



RESILIENT RHODY

AN ACTIONABLE VISION FOR ADDRESSING THE
IMPACTS OF CLIMATE CHANGE IN RHODE ISLAND

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Rhode Island: the fun-sized state

- With over 400 miles of coastline and more than 100 beaches, Rhode Island's shores and coastal waters are central to the state's cultural, environmental, and economic interests.
- Narragansett Bay is an estuary of "national significance" and a focus of water quality restoration and climate change resilience projects.
- Tourism is one of Rhode Island's most important economic sectors and the state is increasingly a foodie destination.



Westerly inundated with
flood waters in 2010

RHODE ISLAND MANIFESTATIONS OF CLIMATE CHANGE

- 1 Sea Level Rise
- 2 Warming Air Temperatures
- 3 Warming Water Temperatures
- 4 Storm Frequency And Intensity
- 5 Changing Biodiversity
- 6 Precipitation and Inland Flooding

Resilient Rhody what's at risk



- 100% of **state drinking water supply** – 85% surface water



- 337 miles of **state and municipal roadway** are vulnerable to flooding in a 100 yr. storm surge event



- The state's 360,000 acres of **forest land** are being impacted by drought and invasive pests



- **Providence County has the worst air quality** in the Boston-Worcester-Providence metro area and received an F for high ozone days (American Lung Foundation)



In September 2017, Governor Gina M. Raimondo signed an Executive Order appointing a Chief Resilience Officer to drive climate resilience efforts across the state with the mission to develop a statewide action strategy by July 2018.



Resilient Rhody

Strategy Goals

- Catalyze the planning and vulnerability studies already developed and move towards implementation
- Identify and prioritize resiliency actions the State can control to demonstrate progress and implementation
- Prioritize actions that promote cross-agency collaboration and support municipalities in resilience planning and project implementation

Timeline of natural disasters and select state agency reports and tools



Resilient Rhody framework



Making the Case for
Climate Resilience



RESILIENCE THEME:
Natural Systems



RESILIENCE THEME:
Community Health
and Resilience



RESILIENCE THEME:
Emergency Preparedness



RESILIENCE THEME:
Critical Infrastructure
and Utilities



Financing Climate
Resilience Projects



RESILIENCE THEME:

Financing Climate Resilience Projects

Groundbreaking of the Warren Wastewater Treatment Facility

- Communities across Rhode Island face an urgent need to build climate resilient infrastructure that will survive extreme weather events.
- There are several existing loan, bond, and grant programs for addressing climate resilience, and many new financing mechanisms currently under development by state and local agencies based on successful programs around the country.

Existing climate financing mechanisms

CRITICAL INFRASTRUCTURE AND UTILITIES

FINANCE TOOL	WATER	POWER	TRANSPORTATION
CLEAN WATER STATE REVOLVING FUND	X	X	
DRINKING WATER STATE REVOLVING FUND	X	X	
USDA RURAL DEVELOPMENT LOAN PROGRAM	X	X	
BONDS	X	X	X
RIIB STORMWATER ACCELATOR	X		
EFFICIENT BUILDINGS FUND		X	
WATER INFRASTRUCTURE FINANCE AND INNOVATION FUND	X		
ELECTRIC/GAS RATEPAYER FUNDS		X	
ENERGY SAVINGS PERFORMANCE CONTRACTS		X	
POWER PURCHASE AGREEMENTS		X	
PROPERTY ASSESSED CLEAN ENERGY	X	X	
MUNICIPAL ROAD AND BRIDGE REVOLVING FUND			X
TAX INCREMENT FINANCING	X	X	X

NATURAL SYSTEMS

FINANCE TOOL	COASTAL	INLAND
MITIGATION BANKING	X	X
LAND TRUST	X	X
CLEAN WATER STATE REVOLVING FUND	X	X
DRINKING WATER STATE REVOLVING FUND		X
BONDS	X	X

EMERGENCY PREPAREDNESS

FINANCE TOOL	COASTAL	INLAND
EFFICIENT BUILDINGS FUND	X	X
PROPERTY ASSESSED CLEAN ENERGY	X	X
MUNICIPAL ROAD AND BRIDGE REVOLVING FUND	X	
BONDS	X	X

COMMUNITY RESILIENCE

FINANCE TOOL	COASTAL	INLAND
EFFICIENT BUILDINGS FUND	X	
PROPERTY ASSESSED CLEAN ENERGY	X	X
BONDS	X	X
TAX CREDITS		X
FHA MORTGAGES		X

- In 2017, DEM released the study **Implications of Climate Change for RI Wastewater Collection and Treatment Infrastructure.**
- Communities documented concerns which helped decision-makers appreciate the need for resilience upgrades.
- Small-and-large-scale improvements have been enacted at wastewater treatment facilities in Westerly, Narragansett, Smithfield, Warren, and Warwick.



Critical Infrastructure & Utilities Recommended Action: Accelerate treatment system and pumping station hardening projects identified in Implications of Climate Change for RI Wastewater Collection & Treatment Infrastructure.

Above: Operators at West Warwick Regional Wastewater Treatment Facility use a boat to assess plant damage after historic flooding in 2010.

Far Above left: The Warwick Wastewater Treatment Facility with an inundated pumping station in 2010. Far Above Right: A newly elevated station in 2013.

2018

\$47.3 MILLION

green
economy and
clean
water bond

This bond invests in water quality, land cleanup, farmland, recreational facilities, and open space to ensure Rhode Island remains a wonderful place to live, visit, and raise a family.

Rhode Island's **vibrant green economy** accounts for more than **15,000 jobs** and adds **\$2.5 billion** to the economy each year.
- 2016 URI study



Rhode Island Infrastructure Bank

Groundbreaking of the Warren Wastewater Treatment Facility



- Centralized hub of local infrastructure investment in Rhode Island
- Our mission is to support and finance investments in the State's infrastructure. Through its activities the Bank fosters infrastructure improvements that enhance the environment, create jobs, and promote economic development.



RHODE ISLAND
INFRASTRUCTURE BANK

RI Infrastructure Bank The First 25 Years

Clean Water
State
Revolving Fund

Drinking Water
State
Revolving Fund



RHODE ISLAND
INFRASTRUCTURE BANK

RI Infrastructure Bank 2015 Expansion

Clean Water State
Revolving Fund

Drinking Water State
Revolving Fund

Community Septic
System Loan Program &
Sewer Tie-In Loan Fund

Municipal Road & Bridge
Revolving Fund

Efficient Buildings Fund

Commercial/Residential
Property Assessed Clean
Energy

Brownfields Revolving
Loan Fund

Water Quality Protection
Fund



RHODE ISLAND
INFRASTRUCTURE BANK

Infrastructure Bank Impact since 2015



\$370 MM in new lending, 66% leveraging private capital sources



Supported almost 9,000 direct and indirect jobs



Our lending saved communities \$66 MM in energy savings and \$60 MM in interest savings (from loans and refinancing's)



Greenhouse gas emission reduction equivalent to 131 MM miles driven by the average passenger car



C-PACE program saving fourteen small businesses \$8.8 MM in energy costs



Fully deployed new loan management software, automating our reporting



Received awards from EPA for funding a clean water project at TF Green Airport and from GFOA for excellence in financial reporting and transparency



Proactive customer & stakeholder engagement strategy touched over 650 organizations and people



RHODE ISLAND
INFRASTRUCTURE BANK

Resilient Rhody Initiatives Underway



Resilient Rhody Municipal Resilience Program

- Developed in partnership between Rhode Island Infrastructure Bank and The Nature Conservancy
- The MRP is **open to all 39 municipalities** in Rhode Island
- The MRP will provide technical assistance to **three selected municipalities** to complete the “Community Resilience Building” process developed by TNC
- Municipalities will identify priority climate resilience projects
- Dedicated implementation funding will be available after successfully completing the “Community Resilience Building” process

Resilient Rhody Stormwater Accelerator

- Financing to accelerate implementation of stormwater initiatives through low-cost upfront capital
- Backed by a funding source that will eventually reimburse the project
- First projects in the Woonasquatucket River Watershed are about to close with implementation complete by fall 2019
- Pipeline of ~\$3M in projects over next 9 months
- Evaluating opportunity for deploying new and innovative financing for project implementation

www.climatechange.ri.gov

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