding** in the Multi-Sector General Permit for Industrial Stormwater Discharges (*RIDEM*)

ACTIONS	RESULTS
6. **Provide additional fuel-storage capacity at major wastewater systems** where it is necessary to maintain self-sufficient standby power during times of long-term power grid outages.	1. Through the 2018 Green Bond, established in regulation the **Wastewater Treatment Facility Resilience Fund**, through which emergency fuel storage and backup power at wastewater systems are eligible expenses (*RIDEM & RIIB*) 2. Updated the **WWTF Climate Change Design Guidance** to ensure that the planning and design of all expansions or upgrades to municipal wastewater collection and treatment infrastructure as well as new wastewater systems account for climate change. (*RIDEM*) 3. Evaluate **WWTF Standby Power** during biennial WWTF O&M Compliance Evaluation Inspections (CEIs) for conformance with approved plans and identify any necessary improvements. These inspections include hat include verification of the presence of emergency stand-by power generation and records of monthly testing for the equipment at wastewater facilities (*RIDEM*)
7. **Expand flood modeling/ mapping efforts within inland areas** to enhance the recommendations in Implications of Climate Change for RI Wastewater Collection & Treatment Infrastructure. Data should include statewide precipitation projections that can be used for other sectors as well.	1. **Downscaled precipitation and temperature data was generated & presented** to state agency stakeholders by URI Geosciences in Sept. 2019. **Currently developing online portal** for accessing downscaled climate data, at a 4 square kilometer grid resolution (*URI*) 2. **Initiated development of a Statewide Flood Toolkit**, funded by Silver Jackets and anticipated December 2025 (*RIEMA*) 3. **Secured FEMA funding and launched development of Inland STORMTOOLS** (*URI*) 4. **Staff capacity added for review of resilience needs at critical facilities as defined through RIEMA's Critical Infrastructure / Key Resources Program**. Assessment to be conducted in 2025 with updated modeling information (*RIEMA*)
8. **Prioritize remediation actions and investments** identified in RIDEM's 2017 dam hazard study to ensure compliance and downstream safety.	1. **Work complete at 4 DEM owned High Hazard dams** in Cranston (Curran Upper), Hopkinton/Richmond (Wyoming), North Kingstown (Spring Lake), and Smithfield (Low Level Outlet at Stillwater Reservoir), funded through 2018 Dam Safety bond funding (*RIDEM*) 2. **Conducted spillway analysis at 169 statewide dams** to address precipitation and flooding hazards and held workshop with municipalities to share findings (*RIDEM*) 3. **Regulatory authority established** to allow RIDEM to investigate unsafe dam conditions on properties and conduct work if the dam is orphaned, as well as to enforce penalties for non-compliance with Emergency Action Plans ($1k a day non-compliance fee) (*RIDEM*)
9. **Establish a notification system for dam safety** to coordinate the actions of officials at the federal, state, and local levels. The system should use the process developed by the National Weather Service for severe weather, including a dam advisory, a dam watch, and a dam warning.	1. **Established a dam failure warning system** and completed MOA by RIDEM & RIEMA in July 2024 (*RIDEM & RIEMA*) 2. **Regulatory authority established** to a. Allow for establishment of early warning system; b. Require RI Building Commission to develop procedures for those building downstream of dams to consider inundation area below the dam

ACTIONS	RESULTS
10. **Develop Emergency Action Plans (EAPs) for all statewide high hazard and significant hazard dams.** Responding to an emergency at a dam without an EAP increases the risk to life and property yet many statewide dams do not have plans filed. RIDEM and RIEMA have been working to increase the number of filed EAPs but a more robust program is needed to ensure compliance.	1. **86 Emergency Action Plans have been completed** for statewide high hazard & significant hazard dams (*RIDEM & RIEMA*) 2. **Incorporation of high hazard dam information in the 2024 State Hazard Mitigation Plan** (*RIEMA*), which allows municipalities to apply to RIDEM for FEMA High Hazard Potential Dam (HHPD) Grants (*RIDEM & RIEMA*) 3. **Two High Hazard Potential Dam Grants awarded** at Curran Lower Dam and Silver Spring Dam (appx. $150k per dam)
11. **Work with local governments to establish sustainable revenue sources for the operation and maintenance of local stormwater management systems** (e.g., applying asset management approaches commonly used with wastewater and drinking water systems) to ensure drainage systems are functioning as designed/intended and repaired/upgraded as needed.	1. **EPA Region 1 Southeast New England Program (SNEP) Community Assistance Projects** have assisted local municipalities to brainstorm and develop sustainable funding mechanisms for climate resilience & stormwater utilities. Work has been completed in this area in Middletown, Newport, Portsmouth, Providence, among other localities (*SNEP*)
12. **Encourage the use of green infrastructure** to enhance the capacity of traditional stormwater systems to provide multiple community and ecosystems benefits to enhance water quality and provide multiple community benefits.	1. **Launched the Stormwater Project Identification & Realization (SPIRe) Program**, funded by EPA Sewer Overflow & Stormwater Reuse (OSG) dollars, which provides conceptual design consulting services and design & permitting funding to municipalities for green infrastructure. $632,100 allocated to date for three stormwater construction projects (*RIIB*) 2. **Established the Climate Resilience Fund, Bay & Watershed Restoration Fund (BWRF), Municipal Resilience Program Action Grants, and Ocean State Climate Adaptation & Resilience Fund (OSCAR)**, (supported by state green bonds [2018, 2021, 2022, 2024] and state budget). These programs each prioritize selection of green infrastructure projects in their scoring criteria (*RIIB, RIDEM, CRMC*) a. $24.4 million allocated to date in MRP Action Grant funding (*RIIB*) b. $5mm (Climate Resilience Fund) and $21.5mm (BWRF) allocated to date (*RIDEM*)

ACTIONS	RESULTS
13. **Update the Stormwater Design and Installation Standards Manual/Rules** to reflect changing precipitation patterns.	1. **Identified gaps & barriers in the Total Maximum Daily Load (TMDL) regulatory compliance process**, (*RIIB, RIDEM*) leading to development of initiatives including: a. Stormwater Project Identification & Realization (SPIRe) Program (funded by EPA Sewer Overflow & Stormwater Reuse (OSG) dollars) for stormwater green infrastructure design & permitting assistance b. Development of feasible stormwater green infrastructure pipeline during WAP process 2. **Natural Systems & Resilience white paper developed in July 2019**, identifying how RI can promote the use of natural systems to improve resiliency for flood control and water quality/quantity (*RIDEM*) 3. **Inter-agency stormwater design standard coordination initiated** between DEM Water Resources (groundwater permitting & freshwater wetlands permitting) and RI Emergency Management Agency in July 2019 (*RIDEM & RIEMA*), followed by coordination initiated between DEM Resilience & Water Resources, Div. Of Statewide Planning, and the Coastal Resources Management Council in Spring 2024 (*RIDEM & DOA & CRMC*) 4. **Funding secured for update of Stormwater Design Manual** (*RIDEM*)
14. **Use Total Maximum Daily Loads (TMDLs)** and other watershed plans to **identify areas of existing impervious surface** that can be removed and to **prioritize retrofitting** of existing drainage systems.	1. **Released RI DOT Linear Manual** in 2019 (*RIDOT*) 2. **Developed eTool** to optimize stormwater permit submissions in 2024 (*RIDOT*) 3. **Generated list of most-common RI DT application and design deficiencies**, completed September 2019 (*RIDEM*) 4. **Presented LID Ordinance Workshop for Rhode Island Pollutant Discharge Elimination System (RIPDES) Stormwater Municipal Separate Storm Sewer Systems (MS4s)** (in collaboration with NOAA sponsored training) in August 2019 (*RIDEM*) 5. **Evaluation conducted with EPA on methodology for filter strips and disconnection, and policy developed** transferable to MS4s and private development (*RIDEM*) 6. **OPTI-tool (EPA Region 1's Stormwater Management Optimization Tool) training conducted in August 2019**, with support from Providence Stormwater Innovation Center, and in collaboration with NE Environmental Finance Center, UNH Stormwater Center, RI GI Coalition, Providence Parks and Rec (*RIDEM*)
15. **Identify existing stormwater management structures that are subject to frequent coastal and riverine flooding** and take steps to mitigate the impacts of this flooding on stormwater infrastructure and its performance.	1. **Launched the Stormwater Project Identification & Realization (SPIRe) Program**, funded by EPA Sewer Overflow & Stormwater Reuse (OSG) dollars, which provides conceptual design consulting services and design & permitting funding to municipalities for green infrastructure and included development of a green infrastructure project pipeline (RIIB) 2. **Completed Municipal Resilience Program Workshops with 38/39 municipalities**, identifying over 1600 priority resilience projects statewide in need of support. Complete Annual Resilience Updates with municipalities to updates these lists (*TNC, RIDEM, RIIB*) 3. **Established the Climate Resilience Fund, Bay & Watershed Restoration Fund (BWRF), Municipal Resilience Program Action Grants, and Ocean State Climate Adaptation & Resilience Fund (OSCAR)**, (supported by state green bonds [2018, 2021, 2022, 2024] and state budget). Projects funded through these programs predominantly address stormwater management, coastal flooding, and riverine flooding (*RIIB, RIDEM, CRMC*) a. $24.4 million allocated to date in MRP Action Grant funding (*RIIB*) b. $5mm (Climate Resilience Fund) and $21.5mm (BWRF) allocated to date (*RIDEM*)

RESILIENT RHODY ACTIONS

ACTIONS	RESULTS
16. **Update the state land use plan**, Land Use 2025, to include climate change and resilience topics as well as stormwater water management needs, policies, and actions for stormwater utility districts.	1. **Revised State Land Use Plan in development**, with consideration of resilience elements. Currently in data gathering stage (*Div. Statewide Planning*)
17. **Develop a bridge loan** at Rhode Island Infrastructure Bank to provide upfront capital to communities and organizations who are RIDOT and RIDEM reimbursement stormwater grant recipients.	1. **Launched the Stormwater Accelerator Program**, which has achieved $1,488,949 in loan agreements spanning ~$4.5M in commitments with statewide organizations (*RIIB*)
18. **Strengthen storm resilience and post-storm recovery at the ports through strategic partnerships and planning.** Shipping lines will turn to ports that rapidly resume normal operations after hurricanes. Rhode Island and cities like Providence and East Providence should approach storm resilience and climate change as a business opportunity through inclusion of resilience planning. For example, state agencies should support the ports in developing pre-contracts for debris removal after hurricanes or businesses could implement data backup mechanisms to help the ports resume operations more quickly after a storm.	1. **URI and City of Providence EMA Study completed**, with potential to scale this work to other areas of the state (*URI*) 2. **Clean Marinas Program relaunched in 2020** (*CRMC, DEM, RIMTA, URI*). The voluntary program was designed to protect the state's coastal waters and benefit the marina industry in Rhode Island, and rewards marinas that go beyond regulatory requirements by applying innovative pollution prevention best management practices (BMPs) to their day-to-day operations. Since the program has relaunched, 10 new marinas have earned the certification 3. **5.06' above mean high tide standard established for development of new bulkheads at state ports** (*RIDEM*) 4. **Development & publication of resilient dock engineering strategies** to mitigate against coastal hazards and sea level rise (*RIDEM*) 5. **$15mm awarded from FEMA to elevate port structures** at the Port of Galilee in Narraganset and Wickford Dock, as well as to replace eight docks at Galilee, DEM's Division of Marine Fisheries' Jerusalem facility, and DEM's Division of Law Enforcement's Wickford Marine Base to improve resilience to the increasing impacts of climate change (*RIDEM*)

ACTIONS	RESULTS
19. **Establish a new collaborative partnership between the state and port community** to understand the economic implications of severe weather events and benefits of storm resilience planning.	1. **Port of Providence Community Working Group** launched by City of Providence & EPA Region 1, which discusses environmental enforcement, urban planning, and community engagement issues relating to the Port and near Port community representatives. The group meets quarterly and convenes state stakeholders including Div. of Statewide Planning, and was created as an outcome to EPA's Providence Community-Port Collaboration Pilot (*City of Providence, Div. of Statewide Planning*) 2. **Master Plan in development for ProvPort** in collaboration with Div. of Statewide Planning & URI with planned release in 2025, utilizing the Infrastructure and Resilience Planning Framework (*Div. of Statewide Planning & URI*) 3. **State Port Manager position established** (*RIDEM*) 4. **Statewide Planning acts as a key convener of Port Communities through its Freight Advisory Committee** and elevate the importance of resilience in the work that ports do (*Div. of Statewide Planning*)
20. **Design and implement a comprehensive, targeted strategy addressing energy security vulnerabilities at the municipal or facility level**, based on findings of the Energy Assurance Plan. This strategy should address risks specific to discrete critical infrastructure assets, including hospitals, police and fire stations, water and sewage treatment plants, senior centers and nursing homes, shelters, correctional facilities, fueling stations, and grocery stores. Smart energy security investments at these locations and energy resilience solutions could alleviate the impacts of power outages and fuel supply disruptions in energy emergencies. Examples of such solutions are backup generation, fuel reserves, distributed generation, combined heat and power, energy storage, and microgrids.	1. **Energy Security Strategy completed and submitted to Department of Energy**, accomplished through State Energy Plan Infrastructure Investment and Jobs Act funding (*RI OER*) 2. **URI and City of Providence EMA Study completed**, with potential to scale this work to other areas of the state (*URI*) 3. **Development of the Resilient Microgrids for Critical Services Program**, in partnership with Renewable Energy Fund (*RI OER & RI Commerce*).The program is designed to encourage microgrid development by offering technical assistance and funding for microgrid developments for municipalities, school and fire districts. Phase 1 aimed at the development of feasibility studies launched December 2024. 4. **Least-Cost Procurement continues to be refined to maximize energy efficiency project deployment** with the least impact to rate payers (*RI OER*) 5. **Statewide stakeholders are studying Renewable Energy Procurement** to ensure our renewable energy procurement goals are met (*RI OER*) 6. The Energy Facilities Siting Board has ordered RI Energy to initiate a System Reliability Procurement to **address the natural gas capacity vulnerability on Aquidneck Island** (*PUC*)

RESILIENT RHODY ACTIONS

ACTIONS	RESULTS
21. **Act on the policy recommendations outlined in the OER report**, Resilient Microgrids for Rhode Island Critical Services, and remove market barriers to implementing microgrids at critical facilities.	1. **Microgrid Financing Roundtable completed** in August 2019 (*RI OER*) 2. **Development of the Resilient Microgrids for Critical Services Program**, in partnership with Renewable Energy Fund, phase one of the program launched in December 2024, which provided consultant support to municipalities, school districts, and fire districts to complete feasibility studies. Phase two of the program will focus on the construction of microgrids found feasible. The program is based on Resilient Microgrids for RI Critical Services report issued by Celtic Energy for OER (*RI OER & RI Commerce*) 3. **Consultant assessment completed on feasibility for implementing microgrids** in Rhode Island (*PUC*)
22. **Modernize the grid** and complementary efforts through the Power Sector Transformation initiative currently under review at the PUC, as recommended by the state energy plan and the House Energy Security Resolution Report. The initiative includes recommendations for the utility business model, grid connectivity and meter functionality, distribution system planning, and beneficial electrification. These facets will help accelerate the integration of non-conventional resources and support the development of a more resilient, reliable, efficiency, and flexible electric grid.	1. **The Power Sector Transformation Initiative** (*RI Energy & RI OER*) has led to several advances in implementation of smart meters, including: a. The Advanced Meter Infrastructure (AMI) proposal is in deployment i. The docket to deploy smart meters statewide was approved in 2023 ii. Smart meter site evaluation visits (pre-sweeps) in progress iii. Wireless data system infrastructure is being deployed iv. Deploying of smart meters will take place from late 2024 through 2026, beginning in southern RI (Westerly) and moving northward (Woonsocket) 2. **Establishment of the Power Sector Transformation Advisory Group** in 2019 (*RI OER*) a. Meet several times a year and will continue to do so 3. **Action Plan (laid out in Dockets 4770 & 4780) led to submission of AMI and the Grid Modernization Plan** for regulatory approval by the PUC under the Power Sector Transformation Advisory Group & RI Energy (*RI OER & RI Energy*) 4. **Grid Resiliency Funding has been established for Utilities** through Department of Energy 40101(d) funding, offered in 2024 under the Promoting Resilient Outage Prevention Program. Round one has been complete. OER received two applications from utilities (*RI OER*)

ACTIONS	RESULTS
23. **Reduce the number and extent of power outages** as described in Division Docket No. D-17-45: Review of National Grid Storm Preparedness and Restoration Efforts Related to the Storm of October 29-30, 2017, including: - Supplement weather forecasting services with additional tools to achieve more accurate storm forecasts. - Develop a mechanism to rapidly adjust weather classifications based on actual, current impacts and review classification system, planned resources, and staging locations based on classifications. A utility's emergency response plan should incorporate methods to rapidly adjust when storm impacts are more severe than anticipated. - Consider enhancements to existing vegetation management programs. Strategic tree removal, for example, can mitigate power outages due to tree-related downed power lines. - Enhance communications systems to respond quickly to changes in storm severity from what was predicted. Better communication systems and protocol are needed to properly convey changes in urgency and actions both internally and to the public. - Improve guidelines and contracts for mutual aid to allow for more appropriate magnitude and timing of crew additions in the state.	1. The **Infrastructure, Safety, and Reliability (ISR) PUC Docket addresses vegetation management**, which has a $13.1 million budget for 2025 and incorporates a Rhode Island Vegetation Risk tool. Future pruning cycles are projected to fall within a 3-5 year window (*PUC*) 2. **Docket D-17-45 called for enhancements to the Utility's Emergency Operations Plan**, including preparedness & response enhancements (to include more effective categorization of anticipated outages and ongoing commitment to access the best data available in storm modeling) (*DPUC*) 3. Passage of **Utility Service Restoration Act in 2021** - requires DPUC to establish service restoration standards, requires energy utilities to create emergency response plans & reporting filed with DPUC, and created enhanced penalties for violations (*DPUC*) 4. With increases to winter electricity rates, **financial relief has been provided to low-income customers** on the scale of appx. $140 per household (offsetting nearly the entire rate increase) (*PUC*)

RESILIENT RHODY ACTIONS

ACTIONS	RESULTS
24. **Ensure fuel terminals have undertaken all appropriate hardening and resilience measures** to protect their facilities from future storms and have made provisions to restore operations after storms. This includes continuing strategic long-term planning for improving the resilience of marine terminals.	*Action on hold - to be reassessed as part of 2025 Statewide Coastal Resilience Plan*
25. **Develop a Petroleum Set-Aside Program**, as recommended by the Energy Assurance Plan, to ensure essential public needs are met during a severe fuel shortage. This program should specify best practices to ensure fuel delivery to priority end-users, such as hospitals, police and fire stations, water and sewage treatment plants, senior centers and nursing homes, shelters, correctional facilities, fueling stations, and grocery stores. This program should also define best practices and prioritize critical infrastructure assets.	1. **Developed the Future of Gas Docket**, which provides pathways to energy transition including staged electrification (hybrid heat pumps), alternative heat infrastructure (networked geothermal, hybrid heat pumps, all-electric) and partial continued use of gas (high efficiency gas and hybrid heat pumps) (*PUC*)
26. **Develop a Transportation Asset Management Plan for RIDOT assets** that integrates future climate risks into a comprehensive asset management approach for transportation assets to ensure adequate investment and a state of good repair.	1. **Developed the Transportation Asset Management Plan** in 2018, and completed Plan update 2022; next update scheduled for 2026 (*RIDOT*)
27. **Align the Transportation Improvement Program and Transportation Asset Management Plan** processes to ensure asset management and risked-based planning for infrastructure maintenance and new projects.	1. **Developed the Resilience Improvement Plan**, which covers resilience of state roads, bridges, sidewalks, shared-use paths, drainage pipes, and stormwater treatment units, considering sea level rise, storm surge, and flooding (2035, 2050, and 2100 scenarios) (*RIDOT*) 2. **Aligned the State Transportation Improvement Program with the Transportation Asset Management Plan**, and created mapping for to inform this process, incorporating coastal risk assessments and cost benefit analysis (*RIDOT*) 3. **Hired Environmental Planner** to provide resilience guidance and support on transportation initiatives (*RIDOT*) 4. **Conducted Municipal Workshops** to develop & refine the Resilience Improvement Plan (*RIDOT*)

ACTIONS	RESULTS
28. **Update the state land use plan**, Land Use 2025, to include climate change and resilience actions for transportation infrastructure and updated goals and priorities set by the Long-Range Transportation Plan.	1. **Revised State Land Use Plan in development**, with consideration of resilience elements. Currently in data gathering stage (*Div. Statewide Planning*)
29. **Ensure continuity of RIPTA operations following extreme weather events** through implementation of backup power generation at key facilities.	1. **Fourteen (14) New Flyer Xcelsior XE40 Battery-Electric Buses are in revenue service**, supporting the statewide transition away from diesel-based propulsion and towards a greener, more sustainable bus fleet (*RIPTA*) 2. **A backup generator is present at the in-line electric charging station** to ensure electric buses can charge in case of a grid failure (*RIPTA*) 3. **New bus stops are now primarily being installed with solar power** rather than connected to the grid (*RIPTA*)
30. **Develop a Transportation Asset Management Plan for RIPTA assets** that integrates a comprehensive asset management approach to ensure a state of good repair and investments that consider all future climate risks.	1. **Developed the RIPTA Transit Asset Management Plan**, which was accepted by the State Planning Council in March 2019; an **update of the Plan was signed by the Council in October 2022** (and will remain in effect through 2026) (*RIPTA*) a. Facility conditions are reviewed annually in accordance with this plan
31. **Ensure that data are consistent across agencies and municipalities.** This is critical to maximizing limited resources and capacity. Updating, coordinating, and standardizing foundational resilience data including GIS layers (e.g., STORMTOOLS, critical infrastructure, precipitation projections) and related metadata should be centralized. Hosting coordinated data will provide support for municipal/agency decision-making on infrastructure/ public facility investments.	1. **Funding for continuation of STORMTOOLS achieved** (*CRMC*) 2. **Inland STORMTOOLS has received FEMA funding for development**, and will be advanced through 2026 (*URI*)
32. **Develop a tracking system for implementation of identified actions** to measure progress and demonstrate alignment with EC4 climate resilience goals.	1. Delivered the **2021 Resilient Rhody Impact Report**, which highlighted progress on statewide climate resilience efforts and key resilience projects implemented (*RIIB & Resilience EC4 Subgroup*)

RESILIENT RHODY ACTIONS

ACTIONS	RESULTS
33. **Build relationships and learn from climate adaption efforts in neighboring states** to accelerate technical assistance to municipalities for local implementation. Rhode Island should look to the region for examples of how to model municipal and nonprofit partnerships that move from planning to prioritized project identification and funding.	1. Following Massachusetts' successful model, **launched the Municipal Resilience Program**, which provides Community Resilience Building workshops for the development of local resilience plans, as well as Action Grant funding for implementation of priority projects (*RIIB & TNC*) a. Launched in 2019 with 5 participating communities, RIIB seeded program with $2 million investment for Action Grants, and The Nature Conservancy provided matching contributions & facilitated the workshop process b. To date, 38 out of 39 municipalities have joined the Municipal Resilience Program, completing Community Resilience Building workshops; $24.4 million in resilience projects have been advanced through MRP Action Grant awards
34. **Continue monitoring and assessment of coastal wetland habitats and management practices** to evaluate and prioritize future actions. Statewide models, such as the Sea Level Affecting Marshes Model (SLAMM), should be updated to identify opportunities for restoration and assist in planning for future marsh migration. To minimize loss and preserve the benefits of coastal wetland habitats, conservation and management must be approached at multiple scales and timeframes.	1. Piloted the **Statewide Coastal Rapid Assessment Method (MarshRAM)** and applied this assessment to 50 salt marshes statewide (utilizing data from RI Natural History Survey, funding from RIDEM EPA Wetland Program Development Grant, and oversight from CRMC) draft report released in 2019 (*CRMC*); a follow up paper was released in 2022 (*URI*) 2. **Completed SLAMM (Sea Level Affecting Marsh Migration) Model** (*CRMC & URI*) 3. **Funded & advanced statewide coastal wetland resilience & land conservation projects** through state funding programs (ex. OSCAR) and federal applications (ex. Westerly - Sorenson) (*CRMC & RIDEM*) 4. **Marsh elevation enhancement projects** (ex. Ninigret Pond), continue to be monitored and assessed (*CRMC*)
35. **Identify opportunities for retreat and infrastructure removal on state-owned properties**, which can serve as demonstration sites for shoreline adaptation. State agencies and their partners should continue to work with municipalities to identify opportunities for retreat, removal of derelict infrastructure, and enhancement of natural shoreline areas. Where possible, retreat rather than fortification should be emphasized as a coastal adaptation strategy. Implemented restoration projects should continue to be monitored to evaluate the effectiveness of different restoration practices.	1. **Completed Shoreline Adaptation Inventory & Design (SAID) Pilot**, which identified 246 potential projects statewide and funded 9 projects for 60% design (*CRMC*) 2. **Developed the Designing for Resilience initiative**, which continued SAID and has offered an additional 5 projects design assistance (*RIIB & RIDEM*) 3. **CRMC & RIDEM have collaborated on pursuit of federal Land Acquisition funding**, which has been achieved for sites including the Sorenson property in Westerly (*CRMC & RIDEM*)

ACTIONS	RESULTS
36. **Preserve the dynamic nature of beaches and barriers** in future management of these critical natural systems. Differentiation between developed and undeveloped systems is necessary when considering management approaches. New development should be minimized in undeveloped beach and dune areas and retreat incentivized as a coastal adaptation strategy where possible.	1. Revisions to Section 1.3.1(G) of the RI Coastal Resources Management Program were written and issued in 2020, for **encouragement of the use of nonstructural and hybrid shoreline protection** (*CRMC*). Policy explicitly states that The Council prefers nonstructural shoreline protection methods over all other shoreline protection methods for controlling erosion such as stabilization with vegetation and beach nourishment due to their effectiveness in preserving beaches, natural shoreline habitats and sediment dynamics. Any shoreline protection other than a nonstructural system is prohibited along barriers. Standards and prohibitions updated to minimize negative effects from all shoreline protection systems across all coasts. Regulations update adopted at CRMC 2. Since 2019, **CRMC has processed 85 applications for non structural shoreline protection, 71 for beach nourishment/conservation/restoration activities, and 9 freshwater wetland restorations** (*CRMC*). CRMC conducts ongoing permitting of non-structural and hybrid coastal protections, with recent projects approved including: a. 2020-1-76/21-3-3 Town of Barrington, wetland restoration/public access/resiliency b. 2021-2-22 RISD marsh restoration/resiliency project c. 2021-11-51 Town of Barrington, stormwater treatment retrofits on Bowden Ave and Opechee Drive shoreline access rights of ways d. 2022-2-58 DEM, creek buffer planting along Annawamscutt Creek e. 2022-6-60 Town of Barrington, saltmarsh restoration and marsh migration corridor project (Save the Bay) f. 2020-02-053 DEM, beach access/SW g. 2022-7-52 Town of SK, access improvements h. 2022-8-12/22-8-13 DEM/EMPG wetland resiliency i. 2020-02-035 Town Narragansett, wetland restoration and invasives management j. 2020-9-75/20-9-76 Narragansett, public access improvements k. 2021-3-38 Narragansett, public access improvements l. 2022-6-40 DEM, Black Point Trail, trail maintenance and public access m. 2024-8-77 DEM, Galilee Bird Sanctuary, wetland resiliency project 3. **CRMC has addressed 637 number of coastal zone violations** since 2019 (*CRMC*)
37. **Develop initiatives for coastal resilience activities**, such as monitoring existing pilot projects, developing offshore sand sources suitable for beach replenishment, prioritizing beaches to be re-nourished, and creating beach and barrier migration pathways through property acquisition and relocation of structures.	1. **Completed Shoreline Adaptation Inventory & Design (SAID)** Pilot, which identified 246 potential projects statewide and funded 9 projects for 60% design (*CRMC*) 2. **Created Coastal Erosion FAQ** educational resource document (*CRMC*) 3. **Completed SLAMM (Sea Level Affecting Marsh Migration) Model**, which identifies priority parcels for coastal wetland migration corridors; completed workshops with municipalities to review (*CRMC & URI*)

RESILIENT RHODY ACTIONS

ACTIONS	RESULTS
38. **Encourage protection of significant portions of the remaining intact forest cover** in Rhode Island and conserve the landscape values of larger, unbroken tracts of land. This will require considerable collaboration with private landowners, who own about 72% of the forested land area in the state, as well as creative sustainable investment ideas.	1. Completed **"The Value of Rhode Island Forests - A Project of the Rhode Island Forest Conservation Advisory Committee and the Rhode Island Tree Council"** in August 2019 (*RIDEM & RI Tree Council*) 2. **Updated the State Forest Action Plan (2020)**, informed by an online survey to gather public interest on issues related to state forests (over 1200 responses received); the Plan proposes strategies to conserve working forest landscapes, protect forests from harm, and enhance public benefits from trees and forests, and includes a chapter on Climate Change as one of the top 5 priority issues facing RI forests (*RIDEM*) 3. In 2023, Rhode Island passed the state's first-ever **solar siting legislation** (H5853 & S0684) (*RI General Assembly*)
39. **Incentivize the creation of Forest Stewardship Plans** to help protect soil and water quality, fish and wildlife habitat, timber and other wood products, and outdoor recreation. Landowners with completed/updated Forest Stewardship Plans can take advantage of the Farm, Forest, and Open Space Act, which can provide significant reductions in property taxes.	1. **Development of revised Forestry Consultants list** in 2019 (*RIDEM*)
40. **Support municipalities in developing urban tree inventories and implementing urban forest master plans** with a goal toward mitigating increased urban heat.	1. **Completed the Urban Forests for Climate and Health initiative with American Forests**, which prioritized tree planting in urban areas to address urban heat issues (*RIDOH, RIIB, & American Forests*), and included a number of key components including: a. Rhode Island Tree Equity Score Analyzer mapping, b. Development of statewide Tree Canopy goal, c. Rhode Island Tree Equity Funding, Financing, and Policy Guide, and d. Tree planting conducted in Providence, Pawtucket, and Central Falls through the Green Schoolyards project 2. **IRA USDA Forestry Grant Awarded for Urban Forestry Master Planning & Tree Planting** in priority communities (*RIDEM & Green Infrastructure Center*)

ACTIONS	RESULTS
41. **Identify and assess inland riparian buffer conditions statewide** (e.g., using aerial photos and field reconnaissance). Identifying and mapping small headwater streams and their riparian buffers should be a high priority. These areas can be more effectively protected by state and local land use policies/regulations once they are identified. The assessment can also be used to develop priority areas for buffer restoration and protection.	1. **Released the Narrow River Watershed Plan in 2023**, including new provisions for wetlands/buffer protection (*RIDEM*) 2. **Released the Wood-Pawcatuck Watershed Protection Plan in 2022**, including new provisions for wetlands/buffer protection (*RIDEM*)
42. **Develop a comprehensive environmental monitoring strategy**, prioritize gaps, and continue to strengthen coordination of upland water resource monitoring activities. Monitoring programs should be aligned with regional data collection strategies relating to climate change, aquatic ecosystems, and water quality.	1. **Developed Water Monitoring Strategy** in 2019 (*RIDEM*)
43. **Prioritize protection of the local fuel supply along evacuation routes during climate-related disasters.** During Hurricane Irma (2017) in Florida, the large number of residents attempting to evacuate at the same time created a burden on the fuel supply and many evacuees were stranded without fuel, stalling their evacuation, and increasing calls for assistance from emergency services personnel.	1. **2015 US Army Corps of Engineers and FEMA evacuation routes made accessible** on RIEMA website (*RIEMA*)
44. **Inform residents of evacuation routes and shelter locations** in the event of severe weather necessitating an evacuation. Some evacuation routes within the state have been altered, changed, and revised since the last update.	1. **Red Cross Regional Shelters have been surveyed** (*RIEMA*) 2. **Completed Shelter Plan Update** (*RIEMA*) 3. **2015 US Army Corps of Engineers and FEMA evacuation routes made accessible** on RIEMA website (*RIEMA*)

RESILIENT RHODY ACTIONS

ACTIONS	RESULTS
45. **Conduct a statewide reassessment of evacuation routes and the associated signage.** Implementing a public outreach initiative to inform citizens about evacuation routes and shelter locations through homeowner associations, nonprofit organizations, and state and local governments will help citizens become more resilient to the impacts of a changing climate.	1. **Conducted statewide assessment of evacuation routes** and associated signage (*RIDEM*) 2. **Mapped existing evacuation signage based on RIDOT Model Inventory of Roadway Elements** in 2023 (*RIDOT & RIEMA*) 3. **Evaluated options for proposed evacuation signage** (*RIDEM & RIEMA*) 4. **2015 US Army Corps of Engineers and FEMA evacuation routes made accessible** on RIEMA website (*RIEMA*)
46. **Improve predictions of facility-level impacts of approaching storms.** Predictions days before a storm makes landfall will assist facilities in their preparedness efforts. By developing a more resilient facility, the cascading effects to other facilities and services can be eliminated, resulting in a more resilient community that is better able to provide services to its residents before, during, and after major storms.	1. **Emergency Support Functions established**, which organizes Rhode Island's disaster response resources across eighteen (18) key categories; each ESF is comprised of numerous public and private agencies/organizations that manage and coordinate specific categories of assistance common to all disaster or emergency events (*RIEMA*) 2. Most recently, updated **Emergency Support Functions to include three new categories**, including **Emergency Support Function 18 (Business & Industry)**, which coordinates the actions of local, state and federal agencies and organizations to provide immediate and short-term assistance for the needs of business, industry, and economic stabilization (*RIEMA*) 3. **Hold quarterly trainings** regarding the Emergency Support Functions (*RIEMA*)
47. **Complete in-depth vulnerability assessments and three-dimensional visualizations of storm impacts for Rhode Island's critical facilities** under any storm conditions, including unprecedented events, like Hurricane Harvey or Irma (2017).	1. **Conducted RICHAMP Modeling studies in the City of Providence** to assess storm impacts to critical facilities (*URI*) 2. **Received funding to develop Inland STORMTOOLS** mapping (*URI & CRMC*) 3. **Developed flood visualization pilot for Portsmouth** (*RISD, URI, & CRMC*) 4. **Coastal Environmental Risk Index (CERI), a project within the STORMTOOLS mapping suite, was launched** in 2019. CERI classifies buildings by their maximum structural risk potential, ranging from moderate to extreme, based on storm surge and wave models, shoreline change maps, damage functions, and the state emergency database (E-911) (*URI*)

ACTIONS	RESULTS
48. **Develop more realistic storm preparedness training for facility managers and emergency managers.** Traditionally, FEMA storm training simulations make trainees respond to impacts without considering when the impact would be triggered by a storm. Determining the exact storm force that causes an impact will allow training simulations to input impacts in the same chronological order as a real storm.	1. Continue to hold **National Weather Service trainings** for Emergency Management Directors (*RIEMA*) 2. Continue to hold **annual State Emergency Operations Center trainings** (*RIEMA*) 3. Continue to hold **annual Hurrevac trainings** (*RIEMA*) 4. **Quarterly WebEOC trainings** are held for Emergency Management Directors and Emergency Support Functions (*RIEMA*) 5. **Two Hurricane Preparedness webinars** were held for Governor's cabinet members (*RIEMA*)
49. **Incorporate emergency service providers as essential stakeholders in municipal and statewide resilience planning efforts.** This will ensure the challenges facing emergency services during disaster events are addressed in preparedness and recovery plans.	1. **Developed Recovery Support Functions with local municipalities in 2021**, allowing for direct coordination with local service providers in emergency scenarios (*RIEMA*)
50. **Develop preparedness and resilience guidelines and best practices for emergency services.** Such guidelines may include preparedness and resilience trainings and exercises, self-assessments of emergency response departments, and suggested changes to develop stronger, more resilient response capacity during natural or man-made disasters.	1. **Held six (6) Recovery Town Halls**, reaching 18 communities (*RIEMA*)
51. **Create standard impacts and response procedures for critical facilities and services.** For example, fire, ambulance, and police department personnel cannot respond to emergencies when winds exceed 60 mph. Identify and establish best response and preparedness practices for critical facilities and emergency services.	*Action on hold - currently assessed on the local level and to be reassessed as part of 2025 Statewide Coastal Resilience Plan*

ACTIONS	RESULTS
52. **Provide state support to municipal emergency services to incentivize disaster preparedness and resilience building activities**, such as hosting trainings on ensuring continuity in the operations planning of emergency response, providing grants to departments for the development of resilience strategies, and officially recognizing departments that are proactively engaging in disaster and resilience planning.	1. Staffed a state **National Flood Insurance Plan coordinator & Community Rating System program coordinator** (*RIEMA*) 2. **State Hazard Mitigation Officer provides annual roll out of FEMA grant resources**, including the Building Resilient Infrastructure & Communities, Flood Mitigation Assistance, and Hazard Mitigation Grant Programs (*RIEMA*) 3. **Pre-Disaster Mitigation (PDM) grant roll out has been expanded to include state agencies** (*RIEMA*) 4. **Trainings developed to assist sub-applicants to FEMA grants** (*RIEMA*) 5. **Continue to implement Continuity of Operations Plans (COOPs)** for all mission essential state agencies (*RIEMA*)
53. **Develop technical assistance and statewide support for bottom-up, community-led groups** to carry out planning and action to make their communities more climate resilient.	1. **Development of a pilot Green and Complete Streets Ordinance** in City of Pawtucket in 2021 (*City of Pawtucket & RIDOH*) 2. **Developed the Green and Complete Streets Advisory Council** in City of Providence July 2021 (*City of Providence & RIDOH*) 3. **Developed the Olneyville Resilience Hub** in City of Providence (*City of Providence & RIDOH*) 4. **Developed the Newport Equitable Economic Development Strategy**, which considered key resilience projects such as the bridge re-alignment (*City of Newport & RIDOH*) 5. **Completed Community Assessments for Climate Change Resilience & Implementation** projects in collaboration with Newport, Olneyville, and Pawtucket / Central Falls Health Equity Zones (*RIDOH & EOHHS*) a. Projects addressed emergency preparedness, flooding, food security, and healthy homes b. Projects were completed and results were shared in the form of videos, photos, and reports with the broader community and other Health Equity Zones 6. Created a resilience community of practice, the **RI Climate Resilience Learning Network**, which was launched in March 2024 (*URI & RIDEM*) 7. **Developed a set of resource guides** to help interested HEZ to pursue climate resilience projects (*RIDOH & EOHHS*)

ACTIONS	RESULTS
54. **Increase outreach to current and prospective homeowners and renters about property-related climate risks and how to reduce them.** This could include incorporating climate resilience opportunities into existing social services outreach programs, strengthening real estate disclosure requirements to incorporate additional information related to climate risks, and increasing outreach through homebuyer education programs, which are mandatory for Rhode Island housing loans.	1. **Implemented the Small Business Resiliency Project** (*Division of Statewide Planning*), which included vulnerability assessments of over 100 small businesses (completed summer 2019), as well as new Risk Reduction Guides for small business across eight sectors: *1. Restaurant/ Food 2. Retail 3. Lodging & Accommodations 4. Water-Dependent 5. Manufacturing 6. Service Provider 7. Construction 8. Real Estate / Property Management* 2. **Creation of the Coastal Hazard Analysis tool**, which utilizes STORMTOOLS data to provide guidance on development & properties in coastal areas experiencing sea level rise, storm surge, and erosion risk (*CRMC*) 3. **$120 million housing bond passed in 2024, inclusive of funding for municipal planning** (*Governor's Office*)
55. **Support existing proposals to make infrastructure upgrades to school buildings** and recommend that resilience improvements be encouraged in projects that would be funded by the proposed $250 million bond proposed in Governor Raimondo's budget.	1. **$250 million school bond was passed in 2018** (*Governor's Office*) 2. **Additional $250 million school bond was passed in 2022** (*Governor's Office*) 3. **$160 million higher education bond passed in 2024** (*Governor's Office*)
56. **Recommend that RIDE identify opportunities to integrate climate resilience into the school construction process**, including actions to address storm and flooding vulnerabilities. The state should also identify school buildings located in flood zones and offer guidance on ways to increase resilience as part of local and state planning efforts.	1. The Efficient Buildings Fund provides funding for school construction projects with climate resilience benefit (*RIIB*) 2. **$877,000 Supporting America's School Infrastructure Grant Program grant awarded for Healthy Environments for Advanced Learning project** in 2023. Focusing on 5 high-need, urban districts, the project will support the development of modern, resilient school facilities across the state. Comprehensive plans & designs for upgrading school infrastructure, focusing on health, safety, and sustainability will be created (*RIDE*)
57. **Expand K-12 education on environmental literacy**, including climate-related emergency preparedness, by developing resources for school use and identifying how these concepts can be incorporated into existing state standards.	1. **Delivered & presented workshop on local environmental data & resources to Rhode Island Science Teachers Association**, which remains available as a professional development resource for educators (*RIDOH*) 3. **Created an Energy, Climate Change, and Environmental Justice curriculum with National Energy Education Development**, and made available to Rhode Island Teachers (*OER, RIEEA, & RIDOH*)

RESILIENT RHODY ACTIONS

ACTIONS	RESULTS
58. **Expand the Rhode Island Low Income Home Assistance Program (LIHEAP)** to include cooling assistance for eligible low-income residents (e.g., air conditioning units, help with summer utility bills, emergency assistance to avoid shut-offs) and incentivize retrofits and weatherization for home and business property owners.	1. **LIHEAP Summer Cooling Grants** were implemented in 2021 (*RIDOH*) 2. **Launched Rhode Island Cool it Off Program** in 2020. Working with the RIDOH Asthma program, the Alliance for Healthy Homes and OneTouch provided air conditioners to medically vulnerable people in public housing (*RIDOH, Alliance for Healthy Homes, & OneTouch*)
59. **Encourage all governmental entities involved in disaster recovery to draft appropriate restoration tools.**	*Action on hold - to be reassessed as part of 2025 Statewide Coastal Resilience Plan*
60. **Support the passage and implementation of the 2018 Green Economy and Clean Water Bond.** The Bond includes $20.5 million for climate resilience focused investments throughout the state and aligns with priority actions identified in this Strategy.	1. **2018 Green Economy Bond passed with 79% approval rate and secured over $15M** in funding for climate resilience, habitat restoration, and flood mitigation projects to boost climate preparedness and community well-being. (*Governor's Office*) 2. **2021 Beach, Clean Water, & Green Economy Bond passed with 78% approval rate and secured $74M** in funding for climate resilience, stormwater and flood management, water quality, coastal habitat restoration, and infrastructure improvement projects. (*Governor's Office*) 3. **2022 Green Bond passed with 67% approval rate and secured over $50M** in funding for open space, outdoor recreation, land revitalization, green energy, climate resilience, forest, habitat, wildlife conservation, water quality, and new facilities at Roger Williams Park and Zoo (*Governor's Office*) 4. **2024 Green Economy Bond passed with 67% approval rate and secured over $53M** that will improve waterways, farm and land conservation, outdoor recreation facilities, and climate resilience projects. Over $12M in would support municipal resilience projects. (*Governor's Office*)
61. **Develop, publish, and maintain a comprehensive list of climate resilience funding opportunities** to increase awareness of federal, state, and local sources.	1. Resilience funding source information provided directly to cities and towns through **Municipal Resilience Program Annual Resilience Updates** (*RIDEM, TNC, & RIIB*) 2. **Master list of ongoing resilience funding opportunities drafted**; funding sources to be highlighted on climatechange.ri.gov early 2025 (*RIIB & RIDEM*)

What's Next?

The *Resilient Rhody 2024 State of Resilience Report* provides a snapshot of our state's current climate resilience initiatives and progress to date. This information provides a strong foundation for agency staff, statewide nonprofit and university partners, private sector entities, government leaders, and community members to not only fully utilize resilience resources available, but also to evaluate statewide gaps and needed next steps.

Following the 2024 Resilience Report, RIDEM, RIIB, and statewide stakeholders will be launching development of the *Resilient Rhody 2025 Statewide Coastal Resilience Plan*. This plan, required under Chapter 46-23.4 of "Act on Coasts," must provide a comprehensive assessment of the climate risks covering each of Rhode Island's five counties, addressing risk & vulnerability to sea level rise, riverine flooding, and urban heat, with particular focus given to our coastal and riverine communities experiencing sea level rise hazards.

The 2025 Resilience Plan, led by Rhode Island's Chief Resilience Officer, will be developed with insight and guidance from the Resilience EC4 Subgroup, the Rhode Island Resilience Partner Group, as well as municipal and community stakeholders. Building upon the 2024 Resilience Report, the 2025 Resilience Plan scope will provide revised & updated statewide resilience goals, a statewide assessment of asset vulnerability, project scoping and cost estimates for top priority projects, and investment analysis, incorporating community engagement components and funding support for top identified resilience gaps.

Image Credit: NBNERR

2025 Statewide Coastal Resilience Plan

The *Resilient Rhody 2025 Statewide Coastal Resilience Plan* aims to build upon the *Resilient Rhody 2024 State of Resilience Report*, delving further into the following key focus areas:

- **Gap Analysis & State Resilience Goal Development**: The 2025 Resilience Plan will analyze the findings of the 2024 Resilience Report, outlining statewide resilience strengths, weaknesses, and gaps. Addressing state agency capacity, and coordinating original *Resilient Rhody* 2018 goals with those of the 2024 State Hazard Mitigation Plan, the 2025 Plan will propose updates to statewide resilience goals.
- **Statewide Climate Vulnerability Assessment:** The 2025 Resilience Plan encompasses an assessment of vulnerability across Rhode Island's infrastructural, economic, environmental, and societal assets, considering short, medium, and long term timelines for each asset type. Publicly owned sites (state & local), and privately owned sites that present public infrastructure risk, will be considered.
- **RI Climate Resilience Priority Actions:** Following review of national & regional resources and best practices for climate resilience, the 2025 Resilience Plan will incorporate prioritization of state resilience actions, including cost estimates for a subset of these actions.
- **Community Engagement:** Development of the 2025 Resilience Plan will incorporate statewide community engagement for municipal and community stakeholders at the decision-making stages of the planning process.
- **Current and Future Investment Analysis and Strategy:** The 2025 Resilience Plan will provide an overview of Rhode Island's public climate resilience investment to date, as well as recommendations for decision-making approaches for prioritization of resilience actions and a summary of proposed funding & financing resources and strategies that can support these actions.
- **Addressing Resilience Data Gaps:** In coordination with the 2025 Resilience Plan, further development of select data needs identified through the Plan's gap analysis will be supported.

Want to Get Involved?

To stay up to date on the **Resilience EC4 Subgroup**, join us for updates at meetings of the Executive Climate Change Coordinating Council (EC4), EC4 Advisory Board, and EC4 Science and Technical Advisory Board (EC4 STAB). Subscribe to the EC4's email list here to stay informed on upcoming meeting dates, times, and locations.

If you or your organization would like to join the **Rhode Island Resilience Partner Group**, reach out to Rhode Island's Chief Resilience Officer directly at kimberly.korioth@dem.ri.gov to be added to the email list and upcoming meetings. Similarly, if you would like to be connected with your municipality's **Municipal Resilience Program Core Team**, reach out to the CRO at kimberly.korioth@dem.ri.gov or your local Regional Resilience Coordinator.

To learn more about climate change and resilience in Rhode Island, visit the state's climate change website at **climatechange.ri.gov**.

As the *Resilient Rhody 2025 Statewide Coastal Resilience Plan* development process launches, **further opportunities to become involved** will become available. Please keep an eye out for these upcoming engagement opportunities - we hope you consider joining us!

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Learn, engage, and discuss at
climatechange.ri.gov