

Horsley Witten Group

Sustainable Environmental Solutions

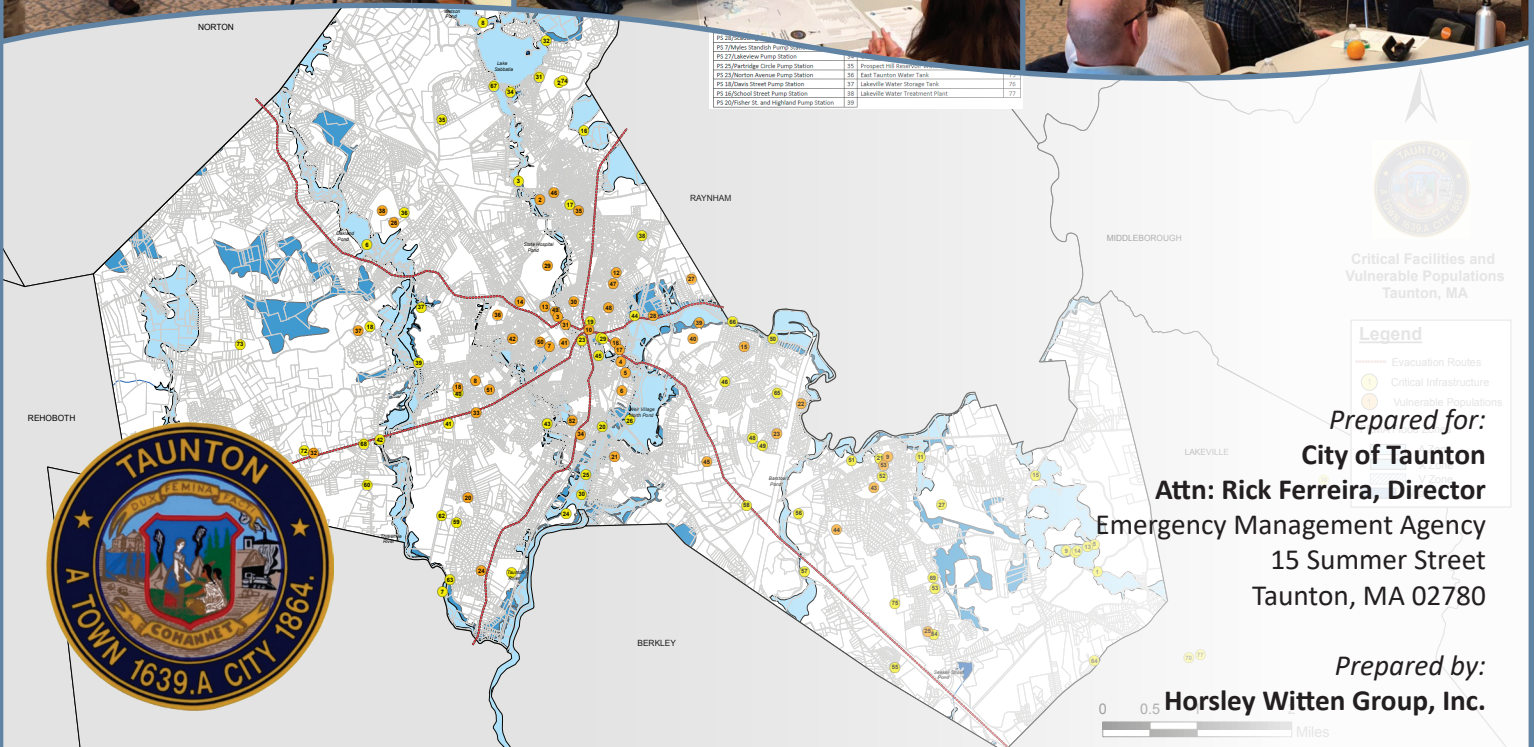
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SUMMARY OF FINDINGS Taunton Municipal Vulnerability Preparedness Workshop

Taunton, Massachusetts

June 1, 2022



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Taunton, MA Municipal Vulnerability Preparedness Workshop

Summary of Findings

Acknowledgements:

Funding to support the Taunton, MA Municipal Vulnerability Preparedness (MVP) Workshop was provided by the Massachusetts Executive Office of Energy and Environmental Affairs through an MVP Planning Grant, issued to the City of Taunton during the fiscal year of 2019 through May 2022.

The City of Taunton contracted with the Horsley Witten Group, Inc., to provide MVP-certified staff to support the City in planning and facilitating the workshop.

Suggested Citation:

City of Taunton. 2022. Taunton, MA Municipal Vulnerability Preparedness Workshop Summary of Findings. Prepared by the Horsley Witten Group, Inc. Providence, RI.

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Taunton Municipal Vulnerability Preparedness Workshop

Summary of Findings

Executive Summary

Extreme weather and climate-related impacts are an increasing concern for communities. Recent storm events affecting the City of Taunton and the region have drawn attention to the vulnerabilities municipalities face. Climate modeling indicates hazards are expected to increase in frequency and intensity. The Municipal Vulnerability Preparedness (MVP) Program, administered by the Commonwealth of Massachusetts Executive Office of Energy and Environmental Affairs (EOEEA), provides technical support and a prescribed process for municipalities to plan proactively for resiliency and prioritize climate change adaptation actions.

On March 10, 2022, The City of Taunton held an MVP workshop. The workshop's goal was to identify hazards that Taunton faces that are being exacerbated by climate change, and to prioritize actions the City can take to prepare for identified hazards. This workshop, planned by a Core Team of municipal organizers and the Horsley Witten Group, Inc. was a step towards MVP certification, which allows certified communities access to additional state grants for projects related to climate change resiliency. Forty-four community members attended the workshop, representing a wide cross section of regional, state, and municipal officials, response partners, and other interested parties. Honored guests in attendance included Shaunna O'Connell, Mayor, and Phillip Duarte, City Council President.

Earlier in the process, as part of the development of the Hazard Index for the Hazard Mitigation Plan (HMP) update, the Core Team determined that the four categories of hazards for consideration at the MVP workshop would be:

- Winter Hazards (Blizzards/Snow)
- Severe Storms (Heavy Winds/Nor' Easters/Hurricanes)
- Changing Precipitation Patterns (Intensity/Volume of Rain/Flooding)
- Temperature Extremes (Extreme Heat/Extreme Cold)

In four small discussion groups, participants identified features of Taunton that are either vulnerable to climate change or could help strengthen the community's ability to cope with climate related hazards. Small groups then listed actions that could be taken to protect or mitigate the impact of prioritized hazards on the features they had identified. Following small and large group discussions and prioritizing (voting), participants prioritized the following five action items:

1. Improve Drainage Infrastructure and Capacity
 - a. Stormwater Infrastructure Assessment. Minimize flooding on evacuation routes, roadways (particularly along Cobb Brook, Hart Street, Bristol-Plymouth Regional Technical School), parking lots, and increase capacity.
 - i. Retrofits, replacement Low Impact Development (LID), and Green Infrastructure (GI)/Nature Based Solutions.
2. Improve Emergency Response Planning and Communications
 - a. Educate community of emergency response planning (mailings).
 - i. Ensure ADA-accessibility/Universal Access/Environmental Justice provisions.
 - ii. Consider an app for shelter information and evacuation routes (based on type/location of hazard event).
 - iii. Which shelters accept pets.
 - b. Hire a Public Information Officer.
 - c. Expand Heating/Cooling capacity (consider mobile ‘hubs’).
3. Coordinate installation/maintenance of new/improved sidewalks with all responsible departments/parties.
 - a. Coordinate construction/reconstruction in concert with site/roadway improvement projects.
 - i. Ensure ADA-accessibility/Universal Access compliance (remove obstructions).
 - a.) Expand snow removal ordinance to include school zones
4. Coordinate with the Taunton Municipal Light Plant to develop community notification program regarding power outages.
 - a. Create power outage map viewer with specific locations and estimated response time for restored power.
5. Brownfield Site Cleanup/Redevelopment.
 - a. Utilize EPA’s Targeted Brownfields Assessment (TBA) program for support.
 - b. Support property owners through the cleanup/redevelopment process.

Following the completion of the MVP workshop, members of the Core Team presented an overview of the science and findings from the workshop at a formal information and listening session on May 9, 2022 at the Taunton City Hall. An MVP page has been added to Taunton’s municipal website available here: https://www.taunton-ma.gov/sites/g/files/vyhlf1311/f/uploads/hazard_mitigation-municipal_vulnerability.pdf.

These action items will be incorporated into ongoing municipal planning efforts and will inform the MVP/HMP Core Team and the City as a whole as it works to take action to improve the City’s resilience. In particular, these actions will be incorporated into the 2022 update to the Hazard Mitigation Plan. Actions identified in this process are eligible for future grant funding under the MVP Action Grants program administered by the EOEEA. By undertaking the MVP workshop and preparing this report, the City is also initiating its certification as an MVP-Certified Community, which enables the City to apply for future MVP Program grants and elevates the scoring profile for related project proposals to other state grant programs.



Forty-four stakeholders participated in the workshop on March 10, 2022 to develop and prioritize actions to make Taunton more resilient to climate change.

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Attachment A: List of Participants

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Attachment C: Base Map

Attachment D: Discussion Matrices from the Four Discussion Groups

Attachment E: Master Matrix of High Priority Actions Reported by Each Discussion Group

Attachment F: Annotated Maps from Discussion Groups

1. Introduction

Extreme weather and climate-related impacts are an increasing concern for communities. Recent storm events affecting the City of Taunton and the region have drawn attention to the vulnerabilities municipalities face. Climate modeling indicates hazards are expected to increase in frequency and intensity. The MVP Program, administered by the Commonwealth of Massachusetts EOEAA, provides support for municipalities to plan for resiliency and implement key climate change adaptation actions for resiliency. The MVP Program offers technical assistance to communities to define climate related hazards, identify existing/future vulnerabilities and strengths, develop and prioritize actions for the community, and identify opportunities to take action to reduce risk and build resilience. To develop an action-oriented resiliency plan, the program utilizes a workshop format and the Community Resilience Building (CRB) framework, focusing on a participatory, community-driven process that fosters engagement and collaboration among community stakeholders.

Taunton applied for a grant and was selected by the Commonwealth to participate in the MVP Program in order to expand its prior resiliency planning efforts and develop a list of priority actions to improve resiliency.

Taunton is also updating its Hazard Mitigation Plan (HMP) to fulfill FEMA guidelines and identify strategies to address natural hazards. Upon completion of the two projects, the City of Taunton will be eligible to apply for state and federal grants to address identified natural hazards and implement the plans. The City of Taunton partnered with the Horsley Witten Group, Inc. to complete the MVP plan/workshop and the HMP update.

Workshop Planning and Core Team

Following the award of the technical assistance grant, several city employees were identified to serve as a Core Team. Team members included the following individuals, and were assisted by Craig Pereira, of the Horsley Witten Group (HW), Taunton's MVP Provider:

Members of the Taunton MVP/HMP Core Team include:

- Shaunna O'Connell – Mayor
- Richard Ferreira – Emergency Management Director
- Ligia Madeira – Deputy Chief of Staff, Mayor's Office
- Adam Vickstrom – Assistant Executive Director, Board of Health
- Rick Ames – Superintendent of Buildings
- Michael Patneaude – City Engineer
- Michele Restino – Conservation Agent
- Kevin Scanlon – City Planner
- Taylor Torres – Grant Writer
- Heather Gallant – Director, Board of Health
- Tony Abreau – Assistant Commissioner, Department of Public Works
- Fred Cornaglia – Assist. Commissioner DPW

- Andy Marshall – Commissioner Parks, Cemeteries and Public Grounds
- Tim Bradshaw – Fire Chief
- Mike Sylvia – Deputy Fire Chief
- Ed Walsh – Police Chief
- John Cabral – Superintendent of Schools
- Bill Roth – Executive Director Economic and Community Development
- Craig Pereira – Consultant, Horsley Witten Group, Inc.

The Taunton Core Team first met on February 20, 2020 to kick off the two projects, the MVP project and the HMP update. As the MVP project built upon the HMP project, it was important to ground truth schedules, outreach and deliverables. For the MVP component of this meeting, the Core Team brainstormed a preliminary list of stakeholders to be invited to the workshop, identified a date and location for the workshop, and discussed some of the messaging for invitations.

The Taunton Core Team met for the second time on March 9, 2020. The Core Team updated the list of stakeholders for the workshop, determined the workshop would be two half-days (May 4 and May 11, 2020), and reviewed some of the workshop materials. Shortly after this meeting, the COVID-19 Pandemic resulted in the federal shut-down of essentially everything, with mandated stay-at-home orders.

The Taunton Core Team met for a third time, virtually, on March 30, 2020 to discuss the status of the MVP projects. The Core Team discussed some outstanding data needs but also decided to postpone any future MVP meetings/workshops until further notice. After the March 30, 2020 meeting, as the Emergency Management Director's attention was needed elsewhere across the City, it was decided to pause both projects.

Next, beginning on October 21, 2020, a series of coordination calls took place between the City and consultant. The Core Team decided to focus on setting a target date of February 2021 for the MVP workshop. Another coordination call took place on February 17, 2021 to discuss outstanding data needs and a virtual approach to the MVP workshop. A third coordination call took place on April 8, 2021 to enlist the assistance of additional City personnel to advance the MVP component of the project. Confirmation was received on a virtual approach for the MVP workshop from the MVP Program Manager, as well as a contract extension. A fourth coordination call took place on June 24, 2021 with a consolidated Core Team. A strategy to re-engage the Core Team to confirm the list of stakeholders for the MVP workshop was identified. A fifth coordination call took place on September 15, 2021 to follow up on outstanding data needs from the MVP project. A sixth coordination call took place with the consolidated Core Team to confirm a target date for an in-person MVP workshop (March 10, 2022) and follow up on outstanding data needs.

The Taunton Core Team met for a fourth time on April 19, 2022 to finalize the development of the HMP update by incorporating the MVP top priority actions into the mitigation strategy and

to conduct the Benefit Cost Analysis (BCA review). The logistics for the Public Listening Session were confirmed and advertised for May 9, 2022.

Workshop Attendees and Materials

The Core Team elected to complete the MVP workshop in one full day at the Taunton City Hall. A total of 49 stakeholders were invited to the workshop with 44 attending. Participants represented a wide cross section of the City's stakeholders and decision-makers, including Mayor O'Connell, representatives from the Taunton City Council, utility providers, representatives from the school district, regional planning agencies, several local watershed authorities, local business owners, and a wide variety of municipal department staff and volunteers from local boards and commissions, among others. Honored guests in attendance included Shaunna O'Connell, Mayor and Phillip Duarte, Taunton City Council President. See Attachment A for a full list of invited stakeholders, including their organizational affiliation.

On the day of the workshop, participants were provided with a copy of the agenda for the day (see Attachment B) and a handout summarizing climate change resiliency measures that have been previously identified and recommended in recent municipal plans (2004 HMP). The following additional informational materials were located on each small group's table to be shared in order to encourage communication and collaboration throughout the workshop:

- Summary of climate projections for Taunton Basin provided by EOEEA and prepared by the Northeast Climate Science Center (see Attachment B).
- Example vulnerabilities and strengths excerpted from the CRB guidance document (see Attachment B).
- Summary of Taunton demographic data (see Attachment B).
- Taunton base map showing critical infrastructure, vulnerable populations and FEMA floodplain data (see Attachment C).

The Commonwealth of Massachusetts has established a Massachusetts-specific climate data clearing house, resilientma.org, to easily enable municipalities and stakeholders to access regional data for use in climate preparedness planning.

The Workshop Process

Following introductions and an overview of the MVP Program and workshop agenda, workshop participants listened to a presentation by MVP-Certified facilitator Craig Pereira, HW, about climate change projections and their current and potential future impacts on Taunton. The presentation discussed specific infrastructural, environmental, and societal challenges facing the City in light of climate change. Challenges discussed included the flooding that occurs after severe rain events, variations in temperature extremes, and the potential for increasing drought severity. Following this presentation, HW conveyed the four primary climate change hazards (identified previously by the Core Team) to frame the discussions for the remainder of the workshop.

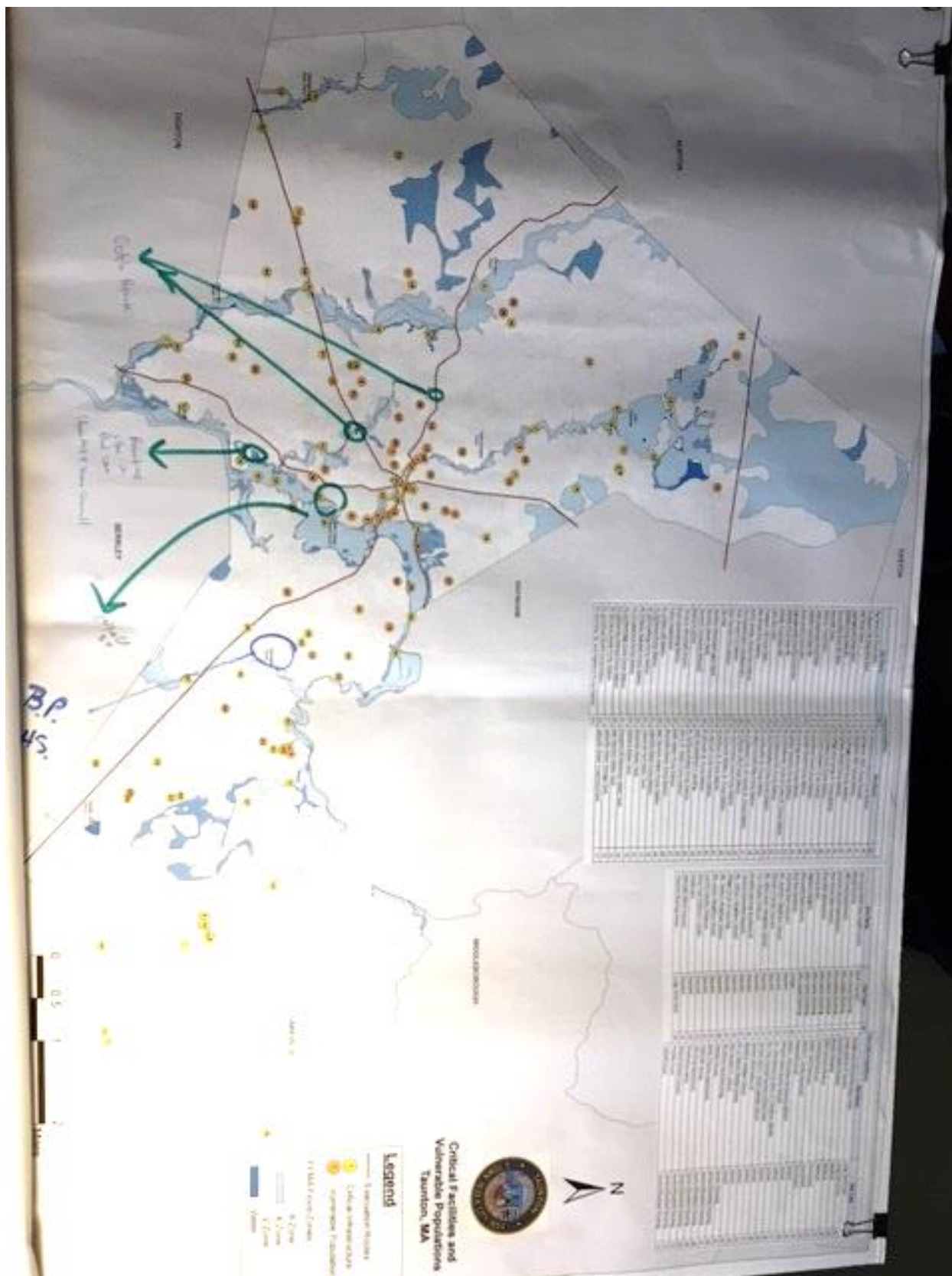
The remainder of the morning portion of the workshop included small discussion groups. Groups were made up of a facilitator (either a HW staff member or member of the Core Team),

a note taker, and approximately 10 - 12 workshop participants. Small group discussions began by listing infrastructural, societal, and environmental features that represent either vulnerabilities or strengths of the community in the face of anticipated climate change hazards. Features were marked on the base maps and listed on the risk matrix, a framework for note taking developed as a part of the CRB framework. Each group listed a range of features for each category, along with information about their location, ownership, and if they are a strength or vulnerability for the City. Some also marked specific locations on the base map provided at the table, as appropriate.



Workshop participants worked in small groups to identify vulnerabilities and strengths associated with the four primary hazards impacting the community.





Small groups annotated maps to highlight strengths and vulnerabilities based on FEMA flood zones and other hazard events.

Following lunch, groups moved on to discussing action items that either mitigate the vulnerabilities posed by the priority hazards or enhance the strengths identified. Action items could either be a way to protect a vulnerable feature from a negative impact or how to better utilize one of Taunton's strengths. Common action items listed included addressing the City's drainage infrastructure and capacity to minimize flooding, improvements to emergency response, protection of sewer infrastructure in flood zones and addressing the potential of power outages. Throughout the small group discussions, the workshop's lead facilitator circulated between groups to ask questions and provide guidance.

Once complete lists of action items to address infrastructural, societal, and environmental vulnerabilities had been compiled, groups began the process of prioritizing actions. Groups completed this process in different ways, with some identifying the priority level for each suggested action item and others only determining which were of the highest priority. Groups prioritized items by discussion and/or by dot voting, in which each participant was given several dot stickers to place next to ideas they wished to prioritize.



Workshop participants identify their top five highest priority actions the City should move forward with.

After all groups had identified its top five priority action items, a representative of the group reported out to the full workshop, describing the prioritized items and presenting a brief summary of their group's discussion. Following the presentation of each group's priorities, workshop participants together with the workshop facilitator combined duplicative suggestions to create a final list of priority actions that the City of Taunton should work towards to increase the resilience of the community in the face of anticipated climate change impacts. Through this process, the group identified five overall priority action items.

The results of each stage of the workshop discussions are presented in the subsequent sections of this report. Attachment D includes a transcription of the summary matrices produced by each of the four discussion groups. Attachment E includes a matrix presenting a compilation of the recommended high priority actions from the four discussion groups. Action items prioritized during small or large group discussion are indicated with bolded and underlined font. Attachment F includes the maps that contain notations from the discussion groups (as applicable).

4

Community Resilience Building Risk Matrix

Location: Mark on the map, note on matrix. Multiple, Specific or Town-Wide
 Risk: Vulnerability to + strength
 High, Medium, or Low priority for action over the Short or Long term (and Ongoing)

Top Priority Hazards (Floods, wildfires, hurricanes, drought, sea level rise, forest fires, etc.)

Features	Location	Owner	Y or S	WINTER HAZ.	SEVERE STORMS	CHANGING PRECIPITATION	TEMP XTREMES	PRIORITY	STATUS
Environmental									
lack of staff to maintain park & conservation land			V	hire more staff to keep up with city-owned open space (full-time maint.)				H	O
litter & dumping			V	public information awareness - hire public information officer				H	S
invasive species - spotted			V					M	
diverse natural resources - though lots of protected land			S					M	
lots of active rec land			V/S	work on environmentally friendly plan to kill invasive species					
millions of lake salmonella/bacteria			V						
greater range of vector species			V						
strong rain gardens & bioswales			S		transport into parks & other city lands			M	
street planning & construction board & dept.			S						
buildings in flood zones			V		purchase removal of vacant sites		purchase buildings in flood zones	L	
not in FEMA community assistance don't have CPA			V						

expand water to existing developed areas ✓ expand capacity of sewer plant
 (current vulnerability)
 Public Power Company = strength ✓
 (water)
 Washington to Coast Street - playground traffic design ✓
 - aging water pipes ✓

An example completed 'Environmental' risk matrix. Colored dots indicate the small group participant voting to prioritize each action.

2. Top Hazards of Concern

Often, when discussing hazards, separating the hazard and its impact can be difficult. Earlier in the MVP/HMP process, as part of the development of the Hazard Index for the Hazard Mitigation Plan (HMP) update, the Core Team determined the four categories of hazards for consideration at the MVP workshop. The presentation by HW included a list of all hazards for consideration in the development of the HMP update, with those categorized as 'high' hazards making the list of primary hazards utilized to address the framework of the workshop:

- Winter Hazards (Blizzards/Snow)
- Severe Storms (Heavy Winds/Nor' Easters/Hurricanes)
- Changing Precipitation Patterns (Intensity/Volume of Rain/Flooding)
- Temperature Extremes (Extreme Heat/Extreme Cold)

3. Current Concerns and Challenges Presented by Hazards

Taunton has experienced several climate and weather-related challenges in recent years and can expect to experience more severe events in the years to come due to climate change.

Localized flooding is a concern for the City, particularly areas along Cobb Brook, Old Tremont Street, Railroad Avenue, Hart Street and the area surrounding the Bristol-Plymouth Regional Technical School. Severe winter storms continue to increase in frequency and severity in Taunton, often limiting residents' mobility throughout the City. The number of drought events in recent years has also increased in severity and frequency. Finally, increases in precipitation frequency and severity resulted in significant concerns in Taunton, particularly with the Whittenton Pond Dam emergency in 2005.



Localized flooding along the Taunton River.



Localized flooding along commercial corridor areas.



Mill River surging at the Whittenton Pond Dam site after back-to-back rain events in 2005.

Among the discussion groups at the workshop, a range of vulnerabilities were identified among the infrastructural, societal and environmental assets of the Town. These included:

Infrastructural

- School district roofs
- Municipal and medical facilities (city-wide)
- Roads//bridges (city-wide)
- Drainage (city-wide)
- Downed poles/wires and trees
- Wastewater facilities (treatment plant/pump stations/sewer backups)
- Cyber security/Communications
- Water Treatment Plant (contamination of)
- Taunton airport
- Reservoir (drinking water supply)
- Power backup/generators (for critical infrastructure)
- Energy efficiency of schools
- Water main breaks (Dunbar/Chester)
- Rotary (as a concern for evacuation)
- Plowing/over-salting damage to roadways/sidewalks
- Overuse of impervious surfaces
- Combined Sewer Overflow
- Bristol-Plymouth Regional Technical High School flooding
- Aging water infrastructure

Societal

- Cooling center HVAC/Limited cooling infrastructure
- Pets (sheltering)
- Evacuation routes (flooding)
- Food/Water supplies (Providence Canteen Truck)
- Public transportation
- Environmental Justice and communications
- Taunton Nursing Home/congregate care (evacuation, limited generators)
- Snow removal (sidewalks/safety)
- Playgrounds (accessibility)
- Lack of respect/adherence to parking bans/other protective measures
- Communications (accessible/universal and adequate warning time)
- Outdated infrastructure (HUD housing)
- Programmatic service centers for persons with disabilities/access functional needs
- General lack of reliable land lines
- Limited homeless accommodations
- Shelters not equitably distributed across the City
- Climate change preparedness
- Pediatric asthma rates

Environmental

- Water quality/drinking water supply (pollutants)
- Toxic users/Hazardous materials
- Landfills/Brownfields in flood zones
- Tick-borne diseases/mosquitos (greater range)
- Preservation of agricultural land
- Habitat loss
- Invasive species (Sabbatia Lake)
- Taunton River Trail
- Bike routes
- Electric charging stations
- Illegal dumping
- Loss of street trees/riverbank vegetation
- Over-fertilization
- Drinking water contamination (septic systems)
- Increased salt use during storms
- Limited municipal staff for parks maintenance
- Structures in flood zones
- FEMA Community Resilience (don't have Community Preservation Act)
- Expansion of sewers
- Traffic/Roadway design (Washington to Court Street)
- Aging water infrastructure

4. Current Strengths and Assets

Among the discussion groups at the workshop, a range of strengths were also identified among the infrastructural, societal and environmental assets of the Town. These included:

Infrastructural

- Roads/Bridges (city-wide)
- Taunton airport
- Taunton Municipal Light Plant redundancy (capacity for)
- Lakeville pump station backup power plan
- Backup generators for water pump stations

Societal

- Morton Regional Hospital
- High School HVAC/New schools (cooling centers)
- Food/Water supply (Providence Canteen Truck)
- Shelters/Sheltering Plan
- Municipal partnerships
- Taunton Nursing Home
- Taunton CERT Team
- Schools 'Remind' communication
- Playgrounds (accessibility)

- Taunton Municipal Light Plant

Environmental

- Electrification (transportation)
- Landfills/Brownfields
- Wetlands regulations
- Areas of Critical Environmental Concern
- Preservation of agricultural lands
- Tree maintenance/plantings/vegetation management
- Bike routes
- Open space
- Electric charging stations
- Parking lot runoff (prevention)
- Diversity of natural resources
- Abundance of active recreation land
- Rain gardens/bioswales
- Robust Planning/Conservation boards/departments

6. Top Recommendations to Improve Resilience

Following the presentation of each group's priorities, workshop participants, along with the workshop facilitator, combined duplicative suggestions to create a final list of recommendations. These were then further prioritized using dot voting. Five action items were chosen as the highest priority for the City and are listed below:

1. Improve Drainage Infrastructure and Capacity
 - a. Stormwater Infrastructure Assessment. Minimize flooding on evacuation routes, roadways (particularly along Cobb Brook, Hart Street, Bristol-Plymouth Regional Technical School), parking lots, and increase capacity.
 - i. Retrofits, replacement Low Impact Development (LID), and Green Infrastructure (GI)/Nature Based Solutions.
2. Improve Emergency Response Planning and Communications
 - b. Educate community of emergency response planning (mailings).
 - i. Ensure ADA-accessibility/Universal Access/Environmental Justice provisions.
 - ii. Consider an app for shelter information and evacuation routes (based on type/location of hazard event).
 - iii. Which shelters accept pets.
 - c. Hire a Public Information Officer.
 - d. Expand Heating/Cooling capacity (consider mobile 'hubs').
3. Coordinate installation/maintenance of new/improved sidewalks with all responsible departments/parties.
 - e. Coordinate construction/reconstruction in concert with site/roadway improvement projects.

- i. Ensure ADA-accessibility/Universal Access compliance (remove obstructions).
 - b.) Expand snow removal ordinance to include school zones
- 4. Coordinate with the Taunton Municipal Light Plant to develop community notification program regarding power outages.
 - f. Create power outage map viewer with specific locations and estimated response time for restored power.
- 5. Brownfield Site Cleanup/Redevelopment.
 - g. Utilize EPA's Targeted Brownfields Assessment (TBA) program for support.
 - h. Support property owners through the cleanup/redevelopment process.



Workshop participants identify their top priority actions the City should move forward with.

7. Conclusion and Next Steps

Taunton continued the MVP-certification process by presenting and distributing the findings of the public workshop at a formal public information and listening session on May 9, 2022 from 6:00 PM – 8:00 PM followed by the Hazard Mitigation Plan Update public workshop. This session provided an opportunity for any member of the interested public to learn, ask questions, and provide feedback about the MVP Workshop and the recommended highest priority actions that emerged from that workshop. No comments were brought forward from participants in attendance at the Listening Session.

Priorities identified during the MVP Workshop will be integrated into existing municipal planning efforts, in particular, the update to the HMP (currently underway by the Horsley Witten Group, Inc.). The City will also continue to pursue grant funding to implement the priority actions identified through the MVP Workshop process to continue to improve the City's resilience to climate change.

Attachment A: List of Workshop Participants

Taunton MVP Workshop – March 10, 2022
Participants

LAST NAME	NAME	ROLE
Abreu	Tony	Assistant Commissioner DPW
Ames	Rick	Superintendent of Buildings
Aruda	Mike	Water Dept.
Britland	Sonja	Taunton Municipal Light Plant
Callahan	Joe	President, Taunton River Watershed Association
Clark	Kevin	Maint. Supervisor, Parks, Cemeteries and Grounds
Davis	Jeff	Horsley Witten Group
DiCorpo	Donna	Mobility/ADA Specialist
Driscoll	Bill	Supervisor of Buildings, Grounds and Trans. Bristol-Plymouth Regional Technical School
Dorsey	Jay	Chairman, Parking Commission, Taunton BID
Duarte	Phillip	City Council/Sustainable Taunton
Fagan	Christine	School Board
Ferreira	Rick	Director, Taunton EMA
Fleck	Rachel	MEMA Taunton Local Coordinator
Foster	Stephen	Taunton CERT
Gallant	Heather	Executive Director, Health Department
Higgins	Jon	Director of Facilities, GATRA
Holmes	Kim	Taunton Municipal Light Plant
Keefer	Will	Horsley Witten Group
King	Kellie	Horsley Witten Group
Madeira	Ligia	Deputy Chief of Staff
Marshall	Andy	Commissioner, Parks and Recreation
Moravec	Krista	Horsley Witten Group
Morris	Russ	Sabbatia Lake/Turtle Guy
Mosher	Mark	Assist. Principal, Bristol-Plymouth Reg. Tech School
Moynihan	Brenda	School District
Napalitano	Bill	SRPEDD
O'Connell	Shaunna	Mayor
Patneaude	Mike	City Engineer
Pereira	Craig	Horsley Witten Group
Restino	Michele	Conservation Agent
Roth	Bill	Director, Econ. & Community Development
Santos	Honorato	Police Dept.
Sasportas	Kari	MA Office of Tech. Assist. and Technology

LAST NAME	NAME	ROLE
Scanlon	Kevin	City Planner
Shafer	Dick	Taunton Development Corporation
Silverstein	Dr.	Environmental Studies Teacher
Simmons	Colleen	Downtown BID/Downtown Taunton Foundation
Skogstrom	Tiffany	MA Office of Tech. Assist. and Technology
Sullivan	Dana	Taunton Municipal Light Plant
Torres	Taylor	Grant Coordinator, Econ. & Community Planning
Travers	Margaret	Friends of Boyden
Vickstrom	Adam	Assist. Executive Director, Health Department
Walsh	Edward	Police Chief

Attachment B: Workshop Handouts

- Agenda
- Prior Recommendations (2004 Hazard Mitigation Plan)
- Climate Change Projections
- Example Vulnerabilities and Strengths
- Demographics

Taunton Municipal Vulnerability Preparedness (MVP) Workshop

Thursday March 10, 2022 9:00 am – 3:00 pm
Chester R. Martin Municipal Council Chambers
15 Summer Street Taunton, MA

ANNOTATED AGENDA

TIME	ACTIVITIES	NOTES
8:30 AM	Registration and Refreshments	
9:00 AM (5 min)	Welcome and Introductions	Mayor O'Connell Rick Ferreira
9:05 AM (10 min)	Workshop Overview Purpose, desired outcomes, expectations Review agenda	Craig Pereira Horsley Witten Group (HWG)
9:15 AM (30 min)	Overview of Science and Data Resources Review recent climate related events. Present summary of anticipated climate changes. Present summary of recent/existing planning efforts.	Craig Pereira (HWG)
9:45 AM (10 min)	Small Group Exercise #1...breakout groups Introduction to Hazard/Vulnerability Matrix and Instructions for Small Group Exercise #1	Small Group Facilitators (HWG)
9:55 AM (75 min)	Small Group Exercise #1 Identify Vulnerabilities and Strengths, Location, Ownership	Small Group Facilitators (HWG) (25 mins. each category)
11:10 AM	BREAK	(15 mins)
11:25 AM (5 min)	Small Group Exercise #2...breakout groups Introduction to Community Actions and Instructions for Small Group Exercise #2	Small Group Facilitators (HWG)
11:30 PM (80 min)	Small Group Exercise #2 Identify Community Actions Prioritize Actions	Small Group Facilitators (20 mins. each category) (20 mins. to prioritize actions)
12:50 PM	WORKING LUNCH	(20 mins.)
1:10 PM (20 min)	Small Group Report Out	(HWG) (5 mins. per group)
1:30 PM (60 min)	Large Group Exercise #1 Prioritization of Actions	(HWG)
2:30 PM (30 min)	Wrap Up/Questions	(HWG)
3:00 PM	ADJOURN	



**Taunton Municipal Vulnerability Preparedness (MVP) Grant Project
KEY RECOMMENDATIONS FROM 2004 HAZARD MITIGATION PLAN**

RECOMMENDATION	HAZARD	2021 STATUS
Vulnerable Area: Drainage Infrastructure - Citywide		
Correct repetitive flooding problem in the Weir Village/Water Street area associated with Cobb Brook.	Flooding	Completed...August 2010
Correct drainage problem in the Bennett Street area (underground brook).	Flooding	Completed...ongoing. Move to Capability Assessment
Improve roadway drainage to eliminate repetitive flooding problems along Middleborough Avenue.	Flooding	Completed...November 2019
Improve roadway drainage to eliminate repetitive flooding problems along Old Tremont Street.	Flooding	Not Completed, carry forward
Improve roadway drainage to eliminate repetitive flooding problems along Railroad Avenue.	Flooding	Not Completed, carry forward
Improve roadway drainage to eliminate repetitive flooding problems along County Street.	Flooding	Currently being addressed
Vulnerable Area: Emergency Services		
Purchase generator for the Board of Health to protect vaccines.	All Hazards	Completed
Vulnerable Area: Dams		
	Flooding	Completed
Make improvements to Assawompsett Dam. (collaboratively with New Bedford)	Flooding	Not Completed...remove
Encourage owners of private dams and retaining walls along the Mill River to maintain or upgrade these facilities. A failure along the River has the potential to flood downstream areas, including the densely developed downtown area.	Flooding	Completed
Vulnerable Area: Community Education/Awareness		
Integrate Disaster Mitigation in the next Comprehensive Plan process.	All Hazards	Completed...2019
Update Pre-Disaster Mitigation Plan at least every five years.	All Hazards	Currently being addressed
Maintain active CERT program and pursue additional funds for volunteers to get additional training including Unified Incident Command (UIC).	All Hazards	Completed...ongoing. Move to Capability Assessment
Develop a targeted mail piece for Taunton households on disaster preparedness.	All Hazards	Completed...ongoing. Move to Capability Assessment

Source: City of Taunton Hazard Mitigation Plan 2004, Taunton Local Hazard Mitigation Committee 2021.



Taunton Municipal Vulnerability Preparedness (MVP) Grant Project:
CLIMATE CHANGE PROJECTIONS¹

TEMPERATURE

HIGHLIGHTS:

- ✓ By 2050, we could have more than 5 times as many very hot days (over 90°F) than we do today. By 2100, we could have up to 10 times as many.
- ✓ We will have far fewer days with temperatures below freezing.
- ✓ We will have to expend less energy on heating in the winter, and far more on air conditioning in the summer.
- ✓ The growing season will increase by almost half by 2050 and could almost double by the end of the century.

Table 1: TEMPERATURE PROJECTIONS

Climate Parameter	Baseline (1971-2000)	Mid-Century (2050s)	End of Century (2090s)
Average Annual Temperature (°F) <i>Taunton</i>	49.9	52.5 – 55.8	56.5 – 64.4
Maximum Annual Temperature (°F) <i>Taunton</i>	60.3	62.7 – 66.2	63.4 – 70.6
Minimum Annual Temperature (°F) <i>Taunton</i>	39.4	42.3 – 45.5	43.2 – 50.0
Annual Days with Max Temp over 90°F <i>Taunton</i>	7	15 – 37	19 - 73
Annual Days with Min Temp below 32°F <i>Taunton</i>	130	111 - 86	105 - 62
Annual Heating Degree-Days (Base 65°F) <i>Taunton</i>	6,130	5,420 – 4,651	5,223 – 3,805
Annual Cooling Degree-Days (Base 65°F) <i>Taunton</i>	580	840 – 1,285	955 – 2,019
Annual Growing Degree-Days (Base 50°F) <i>Taunton</i>	2,622	3,128 – 3,812	3,287 – 4,984

¹ Source: Northeast Climate Science Center, 2018. *Massachusetts Climate Change Projections*. University of MA Amherst. Published by MA Executive Office of Energy and Environmental Affairs. Available at: <http://www.massclimatechange.org/resources/resource::2152/massachusetts-climate-change-projections-statewide-and-for-major-river-basins>. Data is for the Taunton Basin, which includes the land area of Taunton.

PRECIPITATION

HIGHLIGHTS:

- ✓ Average annual precipitation in Taunton will increase up to 11% by 2050 and up to 15% by 2100.
- ✓ The largest increases in precipitation will occur in winter.
- ✓ The greatest increase in consecutive dry days will occur in summer/fall.

Table 2: PRECIPITATION PROJECTIONS

Climate Parameter	Baseline (1971-2000)	Mid-Century (2050s)	End of Century (2090s)
<u>Total Precipitation (inches):</u>			
Annual <i>Taunton</i>	47.5	47.8 – 52.8	47.9 – 54.8
Winter <i>Taunton</i>	12.1	12.2 – 14.1	12.3 – 15.9
Spring <i>Taunton</i>	11.9	11.9 – 13.9	12.1 – 14.5
Summer <i>Taunton</i>	11.0	10.3 – 12.7	9.1 – 13.1
Fall <i>Taunton</i>	12.4	11.6 – 13.9	10.7 – 13.8
Annual Days with Precipitation over 1 inch <i>Taunton</i>	8	9 - 11	9 - 12
Annual Days with Precipitation Over 2 inches <i>Taunton</i>	1	1 - 2	1 - 2
Annual Days with Precipitation Over 4 inches <i>Taunton</i>	0	0 - 0	0 - 0
Annual Consecutive Dry Days <i>Taunton</i>	17	17 - 20	17 - 21



Taunton Municipal Vulnerability Preparedness (MVP) Grant Project:
EXAMPLES of VULNERABILITIES and STRENGTHS¹

INFRASTRUCTURE

Examples of Vulnerabilities:

- Main road floods during storms, blocking emergency response.
- Power outages during heat waves lead to health concerns.
- Wildfire and high winds resulting in supply chain interruptions.
- Sewer pump stations become submerged and inoperable.
- Compromised rail system due to heat-related warping of tracks.

Examples of Strengths:

- Critical road elevated and passable by emergency management.
- Hurricane roof installed at school with improved sheltering capacity.
- Hardened utility lines reduce outages due to ice storms.
- Undersized culvert replaced to reduce flooding in key intersection.
- Improvement to communication systems during extreme weather.

SOCIETAL

Examples of Vulnerabilities:

- Senior housing without backup generators during heat waves.
- Residents without access to transportation during hurricane evacuation.
- Household contamination and sewage mobilization during flooding.
- Limited areas of refuge in elementary schools during tornados.

Examples of Strengths:

- Reliable communications protocols across departments for all employees.
- “Neighbor-helping-neighbor” program aligned with emergency operations.
- Well-supported volunteer organizations (fire, ambulance, CERTs).
- Faith-based and civic groups with hazard preparedness plans.

ENVIRONMENTAL

Examples of Vulnerabilities:

- Proliferation of subdivisions in wildfire and flood prone areas.
- Lack of urban tree canopy increasing heat island effect.

Examples of Strengths:

- Forested watersheds maintain drinking water supply during droughts.
- Native, vegetated slopes remain stable after intense 24hr rain events.
- Floodplains provide stormwater storage and downstream flood reduction.

¹ Source: Community Resilience Building Workshop Guide, communityresiliencebuilding.com



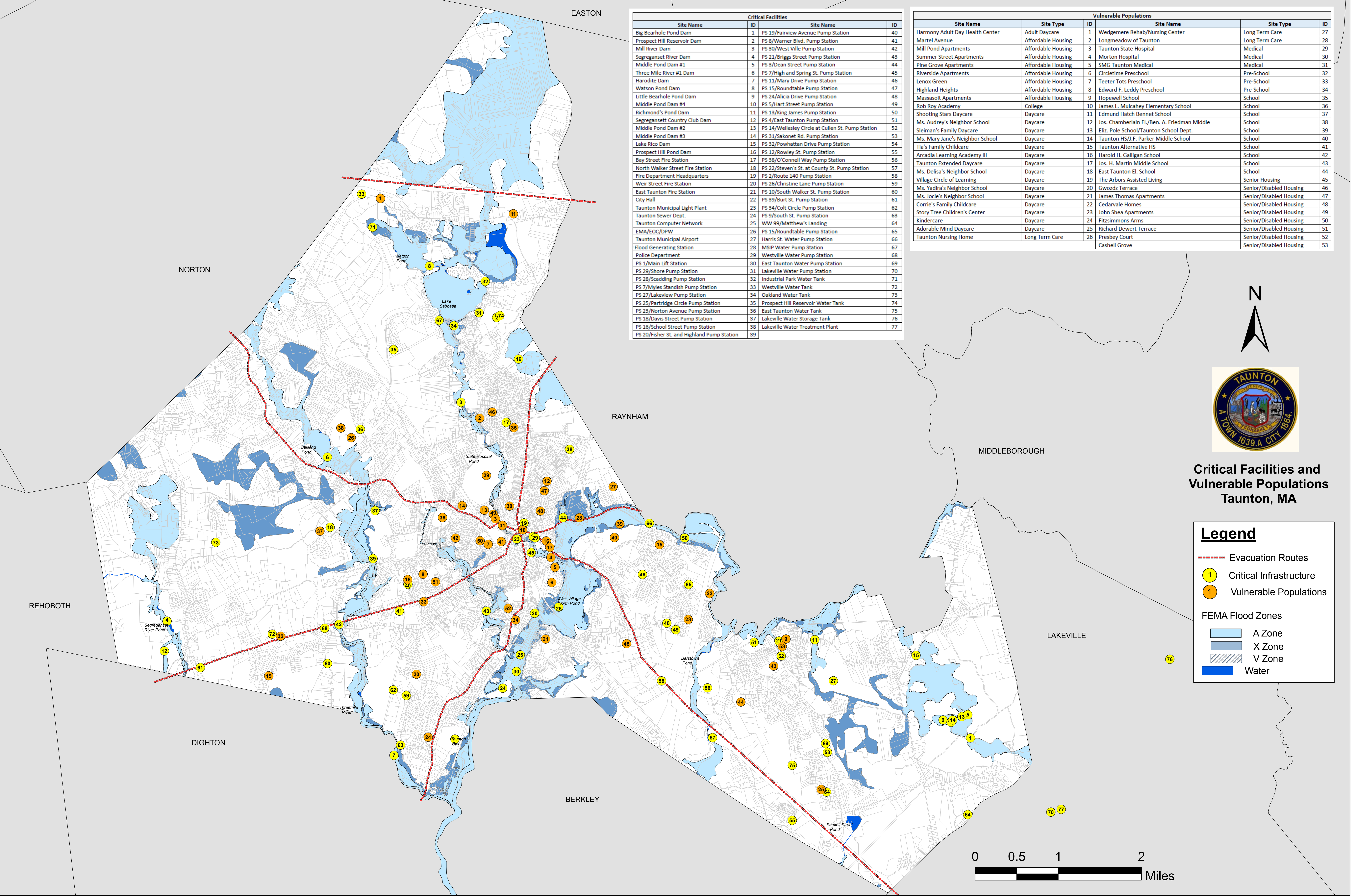
Taunton Municipal Vulnerability Preparedness (MVP) Grant Project:
SELECTED DEMOGRAPHIC DATA¹

Demographic Parameter	Result
Population	55,860 people (2018 estimate)
Age	0-19 = 23% 20-34 = 20% 35-64 = 42% 65+ = 15%
Income	<\$40K = 36% \$40-60K = 17% \$60K+ = 47%
% Below Poverty Line	12%
Race	White = 87% Black = 7% Asian = 1% Other = 5%
Ethnicity	Hispanic = 6% Not Hispanic = 94%
Environmental Justice	23.6% (12.1% statewide)
Heart Attack Hospitalizations	29.8 (age-adjusted rate per 10,000 people)
Asthma Emergency Department Visits	108.1 (age-adjusted rate per 10,000 people)
Pediatric Asthma Prevalence	14.2% of all children enrolled in grades K-8

¹ Source: MA Dept of Public Health, 2018. MA Environmental Public Health Tracking Community Profile for Taunton. Report Created on March 4, 2020.

Attachment C: Base Maps

- Critical Facilities/Vulnerable Populations on FEMA Flood Zones
- Population Density



Critical Facilities			
Site Name	ID	Site Name	ID
Big Bearhole Pond Dam	1	PS 19/Fairview Avenue Pump Station	40
Prospect Hill Reservoir Dam	2	PS 8/Warner Blvd. Pump Station	41
Mill River Dam	3	PS 30/West Ville Pump Station	42
Segregansett River Dam	4	PS 21/Briggs Street Pump Station	43
Middle Pond Dam #1	5	PS 3/Dean Street Pump Station	44
Three Mile River #1 Dam	6	PS 7/High and Spring St. Pump Station	45
Harodite Dam	7	PS 11/Mary Drive Pump Station	46
Watson Pond Dam	8	PS 15/Roundtable Pump Station	47
Little Bearhole Pond Dam	9	PS 24/Alicia Drive Pump Station	48
Middle Pond Dam #4	10	PS 5/Hart Street Pump Station	49
Richmond's Pond Dam	11	PS 13/King James Pump Station	50
Segregansett Country Club Dam	12	PS 4/East Taunton Pump Station	51
Middle Pond Dam #2	13	PS 14/Wellesley Circle at Cullen St. Pump Station	52
Middle Pond Dam #3	14	PS 31/Sakonet Rd. Pump Station	53
Lake Rico Dam	15	PS 32/Powhattan Drive Pump Station	54
Prospect Hill Pond Dam	16	PS 12/Rowley St. Pump Station	55
Bay Street Fire Station	17	PS 38/O'Connell Way Pump Station	56
North Walker Street Fire Station	18	PS 22/Steven's St. at County St. Pump Station	57
Fire Department Headquarters	19	PS 2/Route 140 Pump Station	58
Weir Street Fire Station	20	PS 26/Christine Lane Pump Station	59
East Taunton Fire Station	21	PS 10/South Walker St. Pump Station	60
City Hall	22	PS 39/Burt St. Pump Station	61
Taunton Municipal Light Plant	23	PS 34/Colt Circle Pump Station	62
Taunton Sewer Dept.	24	PS 9/South St. Pump Station	63
Taunton Computer Network	25	WW 99/Matthew's Landing	64
EMA/EOC/DPW	26	PS 15/Roundtable Pump Station	65
Taunton Municipal Airport	27	Harris St. Water Pump Station	66
Flood Generating Station	28	MSIP Water Pump Station	67
Police Department	29	Westville Water Pump Station	68
PS 1/Main Lift Station	30	East Taunton Water Pump Station	69
PS 29/Shore Pump Station	31	Lakeville Water Pump Station	70
PS 28/Scadding Pump Station	32	Industrial Park Water Tank	71
PS 7/Myles Standish Pump Station	33	Westville Water Tank	72
PS 27/Lakeview Pump Station	34	Oakland Water Tank	73
PS 25/Partridge Circle Pump Station	35	Prospect Hill Reservoir Water Tank	74
PS 23/Norton Avenue Pump Station	36	East Taunton Water Tank	75
PS 18/Davis Street Pump Station	37	Lakeville Water Storage Tank	76
PS 16/School Street Pump Station	38	Lakeville Water Treatment Plant	77
PS 20/Fisher St. and Highland Pump Station	39		

Vulnerable Populations					
Site Name	Site Type	ID	Site Name	Site Type	ID
Harmony Adult Day Health Center	Adult Daycare	1	Wedgemere Rehab/Nursing Center	Long Term Care	27
Martel Avenue	Affordable Housing	2	Longmeadow of Taunton	Long Term Care	28
Mill Pond Apartments	Affordable Housing	3	Taunton State Hospital	Medical	29
Summer Street Apartments	Affordable Housing	4	Morton Hospital	Medical	30
Pine Grove Apartments	Affordable Housing	5	SMG Taunton Medical	Medical	31
Riverside Apartments	Affordable Housing	6	Circletime Preschool	Pre-School	32
Lenox Green	Affordable Housing	7	Teeter Tots Preschool	Pre-School	33
Highland Heights	Affordable Housing	8	Edward F. Leddy Preschool	Pre-School	34
Massasoit Apartments	Affordable Housing	9	Hopewell School	School	35
Rob Roy Academy	College	10	James L. Mulcahey Elementary School	School	36
Shooting Stars Daycare	Daycare	11	Edmund Hatch Bennet School	School	37
Ms. Audrey's Neighbor School	Daycare	12	Jos. Chamberlain El./Ben. A. Friedman Middle	School	38
Sleiman's Family Daycare	Daycare	13	Eliz. Pole School/Taunton School Dept.	School	39
Ms. Mary Jane's Neighbor School	Daycare	14	Taunton HS/J.F. Parker Middle School	School	40
Tia's Family Childcare	Daycare	15	Taunton Alternative HS	School	41
Arcadia Learning Academy III	Daycare	16	Harold H. Galligan School	School	42
Taunton Extended Daycare	Daycare	17	Jos. H. Martin Middle School	School	43
Ms. Delisa's Neighbor School	Daycare	18	East Taunton El. School	School	44
Village Circle of Learning	Daycare	19	The Arbors Assisted Living	Senior Housing	45
Ms. Yadir's Neighbor School	Daycare	20	Gwozdz Terrace	Senior/Disabled Housing	46
Ms. Jocie's Neighbor School	Daycare	21	James Thomas Apartments	Senior/Disabled Housing	47
Corrie's Family Childcare	Daycare	22	Cedarvale Homes	Senior/Disabled Housing	48
Story Tree Children's Center	Daycare	23	John Shea Apartments	Senior/Disabled Housing	49
Kindercare	Daycare	24	Fitzsimmons Arms	Senior/Disabled Housing	50
Adorable Mind Daycare	Daycare	25	Richard Dewert Terrace	Senior/Disabled Housing	51
Taunton Nursing Home	Long Term Care	26	Presbey Court	Senior/Disabled Housing	52
			Cashell Grove	Senior/Disabled Housing	53



Critical Facilities and Vulnerable Populations Taunton, MA

Legend

----- Evacuation Routes

1 Critical Infrastructure

1 Vulnerable Populations

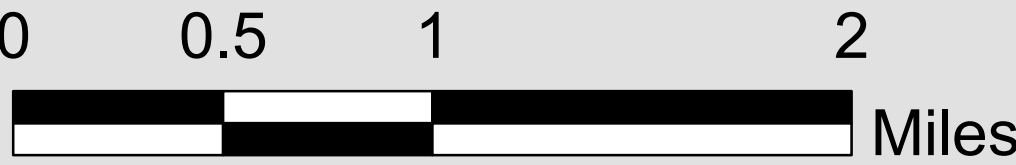
FEMA Flood Zones

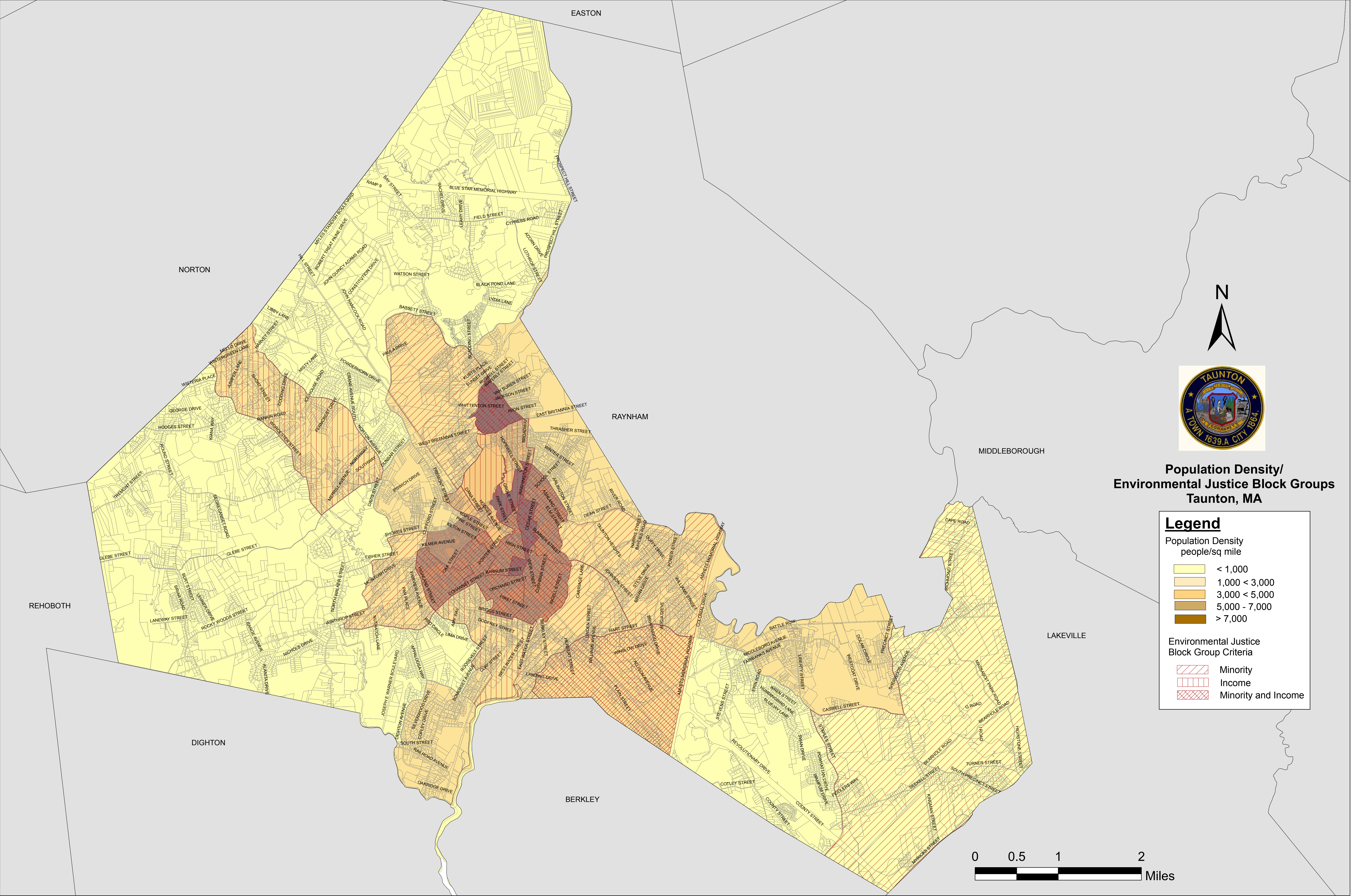
A Zone

X Zone

V Zone

Water





**Population Density/
Environmental Justice Block Groups
Taunton, MA**

Legend

Population Density
people/sq mile

	< 1,000
	1,000 < 3,000
	3,000 < 5,000
	5,000 - 7,000
	> 7,000

Environmental Justice
Block Group Criteria

	Minority
	Income
	Minority and Income

Attachment D: Discussion Matrices from the Four Discussion Groups

Community Resilience Building Risk Matrix



Group 1

www.CommunityResilienceBuilding.org



Location = Mark on the map, note on matrix Multiple, Specific or Town-Wide

V = Vulnerability S = Strength

High, Medium, or Low priority for action over the Short or Long term (and Ongoing)

Top Priority Hazards (floods, wildfire, hurricanes, drought, sea level rise, heat wave, etc.)

V = Vulnerability S = Strength High, Medium, or Low priority for action over the Short or Long term (and Ongoing)				Winter Hazards (Blizzards/Snow)	Severe Storms (Heavy Winds/Nor' Easters/Hurricanes)	Changing Precipitation Patterns (Intensity/Volume of Rain/Flooding)	Temperature Extremes (extreme heat/extreme cold)	Priority H - M - L	Time Short Long Ongoing
Features	Location	Owner	V or S						
Infrastructural									
School roofs	Citywide	Public	V				Assessment in CIP (cool-roof solutions)		
Municipal and medical facilities	Citywide	Public/Private	V				Assessment in CIP (cool-roof solutions)		
Roads/Bridges	Citywide/Cobb River	Public/Private	V/S	Drainage improvements in CIP			Use resilient materials for construction		
Drainage	County St./Route 44/Plain St.	Public	V	Drainage improvements in CIP					
Poles/Wires and trees	Citywide	Public/TMLP	V	Year-round as part of strategic plan/public education/underground when possible					
Wastewater facilities	WWTP	Public	V	EOPs Plan (build better infrastructure to prevent flooding/chemical storage is less volatile/implement CSO replacement)					
Cyber security/Communications	SCADA	Public	V	EUPs Plan (municipal assessment, then employee training/public education					
Water Treatment Plant (contamination)	Lakeville	Public	V	Chlorine storage (chemical storage/safety)					
Taunton Airport	Airport	Public	S/V	Include in HMP					

Societal									
Hospital	Citywide	Private	S	Explore health hubs in the City					
High School HVAC/New schools	Citywide	Public	S	Add HVAC to all facilities					
Cooling center HVCA	Citywide	Public	V						
Pets	Citywide	Public	V	Establish and communicate pet policy					
Evacuation routes/flooding	Route 44/140	Public	V	Expand evacuation routes and communicate to public					
Food/Water (Providence Canteen Truck)	Citywide	Public	V/S						
Public Transportation	Citywide/Regional	Public	V	Battery Storage - Generators					
EJ Communication	Citywide	Public	V	Involve EJ community leaders to assess needs (plan with people - not for or around them)					

Environmental								
Run off pollutions in water bodies/ways	Citywide	Public	V	Improve drainage/redirect properly based on capacity (runoff from cranberry bogs/agriculture)				
Toxic users (large and small)	Citywide	Public	V	Homeowner education/environmental and pet-friendly (RMP chemical safety/emergency drills with TEMA/Using Office of Technology and Assistance as a free resource to help guide toxics users)				
Electrification (transportation)	Citywide/ Regional	Public	S	<u>Expand EV fleet/Battery/solar</u>				
Landfill/Brownfields (maintain drainage)	Citywide	Public	S/V	Power source (solar/methane)				
Wetlands regulations	Citywide	Public	S	<u>Retain and properly manage</u>				
Areas of Critical Environmental Concern (ACEC)	Wild and Scenic River (3 areas)	Public/Private	S	<u>Plan: combine green and hard infrastructure</u>				
Tick-borne disease	Citywide	Public/Private	V					
Preservation of agricultural land	Citywide	Public/Private	S/V	<u>Incentivize agricultural lands/add community gardens</u>				
Habitat loss	Citywide	Public/Private	V	<u>Incentivize agricultural lands/add community gardens</u>				

Community Resilience Building Risk Matrix



Group 2

www.CommunityResilienceBuilding.org



Location = Mark on the map, note on matrix Multiple, Specific or Town-Wide

V = Vulnerability S = Strength

High, Medium, or Low priority for action over the Short or Long term (and Ongoing)

Top Priority Hazards (floods, wildfire, hurricanes, drought, sea level rise, heat wave, etc.)

V = Vulnerability S = Strength High, Medium, or Low priority for action over the Short or Long term (and Ongoing)				Top Priority Hazards (floods, winds, hurricanes, drought, sea level rise, heat wave, etc.)				Priority	Time
				Winter Hazards (Blizzards/Snow)	Severe Storms (Heavy Winds/Nor' Easters/Hurricanes)	Changing Precipitation Patterns (Intensity/Volume of Rain/Flooding)	Temperature Extremes (extreme heat/extreme cold)	H · M · L	Short Long Ongoing
Features	Location	Owner	V or S						
Infrastructural									
Drainage	Cobb Brook	Public	V	Fund engineering/design study					
Drainage	CitywideHart St./Bristol-Plymouth Tech. School	Public	V	Continue investigating sources					
Drainage	Main St./Trescott	Public	V	Address maintenance challenges					
Sewer Pump Stations (MSIP)	Citywide	Public	V	Fund engineering/design study for flood protection					
Reservoir	Prospect Hill St.	Public	V	Fund updates/repairs					
Power backup	Oak St.	Public	V	Engineering/design backup generator					
Engineering efficiency	Schools	Public	V	Address priority (Siemens Energy Performance Plan					

Societal								
Shelters	Schools	Public	S					
Partnerships	Municipal Depts.	Public	S					
Cooling center	Varies	Public	V/S			Identify and purchase portable cooling units		
Taunton Nursing Home	Norton Ave.	Public	V/S					
Taunton CERT Team	Citywide	Public	S					
School 'Remind' communication	Schools	Public	S	Expand capabilities to communicate non-emergencies, translation services				
Snow removal - sidewalks	Citywide	Public	V/S	Explore ordinance to include school zones, public education				
Playground (accessibility)	Citywide	Public	V/S	Continue with upgrades for accessibility				

Environmental								
Invasive plants	Sabbatia Lake	Public	V	Develop Lake Management project/fund ongoing maintenance				
Tree maintenance	Citywide	Public/Private	S	Develop Adopt-a-Tree program				
Tree Planting	Citywide	Public/Private	S	Develop Adopt-a-Tree program				
Taunton River Trail		Public	V	Develop Taunton River Trail plan (feasibility study)				
Bike routes	Citywide	Public	S/V	Move plan forward				
Open space	Citywide	Public	S			Expand community gardens		
Electric charging	Citywide	Public	S/V	Continue to expand, develop plan				
Illegal dumping	Citywide	Public	V		Implement existing tools and expand monitoring, add public education			

Community Resilience Building Risk Matrix



Group 3

www.CommunityResilienceBuilding.org



Location = Mark on the map, note on matrix Multiple, Specific or Town-Wide

V = Vulnerability S = Strength

High, Medium, or Low priority for action over the Short or Long term (and Ongoing)



Top Priority Hazards

V = Vulnerability S = Strength High, Medium, or Low priority for action over the Short or Long term (and Ongoing)				Winter Hazards (Blizzards/Snow)	Severe Storms (Heavy Winds/Nor' Easters/Hurricanes)	Changing Precipitation Patterns (Intensity/Volume of Rain/Flooding)	Temperature Extremes (extreme heat/extreme cold)	Priority H · M · L	Time Short Long Ongoing
Features	Location	Owner	V or S						
Infrastructural									
Water main breaks	Dunbar/Chester	Public	V	Continue upgrades/replacements				H	S
Sewer backup during storms	Route 44	Public	V	Open up drainage, reduce I&I, replace infrastructure					
Rotary as a concern for evacuation/roadway capacity	Route 44/140	Public	V	Implement master plan, complete ring-road system					
Flooding in hazardous materials facilities/brownfields	Varies	Private	V	Ensure facilities are following EPCRA: property awareness program, abandoned sites: find investors to improve					
Flooding (localized)	Dean St./ Route 44	Public	V	Mitigation					
Power system (TMLP) redundancy	Citywide	Public	S						
Pump station backup power plan	Lakeville pump station	Public	S						
Sewer pump stations in flood zones	Citywide	Public	V	Fund engineering/design study for flood protection					
Backup generators for water pump stations	Citywide	Public	S	Prioritize/purchase					
Generators for critical infrastructure	Citywide	Public	V	Survey buildings/prioritize/purchase					

Societal

Citizens not abiding by parking bans and other emergency protective measures	Citywide	Public	V	Develop communication plan/enforcement on secondary roads/building capacity				H	O
Sidewalk clearing from snow	Citywide	Public/Private	V	Purchase sidewalk snowplow for City property				H	S
Accessible communications to all residents	Citywide	Public	V	Public outreach/education (institute neighborhood communication : Next door)				H	O
Old Infrastructure (HUD units)	Summer St.	Public	V	Coordination with federal/state agencies on upgrades (DHCD)				M	L
Taunton Municipal Light Plant	Citywide	Public	S						
Shelter Plan (cooling/warming)	Citywide	Public	S	Ensure shelters are designated as shelters					L
Programmatic service centers for PWD/AFN	Citywide	Public	V	Educate City staff/residents in requirements				H	O
Lack of landline phones/VOI	Citywide	Private	V	Add under communications plan					
Lack of homeless shelters	Citywide	Public	V	Education to that population and municipal staff regarding responsibility					
Morton Regional Hospital	Citywide	Private	S					H	S/O

Environmental						
Losing street trees	Citywide	Public	V	Partner with TreeCityUSA/planting correct trees/maintenance		M L
Loss of vegetation on riverbanks (esp. Colonial Drive)	Citywide	Public	V	Preserve buffers/education of property owners		H O
Over-fertilization	Citywide	Private	V	Education to property owners		H L
Dam concerns with drought/water quality from septic	Long Pond		V	Educate/encourage residents to get on sewers (work with Lakeville)		H L
Parking lot (runoff prevention)	City Hall	Public	S	Expand this best practice/education (stormwater management/Nature-based solutions)		H L
Increased salt use during snow events	Citywide	Public	V	Management plan to control/education/training of staff		H S
Tick-borne diseases/mosquitos	Citywide	Public/Private	V	Citizen education		H O
Hazard Material sites (Tier 2)	Varies	Public	V	Ensure facilities are following EPCRA; property awareness program, abandoned sites: find investors to improve		
Vegetation management	Citywide	Public/TMLP	S			
Brownfield sites	Citywide	Public/Private	V	Ensure facilities are following EPCRA; property awareness program, abandoned sites: find investors to improve		

Community Resilience Building Risk Matrix						Group 4		www.CommunityResilienceBuilding.org			
Location = Mark on the map, note on matrix Multiple, Specific or Town-Wide V = Vulnerability S = Strength High, Medium, or Low priority for action over the Short or Long term (and Ongoing)				Top Priority Hazards (floods, wildfire, hurricanes, drought, sea level rise, heat wave, etc.)							
				Winter Hazards (Blizzards/Snow)		Severe Storms (Heavy Winds/Nor'Easters/Hurricanes)		Changing Precipitation Patterns (Intensity/Volume of Rain/Flooding)		Temperature Extremes (extreme heat/extreme cold)	
Features		Location	Owner	V or S							
Infrastructural											
Plowing and salt applications damage roads/parking lots.	Citywide	Public/Private	V	Ingell St., Winthrop St.							
More impervious surfaces lead to drainage problems and more wetlands	Citywide	Public/Private	V	Better planning to identify stormwater retrofit/improvement opportunities					M		
Combined Sewer Overflow		Public	V								
Culverts along Cobb Brook	Cobb Brook area	Public	V	Pursue DER grants for culvert replacement					H		
Bristol-Plymouth campus (wet/floods)	BIP Regional Tech. School campus	Public	V								
Brownfield sites in flood zones	Whittenton Mills, Yankee Chemical, Bacon Felt		V	Pursue EPA Assessment/cleanup grants					H		
Sidewalks are not ADA accessible, too narrow to plow	Citywide	Public	V	Construct new sidewalks as coordinated effort to remove obstructions/add ADA					H		
Lack of cooling infrastructure for extreme heat	Citywide	Public	V								
Loosing hardwood trees to invasive species, knocks out power/excessive salt use	Citywide	Public/Private	WS					Comprehensive street tree inventory/program	M		
Taunton Municipal Power and Light = local utility	Citywide	Public	S	Identify which areas have outages realtime/online, with better communication to customers /power outage map viewer with locations and estimated response time)					H		
Dangerous road design (snow/ice)	Citywide	Public/Private	V								
Aging water pipes (infrastructure)	Citywide	Public	V								
Street drainage	Field St., Ware St., West Water St., Fisher St.	Public	V								
Chemical storage (Tier 2 sites)			V	Stakeholder engagement between City and private businesses, utilize State Office of Technical Assistance as a resource.					H		

Societal								
Lack of cooling centers to sustain the population/heating as well in winter	Citywide	Public	V				Improve cooling/humidity control in schools/improve bus routes for transportation needs	H
Emergency centers/shelters not distributed equitably across the City	Citywide	Public	V				Incorporate into lunch programs in summer	H
People ignore parking ban during winter events	Citywide	Public	V					
Better public outreach about emergency preparedness ahead of time	Citywide	Public	V	Outreach to PACE program for consumer rebates/incentives for energy efficiency				H
Climate change preparedness	Citywide	Public/Private	V	Have City/Municipal staff position for public outreach coordination				H
Limited generators in congregate care living areas	Varies	Public/Private	V/S					
Pediatric asthma rates high in Taunton	Citywide		V					
Evacuation for people with disabilities/charging for medical equipment	Varies		V				Expand lunch programs to senior centers	H
EJ population/removing street trees without replacing	Varies		V	Pre-disaster engagement with vulnerable populations	Program for homeowners to borrow and to remove trees overhanging			M
New awareness on public street trees	Varies		V					
Taunton CERT Team	Citywide	Public	S					

Environmental								
Lack of municipal staff to maintain park and conservation	Citywide	Public	V	Hire more municipal staff to keep up with City open space/park management (full-time maintenance staff)				H O
Litter and dumping	Citywide	Public/Private	V	Public information and awareness (Hire Public Information Officer)				H S
Invasive species (Knotweed)	Varies	Public/Private	V					
Diverse natural resources/lots of protected land	Citywide	Public/Private	S					
Lots of active recreation land/Mill Foil at Lake Sabbatia	Citywide	Public/Private	V/S	Work on environmentally friendly plan for invasive management				M
Greater range of vector species	Varies		V					
Rain gardens and bioswales	Varies	Public	S		Incorporate into parks and retrofit City lands			M
Robust Planning and Conservation boards/departments	Citywide	Public	S					
Buildings in flood zones	Flood zones		V		Pavement removal on vacant sites	Purchase buildings in flood zones		L
FEMA Community Resilience (don't have CPA)	Citywide	Public/Private	V					
Expand sewers to existing developed areas	Varies	Public	V	Expand capacity of sewer plant				
Public power company (TMLP)	Citywide	Public	S					
Washington to Court St. dangerous traffic design	Washington St	Public	V					
Aging water pipes (infrastructure)	Citywide	Public	V					

Attachment E: Master Matrix of High Priority Actions Reported out by Each Discussion Group

Community Resilience Building Risk Matrix



Recommended

www.CommunityResilienceBuilding.org



Location = Mark on the map, note on matrix: Multiple, Specific or Town-Wide

V = Vulnerability S = Strength

High, Medium, or Low priority for action over the Short or Long term (and Ongoing)

Top Priority Hazards (floods, wildfire, hurricanes, drought, sea level rise, heat wave, etc.)

Winter Hazards (Blizzards/Snow)

Severe Storms (Heavy Winds/Nor'Easters/Hurricanes)

Changing Precipitation Patterns (Intensity/Volume of Rain/Flooding)

Temperature Extremes (extreme heat/extreme cold)

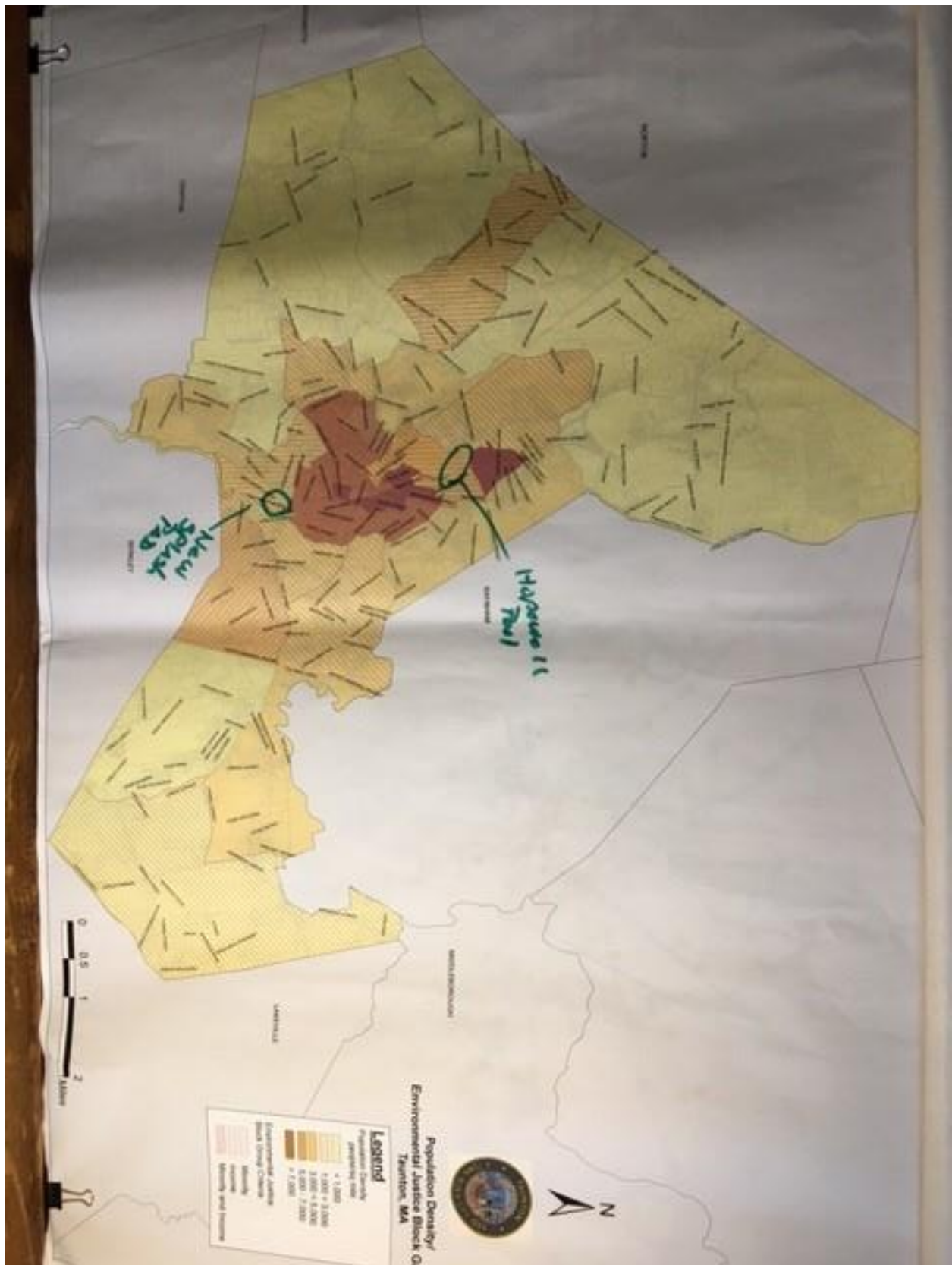
Group	Priority	Time
1, 2, 3, 4	H - M - L	Short Long Ongoing

Features	Location	Owner	V or S	Winter Hazards (Blizzards/Snow)	Severe Storms (Heavy Winds/Nor'Easters/Hurricanes)	Changing Precipitation Patterns (Intensity/Volume of Rain/Flooding)	Temperature Extremes (extreme heat/extreme cold)	Group	Priority	Time
Infrastructural										
Roads/Bridges	Citywide/ Cobb River	Public/Private	V/S	Drainage improvements in CIP	Drainage improvements in CIP	Drainage improvements in CIP		1		
Drainage	County St./Route 44/Plain St.	Public	V	Drainage improvements in CIP	Drainage improvements in CIP	Drainage improvements in CIP		1		
Taunton Airport	Airport	Public	S/V	Include in HMP	Include in HMP	Include in HMP		1		
Drainage	Citywide: Hart St./Bristol- Plymouth Tech. School	Public	V	Continue investigating sources	Continue investigating sources	Continue investigating sources		2		
Drainage	Cobb Brook	Public	V	Fund engineering/design study	Fund engineering/design study	Fund engineering/design study		2		
Sewer backup during storms	Route 44	Public	V	Open up drainage, reduce I&I, replace infrastructure	Open up drainage, reduce I&I, replace infrastructure	Open up drainage, reduce I&I, replace infrastructure		3		
Water main breaks	Dunbar/ Chester	Public	V	Continue upgrades/replacements	Continue upgrades/replacements	Continue upgrades/replacements		3	H	\$
Sewer pump stations in flood zones	Citywide	Public	V	Fund engineering/design study for flood protection	Fund engineering/design study for flood protection	Fund engineering/design study for flood protection		3		
Flooding (localized)	Dean St./ Route 44	Public	V	Mitigation	Mitigation	Mitigation		3		
Flooding in hazardous materials facilities/brownfields	Varies	Private	V	Ensure facilities are following EPCRA; property awareness program, abandoned sites; find investors to improve	Ensure facilities are following EPCRA; property awareness program, abandoned sites; find investors to improve	Ensure facilities are following EPCRA; property awareness program, abandoned sites; find investors to improve		3		
Backup generators for water pump stations	Citywide	Public	S/V	Prioritize/purchase	Prioritize/purchase	Prioritize/purchase	Prioritize/purchase	3		
More impervious surfaces lead to drainage problems and more wetlands	Citywide	Public/Private	V	Better planning to identify stormwater retrofit/improvement opportunities	Better planning to identify stormwater retrofit/improvement opportunities	Better planning to identify stormwater retrofit/improvement opportunities		4	M	
Sidewalks are not ADA accessible, too narrow to plow	Citywide	Public	V	Construct new sidewalks as coordinated effort to remove obstructions/add ADA compliance				4	H	
Brownfield sites in flood zones	Whittenton Mills, Yankee Chemical, Bacon Felt		V		Pursue EPA Assessment/cleanup grants	Pursue EPA Assessment/cleanup grants		4	H	
Taunton Municipal Power and Light - local utility	Citywide	Public	\$	Identify which areas have outages realtime/online, with better communication to customers (power outage map viewer with locations and estimated response time)	Identify which areas have outages realtime/online, with better communication to customers (power outage map viewer with locations and estimated response time)	Identify which areas have outages realtime/online, with better communication to customers (power outage map viewer with locations and estimated response time)	Identify which areas have outages realtime/online, with better communication to customers (power outage map viewer with locations and estimated response time)	4	H	

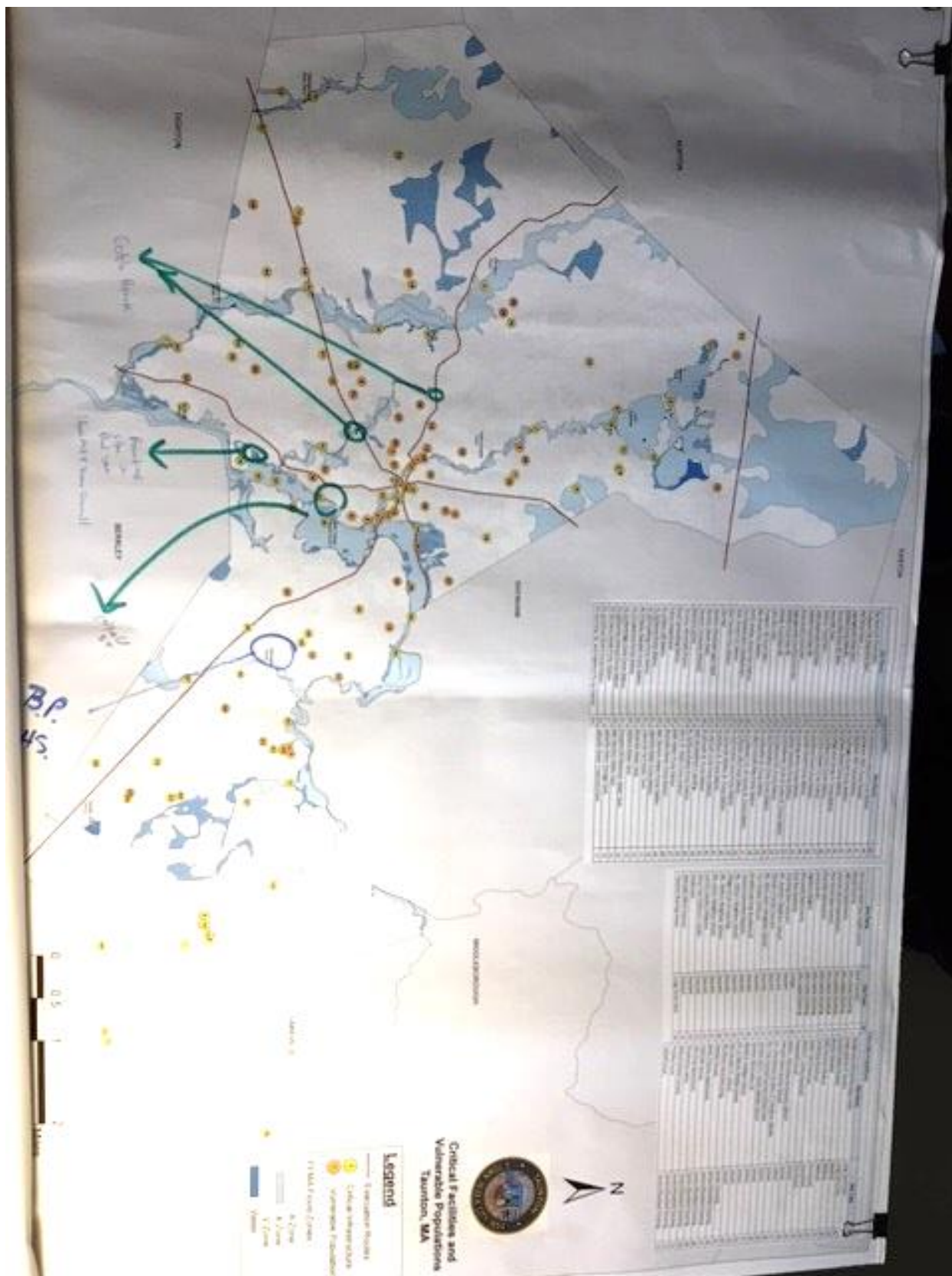
Societal										
Evacuation routes/flooding	Route 44/140	Public	V	Expand evacuation routes and communicate to public	Expand evacuation routes and communicate to public	Expand evacuation routes and communicate to public	Expand evacuation routes and communicate to public	1		
Pets	Citywide	Public	V	Establish and communicate pet policy	Establish and communicate pet policy	Establish and communicate pet policy	Establish and communicate pet policy	1		
Public Transportation	Citywide/ Regional	Public	V	Battery Storage - Generators	Battery Storage - Generators	Battery Storage - Generators	Battery Storage - Generators	1		
Cooling center	Varies	Public	V/S				Identify and purchase portable cooling units	2		
Snow removal - sidewalks	Citywide	Public	V/S	Explore ordinance to include school zones, public education				2		
Sidewalk clearing from snow	Citywide	Public/Private	V	Purchase sidewalk snowplow for City property	Purchase sidewalk snowplow for City property	Purchase sidewalk snowplow for City property	Purchase sidewalk snowplow for City property	3	H	\$
Citizens not abiding by parking bans and other emergency protective measures	Citywide	Public	V	Develop communication plan/enforcement on secondary roads/building capacity	Develop communication plan/enforcement on secondary roads/building capacity	Develop communication plan/enforcement on secondary roads/building capacity	Develop communication plan/enforcement on secondary roads/building capacity	3	H	O

Environmental										
Electrification (transportation)	Citywide/ Regional	Public	\$	Expand EV fleet/Battery/solar	Expand EV fleet/Battery/solar	Expand EV fleet/Battery/solar	Expand EV fleet/Battery/solar	1		
Preservation of agricultural land	Citywide	Public/Private	S/V	Incentivize agricultural lands/add community gardens	Incentivize agricultural lands/add community gardens	Incentivize agricultural lands/add community gardens	Incentivize agricultural lands/add community gardens	1		
Wetlands regulations	Citywide	Public	\$	Retain and properly manage	Retain and properly manage	Retain and properly manage	Retain and properly manage	1		
Preservation of agricultural land	Citywide	Public/Private	S/V	Incentivize agricultural lands/add community gardens	Incentivize agricultural lands/add community gardens	Incentivize agricultural lands/add community gardens	Incentivize agricultural lands/add community gardens	1		
Habitat loss	Citywide	Public/Private	V	Incentivize agricultural lands/add community gardens	Incentivize agricultural lands/add community gardens	Incentivize agricultural lands/add community gardens	Incentivize agricultural lands/add community gardens	1		
Illegal dumping	Citywide	Public	V		Implement existing tools and expand monitoring, add public education	Implement existing tools and expand monitoring, add public education		2		
Invasive plants	Sabbatia Lake	Public	V	Develop Lake Management project/fund ongoing maintenance	Develop Lake Management project/fund ongoing maintenance	Develop Lake Management project/fund ongoing maintenance	Develop Lake Management project/fund ongoing maintenance	2		
Parking lot (runoff prevention)	City Hall	Public	\$	Expand this best practice/education (stormwater management/Nature-based solutions)	Expand this best practice/education (stormwater management/Nature-based solutions)	Expand this best practice/education (stormwater management/Nature-based solutions)		3	H	L
Lack of municipal staff to maintain park and conservation land	Citywide	Public	V	Hire more municipal staff to keep up with City open space/park management (full-time maintenance staff)	Hire more municipal staff to keep up with City open space/park management (full-time maintenance staff)	Hire more municipal staff to keep up with City open space/park management (full-time maintenance staff)	Hire more municipal staff to keep up with City open space/park management (full-time maintenance staff)	4	H	O
Litter and dumping	Citywide	Public/Private	V	Public information and awareness (Hire Public Information Officer)	Public information and awareness (Hire Public Information Officer)	Public information and awareness (Hire Public Information Officer)	Public information and awareness (Hire Public Information Officer)	4	H	\$

Attachment F. Annotated Maps from Discussion Groups



Group 3: Map annotated highlighting vulnerable populations and other community resources.



Group 4: Map annotated highlighting vulnerable infrastructure, flood zones, and other community resources.