

Raynham, MA



Municipal Vulnerability Preparedness (MVP) and Community Resilience Building (CRB) Workshop Summary of Findings

June 2022

Submitted by:



Resilient
Taunton
Watershed
Network (RTWN)



SRPEDD
Southeastern Regional Planning
& Economic Development District

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Community Profile

Part of Bristol County in southeastern Massachusetts, the Town of Raynham is nestled between Taunton to the southwest and Bridgewater to the northeast. Raynham is less than an hour from Providence and Boston, making it a desirable location for anyone commuting from or around these metro areas. Interstate 495 and state Routes 44 and 138 are major connectors and economic corridors for the Town.

The state identified the need to restore commuter rail service from Boston to New Bedford through Raynham. In the meantime, Raynham begins to plan for the needs of its community. Raynham's current population is 15,142. As population grows, Raynham needs to proactively plan for housing and educational needs, while acknowledging that, like much of the region, the Town's population is aging while school and working-aged individuals make up less of the population year to year.

MVP Program Overview

To date, 335 of the Commonwealth's 351 municipalities (95%) have participated in the MVP Program. This has resulted in over \$65 million dollars to date in Planning Grants and Action Grants to help communities address high priority actions identified during the MVP planning process. Projects funded through Action Grants are wide ranging, including the following priority project categories:

- More detailed vulnerability and risk assessments;

- Community outreach and education projects;

- Local bylaw updates;

- Redesign and retrofits of infrastructure;

- Nature-based solutions for flood protection, drought mitigation, and water quality improvements;

- Nature-based infrastructure and technology solutions for extreme heat and poor air quality.

MVP Workshop

The Town of Raynham received funding through an MVP Planning Grant to compile data for and conduct a Community Resiliency Building (CRB) workshop. The goal of the CRB workshop was to have community stakeholders work collaboratively to complete a

climate change and natural hazard vulnerability assessment and develop prioritized actions to address vulnerabilities and improve strengths. Upon completion of the CRB workshop process, Raynham will become a state certified "MVP Community" and will be eligible to apply for MVP Action Grant funding from the Commonwealth.

An interdisciplinary team of Town staff ("Core Team") worked to implement the CRB process with consulting support from Southeastern Regional Planning and Economic Development District (SRPEDD) a certified MVP provider. The Town's MVP Core Team included the following:

Town of Raynham -- MVP Core Team
Graham Waters – Town Administrator
Erin Medeiros – Council on Aging
Tim McRae – Park and Recreation Director
Ed Buckley – Highway Superintendent
Bob Lafrate – Building Inspector
Barrett Johnson – Fire Department
Marsha Silvia – Town Clerk
Rob Carey – School Department

Workshop Preparation

The following tasks were performed to prepare for the MVP workshop:

- The Core Team and held a kickoff meeting on February 3, 2022 to plan for the workshop.
- SRPEDD conducted interviews with Core Team members to identify potential areas of concern, strengths, and vulnerabilities.
- SRPEDD contacted and conducted interviews with community partners and organizations who were suggested by Core Team members as playing an active role in the Town.
- SRPEDD prepared presentation materials and Town-wide maps to guide the workshop.
- The Core Team scheduled the workshop, invited stakeholders, and handled logistics.

Workshop Process

An MVP planning workshop was held in-person, at the Raynham Town Hall, on May 18th, 2022. The workshop participants are listed below.

NAME	AFFILIATION/ORGANIZATION
Rob Carey	School Department
Jessica Thomas	Treasurer/Collector
Graham Waters	Town Administrator
Jessica Garcia	Assistant Assessor
Jon Chase	Raynham Center Water District
Erin Medeiros	Council on Aging
Art Bendinelli	North Raynham Water District
Barrett Johnson	Fire Department
Alan Perry	Health Department
Tim McRae	Park and Recreation
Chris Laviolette	Finance/Accounting
Ed Buckley	Highway Department
Bob Iafrate	Building Department
Bill Napolitano	SRPEDD
Sara Brown	SRPEDD

The workshop began with brief introductions and descriptions of the roles and responsibilities of each of the participants and their organizations within the Town of Raynham. SRPEDD staff then provided a description of the MVP program and the format of the workshop to the participants, as well as what we hoped to achieve during the session. SRPEDD staff also provided an overview of climate change and the potential impacts of climate change on the community and the region; specific climate change projections for the town; a discussion of nature-based solutions, green infrastructure, and related practices, and; a summary of vulnerability/hazard concerns mentioned in other municipal planning documents and pre-workshop interviews

This report provides an overview of workshop findings, including a summary of the Town's top hazards related to climate change, current climate resiliency strengths and vulnerabilities, and potential actions to improve the community's resilience to natural and climate-related hazards. The summary of findings described in this report are compiled from feedback from the workshop participants.

Workshop participants chose to work as a single group, and the results of the input from workshop participants is documented, organized, and presented in the Risk Matrix found in Appendix B of this report.

Top Hazards and Vulnerable Areas

Summary of Top Hazards

Flood / Drought Cycle describes the threat to Raynham's roads, forests, and water management infrastructure posed by large precipitation events and more frequent, longer-lasting droughts. Residents have also noted an increase in tree fall that can be attributed to this volatility, as forest soils and tree root structures become damaged by this cycle of extreme conditions.

Vector Borne Disease refers to vectors that increase the risk of exposure to disease (e.g. ticks, mosquitos), and invasive species that threaten the ecological integrity of Raynham's abundant natural lands. Residents have noticed a dramatic increase in vector populations in recent years, leading to increased risks to public health.

Storms/High Winds are a primary concern because during strong storm events, flooding can cut off access to major thoroughfares, and trees frequently fall, further limiting road access for residents and emergency personnel. High wind also threatens existing power infrastructure.

Extreme Temperatures refers to an increasing number of days over 90 degrees as well as cold snaps during winter and in early spring. This hazard relates somewhat to flood-drought cycle changes with distinct impacts to limited public water availability during droughts, damage to native habitat from fire, and the strain on populations with limited access to seasonal heating/cooling locations during extreme cold and extreme heat.

Areas of Concern

Prior to the workshop, interviews were conducted with key stakeholders on the Core Team in order to develop a preliminary list of Raynham's primary climate resiliency vulnerabilities and strengths. Interviewees were primarily concerned with vulnerabilities relative to water and sewer infrastructure, vulnerabilities in the emergency communication system, potential culvert failures, and loss of floodplain/flood storage from ongoing development.

During the workshop discussions, the larger group present echoed many of the concerns brought up in the Core Team discussions, adding site specific information to the more general topics. The specific topics/issues were broken down into Infrastructural, Environmental, and Societal concerns, and are listed below.

Infrastructural concerns were broad and deeply interconnected. Generally, concerns related to stormwater, wastewater, and public water management, and access to utilities in storm events, and included the following:

Sewer and Water

1. The Orchard Street water main, which is on the long-term projects list, but way behind other projects. There is an 8" to 6" old AC pipe line under the highway. It is not in great condition, but it is a critical piece of the infrastructure that runs under Route 24.
2. The new water main on Britton Street, between King Phillip Street and Broadway, would like to switch the 6" pipe to a new 12" pipe. This would be part of a new infiltration system.
3. The largest municipal water treatment plant - PFAS in plant near the middle school and Lake Nip. Elevations are becoming high enough that they may soon need to notify the public.
4. Pleasant Street force main over Route 24; it is an older piece of the local infrastructure, maybe 30 years old, and potentially vulnerable due to its age. It serves a subdivision nearby.
5. Older manholes near the Mill and Taunton Rivers have hydrosulfate damage. Potential hazard for the rivers. There are about 3 of them in this category, and they are connected to a 27" sewer main.
6. The water tank by Route 44 is about 90 years old and maybe has another 10 years left, at most. They are working on some temporary repairs in the coming year. It also has a lot of communication tower equipment on it, including the Raynham emergency systems.
7. Dean Street sewer line in Taunton is part of the Town's service area. The town owns a portion of it, so for maintenance, Raynham will have to help fund any repairs or replacements.
8. The Wilbur and Broadway water storage tank capacity is limited to 1.7 million gallons and they could use another 2 million gallons up in that area. They would like to add an additional storage tank. The wells are on one side of Interstate 495 but the water storage tanks are on the other side.
9. Improvements to the current sewer easements - they have become unpassable. The department has been trying to improve them over the years.
10. At 57 Broadway, there is potential for wellfield expansion.

Emergency Response/Communication/Power

11. The town's emergency communication systems work well with no leaves on the trees and nothing in the way. When they have to go up Route 138 towards the Easton town line, they can lose service.
12. A new public safety building has been approved but construction has not started yet. It will be located on King Phillip Street.
13. Need generators for 6 sewer pumping stations (there are a total of 35 pumping stations in town).
14. Generator for 416 Titicut Road - Sewer Department

Dams and Bridges

15. Hewitt Pond Dam needs some repairs. The dam is located off of North Main Street on Rogers Way.
16. The Church Street Bridge is in need of maintenance and repair.
17. Gardner Street Bridge, which is town owned, and includes a dam (14 feet); it's a spillway similar to Morey's Bridge in Taunton.
18. The expansion joints on the Broadway Bridge over Interstate 495 need to be replaced. They can cause issues with two water lines that run under the bridge.
19. On South Street near Walmart, an there is old pipe, from 1955, with no sleeve, running under the Route 24 bridge.

Environmental concerns frequently related back to themes of either water quality or preservation of ecosystems/their services. For instance, Raynham's wetlands are important to mitigate riverine flooding, but are also particularly vulnerable to damage from storms. Top environmental concerns included:

1. 50-80 acres of wetland between the highways and Central Raynham; 418 Titicut Road, open, and has potential for water resource protection.
2. White Street land should be purchased for its natural resource value, recreational potential, and municipal water resource protection.
3. There is potential for a shared use/off road path around the Borden Colony on King Phillip Street.
4. There is a need to develop canoe and kayak access along the Taunton River. The town currently has no designated public access locations to put in a canoe or kayak.

5. Open land west of First Street could help preserve the water in that area.

Societal concerns highlighted in the workshops included:

1. Creating a dog park-some money is already approved for one but they still need to find a location
2. The town is currently working on a location to shelter pets in town in case of emergency (up to a dozen spots)
3. The CEMP is a strength for its consideration of the vulnerable population and certain areas in town to get them set up in shelters
4. The Council on Aging is lacking transportation. They have Dial-a-Ride, but that doesn't seem to help that much.
5. Emergency dispensing sites-sheltering in a queue, generators.
6. The Tree Warden has contracting agreements with tree cutting services, and they go around the town cutting the trees away from the powerlines.
7. Expanding outreach, and maybe bringing on an MD if they wanted to have a free clinic in town.
8. Address ADA compliance when/where needed for Recreation facilities.
9. PFAS issues with drinking water-find out the source causing it and help fix the issue; also, alert people about the issue
10. Develop a Debris Management Plan.

Current Strengths and Assets

Workshop attendees considered the Raynham Community Emergency Management Plan, or CEMP, as a strength for its consideration of the vulnerable population in certain areas in town and the coordination necessary in order to get them set up in shelters. The CEMP defines the scope of preparedness and emergency management activities in the community, and facilitates all hazard preparedness, mitigation, response, and short-term recovery activities, thereby setting the stage for a successful long-term recovery. The CEMP also describes the community's emergency management organization, including the roles, responsibilities, and operations of the Town and all of its departments and agencies during a disaster, major emergency or planned event. The CEMP describes the relationship between the community and local, regional, state, and federal emergency response structures.

The proposed new Public Safety Building was also cited as a community strength, and a long-contemplated improvement for the Town's first responders. Toward the end of 2019, the Town received the results of a feasibility study that assessed public safety operations and verified suspected inadequacies and inefficiencies. In response to this effort, the Town established the

Public Safety Facilities Planning & Construction Committee to manage the development of the new public safety building. Since its inception, the Committee contracted with Pomeroy Associates and Dore + Whittier to complete the schematic design. In June 2021, Raynham residents voted to approve a debt exclusion to fund the new Public Safety Building at an estimated cost of \$30.5 million. While the funding for the new Public Safety Building has been approved, the construction has not yet started. It's proposed location will be on King Phillip Street.

The workshop group also felt that there is still a good deal of quality open space in town that should be considered for acquisition/preservation. Several of these areas identified during the MVP Planning workshop included lands in close proximity to water supply resources. Other areas serve a multiplicity of important functions, including habitat protection, wildlife corridors, recreational opportunities, nature-based solutions for the retention of water quality, stormwater management, carbon sequestration, and other natural green infrastructure related services.

The staff and the services provided by the Council on Aging (COA) were also viewed as a local strength. Planning participants, did however, advocate for increased space and improved transportation services for the COA.

Finally, concerning the potential for disruptions to the Town's electrical supply system, the Raynham Tree Warden has contracting agreements with tree cutting services in place in order to address potential risks to the powerlines along Town Right-of-Ways.

Recommendations to Improve Resilience

Top Choices

Infrastructure

1. **Public Safety Building with enhanced communications capabilities (tie)**
PFAS issue

Environmental

1. **Open space for water supply protection**
Land near First Street (goes with 1, but is site specific)

Social

1. **Transportation for the Council on Aging (tie)**
Pet sheltering locations

Other High Priority Recommendations

- Install a new water main on Britton Street
- Repair manholes at the Mill River
- Maintain sewer lines on Dean Street/Route 44
- The water tank at Wilbur Street/Broadway needs an upgrade including increased capacity
- Improvements to sewer easements are needed town-wide
- Improvements are needed to the emergency dispensary site in order to be able to better deal with issues related to vector borne diseases (ticks and mosquito related)

High Priority Recommendations from the Listening Session

There is land on Prospect Hill Street in North Raynham that contains significant natural and cultural resources, and is adjacent to the Hockomock Swamp, between Prospect Hill Street, Bridge Street and the railroad bed.

According to the Commonwealth of Massachusetts, this land is key to protecting the aquifer and other water resources of the Hockomock Swamp. This land holds additional value for the Town of Raynham that supports being prioritized for protection in the short-term, including the following:

- Contains rare/endangered species habitat
- Contains significant shrub habitat within rich mixed species/age forest
- Supports many documented species of amphibians, mammals, reptiles and birds, including several whose habitats are diminishing
- Is within the state-designated Hockomock Swamp Area of Critical Environmental Concern (ACEC)
- Is noted within the state CAPS Index of Ecological Integrity (IEI) for Raynham
- Provides aquifer protection for residential private wells in areas of North Raynham where no public water is available
- Provides significant natural flood control to counter climate change
- Contains vernal pools
- Supports protection of a fen bog
- Contains cultural and historical attributes, including significant and extensive stone walls and an old cart path that runs to Route 138 and connects to the railroad bed (currently used by off-road riders)
- Provides a buffer to support small farm/forest residents' businesses in North Raynham
- The land potentially holds other, unexplored value, such as additional rare/endangered wildlife, wildlife habitat and significant cultural and historical resources.

Please note that prioritizing this land for protection not only serves the interests of all of the residents of the Town by providing natural resources that enhance sustainability and protect against climate change. (excerpted from comments provided by Kathy Romero)

Citation

Town of Raynham (2022) Community Resilience Building Workshop Summary of Findings. Resilient Taunton Watershed Network. Raynham, MA

Acknowledgements

The Raynham Core Team and Facilitation Team would like to thank the following for their contributions to the MVP Workshop process: Raynham Town staff; the Commonwealth of Massachusetts, EEA, Municipal Vulnerability Preparedness Program for their funding support for these workshops, and; all of those who participated in the workshops and contributed to the plan resulting from these workshops.

APPENDIX A

Presentation Slides

Raynham MVP Planning Workshop



Resilient Taunton Watershed Network (RTWN)



SRPEDD
Southeastern Regional Planning
& Economic Development District



nature.org



Mass Audubon

Today's Agenda

- 1:00 – Introductions and Review of the MVP Planning Process**
- 1:10 – 1:40 Identify Environmental Strengths and Vulnerabilities**
- 1:45 – 2:15 Identify Infrastructural Strengths and Vulnerabilities**
- 2:20 - 2:50 Identify Societal Strengths and Vulnerabilities**
- 3:00 – 3:30 Review our top ranked Priorities**
- 3:35 – 3:50 What's Next?**
- 4:00 – Wrap up**

Municipal Vulnerability Preparedness (MVP) Program



A state and local partnership to build resilience to climate change by building capacity to respond to climate effects at the local level and pilot innovative adaptation practice



Across the Commonwealth, cities and towns need financial and technical resources to prepare their residents, businesses, and aging infrastructure:

12,000+ culverts and small bridges needing replacement

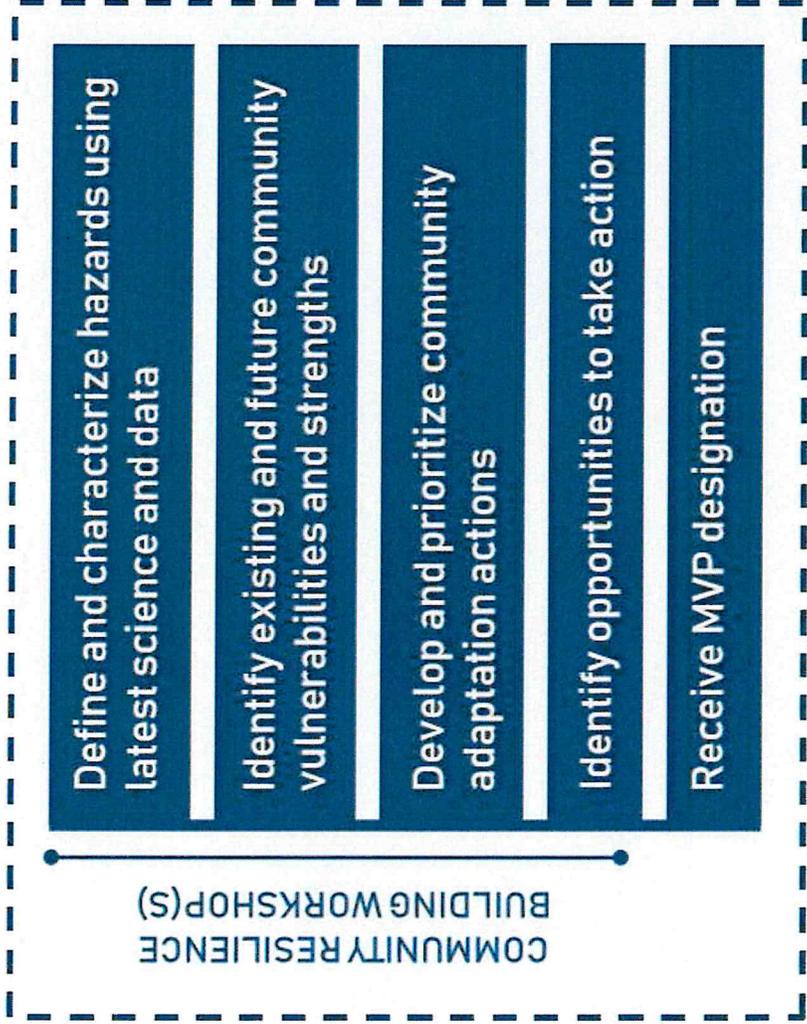
300 high-hazard dams

1,100 municipally-owned coastal structures

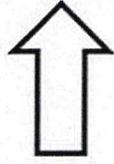
96% DHCD housing

developments to see 5.4° increase in max temperature by 2070

MVP Resources



MVP
Planning
Grant



MVP Action Grant

Implement priority adaptation actions identified through planning process

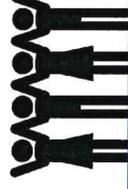
MVP PLANNING Grant



Lead a community-driven planning process to understand climate vulnerabilities and identify priority adaptation actions.



Utilize state-certified MVP providers, toolkit, and climate data to develop an MVP Plan through workshops and community outreach.



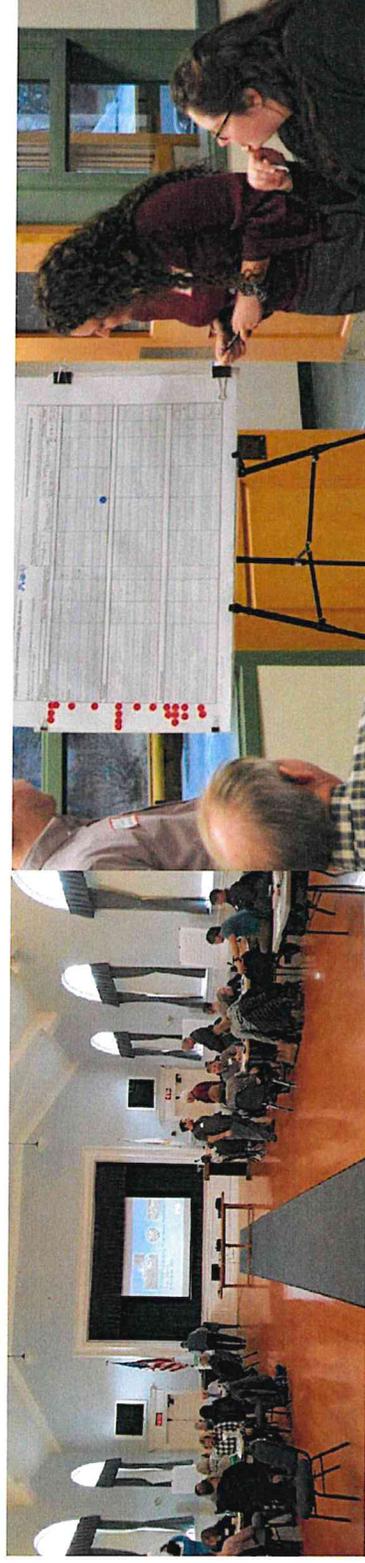
Be designated as an MVP Community and eligible for Action Grant

As an MVP Community:

- ✓ Submit yearly progress reports
- ✓ Apply to implement your priority actions

MVP Core Principles

- Furthering a community identified priority action to address climate change impacts.
- Utilizing best available climate change data for a proactive solution. Data from local-level climate change vulnerability studies may also be used.
- Employing nature-based solutions.
- Involving Environmental Justice Populations in meaningful decision-making, as defined and outlined in the 2017 EEA EJ Policy, and giving special consideration to Climate Vulnerable Populations.
- Achieving broad and multiple community benefits.
- Committing to monitoring project success and maintaining the project into the future.
- Utilizing regional solutions toward regional benefit.
- Pursuing approaches from which other MVP communities and the state can learn.





Climate resilience is the ability of a community to address the needs of its built, social and natural environment to anticipate, cope with, and rebound stronger from events and trends related to climate change hazards.

Resilient communities don't just recover—they ***continuously build capacity*** to reduce the impacts of future climate events.

Climate Change in

Massachusetts

www.resilientMA.org



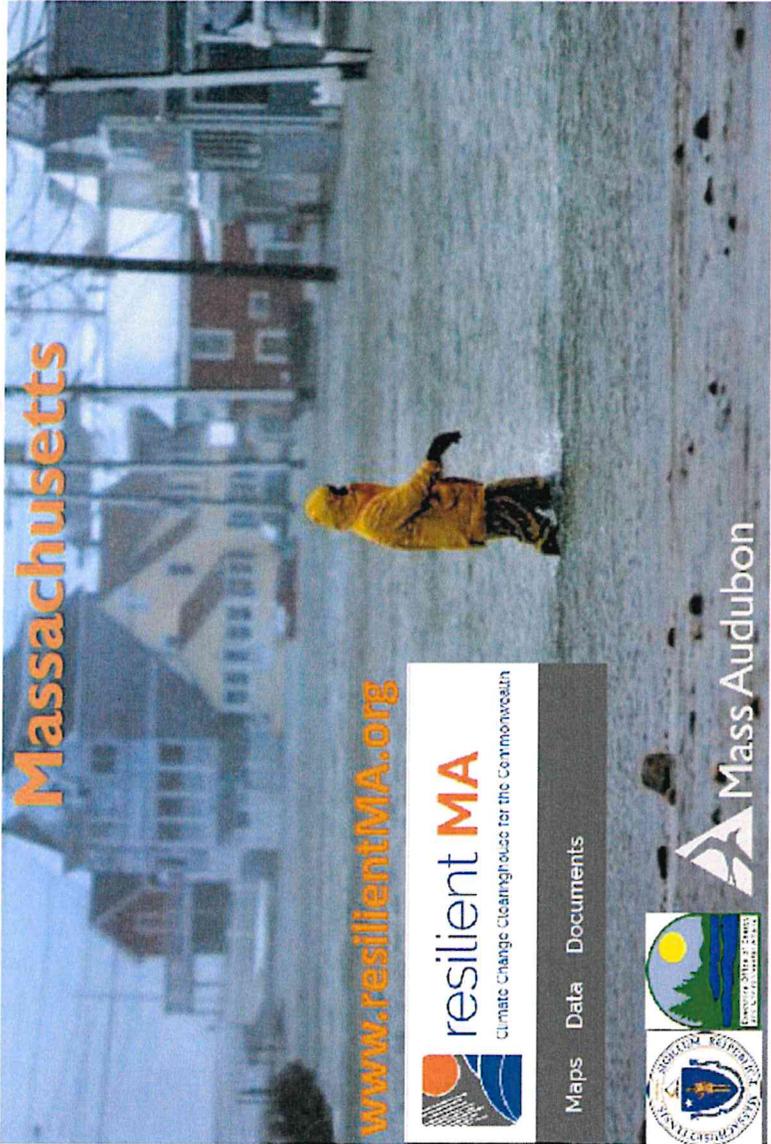
resilient MA

Climate Change Clearinghouse for the Commonwealth

Maps Data Documents



Mass Audubon



Climate Data and Projections



resilient MA

Climate Change Clearinghouse for the Commonwealth

Explore Sectors

Identify Changes

Take Action

Maps Data Documents

Search for resources...

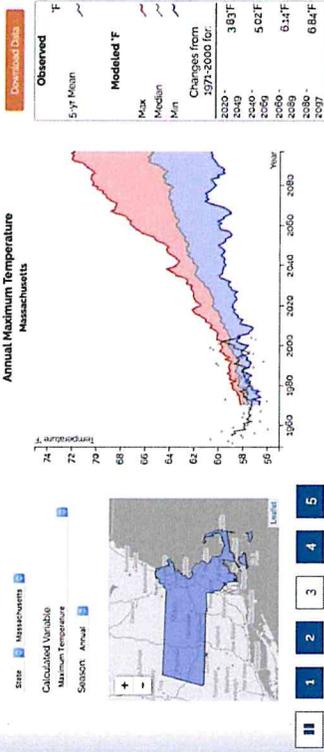
Q Search

Providing the most up-to-date climate change science and decision-support tools for the Commonwealth More »

Climate Change Data

The Baker-Polito Administration is investing in the best science and data to understand how the climate is projected to change and to allow Massachusetts to plan and adapt for the future.

More »

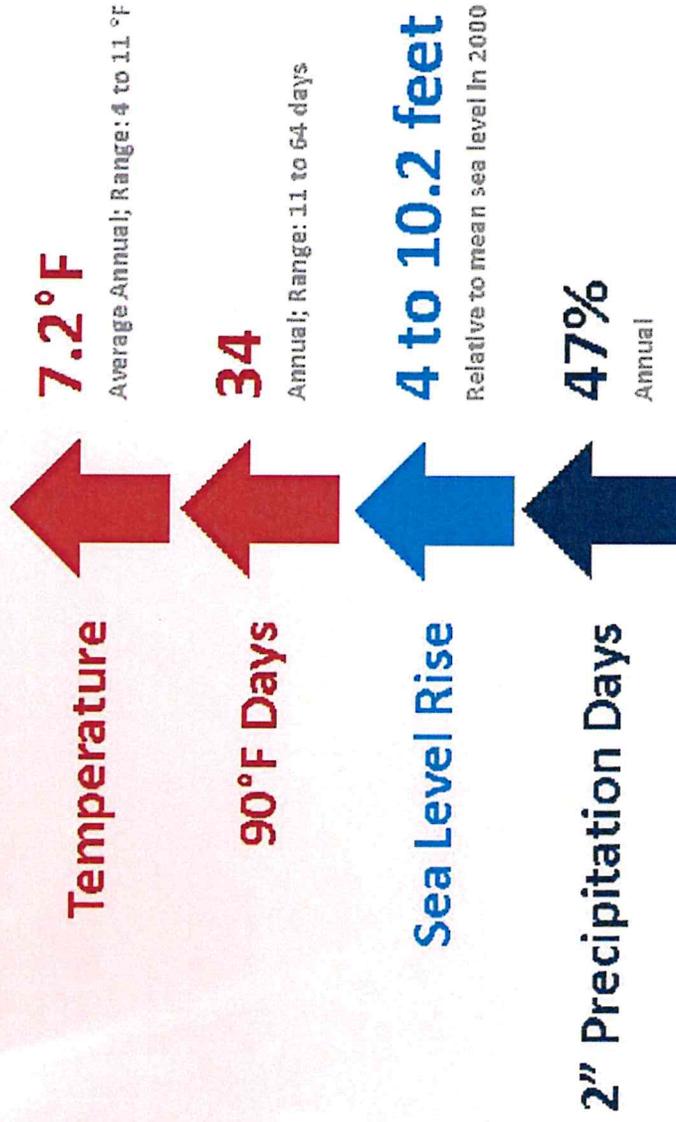


Massachusetts Observed Climate Changes



Source: Climate Science Special Report, 2017; NOAA NCEI nClimDiv; NOAA Ocean Service

Massachusetts Climate Changes Projected by the 2090s

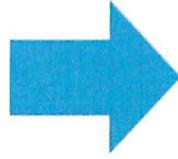


Source: Northeast Climate Adaptation Science Center

Changing Energy Use and Demand

More Warm Winter Days, Less Heating Demand

(based on annual Heating Degree-Days, base 65)



26.2%

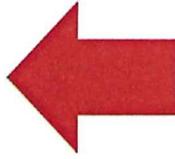
by the 2090s

1971-2000 Average:

6839 Heating Degree-days

More Warm Summer Days, More Cooling Demand

(based on annual Cooling Degree-Days, base 65)



178%

by the 2090s

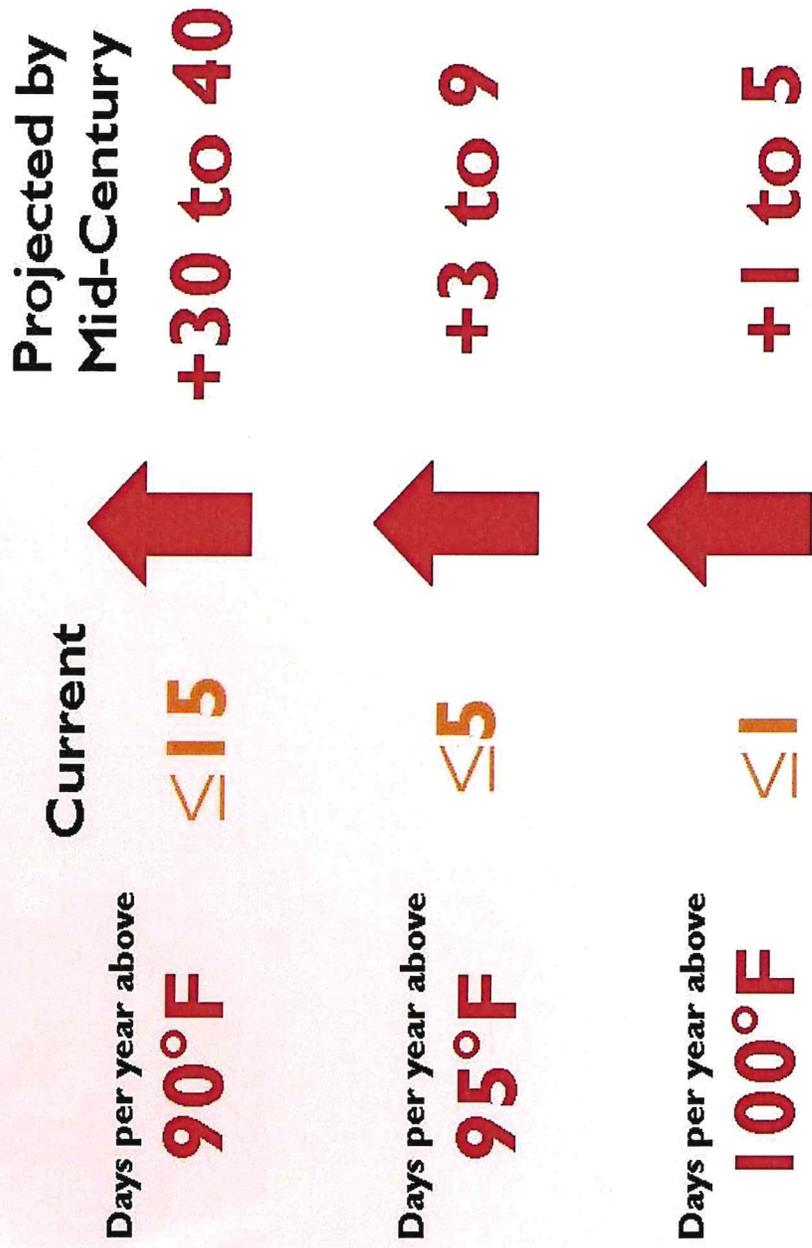
1971-2000 Average:

457 Cooling Degree-days

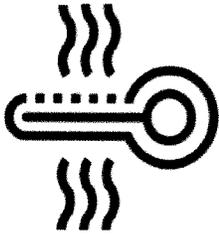
Photo © Daniel Brown

Source: Northeast Climate Adaptation Science Center, ResilientMA.org, accessed 2018.

Extreme Heat in Massachusetts

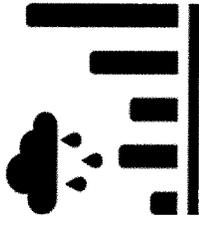


Source: NOAA NESDIS



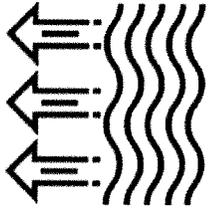
Impacts from Increasing Temperatures

- Public health
 - Increase in heat-related illnesses and mortality
 - Urban residents face greater risks
- Health of plants, animals, and ecosystems
 - Increased pests
 - Changes to growing seasons
- Economic sectors
 - More sick days due to heat-related illnesses
 - Reduced crop production and impacts to livestock and fisheries
- Infrastructure
 - Larger demands on energy systems
 - Stress on train tracks, roads and bridges, and other critical infrastructure



Impacts from Changing Precipitation Conditions

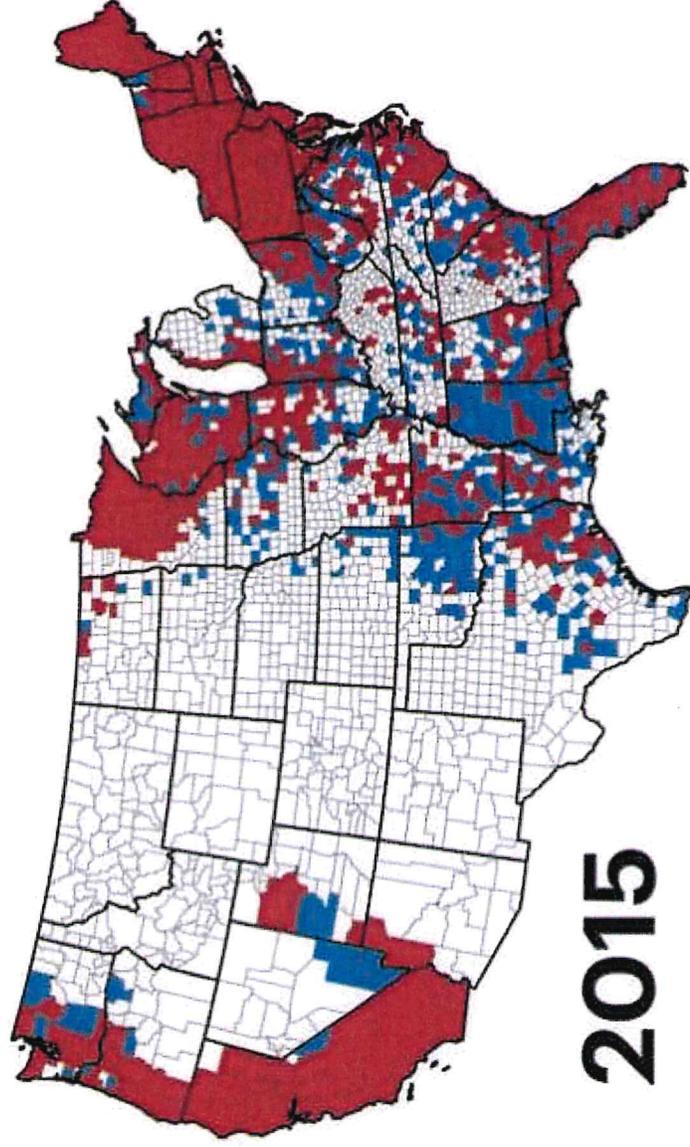
- Increased total rainfall
 - Impact on the frequency of minor but disruptive flooding events
 - Impact agriculture, forestry, and natural ecosystems
- More intense downpours
 - Increased risk of flooding
 - Increased damage to property and critical infrastructure
 - Impacts to water quality
- Changes to rainfall and snowfall patterns
 - Impacts to certain habitats and species with specific physiological requirements
 - Reduced snow cover for recreation and tourism
 - Potential increase in frequency of episodic droughts



Impacts from Sea Level Rise

- Local impacts shaped by:
 - Ocean currents
 - Wind patterns
 - Land and shoreland elevations
 - Subsidence and accretion rates
 - Tidal zones
- Will exacerbate many existing coastal hazards including:
 - Severe storms and storm surge
 - Tidal inundation
 - Salt water intrusion
- More regular flooding of developed and natural low-lying coastal areas
- Increased erosion of existing coastal landforms
- Damage to coastal buildings and infrastructure

**Public Health:
Ticks and Lyme Disease**

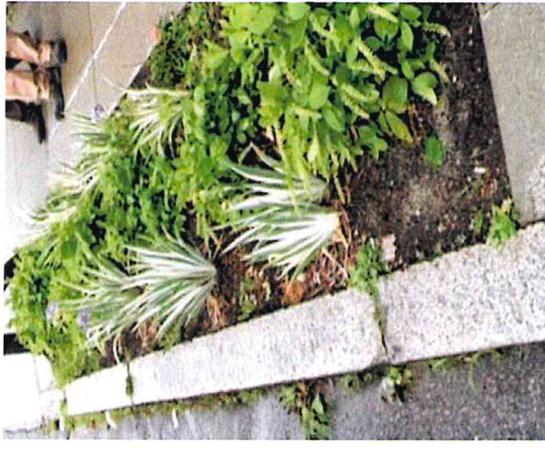


Nature-based Solutions

Nature-Based Solutions use natural systems, *mimic* natural processes, or *work in tandem* with traditional approaches to address natural hazards like **flooding**, **erosion**, **drought**, and **heat islands**.



**Green
Infrastructure**

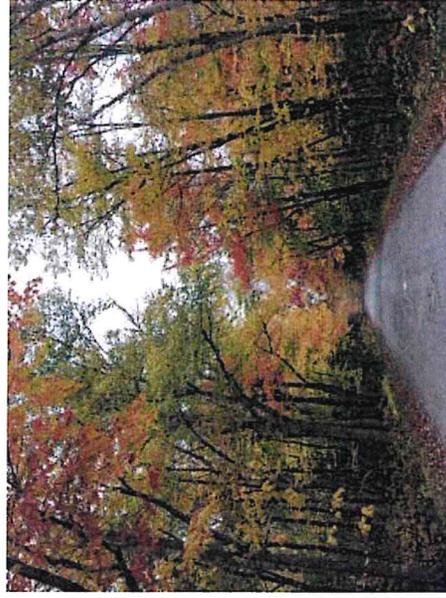


**Low Impact
Development (LID)**

Nature based solutions at every scale

Rural, suburban, or urban

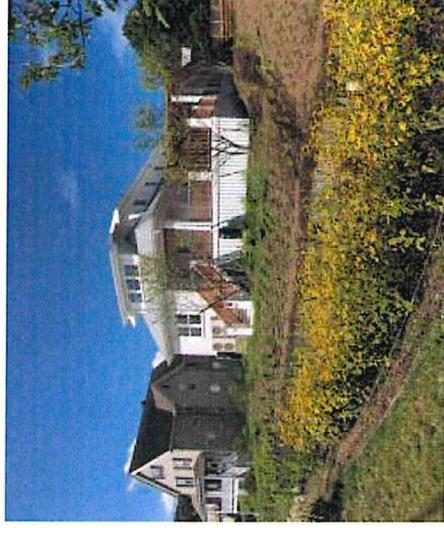
Conserve available
open space providing
ecosystem services



Integrate concepts into
new development at
neighborhood scales

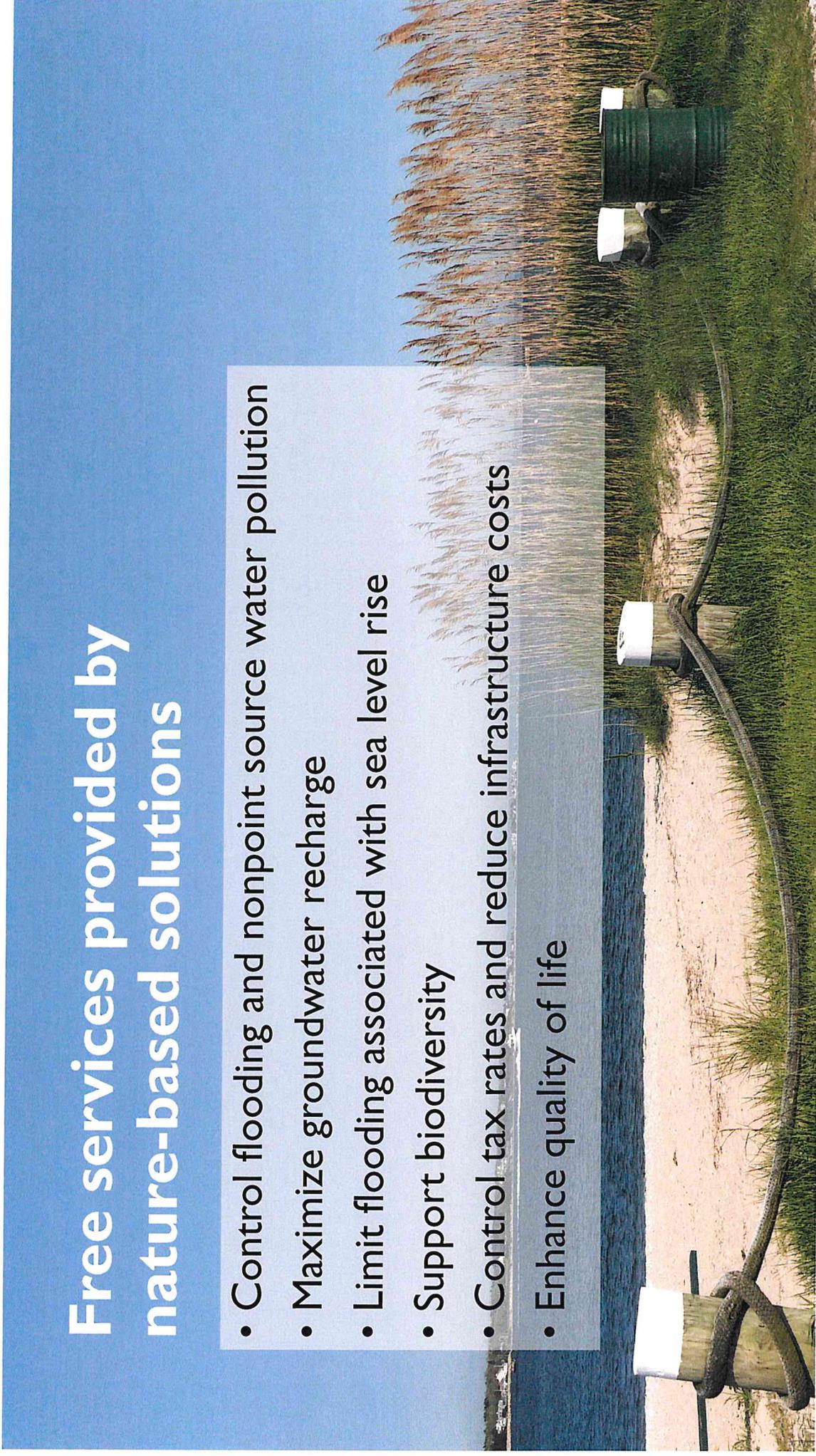


Restore resilience in
urban areas at site
specific scale



Free services provided by nature-based solutions

- Control flooding and nonpoint source water pollution
- Maximize groundwater recharge
- Limit flooding associated with sea level rise
- Support biodiversity
- Control tax rates and reduce infrastructure costs
- Enhance quality of life



Linking Local and Regional

Benefits:

- Contribute to watershed-scale approach to addressing water balance, water quality and flooding concerns
- Maximize the utility of local conservation planning

How to link:

- Comprehensive plans
- Open space residential development
- Transfer of development rights
- Water resource protection overlay districts
- Floodplain management
- Wetland protection districts and bylaws
- Open space plans

Baker Administration's Support

EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS
Matthew A. Beaton, Secretary
Grant Announcement
Commbuys Bid # BD-18-1042-ENV-ENV01-25921

Request for Responses (RFR) ENV IS POL 03
Dated: April 13, 2018

MUNICIPAL VULNERABILITY PREPAREDNESS GRANT PROGRAM (MVP) IMMEDIATE NEEDS ROUND FY 18 MVP ACTION GRANT

“Projects that propose **nature-based solutions** or strategies that rely on green infrastructure or conservation and enhancement of natural systems will improve community resilience and **receive higher scores.**”



...al assistance for municipalities who have
...f Energy and Environmental Affairs (EEA) as
...edness (MVP) Community (“MVP
...ions identified through the MVP planning
...essment and action planning that has led to
...bility Preparedness Grant Program supports
...Climate Change Strategy for the
...technical support to cities and towns to
...ite change vulnerability assessments and
...resilience to top natural and climate-related
... (CRE) Workshop Guide
...ogram is split into Planning Grants, which
...leading to designation as an “MVP
...through this opportunity, which seek to
...implement key priorities and projects identified through the MVP Planning Grant.

C. ELIGIBLE PROJECTS. Funding is to advance priority climate adaptation actions identified by “MVP Communities” to address climate change impacts resulting from extreme weather, sea level rise, inland and coastal flooding, severe heat, and other climate impacts. (See further detail on eligible projects in Section 2B). Projects that propose nature-based solutions or strategies that rely on green infrastructure or conservation and enhancement of natural systems to improve community resilience will receive higher scores.

Funding

Certified MVP Communities Receive Priority Ranking

MVP Action grants are only available to MVP certified communities

Some of the other grant programs under which MVP certified communities can receive priority ranking include:

- MA Clean Water State Revolving Fund Program (CWSRF)
- MA Office of Coastal Zone Management (CZM)
- MA Department of Agricultural Resources (MDAR)
- MA Executive Office of Energy and Environmental Affairs (EEA)
- MA Department of Environmental Protection (DEP)
- Mass Environmental Trust (MET)
- MA DCS LAND and PARC Grants

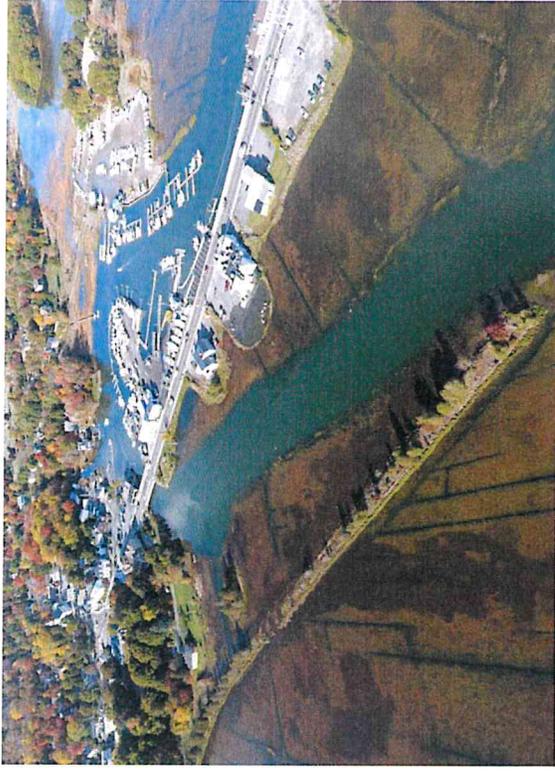
The logo for Environmental Protection, featuring a stylized leaf icon to the left of the text "Environmental Protection".

Environmental
Protection



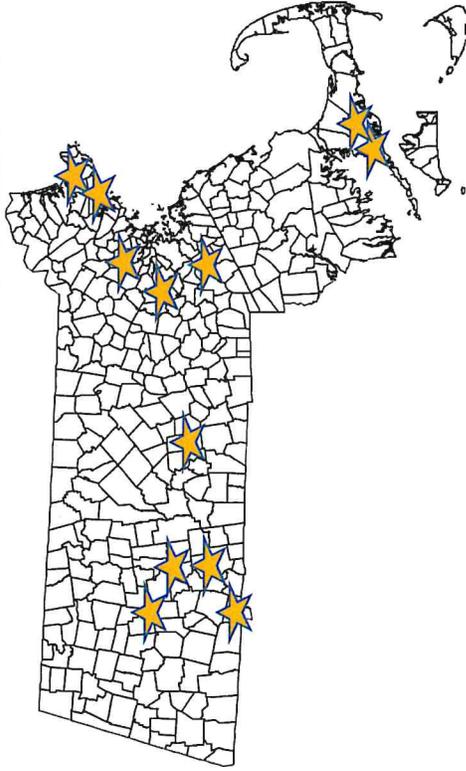
MVP Action Grants: Project Types

- Detailed Vulnerability and Risk Assessment
- Community Outreach and Education
- Local Bylaws, Ordinances, Plans, and Other Management Measures
- Redesigns and Retrofits
- Nature-Based Flood Protection, Drought Mitigation, Water Quality, and Water Infiltration Techniques
- Nature-Based, Infrastructure and Technology Solutions to Reduce Vulnerability to Extreme Heat and Poor Air Quality
- Nature-Based Solutions to Reduce Vulnerability to other Climate Change Impacts
- Ecological Restoration and Habitat Management to Increase Resiliency
- Energy Resilience
- Chemical Safety
- Land Acquisition for Resilience
- Subsidized Low-Income Housing Resilience Strategies
- Mosquito Control Districts



Example Nature Based Solutions for Resilience

- Living Shoreline Feasibility
- Cranberry Bog restoration
- Watershed Land Protection
- Salt Marsh Restoration
- Brook Stabilization
- Tree Planting for Heat Island and reduced runoff
- Design with Nature for Flood
- Nature Based Road Stream Crossing
- Floodplain Restoration
- Green Infrastructure
- Forestry for Emergency Management and Environmental Conditions



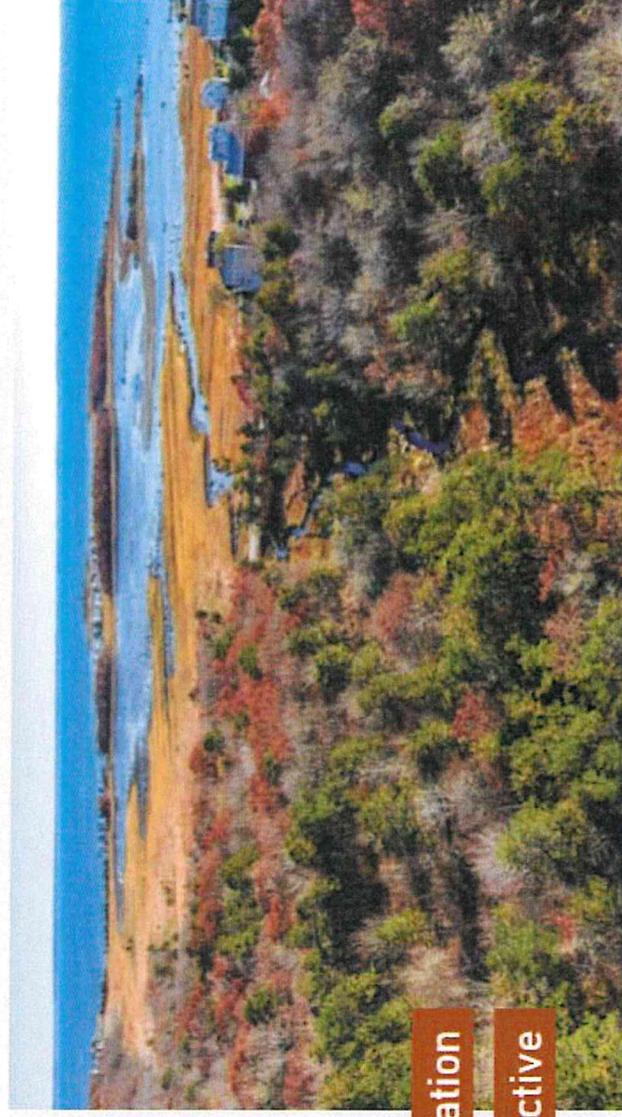
Example Action Grant Projects

Land Acquisition for Resilience

Mattapoisett



Purchased 120 acres of forest, streams, freshwater wetlands and coastal salt marsh as conservation land to prevent development in vulnerable areas



Data utilization

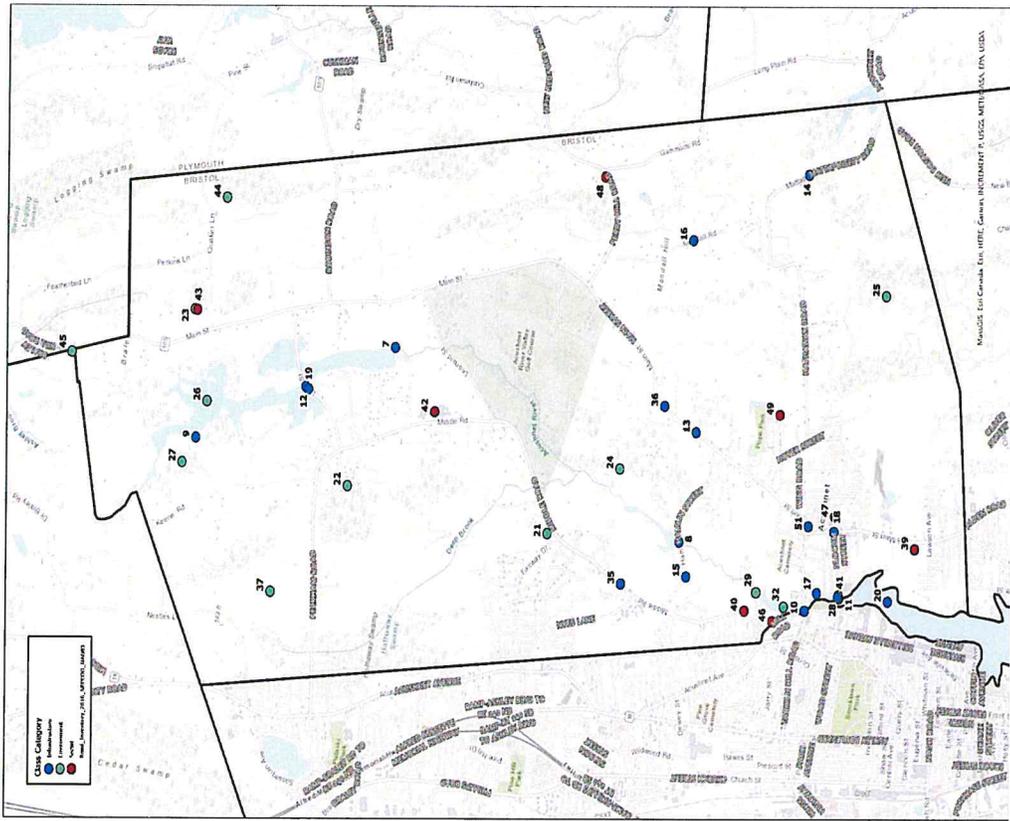
Proactive

So, what do we do next?

Next . . . We Plan !!!

Overview of the Process (Steps & Tasks)





MapData: Esri Canada, Esri, HERE, DeLorme, Mapbox, Microsoft, Swire, USGS, AeroGRID, IGN, Esri, Mapbox

But first . . . what are our Top Priority Hazards?

- Drought or Flood/Drought Cycles**
- Extreme Precipitation/Storm Events**
- Hurricanes**
- Wildfire**
- Sea Level Rise/Coastal Flooding**
- Wind**
- Extreme Temperature**
- Earthquake**
- Tornado**
- Other(s)**



APPENDIX B

Matrices

<u>Action ID</u> <u>from GIS</u> <u>(no</u> <u>order)</u>	<u>Features</u>	<u>Location</u>	<u>Ownership</u>	<u>V or S</u>	<u>Flooding</u>	<u>Drought +</u> <u>High</u> <u>Temps</u>	<u>Storms +</u> <u>Wind</u>	<u>Vector</u> <u>Borne</u> <u>Disease</u>	<u>Priority</u>	<u>Time</u>
<u>Infrastructural</u>									<u>HML</u> (high, med, low)	<u>SLO</u> (short, long, ongoing)
1	Orchard Street Water Main		Raynham Water District	V	Orchard Street water main it's on the long-term projects list but way behind other projects. There is an 8" to 6" old AC pipe line under the highway. It is in not great				H	
2	New water main on King Phillips 138		North Raynham Water District	V	new water main on Britton Street between King Phillips Street and Broadway, would like to switch the 6" pipe to a new 12" pipe. This would be part of a new infiltration system				H	S
3	PFAS treatment facilities (2)		Raynham Water District	S/V	Largest treatment plant = PFAS in plant near the middle school and Lake Nip. Elevations are high enough that they almost need to notify the people				H	
4	Gardner Street Bridge and Dam		Town	V	Gardner Street Bridge – town owned – bridge and dam (14 feet), it's a spillway similar to Mooreys Bridge in Taunton				H	
5	Force main on Pleasant Street		Town	V/S	Pleasant Street force main over Route 24, older and they are concerned with the age of it. Maybe 30 years old – potential vulnerability due to its age. It serves a subdivision nearby.				H	
6	Manhole repair at Mill River		Town	S/V	Older manholes near the Mill and Taunton Rivers have hydrosulfate (?) damage. Potential hazard for the rivers. About 3 of them and they are connected to a 27" sewer main.				H	S
7	Route 44 water tank and tower		Raynham Water District	V/S	The water tank by Route 44 is about 90 years old and maybe has another 10 years left at most. They are working on some temporary repairs in the coming year. It also has a lot of communication towers on it including the towns' emergency systems.				H	
8	Capacity, range and infrastructure communication		Town	V	The town's emergency communication systems work well with no leaves on the trees and nothing in the way. When they have to go up Route 138 towards the Easton town line, they can lose service.				H	S
9	New public safety building (in process)	King Phillips Street	Town	V/S	A new public safety building has been approved but construction has not started yet. It will be located on King Phillips Street.				H	S
10	Sewer infrastructure SW town/44		Town	V	Dean Street sewer line in Taunton is part of the Towns service area. The town owns a portion of it so for maintenance Raynham will have to help fund any repairs or				H	S

11	Heweitt Pond Dam (repair)	Roger Way	Town	V	Heweitt Pond Dam needs some repairs – off North Main Street on Rogers Way	H	
12	Church St Bridge (repair)		Town	V	Church Street Bridge maintenance and repair	H	
13	Need another water storage tank/infiltration	Wilbur/Broadway	North Raynham Water District	V/S	Wilbur and Broadway water storage tank is limited to 1.7 million gallons and they could use another 2 million gallons up in that area. They would like to add an additional storage tank. The wells are on one side of Interstate 495 but the water storage tanks are on the other side.	H	S
14	Expansion joint replacement under 495 bridge (water)		North Raynham Water District	V	The expansion joints on the Broadway bridge over Interstate 495 need to be replaced. They can cause issues with two water lines that run under the bridge.	H	
15	South Street highway crossing (water)		Raynham Water District	V	South Street near Walmart – old pipe from 1955 with no sleeve running under the Route 24 bridge.	H	
16	Generator for 6 sewer pump stations	various	Town	V	Need generators for 6 sewer pumping stations (there are a total of 35 pumping stations in town)	H	
17	Generator for sewer offices	Titicut Road	Town	V	Generator for 416 Titicut Road – Sewer Department	H	S
18	Improve sewer easements	townwide	Town	V	Improvements to the current sewer easements – they have become unpassable. The department has been trying to improve them over the years.	H	S
19	Wellhead expansion	57 Broadway	Raynham Water	V	57 Broadway Wellfield Expansion	H	

<u>Action ID</u> <u>from GIS</u> <u>(no</u> <u>order)</u>	<u>Features</u>	<u>Location</u>	<u>Ownership</u>	<u>V or S</u>	<u>Flooding</u>	<u>Drought +</u> <u>High</u> <u>Temps</u>	<u>Storms +</u> <u>Wind</u>	<u>Vector</u> <u>Borne</u> <u>Disease</u>	<u>Priority</u>	<u>Time</u>
<u>Environmental</u>									<u>HML</u> (<u>high,</u> <u>med, low</u>)	<u>SLO</u> (<u>short,</u> <u>long,</u> <u>ongoing</u>)
20	Open Space for water supply protection	418 Titicut	Private	V/S	50-80 acres of wetland between the highways and Central Raynham. 418 Titicut Road. Open for water protection				H	O
21	White Street land		Private	V/S	White Street land – purchase the land				M	O
22	Perimeter shared use paths at Borden Colony		Town/State	S	Shared use/off road path around Boyden Colony on King Phillips Street				M	O
23	Aquire land and develop access to the Taunton River		Various	S	Canoe and kayak access along the Taunton River. The town currently has no locations to put in a canoe or kayak.				M	O
24	Aquire land around water supply areas to enforce resilience		Various	S	Land west of the First Street that is open could help preserve the water in that area.				H	O

<u>Action ID</u> <u>from GIS</u> <u>(no order)</u>	<u>Features</u>	<u>Location</u>	<u>Ownership</u>	<u>V or S</u>	<u>Flooding</u>	<u>Drought +</u> <u>High</u> <u>Temps</u>	<u>Storms +</u> <u>Wind</u>	<u>Vector</u> <u>Borne</u> <u>Disease</u>	<u>Priority</u>	<u>Time</u>
<u>Societal</u>									<u>HML</u> (high, med, low)	<u>SLO</u> (short, long, ongoing)
25	Dog park			S	Dog park – some money is already approved for one but they still need to find a location					
26	Pet sheltering (in progress)		Town	S	Currently working on a location to shelter pets in town in case of emergency (up to a dozen spots)			H	S	
27	CEMP plans for all sheltering, etc		Town	S	CEMP is a strength for the vulnerable population and certain areas in town to get them set up in shelters					
28	COA could use improved transportation		Town	V/S	The Council on Aging is lacking transportation. They have Dial a Ride but that doesn't help that much.			H	S	
29	Improve the emergency dispensing site, vector borne diseases		Town	S/V	Emergency dispensing sites – sheltering in a queue, generators			H	O	
30	Tree warden takes care of ROW		Town/Variou s	S	Tree warden has contracting with tree cutting services and they go around the town cutting the trees away from the powerlines					
31	Expanding outreach on communicable disease education/treatment		Town	S/V	Expanding outreach, maybe bringing on an MD if they wanted to have a free clinic in town.			M		
32	Make rec facilities ADA compliant as necessary	Various	Town	S/V	ADA compliance when needed for Recreation facilities			M		

APPENDIX C

Raynham Map

