

RESILIENT NORTHEASTERN NEW JERSEY

CLIMATE HAZARD RESILIENCE TOOLBOX

CLIMATE HAZARD RESILIENCE TOOLBOX

There are many possible solutions that can be implemented to address climate-related hazards considered by Resilient NENJ (see the Climate Hazards Assessment for more information on these hazards).

Resilient NENJ developed this climate hazard-related toolbox that describes solutions included in the five categories in the Resilient NENJ Action Plan: physical and nature-based solutions; policy and governance solutions; outreach, education, and capacity building; service and program development or enhancement; and emergency preparedness and response.

The toolbox is not intended to be inclusive of all possible solutions; it helps communicate the types and range of solutions possible. The related Flood Resilience Toolbox is included in Appendix C of Resilient NENJ's Vision and Priorities report and is available as a stand-alone document on the Resilient NENJ website.

The toolbox helped the team identify solutions used in the development of the scenarios outlined in Resilient NENJ's Scenario Development Report and for advancement into the Action Plan. The toolbox summarizes key information about each solution including:

- A description of the tool
- · Existing example applications of the tool
- Types of hazards the tool addresses
- · Scale of the intervention (individual site, multiple sites, etc.)
- Possible co-benefits (benefits other than reduced flooding)



Legend

	Co-Benefits			
treme Heat	\bigcirc	\bigcirc	\bigcirc	\bigcirc
r Quality	EDUCATIONAL	ECONOMIC	RECREATIONAL	ECOLOGICAL
rought & Water Supply				
ildfire Risk	Scale of Implementation			
oundwater Rise & Quality	Q	A	1	
evere Weather	Site-Specific	Neight	oorhood	Municipality
cean Acidification		Region	State	

Vector-Borne Illness



Action – Develop and Distribute Accessible Information & Educational Materials

Tools

Multilingual outreach and education campaign designed to reach as many communities as possible (especially environmental justice communities) focused on public health risks and mitigation options associated with:



Groundwater Rise & Quality



L

Severe Weather

Ť Lyme Disease Protection



Ocean Acidification



West Nile Virus Protection





3

Start a drought response outreach program with detailed guidelines (e.g., California Drought Response Outreach Program for Schools (DROPS))

- The NJ Water Savers program supports comprehensive public education about water conservation, efficient landscaping and irrigation practices, home water audits and indoor water saving techniques, and appropriate school curricula materials
- The New Jersey Watershed Ambassadors Program is a community-oriented AmeriCorps program that raises awareness on water-related issues

OUTREACH, EDUCATION. AND CAPACITY BUILDING

Action – Invest in Community Engagement to Understand Local Needs

Tools



Implement a public health hotline system for extreme heat to alert public health officials of high-risk or distressed individuals, tied to public programs to assist with residential heat mitigation



Invest in comprehensive community engagement to understand where long-term and "invisible" health effects of pollution are already taking effect. Based on this, identify high-priority areas for immediate intervention









Host the National Weather Service SKYWARN Storm Spotter training

Region

Work with teachers to help educate children on the risks of severe weather



Determine areas high in Lyme contraction and convert them into "tickscapes," areas less livable for tick communities, while accounting for potential negative ecological, stormwater, or urban heat island side effects. Some options to explore include keeping areas mowed and trimmed at edges, repairing stone walls and sealing cracks, keeping firewood piles away from frequently traveled areas, and using mulch or stone to create borders

Scale of Implementation



Neighborhood



Municipality









Co-Benefits

Conduct community engagement to increase awareness of localized social and economic impacts of:





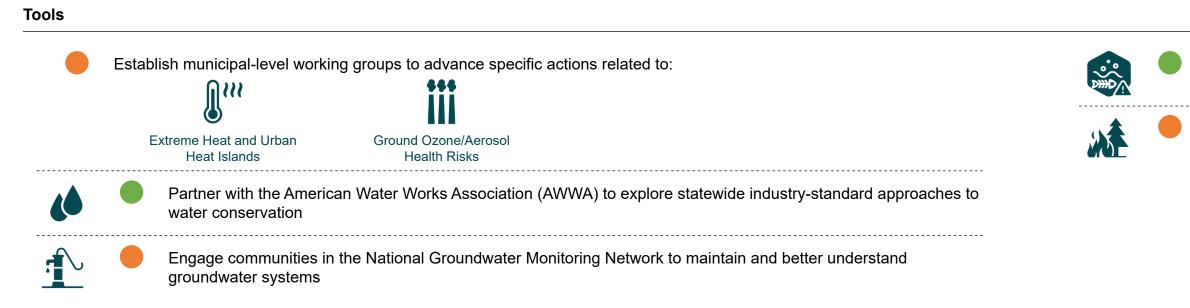
Changes to Water Supply Levels and Projected Future Demand

Examples of Ongoing Efforts

The NJDEP Office of Environmental Justice runs the Community Collaborative Initiative (CCI), a place-based partnership that works closely with local communities on a variety of environmental issues.

OUTREACH, EDUCATION. BUILDING

Action – Build Partnerships & Establish **Working Groups for Collective Action**





Build partnerships with the research and academic community to support statewide ocean acidification initiatives

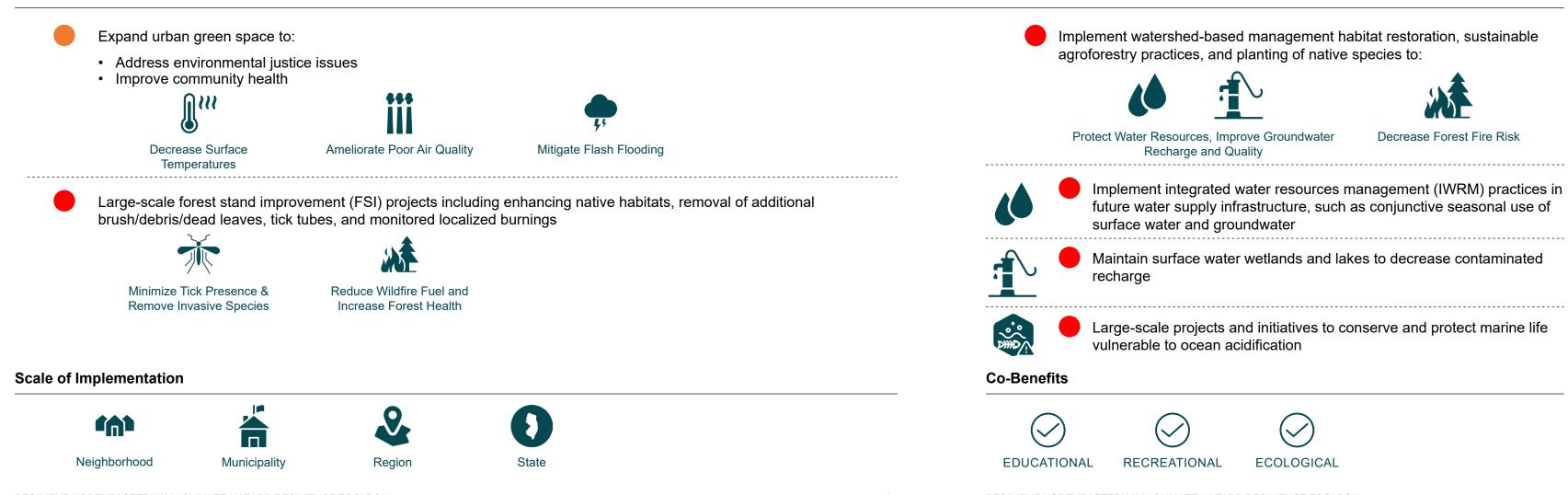
Coordinate training within communities to create a local careerpipeline for foresters and fire management workers

- New Jersey Sea Grant and NOAA Ocean Acidification Program (OAP) partnership prioritizes and invests in regional ocean/coastal acidification research
- The Southward Environmental Alliance will host its 2nd Environmental Justice Summit where local community members and officials have panels and discuss various important environmental challenges



Tools

Action – Invest in Ecosystem-**Based Adaptation Projects to Address Multiple Climate Hazards**



Implement watershed-based management habitat restoration, sustainable agroforestry practices, and planting of native species to:





Decrease Forest Fire Risk

Implement integrated water resources management (IWRM) practices in future water supply infrastructure, such as conjunctive seasonal use of

Maintain surface water wetlands and lakes to decrease contaminated

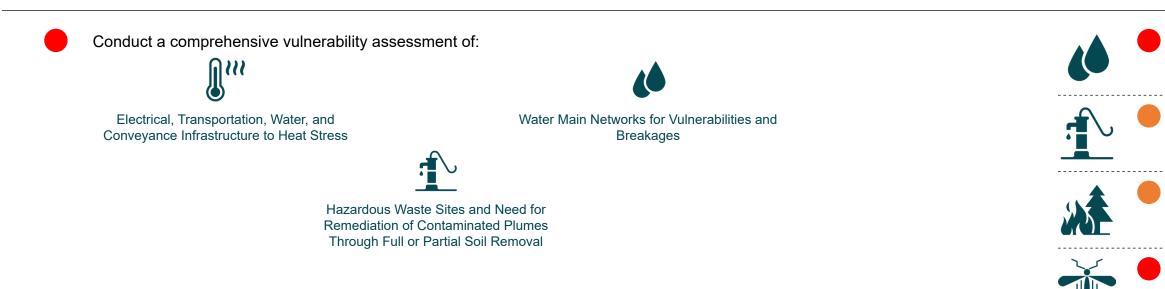
Large-scale projects and initiatives to conserve and protect marine life

- NJ National Resources Conservation Service (NRCS) offers financial and technical assistance to landowners for FSI projects
- NJDEP Green Acres Program conducts land acquisitions as well as loans/ grants to nonprofits for acquisition and conservation purposes
- Hudson County Urban Forestry Initiative
- Jersey City Tree Canopy Assessment – Urban Environmental Green Infrastructure Design Plan
- Hoboken Green Infrastructure Strategic Plan
- The City of Newark's Adopt a Catch Basin Program can help clear standing water that serve as mosquito breeding grounds



Action – Site-Specific Plans for Prioritized Aging Infrastructure and Hazardous Sites





Scale of Implementation





RESILIENT NORTHEASTERN NJ / CLIMATE HAZARD RESILIENCE TOOLBOX



Prioritize capital improvement projects to replace and/or renew deteriorating and inefficient pipelines and supply assets

Use best management and practices and monitor land in wellhead protection areas for expenditure of contaminants

Remove combustible material from sites during building processes and create "defensible spaces" around buildings

Increase open, lit spaces to discourage tick community growth

Examples of Ongoing Efforts

- NJDEP recently launched a Water Infrastructure Investment Plan (WIIP) to fund water-related capital improvement projects, including through NJ Water Bank-issued green bonds
- NJDEP's Capacity Development (CapDev) program is specifically designed to identify and address water systems with technical, managerial, or financial deficits
- NJDEP Office of Environmental Justice's Community Collaborative Initiative (CCI) works to remediate brownfield sites
- Hoboken Water Main Replacement Program
- Newark Lead service line replacement program
- Jersey City Lead Free JC Program
- Jersey City is undertaking a Climate Vulnerability Assessment for priority assets

ECOLOGICAL



Action – Enforce Existing Regulations and Pursue Higher Standards

Tools

Ensure all municipalities and the state are aspiring to or in line with federal and international higher standards, including:



- 2021 federal U.S. Department of Labor Occupational Safety and Health Administration (OSHA) standards, including inspection guidance for heat-related hazards, in line with the National Emphasis Program (NEP) on heat inspections (effective April 2022)
- 2021 International Energy Conservation Code (IECC) on energy efficiency and performance as well as spot-ventilation, isolation, and insulation of electrical and mechanical heat systems



- Federal EPA air quality standards
- World Health Organization (WHO) Global Air Quality Guidelines
- 2018 International Residential and Plumbing Codes water conservation and efficiency standards
- 2018 International Green Construction Code water conservation and efficiency standards







Co-Benefits



Scale of Implementation





Establish new regulations and ordinances

- Require new public or publicly-funded buildings and facilities (such as transportation terminals or bus stops) to include outdoor heat mitigation features such as canopy cover or photovoltaic (PV) shade canopies, water-based cooling stations, or cool pavements
- · Implement load restrictions for older roads, bridges, and rail to reduce traffic on vulnerable transportation infrastructure which might experience material stress
- Conservation subdivision ordinances to ensure water-efficient landscaping, e.g., requiring retainment of wooded areas or requiring a certain percentage of low water-use plants be used in design
- Adopt statewide regulatory amendments needed to require American Water Works Association (AWWA) water loss audits and meet other benchmarks
- Streamline SOPs and processes to obtain a Water Allocation Permit for Reclaimed Water for Beneficial Reuse (RWBR)
- Mandate routine water supply asset condition assessments
- Expand Groundwater Quality Standards to include a broader list of contaminants
- Stricter zoning laws to create overlay zones that protect any water within the 1-5or 10- year time of travel zones
- Require tougher fireproofing and fire safety regulations on homes, and restrict development in fire-prone areas to decrease areas referred to as "Wildland Urban Interfaces"

- 2021 NJ Stormwater Rule that requires municipalities to update their Stormwater Control Ordinances (SCOs) to require green infrastructure be included with new development. Model ordinances are provided
- State Emission Statement rule that establishes regulations for the annual reporting of air contaminant emissions from stationary sources to help with the monitoring of the state's progress toward the mandatory emissions reduction protocols
- NJ Air Quality State Implementation Plan (NJ) regulations
- New Jersey's existing statewide water quality standards, assessments, monitoring, and watershed-based plans and programs to reduce total maximum daily loads
- Enforce landlord regulations for provision of window and door screen protections to tenants (mosquito protection)
- Regulations on design of water conveyance and holding structures to minimize potential for mosquito habitats



Action – Enhance Regional Planning and Coordination

Tools



Scale of Implementation









Co-Benefits

ECONOMIC

Create a contaminant source inventory that details depth and watersolubility

Consider making New Jersey a reclamation state to allow state and regional coordination around federally-funded water supply management infrastructure projects

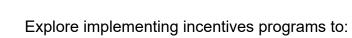
- 2017-2022 New Jersey Water Supply Plan
- 2015 New Jersey Energy Master Plan to improve resiliency of energy infrastructure





Action – Incentivize Private Actors to Implement Retrofits and Sustainable Practices







Install Noncombustible Screens Over Vents and Safe Storage Propane Tanks in Homes. Remove Combustible Materials from Sites



Encourage Structural Water Conservation Retrofits, Water Audits, Low-Flow Plumbing Retrofits and Efficient Appliances, and Limited Irrigable Acreage

N

Encourage Widespread Property Retrofits, New Construction, and Landscaping Features with Heat Mitigating Strategies Such as the NYC Green Roof Tax Abatement



Reduce Private Car Owner Vehicular Emissions

Explore Public-Private Partnerships to start or Expand Bike Share Programs

Scale of Implementation







Co-Benefits



Incentivize hazardous site remediation efforts that include elimination of stagnant water sources and/or maintenance/drainage of surface water to prevent mosquito growth

Explore cost-share programs and technical assistance programs to landowners to undertake forest and wildlife improvement practices

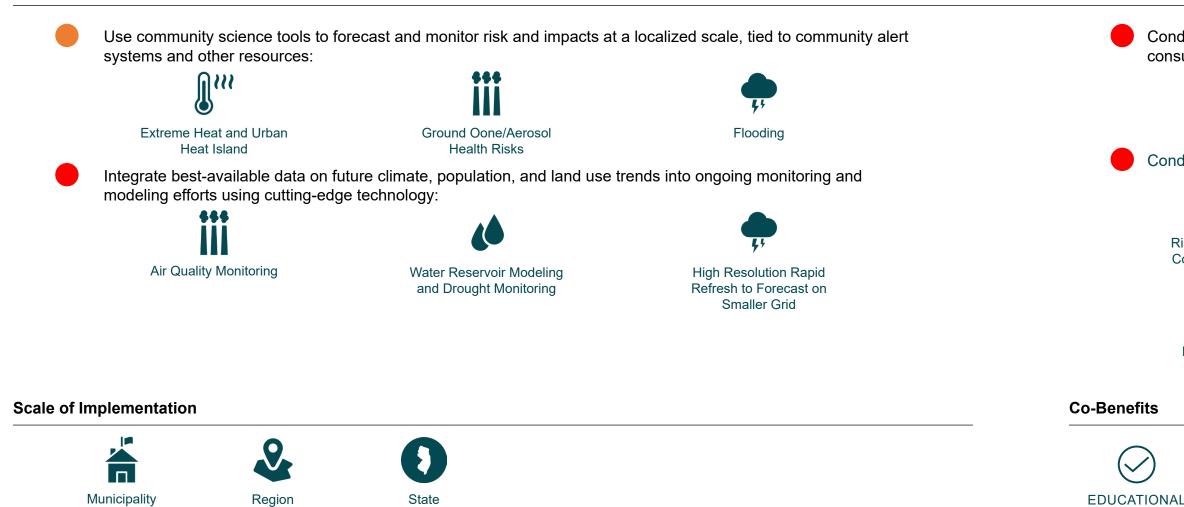
- NJ Water Savers: drinking water conservation pilot program with residents and industries throughout New Jersey
- NJDEP's Residential Rainwater Harvesting: Provides tools to community members to harvest rainwater for use.
- Rutgers Water Resources Program: State-wide grant program tackling New Jersey's water conservation challenges





Tools

Action – Undertake Robust Monitoring and Modeling Efforts Using **Industry-Standard Technology**



Conduct physical and financial audits to collect data on resource consumption:



Water Losses and Efficiency

Conduct additional modeling to address critical data gaps:



Rising Groundwater Levels and Contaminant Source/Trajectory



Future Risk Projections and Modelina



Predict Changes in Ocean Carbon Cycles, Ocean Acidification Monitoring



Municipal-Level West Nile Virus **Risk Modelina**

- NJDEP conducts surface water reservoir system modeling using RiverWare and similar software for the Hackensack/ Passaic River and Raritan River Basins
- NJDEP maintains extensive ambient and drought monitoring networks
- The Southward Environmental Alliance in Newark's Air Quality Monitoring Project identifies areas with high pollution levels to establish "Clean Air Zones"
- In 2021, Sustainable Jersey City mobilized 45 community members to collect temperature and air quality data points across Newark and Jersey City (and Elizabeth)



Action – Prioritize Equitable Investments in Public Programs to Reach/Assist **Under-Resourced Populations**

Tools

Initiate public programs to distribute critical risk-mitigating resources (alongside installation assistance), especially to environmental justice and other economically vulnerable communities:

⋒≀≀≀ () Air Conditioners, Clean Energy

Technologies and Transportation Subsidies



Water Quality Test Kits, Emergency At-Home Water Filtration Systems Soil Moisture/Rain Sensors and Smart Controllers for Irrigation Efficiency



Sprays, Window and Door Screen Protections, Tickscape Resources



Scale of Implementation

Neighborhood



State



21

Co-Benefits

Set up public health monitoring and screening programs that are accessible to everyone (including undocumented people) to help identify exposure to adverse health conditions in environmental justice communities:

Mobile Mammography and Other Cancer Screening with On-Site Medical Services. Assistance in Obtaining

Subsidized Health Insurance

\$\$\$



Localized Monitoring of Water Quality Conditions, Especially in High Hazardous Waste **Proximity Sites**

Examples of Ongoing Efforts

NJ Department of Community Affairs help administer the Low-Income Home Energy Assistance Program (LIHEAP), a federally funded program to help lowincome families and individuals meet home heating and cooling costs.



Action – Develop Hazard-Specific Emergency Response Plans Using National Best Practices



Develop and/or update municipal-scale response and/or contingency plans with clear actions to address specific extreme events, including:



Heatwaves



Water Supply Emergencies and Severe Food Shortages





Aquifer Contamination and/or Hazardous Plumes

Scale of Implementation







State





Co-Benefits

Review existing plans and procedures to ensure they align with national best practices:



Streamline Existing Drought and Water Supply Emergency Management Procedures



Ensure Redundancy In Early Warning and Public Communication Systems

Incorporate Integrated Mosquito Management for Post-Flood Response

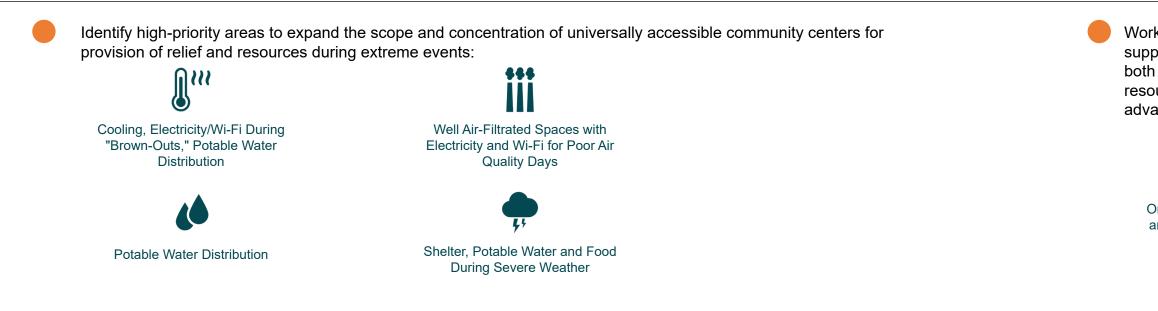
\$\$9

- New Jersey statewide regulations that require all water allocation permit holders to submit updated Water Conservation and Drought Management Plans (WCDMPs)
- NJDEP encourages all households to make an emergency plan in the event of any severe weather disaster and offers guidance to citizens to realize them
- NJDEP provides a worksheet and technical guidance for Wastewater Systems Emergency Response Plans



Action – Invest in Accessible Shelters, **Cooling Stations, and Resilience Hubs**

Tools





Work with local civic groups and mutual aid networks to encourage and support establishment of multi-purpose "resilience hubs" that can serve as both shelters/cooling stations while also providing additional community resources, capacity building, and space for civic organizing and advocacy to advance action

> **671 \$\$\$**

Support Education and Organizing Around Health Risks and Actions/Policies to Mitigate

Support Education Around Increasing Risks, Organize Cleanups of Stagnant Water Sources



Preparedness Capacity Building, Trained Community Disaster Response Network

- Most municipalities have started to implement cooling centers on extreme heat days in dense urban areas
- Newark submitted a BRIC application in 2021 to implement a resilience hub at Ann Street School in the Ironbound neighborhood