
CITY OF EASTHAMPTON

June 6, 2019

Municipal Vulnerability Preparedness Community Resiliency Building Workshop



SUMMARY OF FINDINGS



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Cover image courtesy of Massachusetts Office of Travel & Tourism

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OVERVIEW

The need for municipalities, regional planning organizations, and state and federal agencies to increase planning and activities toward resilience and adaptation to extreme weather and mounting natural hazards is strikingly evident in the Pioneer Valley City of Easthampton. Recent events such as the 2016 drought, extreme cold spells in the winter of 2017-2018, the microburst of 2014, and the October ice storm of 2011 have reinforced this urgency and compelled municipalities like Easthampton to proactively plan and mitigate potential risks through a community driven process. Ultimately, the commendable leadership demonstrated by Easthampton's efforts will reduce the exposure and vulnerability of its citizens, infrastructure, and ecosystems. This work also contributes to the greater climate resilience of the entire Pioneer Valley region.

Recognizing the importance of both mitigation and adaptation strategies to deal with the challenges of climate change, the City of Easthampton used the Municipal Vulnerability Preparedness (MVP) Planning grant as an opportunity to integrate these objectives into existing programs. The City has an active Energy Advisory Committee, is a certified Green Community, and boasts proactive zoning districts to protect its natural resources, such as the Aquifer Protection District, Floodplain Protection District, and Smart Growth Zoning Overlay District. In 2018, the Mayor, Fire Chief, Police Captain, Director of Public Works, City Planner, and Assistant City Planner formed a planning team that successfully pursued and received funding from the Massachusetts Executive Office of Energy and Environmental Affairs (EOEEA) to advance a Community Resilience Building workshop under the MVP program.

The core directive of the MVP program is to engage community stakeholders to facilitate the education, planning, and ultimate implementation of priority climate change adaptation actions. Completion of the MVP process will enable the City to achieve MVP certified community status from EOEEA by June of 2019 and receive preference for future state grants. The City of Easthampton also received



Easthampton boasts a vibrant, walkable downtown populated by many small businesses. Source: Wikimedia Commons

additional funding through the MVP planning grant to support a future update of the City's Master Plan

with a draft framework for a Sustainability Chapter that harnesses the lessons learned through the MVP process.

This report provides an overview of the top hazards, current concerns and challenges, strengths, and proposed actions to improve the City of Easthampton’s resilience to natural and climate-related hazards today and in the future.

COMMUNITY RESILIENCE BUILDING WORKSHOP

The City of Easthampton employed a unique “anywhere at any scale” community-driven process known as the Community Resilience Building framework to host an 8-hour workshop on February 7, 2019. The list of workshop invitees and workshop content was guided by input from the core MVP planning team, and comprised City elected officials, community members, and consultants from the Pioneer Valley Planning Commission. The workshop’s central objectives were to:

- Affirm community consensus of the local meaning of extreme weather and local natural and climate-related hazards;
- Identify existing and future vulnerabilities and strengths;
- Develop and prioritize actions for the City and a broad stakeholder network;
- Identify opportunities for the community to advance actions to reduce risk and increase resilience.

Approximately 30 participants from City boards and committees, land holding conservation agencies, community organizations, local businesses, and other interest groups attended the workshop, which



Workshop participants celebrate the completion of the CRB.
Source: PVPC

included a combination of large group presentations and small group activities. Pioneer Valley Planning Commission began the day with a presentation outlining the workshop process and goals, updating participants on past and ongoing local planning efforts, and presenting new state-provided climate projection data to enable both decision-support and risk visualization. Participants then broke out into four small groups and assumed different participatory roles and responsibilities to engage in a rich dialogue and share ideas and experiences.

TOP HAZARDS & VULNERABLE AREAS

Leading up to the workshop, the core MVP planning team worked with input from City officials to identify some of the top ongoing concerns and challenges for Easthampton. In order to ensure a bottom-up approach, the core City planning team made the decision to allow the workshop's small groups to identify their own top four hazards rather than pre-determining the hazards beforehand. To facilitate that process, PVPC presented a variety of past and current weather- and infrastructure-related challenges the City faces. These challenges were identified based on findings from previous planning processes, stakeholder input, and new climate change projections. Each small group used this information to talk through the suite of priority climate hazards and negotiate common agreement on their top four hazards. For the workshop as a whole, five hazards were selected as the most pressing for the City.

Flooding (stormwater, riverine, and culvert) was identified as a top hazard by each group, as were severe storms, including storms with strong winds and winter storms with freezing precipitation. Relatedly, one group selected utility outages as a top hazard, which could occur due to damage to utility lines from strong winds or downed tree limbs. Extreme temperatures were universally identified as a top hazard, and environmental changes associated with changing temperatures and precipitation patterns, including invasive species and vector-borne disease, drought, and wildfire, were identified as the other hazards of concern.

TOP HAZARDS

Each of the four small groups agreed upon a set of four hazards for their own table. The top five hazards for the workshop as a whole are listed below:

- Flooding
- Severe Storms (including Severe Winter Weather)
- Extreme Temperatures
- Utility Outage
- Drought/Wildfire/Invasive Species

AREAS OF CONCERN

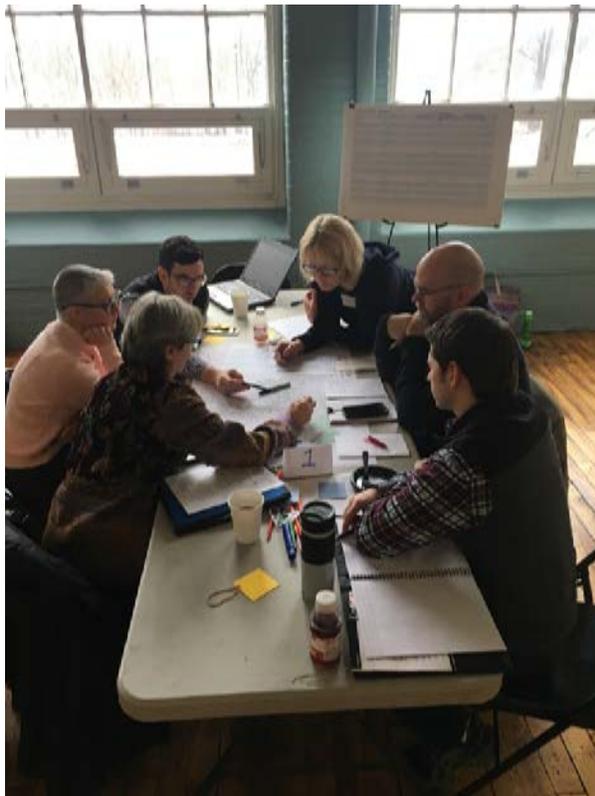
Infrastructure: Pole-based electricity and communication lines, town and state-owned roads

Water Infrastructure: Dams, culverts, and bridges; wastewater, drinking water, and stormwater infrastructure

Natural Resources: The Mt. Tom range, drinking water supplies, food systems, invasive species, habitat change

Human and Social: Changing age-related demographics, residents with limited mobility, residents with limited English-language capacity, low-to-moderate income populations, emergency shelter network

Built Environment: Older/energy-inefficient housing stock, public school buildings



Participants at Table 1 work together to locate features in the City. Source: PVPC

CURRENT CONCERNS & CHALLENGES BY HAZARD

The City of Easthampton faces multiple challenges related to the impacts of climate change and natural hazard-related weather events. In recent years, the City has experienced a series of disruptive and dangerous weather events including the severe ice storm of 2011, the 2014 microburst, and the arctic cold weather in the winter of 2017/2018.

Forests and street trees, increasingly damaged by influxes of harmful pests, are vulnerable to impacts of storms with high winds and/or accumulation from freezing precipitation. Unhealthy trees and their limbs are more likely to be brought down by the weight of snow, ice, or water and under the force of wind, increasing the risks of prolonged power outages and hazards to residents and infrastructure. The magnitude and intensity of these events over the course of just a few years has increased awareness of natural hazards along with

climate change and motivated communities like Easthampton to comprehensively improve resilience at the individual and municipal level.

Easthampton's MVP workshop participants were generally in agreement that the City and region are experiencing more intense and frequent storm events, the impacts of which affect the daily activities of

all residents. There was also common concern about the challenges of being prepared for future severe weather events, including the ability to shelter residents close to home; the resilience of the transportation network to changing weather and temperature fluctuations and the need for the system to remain operational for emergency travel, at a minimum; and the desire to become energy independent for increased resiliency during system-wide power outages. Furthermore, participants established a common directive to improve the efficiency and efficacy of communication systems throughout the city, both in times of emergency and in day-to-day operations; and to improve food security in town and alleviate the risks of drought for farm irrigation and drinking water.

SPECIFIC CATEGORIES OF CONCERNS & CHALLENGES

TRANSPORTATION INFRASTRUCTURE

The specific issues identified within Easthampton's roadway network were two-fold: infrastructure maintenance and culvert functionality. Road passability is important for residents who may need to evacuate or travel in case of emergency, and it was noted that two of the three major routes into/out of Easthampton have either previously or regularly experienced weather-related closures (Routes 5 and 141, respectively).

Participants noted that much of the road network around the Fort Hill area is vulnerable to flooding because of its proximity to the Mill and Manhan Rivers, the Connecticut River Oxbow, and the Arcadia wetlands; a small bridge over Old Springfield Road regularly overtops. Undersized culverts beneath the Manhan Rail Trail have failed and caused damage to a sewer main and water main. Despite these locally known trouble spots, there is currently no list of capital improvement needs to help the community prioritize replacement and repair of transportation elements.

In addition to concerns about road passability due to flooding, participants expressed apprehension over the condition of pavement. With an increase in temperature swings in warmer winters, Easthampton is already experiencing an increase in freeze/thaw cycles which lead to more rapid deterioration of paved road conditions. With limited funds (via Chapter 90) available to make road repairs to potholes and frost heaves, workshop attendees feared that deteriorated roadways may become a more prevalent transportation hazard than was traditionally experienced.

ELECTRICAL DISTRIBUTION SYSTEM

Electricity is one of the most critical pieces of infrastructure in modern societies, and electrical service outages in Easthampton can be caused or impacted by all of the hazards prioritized during the MVP process. Workshop participants identified the need to increase storage capacity for electricity generated by renewable resources and to explore the possibilities of co-generation for a more resilient grid.

COMMUNICATION NETWORKS

In addition to equipment and infrastructure challenges, workshop participants noted a need to increase education about and uptake of existing communication channels that could serve residents during an emergency and for day-to-day announcements. The City subscribes to Code Red, a reverse 911 system that can distribute information to any residents who sign up for alerts. It is important to note that the system can only help those residents who know about it and sign up. Participants also expressed concern over the social isolation that ensues from English language barriers and/or living in poverty, and the need to conduct more outreach to these groups when preparing for a winter storm or during power outages. Finally, attendees noted that the City website is out of date, difficult to navigate, and doesn't have any translation options.

VULNERABLE POPULATIONS

According to the American Community Survey 2013-17 estimates, nearly 10% of Easthampton's population aged five years and older speak a language other than English at home, and just over 10% of the population lives in poverty.¹ ESL populations can be especially vulnerable in times of emergency due to linguistic challenges in outreach and perhaps different cultural norms, while low-income residents may lack the financial capacity to evacuate in an emergency or keep up with day-to-day costs of living when weather disrupts the local economy.

Eighteen percent of Easthampton's population is aged 65 years or older; the greatest concerns with this population are isolation during a winter power outage or prolonged exposure to extreme heat. Power outages, especially when concurrent with extreme temperatures, leave the elderly and medically vulnerable populations at extremely high risk. Easthampton relies on the regional emergency sheltering facility in neighboring Northampton for long-term sheltering needs, but does not have its own heating or cooling shelter within the City. Workshop participants noted a need to identify a local solution for seniors who may find it difficult or undesirable to travel. Establishing a local heating and cooling shelter that the City could operate on a temporary bases – for instance, during daylight hours of a heat wave – would provide a safe and practical alternative for residents in these scenarios.

WASTEWATER, STORMWATER, AND DRINKING WATER RESOURCES

The City's wastewater treatment plant (WWTP) faces a number of challenges. Significant portions of the WWTP are over 40 years old and at the end of their intended design lives. The older equipment requires frequent maintenance and the replacement of parts, which are either difficult to obtain or may no longer be available. Additionally, future National Pollutant Discharge Elimination System (NPDES) permits, issued by the US Environmental Protection Agency (EPA), may require advanced nutrient removal, necessitating treatment facility upgrades.

The wastewater collection system in Easthampton includes 70 miles of sewer mains, 18 municipal pump stations, and over five miles of force mains. Most of the City's pump stations are over 30 years old.

¹ (<https://www.census.gov/quickfacts/easthamptontowncitymassachusetts>)

Significant direct connection inflow sources are known to exist in Easthampton from previous studies. Groundwater infiltration is also a known problem, with groundwater seeping into the collection system through cracked sewer pipes. With the increased volume of water in the system from inflow and infiltration comes increased burden on the WWTP, resulting in higher operation and maintenance costs.

The City is subject to EPA’s Municipal Small Storm Sewer System (MS4) regulations, and is required to regulate and manage stormwater runoff for pollution and erosion control. In 2004, Easthampton completed a Stormwater Management System Assessment as part of the stormwater permit. As part of the assessment, the City monitored all observable stormwater outfalls and discovered that almost half of them had observable dry-weather flows. Tests of the dry-weather flow indicated that while most flows were clean and likely due to groundwater inputs, some of the storm drains have either direct connections to the sewer collection system or there are breaks in the sewer lines that result in wastewater infiltrating the storm drain system. In July of 2018, an updated MS4 permit came into effect with significant additional requirements for controlling the quality and quantity of stormwater runoff within the city.

Easthampton sits atop the Barnes Aquifer, its sole source of drinking water supply. The Barnes Aquifer, with its connection southward with the Great Brook Aquifer, provides water to six communities: Easthampton, Holyoke, Southampton, Southwick, West Springfield, and Westfield. Easthampton operates a public supply wellfield on Hendrick Street and two additional wellfields located at Nonotuck Park and Brook Street. The Hendrick Street wellfield is over 100 years old, and the wells were last redeveloped in the early 1970s—the City estimates that efficiency can be significantly improved through repair or replacement.

Featuring three storage tanks, one booster station, and 130 miles of distribution piping, the drinking water distribution system is also aged. The Mt. Tom tank was taken offline in 2010 due to leakage concerns, despite its proximity to the center of town and the expected fire flow benefits. Several high elevation areas experience low water pressure, and a four million gallon storage tank experiences low volume turnover. The City’s booster station is outdated and in need of a detailed rehabilitation assessment.

DAMS

Easthampton has a legacy of industrial mills, powered by the many streams and rivers that wind through the city. Beyond the typical concerns over the maintenance of these aging structures, the existing spillways and other dam related infrastructure may not be sized appropriately to meet the demands of the larger, more frequent storms the city is already experiencing.

The Cottage Street and Lower Mill Pond dams are centrally located within the city, and pass waters that are collected from an 11.8 square mile drainage area that includes Broad Brook, White Brook, and Wilton Brook.

The latest engineering inspection at the Cottage Street Dam changed the hazard index rating from "significant" to "high", indicating that the nature of the downstream area has changed somewhat such that failure of the dam will likely cause loss of life and serious damage to homes, industrial or commercial facilities, important public utilities, and main highways or railroads. The inspection also found that the dam is in "fair" condition, hydraulic controls are aged, and the dam also houses a rubber bladder of hydraulic oil, posing an environmental concern should the dam break or fail. During Tropical Storm Irene, the Easthampton DPW lowered pond levels in order to increase storage capacity within this system, and requested that the private owners of Ferry Street Dam do the same.

While the Cottage Street Dam is owned by the City, the Lower Mill Pond Dam at Ferry Street is privately owned. Recent information from the Massachusetts Office of Dam Safety (November 2018), indicates that the dam is in "fair" condition and has a "significant" hazard index rating. The last inspection recorded is from October 2011. PVPC has noted that ensuring the dam's safety is critical to the redevelopment project planned for One Ferry Street, which sits below the Lower Mill Pond impoundment.

CURRENT STRENGTHS & ASSETS

As a result of Easthampton's broad experience with extreme weather and the impacts of climate change, workshop participants were quick to point out their communities' strengths in responding to the challenges identified above. Reinforcing and expanding upon these strengths and community assets to increase resiliency against the impacts of climate change is a common theme to the proposed actions within this report.



The Manhan Rail Trail provides multi-modal transportation options between Southamton, Easthampton, and Northampton. Source: Wikimedia Commons

Some of the key strengths discussed included:

- An abundance of natural resources, including ponds, streams, rivers, and wetlands, that provide for environmental health, biodiversity, and recreational opportunities.
- Knowledgeable and dedicated professional municipal staff who are willing to innovate around climate change solutions.
- Location over the Barnes Aquifer, which provides excellent drinking water quality to the city's residents.

- Presence of the Mt. Tom Range, Mass Audubon's Arcadia Sanctuary, and Park Hill, which provide recreational opportunities, boost the tourism economy, contribute to Easthampton's cultural identity, and fosters high concentrations of biodiversity very close to downtown.
- A vibrant, walkable downtown, which is currently in the midst of revitalization.
- The Williston Northampton School's student population contributes to the local economy, and the campus resources could provide an opportunity to share sheltering resources with the City.
- The City's Public Safety Complex, completed in 1999, centrally co-locates police and fire services next to the City's administrative offices.
- Private residential communities, including Treehouse Foundation and Lathrop Community, make Easthampton offer a range of housing alternatives and residential communities.
- Various public gathering places in town, such as the Emily Williston Memorial Library and Senior Center, are well-used as common space meeting areas (though improvements may be needed to maximize use as heating/cooling shelters).

TOP RECOMMENDATIONS TO IMPROVE RESILIENCE

Workshop participants identified more than 55 actions that the City of Easthampton, in collaboration with neighboring municipalities, regional partners, and state agencies, should take to improve resilience to climate change impacts.

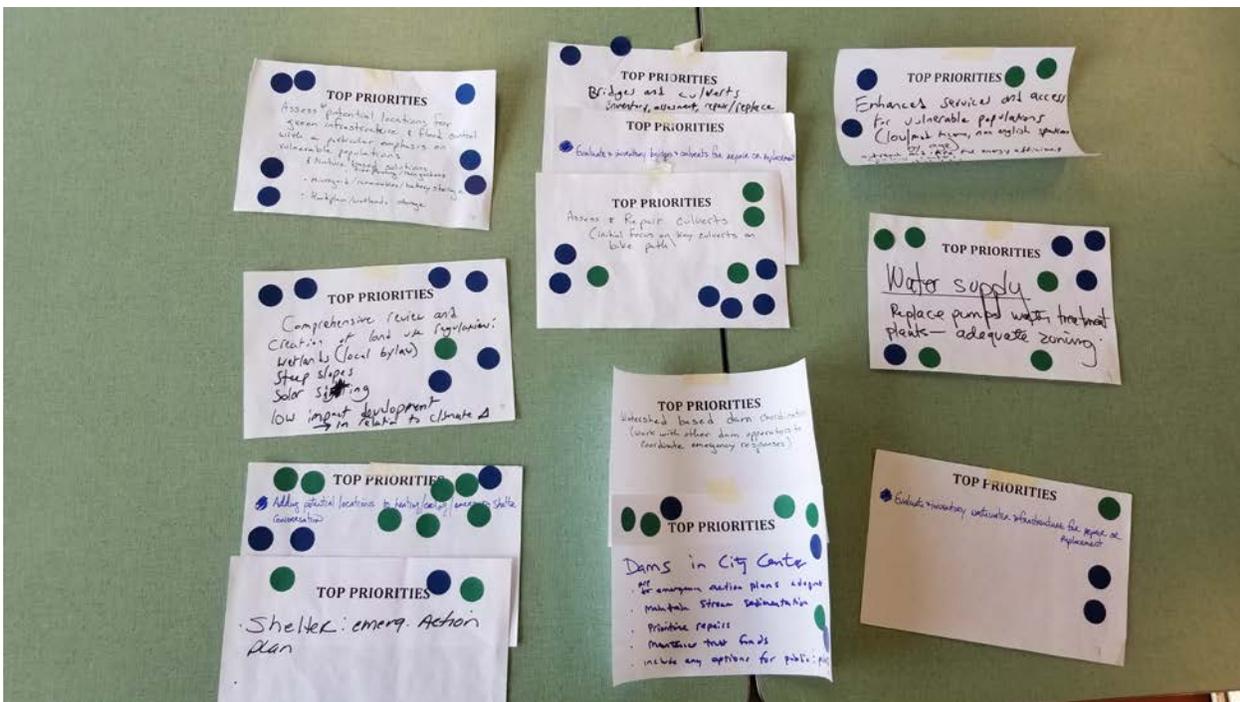
Toward the end of the workshop, each of the four small groups presented its three top priority actions to the large group. These twelve actions were assembled with like actions from the other small groups, resulting in the eight priority actions listed below (in no specific order). The three highest priority actions, as subsequently voted on by the large group, are shown in bold.



Participants vote on their top 3 priority actions resulting from the matrix exercise. Source: PVPC

- **Conduct a city-wide inventory of roadways, culverts, bridges, and other transportation infrastructure to assess condition; identify vulnerable infrastructure in need of maintenance; repair, or replace, and prioritize projects for future investment.**

- Conduct a comprehensive review of zoning and land use regulations to identify opportunities to encourage, incentivize, or require low impact development and/or climate-smart strategies. Specific opportunities may include adopting a local wetlands protection ordinance, a steep slopes ordinance, and/or more thorough solar siting regulations.
- **Protect drinking water supply by replacing the pump at the Hendrick Street wellfield, developing contingency plans for treatment of drinking water at Nonotuck and Brook Street wells, and by conducting a zoning review to ensure land uses above the Aquifer are appropriate.**
- Evaluate and inventory wastewater infrastructure for repair and replacement.
- Enhance services for vulnerable populations, including providing targeted outreach around subsidized energy efficiency programs, local cooling shelters, and food access resources
- **Develop a heating/cooling shelter and emergency action plan with local solutions, as an alternative to directing residents to the regional facility in Northampton**
- Ensure watershed-based coordination around dam safety and emergency response
- Ensure proper maintenance regimes and funding for the Cottage Street Dam, which is located in the downtown area



Participants voted on their top three priorities. Source: PVPC

The entire suite of recommendations can be categorized into the following categories:

- Public Health and Safety; Communications
- Energy Distribution System/Energy Efficiency
- Transportation
- Water Management

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- Open Space and Land Management
 - Emergency Management

All actions recommended during the CRB workshop were shared with the public at a public listening session (PLS) on April 30, 2019. Participants at the PLS were also provided with an opportunity to vote on top priority actions to identify which one the City should pursue first. Participants received a list of all 55 actions derived from the MVP workshop, and the Easthampton MVP project team presented the top 8 priorities described above in more detail. The local team then gave participants the opportunity to add new actions that had not yet been brought forward; the following three additional actions were identified:

- Focus on education: Include educational components to all MVP action grants; Education and funding for behavioral changes for residents and businesses to reduce/reverse the effects of climate change; Provide permaculture design education to government and public sectors, focusing on the primary tenets of Earth Care, People Care, and Return of Surplus.
- Promote “lawn full expression,” allowing lawns to grow, cutting a path instead of mowing an entire lawn. Plant perennial edibles and forest gardens instead of lawns.
- Waste management reform: collect plastic waste and encourage myco-remediation, (bioremediation of contaminated soil and water)

After a brief discussion, participants voted to prioritize the eight actions listed previously from the CRB workshop, along with the above three new, additional actions. Voting results from the Public Listening Session were similar to the results from the CRB Workshop. The full voting results, discussion notes, and other materials from the Public Listening Session are provided in Appendix E.

A full list of the final recommendations from the CRB Workshop, organized by high, medium, and low priority, follows on the next few pages. In addition to the actions identified at the CRB Workshop and Public Listening Session, the city solicited comments on the draft Summary of Findings Report from various city and public partners in order to offer clarifying language around certain actions.

Please note that within each category, the actions are not in any specific order. Actions that are in bold indicate the highest priority recommendations from each of the small groups at the Community Resilience Building Workshop.

HIGH PRIORITY ACTIONS (IN NO SPECIFIC ORDER)

Category	Action
PUBLIC HEALTH AND SAFETY; COMMUNICATIONS	Explore funding options to expand free meal/food distribution programs at public schools
	Explore opportunities and ID parcels for community gardens close to downtown
	Promote awareness of and encourage enrollment in Code Red system
	Develop translation option for Code Red and City website (& ID funding sources); explore opportunities for inter-departmental/inter-agency purchasing of translation services
	Develop a plan to keep City website up-to-date with important information
	ID grant funding to retrofit public school buildings’ windows to open, and/or purchase portable AC units
	CoA should explore ways to identify seniors who may be living on their own and who may need help or should be checked in on in event of emergency
	Ensure communication and coordination with residential communities (Sunrise, Treehouse, Lathrop, and isolated others) in event of emergency or need for sheltering, heating or cooling operations
EMERGENCY MANAGEMENT	Develop an opt-in list for residential emergency check-ins by City emergency response staff
	Develop and promote a “Good Neighbors Program” for emergency response and check-in systems
	Consider viability of Senior Center and Library as local heating/cooling centers
	Identify a solution for a local heating/cooling center, as town currently relies on regional shelter in Northampton to serve this need
	Evaluate demand vs. inventory for emergency fuel and power reserves - Develop methods for capturing available energy sources
	Inventory and affirm shared emergency response plans for Tier 2 facilities (Chemetal, Berry Plastic, Stick 2)
ENERGY DISTRIBUTION SYSTEM/ENERGY EFFICIENCY	Develop an outreach and education campaign regarding energy efficiency programs available via MassSave
	City government should explore other creative funding options for residential retrofits
	Explore opportunities for distributed generation and increased storage

TRANSPORTATION

Integrate Green Street strategies with existing Complete Streets Policy and strategies

Upgrade technological improvements in pothole repair and explore apps for crowdsourcing road condition data

Develop and maintain an infrastructure vulnerability assessment and develop a prioritized repair/replacement plan. Pursue design, permitting, and construction for culvert and bridge structures identified by the assessment as “high priority,” as well as for those structures that are already of known concern, including those at Lovefield Street, Ferry Street, Glendale Road, and Industrial Parkway.

ID and prioritize vulnerable sections of the stormwater drainage system for repair and/or replacement. Build on the City's existing inventory of stormwater projects in the Integrated Water Resources Management Plan to further identify, prioritize, and implement improvements to vulnerable sections of the stormwater drainage system. Known areas of concern include: Ferry Street, Hendricks Street, Emerald Place, Industrial Parkway, Cherry Street, and Union Street.

Ensure adequate funding and maintenance of existing sidewalk network, and expand where necessary

WATER MANAGEMENT

ID opportunities for and implement retrofits for Green Infrastructure in storm system and increase infiltration of runoff. Develop a City-wide Green Infrastructure plan that prioritizes projects for implementation. In addition to infiltration, focus should be on reducing specific pollutants of concern, including identifying sources of nitrogen and developing BMPs to reduce pollutants.

Acquire funding for a fulltime conservation agent

Pursue options to remove sediment in the existing sedimentation basins located on Broad Brook and White Brook just above where they enter Nashawannuck Pond

Evaluate and inventory the condition of wastewater infrastructure, including pipes at Waste Water Treatment Plant, and explore funding sources for enhancements. Explore the feasibility of transitioning pump stations to gravity-fed where possible, to limit the number of pump stations that rely on electricity for proper functioning and thereby increase resiliency to storms and power outages.

Develop a City-specific Wetlands Protection Ordinance (above and beyond state regulations)

Develop Emergency Action Plans for City-owned dams

Perform a cost analysis of repair for existing dams; apply for state dam trust fund monies for design and repair

Protect drinking water supply by replacing the pump at the Hendrick Street wellfield, developing contingency plans for treatment of drinking water at Nonotuck and Brook Street wells, and by conducting a zoning review to ensure land uses above the Aquifer are appropriate. Investigate the feasibility of green back-up power systems for pump stations and water supply wells to ensure system resiliency in the event of a power outage.

Develop a contingency plan for treatment at Nonotuck and Brook St wells

Continue to acquire properties to protect the Barnes Aquifer

OPEN SPACE AND LAND MANAGEMENT	Conduct an education and outreach campaign regarding agricultural and lawn product applications
	Encourage habitat connectivity between isolated populations of Natural Heritage and Endangered Species Program identified species.
	Develop solar siting guidelines that respect and encourage habitat integrity for resident species
	ID funding opportunities for priority property acquisitions to protect aquifer recharge areas
	Opt in to the state Scenic Mountain Act
	Adopt a Steep Slopes Ordinance
	Update City Open Space and Recreation Plan (OSRP). Continue to pursue, develop, and implement recommended actions from the OSRP, including expanding trails on the East Street Mt. Tom parcel.
Review which agricultural lands are not currently in APR and conduct outreach to landowners	

MEDIUM PRIORITY ACTIONS (IN NO SPECIFIC ORDER)

Category	Action
PUBLIC HEALTH AND SAFETY; COMMUNICATIONS	Increase diversity (racial, cultural/linguistic, gender, sexual orientation, age, etc.) of City staff
EMERGENCY MANAGEMENT	Continue city-wide school building reuse study, and evaluate if any could serve as shelters
ENERGY DISTRIBUTION SYSTEM/ENERGY EFFICIENCY	Explore centralization of municipal waste management.
TRANSPORTATION	Explore year-round use and maintenance of the Manhan Rail Trail, study possible expansion of network
	Study comprehensive traffic management for road closures and better notification system
WATER MANAGEMENT	Undertake a study to determine vulnerability of WWTP in flood events and potential impacts of failure on the Manhan River
	Update flood maps for the rivers traversing the city, collaborate on FEMA's strategies for update
	Promote use of rain barrels and cisterns for runoff capture and reuse
	Re-invigorate Barnes Aquifer Protection Advisory Committee

OPEN SPACE AND LAND MANAGEMENT	Develop forest management plan that accounts for species stress in climate change and encourages multi-age stands
	Develop a street tree inventory
	Explore feasibility of a free street tree program (wherein the City plants trees in front of willing resident's house and resident provides volunteer tree care)
	Develop and conduct a coordinated educational outreach regarding swallowwort management
	Explore potential insect/pest mitigation methods

LOW PRIORITY ACTIONS (IN NO SPECIFIC ORDER)

Category	Action
PUBLIC HEALTH AND SAFETY; COMMUNICATIONS	Continue exploring feasibility of increasing the resiliency of the City's communications infrastructure through implementation of a municipal broadband system
ENERGY DISTRIBUTION SYSTEM	No action
TRANSPORTATION	Ensure signage of evacuation routes; explore electric signage (folding) signs for evacuation routes to easily communicate roadway hazards or closing, as Rt. 141 already has at bottom of hill
WATER MANAGEMENT	Build on the City's existing Integrated Water Resources Management Plan to pursue next steps and implementation for identified projects
OPEN SPACE AND LAND MANAGEMENT	Consider options to reclaim/buy out properties on River Road and Old Springfield Road, which face frequent flooding
	Assess solar field regulations to address stormwater management and habitat value
EMERGENCY MANAGEMENT	Work with Verizon to understand their plan for their communications station in event of emergency

Note: In most cases, actions are presented in the table above as written by CRB Workshop participants. Where proposed actions in their original form lacked clarity or detail, the project team expanded upon the action in order to promote project-readiness.

ACTION IMPLEMENTATION DESIGN

Once participants at the CRB Workshop voted on the top priority actions, each team was asked to select two actions and begin to develop an implementation plan. For each action, the small groups filled out an Action Implementation Design worksheet, providing information on the lead agency/ department for implementation, the partners that would need to be involved for successful project completion, an estimated cost for the project, known or potential funding sources, and implementation milestones. This exercise was a tool for Easthampton decision makers to get a head start on the thought process that would be required to apply for a MVP Action Grant. The completed Action Implementation Design worksheets are provided in Appendix C.

WORKSHOP PARTICIPANTS

Approximately 25 participants from City departments, committees and boards, large land owners, community organizations, and businesses were in attendance at the MVP workshop. The participant check-in list is provided in Appendix C.

CITATION

Easthampton (2019) Community Resilience Building Workshop Summary of Findings. Pioneer Valley Planning Commission. Easthampton, Massachusetts.

MVP WORKING GROUP

- Chris Patnode, Police Captain
- Joseph Pipczynski, Public Works Director
- David Mottor, Fire Chief and Assistant EMD
- Jeffrey Bagg, City Planner
- Jamie Webb, Assistant Planner
- Emily Slotnick, Pioneer Valley Planning Commission

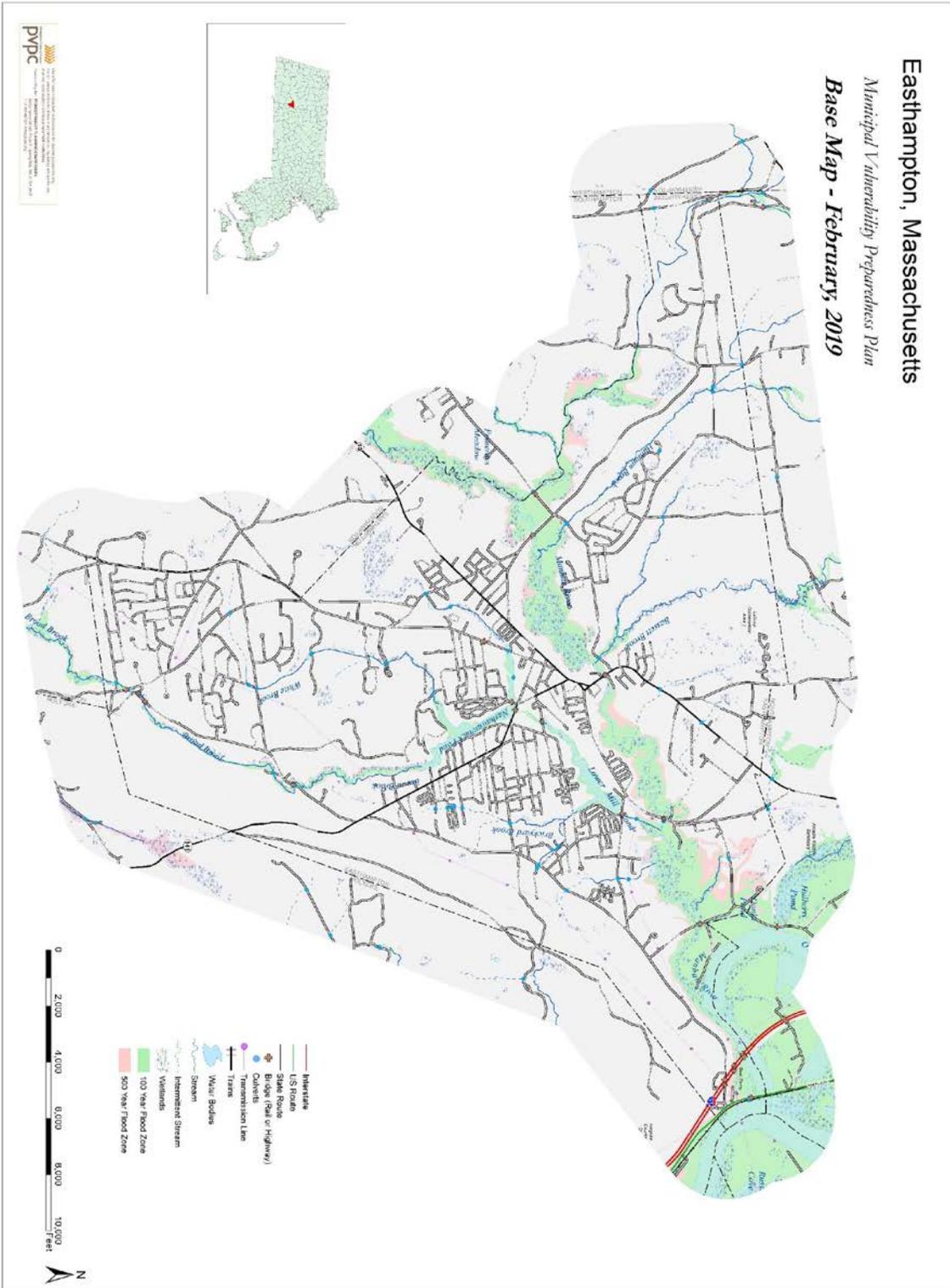
WORKSHOP FACILITATORS

- Emily Slotnick, Pioneer Valley Planning Commission
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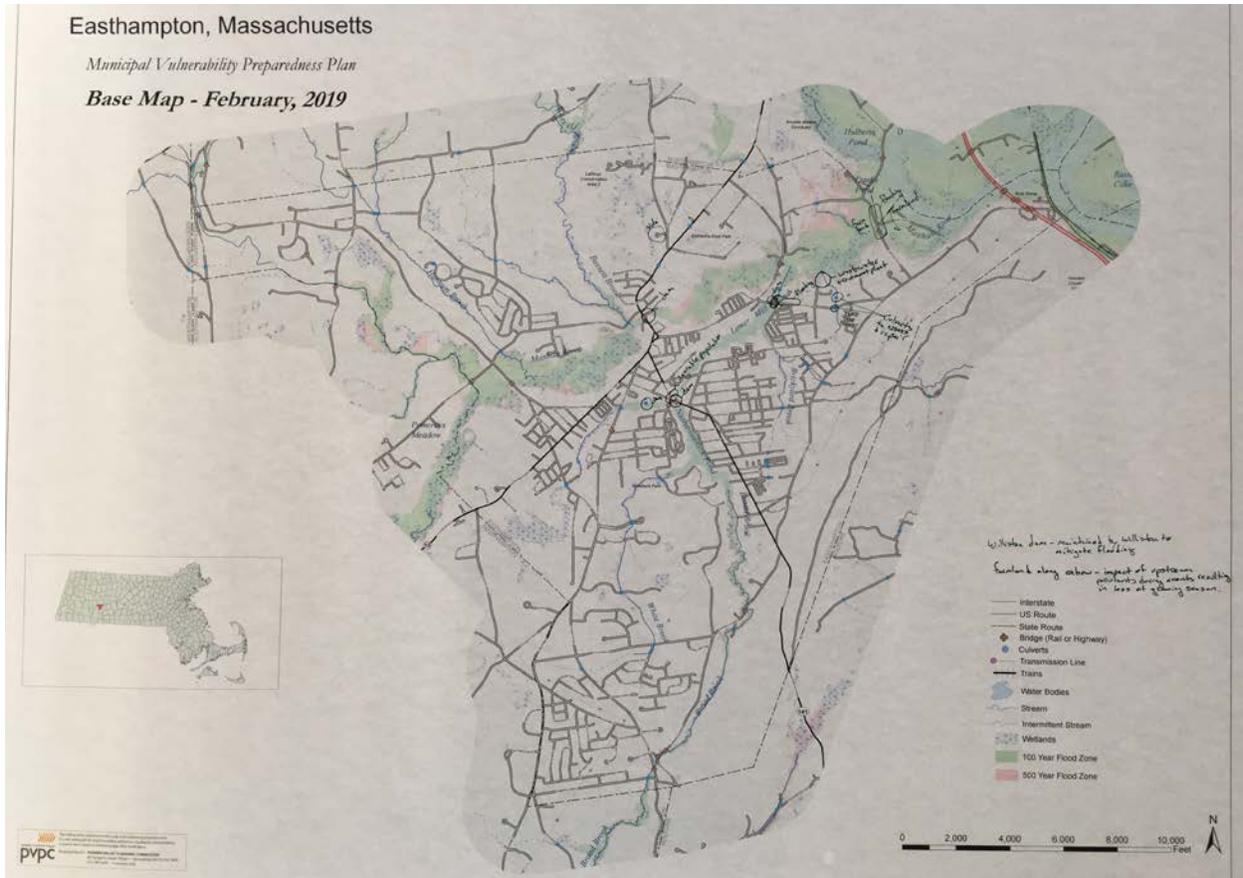
ACKNOWLEDGEMENTS

Special thanks to the City of Easthampton staff for their willingness to enhance this process, and to Eastworks for providing the facilities to convene. This project was made possible through funding from the Massachusetts Executive Office of Energy and Environmental Affairs.

APPENDIX A: WORKSHOP BASE MAP



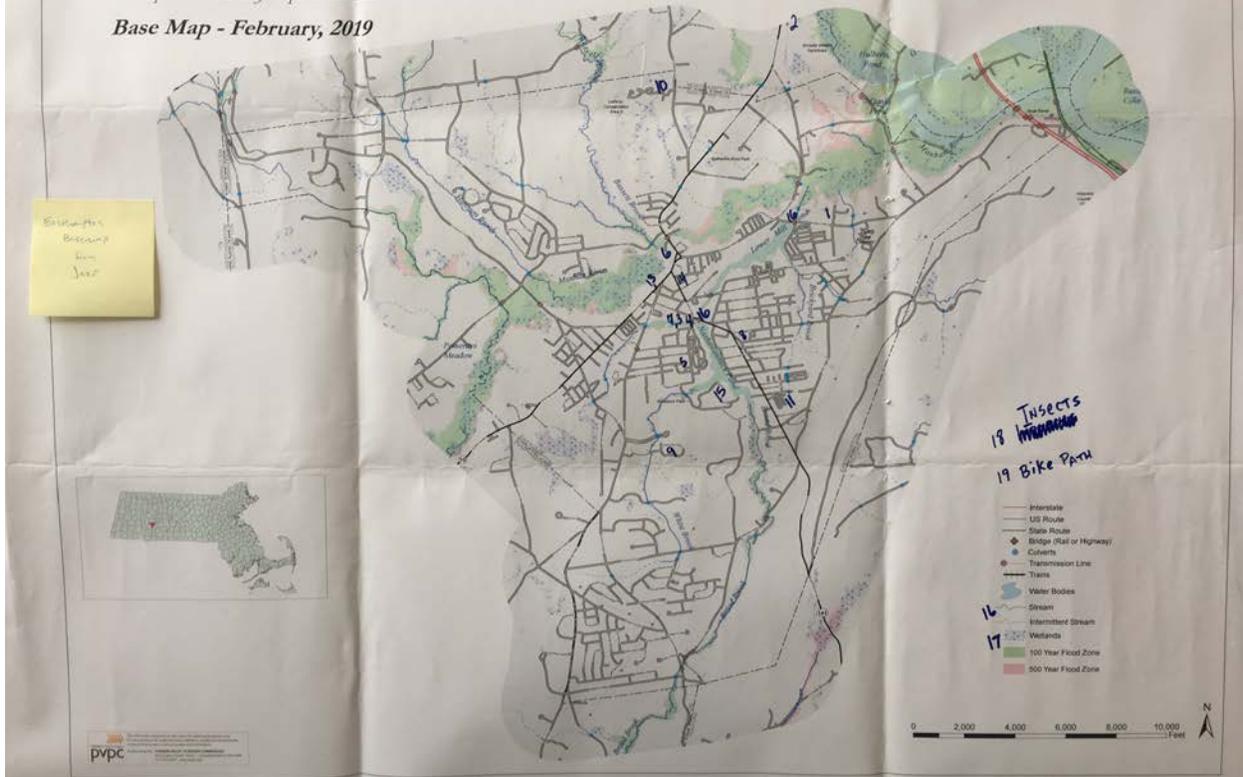
APPENDIX B: PARTICIPATORY MAPPING RESULTS



Easthampton, Massachusetts

Municipal Vulnerability Preparedness Plan

Base Map - February, 2019



18 INSECTS
19 Bike Path

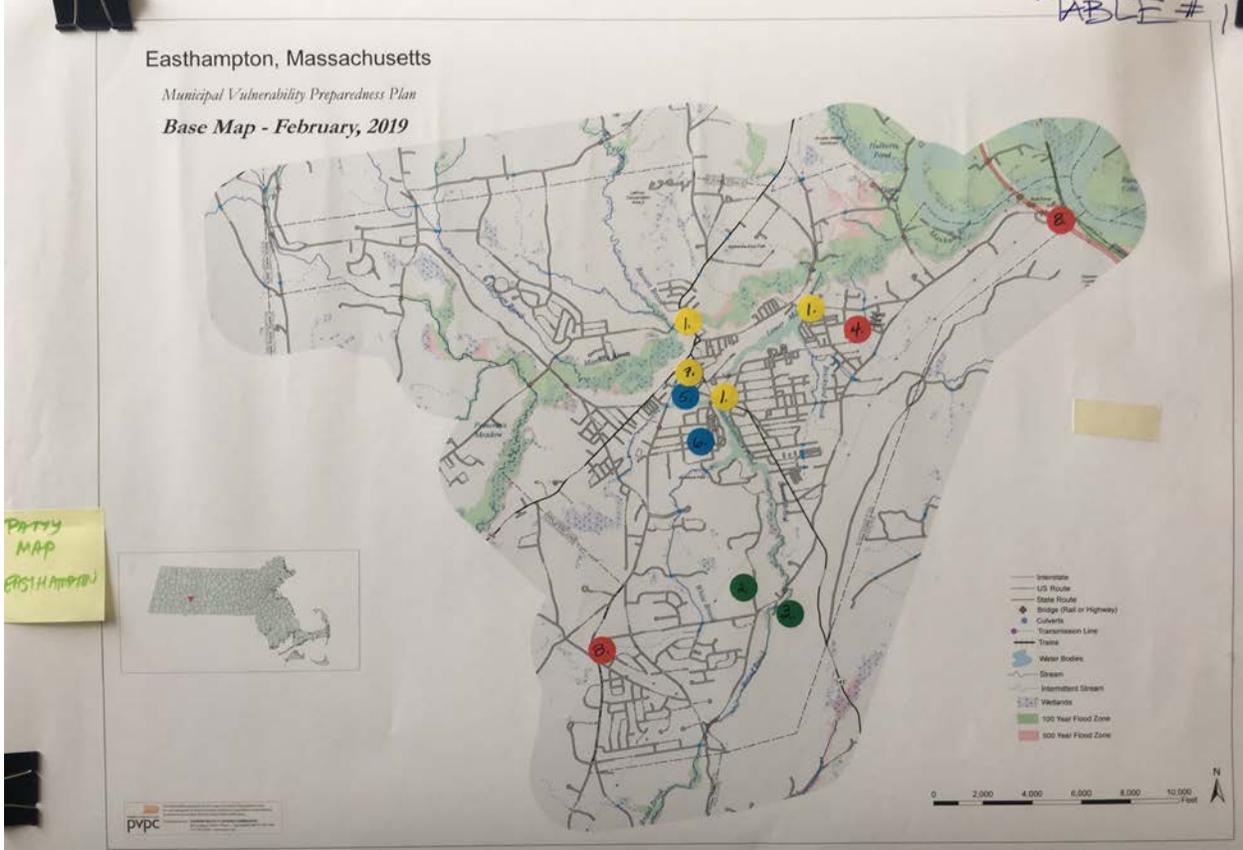


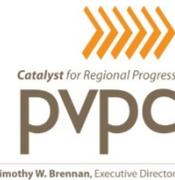
TABLE # 1

APPENDIX C: PARTICIPANT HANDOUTS (CRB WORKSHOP)

AGENDA

Easthampton Municipal Vulnerability Preparedness Workshop

DATE: Thursday, February 7, 2019
TIME: 8:30a.m. – 4:30p.m.
PLACE: West End Room at Eastworks
116 Pleasant St
Easthampton, MA



AGENDA

- 8:30 a.m. **Registration**
- 9:00 a.m. – 10:30 a.m. **Introductions**
Presentation: MVP, Climate Data, Local Conditions
- 10:30 a.m. – 10:40 a.m. **Break**
- 10:40 a.m. – 12:30 p.m. **Morning Small Team Workshop**
- Identify Community Vulnerabilities and Strengths
 - Identify and Prioritize Community Actions
- 12:30 p.m. – 1:00 p.m. **Lunch**
- 1:00 p.m. – 2:05 p.m. **Afternoon Small Team Workshop**
- Identify and Prioritize Community Actions (continued)
 - Identify Priority and Urgency
 - Report Outs
- 2:05 p.m. – 2:20 p.m. **Break**
- 2:20 p.m. – 3:05 p.m. **Report Outs**
Large Group Vote on Top Priorities
- 3:05 p.m. – 3:15 p.m. **Break**
- 3:15 p.m. – 4:00 p.m. **Implementation Design and Final Report Outs**
- 4:00 p.m. – 4:30 p.m. **Wrap-up and Next Steps**

SIGN-IN SHEET

MVP Workshop Invite List - *check-in (by last name)*

2/6/2019

Checked In	Last Name	First Name	Title	Organization	Email	RSVP Response	Food Preference	Table Grouping
✓	Alberti	Bob	Police Chief	City of Easthampton Police Dept	BAlberti@easthamptonma.gov	Yes		4
✓	Bagg	Jeff	City Planner	City of Easthampton Planning Dept	jBagg@easthamptonma.gov	Yes		1
✓	Belcher-Timme	Jesse	Chair	Planning Board	jtimme@townofepm.com	Yes maybe		X 4
✓	Belliveau	Moe	Executive Director	Greater Easthampton Chamber of Commerce	moe@easthamptonchamber.org	Yes		1
✓	Blake	Mora	Director	Emily Willison Library	mblake@emwillison.org	Yes	VEGAN	4
✓	Brough	Patrick		Fink & Perras Insurance Agency	pbrough@finkperras.com	maybe		1
✓	Busa	Julie	Commission member	Conservation Commission	julie_busa@mc.com	maybe		2
✓	Goody	Melissa	Chair	Conservation Commission	mgoody@tghbond.com	no		2
✓	Dolinger	Jake	Senior Planner / GIS Specialist	Pioneer Valley Planning Commission		Yes		4
✓	Gambarini	Patty	Principal Environmental Planner	Pioneer Valley Planning Commission		Yes		1
✓	Gentes	Char	Director	Riverside Industries	chargentes@rs.org	yes		1
✓	Goldstein	Marin	Chair	Energy Advisory Committee	marin.goldstein@psncl.com	Yes		4
✓	Henneman	Wayne	Deputy Fire Chief / Emergency Mgmt. Director	City of Easthampton Fire Dept	WHenneman@easthamptonma.gov	Yes		3
✓	Keene	Jonah	Sanctuary Director	Mass Audubon - Connecticut River Valley Wildlife Sanctuaries	jkeene@massaudubon.org	Yes	Veggie	4
✓	LaChapelle	Nicole	Mayor	City of Easthampton	nichapelle@easthamptonma.gov	Yes		2
✓	Lautzenheiser	Tom	Central/Western Regional Scientist	Mass Audubon - Arcadia Wildlife Sanctuary	tlautzenheiser@massaudubon.org	Yes		3
✓	LeClair	Allison	Superintendent	Easthampton Public Schools	aleclair@epcsd.us	Yes		3
✓	Mason	John	Director	City of Easthampton Parks and Recreation	jMason@easthamptonma.gov	Yes		4
✓	McCoy	Stanley	Chair	Board of Public Works	stan_mccoy@spacecadefarm.com	Yes	low carb	1
✓	McCullagh	Charles	Chief Financial Officer	Williston Northampton School	cmccullagh@williston.com	Yes		2
✓	Meise-Muans	Corrin	Planner	Pioneer Valley Planning Commission		Yes		3
✓	Mottor	David	Fire Chief	City of Easthampton Fire Dept	DMottor@easthamptonma.gov	Yes		2
✓	Nivar	Ps		Easthampton Resident	pnivar@gmail.com	Yes	VEGAN	4
✓	Peirent	Robert	Committee member	Energy Advisory Committee	rpeirent@gmail.com	Yes		2
✓	Pipczynski	Joseph	Director	City of Easthampton OPW	jPipczynski@easthamptonma.gov	Yes		3
✓	Ratti	Catherine	Principal Planner / Environment & Land Use Section Manager	Pioneer Valley Planning Commission		Yes		2
✓	Richburg	Julie	Ecologist	Trustees of Reservations	jrichburg@gmail.com	Yes		2
✓	Rogers	Brendan	Executive Director	Council on Aging	brogers@easthamptonma.gov	yes		2
✓	Ryan	Jay	Commission member	Conservation Commission	jryan201@outlook.com	maybe		2
✓	Scribner	Dennis	Police Sergeant	City of Easthampton Police Dept	DScribner@easthamptonma.gov	Yes		4
✓	Slotnick	Emily	Senior Planner	Pioneer Valley Planning Commission		Yes		0
✓	St. Pierre	Paul	Commission member	Parks & Recreation Commission	pspi13@psncl.com	Yes		1
✓	Webb	Jamie	Assistant Planner	City of Easthampton Planning Dept	jwebb@easthamptonma.gov	Yes	Veggie	3
✓	Zaret	Owen	City Councilor	Easthampton City Council	OZaret@easthamptonma.gov	yes		3
✓	Whinsley	Mark	Conservation Manager	Kestrel Land Trust	Mark@Kestrel.org			

IMPLEMENTATION WORKSHEETS

Municipal Vulnerability Preparedness

Action Implementation Design
COMMUNITY ACTION
Comprehensive review of land use regulations + implementation of new regulations (bylaws) in relation to climate change — including solar siting, steep slopes, wetlands, low-impact development, floodplain, etc.
Lead Implementing Agency/ Department (Emergency Manager, Select Board, DPW, Fire Chief, Finance Committee, Planning Board, etc.)
Planning Department; City Council
Partners (Neighboring municipalities, State actors, local non-profits and land trusts, community groups, etc.)
Conservation commission; Pascommuck Conservation Trust; PUPC; Planning Board; DEP; EGA
Cost (Dollar estimate, or Low: < \$50,000, Medium: \$50,000 – \$100,000, High: > \$100,000)
Medium
Funding Sources (Capital Improvement Plan, Staff Time, Chapter 90, Hazard Mitigation Grant Program (HMGP), other grants, etc.)
MVP Action; staff time; DLTA; UPWP; land use planning grants (EGA) ↳ Un-fund Planning Work Program
Implementation Milestones Examples: 1. Create and convene a committee to oversee progress; 2. Disseminate 300 information packets to raise awareness about the initiative; 3. Apply for a grant to fund more robust public outreach, education, and awareness campaign.
1. Designate sub-committee to coordinate review 2. Identify goals & methods & means 3. Create/evaluate model language; assess existing relevant regulations 4. City Council review Public outreach
Note: Cost estimates take into account the following resources: • Town staff time for grant application and administration (at a rate of \$25 per hour) • Consultant design and construction cost (based on estimates for projects obtained from town and general knowledge of previous work in town) • Town staff time for construction, maintenance, and operation activities (at a rate of \$25 per hour)

Municipal Vulnerability Preparedness

Action Implementation Design
COMMUNITY ACTION
Creating/designating extreme temperature public shelters
Lead Implementing Agency/ Department (Emergency Manager, Select Board, DPW, Fire Chief, Finance Committee, Planning Board, etc.)
Public Safety; Board of Health
Partners (Neighboring municipalities, State actors, local non-profits and land trusts, community groups, etc.)
Council on Aging; Easthampton Community Center; Disability Commission; Riverside Industries; Northrop Community; Housing Authority
Cost (Dollar estimate, or Low: < \$50,000, Medium: \$50,000 - \$100,000, High: > \$100,000)
Low
Funding Sources (Capital Improvement Plan, Staff Time, Chapter 90 (Hazard Mitigation Grant Program (HMGP)), other grants, etc.)
Staff time; MEMA; HMGP; ROPC; MAPAG; MA DPH.
Implementation Milestones Examples: 1. Create and convene a committee to oversee progress; 2. Disseminate 300 information packets to raise awareness about the initiative; 3. Apply for a grant to fund more robust public outreach, education, and awareness campaign.
Regional emergency planning commission 1. Needs/population assessment 2. Identification + outreach to potential site owners/managers 3. Infrastructure or acquisition - MOU 4. Emergency Action Plans for sites
Note: Cost estimates take into account the following resources: • Town staff time for grant application and administration (at a rate of \$25 per hour) • Consultant design and construction cost (based on estimates for projects obtained from town and general knowledge of previous work in town) • Town staff time for construction, maintenance, and operation activities (at a rate of \$25 per hour)

Municipal Vulnerability Preparedness

Action Implementation Design

COMMUNITY ACTION

Assess & repair culverts

Lead Implementing Agency/ Department (Emergency Manager, Select Board, DPW, Fire Chief, Finance Committee, Planning Board, etc.)

DPW & City Planning Dept.

Partners (Neighboring municipalities, State actors, local non-profits and land trusts, community groups, etc.)

Mass DOT, Mass DEP, utilities?, abutters, Trout Unlimited

Cost (Dollar estimate, or Low: < \$50,000, Medium: \$50,000 - \$100,000, High: > \$100,000)

High

Funding Sources (Capital Improvement Plan, Staff Time, Chapter 90, Hazard Mitigation Grant Program (HMGP), other grants, etc.)

Mass DOT, Grants, City Staff time

Implementation Milestones

Examples:

1. Create and convene a committee to oversee progress;
2. Disseminate 300 information packets to raise awareness about the initiative;
3. Apply for a grant to fund more robust public outreach, education, and awareness campaign.

- ① Review existing information & prioritize key targets around City.
- ② Seek funding for ^{known} targets.
- ③ Seek funding for further evaluation

Note: Cost estimates take into account the following resources:

- Town staff time for grant application and administration (at a rate of \$25 per hour)
- Consultant design and construction cost (based on estimates for projects obtained from town and general knowledge of previous work in town)
- Town staff time for construction, maintenance, and operation activities (at a rate of \$25 per hour)

Municipal Vulnerability Preparedness

Action Implementation Design
COMMUNITY ACTION
Flood control with a particular emphasis on vulnerable populations using green infrastructure to mitigate flood damage
Lead Implementing Agency/ Department (Emergency Manager, Select Board, DPW, Fire Chief, Finance Committee, Planning Board, etc.)
Planning Dept.
Partners (Neighboring municipalities, State actors, local non-profits and land trusts, community groups, etc.)
Public safety, PVPC, Mass DEP, EPA, Mass DOT
Cost (Dollar estimate, or Low: < \$50,000, Medium: \$50,000 - \$100,000, High: > \$100,000)
High
Funding Sources (Capital Improvement Plan, Staff Time, Chapter 90, Hazard Mitigation Grant Program (HMGP), other grants, etc.)
MVP
Implementation Milestones Examples: 1. Create and convene a committee to oversee progress; 2. Disseminate 300 information packets to raise awareness about the initiative; 3. Apply for a grant to fund more robust public outreach, education, and awareness campaign.
<ul style="list-style-type: none"> ① Identifying key vulnerable communities/areas using flood plain maps ② Identify municipal land parcels for application of green infrastructure. ③ Identify funding sources for specific mitigation implementation action ④ Identify green infrastructure design firms & contractors to do work
<p>Note: Cost estimates take into account the following resources:</p> <ul style="list-style-type: none"> • Town staff time for grant application and administration (at a rate of \$25 per hour) • Consultant design and construction cost (based on estimates for projects obtained from town and general knowledge of previous work in town) • Town staff time for construction, maintenance, and operation activities (at a rate of \$25 per hour)

Municipal Vulnerability Preparedness

Action Implementation Design

COMMUNITY ACTION

Enhanced Services ; Access for Vulnerable Populations...

- Energy Efficiency
- Food Security
- Cooking.

Interpretation services? Train staff and/or contract.
Publicity of LIHEAP + Mass Save
 Outreach - to Landlords.

Lead Implementing Agency/ Department (Emergency Manager, Select Board, DPW, Fire Chief, Finance Committee, Planning Board, etc.)

COA / The Community Center - "Free Farmers Market"

Partners (Neighboring municipalities, State actors, local non-profits and land trusts, community groups, etc.)

Food Bank of WMA Faith-based organizations. Eastampton Housing Authority
 Trind Mass Save - Utilities Property Dept. Transition Apps SMOC
 MCOA Landlords Cooley Dickinson my home transition Schools.

Cost (Dollar estimate, or Low: < \$50,000; Medium: \$50,000 - \$100,000, High: > \$100,000)

Low

Funding Sources (Capital Improvement Plan, Staff Time, Chapter 90, Hazard Mitigation Grant Program (HMGP), other grants, etc.)

MVP, Staff time, Trind grants, Cooley Dickinson \$ mini grants,

Implementation Milestones

Examples:

1. Create and convene a committee to oversee progress;
2. Disseminate 300 information packets to raise awareness about the initiative;
3. Apply for a grant to fund more robust public outreach, education, and awareness campaign.

Convene Lead Implementer w/ Key Stakeholders. - what specifically needs to be enhanced.
 write grant.
 Recv \$.
 Implement.
 Evaluate

Reach out to target peopl + educate on what is there.
 Identify gaps.
 Fill gaps.

embed links in social media.
 Pamphlet / City website
 Facebook pages.
 use reverse 911 judiciously
 Face to face outreach on-site
 go where people are.

Note: Cost estimates take into account the following resources:

- Town staff time for grant application and administration (at a rate of \$25 per hour)
- Consultant design and construction cost (based on estimates for projects obtained from town and general knowledge of previous work in town)
- Town staff time for construction, maintenance, and operation activities (at a rate of \$25 per hour)

Municipal Vulnerability Preparedness

Action Implementation Design

COMMUNITY ACTION

Dams

Watershed Based Dam Coordination

IN (map) [unclear]

Assessment - will include
Tijue Curmoh - recently assessed } *stream*
Pine Island } *Sediment*
Near Pond }
Ferry St./Lower Mill Pond
Magnon
Williston Nham
3 these need to be assessed.
4 in city - headworks

Lead Implementing Agency/ Department (Emergency Manager, Select Board, DPW, Fire Chief, Finance Committee, Planning Board, etc.)

JucPip. DPW - Board of Public Works

Partners (Neighboring municipalities, State actors, local non-profits and land trusts, community groups, etc.)

Holyoke Water Works, Pine Island Lake Assoc., Williston-Northampton, Ferry St. Partners
Office of Dam Safety

Cost (Dollar estimate, or Low: < \$50,000, Medium: \$50,000 - \$100,000, High: > \$100,000)

Low 50-100,000 - Med. // *High - Phase One = 85,000*
*Phase Two = 25-50K * 4 = 200,000*

Funding Sources (Capital Improvement Plan, Staff Time, Chapter 90, Hazard Mitigation Grant Program (HMGP), other grants, etc.)

MVP, Local, CPA (Historic Res for Nash gatehouse) / HMGP

Implementation Milestones

- Examples:
1. Create and convene a committee to oversee progress;
 2. Disseminate 300 information packets to raise awareness about the initiative;
 3. Apply for a grant to fund more robust public outreach, education, and awareness campaign.

Apply + Secure Funding
Mtg of Key Stakeholders
Assign responsibilities + develop MOU for shared resp.
Implement Plan
Meet annually (or 2x) after disaster to implement/evaluate

Secure \$
Adv. Retain a Consultant - RFP
Consultant works w/ oversight.
Prioritize Action to assure effectiveness
Dams - full oversight
Implement/Evaluate

Note: Cost estimates take into account the following resources:
 • Town staff time for grant application and administration (at a rate of \$25 per hour)
 • Consultant design and construction cost (based on estimates for projects obtained from town and general knowledge of previous work in town)
 • Town staff time for construction, maintenance, and operation activities (at a rate of \$25 per hour)

Municipal Vulnerability Preparedness

Water Supply

Action Implementation Design

COMMUNITY ACTION

1. Confirm most critical action within plan
 - water resource plan - what's due 1st
 - A. replacement of supply pumps - Based on plan
 - B. replacement of actual well - Based on plan
2. access & update the existing of ugi for protection zones
3. create contingency plan to prevent potential contamination

Lead Implementing Agency/ Department (Emergency Manager, Select Board, DPW, Fire Chief, Finance Committee, Planning Board, etc.)

DPW

Partners (Neighboring municipalities, State actors, local non-profits and land trusts, community groups, etc.)

southampton
public works

Cost (Dollar estimate, or Low: < \$50,000, Medium: \$50,000 - \$100,000, High: > \$100,000)

High \$500,000 (\$400,000 Map ; \$200,000 Enterprise)

Funding Sources (Capital Improvement Plan, Staff Time, Chapter 90, Hazard Mitigation Grant Program (HMGP), other grants, etc.)

enterprise fund Ratepayers
action grant

Implementation Milestones

Examples:

1. Create and convene a committee to oversee progress;
2. Disseminate 300 information packets to raise awareness about the initiative;
3. Apply for a grant to fund more robust public outreach, education, and awareness campaign.

- review listed actions in the plan & prioritize
Determine top priority
- leverage sewer enterprise funds & existing
water resource plan... to create an action grant application
that will result in a project rather than plan.

Identify the long term goals and multiple phasing.

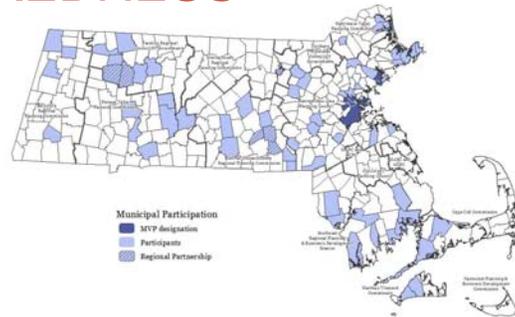
Note: Cost estimates take into account the following resources:

- Town staff time for grant application and administration (at a rate of \$25 per hour)
- Consultant design and construction cost (based on estimates for projects obtained from town and general knowledge of previous work in town)
- Town staff time for construction, maintenance, and operation activities (at a rate of \$25 per hour)

APPENDIX D: MVP WORKSHOP PRESENTATION

MUNICIPAL VULNERABILITY PREPAREDNESS

City of
Easthampton,
Ma



MVP Planning Grant Purpose and Goals

- **Community-led process** that employs local knowledge
- **Mainstream** climate change data
- **Look to communities** as local innovators
- **Coordinate** statewide efforts

Complete workshop – vulnerability assessment and action plan

Preference for projects that propose
“Nature based solutions”



Community Resilience Building
WORKSHOP GUIDE



Introductions

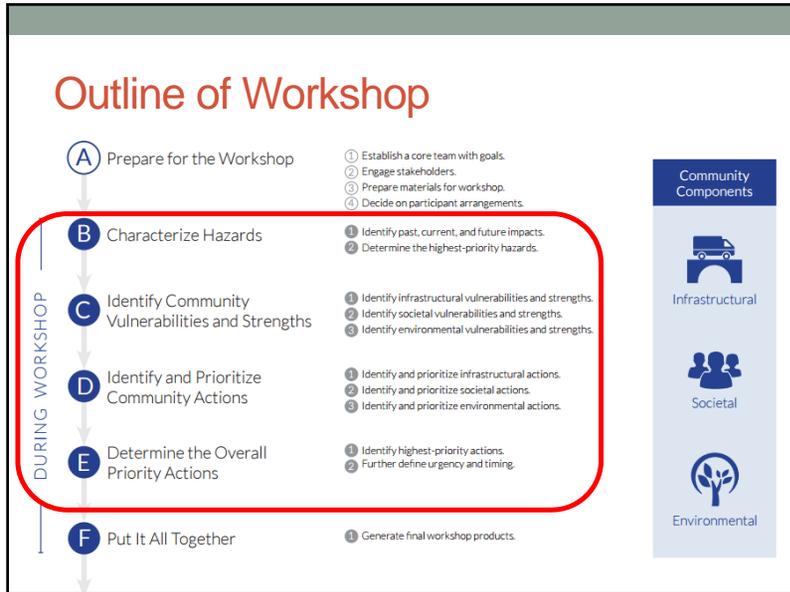
1. Name
2. Your role in / relationship to Easthampton (staff, board and committee members, business owner, resident, etc.)



Easthampton MVP Purpose and Goals

- Share ideas about climate change, impacts, and actions to reduce vulnerabilities
- Become a “MVP “Certified” Community
- MVP Action Grant
- Access additional MVP funding to conduct public engagement around sustainability planning!





Activity #1: What changes have you seen in the natural environment over the course of your lifetime?

Example: My street floods once or twice per year now, and it never did in the past

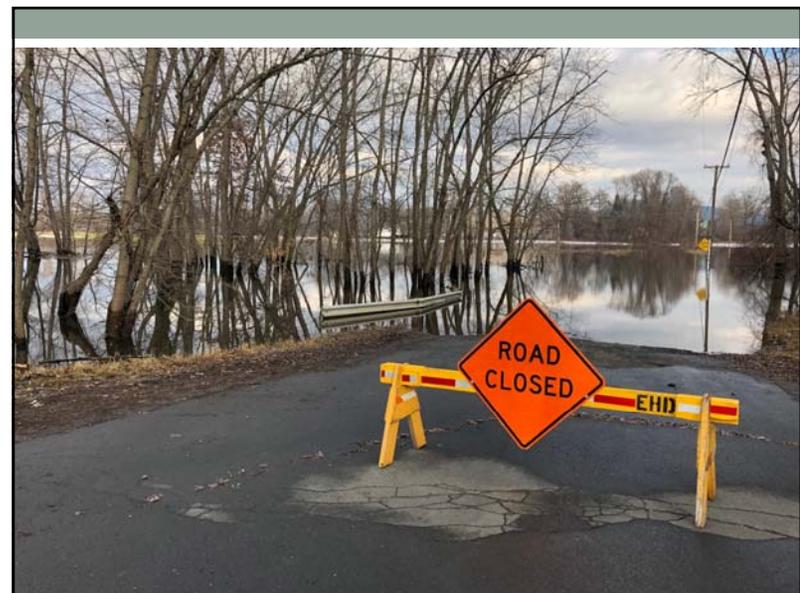
Example: Fewer blue jays at my bird feeder in the winter

Example: Asian beetle and EAB destroyed the ash trees in town

Fill out sticky note, and add to board

Agenda

Time	Activity
9:00 a.m.	Introductions, MVP, Climate Data, Local Conditions
10:30 a.m.	Break
10:40 a.m.	Small Team: ID/Map Community Vulnerabilities and Strengths
11:40 a.m.	Small Team: Identify and Prioritize Community Actions
12:30 p.m.	Lunch
1:00 p.m.	Small Team: Identify and Prioritize Community Actions (Cont.)
1:30 p.m.	Small Team: Identify Priority and Urgency/Timeline
2:05 p.m.	Break
2:20 p.m.	Report Outs, Vote on Top Priorities
3:05 p.m.	Stretching Break
3:15 p.m.	Implementation Design Exercise
4:00 p.m.	Wrap-up and Next Steps



Concerns and Challenges

Dams

Localized flooding

Infrastructure



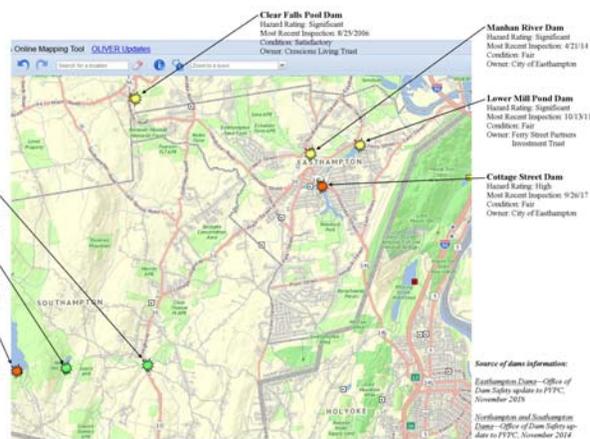
Concerns and Challenges

- Spillways and other infrastructure may not be sized to meet greater frequency of larger storms
- Cottage Street dam inspection
 - Hazard level changed to high
 - Several elements need fixing



Concerns and Challenges

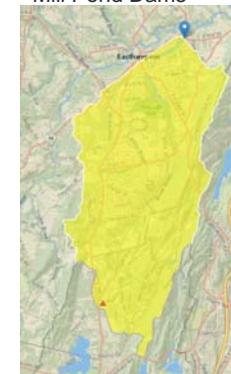
Dams



Concerns and Challenges

Manhan River Dam

Cottage Street and Lower Mill Pond Dams



• 69 square mile drainage area

• 11.8 square mile drainage area

Source: USGS Stream Stats

Concerns and Challenges

Localized Flooding

- West Street near confluence of Hannum Brook with Manhan River
- Meadowbrook Drive parallel to the Manhan River floodplain
- Industrial Drive (where need larger pipe)
- Maybe more this year with precipitation occurring on frozen ground?



Wastewater

- 3.8 MGD WWTP
- 18 Pump Stations
- 81 miles of Collection System
- 5 miles of Force Main
- 35 miles of Service Connections

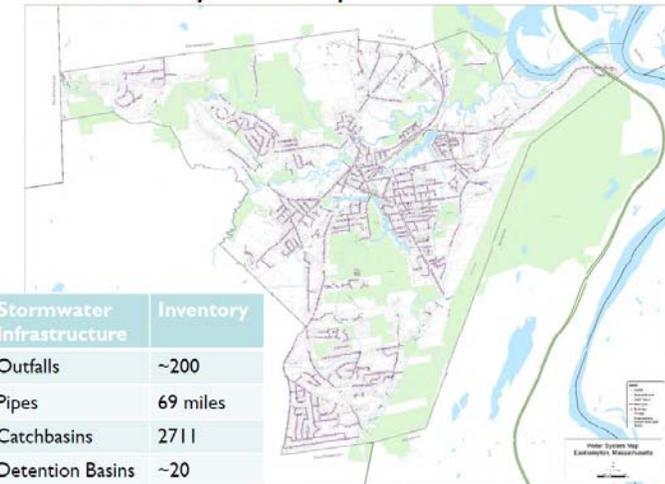


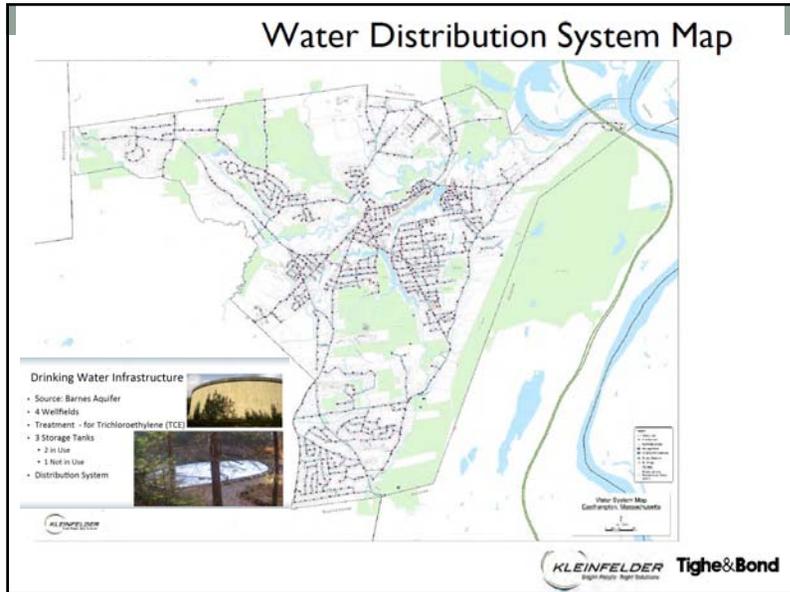
Concerns and Challenges

Infrastructure

- Waste water
- Stormwater
- Drinking water

Stormwater System Map





Drinking water

Three characteristics that shape nature of supply

- Geology
- Soils
- Land use/forest cover

Easthampton's Assets and Features

Natural resources

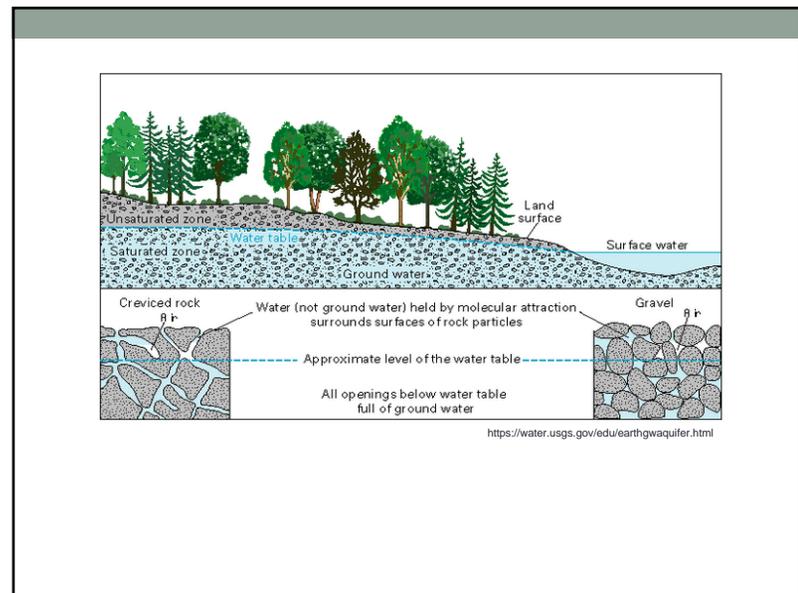
- Rich in surface water and groundwater
- Open space protection

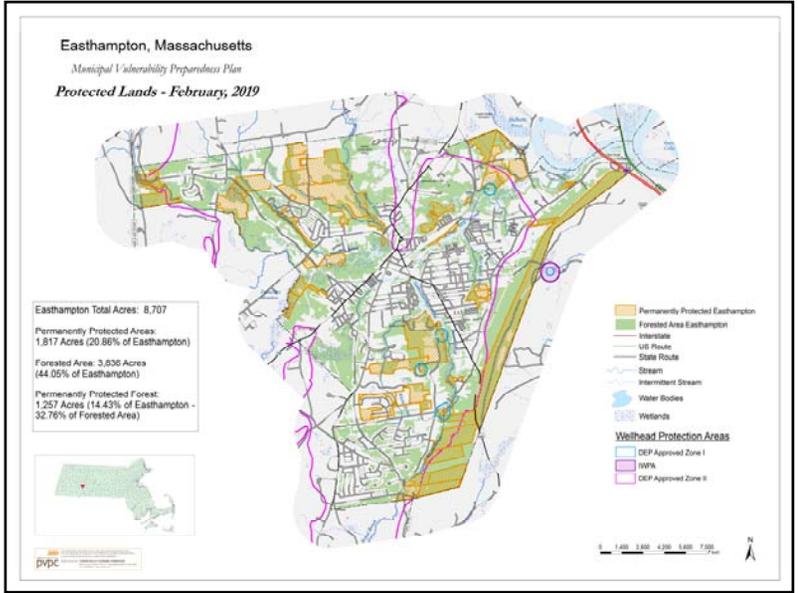
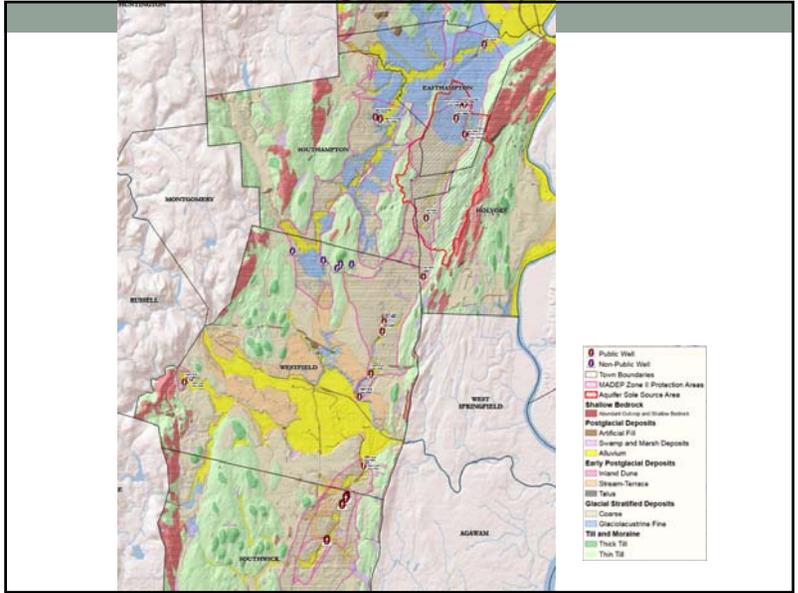
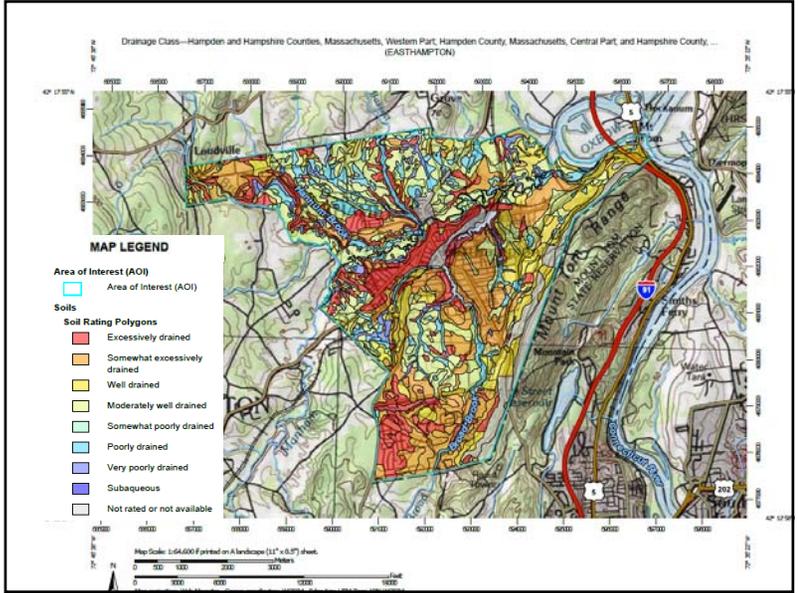
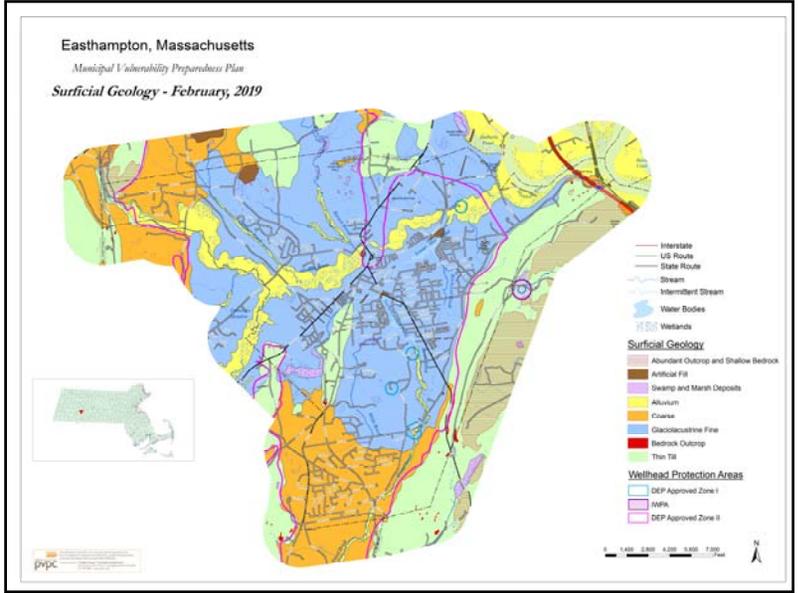
Regulatory

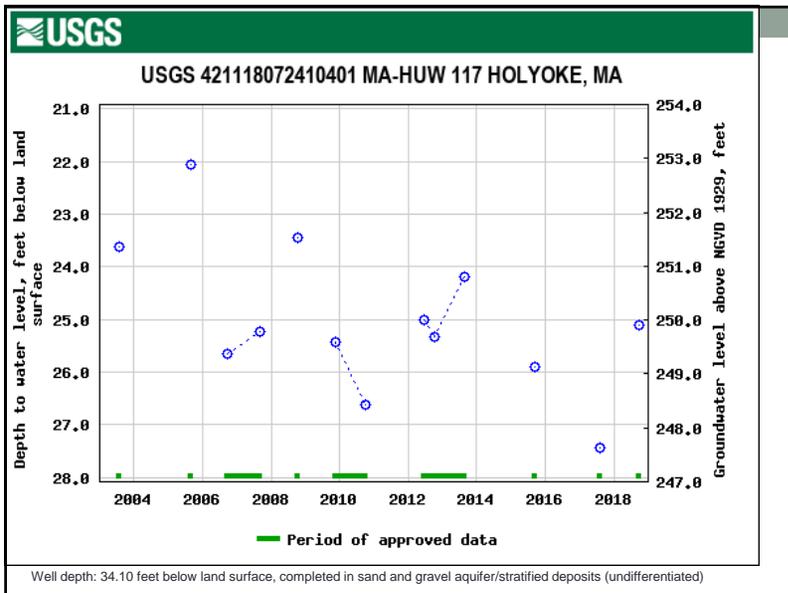
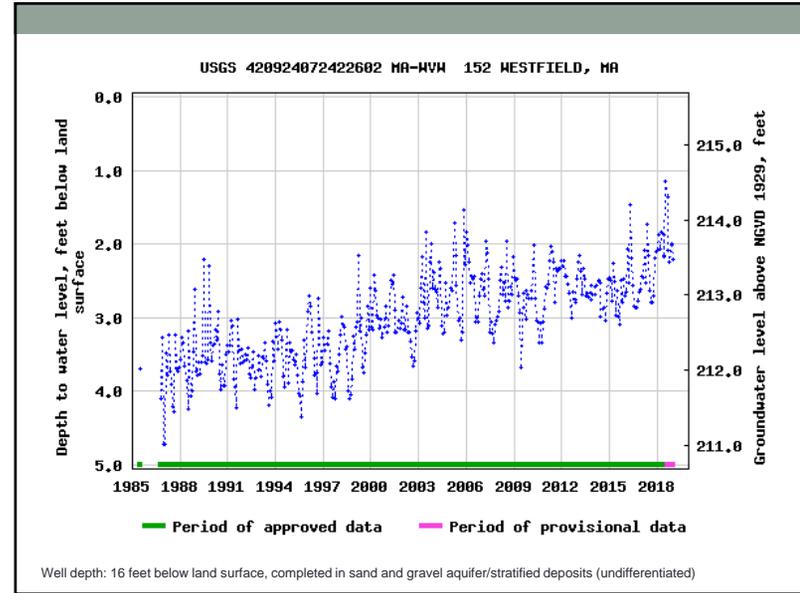
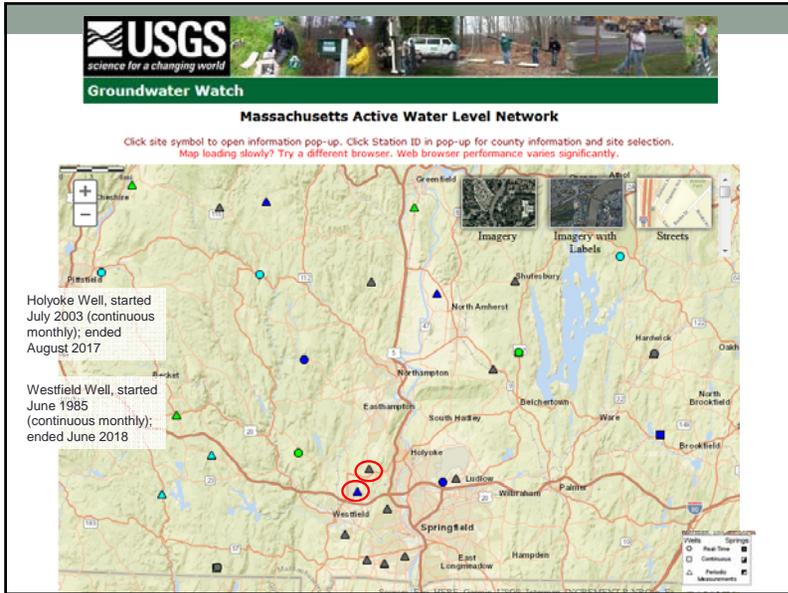
- Zoning (Aquifer Protection District, Floodplain Protection District, Smart Growth Zoning Overlay District)
- Stormwater ordinance (will be updated)

Vibrant and connected community

- Activist citizens
- Thoughtful and responsive municipal staff and leadership







What do we know about drinking water?

- Fortunate geology that enables Easthampton to pull 100% of its drinking water supply from groundwater
- High susceptibility of drinking water supply system to contamination based on land uses (MassDEP SWAP reports, 2002)
- Nearest USGS groundwater wells data indicates that groundwater may be rising

Stormwater



Source: P. Gambarini

- Ties to drinking water – soak up the rain
- Stormwater system aged, outfalls collapsing in some places

Permit elements that may help w/ resilience

- New development standards (LID / nature based solutions)
- Mapping of municipal storm system and inspections of outfalls and interconnections
- More frequent cleaning of catch basins



Massachusetts Green High Performance Computing Center, Holyoke

Federal stormwater permit

- Many new requirements
- Far greater costs for compliance



Global Climate Trends

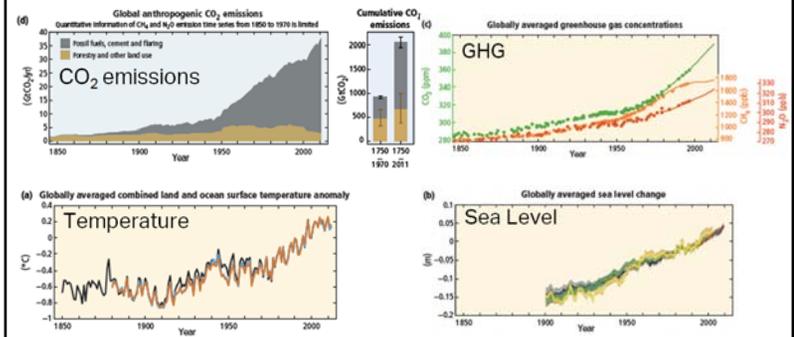
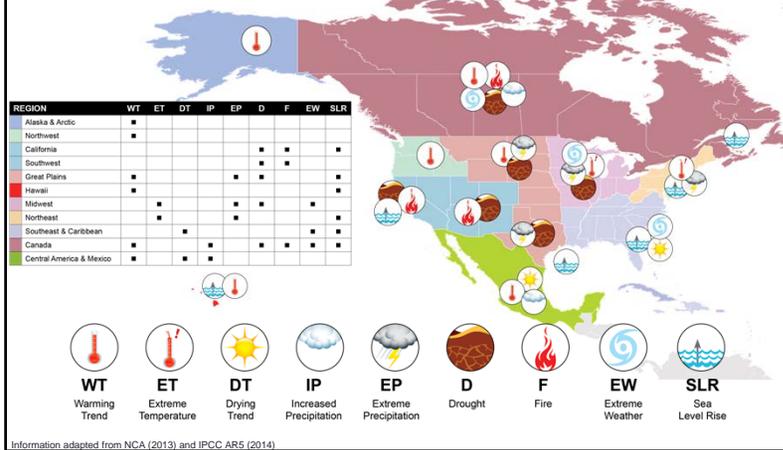


Image: IPCC 2014

- 14 of 15 hottest recorded years since 2000
- July, August 2016, then July 2017 – hottest months on record

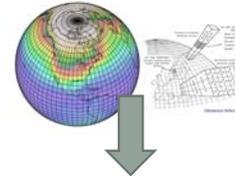
High Level Overview of Climate Change Trends in North America



MA Climate Projections

- Statewide projections comprised of county- and basin-level information

Global Climate Models (GCMs)



Latest, state of the art climate model simulations (CMIP5) used in the IPCC report (2013)

Model Selection
Rigorous assessment of model performance and projections

Karmalkar et al., under review

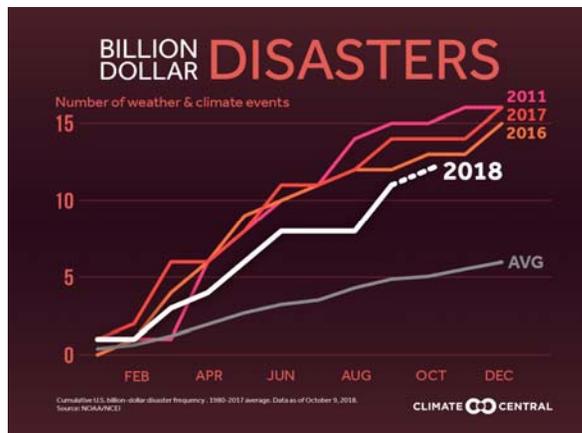
Daily data for MA at 6-km resolution

DOWNSCALED MODEL DATA

Statistical Downscaling

Pierce et al., 2014

U.S. \$ Billion Disasters

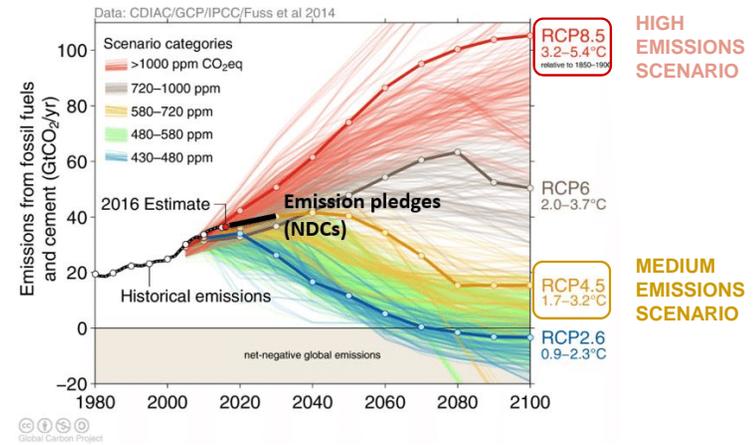


U.S. Stats

2017 - 16 billion \$ disasters, tying 2011

2018 - 11 billion \$ disasters as of early November, excluding CA wildfires and Hurricane Michael

Emission Scenarios



CT River Basin Climate Projections

By 2100

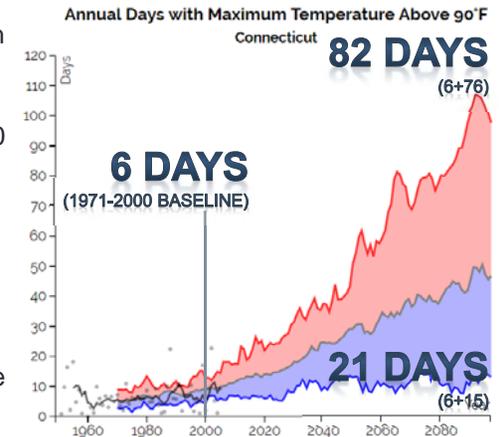
- Increase (↑) in:
 - Average temperatures
 - Min and max temperatures
 - # of days with temps over 90, 95, and 100
 - Cooling degree days (65 and above)
 - Winter precipitation
 - Frequency of heavy precipitation (winter)
- Decrease (↓) in:
 - # of days below 32 and 0
 - # of heating degree days (65 and below)
 - Fall precipitation (potential)

Extreme Temperatures

- Major jump w/ high emissions scenarios
- By 2100, up to +60 days above 90 in summer, +12 days above 90 in fall.

Impacts

- Heat impacts vulnerable pops.
- ↑ in cooling degree days

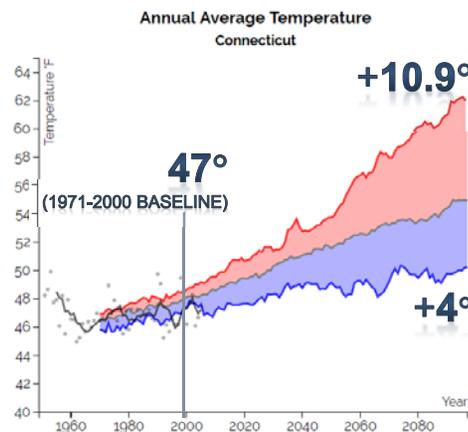


Average Temperatures

- ↑ in annual and seasonal average, max., and min. temps
- Summer highs may ↑ 9% by 2050, 17% 2100
- Fall highs may ↑ 12% by 2050, 20% 2100

Impacts

- Rain v. snow
- Ecosystem viability
- Consecutive dry days
- Drought and fire

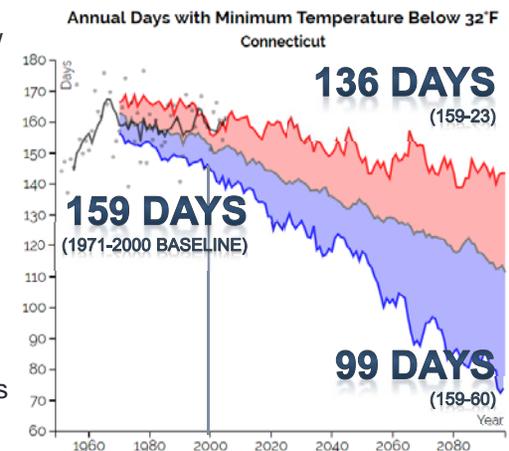


Cold Temperatures

- Fewer days below 32° and 0°
- ↓ in 32° days by 2050 projected in fall and spring
- ↑ length of frost-free season

Impacts

- Pests and insects
- Vegetative growing season
- Maintenance costs

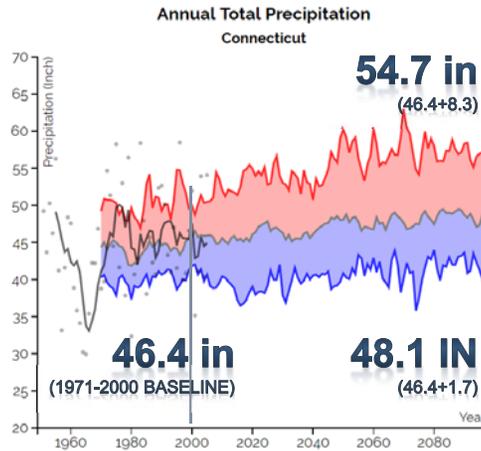


Precipitation

- Annual total precipitation ↑ 1.3 – 6.2” by 2050
- Greatest ↑ in spring and winter

Impacts

- Winter rain
- Reduced snow cover and ice melt



Precipitation >1”

Extreme Precipitation > 1” (Projected)

Connecticut Basin

Projected change in # Days with precipitation > 1”

- Annual ↑ 1.48 days by 2050
- Greatest ↑ in spring and winter

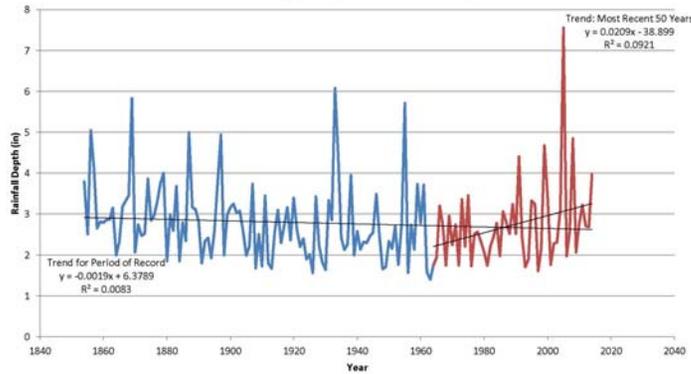
Impacts

- Water quality
- Flood risk
- Erosion
- Stormwater infrastructure

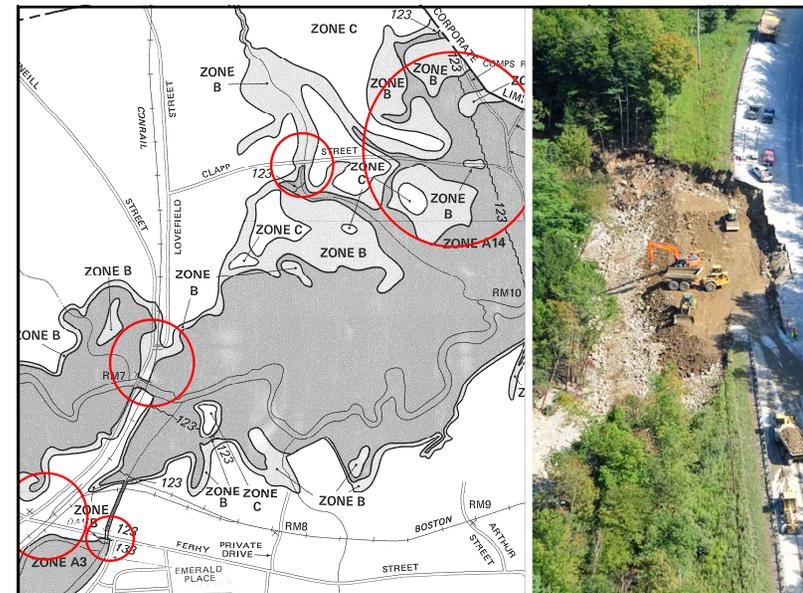
Season	Baseline (days)	Projected change in # Days with precipitation > 1”			
		2030s	2050s	2070s	2090s
Annual	6.5	+0.85	+1.48	+1.94	+1.87
Fall	1.89	+0.27	+0.36	+0.32	+0.29
Spring	1.56	+0.28	+0.4	+0.66	+0.71
Summer	1.98	+0.25	+0.29	+0.33	+0.3
Winter	1.04	+0.26	+0.45	+0.69	+0.84

Historical Trend: Maximum Precipitation

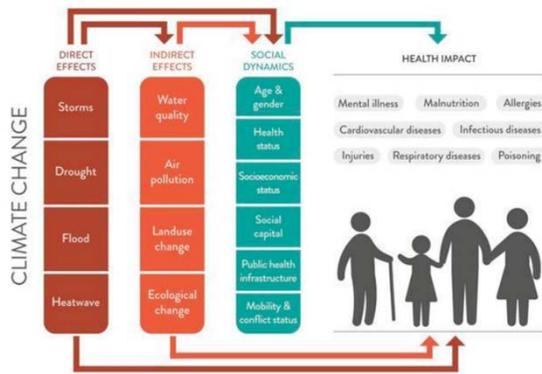
Annual Maximum 24 Hour Precipitation
Amherst, MA (Station 19-0120)



Source: Linnean Solutions



Who and what is especially vulnerable?



Challenges

- More extreme storm events/precipitation
- More and longer heat waves
- More summer drought

Taking Action



Climate Action and Clean Energy Plan (2014)
A plan to guide actions in response to climate-change and its impacts. Offers strategies for local and regional actors to reduce GHG emissions and protect communities from climate-related damage.



Sustainability and Climate Action Management Plan (SCAMP) (2010)
A roadmap to reducing resource use and associated impacts, and a guide to institutional cultural change.



Deerfield River Watershed Climate Change Vulnerability Assessment Pilot Project (2018)
Develops protocols for assessing the present and future extreme flood vulnerability of culverts to be incorporated as part of decision making process

Who and what is especially vulnerable?

Vulnerable populations

- Under 5 and over 65 years old
 - Lathrop Community off of Florence Rd
- Low income
 - Residents in affordable housing (Cottage St or Parson's St), Housing Authority units, or SMOC owned/ managed
- Disabled and chronic illness
 - Riverside Industries (Cottage St.), Hampshire Manr Nrsng Home (Rt.10)
- Limited English speakers
- Socially or physically isolated
- Agricultural community

Other vulnerable assets - transportation infrastructure/culverts, drinking water, forests, biodiversity

Activity #2: What does Climate Vulnerability Preparedness Look Like to You?

Examples:

"Able to weather disasters and long-term emergencies with joy, grace, and safety."

"Having water and heat available during all weather events."

"Variable and flexible social network. Flexible plan to address short-term problems in the context of long-term goals."

"Sharing resources with others in my community. Communication."

"Prepare for the unprecedented."



Fill out sticky note, and add to board

Past Planning

- *Integrated Water Resources Management Plan* - in process
- *City of Easthampton Community Development Strategy* - 2018
- *Hazard Mitigation Plan* – 2016
- *Open Space & Recreation Plan* – 2013
- *Master Plan* - 2008
- *Mount Tom Ecological Assessment* - 2016
- *A Neighborhood Strategy for Improving the Lower Mill Pond Watershed* - 2015

MVP and Nature-Based Solutions

- The sustainable management and use of nature for tackling challenges such as climate change, water and food security, biodiversity protection, human health, and disaster risk management.
- Provides co-benefits for people and nature

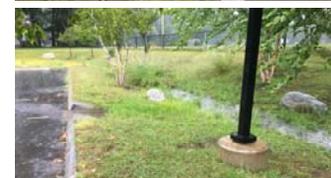


Past and Ongoing Actions

- Defined land protection priorities and pursuing opportunities (Park Hill, Barnes Aquifer, and East St.)
- Activities based on Green Community designation
- Urban Rivers Vision for Lower Mill Pond – largely realized
- Implemented most of the strategies identified in the 2008 Master Plan
- Integrated Water Management Plan – multi year process that now nearly complete

Nature-Based Solutions: Examples

- Maintaining healthy, resilient forests will help them continue their critical function of carbon sequestration.
 - Using controlled burns to reinstitute natural fire regime
 - Monitor for early detection and removal of invasive plant species
 - Maintaining species- and age-diverse forest
- Flood and fish friendly culverts protect infrastructure and aquatic habitat
- Rain gardens to reduce localized flooding and recharge aquifer



Any Questions?

Regroup at 10:45

Top Hazards

Which climate-influenced natural hazards are the top priorities for Easthampton to consider in assessing vulnerability, preparedness, and planning for resiliency?

2016 HMP Hazard	HMP Rating	MVP Hazards
Flood	Medium	Flood (may include dam failure, may result in landslide)
Landslide	Low	
Dam failure	Very Low	
Severe Thunderstorm Wind / Tornado / Microburst	Medium	Severe Storm (hurricane, severe thunderstorm wind, tornado, microburst)
Hurricane	Medium	
Severe Snow Storm / Ice Storm	Low	Severe Snow Storm / Ice Storm
Wildfire / brushfire	Very Low	Wildfire / brushfire
Drought	Very Low	Drought
		Extreme Temperatures (and temperature fluctuations)
		Invasive Species

Risk Matrix Exercise 1a: Characterize Hazards

Community Resilience Building Risk Matrix				Top Priority Hazards	
Municipal Vulnerability / Preparedness				(Extreme temperatures, drought, flooding, severe winter weather, severe storms, high winds)	
Priority for action over the Short or Long term (and Ongoing)				Priority for action over the Short or Long term (and Ongoing)	
Vulnerability: 5 = Strength				Vulnerability: 5 = Strength	
Features	Location	Ownership	V or S		
EXAMPLE 1: Emergency vehicle access on public and private roads.	Town-wide	Town/State	V		
EXAMPLE 2: Dirt roads susceptible to washout	Town-wide	Town/State	V		
EXAMPLE 3: Emergency Shelter	Town Center	Town	S/V		
EXAMPLE 4: Neighborhood cooperation	Town-wide	N/A	V		
EXAMPLE 5: Residents with limited mobility or other functional needs	Town-wide	N/A	V		
EXAMPLE 6: Drinking water resources/ground water/aquifer	Multiple/Town-wide	State - Town - Private	S/V		
EXAMPLE 7: Steep slopes prone to landslide	Multiple/Town-wide	State - Town - Private	V		

Risk Matrix Exercise 1b: ID Vulnerabilities and Strengths

Community Resilience Building Risk Matrix				Top Priority Hazards	
Municipal Vulnerability / Preparedness				(Extreme temperatures, drought, flooding, severe winter weather, severe storms, high winds)	
Priority for action over the Short or Long term (and Ongoing)				Priority for action over the Short or Long term (and Ongoing)	
Vulnerability: 5 = Strength				Vulnerability: 5 = Strength	
Features	Location	Ownership	V or S		
INFRASTRUCTURE				COMMUNITY ACTIONS	
EXAMPLE 1: Emergency vehicle access on public and private roads.	Town-wide	Town/State	V		
EXAMPLE 2: Dirt roads susceptible to washout	Town-wide	Town/State	V		
SOCIETAL					
EXAMPLE 1: Emergency Shelter	Town Center	Town	S/V		
EXAMPLE 2: Neighborhood cooperation	Town-wide	N/A	V		
EXAMPLE 3: Residents with limited mobility or other functional needs	Town-wide	N/A	V		
ENVIRONMENT					
EXAMPLE 1: Drinking water resources/ground water/aquifer	Multiple/Town-wide	State - Town - Private	S/V		
EXAMPLE 2: Steep slopes prone to landslide	Multiple/Town-wide	State - Town - Private	V		

10-15 MINUTES ON EACH CATEGORY / SECTOR

Data and maps available during workshop

- Resources for today
 - Maps
 - Base map – for mapping exercise
 - Critical Facilities and (Past) Hazard Area Map
 - Surficial geology
 - Soils
 - Forest cover
 - Downscaled climate projections (on computer)
 - 2016 HMP

Regroup at 11:40

What is a “Winning” MVP Action?

Natick	Tree Planting Plan to Mitigate Heat Islands and Reduce Runoff	\$9,025
Arlington	Mill Brook Corridor Flood Management Demonstration Project: Pilot Study and Implementation	\$399,260
Gloucester	Watershed and Water Supply Vulnerability, Risk Assessment and Management Strategy	\$107,044
Newburyport	Wastewater Treatment Plant Climate Resilience	\$122,695
Belchertown	Town-wide Road Stream Crossing Assessment and Climate Change Adaptation Plan	\$151,437
Northampton	Northampton Designs with Nature to Reduce Storm Damage	\$400,000

Risk Matrix Exercise Part 2: ID Community Actions

Community Resilience Building Risk Matrix Municipal Vulnerability Preparedness		Top Priority Hazards (Extreme temperatures, drought, flooding, severe winter weather, severe storms, high winds)				Priority	Time	
M = Medium priority for action over the Short or Long term (and Ongoing) V = Vulnerability 5 = Strength		Severe Winter Weather	Flooding	Extreme Temperatures	Drought	H-H-L	Short Long Ongoing	
Features	Location	Ownership	V or S	COMMUNITY ACTIONS				
INFRASTRUCTURE				COMMUNITY ACTIONS				
ROADS	Statewide	State	5	As roads are upgraded, use designs that lessen ice buildup and make snow removal easier.			H	S
ROADS	Statewide	State	5	Develop and implement pre-storm communication program, with special focus on residents who may become isolated due to blocked or damaged road segments.				
ROADS	Statewide	State	5	Explore feasibility of paving dirt roads that constantly wash out.			H	O
SOCIAL				COMMUNITY ACTIONS				
SEWER	Statewide	State	5	Identify and stock a primary shelter to operate as more than just a warming/cooling station. Develop a list of list of volunteers and resources that can be called upon if shelter is activated.			H	S
SEWER	Statewide	State	5	Assist associations in identifying and conducting best practices to reduce risk. Advise a neighbor helping neighbor program through community center training.			H	S
SEWER	Statewide	State	5	Create and maintain a list of home bound residents for emergency management rescue and safety activities.			H	S
ENVIRONMENT				COMMUNITY ACTIONS				
WATER	Statewide	State	5	Adopt regulations to ensure use of low impact development techniques to preserve the quality of nonpoint runoff and reduce pollutant infiltration into drinking water.		Conduct Drinking Water Vulnerability Assessment	H	S
WATER	Statewide	State	5	Adopt regulations that limit impervious development and tree removal.			H	S

What is a “Winning” MVP Action?

Projects to build resilience, are proactive and clearly demonstrate efforts to redesign, re-evaluate, or reconsider and incorporate new climate change data.

Projects are encouraged to utilize nature-based strategies to address climate change impacts.

Many of these projects might also be funded through existing grant programs

- e.g. EEA's Dams and Seawalls, CZM/s coastal resilience, DER's culvert replacements

Risk Matrix Exercise Part 2: ID Community Actions

Community Resilience Building Risk Matrix Municipal Vulnerability Preparedness				Top Priority Hazards (Extreme temperatures, drought, flooding, severe winter weather, severe storms, high winds)					
Priority for action over the Short or Long term (and Ongoing)				Severe Winter Weather	Flooding	Extreme Temperatures	Drought		
Vulnerability: 3 = Strong									
Features	Location	Ownership	V or S	COMMUNITY ACTIONS					
INFRASTRUCTURE				As roads are upgraded, use designs that allow for building and make more resilient roads. Develop and implement pre-storm communication program, with special focus on residents who may become isolated due to blocked or damaged road segments. Explore feasibility of paving dirt roads that consistently wash out.					
SOCIETAL				Identify and stock a primary shelter to operate as more than just a warming/cooling station. Develop a list of volunteers and resources that can be called upon if shelter is activated. Assist associations in identifying and conducting best practices to reduce risk. Advance a neighbor helping neighbor program through community center training. Create and maintain a list of home based residents for emergency management review and safety activities.					
ENVIRONMENT				Adopt regulations to ensure use of low impact development techniques to preserve the quality of stormwater runoff and reduce pollutant infiltration into drinking water. Adopt regulations that limit slope development and tree removal. Conduct Drinking Water Vulnerability Assessment. Explore opportunities for deepening existing wells that run dry during last drought.					

20-25 MINUTES ON EACH CATEGORY / SECTOR

Break

Regroup at 2:20

Risk Matrix Exercise Part 3: Prioritize Actions

Community Resilience Building Risk Matrix Municipal Vulnerability Preparedness				Top Priority Hazards (Extreme temperatures, drought, flooding, severe winter weather, severe storms, high winds)				Priority	Time
Priority for action over the Short or Long term (and Ongoing)				Severe Winter Weather	Flooding	Extreme Temperatures	Drought	H-H-L	Short Long Ongoing
Vulnerability: 3 = Strong									
Features	Location	Ownership	V or S	COMMUNITY ACTIONS					
INFRASTRUCTURE				As roads are upgraded, use designs that allow for building and make more resilient roads. Develop and implement pre-storm communication program, with special focus on residents who may become isolated due to blocked or damaged road segments. Explore feasibility of paving dirt roads that consistently wash out.				H	S
SOCIETAL				Identify and stock a primary shelter to operate as more than just a warming/cooling station. Develop a list of volunteers and resources that can be called upon if shelter is activated. Assist associations in identifying and conducting best practices to reduce risk. Advance a neighbor helping neighbor program through community center training. Create and maintain a list of home based residents for emergency management review and safety activities.				H	S
ENVIRONMENT				Adopt regulations to ensure use of low impact development techniques to preserve the quality of stormwater runoff and reduce pollutant infiltration into drinking water. Adopt regulations that limit slope development and tree removal. Conduct Drinking Water Vulnerability Assessment. Explore opportunities for deepening existing wells that run dry during last drought.				H	S

10 MINUTES ON EACH CATEGORY / SECTOR

After Risk Matrices are Complete...

- Report Outs
- Turn in Priority Cards
- Dot Voting



Stretching Activity

Silently think of your favorite animal
 You must all arrange yourselves in a row from Largest to Smallest
 You are NOT allowed to speak
 BUT you may make sounds and gestures of your animal

Regroup at 3:15

Thank You!

After Risk Matrices are Complete...

- Implementation Exercise
- Report Outs

Municipal Vulnerability Preparedness	
Action Implementation Design	
COMMUNITY ACTION	
10 MINUTES FOR EACH ACTION	
Lead Implementing Agency / Department (Emergency Manager, Select Board, DPW, Fire Chief, Finance Committee, Planning Board, etc.)	
Partners (Neighboring municipalities, State actors, local non-profits and land trusts, community groups, etc.)	
Cost (Dollar estimate, or Low: < \$50,000, Medium: \$50,000 - \$100,000, High: > \$100,000)	
Funding Sources (Capital Improvement Plan, Staff Time, Chapter 90, Hazard Mitigation Grant Program [HMGP], other grants, etc.)	
Implementation Milestones	
Examples: 1. Create and convene a committee to oversee progress. 2. Disseminate 300 information packets to raise awareness about the initiative. 3. Apply for a grant to fund more robust public outreach, education, and awareness campaign.	
<small>Note: Cost estimates take into account the following resources:</small>	

APPENDIX E: PUBLIC LISTENING SESSION

HANDOUTS



**CITY OF EASTHAMPTON
PLANNING DEPARTMENT**
50 Payson Avenue, Easthampton, MA 01027
www.easthamptonma.gov

Introduction:

The City of Easthampton is collaborating with the Pioneer Valley Planning Commission (PVPC), residents, and stakeholders on strategies to reduce vulnerability and adapt to our changing climate through the State's Municipal Vulnerability Preparedness (MVP program).

The core directive of the MVP program is to engage community stakeholders to facilitate the education, planning, and ultimate implementation of priority climate change adaptation actions. Completion of the MVP process will enable the City to achieve MVP Certified Community status from the State's Executive Office of Energy and Environmental Affairs by June of 2019 and receive preference for future state grants.

As part of the project, an MVP survey was created for Easthampton residents and property owners to identify why climate change matters, what actions you are taking to reduce personal risk, and what you think the City should do to increase preparedness and reduce vulnerability to climate change impacts.

Please visit easthamptonma.gov/mvp to take the survey and view other information regarding the MVP program including the Summary of Findings report.

Recommended Actions:

In February 2019 a **Municipal Vulnerability Preparedness (MVP)** workshop was held in which department heads and key stakeholders discussed climate vulnerabilities and identified more than 55 actions that the City of Easthampton, in collaboration with neighboring municipalities, regional partners and state agencies, should take to improve resilience to climate change impacts.

Toward the end of the workshop, participants selected their highest priority actions from the 55 that were developed during the workshop. The selected actions were then grouped together into the eight highest priority actions which will be talked about in more detail in the presentation tonight.

The following table lists all 55 actions developed during the February Workshop and are presented here in no specific order. The actions shown in bold were selected by the workshop participants as being the highest priority.

Category		High Priority Actions ²
PUBLIC HEALTH AND SAFETY; COMMUNICATIONS	1	Explore funding options to expand free meal/food distribution programs at public schools
	2	Explore opportunities and ID parcels for community gardens close to downtown
	3	Promote awareness of and encourage enrollment in Code Red system
	4	Develop translation option for Code Red and City website (& ID funding sources); explore opportunities for inter-departmental/inter-agency purchasing of translation services
	5	Develop a plan to keep City website up-to-date with important information
	6	ID grant funding to retrofit public school buildings' windows to open, and/or purchase portable AC units
	7	CoA should explore ways to identify seniors who may be living on their own and who may need help or should be checked in on in event of emergency
	8	Ensure communication and coordination with residential communities (Sunrise, Treehouse, Lathrop, and isolated others) in event of emergency or need for sheltering, heating or cooling operations
EMERGENCY MANAGEMENT	9	Develop an opt-in list for residential emergency check-ins by City emergency response staff
	10	Develop and promote a "Good Neighbors Program" for emergency response and check-in systems
	11	Consider viability of Senior Center and Library as local heating/cooling centers
	12	Identify a solution for a local heating/cooling center, as town currently relies on regional shelter in Northampton to serve this need
	13	Evaluate demand vs. inventory for emergency fuel and power reserves - Develop methods for capturing available energy sources
	14	Inventory and affirm shared emergency response plans for Tier 2 facilities (Chemetal, Berry Plastic, Stick 2)
ENERGY DISTRIBUTION SYSTEM/ENERGY EFFICIENCY	15	Develop an outreach and education campaign regarding energy efficiency programs available via MassSave
	16	City government should explore other creative funding options for residential retrofits
	17	Explore opportunities for distributed generation and increased storage

² Within each category, actions are listed in no specific order; actions in **BOLD** were identified by MVP workshop participants as top priorities

Category		High Priority Actions ²
TRANSPORTATION	18	Integrate Green Street strategies with existing Complete Streets Policy and strategies
	19	Upgrade technological improvements in pothole repair and explore apps for crowdsourcing road condition data
	20	Develop and maintain an infrastructure vulnerability assessment and develop a prioritized repair/replacement plan
	21	ID and prioritize vulnerable sections of the stormwater drainage system for repair and/or replacement
	22	Ensure adequate funding and maintenance of existing sidewalk network, and expand where necessary
WATER MANAGEMENT	23	ID opportunities for and implement retrofits for Green Infrastructure in storm system and increase infiltration of runoff
	24	Acquire funding for a fulltime conservation agent
	25	Pursue options to remove sediment in the existing sedimentation basins located on Broad Brook and White Brook just above where they enter Nashawannuck Pond
	26	Evaluate the condition of pipes at Waste Water Treatment Plant and explore funding sources for enhancements
	27	Develop a City-specific Wetlands Protection Ordinance (above and beyond state regulations)
	28	Develop Emergency Action Plans for City-owned dams
	29	Perform a cost analysis of repair for existing dams; apply for state dam trust fund monies for design and repair
	30	Replace wellhead pumps at the Hendrick Street wellfield
	31	Develop a contingency plan for treatment at Nonotuck and Brook St wells
	32	Continue to acquire properties to protect the Barnes Aquifer
OPEN SPACE AND LAND MANAGEMENT	33	Conduct an education and outreach campaign regarding agricultural and lawn product applications
	34	Encourage habitat connectivity between isolated populations of Natural Heritage and Endangered Species Program identified species
	35	Develop solar siting guidelines that respect and encourage habitat integrity for resident species
	36	ID funding opportunities for priority property acquisitions to protect aquifer recharge areas
	37	Opt in to the state Scenic Mountain Act
	38	Adopt a Steep Slopes Ordinance
	39	Update City Open Space and Recreation Plan
	40	Review which agricultural lands are not currently in APR and conduct outreach to landowners

Category		Medium Priority Actions³
PUBLIC HEALTH AND SAFETY; COMMUNICATIONS	41	Increase diversity (racial, cultural/linguistic, gender, sexual orientation, age, etc.) of City staff
EMERGENCY MANAGEMENT	42	Continue city-wide school building reuse study, and evaluate if any could serve as shelters
ENERGY DISTRIBUTION SYSTEM/ENERGY EFFICIENCY	43	Explore centralization of municipal waste management.
TRANSPORTATION	44	Explore year-round use and maintenance of the Manhan Rail Trail, study possible expansion of network
	45	Study comprehensive traffic management for road closures and better notification system
WATER MANAGEMENT	46	Undertake a study to determine vulnerability of WWTP in flood events and potential impacts of failure on the Manhan River
	47	Update flood maps for the rivers traversing the city, collaborate on FEMA's strategies for update
	48	Promote use of rain barrels and cisterns for runoff capture and reuse
	49	Re-invigorate Barnes Aquifer Protection Advisory Committee
OPEN SPACE AND LAND MANAGEMENT	50	Develop forest management plan that accounts for species stress in climate change and encourages multi-age stands
	51	Develop a street tree inventory
	52	Explore feasibility of a free street tree program (wherein the City plants trees in front of willing resident's house and resident provides volunteer tree care)
	53	Develop and conduct a coordinated educational outreach regarding swallowwort management
	54	Explore potential insect/pest mitigation methods

Category		Low Priority Actions⁴
TRANSPORTATION	55	Ensure signage of evacuation routes; explore electric signage (folding) signs for evacuation routes to easily communicate roadway hazards or closing, as Rt. 141 already has at bottom of hill
OPEN SPACE AND LAND MANAGEMENT	56	Consider options to reclaim/buy out properties on River Road and Old Springfield Road, which face frequent flooding
	57	Assess solar field regulations to address stormwater management and habitat value
EMERGENCY MANAGEMENT	58	Work with Verizon to understand their plan for their communications station in event of emergency

³ Within each category, actions are listed in no specific order; actions in **BOLD** were identified by MVP workshop participants as top priorities

⁴ Same comment as above.

DISCUSSION NOTES

Participants were asked to answer the question: “What changes have you seen in the natural environment over the course of your lifetime?”

Responses included:

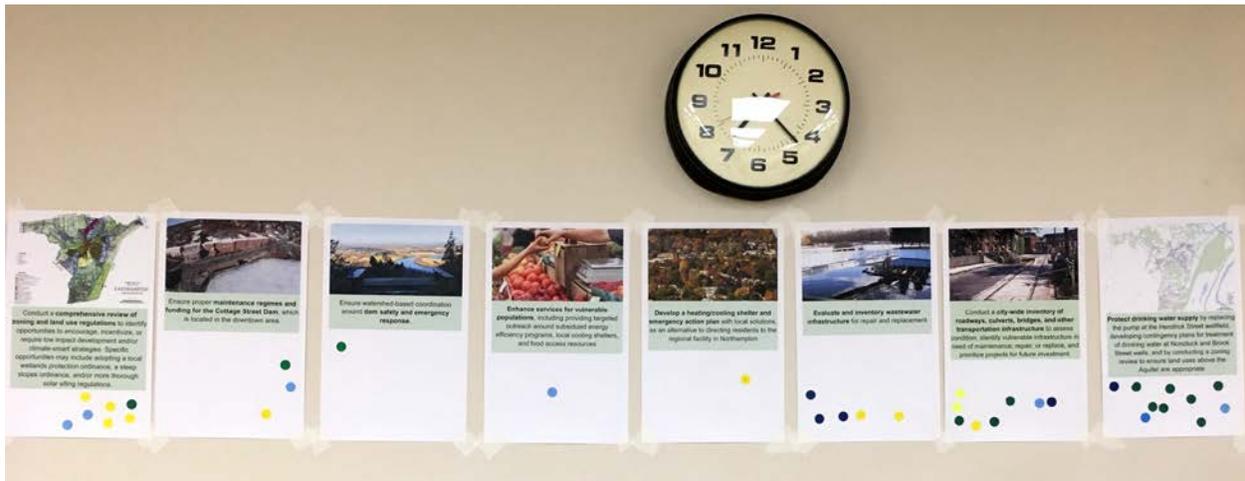
- Increase in inflow/infiltration at the WWTP
- My sump pump runs more often in spring and fall
- Rain comes in spurts of intense, heavy precipitation rather than evenly through the season
- More rain, streets flooding; trees weakening because of the rain
- Flooding on streets that never flooded before
- Drought/floods; intense storms
- Increased flooding risk for homes on the Manhan River
- New businesses; new political themes
- More community and initiative – participation
- More building – more roads, more runoff, more threats of flooding
- Surrounded by trash
- More pollen = worse allergies
- Milder winters in NE; possible change in bird migration patterns; greater extremes in weather, with more severe events, often of greater duration
- More extreme temperature ranges between summer and winter
- Less predictable snow fall in winter; winter starts later and goes further into spring
- Extreme weather changes/swings within single seasons
- Shorter winters; longer mud season; more variability day to day with regard to temperature highs and lows
- Later, more erratic winter season

Members of the MVP core team and participants from the CRB workshop gave a brief presentation about the MVP process and then described the top 8 priorities selected during the workshop in more detail. A group discussion following the presentation included these remarks:

- Green infrastructure should be up-front and presented at the beginning of MVP discussions. The listening session presentations should include a description of GI and nature-based solutions up front, and also clearly describe what the MVP Planning Grant funds and what it does not. It is important to stress that the SOF report is not a Climate Change Plan—the fact that this project does not include a major greenhouse gas emissions mitigation component should not indicate that the community doesn’t think it’s important, but is rather a that this MVP Planning Grant is not intended to fund that type of planning.
- We must take a macro world view, recognizing that the impacts we have on the environment then come back to impact us. MVP implementation actions should integrate activities that take a stronger role in changing behavior/incentivizing better practice so that we move to a better future emissions scenario.

-
- Protecting drinking water supply in Easthampton is an imperative.
 - The community wants to be involved in the actual CRB, and not have officials/staff making big decisions for them or “put on them.”
 - It is important to make a connection between the MVP Summary of Findings (and the action plan contained therein) and the people of Easthampton, and to educate residents at the same time. The core MVP team must find effective ways to bring the whole Easthampton community onto the MVP team. A broader outreach effort relative to the MVP process could include using the cable access channel and social media. This type of wide-spread public engagement should be written into any MVP Action Grant proposal that the City pursues.
 - The infrastructure that we build influences people’s behavior. We don’t want to promote reliance on hard infrastructure, or traditional transportation solutions, but we also can’t force people to change their ways.
 - There is a concern about our preparedness for the social and economic stressors of climate migrants.

DOT VOTING RESULTS



Action	Votes			Total
	First Choice (Green)	Second Choice (Yellow)	Third Choice (Blue)	
Conduct a city-wide inventory of roadways, culverts, bridges, and other transportation infrastructure to assess condition; identify vulnerable infrastructure in need of maintenance; repair, or replace, and prioritize projects for future investment.	3	3	2	8
Conduct a comprehensive review of zoning and land use regulations to identify opportunities to encourage, incentivize, or require low impact development and/or climate-smart strategies. Specific opportunities may include adopting a local wetlands protection ordinance, a steep slopes ordinance, and/or more thorough solar siting regulations.	1	4	2	7
Protect drinking water supply by replacing the pump at the Hendrick Street wellfield, developing contingency plans for treatment of drinking water at Nonotuck and Brook Street wells, and by conducting a zoning review to ensure land uses above the Aquifer are appropriate.	7		3	10
Evaluate and inventory wastewater infrastructure for repair and replacement.		2	3	5

Action	Votes			Total
	First Choice (Green)	Second Choice (Yellow)	Third Choice (Blue)	
Enhance services for vulnerable populations, including providing targeted outreach around subsidized energy efficiency programs, local cooling shelters, and food access resources			1	1
Develop a heating/cooling shelter and emergency action plan with local solutions, as an alternative to directing residents to the regional facility in Northampton		1		1
Ensure watershed-based coordination around dam safety and emergency response	1			1
Ensure proper maintenance regimes and funding for the Cottage Street Dam, which is located in the downtown area	1	1	1	3
Focus on education: Include educational components to all MVP action grants; Education and funding for behavioral changes for residents and businesses to reduce/reverse the effects of climate change; Provide permaculture design education to government and public sectors, focusing on the primary tenets of Earth Care, People Care, and Return of Surplus.		1		1
Promote “lawn full expression,” allowing lawns to grow, cutting a path instead of mowing an entire lawn. Plant perennial edibles and forest gardens instead of lawns.				0
Waste management reform: collect plastic waste and encourage myco-remediation (bioremediation of contaminated soil and water)	1		2	3

SIGN-IN SHEET

Easthampton MVP Public Listening Session
Sign-In Sheet
Tuesday, April 30, 2019

Name	Position	E-mail
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